

Source: T1
Title: CR's to TS 34.121 v.5.3.1 for approval
Agenda item: 5.1.3
Document for: Approval

This document contains the CRs to TS 34.121 v.5.3.1. These CRs have been agreed by T1 and are put forward to TSG T for approval.

Tdoc #	Title	CR#	Release	cat	Version in	Version out
T1-040524	Introduction of Test Tolerances to Event triggered reporting in AWGN propagation conditions, test 8.6.1.1	355	Rel-5	F	5.3.1	5.4.0
T1-040533	Corrections to CPICH RSCP test cases	356	Rel-5	F	5.3.1	5.4.0
T1-040534	Corrections to CPICH Ec/Io test cases	357	Rel-5	F	5.3.1	5.4.0
T1-040541	Correction to MEASUREMENT CONTROL and MEASUREMENT REPORT messages	359	Rel-5	F	5.3.1	5.4.0
T1-040542	Addition of unit for OCNS_Ec/Ior in RRM tests	360	Rel-5	F	5.3.1	5.4.0
T1-040591	Correction to default messages in Annex I of 34.121	361	REL-5	F	5.3.1	5.4.0
T1-040695	Update of F1.5	362	Rel-5	F	5.3.1	5.4.0
T1-040700	Correction of Spurious Emissions for UMTS800(band VI)	363	Rel-5	F	5.3.1	5.4.0
T1-040720	Removal of [] for UE transmit power test case 8.7.3C	364	REL-5	F	5.3.1	5.4.0
T1-040728	Correction to 8.7.6 UE Rx-Tx time difference	365	Rel-99	F	5.3.0	5.4.0
T1-040805	Inter system handover	366	Rel-5	F	5.3.1	5.4.0
T1-040815	Correction to BTFD test case 7.10	367	Rel-5	F	5.3.1	5.4.0
T1-040816	Addition of details for RRM test case for GSM carrier RSSI	368	REL-5	F	5.3.1	5.4.0
T1-040817	Correction of FDD intra	369	Rel-5	F	5.3.1	5.4.0

	frequency measurements , wrong IEs					
T1-040818	Correction of FDD inter frequency measurements, wrong IEs	370	Rel-5	F	5.3.1	5.4.0
T1-040824	Correction to Transmit Off Power	371	R99	F	5.3.1	5.4.0
T1-040825	Corrections to UTRA Carrier RSSI test cases	372	Rel-5	F	5.3.1	5.4.0
T1-040826	Corrections to FDD/FDD Soft Handover test cases	373	Rel-5	F	5.3.1	5.4.0
T1-040827	Correction to the pathloss indicator in measurement control messages	374	Rel-5	F	5.3.1	5.4.0
T1-040831	Corrections to SFN-CFN observed time difference test cases	375	Rel-5	F	5.3.1	5.4.0
T1-040832	Corrections to SFN-SFN type 1 measurement test cases	376	Rel-5	F	5.3.1	5.4.0
T1-040834	Correction to URA identity for reselection in Cell URA_PCH	377	Rel-5	F	5.3.1	5.4.0
T1-040838	Proposed addition of downlink code allocation table to 34.121 Annex	378	Rel-5	F	5.3.1	5.4.0
T1-040839	Correction of channel number for UMTS800(band VI)	379	Rel-5	F	5.3.1	5.4.0
T1-040840	Correction to the pathloss indicator in measurement control messages	380	R5	F	5.3.1	5.4.0
T1-040842	HSDPA test 9.3.1	381	Rel-5	F	5.3.1	5.4.0
T1-040843	HSDPA test 9.3.2	382	R5	F	5.3.1	5.4.0
T1-040844	New test case for 9.2.2 Open Loop Diversity Performance	383	Rel-5	F	5.3.1	5.4.0
T1-040847	New test case for 9.2.3 Closed Loop Diversity Performance	384	Rel-5	F	5.3.1	5.4.0
T1-040854	Statistical approach for HSDPA tests	385	R5	F	5.3.1	5.4.0
T1-040856	Correction to GSM neighbour reporting in 8.6.4.1	386	R5	F	5.3.1	5.4.0
T1-040857	Correction to measurement report in 8.3.2	387	R5	F	5.3.1	5.4.0
T1-040859	Corrections to UE Rx-Tx time difference type 1 test cases	388	Rel-5	F	5.3.1	5.4.0
T1-040863	Addition of MEASUREMENT CONTROL message and ACTIVESET UPDATE message	389	Rel-5	F	5.3.1	5.4.0

	in 8.5.1					
T1-040864	Correction to 8.4.1.1 RRC connection control test 1	358	Rel-5	F	5.3.1	5.4.0
T1-040865	HSDPA test: 9.2.1	390	R5	F	5.3.1	5.4.0
T1-040866	Addition of CELL_UPDATE CONFIRM Message and URA_UPDATE CONFIRM Message.	395	Rel-5	F	5.3.1	5.4.0
T1-040871	HSDPA test: 9.2.1	391	R5	F	5.3.1	5.4.0
T1-040872	New test case for 9.4 HS-SCCH Detection Performance	392	Rel-5	F	5.3.1	5.4.0
T1-040873	New TPC combining in SHO	393	R99	F	5.3.1	5.4.0
T1-040874	New test case for 9.2.3 Closed Loop Diversity Performance	394	Rel-5	F	5.3.1	5.4.0

CHANGE REQUEST

34.121 CR 356 # rev - # Current version: **5.3.1**

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 CPICH RSCP test cases		
Source:	# Nokia		
Work item code:	# TEI	Date:	# 27/04/2004
Category:	# F	Release:	# Rel-5
	<p>Use <u>one</u> of the following categories:</p> <p>F (correction)</p> <p>A (corresponds to a correction in an earlier release)</p> <p>B (addition of feature),</p> <p>C (functional modification of feature)</p> <p>D (editorial modification)</p> <p>Detailed explanations of the above categories can be found in 3GPP TR 21.900.</p>		<p>Use <u>one</u> of the following releases:</p> <p>2 (GSM Phase 2)</p> <p>R96 (Release 1996)</p> <p>R97 (Release 1997)</p> <p>R98 (Release 1998)</p> <p>R99 (Release 1999)</p> <p>Rel-4 (Release 4)</p> <p>Rel-5 (Release 5)</p> <p>Rel-6 (Release 6)</p>

Reason for change:	<p># - TS 25.133 specifies Frequency Band (I,II,III) dependent constraints on CPICH RSCP & I_o levels for CPICH RSCP measurement. These constraints have not been taken into account in CPICH RSCP test cases defined in Section 8.7.1 of TS 34.121.</p> <p>- CPICH RSCP intra frequency absolute accuracy is not verified when CPICH RSCP level is -114 dBm (for band I), since MEASUREMENT REPORT messages are collected only from cell 1. This is against the original intention of the test case.</p> <p>- Table 8.7.1.1.2.4. includes CPICH_Ec/No levels although they should be CPICH RSCP levels.</p> <p>- Test procedure in Section 8.7.1.1.2.4.2 falsely refers to table 8.7.1.1.1.2 that do not take into account test tolerances applied to test parameters.</p> <p>- Unit for I_o is wrong in Table 8.7.1.1.1.4, Table 8.7.1.1.2.2, Table 8.7.1.1.2.3, Table 8.7.1.2.1.3 and Table 8.7.1.2.1.4</p>
Summary of change:	<p># - Frequency Band constraints have been added into " Minimum Requirements" and "Test Requirement" sections of all CPICH RSCP tests.</p> <p>- For Frequency Band II and III some test parameters have been slightly modified so that CPICH RSCP and I_o levels are within the constraints that have been specified for these frequency bands.</p> <p>- CPICH RSCP intra frequency absolute accuracy test procedure has been modified so that MEASUREMENT REPORT messages from cell 2 are also taken into account by SS. The corresponding change has been done into Table 8.7.1.1.1.5 to include accuracy requirements for the reported values from cell 2.</p> <p>- CPICH_Ec/No has been replaced with CPICH_RSCP in Table 8.7.1.1.2.4.</p>

- Reference 8.7.1.1.1.2 has been replaced with 8.7.1.1.2.3 in Section 8.7.1.1.2.4.2
 - Unit for I_{o} [dBm] has been replaced with [dBm/3.84 MHz] in Table 8.7.1.1.1.4, Table 8.7.1.1.2.2, Table 8.7.1.1.2.3, Table 8.7.1.2.1.3 and Table 8.7.1.2.1.4

Consequences if not approved: ⌘ Tests are ambiguous. CPICH E_c/I_o test cases are not compliant with core specification when operating with Frequency Band II or III.

Clauses affected: ⌘ 8.7.1

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

Other comments: ⌘ This CR is applicable for UE's supporting Rel-99 or later.

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.

8.7.1 CPICH RSCP

8.7.1.1 Intra frequency measurements accuracy

8.7.1.1.1 Absolute accuracy requirement

8.7.1.1.1.1 Definition and applicability

The absolute accuracy of CPICH RSCP is defined as the CPICH RSCP measured from one cell compared to the actual CPICH RSCP power from same cell.

The requirements and this test apply to all types of UTRA for the FDD UE.

8.7.1.1.1.2 Minimum Requirements

The accuracy requirements in table 8.7.1.1.1.1 are valid under the following conditions:

- $CPICH_RSCP1|_{dBm} \geq -114$ dBm [for Band I](#).
- $CPICH_RSCP1|_{dBm} \geq -112$ dBm [for Band II](#).
- $CPICH_RSCP1|_{dBm} \geq -111$ dBm [for Band III](#).

$$- \left(\frac{I_o}{\hat{I}_{or}} \right) \Big|_{in\ dB} - \left(\frac{CPICH - E_c}{I_{or}} \right) \Big|_{in\ dB} \leq 20dB$$

Table 8.7.1.1.1.1: CPICH_RSCP Intra frequency absolute accuracy

Parameter	Unit	Accuracy [dB]		Conditions		
		Normal condition	Extreme condition	Io [dBm/3.84 MHz]		
				Band I	Band II	Band III
CPICH_RSCP	dBm	±6	±9	-94...-70	-92...-70	-91...-70
	dBm	±8	±11	-70...-50	-70...-50	-70...-50

The normative reference for this requirement is TS 25.133 [2] clauses 9.1.1.1.1 and A.9.1.1.2.

8.7.1.1.1.3 Test purpose

The purpose of this test is to verify that the CPICH RSCP absolute measurement accuracy is within the specified limits in clause 8.7.1.1.1.2. This measurement is for handover evaluation, DL open loop power control, UL open loop control and for the calculation of pathloss.

8.7.1.1.1.4 Method of test

8.7.1.1.1.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

In this case all cells are on the same frequency. CPICH RSCP intra frequency absolute accuracy requirements are tested by using test parameters in table 8.7.1.1.1.2.

Table 8.7.1.1.1.2: CPICH RSCP Intra frequency parameters

Parameter	Unit	Test 1		Test 2		Test 3		
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2	
UTRA RF Channel number		Channel 1		Channel 1		Channel 1		
CPICH_Ec/Ior	dB	-10		-10		-10		
PCCPCH_Ec/Ior	dB	-12		-12		-12		
SCH_Ec/Ior	dB	-12		-12		-12		
PICH_Ec/Ior	dB	-15		-15		-15		
DPCH_Ec/Ior	dB	-15	-	-15	-	-15	-	
OCNS_Ec/Ior	dB	-1.11	-0.94	-1.11	-0.94	-1.11	-0.94	
Ior	Band I	dBm/ 3.84 MHz		-75.54		-59.98		-97.47
	Band II							-95.47
	Band III							-94.47
Ior/Ior	dB	4	0	9	0	0	-6.53	
CPICH RSCP, Note 1	Band I	dBm		-81.5		-85.5		-60.98
	Band II							-69.88
	Band III							-107.47
Io, Note 1	Band I	dBm/3.84 MHz		-69		-50		-94
	Band II							-92
	Band III							-91
Propagation condition	-	AWGN		AWGN		AWGN		
NOTE 1: CPICH RSCP and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.								
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.								

8.7.1.1.1.4.2 Procedure

- 1) A call is set up according to the test procedure specified in TS 34.108 [3] clause 7.3.2.3. The RF parameters for Test 1 are set up according to table 8.7.1.1.1.4.
- 2) SS shall transmit MEASUREMENT CONTROL message.
- 3) UE shall transmit periodically MEASUREMENT REPORT messages.
- 4) SS shall check CPICH_RSCP value in MEASUREMENT REPORT messages. CPICH RSCP power of Cell 1_ and Cell 2 reported by UE is compared to actual CPICH RSCP power for each MEASUREMENT REPORT message.
- 5) SS shall count number of MEASUREMENT REPORT messages transmitted by UE. After 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.1.1.1.4 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 4) above is repeated. After further 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.1.1.1.4 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 4) above is repeated.
- 6) After further 1000 MEASUREMENT REPORT messages have been received from UE, the SS shall transmit RRC CONNECTION RELEASE message.
- 7) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message for Intra frequency measurement (Step 1):

Information Element	Value/Remark
Message Type	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
Measurement Information elements	
-Measurement Identity	5
-Measurement Command	SETUP
-Measurement Reporting Mode	
- Measurement Report Transfer Mode	Acknowledged mode RLC
- Periodical Reporting / Event Trigger Reporting Mode	Periodical reporting
-Additional measurement list	Not Present
-CHOICE Measurement Type	Intra-frequency measurement
-Intra-frequency measurement	
- Intra-frequency measurement objects list	Not Present
-Intra-frequency measurement quantity	
-Filter coefficient	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	TRUE
-Cell Identity reporting indicator	TRUE
-CHOICE mode	FDD
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	TRUE
-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	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	TRUE
-Reporting quantities for detected set cells	Not Present
-Reporting cell status	
-CHOICE reported cell	Report all active set cells + cells within monitored set on used frequency
-Maximum number of reported cells	Virtual/active set cells + 2
-Measurement validity	Not Present
-CHOICE <i>report criteria</i>	Periodical reporting criteria
-Amount of reporting	Infinity
-Reporting interval	250 ms
Physical channel information elements	
-DPCH compressed mode status info	Not Present

MEASUREMENT REPORT message for Intra frequency test cases

This message is common for all intra frequency test cases in clause 8.7 and is described in Annex I.

8.7.1.1.1.5 Test requirements

Table 8.7.1.1.1.3: CPICH_RSCP Intra frequency absolute accuracy, test requirement

Parameter	Unit	Accuracy [dB]		Conditions		
		Normal condition	Extreme condition	Io [dBm/3.84 MHz]		
				Band I	Band II	Band III
CPICH_RSCP	dBm	±7.4	±10.4	-94...-70	-92...-70	-91...-70
	dBm	±9.4	±12.4	-70...-50	-70...-50	-70...-50

Table 8.7.1.1.1.4: CPICH RSCP Intra frequency test parameters

Parameter	Unit	Test 1		Test 2		Test 3		
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2	
UTRA RF Channel number		Channel 1		Channel 1		Channel 1		
CPICH_Ec/Ior	dB	-10		-10		-10		
PCCPCH_Ec/Ior	dB	-12		-12		-12		
SCH_Ec/Ior	dB	-12		-12		-12		
PICH_Ec/Ior	dB	-15		-15		-15		
DPCH_Ec/Ior	dB	-15	-	-15	-	-15	-	
OCNS_Ec/Ior	dB	-1.11	-0.94	-1.11	-0.94	-1.11	-0.94	
Ior	Band I	dBm/ 3.84 MHz		-74.54		-61,6		-96.47
	Band II							-94.47
	Band III							-93.47
Ior/Ioc	dB	4.3	0.3	9.3	0.3	0.3	-6.23	
CPICH RSCP, Note 1	Band I	dBm		-80.2		-84.2		-62.3
	Band II							-71.3
	Band III							-106.17
Io, Note 1	Band I	dBm / 3.84 MHz		-67.8		-51,4		-92,8
	Band II							-90.8
	Band III							-103.17
Propagation condition	-	AWGN		AWGN		AWGN		
NOTE 1: CPICH RSCP and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.								
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.								

The reported values for the absolut intra frequency CPICH RSCP measurement shall meet the requirements in table 8.7.1.1.1.5.

Table 8.7.1.1.1.5: CPICH_RSCP Intra frequency absolute accuracy requirements for the reported values

	Test 1	Test 2	Test 3 (Band I)	Test 3 (Band II)	Test 3 (Band III)
Normal Conditions					
Lowest reported value (Cell 1)	CPICH_RSCP_26	CPICH_RSCP_44	CPICH_RSCP_2	CPICH_RSCP_4	CPICH_RSCP_5
Highest reported value (Cell 1)	CPICH_RSCP_45	CPICH_RSCP_63	CPICH_RSCP_17	CPICH_RSCP_19	CPICH_RSCP_20
Lowest reported value (Cell 2)	CPICH_RSCP_22	CPICH_RSCP_35	CPICH_RSCP_0	CPICH_RSCP_0	CPICH_RSCP_0
Highest reported value (Cell 2)	CPICH_RSCP_41	CPICH_RSCP_54	CPICH_RSCP_10	CPICH_RSCP_12	CPICH_RSCP_13
Extreme Conditions					
Lowest reported value (Cell 1)	CPICH_RSCP_23	CPICH_RSCP_41	CPICH_RSCP_0	CPICH_RSCP_1	CPICH_RSCP_2
Highest reported value (Cell 1)	CPICH_RSCP_48	CPICH_RSCP_66	CPICH_RSCP_20	CPICH_RSCP_22	CPICH_RSCP_23
Lowest reported value (Cell 2)	CPICH_RSCP_19	CPICH_RSCP_32	CPICH_RSCP_0	CPICH_RSCP_0	CPICH_RSCP_0
Highest reported value (Cell 2)	CPICH_RSCP_44	CPICH_RSCP_57	CPICH_RSCP_13	CPICH_RSCP_15	CPICH_RSCP_16

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.7.1.1.2 Relative accuracy requirement

8.7.1.1.2.1 Definition and applicability

The relative accuracy of CPICH RSCP is defined as the CPICH RSCP measured from one cell compared to the CPICH RSCP measured from another cell on the same frequency.

The requirements and this test apply to all types of UTRA for the FDD UE.

8.7.1.1.2.2 Minimum Requirements

The accuracy requirements in table 8.7.1.1.2.1 are valid under the following conditions:

- $CPICH_RSCP_{1,2}|_{dBm} \geq -114$ dBm [for Band I](#),
- $CPICH_RSCP_{1,2}|_{dBm} \geq -112$ dBm [for Band II](#),
- $CPICH_RSCP_{1,2}|_{dBm} \geq -111$ dBm [for Band III](#).
- $\left| CPICH_RSCP1|_{in\ dBm} - CPICH_RSCP2|_{in\ dBm} \right| \leq 20dB$
- $\left(\frac{I_o}{\hat{I}_{or}} \right)_{in\ dB} - \left(\frac{CPICH - E_c}{I_{or}} \right)_{in\ dB} \leq 20dB$

Table 8.7.1.1.2.1: CPICH_RSCP Intra frequency relative accuracy

Parameter	Unit	Accuracy [dB]		Conditions		
		Normal condition	Extreme condition	Io [dBm/3.84 MHz]		
				Band I	Band II	Band III
CPICH_RSCP	dBm	±3	±3	-94...-50	-92...-50	-91...-50

The normative reference for this requirement is TS 25.133 [2] clauses 9.1.1.1.2 and A.9.1.1.2.

8.7.1.1.2.3 Test purpose

The purpose of this test is to verify that the CPICH RSCP relative measurement accuracy is within the specified limits in clause 8.7.1.1.2.2. This measurement is for handover evaluation, DL open loop power control, UL open loop control and for the calculation of pathloss.

8.7.1.1.2.4 Method of test

8.7.1.1.2.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

In this case all cells are on the same frequency. CPICH RSCP intra frequency relative accuracy requirements are tested by using test parameters in table 8.7.1.1.1.2.

8.7.1.1.2.4.2 Procedure

- 1) A call is set up according to the test procedure specified in TS 34.108 [3] clause 7.3.2.3. The RF parameters for Test 1 are set up according to table 8.7.1.1.1.2.3+2.

- 2) SS shall transmit MEASUREMENT CONTROL message.
- 3) UE shall transmit periodically MEASUREMENT REPORT messages.
- 4) SS shall check CPICH_RSCP value of Cell 1 and Cell 2 in MEASUREMENT REPORT messages. CPICH RSCP power value measured from Cell 1 is compared to CPICH RSCP power value measured from Cell 2 for each MEASUREMENT REPORT message.
- 5) The result of step 3) is compared to actual power level difference of CPICH RSCP of Cell 1 and Cell 2.
- 6) SS shall count number of MEASUREMENT REPORT messages transmitted by UE. After 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.1.1.2.3 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 4) and 5) above are repeated. After further 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.1.1.2.3 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 4) and 5) above are repeated.
- 7) After further 1000 MEASUREMENT REPORT messages have been received from UE, the SS shall transmit RRC CONNECTION RELEASE message.
- 8) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message for Intra frequency measurement in clause 8.7.1.1.4.2 is used.

MEASUREMENT REPORT message for Intra frequency test cases

This message is common for all intra frequency test cases in clause 8.7 and is described in Annex I.

8.7.1.1.2.5 Test requirements

Table 8.7.1.1.2.2: CPICH_RSCP Intra frequency relative accuracy, test requirements

Parameter	Unit	Accuracy [dB]		Conditions		
		Normal condition	Extreme condition	Io [dBm/3.84 MHz]		
				Band I	Band II	Band III
CPICH_RSCP	dBm	±3.8	±3.8	-94...-50	-92...-50	-91...-50

Table 8.7.1.1.2.3: CPICH RSCP Intra frequency test parameters

Parameter	Unit	Test 1		Test 2		Test 3				
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2			
UTRA RF Channel number		Channel 1		Channel 1		Channel 1				
CPICH_Ec/Ior	dB	-10		-10		-10				
PCCPCH_Ec/Ior	dB	-12		-12		-12				
SCH_Ec/Ior	dB	-12		-12		-12				
PICH_Ec/Ior	dB	-15		-15		-15				
DPCH_Ec/Ior	dB	-15	-	-15	-	-15	-			
OCNS_Ec/Ior	dB	-1.11	-0.94	-1.11	-0.94	-1.11	-0.94			
Ior	Band I	dBm/ 3.84 MHz		-74.54		-61,6		-96.47		
	Band II							-94.47		
	Band III							-93.47		
Ior/Ior	dB	4.3	0.3	9.3	0.3	0.3	-6.23			
CPICH RSCP, Note 1	Band I	dBm		-80.2		-84.2		-62.3		
	Band II							-71.3	-106.17	-112.7
	Band III							-104.17	-110.7	-103.17
Io, Note 1	Band I	dBm/ <u>3.84 MHz</u>		-67.8		-51,4		-92,8		
	Band II							-90,8		
	Band III							-89,8		
Propagation condition	-	AWGN		AWGN		AWGN				
NOTE 1: CPICH RSCP and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.										
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.										

The reported values for the relative intra frequency CPICH RSCP measurement shall meet the requirements in table 8.7.1.1.2.4.

Table 8.7.1.1.2.4: CPICH_RSCP Intra frequency relative accuracy requirements for the reported values

	Test 1	Test 2	Test 3
Normal Conditions			
Lowest reported value cell 2	CPICH_RSCP_(x - 8)	CPICH_RSCP_(x - 13)	CPICH_RSCP_(x - 11)
Highest reported value cell 2	$\frac{\text{CPICH_RSCP}_{E_c/N_o}}{x}$	$\frac{\text{CPICH_RSCP}_{E_c/N_o}}{(x - 5)}$	$\frac{\text{CPICH_RSCP}_{E_c/N_o}}{(x - 3)}$
Extreme Conditions			
Lowest reported value cell2	CPICH_RSCP_(x - 8)	CPICH_RSCP_(x - 13)	CPICH_RSCP_(x - 11)
Highest reported value cell2	$\frac{\text{CPICH_RSCP}_{E_c/N_o}}{x}$	$\frac{\text{CPICH_RSCP}_{E_c/N_o}}{(x - 5)}$	$\frac{\text{CPICH_RSCP}_{E_c/N_o}}{(x - 3)}$
CPICH_RSCP_x is the reported value of cell 1			

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.7.1.2 Inter frequency measurement accuracy

8.7.1.2.1 Relative accuracy requirement

8.7.1.2.1.1 Definition and applicability

The relative accuracy of CPICH RSCP in inter frequency case is defined as the CPICH RSCP measured from one cell compared to the CPICH RSCP measured from another cell on a different frequency.

The requirements and this test apply to all types of UTRA for the FDD UE.

8.7.1.2.1.2 Minimum Requirements

The accuracy requirements in table 8.7.1.2.1.1 are valid under the following conditions:

- $CPICH_RSCP_{1,2}|_{dBm} \geq -114$ dBm [for Band I](#).
- [CPICH_RSCP_{1,2}|_{dBm} ≥ -112 dBm for Band II](#).
- [CPICH_RSCP_{1,2}|_{dBm} ≥ -111 dBm for Band III](#).
- $\left| CPICH_RSCP1|_{in\ dBm} - CPICH_RSCP2|_{in\ dBm} \right| \leq 20dB$.
- $| Channel\ 1_Io|_{dBm/3.84\ MHz} - Channel\ 2_Io|_{dBm/3.84\ MHz} | \leq 20\ dB$.
- $\left| \frac{I_o}{(\hat{I}_{or})} \right|_{in\ dB} - \left(\frac{CPICH_E_c}{I_{or}} \right) \Big|_{in\ dB} \leq 20dB$.

Table 8.7.1.2.1.1: CPICH_RSCP Inter frequency relative accuracy

Parameter	Unit	Accuracy [dB]		Conditions		
		Normal condition	Extreme condition	Io [dBm/3.84 MHz]		
				Band I	Band II	Band III
CPICH_RSCP	dBm	±6	±6	-94...-50	-92...-50	-91...-50

The normative reference for this requirement is TS 25.133 [2] clauses 9.1.1.2.1 and A.9.1.1.2.

8.7.1.2.1.3 Test purpose

The purpose of this test is to verify that the CPICH RSCP relative measurement accuracy is within the specified limits in clause 8.7.1.2.1.2. This measurement is for handover evaluation, DL open loop power control, UL open loop control and for the calculation of pathloss.

8.7.1.2.1.4 Method of test

8.7.1.2.1.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

In this case both cells are on different frequencies and compressed mode is applied. The gap length is 7, detailed definition is in clause C.5, set 1 of table C.5.2 except for TGRRC and TGCFN. TGPRC and TGCFN shall set to "Infinity" and "(Current CFN + (256 – TTI/10msec)mod 256)". CPICH RSCP inter frequency relative accuracy requirements are tested by using test parameters in table 8.7.1.2.1.2.

Table 8.7.1.2.1.2: CPICH RSCP Inter frequency parameters

Parameter	Unit	Test 1		Test 2		
		Cell 1	Cell 2	Cell 1	Cell 2	
UTRA RF Channel number		Channel 1	Channel 2	Channel 1	Channel 2	
CPICH_Ec/Ior	dB	-10		-10		
PCCPCH_Ec/Ior	dB	-12		-12		
SCH_Ec/Ior	dB	-12		-12		
PICH_Ec/Ior	dB	-15		-15		
DPCH_Ec/Ior	dB	-15	-	-15	-	
OCNS_Ec/Ior	dB	-1.11	-0.94	-1.11	-0.94	
Ior	Band I	dBm/ 3.84 MHz	-60.00	-60.00	-84.00	-94.46
	Band II				-82.00	-92.46
	Band III				-81.00	-91.46
Ior/Ior	dB	9.54	9.54	0	-9.54	
CPICH RSCP, Note 1	Band I	dBm	-60.46	-60.46	-94.0	-114.0
	Band II				-92.0	-112.0
	Band III				-91.0	-111.0
Io, Note 1	Band I	dBm/3.84 MHz	-50.00	-50.00	-81.0	-94.0
	Band II				-79.0	-92.0
	Band III				-78.0	-91.0
Propagation condition	-	AWGN		AWGN		
NOTE 1: CPICH RSCP and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.						
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for test 2 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.						

8.7.1.2.1.4.2 Procedure

- 1) A call is set up according to the test procedure specified in TS 34.108 [3] clause 7.3.2.3. The RF parameters for Test 1 are set up according to table 8.7.1.2.1.4.
- 2) SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message.
- 3) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.
- 4) SS shall transmit MEASUREMENT CONTROL message for intra frequency measurement and transmit MEASUREMENT CONTROL message for inter frequency measurement.
- 5) UE shall transmit periodically MEASUREMENT REPORT messages.
- 6) SS shall check CPICH_RSCP value of Cell 1 and Cell 2 in MEASUREMENT REPORT messages. CPICH RSCP power value measured from Cell 1 is compared to CPICH RSCP power value measured from Cell 2 for each MEASUREMENT REPORT message.
- 7) The result of step 5) is compared to actual power level difference of CPICH RSCP of Cell 1 and Cell 2.
- 8) SS shall count number of MEASUREMENT REPORT messages transmitted by UE. After 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.1.2.1.4 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 6) and 7) above are repeated.
- 9) After further 1000 MEASUREMENT REPORT messages have been received from UE, the SS shall transmit RRC CONNECTION RELEASE message.
- 10) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

PHYSICAL CHANNEL RECONFIGURATION message for Inter frequency measurement (step 1):

Information Element	Value/Remark
Message Type	
UE Information Elements -RRC transaction identifier -Integrity check info -Integrity protection mode info -Ciphering mode info -Activation time -New U-RNTI -New C-RNTI -RRC State Indicator -UTRAN DRX cycle length coefficient	0 Not Present Not Present Not Present Not Present Not Present Not Present CELL_DCH Not Present
CN Information Elements -CN Information info	Not Present
UTRAN mobility information elements -URA identity	Not Present
RB information elements -Downlink counter synchronisation info	Not Present
PhyCH information elements -Frequency info	Not Present
Uplink radio resources -Maximum allowed UL TX power - CHOICE <i>channel requirement</i>	Not Present Not Present
Downlink radio resources -CHOICE mode -Downlink PDSCH information -Downlink information common for all radio links -Downlink DPCH info common for all RL -CHOICE mode -DPCH compressed mode info -Transmission gap pattern sequence -TGPSI -TGPS Status Flag -TGCFN -Transmission gap pattern sequence configuration parameters -TGMP -TGPRC -TGSN -TGL1 -TGL2 -TGD -TGPL1 -TGPL2 -RPP -ITP -CHOICE UL/DL mode -Downlink compressed mode method -Uplink compressed mode method -Downlink frame type -DeltaSIR1 -DeltaSIRafter1 -DeltaSIR2 -DeltaSIRafter2 -N Identify abort -T Reconfirm abort -TX Diversity Mode -SSDT information -Default DPCH Offset Value -Downlink information per radio link list -Downlink information for each radio link -Choice mode -Primary CPICH info -Primary scrambling code	FDD Not Present Not Present FDD 1 Activate (Current CFN + (256 – TTI/10msec))mod 256 FDD measurement Infinity 4 7 Not Present 0 3 Not Present Mode 0 Mode 0 UL and DL SF/2 SF/2 B 3.0 3.0 Not Present Not Present Not Present Not Present Not Present Not Present Not Present Not Present Not Present Not Present Not Present Not Present FDD 100

-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	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400
-Secondary CPICH info	Not Present
-DL channelisation code	
-Secondary scrambling code	Not Present
-Spreading factor	128
-Code number	96
-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

First MEASUREMENT CONTROL message for Intra frequency measurement (Step 3):

Information Element	Value/Remark
Message Type	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
Measurement Information elements	
-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	Intra-frequency measurement
-Intra-frequency measurement	
- Intra-frequency measurement objects list	
-Intra-frequency cell info list	Not Present
-Intra-frequency measurement quantity	
-Filter coefficient	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	TRUE
-Cell Identity reporting indicator	TRUE
-CHOICE mode	FDD
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	TRUE
-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	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	TRUE
-Reporting quantities for detected set cells	Not Present
-Reporting cell status	
-CHOICE reported cell	Report all active set cells + cells within monitored set on used frequency
-Maximum number of reported cells	Virtual/active set cells + 2
-Measurement validity	Not Present
-CHOICE <i>report criteria</i>	Periodical reporting criteria
-Amount of reporting	Infinity
-Reporting interval	250 ms
Physical channel information elements	
-DPCH compressed mode status info	Not Present

Second MEASUREMENT CONTROL message for Inter frequency measurement (step 3):

Information Element	Value/Remark
Message Type	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
Measurement Information elements	
-Measurement Identity	2
-Measurement Command	Setup
-Measurement Reporting Mode	
- Measurement Report Transfer Mode	Acknowledged mode RLC
- Periodical Reporting / Event Trigger Reporting Mode	Periodical reporting
-Additional measurement list	Not Present
-CHOICE Measurement Type	Inter-frequency measurement
-Inter-frequency measurement object list	
-CHOICE Inter-frequency cell removal	Not Present
-New inter-frequency cells	Cell 2 information is included
-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	TRUE
-Frequency quality estimate	TRUE
-Non frequency related cell reporting quantities	
-SFN-SFN observed time difference reporting indicator	No report
-Cell synchronisation information reporting indicator	TRUE
-Cell Identity reporting indicator	TRUE
-CHOICE mode	FDD
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	TRUE
-Reporting cell status	
-CHOICE reported cell	Report cells within 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	Periodical reporting criteria
-Amount of reporting	Infinity
-Reporting interval	500 ms
Physical channel information elements	
-DPCH compressed mode status info	Not Present

MEASUREMENT REPORT message for Inter frequency test cases

This message is common for all inter frequency test cases in clause 8.7 and is described in Annex I.

8.7.1.2.1.5 Test requirements

Table 8.7.1.2.1.3: CPICH_RSCP Inter frequency relative accuracy, test requirements

Parameter	Unit	Accuracy [dB]		Conditions		
		Normal condition	Extreme condition	Io [dBm/3.84 MHz]		
				Band I	Band II	Band III
CPICH_RSCP	dBm	±7.1	±7.1	-94...-50	-92...-50	-91...-50

Table 8.7.1.2.1.4: CPICH RSCP Inter frequency tests parameters

Parameter	Unit	Test 1		Test 2		
		Cell 1	Cell 2	Cell 1	Cell 2	
UTRA RF Channel number		Channel 1	Channel 2	Channel 1	Channel 2	
CPICH_Ec/Ior	dB	-10		-10		
PCCPCH_Ec/Ior	dB	-12		-12		
SCH_Ec/Ior	dB	-12		-12		
PICH_Ec/Ior	dB	-15		-15		
DPCH_Ec/Ior	dB	-15	-	-15	-	
OCNS_Ec/Ior	dB	-1.11	-0.94	-1.11	-0.94	
Ior	Band I	dBm/ 3.84 MHz	-61.6	-61.6	-83.00	-93.46
	Band II				-81.00	-91.46
	Band III				-80.00	-90.46
Ior/Ior	dB	9.84	9.84	0.3	-9.24	
CPICH RSCP, Note 1	Band I	dBm	-61.8	-61.8	-92.7	-112.7
	Band II				-90.7	-110.7
	Band III				-89.7	-109.7
Io, Note 1	Band I	dBm/ 3.84 MHz	-51.3	-51.3	-79.8	-93.0
	Band II				-77.8	-91.0
	Band III				-76.8	-90.0
Propagation condition	-	AWGN		AWGN		
NOTE 1: CPICH RSCP and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.						
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for test 2 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.						

The reported values for the relative inter frequency CPICH RSCP measurement shall meet the requirements in table 8.7.1.2.1.5.

Table 8.7.1.2.1.5: CPICH_RSCP Inter frequency relative accuracy requirements for the reported values

	Test 1	Test 2
Normal Conditions		
Lowest reported value cell 2	CPICH_RSCP_(x - 8)	CPICH_RSCP_(x - 28)
Highest reported value cell 2	CPICH_Ec/No_(x + 8)	CPICH_Ec/No_(x - 12)
Extreme Conditions		
Lowest reported value cell2	CPICH_RSCP_(x - 8)	CPICH_RSCP_(x - 28)
Highest reported value cell2	CPICH_Ec/No_(x + 8)	CPICH_Ec/No_(x - 12)
CPICH_RSCP_x is the reported value of cell 1		

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

CHANGE REQUEST

⌘ **34.121 CR 357** ⌘ rev **-** ⌘ Current version: **5.3.1** ⌘

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 CPICH Ec/Io test cases		
Source:	⌘ Nokia		
Work item code:	⌘ TEI	Date:	⌘ 27/04/2004
Category:	⌘ F 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 .	Release:	⌘ Rel-5 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:	⌘ - TS 25.133 specifies Frequency Band (I,II,III) dependent constraints on CPICH RSCP & Io levels for CPICH Ec/Io measurement. These constraints have not been taken into account in CPICH Ec/Io test cases defined in Section 8.7.2 of TS 34.121. - Test procedure in section 8.7.2.1.2.4.2 refers to wrong table in three different places. RF parameters should be taken from Table 8.7.2.1.2.3 not from 8.7.2.1.1.3. - In table 8.7.2.1.2.4 highest reported value for cell 2 for test 2 should be CPICH_Ec/No_(X+6) instead of CPICH_Ec/No_(X-6). - Section 8.7.2.2.1 has a wrong title ("Void"). The section title should be "Absolute accuracy requirement" - Io has a wrong unit in Table 8.7.2.1.1.5, Table 8.7.2.1.2.2, Table 8.7.2.1.2.3 and 8.7.2.2.2.4.
Summary of change:	⌘ - Frequency Band constraints for CPICH RSCP and Io have been added into "Minimum Requirements" and "Test Requirement" sections of all CPICH Ec/Io tests. - For Frequency Band II and III some test parameters have been slightly modified so that CPICH RSCP and Io levels are within the constraints that have been specified for these frequency bands. - Reference 8.7.2.1.1.3 has been replaced with 8.7.2.1.2.3 in three different places in test procedure in Section 8.7.2.1.2.4.2 - CPICH_Ec/No_(X-6) has been replaced with CPICH_Ec/No_(X+6) for highest reported value for cell 2 for test 2 in Table 8.7.2.1.2.4

- Section 8.7.2.2.1 has been renamed to "Absolute accuracy requirement".
 - Io unit [dBm] has been replaced with [dBm / 3.84 MHz] in Table 8.7.2.1.1.5, Table 8.7.2.1.2.2, Table 8.7.2.1.2.3 and 8.7.2.2.2.4.

Consequences if not approved: ⌘ CPICH Ec/Io test cases are not compliant with core specification when operating with Frequency Band II or III. Also tests are ambiguous.

Clauses affected: ⌘ 8.7.2

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

Other comments: ⌘ This CR is applicable for UE's supporting Rel-99 or later.

8.7.2 CPICH Ec/Io

8.7.2.1 Intra frequency measurements accuracy

8.7.2.1.1 Absolute accuracy requirement

8.7.2.1.1.1 Definition and applicability

The absolute accuracy of CPICH Ec/Io is defined as the CPICH Ec/Io measured from one cell compared to the actual CPICH_Ec/Io power ratio from same cell.

The requirements and this test apply to all types of UTRA for the FDD UE.

8.7.2.1.1.2 Minimum Requirements

The accuracy requirements in table 8.7.2.1.1.1 are valid under the following conditions:

- $CPICH_RSCP1_{dBm} \geq -114$ dBm [for Band I](#).
- $CPICH_RSCP1_{dBm} \geq -112$ dBm [for Band II](#).
- $CPICH_RSCP1_{dBm} \geq -111$ dBm [for Band III](#).

$$- \left. \frac{I_o}{(\hat{I}_{or})} \right|_{in\ dB} - \left. \left(\frac{CPICH_E_c}{I_{or}} \right) \right|_{in\ dB} \leq 20dB .$$

Table 8.7.2.1.1.1: CPICH_Ec/Io Intra frequency absolute accuracy, minimum requirements

Parameter	Unit	Accuracy [dB]		Conditions		
		Normal condition	Extreme condition	Io [dBm/3.84 MHz]		
				Band I	Band II	Band III
CPICH_Ec/Io	dB	±1,5 for -14 ≤ CPICH Ec/Io ±2 for -16 ≤ CPICH Ec/Io < -14 ±3 for -20 ≤ CPICH Ec/Io < -16	±3	-94...-50	-92...-50	-91...-50

The normative reference for this requirement is TS 25.133 [2] clause 9.1.2.1.1.

8.7.2.1.1.3 Test purpose

The purpose of this test is to verify that the CPICH Ec/Io absolute measurement accuracy is within the specified limits in clause 8.7.2.1.1.2. This measurement is for Cell selection/re-selection and for handover evaluation.

8.7.2.1.1.4 Method of test

8.7.2.1.1.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

In this case all cells are on the same frequency. CPICH Ec/Io intra frequency absolute accuracy requirements are tested by using the test parameters in table 8.7.2.1.1.2.

Table 8.7.2.1.1.2: CPICH_Ec/Io Intra frequency parameters

Parameter	Unit	Test 1		Test 2		Test 3	
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior	dB	-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15	
DPCH_Ec/Ior	dB	-15	-	-15	-	-6	-
OCNS_Ec/Ior	dB	-1.11	-0.94	-1.11	-0.94	-2.56	-0.94
Ior	Band I	dBm/ 3.84 MHz		-56.98		-89.07	
	Band II					-94.98	
	Band III					-92.98	
Ior/Io	dB	3.0	3.0	-2.9	-2.9	-9.0	-9.0
CPICH Ec/Io, Note 1	dBm	-14.0	-14.0	-16.0	-16.0	-20.0	-20.0
Io, Note 1	Band I	dBm/3.84 MHz		-50		-86	
	Band II					-94	
	Band III					-92	
Propagation condition	-	AWGN		AWGN		AWGN	
NOTE 1: CPICH Ec/Io and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.							
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.							

8.7.2.1.1.4.2 Procedure

- 1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2.3. The RF parameters for Test 1 are set up according to table 8.7.2.1.1.5.
- 2) SS shall transmit MEASUREMENT CONTROL message.
- 3) UE shall transmit periodically MEASUREMENT REPORT messages.
- 4) SS shall check CPICH_Ec/Io value in MEASUREMENT REPORT messages. According to table 8.7.2.1.1.3 the SS calculates CPICH_Ec/Io power ratio of Cell 1, which is compared to the actual CPICH Ec/Io power ratio from the same cell for each MEASUREMENT REPORT message.
- 5) SS shall count number of MEASUREMENT REPORT messages transmitted by UE. After 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.2.1.1.5 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 4) above is repeated. After further 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.2.1.1.5 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 4) above is repeated.
- 6) After further 1000 MEASUREMENT REPORT messages have been received from UE, the SS shall transmit RRC CONNECTION RELEASE message.
- 7) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Table 8.7.2.1.1.3: CPICH Ec/Io measurement report mapping

Reported value	Measured quantity value	Unit
CPICH_Ec/Io _00	CPICH Ec/Io < -24	dB
CPICH_Ec/Io _01	-24 ≤ CPICH Ec/Io < -23.5	dB
CPICH_Ec/Io _02	-23.5 ≤ CPICH Ec/Io < -23	dB
...
CPICH_Ec/Io _47	-1 ≤ CPICH Ec/Io < -0.5	dB
CPICH_Ec/Io _48	-0.5 ≤ CPICH Ec/Io < 0	dB
CPICH_Ec/Io _49	0 ≤ CPICH Ec/Io	dB

Specific Message Contents

All messages indicated above shall use the same content as described in default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message for Intra frequency measurement (Step 1):

Information Element	Value/Remark
Message Type	
UE information elements -RRC transaction identifier -Integrity check info	0 Not Present
Measurement Information elements -Measurement Identity -Measurement Command -Measurement Reporting Mode - Measurement Report Transfer Mode - Periodical Reporting / Event Trigger Reporting Mode -Additional measurement list -CHOICE Measurement Type -Intra-frequency measurement - Intra-frequency measurement objects list -Intra-frequency measurement quantity -Filter coefficient -CHOICE mode -Measurement quantity -Intra-frequency reporting quantity -Reporting quantities for active set cells -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator -Reporting quantities for monitored set cells -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator -Reporting quantities for detected set cells -Reporting cell status -CHOICE reported cell -Maximum number of reported cells -Measurement validity -CHOICE <i>report criteria</i> -Amount of reporting -Reporting interval	1 Modify Acknowledged mode RLC Periodical reporting Not Present Intra-frequency measurement Not Present 0 FDD CPICH RSCP No report TRUE TRUE FDD TRUE TRUE TRUE No report FALSE FALSE FALSE TRUE TRUE FALSE Not Present Report all active set cells + cells within monitored set on used frequency Virtual/active set cells + 2 Not Present Periodical reporting criteria Infinity 250 ms
Physical channel information elements -DPCH compressed mode status info	Not Present

MEASUREMENT REPORT message for Intra frequency test cases

This message is common for all intra frequency test cases in clause 8.7 and is described in Annex I.

8.7.2.1.1.5 Test requirements

The CPICH Ec/Io measurement accuracy shall meet the requirements in clause 8.7.2.1.1.2. The effect of assumed thermal noise and noise generated in the receiver (-99 dBm, [-97 dBm](#), [-96 dBm](#) for [Frequency Band I, II and III respectively](#)) shall be added into the required accuracy defined in subclause 8.7.2.1.1.2 as shown in table 8.7.2.1.1.4.

Table 8.7.2.1.1.4: CPICH_Ec/Io Intra frequency absolute accuracy, test requirements

Parameter	Unit	Accuracy [dB]		Conditions		
		Normal condition	Extreme condition	Io [dBm/3.84 MHz]		
				Band I	Band II	Band III
CPICH_Ec / Io	dB	-3.1...1.9 for $-14 \leq \text{CPICH Ec/Io}$ -3.6...2.4 for $-16 \leq \text{CPICH Ec/Io} < -14$ -4.6...3.4 for $-20 \leq \text{CPICH Ec/Io} < -16$	-4.6...3.4	-94...-87	-92...-85	-91...-84
		± 1.95 for $-14 \leq \text{CPICH Ec/Io}$ ± 2.4 for $-16 \leq \text{CPICH Ec/Io} < -14$ ± 3.4 for $-20 \leq \text{CPICH Ec/Io} < -16$	± 3.4	-87...-50	-85...-50	-84...-50

The normative reference for this requirement is TS 25.133 [2] clause A.9.1.2.2.

Table 8.7.2.1.1.5: CPICH_Ec/Io Intra frequency tests parameters

Parameter	Unit	Test 1		Test 2		Test 3	
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior	dB	-9.7		-9.8		-9.9	
PCCPCH_Ec/Ior	dB	-11.7		-11.8		-11.9	
SCH_Ec/Ior	dB	-11.7		-11.8		-11.9	
PICH_Ec/Ior	dB	-14.7		-14.8		-14.9	
DPCH_Ec/Ior	dB	-14.7	-	-14.8	-	-5.9	-
OCNS_Ec/Ior	dB	-1.2	-1.02	-1.17	-0.99	-2.64	-0.97
Ior	Band I	-58.5		-89.07		-93.98	
	Band II			-87.07		-91.98	
	Band III			-86.07		-90.98	
Ior/Ioc	dB	3.3	3.3	-2.6	-2.6	-8.7	-8.7
CPICH Ec/Io, Note 1	dBm	-13.6	-13.6	-15.6	-15.6	-19.6	-19.6
Io, Note 1	Band I	-51.3		-85.85		-92.9	
	Band II			-83.85		-90.9	
	Band III			-82.85		-89.9	
Propagation condition	-	AWGN		AWGN		AWGN	

NOTE 1: CPICH Ec/Io and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.

Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.

The reported values for the absolute intra frequency CPICH Ec/Io measurement shall meet the requirements in table 8.7.2.1.1.6.

Table 8.7.2.1.1.6: CPICH_Ec/Io Intra frequency absolute accuracy requirements for the reported values

	Test 1	Test 2	Test 3
Normal Conditions			
Lowest reported value	CPICH_Ec/No_17	CPICH_Ec/No_12	CPICH_Ec/No_0
Highest reported value	CPICH_Ec/No_25	CPICH_Ec/No_22	CPICH_Ec/No_16
Extreme Conditions			
Lowest reported value	CPICH_Ec/No_14	CPICH_Ec/No_10	CPICH_Ec/No_0
Highest reported value	CPICH_Ec/No_28	CPICH_Ec/No_24	CPICH_Ec/No_16

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.7.2.1.2 Relative accuracy requirement

8.7.2.1.2.1 Definition and applicability

The relative accuracy of CPICH Ec/Io is defined as the CPICH Ec/Io measured from one cell compared to the CPICH Ec/Io measured from another cell on the same frequency.

The requirements and this test apply to all types of UTRA for the FDD UE.

8.7.2.1.2.2 Minimum Requirements

The accuracy requirements in table 8.7.2.1.2.1 are valid under the following conditions:

- CPICH_RSCP1,2_{dBm} ≥ -114 dBm [for Band I](#),
- [CPICH_RSCP1,2_{dBm} ≥ -112 dBm for Band II](#),
- [CPICH_RSCP1,2_{dBm} ≥ -111 dBm for Band III](#).
- $\left| CPICH_RSCP1 \Big|_{in\ dBm} - CPICH_RSCP2 \Big|_{in\ dBm} \right| \leq 20dB .$
- $\left| \frac{I_o}{\hat{I}_{or}} \Big|_{in\ dB} - \left(\frac{CPICH_E_c}{I_{or}} \right) \Big|_{in\ dB} \right| \leq 20dB .$

Table 8.7.2.1.2.1: CPICH_Ec/Io Intra frequency relative accuracy

Parameter	Unit	Accuracy [dB]		Conditions		
		Normal condition	Extreme condition	Io [dBm/3.84 MHz]		
				Band I	Band II	Band III
CPICH_Ec/Io	dB	±1,5 for -14 ≤ CPICH Ec/Io ±2 for -16 ≤ CPICH Ec/Io < -14 ±3 for -20 ≤ CPICH Ec/Io < -16	±3	-94...-50	-92...-50	-91...-50

The normative reference for this requirement is TS 25.133 [2] clauses 9.1.2.1.2 and A.9.1.2.2.

8.7.2.1.2.3 Test purpose

The purpose of this test is to verify that the CPICH Ec/Io relative measurement accuracy is within the specified limits in clause 8.7.2.1.2.2. This measurement is for Cell selection/re-selection and for handover evaluation.

8.7.2.1.2.4 Method of test

8.7.2.1.2.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

In this case all cells are in the same frequency. CPICH Ec/Io intra frequency relative accuracy requirements are tested by using test parameters in table 8.7.2.1.1.2.

8.7.2.1.2.4.2 Procedure

- 1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2.3. The RF parameters for Test 1 are set up according to table 8.7.2.1.2.3.
- 2) SS shall transmit MEASUREMENT CONTROL message.
- 3) UE shall transmit periodically MEASUREMENT REPORT messages.
- 4) SS shall check CPICH_Ec/No value of Cell 1 and Cell 2 in MEASUREMENT REPORT messages. According to table 8.7.2.1.1.3 the SS calculates CPICH_Ec/Io power ratio of Cell 1 and Cell 2.

CPICH_Ec/Io power ratio value measured from Cell 1 is compared to CPICH_Ec/Io power ratio value measured from Cell 2 for each MEASUREMENT REPORT message.

- 5) The result of step 3) is compared to actual power level difference of CPICH_Ec/Io of Cell 1 and Cell 2.
- 6) SS shall count number of MEASUREMENT REPORT messages transmitted by UE. After 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.2.1.2+3 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 4) and 5) above are repeated. After further 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.2.1.2+3 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 4) and 5) above are repeated.
- 7) After further 1000 MEASUREMENT REPORT messages have been received from UE, the SS shall transmit RRC CONNECTION RELEASE message.
- 8) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message for Intra frequency measurement in clause 8.7.2.1.1.4.2 is used.

MEASUREMENT REPORT message for Intra frequency test cases

This message is common for all intra frequency test cases in clause 8.7 and is described in Annex I.

8.7.2.1.2.5 Test requirements

Table 8.7.2.1.2.2: CPICH_Ec/Io Intra frequency relative accuracy

Parameter	Unit	Accuracy [dB]		Conditions		
		Normal condition	Extreme condition	Io [dBm / 3.84 MHz]		
				Band I	Band II	Band III
CPICH_Ec/Io	dB	±2.3 for $-14 \leq \text{CPICH Ec/Io}$ ±2.8 for $-16 \leq \text{CPICH Ec/Io} < -14$ ±3.8 for $-20 \leq \text{CPICH Ec/Io} < -16$	±3.8	-94...-50	<u>-92...-50</u>	<u>-91...-50</u>

Table 8.7.2.1.2.3: CPICH_Ec/Io Intra frequency tests parameters

Parameter	Unit	Test 1		Test 2		Test 3	
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1		Channel 1		Channel 1	
CPICH_Ec/Io	dB	-9.7		-9.8		-9.9	
PCCPCH_Ec/Io	dB	-11.7		-11.8		-11.9	
SCH_Ec/Io	dB	-11.7		-11.8		-11.9	
PICH_Ec/Io	dB	-14.7		-14.8		-14.9	
DPCH_Ec/Io	dB	-14.7	-	-14.8	-	-5.9	-
OCNS_Ec/Io	dB	-1.2	- 1.02	-1.17	-0.99	-2.64	-0.97
Ior	Band I	dBm/ 3.84 MHz		-58.5		-89.07	
	Band II					-93.98	
	Band III					-91.98	
Ior/Io	dB	3.3	3.3	-2.6	-2.6	-8.7	-8.7
CPICH Ec/Io, Note 1	dBm	-13.6	-13.6	-15.6	-15.6	-19.6	-19.6
Io, Note 1	Band I	dBm / 3.84 MHz		-51,3		-85.85	
	Band II					-92.9	
	Band III					-90.9	
Propagation condition	-	AWGN		AWGN		AWGN	
NOTE 1: CPICH Ec/Io and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.							
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.							

The reported values for the relative intra frequency CPICH Ec/Io measurement shall meet the requirements in table 8.7.2.1.2.4.

Table 8.7.2.1.2.4: CPICH_Ec/Io Intra frequency relative accuracy requirements for the reported values

	Test 1	Test 2	Test 3
Normal Conditions			
Lowest reported value cell 2	CPICH_Ec/No_(x - 5)	CPICH_Ec/No_(x - 6)	CPICH_Ec/No_(x - 8)
Highest reported value cell 2	CPICH_Ec/No_(x+ 5)	CPICH_Ec/No_(x ± 6)	CPICH_Ec/No_(x+ 8)
Extreme Conditions			
Lowest reported value cell2	CPICH_Ec/No_(x - 8)	CPICH_Ec/No_(x - 8)	CPICH_Ec/No_(x - 8)
Highest reported value cell2	CPICH_Ec/No_(x + 8)	CPICH_Ec/No_(x+ 8)	CPICH_Ec/No_(x+ 8)
CPICH_Ec/No_x is the reported value of cell 1			

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.7.2.2 Inter frequency measurement accuracy

8.7.2.2.1 [Absolute accuracy requirement](#) ~~Void~~

[Void](#)

8.7.2.2.2 Relative accuracy requirement

8.7.2.2.2.1 Definition and applicability

The relative accuracy of CPICH Ec/Io in the inter frequency case is defined as the CPICH Ec/Io measured from one cell compared to the CPICH Ec/Io measured from another cell on a different frequency.

The requirements and this test apply to all types of UTRA for the FDD UE.

8.7.2.2.2.2 Minimum Requirements

The accuracy requirements in table 8.7.2.2.2.1 are valid under the following conditions:

- $CPICH_RSCP_{1,2}|_{dBm} \geq -114$ dBm for Band I.
- $CPICH_RSCP_{1,2}|_{dBm} \geq -112$ dBm for Band II.
- $CPICH_RSCP_{1,2}|_{dBm} \geq -111$ dBm for Band III.
- $\left| CPICH_RSCP_{1,2}|_{in\ dBm} - CPICH_RSCP_{1,2}|_{in\ dBm} \right| \leq 20dB$.
- $| Channel\ 1_Io|_{dBm/3.84\ MHz} - Channel\ 2_Io|_{dBm/3.84\ MHz} | \leq 20$ dB.
- $\left(\frac{I_o}{\hat{I}_{or}} \right)_{in\ dB} - \left(\frac{CPICH_Ec}{I_{or}} \right)_{in\ dB} \leq 20dB$.

Table 8.7.2.2.1: CPICH_Ec/Io Inter frequency relative accuracy, minimum requirements

Parameter	Unit	Accuracy [dB]		Conditions		
		Normal condition	Extreme condition	Io [dBm/3.84 MHz]		
				Band I	Band II	Band III
CPICH_Ec/Io	dB	±1.5 for -14 ≤ CPICH Ec/Io ±2 for -16 ≤ CPICH Ec/Io < -14 ±3 for -20 ≤ CPICH Ec/Io < -16	±3	-94...-50	<u>-92...-50</u>	<u>-91...-50</u>

The normative reference for this requirement is TS 25.133 [2] clauses 9.1.2.2.2 and A.9.1.2.2.

8.7.2.2.2.3 Test purpose

The purpose of this test is to verify that the CPICH Ec/Io relative measurement accuracy is within the specified limits in clause 8.7.2.2.2. This measurement is for Cell selection/re-selection and for handover evaluation.

8.7.2.2.2.4 Method of test

8.7.2.2.2.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

In this case both cells are in different frequency and compressed mode is applied. The gap length is 7, detailed definition is in clause C.5, set 1 of table C.5.2 except for TGRRC and TGCFN. TGPRC and TGCFN shall set to "Infinity" and "(Current CFN + (256 – TTI/10msec))mod 256". CPICH Ec/Io inter frequency relative accuracy requirements are tested by using test parameters in table 8.7.2.2.2.

Table 8.7.2.2.2.2: CPICH Ec/Io Inter frequency parameters

Parameter	Unit	Test 1		Test 2		Test 3		
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2	
UTRA RF Channel number		Channel 1	Channel 2	Channel 1	Channel 2	Channel 1	Channel 2	
CPICH_Ec/Ior	dB	-10		-10		-10		
PCCPCH_Ec/Ior	dB	-12		-12		-12		
SCH_Ec/Ior	dB	-12		-12		-12		
PICH_Ec/Ior	dB	-15		-15		-15		
DPCH_Ec/Ior	dB	-15	-	-6	-	-6	-	
OCNS_Ec/Ior	dB	-1.11	-0.94	-2.56	-0.94	-2.56	-0.94	
Ior	Band I	dBm/ 3.84 MHz	-52.22	-52.22	-87.27	-87.27	-94.46	-94.46
	Band II				<u>-85.27</u>	<u>-85.27</u>	<u>-92.46</u>	<u>-92.46</u>
	Band III				<u>-84.27</u>	<u>-84.27</u>	<u>-91.46</u>	<u>-91.46</u>
Ior/Ioc	dB	-1.75	-1.75	-4.7	-4.7	-9.54	-9.54	
CPICH Ec/Io, Note 1	dBm	-14.0	-14.0	-16.0	-16.0	-20.0	-20.0	
Io, Note 1	Band I	dBm/3.84 MHz	-50	-50	-86	-86	-94	-94
	Band II				<u>-84</u>	<u>-84</u>	<u>-92</u>	<u>-92</u>
	Band III				<u>-83</u>	<u>-83</u>	<u>-91</u>	<u>-91</u>
Propagation condition	-	AWGN		AWGN		AWGN		
NOTE 1: CPICH Ec/Io and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.								
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.								

8.7.2.2.2.4.2 Procedure

- 1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2.3. The RF parameters for Test 1 are set up according to table 8.7.2.2.2.4.
- 2) SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message.
- 3) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.
- 4) SS shall transmit a MEASUREMENT CONTROL message for intra frequency measurement and transmit another MEASUREMENT CONTROL message for inter frequency measurement.
- 5) UE shall transmit periodically MEASUREMENT REPORT messages.
- 6) SS shall check CPICH_Ec/Io value of Cell 1 and Cell 2 in MEASUREMENT REPORT messages. According to table 8.7.2.1.1.3 the SS calculates CPICH_Ec/Io power ratio of Cell 1 and Cell 2. CPICH_Ec/Io power ratio measured from Cell 1 is compared to CPICH_Ec/Io power value measured from Cell 2 for each MEASUREMENT REPORT message.
- 7) The result of step 6) is compared to actual power level difference of CPICH_Ec/Io of Cell 1 and Cell 2.
- 8) SS shall count number of MEASUREMENT REPORT messages transmitted by UE. After 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.2.2.2.4 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 6) and 7) above are repeated. After further 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.2.2.2.4 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 6) and 7) above are repeated.
- 9) After 1000 MEASUREMENT REPORT messages have been received from UE, the SS shall transmit RRC CONNECTION RELEASE message.
- 10) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

All messages indicated above shall use the same content as described in default message content in clause 9 of 34.108 [3], with the following exceptions:

PHYSICAL CHANNEL RECONFIGURATION message for Inter frequency measurement (step 1):

Information Element	Value/Remark
Message Type	
UE Information Elements -RRC transaction identifier -Integrity check info -Integrity protection mode info -Ciphering mode info -Activation time -New U-RNTI -New C-RNTI -RRC State Indicator -UTRAN DRX cycle length coefficient	0 Not Present Not Present Not Present Not Present Not Present Not Present CELL_DCH Not Present
CN Information Elements -CN Information info	Not Present
UTRAN mobility information elements -URA identity	Not Present
RB information elements -Downlink counter synchronisation info	Not Present
PhyCH information elements -Frequency info	Not Present
Uplink radio resources -Maximum allowed UL TX power - CHOICE <i>channel requirement</i>	Not Present Not Present
Downlink radio resources -CHOICE mode -Downlink PDSCH information -Downlink information common for all radio links -Downlink DPCH info common for all RL -CHOICE mode -DPCH compressed mode info -Transmission gap pattern sequence -TGPSI -TGPS Status Flag -TGCFN -Transmission gap pattern sequence configuration parameters -TGMP -TGPRC -TGSN -TGL1 -TGL2 -TGD -TGPL1 -TGPL2 -RPP -ITP -CHOICE UL/DL mode -Downlink compressed mode method -Uplink compressed mode method -Downlink frame type -DeltaSIR1 -DeltaSIRafter1 -DeltaSIR2 -DeltaSIRafter2 -N Identify abort -T Reconfirm abort -TX Diversity Mode -SSDT information -Default DPCH Offset Value -Downlink information per radio link list -Downlink information for each radio link -Choice mode -Primary CPICH info -Primary scrambling code	FDD Not Present Not Present FDD 1 Activate (Current CFN + (256 – TTI/10msec))mod 256 FDD measurement Infinity 4 7 Not Present 0 3 Not Present Mode 0 Mode 0 UL and DL SF/2 SF/2 B 3.0 3.0 Not Present Not Present Not Present Not Present Not Present Not Present Not Present Not Present FDD 100

-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	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400
-Secondary CPICH info	Not Present
-DL channelisation code	
-Secondary scrambling code	Not Present
-Spreading factor	128
-Code number	96
-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

First MEASUREMENT CONTROL message for Intra frequency measurement (Step 3):

Information Element	Value/Remark
Message Type	
UE information elements -RRC transaction identifier -Integrity check info	0 Not Present
Measurement Information elements -Measurement Identity -Measurement Command -Measurement Reporting Mode - Measurement Report Transfer Mode - Periodical Reporting / Event Trigger Reporting Mode -Additional measurement list -CHOICE Measurement Type -Intra-frequency measurement - Intra-frequency measurement objects list -Intra-frequency cell info list -Intra-frequency measurement quantity -Filter coefficient -CHOICE mode -Measurement quantity -Intra-frequency reporting quantity -Reporting quantities for active set cells -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator -Reporting quantities for monitored set cells -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator -Reporting quantities for detected set cells -Reporting cell status -CHOICE reported cell -Maximum number of reported cells -Measurement validity -CHOICE <i>report criteria</i> -Amount of reporting -Reporting interval	1 Modify Acknowledged mode RLC Periodical reporting Not Present Intra-frequency measurement Not Present 0 FDD CPICH RSCP No report TRUE TRUE FDD TRUE TRUE TRUE No report FALSE TRUE FDD TRUE TRUE TRUE Not Present Report all active set cells + cells within monitored set on used frequency Virtual/active set cells + 2 Not Present Periodical reporting criteria Infinity 250 ms
Physical channel information elements -DPCH compressed mode status info	Not Present

Second MEASUREMENT CONTROL message for Inter frequency measurement (step 3):

Information Element	Value/Remark
Message Type	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
Measurement Information elements	
-Measurement Identity	2
-Measurement Command	Setup
-Measurement Reporting Mode	
- Measurement Report Transfer Mode	Acknowledged mode RLC
- Periodical Reporting / Event Trigger Reporting Mode	Periodical reporting
-Additional measurement list	Not Present
-CHOICE Measurement Type	Inter-frequency measurement
-Inter-frequency measurement	
-Inter-frequency cell info list	
-CHOICE Inter-frequency cell removal	Not Present
-New inter-frequency cells	Cell 2 information is included
-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	TRUE
-Frequency quality estimate	TRUE
-Non frequency related cell reporting quantities	
-SFN-SFN observed time difference reporting indicator	No report
-Cell synchronisation information reporting indicator	TRUE
-Cell Identity reporting indicator	TRUE
-CHOICE mode	FDD
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	TRUE
-Reporting cell status	
-CHOICE reported cell	Report cells within 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	Periodical reporting criteria
-Amount of reporting	Infinity
-Reporting interval	500 ms
Physical channel information elements	
-DPCH compressed mode status info	Not Present

MEASUREMENT REPORT message for Intra frequency test cases

This message is common for all inter frequency test cases in clause 8.7 and is described in Annex I.

8.7.2.2.2.5 Test requirements

The effect of assumed thermal noise and noise generated in the receiver (−99 dBm, [-97 dBm](#), [-96 dBm for Frequency Band I, II and III respectively](#)) shall be added into the required accuracy defined in clause 8.7.2.2.2.2 as shown in table 8.7.2.2.2.3.

Table 8.7.2.2.3: CPICH_Ec/Io Inter frequency relative accuracy, test requirements

Parameter	Unit	Normal condition	Extreme condition	Io [dBm/3.84 MHz]		
				Band I	Band II	Band III
CPICH_Ec/Io	dB	±3.5 for $-14 \leq \text{CPICH Ec/Io}$ ±4 for $-16 \leq \text{CPICH Ec/Io} < -14$ ±5 for $-20 \leq \text{CPICH Ec/Io} < -16$	± 5	-94...-87	-92...-85	-91...-84
		±2.3 for $-14 \leq \text{CPICH Ec/Io}$ ± 2.8 for $-16 \leq \text{CPICH Ec/Io} < -14$ ± 3.8 for $-20 \leq \text{CPICH Ec/Io} < -16$	± 3.8	-87...-50	-85...-50	-84...-50

The normative reference for this requirement is TS 25.133 [2] clause A.9.1.2.2.

Table 8.7.2.2.4: CPICH Ec/Io Inter frequency tests parameters

Parameter	Unit	Test 1		Test 2		Test 3		
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2	
UTRA RF Channel number		Channel 1	Channel 2	Channel 1	Channel 2	Channel 1	Channel 2	
CPICH_Ec/Ior	dB	-10		-10		-10		
PCCPCH_Ec/Ior	dB	-12		-12		-12		
SCH_Ec/Ior	dB	-12		-12		-12		
PICH_Ec/Ior	dB	-15		-15		-15		
DPCH_Ec/Ior	dB	-15	-	-6	-	-6	-	
OCNS_Ec/Ior	dB	-1.12	-0.95	-2.55	-0.94	-2.55	-0.94	
Ior	Band I	dBm/ 3.84 MHz	-53.5	-53.5	-86.27	-86.27	-93.46	-93.46
	Band II				-84.27	-84.27	-91.46	-91.46
	Band III				-83.27	-83.27	-90.46	-90.46
Ior/Io	dB	-1.45	-1.45	-4.4	-4.4	-9.24	-9.24	
CPICH Ec/Io, Note 1	dBm	-13.8	-13.8	-15.7	-15.7	-19.7	-19.7	
Io, Note 1	Band I	dBm/ 3.84 MHz	-51.15	-51.15	-84.9	-84.9	-93	-93
	Band II				-82.9	-82.9	-91	-91
	Band III				-81.9	-81.9	-90	-90
Propagation condition	-	AWGN		AWGN		AWGN		
NOTE 1: CPICH Ec/Io and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.								
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.								

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

The reported values for the relative inter frequency CPICH Ec/Io measurement shall meet the requirements in table 8.7.2.2.5.

Table 8.7.2.2.5: CPICH_Ec/Io Inter frequency relative accuracy requirements for the reported values

	Test 1	Test 2	Test 3
Normal Conditions			
Lowest reported value cell 2	CPICH_Ec/No_(x - 5)	CPICH_Ec/No_(x - 6)	CPICH_Ec/No_(x - 10)
Highest reported value cell 2	CPICH_Ec/No_(x+5)	CPICH_Ec/No_(x + 6)	CPICH_Ec/No_(x + 10)
Extreme Conditions			
Lowest reported value cell2	CPICH_Ec/No_(x - 8)	CPICH_Ec/No_(x - 8)	CPICH_Ec/No_(x - 10)
Highest reported value cell2	CPICH_Ec/No_(x + 8)	CPICH_Ec/No_(x + 8)	CPICH_Ec/No_(x + 10)
CPICH_Ec/No_x is the reported value of cell 1			

CHANGE REQUEST

34.121 CR 359 # rev **-** # Current version: **5.3.1**

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 to MEASUREMENT CONTROL and MEASUREMENT REPORT messages		
Source:	# Nokia		
Work item code:	# TEI	Date:	# 27/04/2004
Category:	# F	Release:	# Rel-5
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	F (correction)		2 (GSM Phase 2)
	A (corresponds to a correction in an earlier release)		R96 (Release 1996)
	B (addition of feature),		R97 (Release 1997)
	C (functional modification of feature)		R98 (Release 1998)
	D (editorial modification)		R99 (Release 1999)
	Detailed explanations of the above categories can be found in 3GPP TR 21.900 .		Rel-4 (Release 4)
			Rel-5 (Release 5)
			Rel-6 (Release 6)

Reason for change:	# - IE "SFN-SFN observed time difference reporting indicator" is included almost in all MEASUREMENT CONTROL messages in TS 34.121. However RAN2 has removed this IE from MEASUREMENT CONTROL message already in year 2002 [CR 1573r1 in RP-0200558 from RAN#17] - IE "SFN-SFN observed time difference" is included in many MEASUREMENT REPORT messages. However RAN2 removed this IE as reporting quantity from Intra and Inter frequency measurements [CR 1573r1 in RP-0200558 from RAN#17]
Summary of change:	# - IE "SFN-SFN observed time difference reporting indicator" has been removed from many MEASUREMENT CONTROL messages in TS 34.121. - IE "SFN-SFN observed time difference" has been removed from MEASUREMENT REPORT messages used in Intra and Inter Frequency test cases of TS 34.121.
Consequences if not approved:	# MEASUREMENT CONTROL and MEASUREMENT REPORT messages used in TS 34.121 are not in line with TS 25.331. SS is asked to check that non-existent IE is present thus creating a non-specified behaviour in a test.

Clauses affected:	# 8.3.1.4.2, 8.3.2.1.4.2, 8.3.2.2.4.2, 8.3.3.4.2, 8.6.1.1.4.2, 8.6.1.2.4.2, 8.6.1.3.4.2, 8.6.1.4.4.2, 8.6.2.1.4.2, 8.6.2.2.4.2, 8.6.3.1.4.2, 8.7.1.1.1.4.2, 8.7.1.2.1.4.2, 8.7.2.1.1.4.2, 8.7.2.2.2.4.2, 8.7.3.1.4.2, 8.7.4.1.4.2, 8.7.4.2.4.2, 8.7.5.1.4.2, 8.7.6.1.4.2, 8.7.8.1.4.2, Annex I
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Other specs	# <table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td style="padding: 2px;">Y</td> <td style="padding: 2px;">N</td> </tr> <tr> <td style="padding: 2px;"><input type="checkbox"/></td> <td style="padding: 2px;"><input checked="" type="checkbox"/></td> </tr> </table> Other core specifications #	Y	N	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Y	N				
<input type="checkbox"/>	<input checked="" type="checkbox"/>				

affected:

<input checked="" type="checkbox"/>	Test specifications
<input checked="" type="checkbox"/>	O&M Specifications



Other comments: ⌘ This CR is applicable for UE's supporting Rel-99 or later.

8.3 UTRAN Connected Mode Mobility

8.3.1 FDD/FDD Soft Handover

8.3.1.1 Definition and applicability

The active set update delay of the UE is defined as the time from the end of the last TTI containing an RRC message implying soft handover to the switch off of the old downlink DPCH.

The requirements and this test apply to the FDD UE.

8.3.1.2 Minimum requirement

The active set update delay shall be less than 60 ms in CELL_DCH state.

The active set update delay is defined as the time from when the UE has received the ACTIVE SET UPDATE message from UTRAN, or at the time stated through the activation time when to perform the active set update, to the time when the UE successfully uses the set of radio links stated in that message for power control.

The active set update delay is depending on the number of known cells referred to in the ACTIVE SET UPDATE message. A cell is known if either or both of the following conditions are true:

- the UE has had radio links connected to the cell in the previous (old) active set.
- the cell has been measured by the UE during the last 5 seconds and the SFN of the cell has been decoded by the UE.

And the phase reference is the primary CPICH.

The active set update delay shall be less than $50+10*KC+100*OC$ ms, where

KC is the number of known cells in the active set update message.

OC is the number of cells that are not known in the active set update message.

The normative reference for this requirement is TS 25.133 [2] clauses 5.1.2 and A.5.1.1.

8.3.1.3 Test purpose

To verify that the UE meets the minimum requirement.

8.3.1.4 Method of test

8.3.1.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

The test parameters are given in table 8.3.1.1.1 and 8.3.1.1.2 below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 1A shall be used, and that CPICH Ec/Io and SFN-CFN observed time difference shall be reported together with Event 1A. The test consists of six successive time periods, with a time duration of T1, T2, T3, T4, T5 and T6 respectively. At the start of time duration T1, the UE may not have any timing information of cell 2.

UTRAN shall send an Active Set Update command with activation time "now", adding cell 2 to the active set. The Active Set Update message shall be sent to the UE so that the whole message is available at the UE at the beginning of T4. The RRC procedure delay is defined in TS 25.133 [2].

Table 8.3.1.1.1: General test parameters for Soft handover

Parameter		Unit	Value	Comment
DCH parameters			DL and UL Reference Measurement Channel 12.2 kbps	As specified in clause C.3.1 and C.2.1
Power Control			On	
Target quality value on DTCH		BLER	0.01	
Initial conditions	Active cell		Cell 1	
	Neighbouring cell		Cell 2	
Final condition	Active cell		Cell 2	
Reporting range		dB	3	Applicable for event 1A and 1B
Hysteresis		dB	0	
W			1	Applicable for event 1A and 1B
Reporting deactivation threshold			0	Applicable for event 1A
Time to Trigger		ms	0	
Filter coefficient			0	
T1		s	5	
T2		s	3	
T3		s	0.5	
T4		ms	60	This is the requirement on active set update delay, see clause 5.1.2.2, where KC=1 and OC=0.
T5		s	10	
T6		s	2	

Table 8.3.1.1.2: Cell specific test parameters for Soft handover

Parameter	Unit	Cell 1						Cell 2					
		T1	T2	T3	T4	T5	T6	T1	T2	T3	T4	T5	T6
CPICH_Ec/I _{or}	dB	-10						-10					
PCCPCH_Ec/I _{or}	dB	-12						-12					
SCH_Ec/I _{or}	dB	-12						-12					
PICH_Ec/I _{or}	dB	-15						-15					
DPCH_Ec/I _{or}	dB	Note1	Note1	Note1	N/A	N/A	N/A	N/A	Note3	Note1	Note1		
OCNS		Note2	Note2	Note2	-0.941	-0.941	-0.941	-0.941	Note2	Note2	Note2		
\hat{I}_{or}/I_{oc}	dB	0	2.91	2.91	2.91	2.91	-Inf	2.91	2.91	2.91	2.91		
I_{oc}	dBm/3.84 MHz	-70											
CPICH_Ec/I _o	dB	-13	-14	-14	-14	-14	-Inf	-14	-14	-14	-14	-14	
Propagation Condition		AWGN											
Relative delay of paths received from cell 2 with respect to cell 1	chips	{-148 ... 148} Note 4											

Note 1: The DPCH level is controlled by the power control loop

Note 2: The power of the OCNS channel that is added shall make the total power from the cell to be equal to I_{or}

Note 3: The DPCH level is controlled by the power control loop. The initial power shall be set equal to the DPCH_Ec/I_{or} of Cell 1 at the end of T2.

Note 4: The relative delay of the path from cell 2 with respect to cell 1 shall always be within ± 148 chip.

8.3.1.4.2 Procedure

- 1) The RF parameters are set up according to T1.
- 2) The UE is switched on.

- 3) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.4 without Compressed mode parameters.

[Editor's note: subclause 7.3.4 in TS 34.108 (Message sequence chart for Handover Test procedure) is not yet specified]

- 4) SS shall transmit a MEASUREMENT CONTROL message.
- 5) 5 seconds after step4 has completed, the SS shall switch the power settings from T1 to T2.
- 6) UE shall transmit a MEASUREMENT REPORT message triggered by event 1A containing the CFN-SFN observed time difference between cell 1 and cell 2.
- 7) At the beginning of T3 the downlink DPCH of cell 2 shall be activated.
- 8) SS shall send an ACTIVE SET UPDATE message with activation time "now ", adding cell 2 to the active set. The ACTIVE SET UPDATE message shall be sent to the UE so that the whole message is available at the UE at the beginning of T4.
- 9) At the beginning of T5 the DPCH from cell 1 shall be switched off.
- 10) The UE downlink BLER shall be measured during time period T6.
- 11) 5 seconds after step10 has completed, the UE is switched off. Any timing information of cell 2 is deleted in the UE.
- 12) BLER is measured during concatenated time periods T6. Repeat step 1-11 until the confidence level for BLER is achieved. This is defined in annex F.6.1.10

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message (step 4):

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements -RRC transaction identifier -Integrity check info	0 Not Present
Measurement Information elements -Measurement Identity -Measurement Command (10.3.7.46) -Measurement Reporting Mode (10.3.7.49) -Measurement Report Transfer Mode -Periodical Reporting / Event Trigger Reporting Mode -Additional measurements list (10.3.7.1)	1 Modify AM RLC Event trigger Not Present
-CHOICE <i>Measurement type</i> -Intra-frequency measurement (10.3.7.36) -Intra-frequency measurement objects list (10.3.7.33) -Intra-frequency measurement quantity (10.3.7.38) -Filter coefficient (10.3.7.9) -CHOICE mode -Measurement quantity -Intra-frequency reporting quantity (10.3.7.41)	Intra-frequency measurement Not Present 0 FDD CPICH_Ec/N0
-Reporting quantities for active set cells (10.3.7.5) -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator	No report TRUE (Note 1) TRUE FDD TRUE TRUE TRUE
-Reporting quantities for monitored set cells (10.3.7.5) -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator	No report TRUE (Note 1) TRUE FDD TRUE TRUE TRUE
-Reporting quantities for detected set cells (10.3.7.5)	Not Present
-Reporting cell status (10.3.7.61) -Measurement validity (10.3.7.51) -CHOICE report criteria -Intra-frequency measurement reporting criteria (10.3.7.39) -Parameters required for each event	Not Present Not Present Intra-frequency measurement reporting criteria 2
-Intra-frequency event identity -Triggering condition 2 -Reporting Range Constant -Cells forbidden to affect Reporting Range -W -Hysteresis -Threshold used frequency -Reporting deactivation threshold -Replacement activation threshold -Time to trigger -Amount of reporting -Reporting interval -Reporting cell status	Event 1A Active set cells and monitored set cells 3 dB Not Present 1.0 0 dB Not Present 0 Not Present 0 ms Infinity 0 ms (Note 2) Not Present
-Intra-frequency event identity -Triggering condition 1 -Reporting Range Constant -Cells forbidden to affect Reporting Range -W -Hysteresis -Threshold used frequency -Reporting deactivation threshold -Replacement activation threshold -Time to trigger	Event 1B Active set cells and monitored set cells 3 dB Not Present 1.0 0 dB Not Present Not Present Not Present 0 ms

Information Element/Group name	Value/Remark
-Amount of reporting -Reporting interval -Reporting cell status	Not Present Not Present Not Present
Physical channel information elements -DPCH compressed mode status info (10.3.6.34)	Not Present
Note 1: The SFN-CFN observed time difference is calculated from the OFF and Tm parameters contained in the IE "Cell synchronisation information", TS 25.331, clause 10.3.7.6. According to TS 25.331, 8.6.7.7, this IE is included in MEASUREMENT REPORT if IE "Cell synchronisation information reporting indicator" in IE "Cell reporting quantities" TS 25.331, clause 10.3.7.5 is set to TRUE in MEASUREMENT CONTROL.	
Note 2: Reporting interval = 0 ms means no periodical reporting	

ACTIVE SET UPDATE message (step 8):

Information Element/Group name	Type and reference	Value/Remark
Message Type	Message Type	
UE information elements		
RRC transaction identifier	RRC transaction identifier 10.3.3.36	0
Integrity check info	Integrity check info 10.3.3.16	Not Present
Integrity protection mode info	Integrity protection mode info 10.3.3.19	Not Present
Ciphering mode info	Ciphering mode info 10.3.3.5	Not Present
Activation time	Activation time 10.3.3.1	"now".
New U-RNTI	U-RNTI 10.3.3.47	Not Present
CN information elements		
CN Information info	CN Information info 10.3.1.3	Not Present
Phy CH information elements		
Uplink radio resources		
Maximum allowed UL TX power	Maximum allowed UL TX power 10.3.6.39	33 dBm
Downlink radio resources		
Radio link addition information		Radio link addition information required for each RL to add
>Radio link addition information	Radio link addition information 10.3.6.68	
Radio link removal information		Radio link removal information required for each RL to remove
>Radio link removal information	Radio link removal information 10.3.6.69	Not Present
TX Diversity Mode	TX Diversity Mode 10.3.6.86	None
SSDT information	SSDT information 10.3.6.77	Not Present

Radio link addition information

Information Element/Group name	Need	Multi	Type and reference	Value/Remark
Primary CPICH info	MP		Primary CPICH info 10.3.6.60	Same as defined in cell2
Downlink DPCH info for each RL	MP		Downlink DPCH info for each RL 10.3.6.21	See below
TFCI combining indicator	MP		TFCI combining indicator 10.3.6.81	FALSE
SCCPCH Information for FACH	OP		SCCPCH Information for FACH 10.3.6.70	Not Present

Downlink DPCH info for each RL

Information Element/Group name	Type and reference	Value/Remark
CHOICE <i>mode</i>		
>FDD		
>>Primary CPICH usage for channel estimation	Primary CPICH usage for channel estimation 10.3.6.62	Primary CPICH may be used
>>DPCH frame offset	Integer(0..38144 by step of 256)	This should be reflected by the IE " Cell synchronisation information" in received MEASUREMENT REPORT message
>>>Secondary CPICH info	Secondary CPICH info 10.3.6.73	Not Present
>>>DL channelisation code		
>>>>Secondary scrambling code	Secondary scrambling code 10.3.6.74	Not Present
>>>>Spreading factor	Integer(4, 8, 16, 32, 64, 128, 256, 512)	128
>>>>Code number	Integer(0..Spreading factor - 1)	96
>>>>Scrambling code change	Enumerated (code change, no code change)	No code change
>>>TPC combination index	TPC combination index 10.3.6.85	0
>>>SSDT Cell Identity	SSDT Cell Identity 10.3.6.76	Not Present
>>>>Closed loop timing adjustment mode	Integer(1, 2)	Not Present

NOTE 1: These IEs are present when the UE needs to listen to system information on FACH in CELL_DCH state.

8.3.1.5 Test requirements

The average measured quality on the DTCH of the UE downlink during T6 shall be $BLER = 0.01 \pm 30\%$. (The final BLER shall be achieved by integrating over a number of repetitions of procedure step 10).

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.3.2 FDD/FDD Hard Handover

8.3.2.1 FDD/FDD Hard Handover to intra-frequency cell

8.3.2.1.1 Definition and applicability

The hard handover delay of the UE is defined as the time from the end of the last TTI containing an RRC message implying hard handover to the transmission of the new uplink DPCH.

The requirements and this test apply to the FDD UE.

8.3.2.1.2 Minimum requirement

The interruption time shall be less than 110 ms in CELL_DCH state in the single carrier case. The rate of correct handovers observed during repeated tests shall be at least 90% with a confidence level of 95 %.

The hard handover delay D_{handover} equals the RRC procedure delay defined in TS 25.331 clause 13.5.2 plus the interruption time stated in TS 25.133 clause 5.2.2.2 as follows:

The interruption time, i.e. the time between the last TTI containing a transport block on the old DPDCH and the time the UE starts transmission of the new uplink DPCCH, is depending on whether the target cell is known for the UE or not.

If intra-frequency hard handover is commanded or inter-frequency hard handover is commanded when the UE does not need compressed mode to perform inter-frequency measurements, the interruption time shall be less than $T_{\text{interrupt1}}$

$$T_{\text{interrupt1}} = T_{\text{IU}} + 40 + 20 * \text{KC} + 150 * \text{OC} + 10 * F_{\text{max}} \text{ ms}$$

where

T_{IU} is the interruption uncertainty when changing the timing from the old to the new cell. T_{IU} can be up to one frame (10 ms).

KC is the number of known target cells in the message, and

OC is the number of target cells that are not known in the message.

F_{max} denotes the maximum number of radio frames within the transmission time intervals of all transport channels that are multiplexed into the same CCTrCH.

Note: The figure 40 ms is the time required for measuring the downlink DPCCH channel as stated in TS 25.214 clause 4.3.1.2.

In the interruption requirement $T_{\text{interrupt1}}$ a cell is known if either or both of the following conditions are true:

- the UE has had radio links connected to the cell in the previous (old) active set
- the cell has been measured by the UE during the last 5 seconds and the SFN of the cell has been decoded by the UE.

The normative reference for this requirement is TS 25.133 [2] clauses 5.2.2 and A.5.2.1.

8.3.2.1.3 Test purpose

To verify that the UE meets the minimum requirement.

8.3.2.1.4 Method of test

8.3.2.1.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

The test parameters are given in tables 8.3.2.1.1 to 8.3.2.1.3 below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 1A and 1B shall be used, and that CPICH E_c/I_o and SFN-CFN observed timed difference shall be reported together with Event 1A. The test consists of three successive time periods, with a time duration of T1, T2 and T3 respectively. At the start of time duration T1, the UE may not have any timing information of cell 2.

UTRAN shall send a PHYSICAL CHANNEL RECONFIGURATION with activation time "now" with one active cell, cell 2. The Physical Channel reconfiguration message shall be sent to the UE so that the whole message is available at the UE the RRC procedure delay prior to the beginning of T3. The RRC procedure delay is defined in TS 25.331 [8].

N312 shall have the smallest possible value i.e. only one insync is required.

Table 8.3.2.1.1: General test parameters for Handover to intra-frequency cell

Parameter		Unit	Value	Comment
DCH parameters			DL and UL Reference Measurement Channel 12.2 kbps	As specified in clause C.3.1 and C.2.1
Power Control			On	
Target quality value on DTCH		BLER	0.01	
Initial conditions	Active cell		Cell 1	
	Neighbouring cell		Cell 2	
Final condition	Active cell		Cell 2	
Reporting range		dB	3	Applicable for event 1A and 1B
Hysteresis		dB	0	
W			1	Applicable for event 1A and 1B
Reporting deactivation threshold			0	Applicable for event 1A
Time to Trigger		ms	0	
Filter coefficient			0	
T1		s	5	
T2		s	5	
T3		s	5	

Table 8.3.2.1.2: Cell specific test parameters for Handover to intra-frequency cell

Parameter	Unit	Cell 1			Cell 2		
		T1	T2	T3	T1	T2	T3
CPICH_Ec/Ior	dB	-10			-10		
PCCPCH_Ec/Ior	dB	-12			-12		
SCH_Ec/Ior	dB	-12			-12		
PICH_Ec/Ior	dB	-15			-15		
DPCH_Ec/Ior	dB	Note1	Note1	Note3	N/A	N/A	Note1
OCNS		Note2	Note2	Note2	-0.941	-0.941	Note2
\hat{I}_{or}/I_{oc}	dB	0	6.97		-Infinity	5.97	
$\hat{I}_{or} (Note 4)$	dBm	-70.00	-63.03		-Infinity	-64.03	
I_{oc}	dBm/ 3.84 MHz	-70					
CPICH_Ec/Io	dB	-13			-Infinity	-14	
Propagation Condition		AWGN					
Note 1: The DPCH level is controlled by the power control loop Note 2: The power of the OCNS channel that is added shall make the total power from the cell to be equal to I_{or} . Note 3: The DPCH may not be power controlled by the power control loop. Note 4: The nominal \hat{I}_{or} values, although not explicitly defined in 25.133 are added here since they are implied and need to be identified so that the test equipment can be configured.							

8.3.2.1.4.2 Procedure

- 1) The RF parameters are set up according to T1 in table 8.3.2.1.3.
- 2) The UE is switched on.
- 3) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.4.
- 4) SS shall transmit a MEASUREMENT CONTROL message.
- 5) 5 seconds after step 4 has completed, the SS shall switch the power settings from T1 to T2 in table 8.3.2.1.3.
- 6) UE shall transmit a MEASUREMENT REPORT message triggered by event 1A

- 7) SS shall transmit a PHYSICAL CHANNEL RECONFIGURATION message with activation time set to "now". SS shall transmit the whole message such that it will be available at the UE no later than a period equals to the RRC procedure delay (= 80 ms) prior to the beginning of T3.
- 8) After 5 seconds from the beginning of time period T2, the SS shall switch the power settings from T2 to T3 in table 8.3.2.1.3.
- 9) UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the UL DCCH of cell 2. If the UE transmits the UL DPCCH to cell 2 less than 110 ms from the beginning of time period T3 then the number of successful tests is increased by one.
- 10) After 5 seconds from the beginning of time period T3, the UE is switched off. Any timing information of cell 2 is deleted in the UE.
- 11) Repeat step 1-10 until the confidence level according to annex F.6.2 is achieved

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message (step 4):

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements -RRC transaction identifier -Integrity check info	0 Not Present
Measurement Information elements -Measurement Identity -Measurement Command (10.3.7.46) -Measurement Reporting Mode (10.3.7.49) -Measurement Report Transfer Mode -Periodical Reporting / Event Trigger Reporting Mode -Additional measurements list (10.3.7.1)	1 Modify AM RLC Event trigger Not Present
-CHOICE <i>Measurement type</i> -Intra-frequency measurement (10.3.7.36) -Intra-frequency measurement objects list (10.3.7.33) -Intra-frequency measurement quantity (10.3.7.38) -Filter coefficient (10.3.7.9) -CHOICE mode -Measurement quantity -Intra-frequency reporting quantity (10.3.7.41)	Intra-frequency measurement Not Present 0 FDD CPICH_Ec/N0
-Reporting quantities for active set cells (10.3.7.5) -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator	No report TRUE (Note 1) TRUE FDD TRUE TRUE TRUE
-Reporting quantities for monitored set cells (10.3.7.5) -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator	No report TRUE (Note 1) TRUE FDD TRUE TRUE TRUE
-Reporting quantities for detected set cells (10.3.7.5)	Not Present
-Reporting cell status (10.3.7.61) -Measurement validity (10.3.7.51) -CHOICE report criteria -Intra-frequency measurement reporting criteria (10.3.7.39) -Parameters required for each event	Not Present Not Present Intra-frequency measurement reporting criteria 2
-Intra-frequency event identity -Triggering condition 2 -Reporting Range Constant -Cells forbidden to affect Reporting Range -W -Hysteresis -Threshold used frequency -Reporting deactivation threshold -Replacement activation threshold -Time to trigger -Amount of reporting -Reporting interval -Reporting cell status	Event 1A Active set cells and monitored set cells 3 dB Not Present 1.0 0 dB Not Present 0 Not Present 0 ms Infinity 0 ms (Note 2) Not Present
-Intra-frequency event identity -Triggering condition 1 -Reporting Range Constant -Cells forbidden to affect Reporting Range -W -Hysteresis -Threshold used frequency -Reporting deactivation threshold -Replacement activation threshold -Time to trigger	Event 1B Active set cells and monitored set cells 3 dB Not Present 1.0 0 dB Not Present Not Present Not Present 0 ms

Information Element/Group name	Value/Remark
-Amount of reporting -Reporting interval -Reporting cell status	Not Present Not Present Not Present
Physical channel information elements -DPCH compressed mode status info (10.3.6.34)	Not Present
<p>Note 1: The SFN-CFN observed time difference is calculated from the OFF and Tm parameters contained in the IE "Cell synchronisation information", TS 25.331, clause 10.3.7.6. According to TS 25.331, 8.6.7.7, this IE is included in MEASUREMENT REPORT if IE "Cell synchronisation information reporting indicator" in IE "Cell reporting quantities" TS 25.331, clause 10.3.7.5 is set to TRUE in MEASUREMENT CONTROL.</p> <p>Note 2: Reporting interval = 0 ms means no periodical reporting</p>	

PHYSICAL CHANNEL RECONFIGURATION message (step 7):

Information Element	Value/Remark
Message Type	
UE Information Elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
-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_DCH
-UTRAN DRX cycle length coefficient	Not Present
CN Information Elements	
-CN Information info	Not Present
UTRAN mobility information elements	
-URA identity	Not Present
RB information elements	
-Downlink counter synchronisation info	Not Present
PhyCH information elements	
-Frequency info (10.3.6.36)	
-CHOICE mode	FDD
-UARFCN uplink(Nu)	Same uplink UARFCN as used for cell 2
-UARFCN downlink(Nd)	Same downlink UARFCN as used for cell 2
Uplink radio resources	
-Maximum allowed UL TX power	33 dBm
-CHOICE <i>channel requirement</i>	Uplink DPCH info
-Uplink DPCH info (10.3.6.88)	
-Uplink DPCH power control info (10.3.6.91)	
-CHOICE mode	FDD
-DPCCH power offset	-6dB
- PC Preamble	1 frame
- SRB delay	7 frames
- Power Control Algorithm	Algorithm1
- TPC step size	1dB
-CHOICE mode	FDD
-Scrambling code type	Long
-Scrambling code number	0 (0 to 16777215)
-Number of DPDCH	Not Present(1)
-Spreading factor	64
-TFCI existence	TRUE
-Number of FBI bit	Not Present(0)
-Puncturing Limit	1
Downlink radio resources	
-CHOICE <i>mode</i>	FDD
-Downlink PDSCH information	Not Present
-Downlink information common for all radio links (10.3.6.24)	
-Downlink DPCH info common for all RL (10.3.6.18)	
-Timing indicator	Initialise
-CFN-targetSFN frame offset	Not Present
-Downlink DPCH power control information (10.3.6.23)	
-DPC mode	0 (single)
-CHOICE mode	FDD
-Power offset $P_{\text{Pilot-DPCH}}$	0
-DL rate matching restriction information	Not Present
-Spreading factor	128
-Fixed or Flexible Position	Fixed
-TFCI existence	TRUE
-CHOICE SF	128
-Number of bits for Pilot bits(SF=128,256)	8
-CHOICE mode	FDD
-DPCH compressed mode info (10.3.6.33)	Not Present
-TX Diversity mode (10.3.6.86)	None
-SSDT information (10.3.6.77)	Not Present
-Default DPCH Offset Value (10.3.6.16)	0
-Downlink information per radio link list	1
-Downlink information for each radio link (10.3.6.27)	

Information Element	Value/Remark
-CHOICE mode	FDD
-Primary CPICH info (10.3.6.60)	
-Primary scrambling code	350
-PDSCH with SHO DCH info (10.3.6.47)	Not Present
-PDSCH code mapping (10.3.6.43)	Not Present
-Downlink DPCH info for each RL (10.3.6.21)	
-CHOICE mode	FDD
-Primary CPICH usage for channel estimation	Primary CPICH may be used
-DPCH frame offset	0 chips
-Secondary CPICH info	Not Present
-DL channelisation code	
-Secondary scrambling code	Not Present
-Spreading factor	128
-Code number	96
-Scrambling code change	No change
-TPC combination index	0
-SSDT Cell Identity	Not Present
-Closed loop timing adjustment mode	Not Present
-SCCPCH information for FACH (10.3.6.70)	Not Present

MEASUREMENT REPORT message for Intra frequency test cases

This message is common for all intra frequency test cases in clause 8.7 and is described in Annex I.

8.3.2.1.5 Test requirements

For the test to pass, the total number of successful tests shall be more than 90% of the cases with a confidence level of 95 %.

Table 8.3.2.1.3: Test requirements for Handover to intra-frequency cell

Parameter	Unit	Cell 1			Cell 2		
		T1	T2	T3	T1	T2	T3
CPICH_Ec/lor	dB	-9.3			-9.3		
PCCPCH_Ec/lor	dB	-11.3			-11.3		
SCH_Ec/lor	dB	-11.3			-11.3		
PICH_Ec/lor	dB	-14.3			-14.3		
DPCH_Ec/lor	dB	Note1	Note1	Note3	N/A	N/A	Note1
OCNS		Note2	Note2	Note2	-1.13	-1.13	Note2
\hat{I}_{or}/I_{oc} (Note 4)	dB	0	7.0		-Infinity	6.0	
\hat{I}_{or}	dBm	-70.0	-63.0		-Infinity	-64.0	
I_{oc}	dBm/ 3.84 MHz	-70					
CPICH_Ec/lo (Note 4)	dB	-12.3			-Infinity	-13.3	
Propagation Condition		AWGN					
Note 1: The DPCH level is controlled by the power control loop Note 2: The power of the OCNS channel that is added shall make the total power from the cell to be equal to I_{or} . Note 3: The DPCH may not be power controlled by the power control loop. Note 4: These parameters are not directly settable, but are derived by calculation from the settable parameters.							

Note: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.3.2.2 FDD/FDD Hard Handover to inter-frequency cell

8.3.2.2.1 Definition and applicability

The hard handover delay is defined as the time from the end of the last TTI containing an RRC message implying hard handover to the transmission of the new uplink DPCH.

The requirements and this test apply to the FDD UE.

8.3.2.2.2 Minimum requirement

The interruption time shall be less than 140 ms in CELL_DCH state in the dual carrier case. The rate of correct handovers observed during repeated tests shall be at least 90% with a confidence level of 95 %.

The hard handover delay D_{handover} equals the RRC procedure delay defined in TS 25.331 clause 13.5.2 plus the interruption time stated in TS 25.133 clause 5.2.2.2 as follows:

If inter-frequency hard handover is commanded and the UE needs compressed mode to perform inter-frequency measurements, the interruption time shall be less than $T_{\text{interrupt2}}$

$$T_{\text{interrupt2}} = T_{\text{IU}} + 40 + 50 * \text{KC} + 150 * \text{OC} + 10 * F_{\text{max}} \text{ ms}$$

In the interruption requirement $T_{\text{interrupt2}}$ a cell is known if:

- the cell has been measured by the UE during the last 5 seconds.

The phase reference is the primary CPICH.

The normative reference for this requirement is TS 25.133 [2] clauses 5.2.2 and A.5.2.2.

8.3.2.2.3 Test purpose

To verify that the UE meets the minimum requirement.

8.3.2.2.4 Method of test

8.3.2.2.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

The test parameters are given in tables 8.3.2.2.1 to 8.3.2.2.3 below. The test consists of three successive time periods, with a time duration of T1, T2 and T3 respectively. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 2C shall be used. The CPICH Ec/I0 of the best cell on the unused frequency shall be reported together with Event 2C reporting. At the start of time duration T1, the UE may not have any timing information of cell 2.

UTRAN shall send a PHYSICAL CHANNEL RECONFIGURATION with activation time "now" with one active cell, cell 2. The Physical Channel reconfiguration message shall be sent to the UE so that the whole message is available at the UE the RRC procedure delay prior to the beginning of T3. The RRC procedure delay is defined in TS 25.331 [8].

N312 shall have the smallest possible value i.e. only one insync is required.

Table 8.3.2.2.1: General test parameters for Handover to inter-frequency cell

Parameter		Unit	Value	Comment
DCH parameters			DL and UL Reference Measurement Channel 12.2 kbps	As specified in clause C.3.1 and C.2.1
Power Control			On	
Target quality value on DTCH		BLER	0.01	
Compressed mode			A.22 set 1	As specified in TS 34.121 clause C.5.
Initial conditions	Active cell		Cell 1	
	Neighbour cell		Cell 2	
Final conditions	Active cell		Cell 2	
Threshold non used frequency		dB	-18	Absolute E_c/I_0 threshold for event 2C
Hysteresis		dB	0	
W non-used frequency			1	Applicable for event 2C
Time to Trigger		ms	0	
Filter coefficient			0	
T1		s	5	
T2		s	10	
T3		s	5	

Table 8.3.2.2.2: Cell Specific parameters for Handover to inter-frequency cell

Parameter	Unit	Cell 1			Cell 2		
		T1	T2	T3	T1	T2	T3
UTRA RF Channel Number		Channel 1			Channel 2		
CPICH_Ec/I _{or}	dB	-10			-10		
PCCPCH_Ec/I _{or}	dB	-12			-12		
SCH_Ec/I _{or}	dB	-12			-12		
PICH_Ec/I _{or}	dB	-15			-15		
DPCH_Ec/I _{or}	dB	Note1	Note1	Note3	N/A	N/A	Note1
OCNS		Note2	Note2	Note2	-0.941	-0.941	Note2
\hat{I}_{or}/I_{oc}	dB	0			-Infinity	-1.8	-1.8
\hat{I}_{or} (Note 4)	dBm	-70.0			-Infinity	-71.8	-71.8
I_{oc}	dBm/ 3.84 MHz	-70					
CPICH_Ec/I _o	dB	-13			-Infinity	-14	
Propagation Condition		AWGN					
Note 1: The DPCH level is controlled by the power control loop Note 2: The power of the OCNS channel that is added shall make the total power from the cell to be equal to I_{or} . Note 3: The DPCH may not be power controlled by the power control loop. Note 4: The nominal \hat{I}_{or} values, although not explicitly defined in 25.133 are added here since they are implied and need to be identified so that the test equipment can be configured.							

8.3.2.2.4.2 Procedure

- 1) The RF parameters are set up according to T1 in table 8.3.2.2.3.
- 2) The UE is switched on.
- 3) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.4 with Compressed mode parameters as in Table 8.3.2.2.1.
- 4) SS shall transmit a MEASUREMENT CONTROL messages.
- 5) 5 seconds after step 4 has completed, the SS shall switch the power settings from T1 to T2 in table 8.3.2.2.3.

- 6) UE shall transmit a MEASUREMENT REPORT message triggered by event 2C
- 7) SS shall transmit a PHYSICAL CHANNEL RECONFIGURATION message with activation time "now". SS shall transmit the whole message such that will be available at the UE no later than a period equals to the RRC procedure delay (= 80 ms) prior to the beginning of T3.
- 8) After 10 seconds from the beginning of time period T2, the SS shall switch the power settings from T2 to T3 in table 8.3.2.2.3.
- 9) UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the UL DCCH of cell 2. If the UE transmits the UL DPCCH to cell 2 less than 140 ms from the beginning of time period T3 then the number of successful tests is increased by one.
- 10) After 5 seconds from the beginning of time period T3, the UE is switched off. Any timing information of cell 2 is deleted in the UE.
- 11) Repeat step 1-10 until the confidence level according to annex F.6.2 is achieved

Specific Message Contents

All messages indicated below shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message, event 2C (step 4):

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements -RRC transaction identifier -Integrity check info	0 Not Present
Measurement Information elements -Measurement Identity -Measurement Command (10.3.7.46) -Measurement Reporting Mode (10.3.7.49) -Measurement Report Transfer Mode -Periodical Reporting / Event Trigger Reporting Mode -Additional measurements list (10.3.7.1)	2 Setup AM RLC Event trigger Not Present
-CHOICE <i>Measurement type</i> -Inter-frequency measurement (10.3.7.16) -Inter-frequency measurement objects list (10.3.7.13) - CHOICE Inter-frequency cell removal - New Inter frequency cells - Inter frequency cell id - Frequency info - CHOICE mode - UARFCN uplink(Nu) - UARFCN downlink(Nd) - Cell info - Cell individual offset - Reference time difference to cell - Read SFN indicator - CHOICE mode - Primary CPICH info - Primary scrambling code - Primary CPICH Tx Power - Tx Diversity Indicator - Cell Selection and Re-selection info - Cell for measurement -Inter-frequency measurement quantity (10.3.7.18) -CHOICE reporting criteria -Inter-frequency reporting criteria -Filter coefficient -CHOICE mode -Measurement quantity for frequency quality estimate	Inter-frequency measurement Not Present 0 FDD Not Present Same frequency as "Channel2" in Table 8.3.2.2.2 Not Present Not Present TRUE FDD Set to Primary scrambling code of Cell2 Set to Primary CPICH Tx Power of Cell2 described in Table 8.3.2.2.2 FALSE Set to Cell Selection and Re-selection info of Cell2 Not Present Inter-frequency reporting criteria 0 FDD CPICH Ec/N0
-Inter-frequency reporting quantity (10.3.7.21) -UTRA Carrier RSSI -Frequency quality estimate -Non frequency related cell reporting quantities (10.3.7.5) -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator	FALSE FALSE Type 4 TRUE TRUE FDD TRUE TRUE TRUE
-Reporting cell status (10.3.7.61) -CHOICE reported cell -Maximum number of reported cells per reported non-used frequency -Measurement validity (10.3.7.51) -Inter-frequency set update (10.3.7.22) -CHOICE report criteria	Report cells within monitored set on non-used frequency 1 Not Present Not Present Inter-frequency measurement reporting criteria
-Inter-frequency measurement reporting criteria (10.3.7.19) -Parameters required for each event -Inter-frequency event identity (10.3.7.14) -Threshold used frequency	1 Event 2C Not Present

Information Element/Group name	Value/Remark
-W used frequency -Hysteresis -Time to trigger -Reporting cell status (10.3.7.61) -CHOICE reported cell -Maximum number of reported cells per reported non-used frequency -Parameters required for each non-used frequency -Threshold non-used frequency -W non-used frequency	Not Present 0 dB 0 ms Report cells within monitored set on non-used frequency 1 1 -18 dB 1
Physical channel information elements -DPCH compressed mode status info (10.3.6.34)	Not Present

PHYSICAL CHANNEL RECONFIGURATION message (step 7):

Information Element	Value/Remark
Message Type	
UE Information Elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
-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_DCH
-UTRAN DRX cycle length coefficient	Not Present
CN Information Elements	
-CN Information info	Not Present
UTRAN mobility information elements	
-URA identity	Not Present
RB information elements	
-Downlink counter synchronisation info	Not Present
>RB with PDCP information list	Not Present
>>RB with PDCP information	Not Present
PhyCH information elements	
-Frequency info (10.3.6.36)	
-CHOICE mode	FDD
-UARFCN uplink(Nu)	Same uplink UARFCN as used for cell 2
-UARFCN downlink(Nd)	Same downlink UARFCN as used for cell 2
Uplink radio resources	
-Maximum allowed UL TX power	33 dBm
-CHOICE <i>channel requirement</i>	Uplink DPCH info
-Uplink DPCH info (10.3.6.88)	
-Uplink DPCH power control info (10.3.6.91)	
-CHOICE mode	FDD
-DPCCH power offset	-6dB
- PC Preamble	1 frame
- SRB delay	7 frames
- Power Control Algorithm	Algorithm1
- TPC step size	1dB
-CHOICE mode	FDD
-Scrambling code type	Long
-Scrambling code number	0 (0 to 16777215)
-Number of DPDCH	Not Present(1)
-Spreading factor	64
-TFCI existence	TRUE
-Number of FBI bit	Not Present(0)
-Puncturing Limit	1
Downlink radio resources	
-CHOICE <i>mode</i>	FDD
-Downlink PDSCH information	Not Present
-Downlink information common for all radio links (10.3.6.24)	
-Downlink DPCH info common for all RL (10.3.6.18)	
-Timing indicator	Initialise
-CFN-targetSFN frame offset	Not Present
-Downlink DPCH power control information (10.3.6.23)	
-DPC mode	0 (single)
-CHOICE mode	FDD
-Power offset $P_{\text{Pilot-DPDCH}}$	0
-DL rate matching restriction information	Not Present
-Spreading factor	128
-Fixed or Flexible Position	Fixed
-TFCI existence	TRUE
-CHOICE SF	128
-Number of bits for Pilot bits(SF=128,256)	8
-CHOICE mode	FDD
-DPCH compressed mode info (10.3.6.33)	
- Transmission gap pattern sequence	1
- TGPSI	1
- TGPS Status Flag	deactivate

Information Element	Value/Remark
- TGCFN	Not Present
- Transmission gap pattern sequence configuration parameters	Not Present
-TX Diversity mode (10.3.6.86)	None
-SSDT information (10.3.6.77)	Not Present
-Default DPCH Offset Value (10.3.6.16)	0
-Downlink information per radio link list	1
-Downlink information for each radio link (10.3.6.27)	
-CHOICE mode	FDD
-Primary CPICH info (10.3.6.60)	
-Primary scrambling code	350
-PDSCH with SHO DCH info (10.3.6.47)	Not Present
-PDSCH code mapping (10.3.6.43)	Not Present
-Downlink DPCH info for each RL (10.3.6.21)	
-CHOICE mode	FDD
-Primary CPICH usage for channel estimation	Primary CPICH may be used
-DPCH frame offset	0 chips
-Secondary CPICH info	Not Present
-DL channelisation code	
-Secondary scrambling code	Not Present
-Spreading factor	128
-Code number	96
-Scrambling code change	No change
-TPC combination index	0
- SSDT Cell Identity	Not Present
- Closed loop timing adjustment mode	Not Present
- SCCPCH information for FACH (10.3.6.70)	Not Present

MEASUREMENT REPORT message for Inter frequency test cases

This message is common for all inter frequency test cases in clause 8.7 and is described in Annex I.

8.3.2.2.5 Test requirements

For the test to pass, the total number of successful tests shall be more than 90% of the cases with a confidence level of 95 %.

Table 8.3.2.2.3: Test requirements for Handover to inter-frequency cell

Parameter	Unit	Cell 1			Cell 2		
		T1	T2	T3	T1	T2	T3
UTRA RF Channel Number		Channel 1			Channel 2		
CPICH_Ec/Ior	dB	-9.2			-9.2		
PCCPCH_Ec/Ior	dB	-11.2			-11.2		
SCH_Ec/Ior	dB	-11.2			-11.2		
PICH_Ec/Ior	dB	-14.2			-14.2		
DPCH_Ec/Ior	dB	Note1	Note1	Note3	N/A	N/A	Note1
OCNS		Note2	Note2	Note2	-1.16	-1.16	Note2
\hat{I}_{or}/I_{oc} (Note 4)	dB	0			-Infinity	-1.8	-1.8
\hat{I}_{or}	dBm	-70.0			-Infinity	-71.8	-71.8
I_{oc}	dBm/ 3.84 MHz	-70					
CPICH_Ec/Io (Note 4)	dB	-12.2			-Infinity	-13.2	
Propagation Condition		AWGN					
Note 1:	The DPCH level is controlled by the power control loop						
Note 2:	The power of the OCNS channel that is added shall make the total power from the cell to be equal to I_{or} .						
Note 3:	The DPCH may not be power controlled by the power control loop.						
Note 4:	These parameters are not directly settable, but are derived by calculation from the settable parameters.						

Note: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.3.3 FDD/TDD Handover

8.3.3.1 Definition and applicability

The hard handover delay is defined as the time from the end of the last TTI containing an RRC message implying hard handover to the transmission of the new uplink DPCH.

The requirements and this test apply to the combined FDD and TDD UE.

8.3.3.2 Minimum requirement

The hard handover delay shall be less than 70 ms in CELL_DCH state in the dual carrier case. The rate of correct handovers observed during repeated tests shall be at least 90% with a confidence level of 95 %.

The hard handover delay D_{handover} equals the RRC procedure delay defined in TS 25.331 clause 13.5.2 plus the interruption time stated in TS 25.133 clause 5.3.2.2 as follows:

If FDD/TDD handover is commanded, the interruption time shall be less than,

$$T_{\text{interrupt}} = T_{\text{offset}} + T_{\text{UL}} + 30 * F_{\text{SFN}} + 20 * \text{KC} + 180 * \text{UC} \text{ ms}$$

where,

T_{offset}	Equal to 10 ms, the frame timing uncertainty between the old cell and the target cell and the time that can elapse until the appearance of a Beacon channel
T_{UL}	Equal to 10 ms, the time that can elapse until the appearance of the UL timeslot in the target cell
F_{SFN}	Equal to 1 if SFN decoding is required and equal to 0 otherwise
KC	Equal to 1 if a known target cell is indicated in the RRC message implying FDD/TDD handover and equal to 0 otherwise
UC	Equal to 1 if an unknown target cell is indicated in the RRC message implying FDD/TDD handover and equal to 0 otherwise

An inter-frequency TDD target cell shall be considered known by the UE, if the target cell has been measured by the UE during the last 5 seconds.

The phase reference is the primary CPICH.

The normative reference for this requirement is TS 25.133 [2] clauses 5.3.2 and A.5.3.2.

8.3.3.3 Test purpose

To verify that the UE meets the minimum requirement.

8.3.3.4 Method of test

8.3.3.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

The test parameters are given in Table 8.3.2.2.1 and 8.3.2.2.2 below. The test consists of three successive time periods, with a time duration of T1, T2 and T3 respectively. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 2C shall be used. The Primary CCPCH RSCP of the best cell on the unused

frequency shall be reported together with Event 2C reporting. At the start of time duration T1, the UE may not have any timing information of cell 2.

UTRAN shall send a PHYSICAL CHANNEL RECONFIGURATION with activation time "now" with one active cell, cell 2. The Physical Channel reconfiguration message shall be sent to the UE so that the whole message is available at the UE the RRC procedure delay prior to the beginning of T3. The RRC procedure delay is defined in TS 25.133 [2].

The UL DPCH in cell 2 shall be transmitted in timeslot 10.

Table 8.3.3.1: General test parameters for Handover to TDD cell

Parameter		Unit	Value	Comment
DCH parameters			DL Reference Measurement Channel 12.2 kbps	As specified in TS 34.121 clause C.3.1 and in TS 34.122 clause C.2.2
Power Control			On	
Target quality value on DTCH		BLER	0.01	
Compressed mode			A.22 set 3	As specified in TS 34.121 clause C.5
Initial conditions	Active cell		Cell 1	FDD cell
	Neighbour cell		Cell 2	TDD cell
Final condition	Active cell		Cell 2	TDD cell
O		dB	0	Cell individual offset. This value shall be used for all cells in the test.
Hysteresis		dB	0	Hysteresis parameter for event 2C
Time to Trigger		ms	0	
Threshold non-used frequency		dBm	-75	Applicable for Event 2C
Filter coefficient			0	
Monitored cell list size			6 FDD neighbours on Channel 1 6 TDD neighbours on Channel 2	
T _{SI}		s	1.28	The value shall be used for all cells in the test
T1		s	5	
T2		s	15	
T3		s	5	

Table 8.3.3.2: Cell Specific parameters for Handover to TDD cell (cell 1)

Parameter	Unit	Cell 1	
		T1, T2	T3
UTRA RF Channel Number		Channel 1	
CPICH_Ec/I _{or}	dB	-10	
P-CCPCH_Ec/I _{or}	dB	-12	
SCH_Ec/I _{or}	dB	-12	
PICH_Ec/I _{or}	dB	-15	
DPCH_Ec/I _{or}	dB	Note 1	n.a.
OCNS_Ec/I _{or}	dB	Note 2	
\hat{I}_{or}/I_{oc}	dB	0	
I_{oc}	dBm/3.84 MHz	-70	
CPICH_Ec/I _o	dB	-13	
Propagation Condition		AWGN	
Note 1: The DPCH level is controlled by the power control loop			
Note 2: The power of the OCNS channel that is added shall make the total power from the cell to be equal to I _{or}			

Table 8.3.3.3: Cell Specific parameters for Handover to TDD cell (cell 2)

Parameter	Unit	Cell 2								
		0			2			8		
DL timeslot number		T1	T2	T3	T1	T2	T3	T1	T2	T3
UTRA RF Channel Number		Channel 2								
P-CCPCH_Ec/I _{or}	dB	-3			n.a.			n.a.		
PICH_Ec/I _{or}	dB	n.a.			n.a.			-3		
SCH_Ec/I _{or}	dB	-9			n.a.			-9		
SCH_t _{offset}	dB	5			n.a.			5		
DPCH_Ec/I _{or}	dB	n.a.			n.a.		Note 1	n.a.		
OCNS_Ec/I _{or}	dB	-3.12			0		Note 2	-3.12		
\hat{I}_{or}/I_{oc}	dB	-Inf	6		-Inf	6		-Inf	6	
P-CCPCH RSCP	dBm	-Inf	-67		n.a.			n.a.		
I_{oc}	dBm/3.84 MHz	-70								
Propagation Condition		AWGN								
Note 1: The DPCH level is controlled by the power control loop										
Note 2: The power of the OCNS channel that is added shall make the total power from the cell to be equal to I _{or} .										
Note that the transmit energy per PN chip for the SCH is averaged over the 256 chip duration when the SCH is present in the time slot.										

8.3.3.4.2 Procedure

- 1) The RF parameters are set up according to T1.
- 2) The UE is switched on.
- 3) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.4 with Compressed mode parameters as in Table 8.3.2.2.1.
- 4) SS shall transmit a MEASUREMENT CONTROL message.
- 5) After 5 seconds, the SS shall switch the power settings from T1 to T2.
- 6) UE shall transmit a MEASUREMENT REPORT message triggered by event 2C.
- 7) SS shall transmit a PHYSICAL CHANNEL RECONFIGURATION message with activation time "now".

- 8) After 10 seconds, the SS shall switch the power settings from T2 to T3.
- 9) UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the UL DCCH of cell 2. If the UE transmits the UL DPCCH to cell 2 less than 70 ms from the beginning of time period T3 then the number of successful tests is increased by one.
- 10) After 5 seconds, the UE is switched off. Any timing information of cell 2 is deleted in the UE.
- 11) Repeat step 1-10 until the confidence level according to annex F.6.2 is achieved.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message, event 2C (step 4):

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements -RRC transaction identifier -Integrity check info	0 Not Present
Measurement Information elements -Measurement Identity -Measurement Command (10.3.7.46) -Measurement Reporting Mode (10.3.7.49) -Measurement Report Transfer Mode -Periodical Reporting / Event Trigger Reporting Mode -Additional measurements list (10.3.7.1)	1 Modify AM RLC Event trigger Not Present
-CHOICE <i>Measurement type</i> -Inter-frequency measurement (10.3.7.16) -Inter-frequency measurement objects list (10.3.7.13) -Inter-frequency measurement quantity (10.3.7.18) -CHOICE <i>reporting criteria</i> -Inter-frequency reporting criteria -Filter coefficient -CHOICE <i>mode</i> -Measurement quantity for frequency quality estimate	Inter-frequency measurement Not Present Inter-frequency reporting criteria 0 TDD Primary CCPCH RSCP
-Inter-frequency reporting quantity (10.3.7.21) -UTRA Carrier RSSI -Frequency quality estimate -Non frequency related cell reporting quantities (10.3.7.5) -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE <i>mode</i> -Timeslot ISCP reporting indicator -Proposed TGSN reporting required -Primary CCPCH RSCP reporting indicator -Pathloss reporting indicator	FALSE FALSE Type 4 TRUE TRUE TDD TRUE FALSE TRUE TRUE
-Reporting cell status (10.3.7.61) -CHOICE <i>reported cell</i> -Maximum number of reported cells per reported non-used frequency -Measurement validity (10.3.7.51) -Inter-frequency set update (10.3.7.22) -CHOICE <i>report criteria</i>	Report cells within monitored set on non-used frequency 1 Not Present Not Present Inter-frequency measurement reporting criteria
-Inter-frequency measurement reporting criteria (10.3.7.19) -Parameters required for each event -Inter-frequency event identity (10.3.7.14) -Threshold used frequency -W used frequency -Hysteresis -Time to trigger -Reporting cell status (10.3.7.61) -CHOICE <i>reported cell</i> -Maximum number of reported cells per reported non-used frequency -Parameters required for each non-used frequency -Threshold non-used frequency -W non-used frequency	1 Event 2C Not Present Not Present 0 dB 0 ms Report cells within monitored set on non-used frequency 1 1 -80 dBm 1
Physical channel information elements -DPCH compressed mode status info (10.3.6.34)	Not Present

PHYSICAL CHANNEL RECONFIGURATION message (step 7):

Information Element	Value/Remark
Message Type	
UE Information Elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
-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_DCH
-UTRAN DRX cycle length coefficient	Not Present
CN Information Elements	
-CN Information info	Not Present
UTRAN mobility information elements	
-URA identity	Not Present
RB information elements	
-Downlink counter synchronisation info	Not Present
-RB with PDCP information list	Not Present
-RB with PDCP information	Not Present
PhyCH information elements	
-Frequency info (10.3.6.36)	
-CHOICE <i>mode</i>	TDD
-UARFCN (Nt)	Same UARFCN as used for cell 2
Uplink radio resources	
-Maximum allowed UL TX power	33 dBm
-CHOICE <i>channel requirement</i>	Uplink DPCH info
-Uplink DPCH info (10.3.6.88)	
-Uplink DPCH power control info (10.3.6.91)	
-CHOICE <i>mode</i>	TDD
-CHOICE <i>TDD option</i>	3.84 Mcps TDD
-UL Target SIR	Not Present
-CHOICE <i>UL OL PC info</i>	Individually signalled
-CHOICE <i>TDD option</i>	3.84 Mcps TDD
-Individual Timeslot interference info	1
-Individual timeslot interference (10.3.6.38)	
-Timeslot Number (10.3.6.84)	
-CHOICE <i>TDD option</i>	3.84 Mcps TDD
-Timeslot number	10
- UL Timeslot Interference	-90 dBm
-CHOICE <i>mode</i>	TDD
-Uplink timing advance control (10.3.6.96)	
-CHOICE <i>Timing Advance</i>	Disabled
-UL CCTrCH list	1
-UL Target SIR	TBD dB
-Time Info (10.3.6.83)	
-Activation Time	"now"
-Duration	Infinite
-Common timeslot info	Not Present
-Uplink DPCH timeslots and codes (10.3.6.94)	
-Dynamic SF Usage	False
-First individual timeslot info (10.3.6.37)	
-Timeslot Number (10.3.6.84)	
-CHOICE <i>TDD option</i>	3.84 Mcps
-Timeslot number	10
-TFCl existence	True
-Midamble shift and burst type (10.3.6.41)	
-CHOICE <i>TDD option</i>	3.84 Mcps
-CHOICE <i>Burst Type</i>	Type 1
-Midamble Allocation Mode	Default
-Midamble configuration burst type 1 and 3	16
-Midamble shift	Not present
-CHOICE <i>TDD option</i>	3.84 Mcps
-First timeslot code list	1
-Channelisation code	8/1
-CHOICE <i>more timeslots</i>	No more timeslots

Information Element	Value/Remark
Downlink radio resources	
-CHOICE <i>mode</i>	TDD
-Downlink information common for all radio links (10.3.6.24)	
-Downlink DPCH info common for all RL (10.3.6.18)	
-Timing indicator	Initialise
-CFN-targetSFN frame offset	Not Present
-Downlink DPCH power control information (10.3.6.23)	
-CHOICE <i>mode</i>	TDD
-TPC Step size	1 dB
-CHOICE <i>mode</i>	TDD
-CHOICE <i>mode</i>	TDD
-CHOICE <i>TDD option</i>	3.84 Mcps
-TX Diversity mode (10.3.6.86)	None
-Default DPCH Offset Value (10.3.6.16)	0
-Downlink information per radio link list	1
-Downlink information for each radio link (10.3.6.27)	
-CHOICE <i>mode</i>	TDD
-Primary CCPCH info (10.3.6.57)	
- CHOICE <i>mode</i>	TDD
- CHOICE <i>TDD option</i>	3.84 Mcps
- CHOICE <i>sync case</i>	Case 2
- Timeslot	0
- Cell parameters ID	20
- SCTD indicator	False
-Downlink DPCH info for each RL (10.3.6.21)	
-CHOICE <i>mode</i>	TDD
- DL CCTrCH list	1
-TFCS ID	Not Present
-Time Info (10.3.6.83)	
-Activation Time	"now"
-Duration	Infinite
-Common timeslot info	Not Present
- Downlink DPCH timeslots and codes (10.3.6.32)	
- First individual timeslot info (10.3.6.37)	
- Timeslot Number (10.3.6.84)	
- CHOICE <i>TDD option</i>	3.84 Mcps
- Timeslot number	2
- TFCI existence	True
- Midamble shift and burst type (10.3.6.41)	
- CHOICE <i>TDD option</i>	3.84 Mcps
- CHOICE <i>Burst Type</i>	Type 1
- Midamble Allocation Mode	Default
- Midamble configuration burst type 1 and 3	16
- Midamble shift	Not present
- CHOICE <i>TDD option</i>	3.84 Mcps
- First timeslot channelisation codes (10.3.6.17)	
- CHOICE <i>codes representation</i>	Consecutive codes
- First channelisation code	16/1
- Last channelisation code	16/2
- CHOICE <i>more timeslots</i>	No more timeslots
- SCCPCH information for FACH (10.3.6.70)	Not Present

MEASUREMENT REPORT message for Inter frequency test cases

This message is common for all inter frequency test cases in clause 8.7 and is described in Annex I.

8.3.3.5 Test requirements

For the test to pass, the total number of successful tests shall be more than 90% of the cases with a confidence level of 95 %.

Note: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.6 UE Measurements Procedures

8.6.1 FDD intra frequency measurements

8.6.1.1 Event triggered reporting in AWGN propagation conditions

8.6.1.1.1 Definition and applicability

In the event triggered reporting period the measurement reporting delay is defined as the time between any event that will trigger a measurement report until the UE starts to transmit over the Uu interface. This requirement assumes that the measurement report is not delayed by other RRC signalling on the DCCH. This measurement reporting delay excludes a delay uncertainty resulted when inserting the measurement report to the TTI of the uplink DCCH. The delay uncertainty is twice the TTI of the uplink DCCH.

The requirements and this test apply to the FDD UE.

8.6.1.1.2 Minimum requirements

The UE shall be able to identify and decode the SFN of a new detectable cell belonging to the monitored set within

$$T_{\text{identify intra}} = \text{Max} \left\{ 800, T_{\text{basic identify FDD, intra}} \cdot \frac{T_{\text{Measurement Period, Intra}}}{T_{\text{Intra}}} \right\} \text{ms}$$

A cell shall be considered detectable when CPICH Ec/Io \geq -20 dB, SCH_Ec/Io \geq -20 dB for at least one channel tap and SCH_Ec/Io is equally divided between primary synchronisation code and secondary synchronisation code. When L3 filtering is used an additional delay can be expected.

In the CELL_DCH state the measurement period for intra frequency measurements is 200 ms. When no transmission gap pattern sequence is activated, the UE shall be capable of performing CPICH measurements for 8 identified intra-frequency cells of the monitored set and/or the active set, and the UE physical layer shall be capable of reporting measurements to higher layers with the measurement period of 200 ms. When one or more transmission gap pattern sequences are activated, the UE shall be capable of performing CPICH measurements for at least $Y_{\text{measurement intra}}$ cells, where $Y_{\text{measurement intra}}$ is defined in the following equation. The measurement accuracy for all measured cells shall be as specified in the sub-clause 9.1.1 and 9.1.2 of TS 25.133 [2]. If the UE has identified more than $Y_{\text{measurement intra}}$ cells, the UE shall perform measurements of all identified cells but the reporting rate of CPICH measurements of cells from UE physical layer to higher layers may be decreased.

$$Y_{\text{measurement intra}} = \text{Floor} \left\{ X_{\text{basic measurement FDD}} \cdot \frac{T_{\text{Intra}}}{T_{\text{Measurement Period, Intra}}} \right\} \text{ cells}$$

where

$$X_{\text{basic measurement FDD}} = 8 \text{ (cells)}$$

$$T_{\text{Measurement_Period Intra}} = 200 \text{ ms. The measurement period for Intra frequency CPICH measurements.}$$

T_{Intra} : This is the minimum time that is available for intra frequency measurements, during the measurement period with an arbitrarily chosen timing.

$T_{\text{basic_identify_FDD, intra}} = 800$ ms. This is the time period used in the intra frequency equation where the maximum allowed time for the UE to identify a new FDD cell is defined.

The event triggered measurement reporting delay, on cells belonging to monitored set, measured without L3 filtering, shall be less than the above defined $T_{\text{identify intra}}$ defined above.

If a cell, belonging to monitored set, which the UE has identified and measured at least once over the measurement period, becomes undetectable for a period < 5 seconds and then the cell becomes detectable again and triggers an event, the measurement reporting delay shall be less than $T_{\text{Measurement_Period Intra}}$ ms provided the timing to that cell has not

changed more than +/-32 chips, the UE CPICH measurement capabilities defined above are valid and L3 filtering has not been used. When L3 filtering is used an additional delay can be expected.

If a cell belonging to monitored set has been detectable at least for the time period $T_{\text{identify_intra}}$ and then enters or leaves the reporting range, the event triggered measurement reporting delay shall be less than $T_{\text{Measurement_Period Intra}}$ when the L3 filter has not been used and the UE CPICH measurement capabilities defined above are valid.

The normative reference for these requirements is TS 25.133 [2] clauses 8.1.2.2 and A.8.1.1.

8.6.1.1.3 Test purpose

To verify that the UE meets the minimum requirements.

8.6.1.1.4 Method of test

8.6.1.1.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

The test parameters are given in table 8.6.1.1.1 and 8.6.1.1.2 below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 1A and 1B shall be used. The test consists of three successive time periods, with a time duration of T1, T2 and T3 respectively. During time duration T1, the UE shall not have any timing information of cell 2.

Table 8.6.1.1.1: General test parameters for Event triggered reporting in AWGN propagation conditions

Parameter	Unit	Value	Comment
DCH parameters		DL and UL Reference Measurement Channel 12.2 kbps	As specified in C.3.1 and C.2.1
Power Control		On	
Active cell		Cell 1	
Reporting range	dB	3	Applicable for event 1A and 1B
Hysteresis	dB	0	
W		1	Applicable for event 1A and 1B
Reporting deactivation threshold		0	Applicable for event 1A
Time to Trigger	ms	0	
Filter coefficient		0	
Monitored cell list size		24	
T1	s	5	
T2	s	5	
T3	s	5	

Table 8.6.1.1.2: Cell specific test parameters for Event triggered reporting in AWGN propagation conditions

Parameter	Unit	Cell 1			Cell 2		
		T1	T2	T3	T1	T2	T3
CPICH_Ec/I _{or}	dB		-10			-10	
PCCPCH_Ec/I _{or}	dB		-12			-12	
SCH_Ec/I _{or}	dB		-12			-12	
PICH_Ec/I _{or}	dB		-15			-15	
DPCH_Ec/I _{or}	dB		-17			N/A	
OCNS			-1.049			-0.941	
\hat{I}_{or}/I_{oc}	dB	0	6.97	0	-Infinity	5.97	-Infinity
I_{oc}	dBm/3.84 MHz	-70					
CPICH_Ec/I _o	dB	-13	-13	-13	-Infinity	-14	-Infinity
Propagation Condition		AWGN					

8.6.1.1.4.2 Procedure

1. The RF parameters are set up according to T1.
2. The UE is switched on.
3. A call is set up according to the test procedure specified in TS 34.108 [3] sub clause 7.3.2.3.
4. SS shall transmit a MEASUREMENT CONTROL message.
5. After 5 seconds from the beginning of T1, the SS shall switch the power settings from T1 to T2.
6. UE shall transmit a MEASUREMENT REPORT message triggered by event 1A. The measurement reporting delay from the beginning of T2 shall be less than 880 ms. If the UE fails to report the event within the required delay, then a failure is recorded. If the reporting delay for this event is within the required limit, the number of successful tests is increased by one.
7. After 5 seconds from the beginning of T2, the SS shall switch the power settings from T2 to T3.
8. UE shall transmit a MEASUREMENT REPORT message triggered by event 1B. The measurement reporting delay from the beginning of T3 shall be less than 280 ms. If the reporting delay for this event is within the required limit, the number of successful tests is increased by one.
9. After 5 seconds from the beginning of T3, the UE is switched off. Any timing information of cell 2 is deleted in the UE.
10. Repeat steps 1-9 according to Annex F.6.2 Table 6.2.8.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message:

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements -RRC transaction identifier -Integrity check info	0 Not Present
Measurement Information elements -Measurement Identity -Measurement Command (10.3.7.46) -Measurement Reporting Mode (10.3.7.49) -Measurement Report Transfer Mode -Periodical Reporting / Event Trigger Reporting Mode -Additional measurements list (10.3.7.1)	1 Modify AM RLC Event trigger Not Present
-CHOICE <i>Measurement type</i> -Intra-frequency measurement (10.3.7.36) -Intra-frequency measurement objects list (10.3.7.33) -Intra-frequency measurement quantity (10.3.7.38) -Filter coefficient (10.3.7.9) -CHOICE mode -Measurement quantity -Intra-frequency reporting quantity (10.3.7.41)	Intra-frequency measurement Not Present 0 FDD CPICH_Ec/N0
-Reporting quantities for active set cells (10.3.7.5) -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator	No report TRUE (Note 1) TRUE FDD TRUE TRUE TRUE
-Reporting quantities for monitored set cells (10.3.7.5) -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator	No report TRUE (Note 1) TRUE FDD TRUE TRUE TRUE
-Reporting quantities for detected set cells (10.3.7.5)	Not Present
-Reporting cell status (10.3.7.61) -Measurement validity (10.3.7.51) -CHOICE report criteria -Intra-frequency measurement reporting criteria (10.3.7.39) -Parameters required for each event	Not Present Not Present Intra-frequency measurement reporting criteria 2
-Intra-frequency event identity -Triggering condition 2 -Reporting Range Constant -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W -Hysteresis -Threshold used frequency -Reporting deactivation threshold -Replacement activation threshold -Time to trigger -Amount of reporting -Reporting interval -Reporting cell status	Event 1A Monitored set cells 3 dB Not Present FDD 1.0 0 dB Not Present 0 Not Present 0 ms Not present 0 ms (Note 2) Not Present
-Intra-frequency event identity -Triggering condition 1 -Reporting Range Constant -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W -Hysteresis	Event 1B Active set cells and monitored set cells 3 dB Not Present FDD 1.0 0 dB

Information Element/Group name	Value/Remark
-Threshold used frequency	Not Present
-Reporting deactivation threshold	Not Present
-Replacement activation threshold	Not Present
-Time to trigger	0 ms
-Amount of reporting	Not Present
-Reporting interval	0 ms (note 2)
-Reporting cell status	Not Present
Physical channel information elements	
-DPCH compressed mode status info (10.3.6.34)	Not Present
Note 1: The SFN-CFN observed time difference is calculated from the OFF and Tm parameters contained in the IE "Cell synchronisation information", TS 25.331, clause 10.3.7.6. According to TS 25.331, 8.6.7.7, this IE is included in MEASUREMENT REPORT if IE "Cell synchronisation information reporting indicator" in IE "Cell reporting quantities" TS 25.331, clause 10.3.7.5 is set to TRUE in MEASUREMENT CONTROL.	
Note 2: Reporting interval = 0 ms means no periodical reporting	

MEASUREMENT REPORT message for Intra frequency test cases

This message is common for all intra frequency test cases is described in Annex I.

8.6.1.1.5 Test requirements

For the test to pass, the total number of successful tests shall be at least 90%, of the cases with a confidence level of s95%. The number of successful tests shall be on an event level, i.e. the SS shall check how many events are reported successfully out of the total number of events checked.

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.6.1.2 Event triggered reporting of multiple neighbours in AWGN propagation condition

8.6.1.2.1 Definition and applicability

In the event triggered reporting period the measurement reporting delay is defined as the time between any event that will trigger a measurement report until the UE starts to transmit over the Uu interface. This requirement assumes that the measurement report is not delayed by other RRC signalling on the DCCH. This measurement reporting delay excludes a delay uncertainty resulted when inserting the measurement report to the TTI of the uplink DCCH. The delay uncertainty is twice the TTI of the uplink DCCH.

The requirements and this test apply to the FDD UE.

8.6.1.2.2 Minimum requirements

The requirements are the same as in sub clause 8.6.1.1.2.

The normative reference for these requirements is TS 25.133 [2] clauses 8.1.2.2 and A.8.1.2.

8.6.1.2.3 Test purpose

To verify that the UE meets the minimum requirements.

8.6.1.2.4 Method of test

8.6.1.2.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

The initial test parameters are given in table 8.6.1.2.1.

Table 8.6.1.2.1: Cell specific initial test parameters for Event triggered reporting of multiple neighbours in AWGN propagation conditions

Parameter	Unit	Cell 1	Cell 2	Cell3
		T0	T0	T0
CPICH_Ec/lor	dB	-10	-10	-10
PCCPCH_Ec/lor	dB	-12	-12	-12
SCH_Ec/lor	dB	-12	-12	-12
PICH_Ec/lor	dB	-15	-15	-15
DPCH_Ec/lor	dB	-17	N/A	N/A
OCNS_Ec/lor	dB	-1.049	-0.941	-0.941
\hat{I}_{or}/I_{oc}	dB	0	-Inf	-Inf
I_{oc}	dBm/ 3.84 MHz	-85		
CPICH_Ec/lo	dB	-13	-Inf	-Inf
Propagation Condition	AWGN			

The test parameters are given in table 8.6.1.2.2 and 8.6.1.2.3. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 1A, 1C and 1B shall be used and the periodical reporting of the events is not applied. The test consists of four successive time periods, with a time duration of T1, T2, T3 and T4 respectively. In the initial condition before the time T1 only Cell1 is active.

Table 8.6.1.2.2: General test parameters for Event triggered reporting of multiple neighbours in AWGN propagation conditions

Parameter	Unit	Value	Comment
DCH parameters		DL and UL Reference Measurement Channel 12.2 kbps	As specified in C.3.1 and C.2.1
Power Control		On	
Active cell		Cell 1	
Reporting range	dB	3	Applicable for event 1A and 1B
Hysteresis	dB	0	
W		1	Applicable for event 1A and 1B
Replacement activation threshold		0	Applicable for event 1C
Reporting deactivation threshold		0	Applicable for event 1A
Time to Trigger	ms	0	
Filter coefficient		0	
Monitored cell list size		32	
T1	S	10	
T2	S	10	
T3	S	5	
T4	S	10	

Table 8.6.1.2.3: Cell specific test parameters for Event triggered reporting of multiple neighbours in AWGN propagation condition

Parameter	Unit	Cell 1				Cell 2				Cell3			
		T1	T2	T3	T4	T1	T2	T3	T4	T1	T2	T3	T4
CPICH_Ec/lor	dB	-10				-10				-10			
PCCPCH_Ec/lor	dB	-12				-12				-12			
SCH_Ec/lor	dB	-12				-12				-12			
PICH_Ec/lor	dB	-15				-15				-15			
DPCH_Ec/lor	dB	-17				N/A				N/A			
OCNS_Ec/lor	dB	-1.049				-0.941				-0.941			
\hat{I}_{or}/I_{oc}	dB	6.97	6.93	5.97	6.12	-Inf	9.43	6.97	7.62	5.97	6.93	-Inf	5.62
I_{oc}	dBm/ 3.84 MHz	-85											
CPICH_Ec/lo	dB	-13	-16	-14	-15.5	-Inf	-13.5	-13	-14	-14	-16	-Inf	-16
Propagation Condition	AWGN												

8.6.1.2.4.2 Procedure

- 1) The RF parameters are set up according to T0.
- 2) The UE is switched on.
- 3) A call is set up according to the test procedure specified in TS 34.108 [3] sub clause 7.3.2.3.
- 4) SS shall transmit a MEASUREMENT CONTROL message.
- 5) 5 seconds after step4 has completed, the SS shall switch the power settings for T0 to T1.
- 6) UE shall transmit a MEASUREMENT REPORT message for Cell 3 triggered by event 1A. The measurement reporting delay from the beginning of T1 shall be less than 880 ms. If the UE fails to report the event within the required delay, then a failure is recorded. If the reporting delay for this event is within the required limit, the number of successful tests is increased by one.
- 7) UE may transmit a MEASUREMENT REPORT message for Cell 3 triggered by event 1C. In case it doesn't this shall not be considered as a failure.
- 8) After 10 seconds from the beginning of T1, the SS shall switch the power settings from T1 to T2.
- 9) UE shall transmit a MEASUREMENT REPORT message for Cell 2 triggered by event 1C. The measurement reporting delay from the beginning of T2 shall be less than 880 ms. If the UE fails to report the event within the required delay, then a failure is recorded. If the reporting delay for this event is within the required limit, the number of successful tests is increased by one.
- 10) UE shall transmit a MEASUREMENT REPORT message for Cell 2 triggered by event 1A. The measurement reporting delay from the beginning of T2 shall be less than 880 ms. If the UE fails to report the event within the required delay, then a failure is recorded. If the reporting delay for this event is within the required limit, the number of successful tests is increased by one.
- 11) UE may transmit a MEASUREMENT REPORT message for Cell 3 triggered by event 1C. In case it doesn't this shall not be considered as a failure.
- 12) After 10 seconds from the beginning of T2, the SS shall switch the power settings from T2 to T3.
- 13) UE shall transmit a MEASUREMENT REPORT message for Cell 3 triggered by event 1B. The measurement reporting delay from the beginning of T3 shall be less than 280 ms. If the UE fails to report the event within the required delay, then a failure is recorded. If the reporting delay for this event is within the required limit, the number of successful tests is increased by one.
- 14) UE may transmit a MEASUREMENT REPORT message for Cell 2 triggered by event 1C. In case it doesn't this shall not be considered as a failure.

- 15) After 5 seconds from the beginning of T3, the SS shall switch the power settings from T3 to T4.
- 16) UE shall transmit a MEASUREMENT REPORT message for Cell 3 triggered by event 1A. The measurement reporting delay from the beginning of T4 shall be less than 280 ms. If the reporting delay for this event is within the required limit, the number of successful tests is increased by one.
- 17) UE may transmit a MEASUREMENT REPORT message for Cell 2 triggered by event 1C. In case it doesn't this shall not be considered as a failure.
- 18) UE may transmit a MEASUREMENT REPORT message for Cell 3 triggered by event 1C. In case it doesn't this shall not be considered as a failure.
- 19) After 10 seconds from the beginning of T4, the UE is switched off.
- 20) Repeat steps 1-19 until the confidence level according to annex F.6.2 is achieved.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message:

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements -RRC transaction identifier -Integrity check info	0 Not Present
Measurement Information elements -Measurement Identity -Measurement Command (10.3.7.46) -Measurement Reporting Mode (10.3.7.49) -Measurement Report Transfer Mode -Periodical Reporting / Event Trigger Reporting Mode -Additional measurements list (10.3.7.1)	1 Modify AM RLC Event trigger Not Present
-CHOICE <i>Measurement type</i> -Intra-frequency measurement (10.3.7.36) -Intra-frequency measurement objects list (10.3.7.33) -Intra-frequency measurement quantity (10.3.7.38) -Filter coefficient (10.3.7.9) -CHOICE mode -Measurement quantity -Intra-frequency reporting quantity (10.3.7.41)	Intra-frequency measurement Not Present 0 FDD CPICH_Ec/N0
-Reporting quantities for active set cells (10.3.7.5) -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator	No report TRUE (Note 1) TRUE FDD TRUE TRUE TRUE
-Reporting quantities for monitored set cells (10.3.7.5) -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator	No report TRUE (Note 1) TRUE FDD TRUE TRUE TRUE
-Reporting quantities for detected set cells (10.3.7.5)	Not Present
-Reporting cell status (10.3.7.61) -Measurement validity (10.3.7.51) -CHOICE report criteria -Intra-frequency measurement reporting criteria (10.3.7.39) -Parameters required for each event	Not Present Not Present Intra-frequency measurement reporting criteria 3
-Intra-frequency event identity -Triggering condition 2 -Reporting Range Constant -Cells forbidden to affect Reporting Range -W -Hysteresis -Threshold used frequency -Reporting deactivation threshold -Replacement activation threshold -Time to trigger -Amount of reporting -Reporting interval -Reporting cell status	Event 1A Monitored set cells 3 dB Not Present 1.0 0 dB Not Present 0 Not Present 0 ms Not Present 0 ms (Note 2) Not Present
-Intra-frequency event identity -Triggering condition 1 -Reporting Range Constant -Cells forbidden to affect Reporting Range -W -Hysteresis -Threshold used frequency -Reporting deactivation threshold -Replacement activation threshold -Time to trigger	Event 1B Active set cells and monitored set cells 3 dB Not Present 1.0 0 dB Not Present Not Present Not Present 0 ms

Information Element/Group name	Value/Remark
-Amount of reporting -Reporting interval -Reporting cell status	Not Present 0 ms (Note 2) Not Present
-Intra-frequency event identity -Triggering condition 2 -Reporting Range Constant -Cells forbidden to affect Reporting Range -W -Hysteresis -Threshold used frequency -Reporting deactivation threshold -Replacement activation threshold -Time to trigger -Amount of reporting -Reporting interval -Reporting cell status	Event 1C Active set cells and monitored set cells Not present Not Present Not present 0 dB Not Present Not present 0 0 ms Not Present 0 ms (Note 2) Not Present
Physical channel information elements -DPCH compressed mode status info (10.3.6.34)	Not Present
NOTE 1: The SFN-CFN observed time difference is calculated from the OFF and Tm parameters contained in the IE "Cell synchronisation information", TS 25.331, clause 10.3.7.6. According to TS 25.331, 8.6.7.7, this IE is included in MEASUREMENT REPORT if IE "Cell synchronisation information reporting indicator" in IE "Cell reporting quantities" TS 25.331, clause 10.3.7.5 is set to TRUE in MEASUREMENT CONTROL.	
NOTE 2: Reporting interval = 0 ms means no periodical reporting.	

MEASUREMENT REPORT message for Intra frequency test cases

This message is common for all intra frequency test cases is described in Annex I.

8.6.1.2.5 Test requirements

For the test to pass, the total number of successful tests shall be at least 90%, of the cases with a confidence level of 95%. The number of successful tests shall be on an event level, i.e. the SS shall check how many events are reported successfully out of the total number of events checked.

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.6.1.3 Event triggered reporting of two detectable neighbours in AWGN propagation condition

8.6.1.3.1 Definition and applicability

In the event triggered reporting period the measurement reporting delay is defined as the time between any event that will trigger a measurement report until the UE starts to transmit over the Uu interface. This requirement assumes that the measurement report is not delayed by other RRC signalling on the DCCH. This measurement reporting delay excludes a delay uncertainty resulted when inserting the measurement report to the TTI of the uplink DCCH. The delay uncertainty is twice the TTI of the uplink DCCH.

The requirements and this test apply to the FDD UE.

8.6.1.3.2 Minimum requirements

The requirements are the same as in sub clause 8.6.1.1.2.

The normative reference for these requirements is TS 25.133 [2] clauses 8.1.2.2 and A.8.1.3.

8.6.1.3.3 Test purpose

To verify that the UE meets the minimum requirements.

8.6.1.3.4 Method of test

8.6.1.3.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

The test parameters are given in table 8.6.1.3.1 and 8.6.1.3.2. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 1A and 1B shall be used and the periodical reporting of the events is not applied. The test consists of four successive time periods, with a time duration of T1, T2, T3 and T4 respectively. In the initial condition before the time T1 only Cell1 is active.

Table 8.6.1.3.1: General test parameters for Event triggered reporting of two detectable neighbours in AWGN propagation condition

Parameter	Unit	Value	Comment
DCH parameters		DL and UL Reference Measurement Channel 12.2 kbps	As specified in C.3.1 and C.2.1
Power Control		On	
Active cell		Cell 1	
Reporting range	dB	3	Applicable for event 1A and 1B
Hysteresis	dB	0	
W		1	Applicable for event 1A and 1B
Reporting deactivation threshold		0	Applicable for event 1A
Time to Trigger	ms	0	
Filter coefficient		0	
Monitored cell list size		32	
T1	s	10	
T2	s	10	
T3	s	10	
T4	s	10	

Table 8.6.1.3.2: Cell specific test parameters for Event triggered reporting of two detectable neighbours in AWGN propagation condition

Parameter	Unit	Cell 1				Cell 2				Cell3			
		T1	T2	T3	T4	T1	T2	T3	T4	T1	T2	T3	T4
CPICH_Ec/lor	dB	-10				-10				-10			
PCCPCH_Ec/lor	dB	-12				-12				-12			
SCH_Ec/lor	dB	-12				-12				-12			
PICH_Ec/lor	dB	-15				-15				-15			
DPCH_Ec/lor	dB	-17				N/A				N/A			
OCNS_Ec/lor	dB	-1.049				-0.941				-0.941			
\hat{I}_{or}/I_{oc}	dB	14.5 5	28.5 1	14.4 5	28.5 1	-Inf	27.5 1	13.9 5	21.5 1	8.05	21.5 1	13.9 5	27.5 1
I_{oc}	dBm/ 3.84 MHz	-85											
CPICH_Ec/lo	dB	-11	-13	-14.5	-13	-Inf	-14.0	-15	-20	-17.5	-20	-15	-14
Propagation Condition		AWGN											

8.6.1.3.4.2 Procedure

- 1) The RF parameters are set up according to T1.
- 2) The UE is switched on.
- 3) A call is set up according to the test procedure specified in TS 34.108 [3] sub clause 7.3.2.3.

- 4) SS shall transmit a MEASUREMENT CONTROL message.
- 5) After 10 seconds from the beginning T1, the SS shall switch the power settings from T1 to T2.
- 6) UE shall transmit a MEASUREMENT REPORT message for Cell 2 triggered by event 1A. The measurement reporting delay from the beginning of T2 shall be less than 880 ms. If the UE fails to report the event within the required delay, then a failure is recorded. If the reporting delay for this event is within the required limit, the number of successful tests is increased by one.
- 7) After 10 seconds from the beginning T2, the SS shall switch the power settings from T2 to T3.
- 8) UE shall transmit a MEASUREMENT REPORT message for Cell 3 triggered by event 1A. The measurement reporting delay from the beginning of T3 shall be less than 280 ms. If the UE fails to report the event within the required delay, then a failure is recorded. If the reporting delay for this event is within the required limit, the number of successful tests is increased by one.
- 9) After 10 seconds from the beginning T3, the SS shall switch the power settings from T3 to T4.
- 10) UE shall transmit a MEASUREMENT REPORT message for Cell 2 triggered by event 1B. The measurement reporting delay from the beginning of T4 shall be less than 280 ms. If the reporting delay for this event is within the required limit, the number of successful tests is increased by one.
- 11) After 10 seconds, the UE is switched off.
- 12) Repeat steps 1-11 until the confidence level according to annex F.6.2 is achieved.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message:

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements -RRC transaction identifier -Integrity check info	0 Not Present
Measurement Information elements -Measurement Identity -Measurement Command (10.3.7.46) -Measurement Reporting Mode (10.3.7.49) -Measurement Report Transfer Mode -Periodical Reporting / Event Trigger Reporting Mode -Additional measurements list (10.3.7.1)	1 Modify AM RLC Event trigger Not Present
-CHOICE <i>Measurement type</i> -Intra-frequency measurement (10.3.7.36) -Intra-frequency measurement objects list (10.3.7.33) -Intra-frequency measurement quantity (10.3.7.38) -Filter coefficient (10.3.7.9) -CHOICE mode -Measurement quantity -Intra-frequency reporting quantity (10.3.7.41)	Intra-frequency measurement Not Present 0 FDD CPICH_Ec/N0
-Reporting quantities for active set cells (10.3.7.5) -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator	No report TRUE (Note 1) TRUE FDD TRUE TRUE TRUE
-Reporting quantities for monitored set cells (10.3.7.5) -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator	No report TRUE (Note 1) TRUE FDD TRUE TRUE TRUE
-Reporting quantities for detected set cells (10.3.7.5)	Not Present
-Reporting cell status (10.3.7.61) -Measurement validity (10.3.7.51) -CHOICE report criteria -Intra-frequency measurement reporting criteria (10.3.7.39) -Parameters required for each event	Not Present Not Present Intra-frequency measurement reporting criteria 2
-Intra-frequency event identity -Triggering condition 2 -Reporting Range Constant -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W -Hysteresis -Threshold used frequency -Reporting deactivation threshold -Replacement activation threshold -Time to trigger -Amount of reporting -Reporting interval -Reporting cell status	Event 1A Monitored set cells 3 dB Not Present FDD 1.0 0 dB Not Present 0 Not Present 0 ms Not present 0 ms (Note 2) Not Present
-Intra-frequency event identity -Triggering condition 1 -Reporting Range Constant -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W -Hysteresis	Event 1B Active set cells and monitored set cells 3 dB Not Present FDD 1.0 0 dB

Information Element/Group name	Value/Remark
-Threshold used frequency	Not Present
-Reporting deactivation threshold	Not Present
-Replacement activation threshold	Not Present
-Time to trigger	0 ms
-Amount of reporting	Not Present
-Reporting interval	0 ms (Note 2)
-Reporting cell status	Not Present
Physical channel information elements	
-DPCH compressed mode status info (10.3.6.34)	Not Present
NOTE 1: The SFN-CFN observed time difference is calculated from the OFF and Tm parameters contained in the IE "Cell synchronisation information", TS 25.331, clause 10.3.7.6. According to TS 25.331, 8.6.7.7, this IE is included in MEASUREMENT REPORT if IE "Cell synchronisation information reporting indicator" in IE "Cell reporting quantities" TS 25.331, clause 10.3.7.5 is set to TRUE in MEASUREMENT CONTROL.	
NOTE 2: Reporting interval = 0 ms means no periodical reporting.	

MEASUREMENT REPORT message for Intra frequency test cases

This message is common for all intra frequency test cases is described in Annex I.

8.6.1.3.5 Test requirements

For the test to pass, the total number of successful tests shall be at least 90% of the cases with a confidence level of 95%. The number of successful tests shall be on an event level, i.e. the SS shall check how many events are reported successfully out of the total number of events checked.

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.6.1.4 Correct reporting of neighbours in fading propagation condition

8.6.1.4.1 Definition and applicability

In the event triggered reporting period the measurement reporting delay is defined as the time between any event that will trigger a measurement report until the UE starts to transmit over the Uu interface. This requirement assumes that the measurement report is not delayed by other RRC signalling on the DCCH. This measurement reporting delay excludes a delay uncertainty resulted when inserting the measurement report to the TTI of the uplink DCCH. The delay uncertainty is twice the TTI of the uplink DCCH.

The requirements and this test apply to the FDD UE.

8.6.1.4.2 Minimum requirements

The requirements are the same as in sub clause 8.6.1.1.2.

The normative reference for these requirements is TS 25.133 [2] clauses 8.1.2.2 and A.8.1.4.

8.6.1.4.3 Test purpose

To verify that the UE meets the minimum requirements and also verify that the UE performs sufficient layer 1 filtering of the measurements. The test is performed in fading propagation conditions.

8.6.1.4.4 Method of test

8.6.1.4.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

The test parameters are given in table 8.6.1.4.1 and 8.6.1.4.2. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 1A and Event 1B shall be used. The test consists of two successive time periods, each with time duration of T1 and T2 respectively.

The TTI of the uplink DCCCH shall be 20ms.

Table 8.6.1.4.1: General test parameters for correct reporting of neighbours in fading propagation condition

Parameter	Unit	Value	Comment
DCH parameters		DL and UL Reference Measurement Channel 12.2 kbps	As specified in C.3.1 and C.2.1
Power Control		On	
Active cell		Cell 1	
Reporting range	dB	0	Applicable for event 1A and 1B
Hysteresis	dB	0	
W		1	Applicable for event 1A and 1B
Reporting deactivation threshold		0	Applicable for event 1A
Time to Trigger	ms	120	
Filter coefficient		0	
Monitored cell list size		24	Signalled before time T1.
T1	s	200	
T2	s	201	

Table 8.6.1.4.2: Cell specific test parameters for correct reporting of neighbours in fading propagation condition

Parameter	Unit	Cell 1		Cell 2	
		T1	T2	T1	T2
CPICH_Ec/lor	dB	-10		-10	
PCCPCH_Ec/lor	dB	-12		-12	
SCH_Ec/lor	dB	-12		-12	
PICH_Ec/lor	dB	-15		-15	
DPCH_Ec/lor	dB	-17		N/A	
OCNS		-1.049		-0.941	
\hat{I}_{or}/I_{oc}	dB	7.29	3.29	3.29	7.29
I_{oc}	dBm/3.84 MHz	-70			
CPICH_Ec/lo	dB	-12	-16	-16	-12
Propagation Condition	Case 5 as specified in table D.2.2.1				

8.6.1.4.4.2 Procedure

- 1) The RF parameters are set up according to T1.
- 2) The UE is switched on.
- 3) A call is set up in AWGN conditions, according to the test procedure specified in TS 34.108 [3] sub clause 7.3.2.3.
- 4) SS shall transmit a MEASUREMENT CONTROL message.
- 5) 5 seconds after step4 has completed, the fading simulator is switched on, configured with the settings described in the tables above at the beginning of T1.
- 6) UE shall start transmitting MEASUREMENT REPORT messages triggered by event 1A.
- 7) SS shall count the reports. The number of received event 1A reports shall be less than 60. If the SS fails to receive less than 60 event 1A reports, then then a failure is recorded. If the SS receives number of event 1A reports within the required limit, the number of successful tests is increased by one.

- 8) After 200 seconds from the beginning of T1, the SS shall switch the power settings from T1 to T2.
- 9) UE shall start transmitting MEASUREMENT REPORT messages triggered by event 1B.
- 10) During the first 1s of time period T2 no event reports shall be counted.
- 11) After the first 1s SS shall start counting the reports. The number of received event 1B reports shall be less than 60. If the SS receives number of event 1B reports within the required limit, the number of successful tests is increased by one.
- 12) After 201 seconds from the beginning of T2, the UE is switched off.
- 13) Repeat steps 1-12 until the confidence level according to annex F.6.2 is achieved.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message:

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements -RRC transaction identifier -Integrity check info	0 Not Present
Measurement Information elements -Measurement Identity -Measurement Command (10.3.7.46) -Measurement Reporting Mode (10.3.7.49) -Measurement Report Transfer Mode -Periodical Reporting / Event Trigger Reporting Mode -Additional measurements list (10.3.7.1)	1 Modify AM RLC Event trigger Not Present
-CHOICE <i>Measurement type</i> -Intra-frequency measurement (10.3.7.36) -Intra-frequency measurement objects list (10.3.7.33) -Intra-frequency measurement quantity (10.3.7.38) -Filter coefficient (10.3.7.9) -CHOICE mode -Measurement quantity -Intra-frequency reporting quantity (10.3.7.41)	Intra-frequency measurement Not Present 0 FDD CPICH_Ec/N0
-Reporting quantities for active set cells (10.3.7.5) -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator	No report TRUE (Note 1) TRUE FDD TRUE TRUE TRUE
-Reporting quantities for monitored set cells (10.3.7.5) -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator	No report TRUE (Note 1) TRUE FDD TRUE TRUE TRUE
-Reporting quantities for detected set cells (10.3.7.5)	Not Present
-Reporting cell status (10.3.7.61) -Measurement validity (10.3.7.51) -CHOICE report criteria -Intra-frequency measurement reporting criteria (10.3.7.39) -Parameters required for each event	Not Present Not Present Intra-frequency measurement reporting criteria 2
-Intra-frequency event identity -Triggering condition 2 -Reporting Range Constant -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W -Hysteresis -Threshold used frequency -Reporting deactivation threshold -Replacement activation threshold -Time to trigger -Amount of reporting -Reporting interval -Reporting cell status	Event 1A Active set cells and monitored set cells 0 dB Not Present FDD 1.0 0 dB Not Present 0 Not Present 120 ms Not present 0 ms (Note 2) Not Present
-Intra-frequency event identity -Triggering condition 1 -Reporting Range Constant -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W -Hysteresis	Event 1B Active set cells and monitored set cells 0 dB Not Present FDD 1.0 0 dB

Information Element/Group name	Value/Remark
-Threshold used frequency	Not Present
-Reporting deactivation threshold	Not Present
-Replacement activation threshold	Not Present
-Time to trigger	120 ms
-Amount of reporting	Not Present
-Reporting interval	0 ms (Note 2)
-Reporting cell status	Not Present
Physical channel information elements	
-DPCH compressed mode status info (10.3.6.34)	Not Present
Note 1: The SFN-CFN observed time difference is calculated from the OFF and Tm parameters contained in the IE "Cell synchronisation information", TS 25.331, clause 10.3.7.6. According to TS 25.331, 8.6.7.7, this IE is included in MEASUREMENT REPORT if IE "Cell synchronisation information reporting indicator" in IE "Cell reporting quantities" TS 25.331, clause 10.3.7.5 is set to TRUE in MEASUREMENT CONTROL.	
Note 2: Reporting interval = 0 ms means no periodical reporting	

MEASUREMENT REPORT message for Intra frequency test cases

This message is common for all intra frequency test cases is described in Annex I.

8.6.1.4.5 Test requirements

For the test to pass, the total number of successful tests shall be at least 90% of the cases with a confidence level of 95%. The number of successful tests shall be on an event level, i.e. the SS shall check every time first if the number of the event 1A events is within the required limit, and then, check if the number of the event 1B events is within the required limit.

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.6.2 FDD inter frequency measurements

8.6.2.1 Correct reporting of neighbours in AWGN propagation condition

8.6.2.1.1 Definition and applicability

In the event triggered reporting period the measurement reporting delay is defined as the time between any event that will trigger a measurement report until the UE starts to transmit the measurement report over the Uu interface. This requirement assumes that the measurement report is not delayed by other RRC signalling on the DCCH. This measurement reporting delay excludes a delay uncertainty resulted when inserting the measurement report to the TTI of the uplink DCCH. The delay uncertainty is twice the TTI of the uplink DCCH.

The requirements and this test apply to the FDD UE.

8.6.2.1.2 Minimum requirements

The UE shall be able to identify a new detectable cell belonging to the monitored set within

$$T_{\text{identify_inter}} = \text{Max} \left\{ 5000, T_{\text{basic_identify_FDD,inter}} \cdot \frac{T_{\text{Measurement_Period, Inter}}}{T_{\text{Inter}}} \cdot N_{\text{Freq}} \right\} \text{ms}$$

A cell shall be considered detectable when CPICH Ec/Io ≥ -20 dB, SCH_Ec/Io ≥ -17 dB for at least one channel tap and SCH_Ec/Io is equally divided between primary synchronisation code and secondary synchronisation code. When L3 filtering is used an additional delay can be expected.

When transmission gaps are scheduled for FDD inter frequency measurements the UE physical layer shall be capable of reporting measurements to higher layers with measurement accuracy as specified in sub-clause 9.1.1 and 9.1.2 of 25.133 with measurement period given by

$$T_{\text{measurement_inter}} = \text{Max} \left\{ T_{\text{Measurement_Period_Inter}}, T_{\text{basic_measurement_FDD_inter}} \cdot \frac{T_{\text{Measurement_Period_Inter}}}{T_{\text{Inter}}} \cdot N_{\text{Freq}} \right\} \text{ms}$$

If the UE does not need compressed mode to perform inter-frequency measurements, the measurement period for inter frequency measurements is 480 ms.

The UE shall be capable of performing CPICH measurements for $X_{\text{basic_measurement_FDD_inter}}$ inter-frequency cells per FDD frequency of the monitored set or the virtual active set, and the UE physical layer shall be capable of reporting measurements to higher layers with the measurement period of $T_{\text{Measurement_Inter}}$.

$$X_{\text{basic_measurement_FDD_inter}} = 6$$

$T_{\text{Measurement_Period_Inter}} = 480$ ms. The period used for calculating the measurement period $T_{\text{measurement_inter}}$ for inter frequency CPICH measurements.

T_{Inter} : This is the minimum time that is available for inter frequency measurements, during the period $T_{\text{Measurement_Period_inter}}$ with an arbitrarily chosen timing. The minimum time per transmission gap is calculated by using the actual idle length within the transmission gap as given in the table 11 of Annex B in TS 25.212 and by assuming $2 \cdot 0.5$ ms for implementation margin and after that taking only full slots into account in the calculation.

$T_{\text{basic_identify_FDD_inter}} = 800$ ms. This is the time period used in the inter frequency equation where the maximum allowed time for the UE to identify a new FDD cell is defined.

$T_{\text{basic_measurement_FDD_inter}} = 50$ ms. This is the time period used in the equation for defining the measurement period for inter frequency CPICH measurements.

N_{Freq} : Number of FDD frequencies indicated in the inter frequency measurement control information.

The event triggered measurement reporting delay, measured without L3 filtering shall be less than $T_{\text{identify_inter}}$ defined in Clause 8.1.2.3.1 of 25.133 When L3 filtering is used an additional delay can be expected.

If a cell has been detectable at least for the time period $T_{\text{identify_inter}}$ and then enters or leaves the reporting range, the event triggered measurement reporting delay shall be less than $T_{\text{Measurement_Period_Inter}}$ provided the timing to that cell has not changed more than ± 32 chips while transmission gap has not been available and the L3 filter has not been used.

The normative reference for these requirements is TS 25.133 [2] clauses 8.1.2.3 and A.8.2.1.

8.6.2.1.3 Test purpose

To verify that the UE meets the minimum requirements.

8.6.2.1.4 Method of test

8.6.2.1.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

The initial test parameters are given in table 8.6.2.1.1

Table 8.6.2.1.1: Cell specific initial test parameters for Correct reporting of neighbours in AWGN propagation condition

Parameter	Unit	Cell 1	Cell 2	Cell3
		T0	T0	T0
CPICH_Ec/Ior	dB	-10	-10	-10
PCCPCH_Ec/Ior	dB	-12	-12	-12
SCH_Ec/Ior	dB	-12	-12	-12
PICH_Ec/Ior	dB	-15	-15	-15
DPCH_Ec/Ior	dB	-17	N/A	N/A
OCNS_Ec/Ior	dB	-1.049	-0.941	-0.941
\hat{I}_{or}/I_{oc}	dB	0	-Inf	-Inf
I_{oc}	dBm/3 .84 MHz	-70		
CPICH_Ec/Io	dB	-13	-Inf	-Inf
Propagation Condition	AWGN			

The test consists of two successive time periods, with a time duration T1 and T2. The test parameters are given in tables 8.6.2.1.2 and 8.6.2.1.3 below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 1A and 2C shall be used. The CPICH Ec/I0 of the best cell on the unused frequency shall be reported together with Event 2C reporting.

Table 8.6.2.1.2: General test parameters for Correct reporting of neighbours in AWGN propagation condition

Parameter	Unit	Value	Comment
DCH parameters		DL and UL Reference Measurement Channel 12.2 kbps	As specified in C.3.1 and C.2.1
Power Control		On	
Compressed mode		C.5.2 set 1	As specified in C.5.
Active cell		Cell 1	
Threshold non used frequency	dB	-18	Absolute Ec/I0 threshold for event 2C
Reporting range	dB	4	Applicable for event 1A
Hysteresis	dB	0	
W		1	Applicable for event 1A
W non-used frequency		1	Applicable for event 2C
Reporting deactivation threshold		0	Applicable for event 1A
Time to Trigger	ms	0	
Filter coefficient		0	
Monitored cell list size		24 on channel 1 16 on channel 2	Measurement control information is sent before the compressed mode pattern starts.
T1	s	10	
T2	s	5	

Table 8.6.2.1.3: Cell Specific parameters for Correct reporting of neighbours in AWGN propagation condition

Parameter	Unit	Cell 1		Cell 2		Cell 3	
		T1	T2	T1	T2	T1	T2
UTRA RF Channel Number		Channel 1		Channel 1		Channel 2	
CPICH_Ec/Ior	dB	-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15	
DPCH_Ec/Ior	dB	-17		N/A		N/A	
OCNS		-1.049		-0.941		-0.941	
\hat{I}_{or}/I_{oc}	dB	0	5.42	-Infinity	3.92	-1.8	-1.8
I_{oc}	dBm/3.84 MHz	-70				-70	
CPICH_Ec/Io	dB	-13	-13	-Infinity	-14.5	-14	-14
Propagation Condition	AWGN						

8.6.2.1.4.2 Procedure

- 1) The RF parameters are set up according to T0.
- 2) The UE is switched on.
- 3) A call is set up according to the test procedure specified in TS 34.108 [3] sub clause 7.3.2.3.
- 4) SS shall transmit a MEASUREMENT CONTROL message (inter frequency).
- 5) SS shall transmit a MEASUREMENT CONTROL message (intra frequency).
- 6) SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message.
- 7) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.
- 8) 5 seconds after step7 has completed, the SS shall switch the power settings from T0 to T1.
- 9) UE shall transmit a MEASUREMENT REPORT message (inter frequency) triggered by event 2C. The measurement reporting delay from the beginning of T1 shall be less than 9.08 seconds. If the UE fails to report the event within the required delay, then a failure is recorded. If the reporting delay for this event is within the required limit, the number of successful tests is increased by one.
- 10) After 10 seconds from the beginning of T1, the SS shall switch the power settings from T1 to T2.
- 11) UE shall transmit a MEASUREMENT REPORT message (intra frequency) triggered by event 1A. The measurement reporting delay from the beginning of T2 shall be less than 1040 ms. If the reporting delay for this event is within the required limit, the number of successful tests is increased by one.
- 12) After 5 seconds from the beginning of T2, the UE is switched off.
- 13) Repeat steps 1-12 until the confidence level according to annex F.6.2 is achieved.

NOTE: The measurement reporting delay is 956.2 ms plus 80 ms delay uncertainty (twice the TTI). This gives a total of 1036.2 ms and rounded off to 1040 ms.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

PHYSICAL CHANNEL RECONFIGURATION message for Inter frequency measurement:

Information Element	Value/Remark
Message Type	
UE Information Elements -RRC transaction identifier -Integrity check info -Integrity protection mode info -Ciphering mode info -Activation time -New U-RNTI -New C-RNTI -RRC State Indicator -UTRAN DRX cycle length coefficient	0 Not Present Not Present Not Present Not Present Not Present Not Present CELL_DCH Not Present
CN Information Elements -CN Information info	Not Present
UTRAN mobility information elements -URA identity	Not Present
RB information elements -Downlink counter synchronisation info	Not Present
PhyCH information elements -Frequency info	Not Present
Uplink radio resources -Maximum allowed UL TX power	Not Present
Downlink radio resources -CHOICE mode -Downlink PDSCH information -Downlink information common for all radio links -Downlink DPCH info common for all RL -CHOICE mode -DPCH compressed mode info -Transmission gap pattern sequence -TGPSI -TGPS Status Flag -TGCFN -Transmission gap pattern sequence configuration parameters -TGMP -TGPRC -TGSN -TGL1 -TGL2 -TGD -TGPL1 -TGPL2 -RPP -ITP -CHOICE UL/DL mode -Downlink compressed mode method -Uplink compressed mode method -Downlink frame type -DeltaSIR1 -DeltaSIRafter1 -DeltaSIR2 -DeltaSIRafter2 -N Identify abort -T Reconfirm abort -TX Diversity Mode -SSDT information -Default DPCH Offset Value -Downlink information per radio link list - Downlink information for each radio link -Choice mode -Primary CPICH info -Primary scrambling code -PDSCH with SHO DCH Info	FDD Not Present Not Present FDD 1 Activate (Current CFN + (256 – TTI/10msec))mod 256 FDD measurement Not present 4 7 Not Present UNDEFINED 3 Not Present Mode 0 Mode 0 UL and DL SF/2 SF/2 B 3.0 3.0 Not Present Not Present Not Present Not Present Not Present Not Present Not Present Not Present Not Present Not Present FDD 100 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	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400
-Secondary CPICH info	Not Present
-DL channelisation code	
-Secondary scrambling code	Not Present
-Spreading factor	128
-Code number	96
-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

MEASUREMENT CONTROL message (inter frequency):

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
Measurement Information elements	
-Measurement Identity	2
-Measurement Command (10.3.7.46)	Setup
-Measurement Reporting Mode (10.3.7.49)	
-Measurement Report Transfer Mode	AM RLC
-Periodical Reporting / Event Trigger Reporting Mode	Event trigger
-Additional measurements list (10.3.7.1)	Not Present
-CHOICE <i>Measurement type</i>	Inter-frequency measurement
-Inter-frequency measurement (10.3.7.16)	
-Inter-frequency measurement objects list (10.3.7.13)	
- CHOICE Inter-frequency cell removal	Not Present
- New Inter frequency cells	
- Inter frequency cell id	0
- Frequency info	
- CHOICE mode	FDD
- UARFCN uplink(Nu)	Not Present
- UARFCN downlink(Nd)	Same frequency as "Channel2" in Table 8.6.2.1.3
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Set to Primary scrambling code of Cell3
- Primary CPICH Tx Power	Set to Primary CPICH Tx Power of Cell3 described in Table 8.6.2.1.3
- Tx Diversity Indicator	FALSE
- Cell Selection and Re-selection info	Set to Cell Selection and Re-selection info of Cell3
- Cell for measurement	Not Present
-Inter-frequency measurement quantity (10.3.7.18)	
-Intra-frequency reporting criteria	
-Inter-frequency measurement quantity (10.3.7.38)	
-Filter coefficient (10.3.7.9)	0
-CHOICE mode	FDD
-Measurement quantity	CPICH_Ec/N0
-Inter-frequency reporting criteria	
-Filter coefficient (10.3.7.9)	0
-CHOICE mode	FDD
-Measurement quantity for frequency quality estimate	CPICH_Ec/N0
-Inter-frequency reporting quantity (10.3.7.21)	
-UTRA Carrier RSSI	FALSE
-Frequency quality estimate	FALSE
-Non frequency related cell reporting quantities (10.3.7.5)	
-SFN-SFN observed time difference reporting indicator	No report
-Cell synchronisation information reporting indicator	TRUE (Note 1)
-Cell Identity reporting indicator	TRUE
-CHOICE mode	FDD
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	TRUE
-Reporting cell status (10.3.7.61)	Not Present
-Measurement validity (10.3.7.51)	Not Present
-CHOICE report criteria	Inter-frequency measurement reporting criteria
-Inter-frequency measurement reporting criteria (10.3.7.19)	
-Parameters required for each event	1
-Inter-frequency event identity	Event 2C
-Threshold used frequency	Not present
-W used frequency	Not present

Information Element/Group name	Value/Remark
-Hysteresis -Time to trigger -Reporting cell status -CHOICE reported cell -Maximum number of reported cells -Parameters required for each non-used frequency -Threshold non used frequency -W non-used frequency	0 dB 0 ms Report cells within monitored set on non-used frequency 3 -18 dB 1
Physical channel information elements -DPCH compressed mode status info (10.3.6.34)	Not Present
NOTE 1: The SFN-CFN observed time difference is calculated from the OFF and Tm parameters contained in the IE "Cell synchronisation information", TS 25.331, clause 10.3.7.6. According to TS 25.331, 8.6.7.7, this IE is included in MEASUREMENT REPORT if IE "Cell synchronisation information reporting indicator" in IE "Cell reporting quantities" TS 25.331, clause 10.3.7.5 is set to TRUE in MEASUREMENT CONTROL.	

MEASUREMENT CONTROL message (intra frequency):

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements -RRC transaction identifier -Integrity check info	0 Not Present
Measurement Information elements -Measurement Identity -Measurement Command (10.3.7.46) -Measurement Reporting Mode (10.3.7.49) -Measurement Report Transfer Mode -Periodical Reporting / Event Trigger Reporting Mode -Additional measurements list (10.3.7.1)	1 Modify AM RLC Event trigger Not Present
-CHOICE <i>Measurement type</i> -Intra-frequency measurement (10.3.7.36) -Intra-frequency measurement objects list (10.3.7.33) -Intra-frequency measurement quantity (10.3.7.38) -Filter coefficient (10.3.7.9) -CHOICE mode -Measurement quantity -Intra-frequency reporting quantity (10.3.7.41)	Intra-frequency measurement Not Present 0 FDD CPICH_Ec/N0
-Reporting quantities for active set cells (10.3.7.5) -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator	No report TRUE (Note 1) TRUE FDD TRUE TRUE TRUE
-Reporting quantities for monitored set cells (10.3.7.5) -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator	No report TRUE (Note 1) TRUE FDD TRUE TRUE TRUE
-Reporting quantities for detected set cells (10.3.7.5)	Not Present
-Reporting cell status (10.3.7.61) -Measurement validity (10.3.7.51) -CHOICE report criteria -Intra-frequency measurement reporting criteria (10.3.7.39) -Parameters required for each event	Not Present Not Present Intra-frequency measurement reporting criteria 1
-Intra-frequency event identity -Triggering condition 2 -Reporting Range Constant -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W -Hysteresis -Threshold used frequency -Reporting deactivation threshold -Replacement activation threshold -Time to trigger -Amount of reporting -Reporting interval -Reporting cell status	Event 1A Monitored set cells 4 dB Not Present FDD 1.0 0 dB Not Present 0 Not Present 0 ms Not Present 0 ms (Note 2) Not Present
Physical channel information elements -DPCH compressed mode status info (10.3.6.34)	Not Present
Note 1: The SFN-CFN observed time difference is calculated from the OFF and Tm parameters contained in the IE "Cell synchronisation information", TS 25.331, clause 10.3.7.6. According to TS 25.331, 8.6.7.7, this IE is included in MEASUREMENT REPORT if IE "Cell synchronisation information reporting indicator" in IE "Cell reporting quantities" TS 25.331, clause 10.3.7.5 is set to TRUE in MEASUREMENT CONTROL.	
Note 2: Reporting interval = 0 ms means no periodical reporting	

MEASUREMENT REPORT message for Inter frequency test cases

MEASUREMENT REPORT message for Intra frequency test cases

These messages are common for all inter and intra frequency test cases and are described in Annex I.

8.6.2.1.5 Test requirements

For the test to pass, the total number of successful tests shall be at least 90% of the cases with a confidence level of 95%. The number of successful tests shall be on an event level, i.e. the SS shall check how many events are reported successfully out of the total number of events checked.

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.6.2.2 Correct reporting of neighbours in fading propagation condition

8.6.2.2.1 Definition and applicability

In the event triggered reporting period the measurement reporting delay is defined as the time between any event that will trigger a measurement report until the UE starts to transmit the measurement report over the Uu interface. This requirement assumes that the measurement report is not delayed by other RRC signalling on the DCCH. This measurement reporting delay excludes a delay uncertainty resulted when inserting the measurement report to the TTI of the uplink DCCH. The delay uncertainty is twice the TTI of the uplink DCCH. The requirements and this test apply to the FDD UE.

The requirements and this test apply to all types of UTRA for the FDD UE for Release 5 and later releases.

8.6.2.2.2 Minimum requirements

The requirements are the same as in sub clause 8.6.2.1.2.

The normative reference for these requirements is TS 25.133 [2] clauses 8.1.2.3 and A.8.2.2.

8.6.2.2.3 Test purpose

To verify that the UE meets the minimum requirements. The test is performed in fading propagation conditions.

8.6.2.2.4 Method of test

8.6.2.2.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mod range; see clause G.2.4.

The test parameters are given in table 8.6.2.2.4.1 and 8.6.2.2.4.2. In the measurement control information it is indicated to the UE that event-triggered reporting 2C shall be used. The test consists of two successive time periods, each with time duration of T1 and T2 respectively.

Table 8.6.2.2.4.1: General test parameters for correct reporting of neighbours in fading propagation condition

Parameter	Unit	Value	Comment
DCH parameters		DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.101 section A.3.1
Power Control		On	
Compressed mode		A.22 set 2 (TGPL1=12)	As specified in TS 25.101 section A.5.
Active cell		Cell 1	
Absolute Threshold (Ec/N0) for Event 2C	dB	-18	
Hysteresis	dB	0	
Time to Trigger	ms	0	
Filter coefficient		0	
Monitored cell list size		Total 24 8 on frequency Channel 2	Measurement control information is sent before the compressed mode pattern starts.
Propagation Condition		Case 5	As specified in Annex B of TS 25.101.
Frequency offset	ppm	+/- 0.1	Frequency offset between Cell 1 and Cell 2.
T1	s	2	
T2	s	40	

Table 8.6.2.2.4.2: Cell specific test parameters for correct reporting of neighbours in fading propagation condition

Parameter	Unit	Cell 1		Cell 2	
		T1	T2	T1	T2
UTRA RF Channel Number		Channel 1		Channel 2	
CPICH_Ec/I _{or}	DB	-10		-10	
PCCPCH_Ec/I _{or}	DB	-12		-12	
SCH_Ec/I _{or}	DB	-12		-12	
PICH_Ec/I _{or}	DB	-15		-15	
DPCH_Ec/I _{or}	DB	Note 1		N/A	
OCNS		Note 2		-0.941	
\hat{I}_{or}/I_{oc}	DB	0		-Infinity	-1.8
I_{oc}	dBm/3.84 MHz	-70		-70	
CPICH_Ec/I _o	DB	-13		-Infinity	-14
Propagation Condition	Case 5 as specified in Annex B of TS25.101				
Note 1: The DPCH level is controlled by the power control loop					
Note 2: The power of the OCNS channel that is added shall make the total power from the cell to be equal to I _{or} .					

8.6.2.2.4.2 Procedure

- 1) The RF parameters are set up according to T1.
- 2) The UE is switched on.
- 3) A call is set up in AWGN conditions, according to the test procedure specified in TS 34.108 [3] sub clause 7.3.2.3.
- 4) SS shall transmit a MEASUREMENT CONTROL message.
- 5) After 2 seconds from the beginning of T1, the SS shall switch the power settings from T1 to T2.
- 6) UE shall transmit a MEASUREMENT REPORT message triggered by event 2C. The measurement reporting delay from the beginning of T2 shall be less than 36.4 s. If the UE fails to report the event within the required delay, then a failure is recorded. If the reporting delay for this event is within the required limit, the number of successful tests is increased by one.

- 7) After 40 seconds from the beginning of T2, the UE is switched off.
- 8) Repeat steps 1-7 according to Annex F.6.2 Table 6.2.8

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message:

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
Measurement Information elements	
-Measurement Identity	2
-Measurement Command (10.3.7.46)	Setup
-Measurement Reporting Mode (10.3.7.49)	
-Measurement Report Transfer Mode	AM RLC
-Periodical Reporting / Event Trigger Reporting Mode	Event trigger
-Additional measurements list (10.3.7.1)	Not Present
-CHOICE <i>Measurement type</i>	Inter-frequency measurement
-Inter-frequency measurement (10.3.7.16)	
-Inter-frequency measurement objects list (10.3.7.13)	
- CHOICE Inter-frequency cell removal	Not Present
- New Inter frequency cells	
- Inter frequency cell id	0
- Frequency info	
- CHOICE mode	FDD
- UARFCN uplink(Nu)	Not Present
- UARFCN downlink(Nd)	Same frequency as "Channel2" in Table 8.6.2.1.3
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Set to Primary scrambling code of Cell3
- Primary CPICH Tx Power	Set to Primary CPICH Tx Power of Cell3 described in Table 8.6.2.1.3
- Tx Diversity Indicator	FALSE
- Cell Selection and Re-selection info	Set to Cell Selection and Re-selection info of Cell3
- Cell for measurement	Not Present
-Inter-frequency measurement quantity (10.3.7.18)	
-Intra-frequency reporting criteria	
-Inter-frequency measurement quantity (10.3.7.38)	
-Filter coefficient (10.3.7.9)	0
-CHOICE mode	FDD
-Measurement quantity	CPICH_Ec/N0
-Inter-frequency reporting criteria	
-Filter coefficient (10.3.7.9)	0
-CHOICE mode	FDD
-Measurement quantity for frequency quality estimate	CPICH_Ec/N0
-Inter-frequency reporting quantity (10.3.7.21)	
-UTRA Carrier RSSI	FALSE
-Frequency quality estimate	FALSE
-Non frequency related cell reporting quantities (10.3.7.5)	
-SFN-SFN observed time difference reporting indicator	No report
-Cell synchronisation information reporting indicator	TRUE (Note 1)
-Cell Identity reporting indicator	TRUE
-CHOICE mode	FDD
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	TRUE
-Reporting cell status (10.3.7.61)	Not Present
-Measurement validity (10.3.7.51)	Not Present
-CHOICE report criteria	Inter-frequency measurement reporting criteria
-Inter-frequency measurement reporting criteria (10.3.7.19)	
-Parameters required for each event	1
-Inter-frequency event identity	Event 2C
-Threshold used frequency	Not present
-W used frequency	Not present

Information Element/Group name	Value/Remark
-Hysteresis	0 dB
-Time to trigger	0 ms
-Reporting cell status	
-CHOICE reported cell	Report all active set cells + cells within monitored set on used frequency
-Maximum number of reported cells	3
-Parameters required for each non-used frequency	
-Threshold non used frequency	-18 dB
-W non-used frequency	1
Physical channel information elements	
-DPCH compressed mode status info (10.3.6.34)	Not Present
NOTE 1: The SFN-CFN observed time difference is calculated from the OFF and Tm parameters contained in the IE "Cell synchronisation information", TS 25.331, clause 10.3.7.6. According to TS 25.331, 8.6.7.7, this IE is included in MEASUREMENT REPORT if IE "Cell synchronisation information reporting indicator" in IE "Cell reporting quantities" TS 25.331, clause 10.3.7.5 is set to TRUE in MEASUREMENT CONTROL.	

MEASUREMENT REPORT message for Inter frequency test cases

These messages are common for all inter frequency test cases and are described in Annex I.

8.6.2.2.5 Test requirements

For the test to pass, the total number of successful tests shall be at least 90% of the cases with a confidence level of 95% According to annex F.6.2. The number of successful tests shall be on an event level, i.e. the SS shall check how many events are reported successfully out of the total number of events checked.

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.6.3 TDD measurements

8.6.3.1 Correct reporting of TDD neighbours in AWGN propagation condition

8.6.3.1.1 Definition and applicability

In the event triggered reporting period the measurement reporting delay is defined as the time between any event that will trigger a measurement report until the UE starts to transmit over the Uu interface. This requirement assumes that the measurement report is not delayed by other RRC signalling on the DCCH. This measurement reporting delay excludes a delay uncertainty resulted when inserting the measurement report to the TTI of the uplink DCCH. The delay uncertainty is twice the TTI of the uplink DCCH.

The requirements and this test apply to the combined FDD and TDD UE.

8.6.3.1.2 Minimum requirement

When transmission gaps are scheduled for inter-frequency TDD measurements, the UE shall be able to identify a new detectable inter-frequency TDD cell belonging to the monitored set within

$$T_{\text{identify TDD inter}} = \text{Max} \left\{ 5000, N_{\text{basic identify TDD inter}} \cdot \frac{T_{\text{Measurement Period TDD inter}}}{N_{\text{TDD inter}}} \cdot N_{\text{Freq}} \right\} \text{ms}$$

If the UE does not need compressed mode to perform inter-frequency TDD measurements, the UE shall be able to identify a new detectable inter-frequency TDD cell belonging to the monitored set within 5000 ms.

An inter-frequency TDD cell shall be considered detectable when P-CCPCH Ec/Io ≥ -8 dB and SCH_Ec/Io ≥ -13 dB. When L3 filtering is used an additional delay can be expected.

When transmission gaps are scheduled for inter frequency TDD measurements the UE physical layer shall be capable of reporting measurements to higher layers with a measurement period as given by

$$T_{\text{measurement TDD inter}} = \text{Max} \left\{ T_{\text{Measurement Period TDD inter}}, N_{\text{basic measurement TDD inter}} \cdot \frac{T_{\text{Measurement Period TDD inter}}}{N_{\text{TDD inter}}} \cdot N_{\text{Freq}} \right\} \text{ms}$$

If the UE does not need compressed mode to perform inter-frequency TDD measurements, the measurement period for inter-frequency TDD measurements shall be 480 ms.

The UE shall be capable of performing P-CCPCH RSCP measurements for $X_{\text{basic measurement TDD inter}}$ inter-frequency TDD cells per TDD frequency of the monitored set and the UE physical layer shall be capable of reporting measurements to higher layers with the measurement period of $T_{\text{measurement TDD inter}}$.

where

$$X_{\text{basic measurement TDD inter}} = 6 \text{ (cells)}$$

$T_{\text{Measurement_Period TDD inter}} = 480$ ms. The time period used for calculating the measurement period $T_{\text{measurement_TDD inter}}$ for inter frequency P-CCPCH RSCP measurements.

$N_{\text{TDD inter}}$: This is the smallest resulting integer number of transmission gap patterns in a transmission gap pattern sequence assigned to UE by UTRAN for inter frequency TDD measurements during the time period $T_{\text{Measurement_Period TDD inter}}$ with an arbitrarily chosen timing.

$N_{\text{basic_identify_TDD inter}} = 80$. This is the number of transmission gap patterns in a transmission gap pattern sequence for inter-frequency TDD measurements during the time period used in the inter frequency TDD equation where the maximum allowed time for the UE to identify a new inter frequency TDD cell is defined.

$N_{\text{basic_measurement_TDD inter}} = 5$. This is the number of transmission gap patterns in a transmission gap pattern sequence for inter-frequency TDD measurements during the time period $T_{\text{Measurement_Period TDD inter}}$ with an arbitrarily chosen timing that is used in the inter-frequency TDD equation for defining where the measurement period for inter frequency P-CCPCH RSCP measurements is defined.

N_{Freq} : This is the number of TDD frequencies indicated in the inter frequency measurement control information.

The normative reference for this requirement is TS 25.133 [2] clauses 8.1.2.4 and A.8.3.1

8.6.3.1.3 Test purpose

To verify that the UE meets the minimum requirement.

8.6.3.1.4 Method of test

8.6.3.1.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

The test parameters are given in Table 8.6.3.1.1, 8.6.3.1.2 and 8.6.3.1.3. The test consists of 2 successive time periods, with a time duration T1 and T2. Two cells shall be present in the test, cell 1 being the UTRA FDD serving cell and cell 2 being a UTRA TDD neighbour cell on the unused frequency. All cells shall be synchronised, i.e. share the same frame and timeslot timing.

In the measurement control information it is indicated to the UE that event-triggered reporting with Event 2C shall be used. P-CCPCH RSCP of the best cell on the unused frequency shall be reported together with Event 2C reporting. The Measurement control message shall be sent to the UE such that the delay between the end of the last received TTI containing the message and the beginning of T1 is at least equal to the RRC procedure delay as defined in [9].

The TTI of the uplink DCCH shall be 20 ms.

Table 8.6.3.1.1: General test parameters for Correct reporting of TDD inter-frequency neighbours in AWGN propagation condition

Parameter		Unit	Value	Comment
DCH parameters			DL Reference Measurement Channel 12.2 kbps	As specified in TS 34.121 Annex C
Power Control			On	
Target quality value on DTCH		BLER	0.01	
Compressed mode			A.22 set 3	As specified in TS 34.121 Annex C
Initial conditions	Active cell		Cell 1	FDD cell
	Neighbour cell		Cell 2	TDD cell
Final condition	Active cell		Cell 1	FDD cell
O	dB		0	Cell individual offset. This value shall be used for all cells in the test.
Hysteresis	dB		0	Hysteresis parameter for event 2C
Time to Trigger	ms		0	
Threshold non-used frequency	dBm		-71	Applicable for Event 2C
Filter coefficient			0	
Monitored cell list size			6 FDD neighbours on Channel 1 6 TDD neighbours on Channel 2	
T1	S		15	
T2	S		10	

Table 8.6.3.1.2: Cell 1 specific parameters for Correct reporting of TDD inter-frequency neighbours in AWGN propagation condition

Parameter	Unit	Cell 1
		T1, T2
UTRA RF Channel Number		Channel 1
CPICH_Ec/I _{or}	dB	-10
P-CCPCH_Ec/I _{or}	dB	-12
SCH_Ec/I _{or}	dB	-12
PICH_Ec/I _{or}	dB	-15
DPCH_Ec/I _{or}	dB	Note 1
OCNS_Ec/I _{or}	dB	Note 2
\hat{I}_{or}/I_{oc}	dB	0
I_{oc}	dBm/3.84 MHz	-70
CPICH_Ec/I _o	dB	-13
Propagation Condition		AWGN
Note 1: The DPCH level is controlled by the power control loop		
Note 2: The power of the OCNS channel that is added shall make the total power from the cell to be equal to I _{or} .		

Table 8.6.3.1.3: Cell 2 specific parameters for Correct reporting of TDD inter-frequency neighbours in AWGN propagation condition

Parameter	Unit	Cell 2			
		0		8	
DL timeslot number		T1	T2	T1	T2
UTRA RF Channel Number		Channel 2			
P-CCPCH_Ec/Ior	dB	-3		n.a.	
PICH_Ec/Ior	dB	n.a.		-3	
SCH_Ec/Ior	dB	-9			
SCH_toffset	dB	10			
OCNS_Ec/Ior	dB	-3.12			
P-CCPCH RSCP	dBm	-75	-67	n.a.	n.a.
\hat{I}_{or}/I_{oc}	dB	-2	6	-2	6
I_{oc}	dBm/3,84 MHz	-70			
Propagation Condition		AWGN			
Note that the transmit energy per PN chip for the SCH is averaged over the 256 chip duration when the SCH is present in the time slot.					

8.6.3.1.4.2 Procedure

- 1) The RF parameters are set up according to T1.
- 2) The UE is switched on.
- 3) A call is set up according to the generic set-up procedure specified in TS 34.108 [3] subclause 7.3.2.3.
- 4) SS shall transmit a MEASUREMENT CONTROL message.
- 5) SS shall transmit a PHYSICAL CHANNEL RECONFIGURATION message.
- 6) UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message
- 7) After 10 seconds from the beginning of T1, the SS shall switch the power settings from T1 to T2.
- 8) UE shall transmit a MEASUREMENT REPORT message triggered by event 2c for cell 2. The measurement reporting delay from the beginning of T2 shall be less than 9.2 s. If the UE fails to report the event within the required delay, then a failure is recorded. If the reporting delay for this event is within the required limit, the number of successful tests is increased by one.
- 9) After 10 seconds from the beginning of T3, the UE is switched off. Any timing information of cell 2 is deleted in the UE.
- 10) Repeat steps 1-9 until the confidence level according to annex F.6.2 is achieved.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message (step 4):

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
Measurement Information elements	
-Measurement Identity	1
-Measurement Command (10.3.7.46)	Modify
-Measurement Reporting Mode (10.3.7.49)	AM RLC
-Measurement Report Transfer Mode	Event trigger
-Periodical Reporting / Event Trigger Reporting Mode	Not Present
-Additional measurements list (10.3.7.1)	
-CHOICE <i>Measurement type</i>	Inter-frequency measurement
-Inter-frequency measurement (10.3.7.16)	
-Inter-frequency measurement objects list (10.3.7.13)	
-CHOICE <i>inter-frequency cell removal</i>	No inter-frequency cells removed
-New inter-frequency cells	1
-Inter-frequency cell id	1
-Frequency info (10.3.6.36)	
-CHOICE <i>mode</i>	TDD
-UARFCN(Nt)	Same frequency as channel 2 in Table 8.6.2.4.1.2
-Cell info (10.3.7.2)	
-Cell individual offset	Not Present
-Reference time difference to cell	Not Present
-Read SFN indicator	False
-CHOICE <i>mode</i>	TDD
-Primary CCPCH info (10.3.6.57)	
-CHOICE <i>mode</i>	TDD
-CHOICE Sync case	2
-Timeslot	0
-cell parameters ID	Set to cell parameters ID of cell 2
-SCTD indicator	FALSE
-Primary CCPCH Tx power	Set to Primary CCPCH Tx power of cell 2 as described in Table 8.6.2.4.1.2
-Timeslot list	Not Present
-Cell selection and re-selection info	Not Present
-Cell for measurement	Not Present
-Inter-frequency measurement quantity (10.3.7.18)	
-CHOICE <i>reporting criteria</i>	Inter-frequency reporting criteria
-Filter coefficient (10.3.7.9)	0
-CHOICE <i>mode</i>	TDD
-Measurement quantity for frequency quality estimate	Primary CCPCH RSCP
-Inter-frequency reporting quantity (10.3.7.21)	
-UTRA carrier RSSI	
-Frequency quality estimate	
-Non frequency related cell reporting quantities (10.3.7.5)	
-SFN-SFN observed time difference reporting indicator	No report
-Cell synchronisation information reporting indicator	FALSE
-Cell identity reporting indicator	FALSE
-CHOICE <i>mode</i>	TDD
-Timeslot ISCP reporting indicator	FALSE
-Proposed TGSN Reporting required	FALSE
-Primary CCPCH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	FALSE
-Reporting cell status (10.3.7.61)	Not Present
-Measurement validity (10.3.7.51)	Not Present
-CHOICE <i>report criteria</i>	Inter-frequency measurement reporting criteria
-Inter-frequency measurement reporting criteria (10.3.7.19)	
-Parameters required for each event	1
-Intra-frequency event identity	Event 2C
-Threshold used frequency	Not Present
-W Used frequency	Not Present
-Hysteresis	0 dB
-Time to trigger	0 ms

Information Element/Group name	Value/Remark
<ul style="list-style-type: none">-Reporting Cell Status (10.3..61)-CHOICE reported cell -Maximum number of reported cells-Parameters required for each non-used frequenc- Threshold non-used frequency- W non-used frequency	Report cells within active and/or monitored set on used frequency or within virtual active and/or monitored set on non-used frequency 3 -71 1
Physical channel information elements -DPCH compressed mode status info (10.3.6.34)	Not Present

PHYSICAL CHANNEL RECONFIGURATION message (Step 6)

Information Element	Value/Remark
Message Type	
UE Information Elements -RRC transaction identifier -Integrity check info -Integrity protection mode info -Ciphering mode info -Activation time -New U-RNTI -New C-RNTI -RRC State Indicator -UTRAN DRX cycle length coefficient	0 Not Present Not Present Not Present Not Present Not Present Not Present CELL_DCH Not Present
CN Information Elements -CN Information info	Not Present
UTRAN mobility information elements -URA identity	Not Present
RB information elements -Downlink counter synchronisation info	Not Present
PhyCH information elements -Frequency info	Not Present
Uplink radio resources -Maximum allowed UL TX power	Not Present
Downlink radio resources -CHOICE mode -Downlink PDSCH information -Downlink information common for all radio links -Downlink DPCH info common for all RL -CHOICE mode -DPCH compressed mode info -Transmission gap pattern sequence -TGPSI -TGPS Status Flag -TGCFN -Transmission gap pattern sequence configuration parameters -TGMP -TGPRC -TGSN -TGL1 -TGL2 -TGD -TGPL1 -TGPL2 -RPP -ITP -CHOICE UL/DL mode -Downlink compressed mode method -Uplink compressed mode method -Downlink frame type -DeltaSIR1 -DeltaSIRafter1 -DeltaSIR2 -DeltaSIRafter2 -N Identify abort -T Reconfirm abort -TX Diversity Mode -SSDT information -Default DPCH Offset Value -Downlink information per radio link list - Downlink information for each radio link -Choice mode -Primary CPICH info -Primary scrambling code -PDSCH with SHO DCH Info	FDD Not Present Not Present FDD 1 Activate (Current CFN + (256 – TTI/10msec))mod 256 TDD measurement Not present 10 10 Not Present 0 11 Not Present Mode 0 Mode 0 UL and DL SF/2 puncturing A 3.0 3.0 Not Present Not Present Not Present Not Present Not Present Not Present Not Present Not Present Not Present Not Present Not Present FDD 100 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	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400
-Secondary CPICH info	Not Present
-DL channelisation code	
-Secondary scrambling code	Not Present
-Spreading factor	128
-Code number	96
-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

MEASUREMENT REPORT message (step 8)

Information Element	Value/remark
Message Type (10.2.17)	
Integrity check info	Not Present
Measurement identity	1
Measured Results (10.3.7.44)	
-CHOICE Measurement	Inter-frequency Measured results list
-Inter-frequency measured results	1
-Frequency info	
-CHOICE mode	TDD
-UARFCN(Nt)	Same frequency as channel 2
-UTRA carrier RSSI	Not Present
-Inter-frequency cell measured results	1
-Cell measured results (10.3.7.3)	
-Cell identity	Not Present
SFN-SFN observed time difference	Not Present
-Cell synchronisation info	Not Present
-CHOICE mode	TDD
-Cell parameters ID	Set to cell parameters ID of Cell 2
-Proposed TGSN	Not Present
-Primary CCPCH RSCP	Checked that this IE is present
-Pathloss	Not Present
-Timeslot list	Not Present
Measured results on RACH	Not Present
Additional measured results	Not Present
Event results (10.3.7.7)	
-CHOICE event result	Inter-frequency measurement event results
-Inter-frequency event identity	2C
-Inter-frequency cells	1
-Frequency Info	
-CHOICE mode	TDD
-UARFCN(Nt)	Same frequency as channel 2
-CHOICE mode	TDD
-Primary CCPCH Info	
-CHOICE mode	TDD
-CHOICE Sync Case	Not Present
-Cell Parameters ID	Set to cell parameters ID of Cell 2
-SCTD Indicator	FALSE

8.6.3.1.5 Test requirements

The UE shall send one Event 2C triggered measurement report for Cell 2 with a measurement reporting delay less than 9.2 s from the beginning of time period T2.

The UE shall not send event triggered measurement reports, as long as the reporting criteria are not fulfilled.

For the test to pass, the total number of successful tests shall be more than 90% of the cases with a confidence level of 95%.

8.7 Measurements Performance Requirements

Unless explicitly stated:

- Reported measurements shall be within defined range in 90 % of the cases.
- Measurement channel is 12.2 kbps as defined in Annex C, sub-clause C.3.1. This measurement channel is used both in active cell and cells to be measured.
- Physical channels used as defined in Annex E.
- Cell 1 is the active cell.
- Single task reporting.
- Power control is active.

8.7.1 CPICH RSCP

8.7.1.1 Intra frequency measurements accuracy

8.7.1.1.1 Absolute accuracy requirement

8.7.1.1.1.1 Definition and applicability

The absolute accuracy of CPICH RSCP is defined as the CPICH RSCP measured from one cell compared to the actual CPICH RSCP power from same cell.

The requirements and this test apply to all types of UTRA for the FDD UE.

8.7.1.1.1.2 Minimum Requirements

The accuracy requirements in table 8.7.1.1.1 are valid under the following conditions:

- $CPICH_RSCP1_{dBm} \geq -114$ dBm.

$$- \left| \frac{I_o}{\hat{I}_{or}} \right|_{in\ dB} - \left(\frac{CPICH - E_c}{I_{or}} \right) \Big|_{in\ dB} \leq 20dB$$

Table 8.7.1.1.1.1: CPICH_RSCP Intra frequency absolute accuracy

Parameter	Unit	Accuracy [dB]		Conditions I _o [dBm/3.84 MHz]
		Normal condition	Extreme condition	
CPICH_RSCP	dBm	±6	±9	-94...-70
	dBm	±8	±11	-70...-50

The normative reference for this requirement is TS 25.133 [2] clauses 9.1.1.1 and A.9.1.1.2.

8.7.1.1.1.3 Test purpose

The purpose of this test is to verify that the CPICH RSCP absolute measurement accuracy is within the specified limits in clause 8.7.1.1.2. This measurement is for handover evaluation, DL open loop power control, UL open loop control and for the calculation of pathloss.

8.7.1.1.1.4 Method of test

8.7.1.1.1.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

In this case all cells are on the same frequency. CPICH RSCP intra frequency absolute accuracy requirements are tested by using test parameters in table 8.7.1.1.1.2.

Table 8.7.1.1.1.2: CPICH RSCP Intra frequency parameters

Parameter	Unit	Test 1		Test 2		Test 3	
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior	dB	-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15	
DPCH_Ec/Ior	dB	-15	-	-15	-	-15	-
OCNS_Ec/Ior	dB	-1.11	-0.94	-1.11	-0.94	-1.11	-0.94
Ior	dBm/ 3.84 MHz	-75.54		-59.98		-97.47	
Ior/Ior	dB	4	0	9	0	0	-6.53
CPICH RSCP, Note 1	dBm	-81.5	-85.5	-60.98	-69.88	-107.47	-114.0
Ior, Note 1	dBm/3.84 MHz	-69		-50		-94	
Propagation condition	-	AWGN		AWGN		AWGN	
NOTE 1: CPICH RSCP and Ior levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.							
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.							

8.7.1.1.1.4.2 Procedure

- 1) A call is set up according to the test procedure specified in TS 34.108 [3] clause 7.3.2.3. The RF parameters for Test 1 are set up according to table 8.7.1.1.1.4.
- 2) SS shall transmit MEASUREMENT CONTROL message.
- 3) UE shall transmit periodically MEASUREMENT REPORT messages.
- 4) SS shall check CPICH_RSCP value in MEASUREMENT REPORT messages. CPICH RSCP power of Cell 1 reported by UE is compared to actual CPICH RSCP power for each MEASUREMENT REPORT message.
- 5) SS shall count number of MEASUREMENT REPORT messages transmitted by UE. After 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.1.1.1.4 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 4) above is repeated. After further 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.1.1.1.4 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 4) above is repeated.
- 6) After further 1000 MEASUREMENT REPORT messages have been received from UE, the SS shall transmit RRC CONNECTION RELEASE message.
- 7) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message for Intra frequency measurement (Step 1):

Information Element	Value/Remark
Message Type	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
Measurement Information elements	
-Measurement Identity	5
-Measurement Command	SETUP
-Measurement Reporting Mode	
- Measurement Report Transfer Mode	Acknowledged mode RLC
- Periodical Reporting / Event Trigger Reporting Mode	Periodical reporting
-Additional measurement list	Not Present
-CHOICE Measurement Type	Intra-frequency measurement
-Intra-frequency measurement	
- Intra-frequency measurement objects list	Not Present
-Intra-frequency measurement quantity	
-Filter coefficient	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	TRUE
-Cell Identity reporting indicator	TRUE
-CHOICE mode	FDD
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	TRUE
-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	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	TRUE
-Reporting quantities for detected set cells	Not Present
-Reporting cell status	
-CHOICE reported cell	Report all active set cells + cells within monitored set on used frequency
-Maximum number of reported cells	Virtual/active set cells + 2
-Measurement validity	Not Present
-CHOICE <i>report criteria</i>	Periodical reporting criteria
-Amount of reporting	Infinity
-Reporting interval	250 ms
Physical channel information elements	
-DPCH compressed mode status info	Not Present

MEASUREMENT REPORT message for Intra frequency test cases

This message is common for all intra frequency test cases in clause 8.7 and is described in Annex I.

8.7.1.1.1.5

Test requirements

Table 8.7.1.1.1.3: CPICH_RSCP Intra frequency absolute accuracy, test requirement

Parameter	Unit	Accuracy [dB]		Conditions Io [dBm]
		Normal condition	Extreme condition	
CPICH_RSCP	dBm	±7.4	±10.4	-94...-70
	dBm	±9.4	±12.4	-70...-50

Table 8.7.1.1.1.4: CPICH RSCP Intra frequency test parameters

Parameter	Unit	Test 1		Test 2		Test 3	
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior	dB	-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15	
DPCH_Ec/Ior	dB	-15	-	-15	-	-15	-
OCNS_Ec/Ior	dB	-1.11	-0.94	-1.11	-0.94	-1.11	-0.94
Ioc	dBm/ 3.84 MHz	-74.54		-61,6		-96.47	
Ior/Ioc	dB	4.3	0.3	9.3	0.3	0.3	-6.23
CPICH RSCP, Note 1	dBm	-80.2	-84.2	-62.3	-71.3	-106.17	-112.7
Io, Note 1	dBm	-67.8		-51,4		-92,8	
Propagation condition	-	AWGN		AWGN		AWGN	
NOTE 1: CPICH RSCP and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.							
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.							

The reported values for the absolut intra frequency CPICH RSCP measurement shall meet the requirements in table 8.7.1.1.1.5.

Table 8.7.1.1.1.5: CPICH_RSCP Intra frequency absolute accuracy requirements for the reported values

	Test 1	Test 2	Test 3
Normal Conditions			
Lowest reported value	CPICH_RSCP_26	CPICH_RSCP_44	CPICH_RSCP_2
Highest reported value	CPICH_RSCP_45	CPICH_RSCP_63	CPICH_RSCP_17
Extreme Conditions			
Lowest reported value	CPICH_RSCP_23	CPICH_RSCP_41	CPICH_RSCP_0
Highest reported value	CPICH_RSCP_48	CPICH_RSCP_66	CPICH_RSCP_20

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.7.1.1.2 Relative accuracy requirement

8.7.1.1.2.1 Definition and applicability

The relative accuracy of CPICH RSCP is defined as the CPICH RSCP measured from one cell compared to the CPICH RSCP measured from another cell on the same frequency.

The requirements and this test apply to all types of UTRA for the FDD UE.

8.7.1.1.2.2 Minimum Requirements

The accuracy requirements in table 8.7.1.1.2.1 are valid under the following conditions:

- $CPICH_RSCP_{1,2}|_{dBm} \geq -114$ dBm.

$$- \left| CPICH_RSCP1 \Big|_{in\ dBm} - CPICH_RSCP2 \Big|_{in\ dBm} \right| \leq 20dB$$

$$- \left(\frac{I_o}{\hat{I}_{or}} \right) \Big|_{in\ dB} - \left(\frac{CPICH_E_c}{I_{or}} \right) \Big|_{in\ dB} \leq 20dB$$

Table 8.7.1.1.2.1: CPICH_RSCP Intra frequency relative accuracy

Parameter	Unit	Accuracy [dB]		Conditions Io [dBm/3.84 MHz]
		Normal condition	Extreme condition	
CPICH_RSCP	dBm	±3	±3	-94...-50

The normative reference for this requirement is TS 25.133 [2] clauses 9.1.1.1.2 and A.9.1.1.2.

8.7.1.1.2.3 Test purpose

The purpose of this test is to verify that the CPICH RSCP relative measurement accuracy is within the specified limits in clause 8.7.1.1.2.2. This measurement is for handover evaluation, DL open loop power control, UL open loop control and for the calculation of pathloss.

8.7.1.1.2.4 Method of test

8.7.1.1.2.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

In this case all cells are on the same frequency. CPICH RSCP intra frequency relative accuracy requirements are tested by using test parameters in table 8.7.1.1.1.2.

8.7.1.1.2.4.2 Procedure

- 1) A call is set up according to the test procedure specified in TS 34.108 [3] clause 7.3.2.3. The RF parameters for Test 1 are set up according to table 8.7.1.1.1.2.
- 2) SS shall transmit MEASUREMENT CONTROL message.
- 3) UE shall transmit periodically MEASUREMENT REPORT messages.
- 4) SS shall check CPICH_RSCP value of Cell 1 and Cell 2 in MEASUREMENT REPORT messages. CPICH RSCP power value measured from Cell 1 is compared to CPICH RSCP power value measured from Cell 2 for each MEASUREMENT REPORT message.
- 5) The result of step 3) is compared to actual power level difference of CPICH RSCP of Cell 1 and Cell 2.
- 6) SS shall count number of MEASUREMENT REPORT messages transmitted by UE. After 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.1.1.2.3 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 4) and 5) above are repeated. After further 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.1.1.2.3 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 4) and 5) above are repeated.
- 7) After further 1000 MEASUREMENT REPORT messages have been received from UE, the SS shall transmit RRC CONNECTION RELEASE message.
- 8) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message for Intra frequency measurement in clause 8.7.1.1.4.2 is used.

MEASUREMENT REPORT message for Intra frequency test cases

This message is common for all intra frequency test cases in clause 8.7 and is described in Annex I.

8.7.1.1.2.5 Test requirements

Table 8.7.1.1.2.2: CPICH_RSCP Intra frequency relative accuracy, test requirements

Parameter	Unit	Accuracy [dB]		Conditions
		Normal condition	Extreme condition	Io [dBm]
CPICH_RSCP	dBm	±3.8	±3.8	-94...-50

Table 8.7.1.1.2.3: CPICH RSCP Intra frequency test parameters

Parameter	Unit	Test 1		Test 2		Test 3	
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior	dB	-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15	
DPCH_Ec/Ior	dB	-15	-	-15	-	-15	-
OCNS_Ec/Ior	dB	-1.11	-0.94	-1.11	-0.94	-1.11	-0.94
Ioc	dBm/ 3.84 MHz	-74.54		-61,6		-96.47	
Ior/Ioc	dB	4.3	0.3	9.3	0.3	0.3	-6.23
CPICH RSCP, Note 1	dBm	-80.2	-84.2	-62.3	-71.3	-106.17	-112.7
Io, Note 1	dBm	-67.8		-51,4		-92,8	
Propagation condition	-	AWGN		AWGN		AWGN	
NOTE 1: CPICH RSCP and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.							
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.							

The reported values for the relative intra frequency CPICH RSCP measurement shall meet the requirements in table 8.7.1.1.2.4.

Table 8.7.1.1.2.4: CPICH_RSCP Intra frequency relative accuracy requirements for the reported values

	Test 1	Test 2	Test 3
Normal Conditions			
Lowest reported value cell 2	CPICH_RSCP _x - 8)	CPICH_RSCP _x - 13)	CPICH_RSCP _x - 11)
Highest reported value cell 2	CPICH_Ec/No _x	CPICH_Ec/No _x - 5)	CPICH_Ec/No _x - 3)
Extreme Conditions			
Lowest reported value cell2	CPICH_RSCP _x - 8)	CPICH_RSCP _x - 13)	CPICH_RSCP _x - 11)
Highest reported value cell2	CPICH_Ec/No _x	CPICH_Ec/No _x - 5)	CPICH_Ec/No _x - 3)
CPICH_RSCP _x is the reported value of cell 1			

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.7.1.2 Inter frequency measurement accuracy

8.7.1.2.1 Relative accuracy requirement

8.7.1.2.1.1 Definition and applicability

The relative accuracy of CPICH RSCP in inter frequency case is defined as the CPICH RSCP measured from one cell compared to the CPICH RSCP measured from another cell on a different frequency.

The requirements and this test apply to all types of UTRA for the FDD UE.

8.7.1.2.1.2 Minimum Requirements

The accuracy requirements in table 8.7.1.2.1.1 are valid under the following conditions:

- $CPICH_RSCP_{1,2}|_{dBm} \geq -114$ dBm.
- $\left| CPICH_RSCP1|_{in\ dBm} - CPICH_RSCP2|_{in\ dBm} \right| \leq 20dB$.
- $| Channel\ 1_Io|_{dBm/3.84\ MHz} - Channel\ 2_Io|_{dBm/3.84\ MHz} | \leq 20$ dB.
- $\left(\frac{I_o}{\hat{I}_{or}} \right)_{in\ dB} - \left(\frac{CPICH - E_c}{I_{or}} \right)_{in\ dB} \leq 20dB$.

Table 8.7.1.2.1.1: CPICH_RSCP Inter frequency relative accuracy

Parameter	Unit	Accuracy [dB]		Conditions
		Normal condition	Extreme condition	Io [dBm/3.84 MHz]
CPICH_RSCP	dBm	±6	±6	-94...-50

The normative reference for this requirement is TS 25.133 [2] clauses 9.1.1.2.1 and A.9.1.1.2.

8.7.1.2.1.3 Test purpose

The purpose of this test is to verify that the CPICH RSCP relative measurement accuracy is within the specified limits in clause 8.7.1.2.1.2. This measurement is for handover evaluation, DL open loop power control, UL open loop control and for the calculation of pathloss.

8.7.1.2.1.4 Method of test

8.7.1.2.1.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

In this case both cells are on different frequencies and compressed mode is applied. The gap length is 7, detailed definition is in clause C.5, set 1 of table C.5.2 except for TGRR and TGCFN. TGPRC and TGCFN shall set to "Infinity" and "(Current CFN + (256 - TTI/10msec))mod 256". CPICH RSCP inter frequency relative accuracy requirements are tested by using test parameters in table 8.7.1.2.1.2.

Table 8.7.1.2.1.2: CPICH RSCP Inter frequency parameters

Parameter	Unit	Test 1		Test 2	
		Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1	Channel 2	Channel 1	Channel 2
CPICH_Ec/Ior	dB	-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12	
SCH_Ec/Ior	dB	-12		-12	
PICH_Ec/Ior	dB	-15		-15	
DPCH_Ec/Ior	dB	-15	-	-15	-
OCNS_Ec/Ior	dB	-1.11	-0.94	-1.11	-0.94
Ioc	dBm/ 3.84 MHz	-60.00	-60.00	-84.00	-94.46
Ior/Ioc	dB	9.54	9.54	0	-9.54
CPICH RSCP, Note 1	dBm	-60.46	-60.46	-94.0	-114.0
Io, Note 1	dBm/3.84 MHz	-50.00	-50.00	-81.0	-94.0
Propagation condition	-	AWGN		AWGN	
NOTE 1: CPICH RSCP and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.					
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for test 2 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.					

8.7.1.2.1.4.2 Procedure

- 1) A call is set up according to the test procedure specified in TS 34.108 [3] clause 7.3.2.3. The RF parameters for Test 1 are set up according to table 8.7.1.2.1.4.
- 2) SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message.
- 3) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.
- 4) SS shall transmit MEASUREMENT CONTROL message for intra frequency measurement and transmit MEASUREMENT CONTROL message for inter frequency measurement.
- 5) UE shall transmit periodically MEASUREMENT REPORT messages.
- 6) SS shall check CPICH_RSCP value of Cell 1 and Cell 2 in MEASUREMENT REPORT messages. CPICH RSCP power value measured from Cell 1 is compared to CPICH RSCP power value measured from Cell 2 for each MEASUREMENT REPORT message.
- 7) The result of step 5) is compared to actual power level difference of CPICH RSCP of Cell 1 and Cell 2.
- 8) SS shall count number of MEASUREMENT REPORT messages transmitted by UE. After 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.1.2.1.4 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 6) and 7) above are repeated.
- 9) After further 1000 MEASUREMENT REPORT messages have been received from UE, the SS shall transmit RRC CONNECTION RELEASE message.
- 10) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

PHYSICAL CHANNEL RECONFIGURATION message for Inter frequency measurement (step 1):

Information Element	Value/Remark
Message Type	
UE Information Elements -RRC transaction identifier -Integrity check info -Integrity protection mode info -Ciphering mode info -Activation time -New U-RNTI -New C-RNTI -RRC State Indicator -UTRAN DRX cycle length coefficient	0 Not Present Not Present Not Present Not Present Not Present Not Present CELL_DCH Not Present
CN Information Elements -CN Information info	Not Present
UTRAN mobility information elements -URA identity	Not Present
RB information elements -Downlink counter synchronisation info	Not Present
PhyCH information elements -Frequency info	Not Present
Uplink radio resources -Maximum allowed UL TX power - CHOICE <i>channel requirement</i>	Not Present Not Present
Downlink radio resources -CHOICE mode -Downlink PDSCH information -Downlink information common for all radio links -Downlink DPCH info common for all RL -CHOICE mode -DPCH compressed mode info -Transmission gap pattern sequence -TGPSI -TGPS Status Flag -TGCFN -Transmission gap pattern sequence configuration parameters -TGMP -TGPRC -TGSN -TGL1 -TGL2 -TGD -TGPL1 -TGPL2 -RPP -ITP -CHOICE UL/DL mode -Downlink compressed mode method -Uplink compressed mode method -Downlink frame type -DeltaSIR1 -DeltaSIRafter1 -DeltaSIR2 -DeltaSIRafter2 -N Identify abort -T Reconfirm abort -TX Diversity Mode -SSDT information -Default DPCH Offset Value -Downlink information per radio link list -Downlink information for each radio link -Choice mode -Primary CPICH info -Primary scrambling code	FDD Not Present Not Present FDD 1 Activate (Current CFN + (256 – TTI/10msec))mod 256 FDD measurement Infinity 4 7 Not Present 0 3 Not Present Mode 0 Mode 0 UL and DL SF/2 SF/2 B 3.0 3.0 Not Present Not Present Not Present Not Present Not Present Not Present Not Present Not Present FDD 100

-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	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400
-Secondary CPICH info	Not Present
-DL channelisation code	
-Secondary scrambling code	Not Present
-Spreading factor	128
-Code number	96
-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

First MEASUREMENT CONTROL message for Intra frequency measurement (Step 3):

Information Element	Value/Remark
Message Type	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
Measurement Information elements	
-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	Intra-frequency measurement
-Intra-frequency measurement	
- Intra-frequency measurement objects list	
-Intra-frequency cell info list	Not Present
-Intra-frequency measurement quantity	
-Filter coefficient	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	TRUE
-Cell Identity reporting indicator	TRUE
-CHOICE mode	FDD
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	TRUE
-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	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	TRUE
-Reporting quantities for detected set cells	Not Present
-Reporting cell status	
-CHOICE reported cell	Report all active set cells + cells within monitored set on used frequency
-Maximum number of reported cells	Virtual/active set cells + 2
-Measurement validity	Not Present
-CHOICE <i>report criteria</i>	Periodical reporting criteria
-Amount of reporting	Infinity
-Reporting interval	250 ms
Physical channel information elements	
-DPCH compressed mode status info	Not Present

Second MEASUREMENT CONTROL message for Inter frequency measurement (step 3):

Information Element	Value/Remark
Message Type	
UE information elements -RRC transaction identifier -Integrity check info	0 Not Present
Measurement Information elements -Measurement Identity -Measurement Command -Measurement Reporting Mode - Measurement Report Transfer Mode - Periodical Reporting / Event Trigger Reporting Mode -Additional measurement list -CHOICE Measurement Type -Inter-frequency measurement object list -CHOICE Inter-frequency cell removal -New inter-frequency cells -Cell for measurement -Inter-frequency measurement quantity -CHOICE reporting criteria -Filter coefficient -CHOICE mode -Measurement quantity for frequency quality estimate -Inter-frequency reporting quantity -UTRA Carrier RSSI -Frequency quality estimate -Non frequency related cell reporting quantities -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator -Reporting cell status -CHOICE reported cell -Maximum number of reported cells -Measurement validity -Inter-frequency set update -CHOICE report criteria -Amount of reporting -Reporting interval	2 Setup Acknowledged mode RLC Periodical reporting Not Present Inter-frequency measurement Not Present Cell 2 information is included Not Present Inter-frequency reporting criteria 0 FDD CPICH RSCP TRUE TRUE No report TRUE TRUE FDD TRUE TRUE TRUE Report cells within monitored set on non-used frequency 2 Not Present Not Present Periodical reporting criteria Infinity 500 ms
Physical channel information elements -DPCH compressed mode status info	Not Present

MEASUREMENT REPORT message for Inter frequency test cases

This message is common for all inter frequency test cases in clause 8.7 and is described in Annex I.

8.7.1.2.1.5 Test requirements

Table 8.7.1.2.1.3: CPICH_RSCP Inter frequency relative accuracy, test requirements

Parameter	Unit	Accuracy [dB]		Conditions
		Normal condition	Extreme condition	Io [dBm]
CPICH_RSCP	dBm	±7.1	±7.1	-94...-50

Table 8.7.1.2.1.4: CPICH RSCP Inter frequency tests parameters

Parameter	Unit	Test 1		Test 2	
		Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1	Channel 2	Channel 1	Channel 2
CPICH_Ec/Ior	dB	-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12	
SCH_Ec/Ior	dB	-12		-12	
PICH_Ec/Ior	dB	-15		-15	
DPCH_Ec/Ior	dB	-15	-	-15	-
OCNS_Ec/Ior	dB	-1.11	-0.94	-1.11	-0.94
Ior	dBm/ 3.84 MHz	-61.6	-61.6	-83.00	-93.46
Ior/Ior	dB	9.84	9.84	0.3	-9.24
CPICH RSCP, Note 1	dBm	-61.8	-61.8	-92.7	-112.7
Io, Note 1	dBm	-51.3	-51.3	-79.8	-93.0
Propagation condition	-	AWGN		AWGN	
NOTE 1: CPICH RSCP and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.					
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for test 2 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.					

The reported values for the relative inter frequency CPICH RSCP measurement shall meet the requirements in table 8.7.1.2.1.5.

Table 8.7.1.2.1.5: CPICH_RSCP Inter frequency relative accuracy requirements for the reported values

	Test 1	Test 2
Normal Conditions		
Lowest reported value cell 2	CPICH_RSCP_(x - 8)	CPICH_RSCP_(x - 28)
Highest reported value cell 2	CPICH_Ec/No_(x + 8)	CPICH_Ec/No_(x - 12)
Extreme Conditions		
Lowest reported value cell2	CPICH_RSCP_(x - 8)	CPICH_RSCP_(x - 28)
Highest reported value cell2	CPICH_Ec/No_(x + 8)	CPICH_Ec/No_(x - 12)
CPICH_RSCP_x is the reported value of cell 1		

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.7.2 CPICH Ec/Io

8.7.2.1 Intra frequency measurements accuracy

8.7.2.1.1 Absolute accuracy requirement

8.7.2.1.1.1 Definition and applicability

The absolute accuracy of CPICH Ec/Io is defined as the CPICH Ec/Io measured from one cell compared to the actual CPICH_Ec/Io power ratio from same cell.

The requirements and this test apply to all types of UTRA for the FDD UE.

8.7.2.1.1.2 Minimum Requirements

The accuracy requirements in table 8.7.2.1.1.1 are valid under the following conditions:

- CPICH_RSCP1|_{dBm} ≥ -114 dBm.

$$\left| \frac{I_o}{\hat{I}_{or}} \right|_{in \text{ dB}} - \left(\frac{CPICH - E_c}{I_{or}} \right)_{in \text{ dB}} \leq 20 \text{ dB}.$$

Table 8.7.2.1.1.1: CPICH_Ec/Io Intra frequency absolute accuracy, minimum requirements

Parameter	Unit	Accuracy [dB]		Conditions
		Normal condition	Extreme condition	Io [dBm/3.84 MHz]
CPICH_Ec/Io	dB	±1,5 for -14 ≤ CPICH Ec/Io ±2 for -16 ≤ CPICH Ec/Io < -14 ±3 for -20 ≤ CPICH Ec/Io < -16	±3	-94...-50

The normative reference for this requirement is TS 25.133 [2] clause 9.1.2.1.1.

8.7.2.1.1.3 Test purpose

The purpose of this test is to verify that the CPICH Ec/Io absolute measurement accuracy is within the specified limits in clause 8.7.2.1.1.2. This measurement is for Cell selection/re-selection and for handover evaluation.

8.7.2.1.1.4 Method of test

8.7.2.1.1.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

In this case all cells are on the same frequency. CPICH Ec/Io intra frequency absolute accuracy requirements are tested by using the test parameters in table 8.7.2.1.1.2.

Table 8.7.2.1.1.2: CPICH_Ec/Io Intra frequency parameters

Parameter	Unit	Test 1		Test 2		Test 3	
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1		Channel 1		Channel 1	
CPICH_Ec/Io	dB	-10		-10		-10	
PCCPCH_Ec/Io	dB	-12		-12		-12	
SCH_Ec/Io	dB	-12		-12		-12	
PICH_Ec/Io	dB	-15		-15		-15	
DPCH_Ec/Io	dB	-15	-	-15	-	-6	-
OCNS_Ec/Io	dB	-1.11	-0.94	-1.11	-0.94	-2.56	-0.94
Io	dBm/ 3.84 MHz	-56.98		-89.07		-94.98	
Ior/Io	dB	3.0	3.0	-2.9	-2.9	-9.0	-9.0
CPICH Ec/Io, Note 1	dBm	-14.0	-14.0	-16.0	-16.0	-20.0	-20.0
Io, Note 1	dBm/3.84 MHz	-50		-86		-94	
Propagation condition	-	AWGN		AWGN		AWGN	
NOTE 1: CPICH Ec/Io and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.							
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.							

8.7.2.1.1.4.2 Procedure

- 1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2.3. The RF parameters for Test 1 are set up according to table 8.7.2.1.1.5.
- 2) SS shall transmit MEASUREMENT CONTROL message.
- 3) UE shall transmit periodically MEASUREMENT REPORT messages.

- 4) SS shall check CPICH_Ec/No value in MEASUREMENT REPORT messages. According to table 8.7.2.1.1.3 the SS calculates CPICH_Ec/Io power ratio of Cell 1, which is compared to the actual CPICH Ec/Io power ratio from the same cell for each MEASUREMENT REPORT message.
- 5) SS shall count number of MEASUREMENT REPORT messages transmitted by UE. After 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.2.1.1.5 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 4) above is repeated. After further 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.2.1.1.5 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 4) above is repeated.
- 6) After further 1000 MEASUREMENT REPORT messages have been received from UE, the SS shall transmit RRC CONNECTION RELEASE message.
- 7) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Table 8.7.2.1.1.3: CPICH Ec/Io measurement report mapping

Reported value	Measured quantity value	Unit
CPICH_Ec/No _00	CPICH Ec/Io < -24	dB
CPICH_Ec/No _01	-24 ≤ CPICH Ec/Io < -23.5	dB
CPICH_Ec/No _02	-23.5 ≤ CPICH Ec/Io < -23	dB
...
CPICH_Ec/No _47	-1 ≤ CPICH Ec/Io < -0.5	dB
CPICH_Ec/No _48	-0.5 ≤ CPICH Ec/Io < 0	dB
CPICH_Ec/No _49	0 ≤ CPICH Ec/Io	dB

Specific Message Contents

All messages indicated above shall use the same content as described in default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message for Intra frequency measurement (Step 1):

Information Element	Value/Remark
Message Type	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
Measurement Information elements	
-Measurement Identity	1
-Measurement Command	Modify
-Measurement Reporting Mode	Acknowledged mode RLC
- Measurement Report Transfer Mode	Periodical reporting
- Periodical Reporting / Event Trigger Reporting Mode	Not Present
-Additional measurement list	Intra-frequency measurement
-CHOICE Measurement Type	
-Intra-frequency measurement	
- Intra-frequency measurement objects list	Not Present
-Intra-frequency measurement quantity	
-Filter coefficient	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	TRUE
-Cell Identity reporting indicator	TRUE
-CHOICE mode	FDD
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	TRUE
-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
-CHOICE mode	FDD
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	FALSE
-Reporting quantities for detected set cells	Not Present
-Reporting cell status	
-CHOICE reported cell	Report all active set cells + cells within monitored set on used frequency
-Maximum number of reported cells	Virtual/active set cells + 2
-Measurement validity	Not Present
-CHOICE <i>report criteria</i>	Periodical reporting criteria
-Amount of reporting	Infinity
-Reporting interval	250 ms
Physical channel information elements	
-DPCH compressed mode status info	Not Present

MEASUREMENT REPORT message for Intra frequency test cases

This message is common for all intra frequency test cases in clause 8.7 and is described in Annex I.

8.7.2.1.1.5 Test requirements

The CPICH Ec/Io measurement accuracy shall meet the requirements in clause 8.7.2.1.1.2. The effect of assumed thermal noise and noise generated in the receiver (-99 dBm) shall be added into the required accuracy defined in subclause 8.7.2.1.1.2 as shown in table 8.7.2.1.1.4.

Table 8.7.2.1.1.4: CPICH_Ec/Io Intra frequency absolute accuracy, test requirements

Parameter	Unit	Accuracy [dB]		Conditions
		Normal condition	Extreme condition	Io [dBm/3.84 MHz]
CPICH_Ec/Io	dB	-3.1...1.9 for $-14 \leq \text{CPICH Ec/Io}$ -3.6...2.4 for $-16 \leq \text{CPICH Ec/Io} < -14$ -4.6...3.4 for $-20 \leq \text{CPICH Ec/Io} < -16$	-4.6...3.4	-94...-87
		± 1.95 for $-14 \leq \text{CPICH Ec/Io}$ ± 2.4 for $-16 \leq \text{CPICH Ec/Io} < -14$ ± 3.4 for $-20 \leq \text{CPICH Ec/Io} < -16$	± 3.4	-87...-50

The normative reference for this requirement is TS 25.133 [2] clause A.9.1.2.2.

Table 8.7.2.1.1.5: CPICH_Ec/Io Intra frequency tests parameters

Parameter	Unit	Test 1		Test 2		Test 3	
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior	dB	-9.7		-9.8		-9.9	
PCCPCH_Ec/Ior	dB	-11.7		-11.8		-11.9	
SCH_Ec/Ior	dB	-11.7		-11.8		-11.9	
PICH_Ec/Ior	dB	-14.7		-14.8		-14.9	
DPCH_Ec/Ior	dB	-14.7	-	-14.8	-	-5.9	-
OCNS_Ec/Ior	dB	-1.2	-1.02	-1.17	-0.99	-2.64	-0.97
Io	dBm/ 3.84 MHz	-58.5		-89.07		-93.98	
Ior/Ioc	dB	3.3	3.3	-2.6	-2.6	-8.7	-8.7
CPICH Ec/Io, Note 1	dBm	-13.6	-13.6	-15.6	-15.6	-19.6	-19.6
Io, Note 1	dBm	-51.3		-85.85		-92.9	
Propagation condition	-	AWGN		AWGN		AWGN	
NOTE 1: CPICH Ec/Io and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.							
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.							

The reported values for the absolut intra frequency CPICH Ec/Io measurement shall meet the requirements in table 8.7.2.1.1.6.

Table 8.7.2.1.1.6: CPICH_Ec/Io Intra frequency absolute accuracy requirements for the reported values

	Test 1	Test 2	Test 3
Normal Conditions			
Lowest reported value	CPICH_Ec/No_17	CPICH_Ec/No_12	CPICH_Ec/No_0
Highest reported value	CPICH_Ec/No_25	CPICH_Ec/No_22	CPICH_Ec/No_16
Extreme Conditions			
Lowest reported value	CPICH_Ec/No_14	CPICH_Ec/No_10	CPICH_Ec/No_0
Highest reported value	CPICH_Ec/No_28	CPICH_Ec/No_24	CPICH_Ec/No_16

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.7.2.1.2 Relative accuracy requirement

8.7.2.1.2.1 Definition and applicability

The relative accuracy of CPICH Ec/Io is defined as the CPICH Ec/Io measured from one cell compared to the CPICH Ec/Io measured from another cell on the same frequency.

The requirements and this test apply to all types of UTRA for the FDD UE.

8.7.2.1.2.2 Minimum Requirements

The accuracy requirements in table 8.7.2.1.2.1 are valid under the following conditions:

- $CPICH_RSCP_{1,2}|_{dBm} \geq -114$ dBm.
- $\left| CPICH_RSCP1|_{in\ dBm} - CPICH_RSCP2|_{in\ dBm} \right| \leq 20dB$.
- $\left| \frac{I_o}{\hat{I}_{or}} \right|_{in\ dB} - \left(\frac{CPICH - E_c}{I_{or}} \right)_{in\ dB} \leq 20dB$.

Table 8.7.2.1.2.1: CPICH_Ec/Io Intra frequency relative accuracy

Parameter	Unit	Accuracy [dB]		Conditions
		Normal condition	Extreme condition	Io [dBm/3.84 MHz]
CPICH_Ec/Io	dB	±1,5 for $-14 \leq CPICH\ Ec/Io$ ±2 for $-16 \leq CPICH\ Ec/Io < -14$ ±3 for $-20 \leq CPICH\ Ec/Io < -16$	±3	-94...-50

The normative reference for this requirement is TS 25.133 [2] clauses 9.1.2.1.2 and A.9.1.2.2.

8.7.2.1.2.3 Test purpose

The purpose of this test is to verify that the CPICH Ec/Io relative measurement accuracy is within the specified limits in clause 8.7.2.1.2.2. This measurement is for Cell selection/re-selection and for handover evaluation.

8.7.2.1.2.4 Method of test

8.7.2.1.2.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

In this case all cells are in the same frequency. CPICH Ec/Io intra frequency relative accuracy requirements are tested by using test parameters in table 8.7.2.1.1.2.

8.7.2.1.2.4.2 Procedure

- 1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2.3. The RF parameters for Test 1 are set up according to table 8.7.2.1.1.3.
- 2) SS shall transmit MEASUREMENT CONTROL message.
- 3) UE shall transmit periodically MEASUREMENT REPORT messages.
- 4) SS shall check CPICH_Ec/Io value of Cell 1 and Cell 2 in MEASUREMENT REPORT messages. According to table 8.7.2.1.1.3 the SS calculates CPICH_Ec/Io power ratio of Cell 1 and Cell 2. CPICH_Ec/Io power ratio value measured from Cell 1 is compared to CPICH_Ec/Io power ratio value measured from Cell 2 for each MEASUREMENT REPORT message.
- 5) The result of step 3) is compared to actual power level difference of CPICH_Ec/Io of Cell 1 and Cell 2.
- 6) SS shall count number of MEASUREMENT REPORT messages transmitted by UE. After 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.2.1.1.3 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 4) and 5) above are repeated. After further 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.2.1.1.3 for Test 3. While RF

parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 4) and 5) above are repeated.

- 7) After further 1000 MEASUREMENT REPORT messages have been received from UE, the SS shall transmit RRC CONNECTION RELEASE message.
- 8) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message for Intra frequency measurement in clause 8.7.2.1.1.4.2 is used.

MEASUREMENT REPORT message for Intra frequency test cases

This message is common for all intra frequency test cases in clause 8.7 and is described in Annex I.

8.7.2.1.2.5 Test requirements

Table 8.7.2.1.2.2: CPICH_Ec/Io Intra frequency relative accuracy

Parameter	Unit	Accuracy [dB]		Conditions
		Normal condition	Extreme condition	Io [dBm]
CPICH_Ec/Io	dB	±2.3 for -14 ≤ CPICH Ec/Io ±2.8 for -16 ≤ CPICH Ec/Io < -14 ±3.8 for -20 ≤ CPICH Ec/Io < -16	±3.8	-94...-50

Table 8.7.2.1.2.3: CPICH_Ec/Io Intra frequency tests parameters

Parameter	Unit	Test 1		Test 2		Test 3	
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1		Channel 1		Channel 1	
CPICH_Ec/Io	dB	-9.7		-9.8		-9.9	
PCCPCH_Ec/Io	dB	-11.7		-11.8		-11.9	
SCH_Ec/Io	dB	-11.7		-11.8		-11.9	
PICH_Ec/Io	dB	-14.7		-14.8		-14.9	
DPCH_Ec/Io	dB	-14.7	-	-14.8	-	-5.9	-
OCNS_Ec/Io	dB	-1.2	-1.02	-1.17	-0.99	-2.64	-0.97
Io	dBm/ 3.84 MHz	-58.5		-89.07		-93.98	
Ior/Ioc	dB	3.3	3.3	-2.6	-2.6	-8.7	-8.7
CPICH Ec/Io, Note 1	dBm	-13.6	-13.6	-15.6	-15.6	-19.6	-19.6
Io, Note 1	dBm	-51,3		-85.85		-92.9	
Propagation condition	-	AWGN		AWGN		AWGN	
NOTE 1: CPICH Ec/Io and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.							
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.							

The reported values for the relative intra frequency CPICH Ec/Io measurement shall meet the requirements in table 8.7.2.1.2.4.

Table 8.7.2.1.2.4: CPICH_Ec/Io Intra frequency relative accuracy requirements for the reported values

	Test 1	Test 2	Test 3
Normal Conditions			
Lowest reported value cell 2	CPICH_Ec/No_(x - 5)	CPICH_Ec/No_(x - 6)	CPICH_Ec/No_(x - 8)
Highest reported value cell 2	CPICH_Ec/No_(x+ 5)	CPICH_Ec/No_(x - 6)	CPICH_Ec/No_(x+ 8)
Extreme Conditions			
Lowest reported value cell2	CPICH_Ec/No_(x - 8)	CPICH_Ec/No_(x - 8)	CPICH_Ec/No_(x - 8)
Highest reported value cell2	CPICH_Ec/No_(x + 8)	CPICH_Ec/No_(x+ 8)	CPICH_Ec/No_(x+ 8)
CPICH_Ec/No_x is the reported value of cell 1			

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.7.2.2 Inter frequency measurement accuracy

8.7.2.2.1 Void

8.7.2.2.2 Relative accuracy requirement

8.7.2.2.2.1 Definition and applicability

The relative accuracy of CPICH Ec/Io in the inter frequency case is defined as the CPICH Ec/Io measured from one cell compared to the CPICH Ec/Io measured from another cell on a different frequency.

The requirements and this test apply to all types of UTRA for the FDD UE.

8.7.2.2.2.2 Minimum Requirements

The accuracy requirements in table 8.7.2.2.2.1 are valid under the following conditions:

- CPICH_RSCP1,2|dBm ≥ -114 dBm.
- $\left| CPICH_RSCP1 \Big|_{in\ dBm} - CPICH_RSCP2 \Big|_{in\ dBm} \right| \leq 20dB .$
- $| Channel\ 1_Io|_{dBm/3.84\ MHz} - Channel\ 2_Io|_{dBm/3.84\ MHz} | \leq 20\ dB .$
- $\left(\frac{I_o}{\hat{I}_{or}} \right) \Big|_{in\ dB} - \left(\frac{CPICH_E_c}{I_{or}} \right) \Big|_{in\ dB} \leq 20dB .$

Table 8.7.2.2.2.1: CPICH_Ec/Io Inter frequency relative accuracy, minimum requirements

Parameter	Unit	Accuracy [dB]		Conditions Io [dBm/3.84 MHz]
		Normal condition	Extreme condition	
CPICH_Ec/Io	dB	±1.5 for -14 ≤ CPICH Ec/Io ±2 for -16 ≤ CPICH Ec/Io < -14 ±3 for -20 ≤ CPICH Ec/Io < -16	±3	-94...-50

The normative reference for this requirement is TS 25.133 [2] clauses 9.1.2.2.2 and A.9.1.2.2.

8.7.2.2.2.3 Test purpose

The purpose of this test is to verify that the CPICH Ec/Io relative measurement accuracy is within the specified limits in clause 8.7.2.2.2.2. This measurement is for Cell selection/re-selection and for handover evaluation.

8.7.2.2.2.4 Method of test

8.7.2.2.2.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

In this case both cells are in different frequency and compressed mode is applied. The gap length is 7, detailed definition is in clause C.5, set 1 of table C.5.2 except for TGRRC and TGCFN. TGPRC and TGCFN shall set to "Infinity" and "(Current CFN + (256 – TTI/10msec))mod 256". CPICH Ec/Io inter frequency relative accuracy requirements are tested by using test parameters in table 8.7.2.2.2.2.

Table 8.7.2.2.2.2: CPICH Ec/Io Inter frequency parameters

Parameter	Unit	Test 1		Test 2		Test 3	
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1	Channel 2	Channel 1	Channel 2	Channel 1	Channel 2
CPICH_Ec/Ior	dB	-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15	
DPCH_Ec/Ior	dB	-15	-	-6	-	-6	-
OCNS_Ec/Ior	dB	-1.11	-0.94	-2.56	-0.94	-2.56	-0.94
Ior	dBm/ 3.84 MHz	-52.22	-52.22	-87.27	-87.27	-94.46	-94.46
Ior/Ior	dB	-1.75	-1.75	-4.7	-4.7	-9.54	-9.54
CPICH Ec/Io, Note 1	dBm	-14.0	-14.0	-16.0	-16.0	-20.0	-20.0
Io, Note 1	dBm/3.84 MHz	-50	-50	-86	-86	-94	-94
Propagation condition	-	AWGN		AWGN		AWGN	
NOTE 1: CPICH Ec/Io and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.							
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.							

8.7.2.2.2.4.2 Procedure

- 1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2.3. The RF parameters for Test 1 are set up according to table 8.7.2.2.2.4.
- 2) SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message.
- 3) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.
- 4) SS shall transmit a MEASUREMENT CONTROL message for intra frequency measurement and transmit another MEASUREMENT CONTROL message for inter frequency measurement.
- 5) UE shall transmit periodically MEASUREMENT REPORT messages.
- 6) SS shall check CPICH_Ec/Io value of Cell 1 and Cell 2 in MEASUREMENT REPORT messages. According to table 8.7.2.1.1.3 the SS calculates CPICH_Ec/Io power ratio of Cell 1 and Cell 2. CPICH_Ec/Io power ratio measured from Cell 1 is compared to CPICH_Ec/Io power value measured from Cell 2 for each MEASUREMENT REPORT message.
- 7) The result of step 6) is compared to actual power level difference of CPICH_Ec/Io of Cell 1 and Cell 2.
- 8) SS shall count number of MEASUREMENT REPORT messages transmitted by UE. After 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.2.2.2.4 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 6) and 7) above are repeated. After further 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.2.2.2.4 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for

additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 6) and 7) above are repeated.

9) After 1000 MEASUREMENT REPORT messages have been received from UE, the SS shall transmit RRC CONNECTION RELEASE message.

10) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

All messages indicated above shall use the same content as described in default message content in clause 9 of 34.108 [3], with the following exceptions:

PHYSICAL CHANNEL RECONFIGURATION message for Inter frequency measurement (step 1):

Information Element	Value/Remark
Message Type	
UE Information Elements -RRC transaction identifier -Integrity check info -Integrity protection mode info -Ciphering mode info -Activation time -New U-RNTI -New C-RNTI -RRC State Indicator -UTRAN DRX cycle length coefficient	0 Not Present Not Present Not Present Not Present Not Present Not Present CELL_DCH Not Present
CN Information Elements -CN Information info	Not Present
UTRAN mobility information elements -URA identity	Not Present
RB information elements -Downlink counter synchronisation info	Not Present
PhyCH information elements -Frequency info	Not Present
Uplink radio resources -Maximum allowed UL TX power - CHOICE <i>channel requirement</i>	Not Present Not Present
Downlink radio resources -CHOICE mode -Downlink PDSCH information -Downlink information common for all radio links -Downlink DPCH info common for all RL -CHOICE mode -DPCH compressed mode info -Transmission gap pattern sequence -TGPSI -TGPS Status Flag -TGCFN -Transmission gap pattern sequence configuration parameters -TGMP -TGPRC -TGSN -TGL1 -TGL2 -TGD -TGPL1 -TGPL2 -RPP -ITP -CHOICE UL/DL mode -Downlink compressed mode method -Uplink compressed mode method -Downlink frame type -DeltaSIR1 -DeltaSIRafter1 -DeltaSIR2 -DeltaSIRafter2 -N Identify abort -T Reconfirm abort -TX Diversity Mode -SSDT information -Default DPCH Offset Value -Downlink information per radio link list -Downlink information for each radio link -Choice mode -Primary CPICH info -Primary scrambling code	FDD Not Present Not Present FDD 1 Activate (Current CFN + (256 – TTI/10msec))mod 256 FDD measurement Infinity 4 7 Not Present 0 3 Not Present Mode 0 Mode 0 UL and DL SF/2 SF/2 B 3.0 3.0 Not Present Not Present Not Present Not Present Not Present Not Present Not Present Not Present Not Present Not Present FDD 100

-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	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400
-Secondary CPICH info	Not Present
-DL channelisation code	
-Secondary scrambling code	Not Present
-Spreading factor	128
-Code number	96
-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

First MEASUREMENT CONTROL message for Intra frequency measurement (Step 3):

Information Element	Value/Remark
Message Type	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
Measurement Information elements	
-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	Intra-frequency measurement
-Intra-frequency measurement	
- Intra-frequency measurement objects list	
-Intra-frequency cell info list	Not Present
-Intra-frequency measurement quantity	
-Filter coefficient	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	TRUE
-Cell Identity reporting indicator	TRUE
-CHOICE mode	FDD
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	TRUE
-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	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	TRUE
-Reporting quantities for detected set cells	Not Present
-Reporting cell status	
-CHOICE reported cell	Report all active set cells + cells within monitored set on used frequency
-Maximum number of reported cells	Virtual/active set cells + 2
-Measurement validity	Not Present
-CHOICE <i>report criteria</i>	Periodical reporting criteria
-Amount of reporting	Infinity
-Reporting interval	250 ms
Physical channel information elements	
-DPCH compressed mode status info	Not Present

Second MEASUREMENT CONTROL message for Inter frequency measurement (step 3):

Information Element	Value/Remark
Message Type	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
Measurement Information elements	
-Measurement Identity	2
-Measurement Command	Setup
-Measurement Reporting Mode	
- Measurement Report Transfer Mode	Acknowledged mode RLC
- Periodical Reporting / Event Trigger Reporting Mode	Periodical reporting
-Additional measurement list	Not Present
-CHOICE Measurement Type	Inter-frequency measurement
-Inter-frequency measurement	
-Inter-frequency cell info list	
-CHOICE Inter-frequency cell removal	Not Present
-New inter-frequency cells	Cell 2 information is included
-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	TRUE
-Frequency quality estimate	TRUE
-Non frequency related cell reporting quantities	
-SFN-SFN observed time difference reporting indicator	No report
-Cell synchronisation information reporting indicator	TRUE
-Cell Identity reporting indicator	TRUE
-CHOICE mode	FDD
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	TRUE
-Reporting cell status	
-CHOICE reported cell	Report cells within 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	Periodical reporting criteria
-Amount of reporting	Infinity
-Reporting interval	500 ms
Physical channel information elements	
-DPCH compressed mode status info	Not Present

MEASUREMENT REPORT message for Intra frequency test cases

This message is common for all inter frequency test cases in clause 8.7 and is described in Annex I.

8.7.2.2.2.5 Test requirements

The effect of assumed thermal noise and noise generated in the receiver (-99 dBm) shall be added into the required accuracy defined in clause 8.7.2.2.2.2 as shown in table 8.7.2.2.2.3.

Table 8.7.2.2.3: CPICH_Ec/Io Inter frequency relative accuracy, test requirements

Parameter	Unit	Normal condition	Extreme condition	Io [dBm/3.84 MHz]
CPICH_Ec/Io	dB	±3.5 for $-14 \leq \text{CPICH Ec/Io}$ ±4 for $-16 \leq \text{CPICH Ec/Io} < -14$ ±5 for $-20 \leq \text{CPICH Ec/Io} < -16$	± 5	-94...-87
		±2.3 for $-14 \leq \text{CPICH Ec/Io}$ ± 2.8 for $-16 \leq \text{CPICH Ec/Io} < -14$ ± 3.8 for $-20 \leq \text{CPICH Ec/Io} < -16$	± 3.8	-87...-50

The normative reference for this requirement is TS 25.133 [2] clause A.9.1.2.2.

Table 8.7.2.2.4: CPICH Ec/Io Inter frequency tests parameters

Parameter	Unit	Test 1		Test 2		Test 3	
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1	Channel 2	Channel 1	Channel 2	Channel 1	Channel 2
CPICH_Ec/Ior	dB	-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15	
DPCH_Ec/Ior	dB	-15	-	-6	-	-6	-
OCNS_Ec/Ior	dB	-1.12	-0.95	-2.55	-0.94	-2.55	-0.94
Ior	dBm/ 3.84 MHz	-53.5	-53.5	-86.27	-86.27	-93.46	-93.46
Ior/Ioc	dB	-1.45	-1.45	-4.4	-4.4	-9.24	-9.24
CPICH Ec/Io, Note 1	dBm	-13.8	-13.8	-15.7	-15.7	-19.7	-19.7
Io, Note 1	dBm	-51.15	-51.15	-84.9	-84.9	-93	-93
Propagation condition	-	AWGN		AWGN		AWGN	
NOTE 1: CPICH Ec/Io and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.							
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.							

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

The reported values for the relative inter frequency CPICH Ec/Io measurement shall meet the requirements in table 8.7.2.2.5.

Table 8.7.2.2.5: CPICH_Ec/Io Inter frequency relative accuracy requirements for the reported values

	Test 1	Test 2	Test 3
Normal Conditions			
Lowest reported value cell 2	CPICH_Ec/No_(x -5)	CPICH_Ec/No_(x - 6)	CPICH_Ec/No_(x - 10)
Highest reported value cell 2	CPICH_Ec/No_(x+5)	CPICH_Ec/No_(x + 6)	CPICH_Ec/No_(x +10)
Extreme Conditions			
Lowest reported value cell2	CPICH_Ec/No_(x - 8)	CPICH_Ec/No_(x - 8)	CPICH_Ec/No_(x - 10)
Highest reported value cell2	CPICH_Ec/No_(x + 8)	CPICH_Ec/No_(x + 8)	CPICH_Ec/No_(x + 10)
CPICH_Ec/No_x is the reported value of cell 1			

8.7.3 UTRA Carrier RSSI

NOTE: This measurement is for Inter-frequency handover evaluation.

8.7.3.1 Absolute measurement accuracy requirement

8.7.3.1.1 Definition and applicability

The absolute accuracy of UTRA Carrier RSSI is defined as the UTRA Carrier RSSI measured from one frequency compared to the actual UTRA Carrier RSSI power of that same frequency.

The requirements and this test apply to all types of UTRA for the FDD UE.

8.7.3.1.2 Minimum Requirements

Table 8.7.3.1.1: UTRA Carrier RSSI Inter frequency absolute accuracy

Parameter	Unit	Accuracy [dB]		Conditions
		Normal condition	Extreme condition	Io [dBm/3.84 MHz]
UTRA Carrier RSSI	dBm	± 4	± 7	-94...-70
	dBm	± 6	± 9	-70...-50

The normative reference for this requirement is TS 25.133 [2] clause 9.1.3.1.

8.7.3.1.3 Test purpose

The purpose of this test is to verify that the UTRA Carrier RSSI measurement is within the specified limits. This measurement is for inter-frequency handover evaluation.

8.7.3.1.4 Method of test

8.7.3.1.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

In this case both cells are on different frequencies and compressed mode is applied. The gap length is 7, detailed definition is in clause C.5, Set 1 of table C.5.2 except for TGRRC and TGCFN. TGPRC and TGCFN shall set to "Infinity" and "(Current CFN + (256 – TTI/10msec))mod 256". UTRA Carrier RSSI absolute accuracy requirements are tested by using test parameters in table 8.7.3.1.2.

Table 8.7.3.1.2: UTRA Carrier RSSI Inter frequency test parameters

Parameter	Unit	Test 1		Test 2		Test 3	
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1	Channel 2	Channel 1	Channel 2	Channel 1	Channel 2
CPICH_Ec/Ior	dB	-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15	
DPCH_Ec/Ior	dB	-15	-	-6	-	-6	-
OCNS_Ec/Ior	dB	-1.11	-0.94	-2.56	-0.94	-2.56	-0.94
I _{oc}	dBm/ 3.84 MHz	-52.22	-52.22	-70.27	-70.27	-94.46	-94.46
I _{or/Ioc}	dB	-1.75	-1.75	-4.7	-4.7	-9.54	-9.54
CPICH Ec/I _o , Note 1	dBm	-14.0	-14.0	-16.0	-16.0	-20.0	-20.0
I _o , Note 1	dBm/3.84 MHz	-50	-50	-69	-69	-94	-94
Propagation condition	-	AWGN		AWGN		AWGN	
NOTE 1: CPICH Ec/I _o and I _o levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.							
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.							

- 1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2.3. The RF parameters for Test 1 are set up according to table 8.7.3.1.2.

8.7.3.1.4.2 Procedure

- 1) SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message.
- 2) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.
- 3) SS shall transmit MEASUREMENT CONTROL message.
- 4) UE shall transmit periodically MEASUREMENT REPORT messages.
- 5) SS shall check UTRA carrier RSSI value of Channel 2 in MEASUREMENT REPORT messages. UTRA carrier RSSI power of Channel 2 reported by UE is compared to actual UTRA Carrier RSSI value of Channel 2 for each MEASUREMENT REPORT message.
- 6) SS shall count number of MEASUREMENT REPORT messages transmitted by UE. After 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.3.1.2 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 5) above is repeated. After further 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.3.1.2 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 5) above is repeated.
- 7) After further 1000 MEASUREMENT REPORT messages have been received from UE, the SS shall transmit RRC CONNECTION RELEASE message.
- 8) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

All messages indicated above shall use the same content as described in default message content in clause 9 of 34.108 [3], with the following exceptions:

PHYSICAL CHANNEL RECONFIGURATION message for Inter frequency measurement (step 1):

Information Element	Value/Remark
Message Type	
UE Information Elements -RRC transaction identifier -Integrity check info -Integrity protection mode info -Ciphering mode info -Activation time -New U-RNTI -New C-RNTI -RRC State Indicator -UTRAN DRX cycle length coefficient	0 Not Present Not Present Not Present Not Present Not Present Not Present CELL_DCH Not Present
CN Information Elements -CN Information info	Not Present
UTRAN mobility information elements -URA identity	Not Present
RB information elements -Downlink counter synchronisation info	Not Present
PhyCH information elements -Frequency info	Not Present
Uplink radio resources -Maximum allowed UL TX power - CHOICE <i>channel requirement</i>	Not Present Not Present
Downlink radio resources -CHOICE mode -Downlink PDSCH information -Downlink information common for all radio links -Downlink DPCH info common for all RL -CHOICE mode -DPCH compressed mode info -Transmission gap pattern sequence -TGPSI -TGPS Status Flag -TGCFN -Transmission gap pattern sequence configuration parameters -TGMP -TGPRC -TGSN -TGL1 -TGL2 -TGD -TGPL1 -TGPL2 -RPP -ITP -CHOICE UL/DL mode -Downlink compressed mode method -Uplink compressed mode method -Downlink frame type -DeltaSIR1 -DeltaSIRafter1 -DeltaSIR2 -DeltaSIRafter2 -N Identify abort -T Reconfirm abort -TX Diversity Mode -SSDT information -Default DPCH Offset Value -Downlink information per radio link list -Downlink information for each radio link -Choice mode -Primary CPICH info -Primary scrambling code	FDD Not Present Not Present FDD 1 Activate (Current CFN + (256 – TTI/10msec))mod 256 FDD measurement Infinity 4 7 Not Present 0 3 Not Present Mode 0 Mode 0 UL and DL SF/2 SF/2 B 3.0 3.0 Not Present Not Present Not Present Not Present Not Present Not Present Not Present Not Present FDD 100

-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	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400
-Secondary CPICH info	Not Present
-DL channelisation code	
-Secondary scrambling code	Not Present
-Spreading factor	128
-Code number	96
-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

MEASUREMENT CONTROL message for Inter frequency measurement (step 3):

Information Element	Value/Remark
Message Type	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
Measurement Information elements	
-Measurement Identity	2
-Measurement Command	Setup
-Measurement Reporting Mode	
- Measurement Report Transfer Mode	Acknowledged mode RLC
- Periodical Reporting / Event Trigger Reporting Mode	Periodical reporting
-Additional measurement list	Not Present
-CHOICE Measurement Type	Inter-frequency measurement
-Inter-frequency measurement	
-Inter-frequency cell info list	
-CHOICE Inter-frequency cell removal	Not Present
-New inter-frequency cells	Cell 2 information is included.
-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	TRUE
-Frequency quality estimate	TRUE
-Non frequency related cell reporting quantities	
-SFN-SFN observed time difference reporting indicator	Type 1
-Cell synchronisation information reporting indicator	TRUE
-Cell Identity reporting indicator	TRUE
-CHOICE mode	FDD
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	TRUE
-Reporting cell status	
-CHOICE reported cell	Report cells within 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	Periodical reporting criteria
-Amount of reporting	Infinity
-Reporting interval	500 ms
Physical channel information elements	
-DPCH compressed mode status info	Not Present

MEASUREMENT REPORT message for Inter frequency test cases

This message is common for all inter frequency test cases in clause 8.7 and is described in Annex I.

8.7.3.1.5 Test requirements

The UTRA Carrier RSSI absolute measurement accuracy shall meet the requirements in clause 8.7.3.1.2. The effect of assumed thermal noise and noise generated in the receiver (-99 dBm) shall be added into the required accuracy defined in subclause 8.7.3.1.2 as shown in table 8.7.3.1.3.

Table 8.7.3.1.3: UTRA Carrier RSSI absolute accuracy

Parameter	Unit	Accuracy [dB]		Conditions
		Normal condition	Extreme condition	Io [dBm/3.84 MHz]
UTRA Carrier RSSI	dBm	-4...5.2	-7...8.2	-94...-87
	dBm	± 4	± 7	-87...-70
	dBm	± 6	± 9	-70...-50

The normative reference for this requirement is TS 25.133 [2] clause A.9.1.3.2.

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.7.3.2 Relative measurement accuracy requirement

8.7.3.2.1 Definition and applicability

The relative accuracy requirement is defined as the UTRA Carrier RSSI measured from one frequency compared to the UTRA Carrier RSSI measured from another frequency.

The requirements and this test apply to all types of UTRA for the FDD UE.

8.7.3.2.2 Minimum Requirements

The accuracy requirements in table 8.7.3.2.1 are valid under the following condition:

$$| \text{Channel 1}_{\text{Io}}|_{\text{dBm}/3.84 \text{ MHz}} - \text{Channel 2}_{\text{Io}}|_{\text{dBm}/3.84 \text{ MHz}} | < 20 \text{ dB}.$$

Table 8.7.3.2.1: UTRA Carrier RSSI Inter frequency relative accuracy

Parameter	Unit	Accuracy [dB]		Conditions
		Normal condition	Extreme condition	Io [dBm/3.84 MHz]
UTRA Carrier RSSI	dBm	± 7	± 11	-94...-50

The normative reference for this requirement is TS 25.133 [2] clause 9.1.3.2.

8.7.3.2.3 Test purpose

The purpose of this test is to verify that the UTRA Carrier RSSI measurement is within the specified limits. This measurement is for inter-frequency handover evaluation.

8.7.3.2.4 Method of test

8.7.3.2.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

In this case both cells are on different frequencies and compressed mode is applied. The gap length is 7, detailed definition is in clause C.5, Set 1 of table C.5.2 except for TGRRC and TGCFN. TGPRC and TGCFN shall set to "Infinity" and "(Current CFN + (256 – TTI/10msec))mod 256". UTRA Carrier RSSI relative accuracy requirements are tested by using test parameters in table 8.7.3.1.2.

- 1) A call is set up according to the test procedure specified in TS 34.108 [3] clause 7.3.2.3. The RF parameters for Test 1 are set up according to table 8.7.3.1.2.

8.7.3.2.4.2 Procedure

- 1) SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message.
- 2) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.
- 3) SS shall transmit MEASUREMENT CONTROL message.
- 4) UE shall transmit periodically MEASUREMENT REPORT messages.
- 5) SS shall check UTRA carrier RSSI value of Channel 1 and Channel 2 in MEASUREMENT REPORT messages. UTRA carrier RSSI power value measured from Channel 1 is compared to UTRA carrier RSSI power value measured from Channel 2 for each MEASUREMENT REPORT message.
- 6) The result of step 5) is compared to actual power level difference of UTRA Carrier RSSI of Channel 1 and Channel 2.
- 7) SS shall count number of MEASUREMENT REPORT messages transmitted by UE. After 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.3.1.2 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 5) and 6) above are repeated. After further 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.3.1.2 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 5) and 6) above are repeated.
- 8) After further 1000 MEASUREMENT REPORT messages have been received from UE, the SS shall transmit RRC CONNECTION RELEASE message.
- 9) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

All messages indicated above shall use the same content as described in default message content in clause 9 of 34.108 [3], with the following exceptions:

PHYSICAL CHANNEL RECONFIGURATION message and MEASUREMENT CONTROL message for Inter frequency measurement in clause 8.7.3.1.4.2 is used.

MEASUREMENT REPORT message for inter – frequency test cases

This message is common for all inter frequency test cases in clause 8.7 and is described in Annex I.

8.7.3.2.5 Test requirements

The UTRA Carrier RSSI relative measurement accuracy shall meet the requirements in clause 8.7.3.2.2. The effect of assumed thermal noise and noise generated in the receiver (–99 dBm) shall be added into the required accuracy defined in clause 8.7.3.2.2 as shown in table 8.7.3.2.2.

Table 8.7.3.2.2: UTRA Carrier RSSI relative accuracy

Parameter	Unit	Accuracy [dB]		Conditions
		Normal condition	Extreme condition	Io [dBm/3.84 MHz]
UTRA Carrier RSSI	dBm	-4...5.2	-7...8.2	-94...-87
	dBm	± 4	± 7	-87...-70
	dBm	± 6	± 9	-70...-50

The normative reference for this requirement is TS 25.133 [2] clause A.9.1.3.2.

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.7.3A GSM Carrier RSSI

Void.

8.7.3B Transport channel BLER

Void.

8.7.3C UE transmitted power

8.7.3C.1 Definition and applicability

The UE transmitted power absolute accuracy is defined as difference between the UE reported value and the UE transmitted power measured by test system. The reference point for the UE transmitted power shall be the antenna connector of the UE.

The requirements and this test apply to all types of UTRA for the FDD UE.

8.7.3C.2 Minimum requirements

The measurement period in CELL_DCH state is 1 slot.

Table 8.7.3C.2.1 UE transmitted power absolute accuracy

Parameter	Unit	Accuracy [dB]	
		PUEMAX 24dBm	PUEMAX 21dBm
UE transmitted power=PUEMAX	dBm	+1/-3	±2
UE transmitted power=PUEMAX-1	dBm	+1.5/-3.5	±2.5
UE transmitted power=PUEMAX-2	dBm	+2/-4	±3
UE transmitted power=PUEMAX-3	dBm	+2.5/-4.5	±3.5
PUEMAX-10≤UE transmitted power<PUEMAX-3	dBm	+3/-5	±4

NOTE 1: User equipment maximum output power, PUEMAX, is the maximum output power level without tolerance defined for the power class of the UE in TS 25.101 [1] section 6.2.1.

NOTE 2: UE transmitted power is the reported value.

For each empty slot created by compressed mode, no value shall be reported by the UE L1 for those slots.

The normative reference for this requirement is TS 25.133 [2] clause 9.1.6.

8.7.3C.3 Test purpose

The purpose of this test is to verify that for any reported value of UE Transmitted Power in the range PUEMAX to PUEMAX-10 that the actual UE mean power lies within the range specified in clause 8.7.3C.2.

8.7.3C.4 Method of test

8.7.3C.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

- 1) Connect SS to the UE antenna connector as shown in figure A.1.

The test parameters are given in Table 8.7.3C.4.1 and 8.7.3C.4.2 below. In the measurement control information it shall be indicated to the UE that periodic reporting of the UE transmitted power measurement shall be used.

Table 8.7.3C.4.1: General test parameters for UE transmitted power

Parameter	Unit	Value	Comment
DCH parameters		DL Reference Measurement Channel 12.2 kbps	As specified in clause C.3.1
Power Control		On	
Target quality value on DTCH	BLER	0.01	

Table 8.7.3C.4.2: Cell Specific parameters for UE transmitted power

Parameter	Unit	Cell 1
CPICH_Ec/I _{or}	dB	-10
PCCPCH_Ec/I _{or}	dB	-12
SCH_Ec/I _{or}	dB	-12
PICH_Ec/I _{or}	dB	-15
DPCH_Ec/I _{or}	dB	Note1
OCNS		Note 2
\hat{I}_{or}/I_{oc}	dB	0
I_{oc}	dBm/3.84 MHz	-70
CPICH_Ec/I _o	dB	-13
Propagation Condition		AWGN
Note 1: The DPCH level is controlled by the power control loop		
Note 2: The power of the OCNS channel that is added shall make the total power from the cell to be equal to I _{or} .		

8.7.3C.4.2 Procedure

- 1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2.3. The RF parameters are set up according to table 8.7.3C.4.1 and 8.7.3C.4.2. Set the UE power and Maximum allowed UL TX power to the maximum power for the UE power class.
- 2) SS shall send continuously during the entire test Up power control commands to the UE.
- 3) SS shall transmit the MEASUREMENT CONTROL message as defined in the specific message contents below.
- 4) Decode the UE Transmitted power reported by the UE in the next available MEASUREMENT REPORT message.
- 5) Measure the mean power of the UE over a period of one timeslot.
- 6) Steps 4 and 5 shall be repeated [100] times.
- 7) Decrease the Maximum allowed UL TX power by 1 dB. The SS shall transmit the PHYSICAL CHANNEL RECONFIGURATION message, as defined in the specific message contents below.
- 8) SS shall wait for the PHYSICAL CHANNEL RECONFIGURATION COMPLETE message from the UE.
- 9) Repeat from step 4) until the Maximum allowed UL TX Power reaches PUEMAX-10.

Specific Message Contents

All messages indicated above shall use the same content as described in default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message:

Information Element	Value/Remark
Message Type	
UE information elements -RRC transaction identifier -Integrity check info	0 Not Present
Measurement Information elements -Measurement Identity -Measurement Command -CHOICE Measurement type -UE Internal measurement quantity -Measurement quantity -Filter coefficient -UE Internal reporting quantity -UE Transmitted power -CHOICE mode -UE Rx-Tx time difference -CHOICE report criteria -Amount of reporting -Reporting interval -Measurement Reporting Mode -Measurement Report Transfer Mode -Periodical Reporting / Event Trigger Reporting Mode -AdditionalMeasurementList	5 SETUP UE Internal measurement UE Transmitted power 0 TRUE FDD FALSE Periodical reporting criteria Infinity 250 AM RLC Periodical reporting Not Present
Physical channel information elements -DPCH compressed mode status info	Not Present

MEASUREMENT REPORT message:

Information Element	Value/remark
Message Type	
Integrity check info	The presence of this IE is dependent on PIXIT 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	5
Measured Results	
- CHOICE Measurement	UE Internal measured results
- Choice mode	FDD
- UE Transmitted power	Checked that this IE is present
- UE Rx-Tx report entries	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

PHYSICAL CHANNEL RECONFIGURATION message:

Information Element	Value/Remark
Message Type	
UE Information Elements -RRC transaction identifier -Integrity check info -Integrity protection mode info -Ciphering mode info -Activation time -New U-RNTI -New C-RNTI -RRC State Indicator -UTRAN DRX cycle length coefficient	0 Not Present Not Present Not Present Not Present Not Present Not Present CELL_DCH Not Present
CN Information Elements -CN information info	Not Present
UTRAN mobility information elements -URA identity	Not Present
RB information elements -Downlink counter synchronisation info	Not Present
PhyCH information elements -Frequency info	Not Present
Uplink radio resources -Maximum allowed UL TX power	At the first time this value is set to PUEMAX-1. After the second time this value is decreased with 1 dB from previous value.
Downlink radio resources -CHOICE mode -Downlink PDSCH information -Downlink information common for all radio links -Downlink information per radio link list	FDD Not Present Not Present Not Present

8.7.3C.5 Test requirements

Compare each of the UE transmitted power reports against the following mean power measurement. At least 90% of the mean power measurements for any one value of reported UE transmitted power shall be within the range specified in table 8.7.3C.5.

NOTE It is not expected or required that the distribution of UE transmitted power reports is even for the 11 possible reported values.

Table 8.7.3C.5 UE transmitted power test requirements

Parameter	Unit	Mean Power range [dB]	
		PUEMAX 24dBm	PUEMAX 21dBm
UE transmitted power=PUEMAX	dBm	+1.7/-3.7	±2.7
UE transmitted power=PUEMAX-1	dBm	+2.2/-4.2	±3.2
UE transmitted power=PUEMAX-2	dBm	+2.7/-4.7	±3.7
UE transmitted power=PUEMAX-3	dBm	+3.2/-5.2	±4.2
UE transmitted power=PUEMAX-4	dBm	+3.7/-5.7	±4.7
UE transmitted power=PUEMAX-5	dBm	+3.7/-5.7	±4.7
UE transmitted power=PUEMAX-6	dBm	+3.7/-5.7	±4.7
UE transmitted power=PUEMAX-7	dBm	+3.7/-5.7	±4.7
UE transmitted power=PUEMAX-8	dBm	+3.7/-5.7	±4.7
UE transmitted power=PUEMAX-9	dBm	+3.7/-5.7	±4.7
UE transmitted power=PUEMAX-10	dBm	+3.7/-5.7	±4.7

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.7.4 SFN-CFN observed time difference

8.7.4.1 Intra frequency measurement requirement

8.7.4.1.1 Definition and applicability

The intra frequency SFN-CFN observed time difference is defined as the SFN-CFN observed time difference from the active cell to a neighbour cell that is in the same frequency. This measurement is specified in clause 5.1.8 of TS 25.215 [22].

The reference point for the SFN-CFN observed time difference shall be the antenna connector of the UE.

The requirements and this test apply to all types of UTRA for the FDD UE.

8.7.4.1.2 Minimum requirements

The accuracy requirement in table 8.7.4.1.1 is valid under the following conditions:

$$CPICH_RSCP1,2|_{dBm} \geq -114 \text{ dBm.}$$

$$\left| CPICH_RSCP1|_{in \text{ dBm}} - CPICH_RSCP2|_{in \text{ dBm}} \right| \leq 20 \text{ dB}$$

$$\left(\frac{I_o}{\hat{I}_{or}} \right)_{in \text{ dB}} - \left(\frac{CPICH - E_c}{I_{or}} \right)_{in \text{ dB}} \leq 20 \text{ dB}$$

$$\left(\frac{I_o}{\hat{I}_{or}} \right)_{in \text{ dB}} - \left(\frac{P - CCPCH - E_c}{I_{or}} \right)_{in \text{ dB}} \text{ is low enough to ensure successful SFN decoding.}$$

Table 8.7.4.1.1

Parameter	Unit	Accuracy [chip]	Conditions
			Io [dBm/3.84 MHz]
SFN-CFN observed time difference	chip	± 1	-94...-50

The normative reference for this requirement is TS 25.133 [2] clauses 9.1.7.1 and A.9.1.4.2.

8.7.4.1.3 Test Purpose

The purpose of this test is to verify that the SFN-CFN observed time difference measurement accuracy is within the specified limits in the clause 8.7.4.1.2. This measurement is for handover timing purposes to identify active cell and neighbour cell time difference.

8.7.4.1.4 Method of test

8.7.4.1.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

During the test the timing difference between Cell 1 and 2 can be set to value from 0...9830399 chips.

In this case all cells are in the same frequency. Table 8.7.4.1.2 defines the limits of signal strengths and code powers, where the requirements are applicable.

Table 8.7.4.1.2: SFN-CFN observed time difference Intra frequency test parameters

Parameter	Unit	Test 1		Test 2		Test 3	
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior	dB	-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15	
DPCH_Ec/Ior	dB	-15		-15		-15	
OCNS_Ec/Ior	dB	-1.11		-1.11		-1.11	
Ior/Ioc	dB	10.5		10.5		10.5	
Ioc	dBm/ 3.84 MHz	$I_o - 13.7 \text{ dB} = I_{oc}$, Note 1		$I_o - 13.7 \text{ dB} = I_{oc}$, Note 1		$I_o - 13.7 \text{ dB} = I_{oc}$, Note 1	
Io	dBm/3.84 MHz	-50		-72		-94	
Relative delay of path received from cell 2 with respect to cell 1	chip	x Note 2					
Propagation condition	-	AWGN		AWGN		AWGN	
NOTE 1: I_{oc} level shall be adjusted according the total signal power I_o at receiver input and the geometry factor I_{or}/I_{oc} .							
NOTE2: For example, x= 491520 or 9830399							
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.							

- 1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2.3. The RF parameters for Test 1 are set up according to table 8.7.4.1.2.

8.7.4.1.4.2 Procedure

- 1) SS shall transmit MEASUREMENT CONTROL message.
- 2) UE shall transmit periodically MEASUREMENT REPORT message.
- 3) SS shall check "OFF" and "Tm" values in MEASUREMENT REPORT message and calculate SFN-CFN observed time difference value according to the definition in clause 5.1.8 of TS 25.215 [22]. This value shall be compared to the actual SFN-CFN observed time difference value for each MEASUREMENT REPORT message.
- 4) SS shall count the number of MEASUREMENT REPORT messages transmitted by UE. After 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.4.1.2 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 3) above is repeated. After further 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.4.1.2 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 3) above is repeated.
- 5) After further 1000 MEASUREMENT REPORT messages have been received from UE, the SS shall transmit RRC CONNECTION RELEASE message.
- 6) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message for intra frequency measurement

Information Element	Value/Remark
Message Type	
UE information elements -RRC transaction identifier -Integrity check info	0 Not Present
Measurement Information elements -Measurement Identity -Measurement Command -Measurement Reporting Mode - Measurement Report Transfer Mode - Periodical Reporting / Event Trigger Reporting Mode -Additional measurement list -CHOICE Measurement Type -Intra-frequency measurement - Intra-frequency measurement objects list -Intra-frequency measurement quantity -Filter coefficient -CHOICE mode -Measurement quantity -Intra-frequency reporting quantity -Reporting quantities for active set cells -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator -Reporting quantities for monitored set cells -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator -Reporting quantities for detected set cells -Reporting cell status -CHOICE reported cell -Maximum number of reported cells -Measurement validity -CHOICE <i>report criteria</i> -Amount of reporting -Reporting interval	1 Modify Acknowledged mode RLC Periodical reporting Not Present Intra-frequency measurement Not Present 0 FDD CPICH RSCP No report TRUE TRUE FDD TRUE TRUE TRUE No report TRUE TRUE FDD TRUE TRUE TRUE Not Present Report all active set cells + cells within monitored set on used frequency Virtual/active set cells + 2 Not Present Periodical reporting criteria Infinity 250 ms
Physical channel information elements -DPCH compressed mode status info	Not Present

MEASUREMENT REPORT message for Intra frequency test cases

This message is common for all intra frequency test cases in clause 8.7 and is described in Annex I.

8.7.4.1.5 Test requirements

The SFN-CFN observed time difference measurement accuracy shall meet the requirements in clause 8.7.4.1.2.

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.7.4.2 Inter frequency measurement requirement

8.7.4.2.1 Definition and applicability

The inter frequency SFN-CFN observed time difference is defined as the SFN-CFN time difference from the active cell to a neighbour cell that is in a different frequency. This measurement is specified in clause 5.1.8 of TS 25.215 [22].

The reference point for the SFN-CFN observed time difference shall be the antenna connector of the UE.

The requirements and this test apply to all types of UTRA for the FDD UE.

8.7.4.2.2 Minimum requirements

The accuracy requirement in table 8.7.4.2.1 is valid under the following conditions:

$CPICH_RSCP_{1,2}|_{dBm} \geq -114$ dBm.

$$\left| CPICH_RSCP1|_{in\ dBm} - CPICH_RSCP2|_{in\ dBm} \right| \leq 20dB$$

$| Channel\ 1_Io|_{dBm/3.84\ MHz} - Channel\ 2_Io|_{dBm/3.84\ MHz} | \leq 20$ dB.

$$\left(\frac{I_o}{\hat{I}_{or}} \right) |_{in\ dB} - \left(\frac{CPICH_E_c}{I_{or}} \right) |_{in\ dB} \leq 20dB$$

Table 8.7.4.2.1

Parameter	Unit	Accuracy [chip]	Conditions
			Io [dBm/3.84 MHz]
SFN-CFN observed time difference	chip	± 1	-94...-50

The normative reference for this requirement is TS 25.133 [2] clauses 9.1.7.2 and A.9.1.4.2.

8.7.4.2.3 Test purpose

The purpose of this test is to verify that the SFN-CFN observed time difference measurement accuracy is within the specified limits in the clause 8.7.4.2.2. This measurement is for handover timing purposes to identify active cell and neighbour cell time difference.

8.7.4.2.4 Method of test

8.7.4.2.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

During the test the timing difference between Cell 1 and 2 can be set to value from 0...9830399 chips.

In this test case both cells are in different frequency and compressed mode is applied. The gap length is 7, detailed definition is in clause C.5, set 1 of table C.5.2 except for TGRRC and TGCFN. TGPRC and TGCFN shall set to "Infinity" and "(Current CFN + (256 - TTI/10msec))mod 256". Table 8.7.4.2.2 defines the limits of signal strengths and code powers, where the requirement is applicable.

Table 8.7.4.2.2: SFN-CFN observed time difference Inter frequency tests parameters

Parameter	Unit	Test 1		Test 2		Test 3	
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1	Channel 2	Channel 1	Channel 2	Channel 1	Channel 2
CPICH_Ec/lor	dB	-10		-10		-10	
PCCPCH_Ec/lor	dB	-12		-12		-12	
SCH_Ec/lor	dB	-12		-12		-12	
PICH_Ec/lor	dB	-15		-15		-15	
DPCH_Ec/lor	dB	-15		-15		-15	
OCNS_Ec/lor	dB	-1.11		-1.11		-1.11	
\hat{I}_{or}/loc	dB	10.1		10.1		10.1	
loc	dBm/ 3.84 MHz	$lo - 10.6 \text{ dB} = loc$, Note 1		$lo - 10.6 \text{ dB} = loc$, Note 1		$lo - 10.6 \text{ dB} = loc$, Note 1	
lo	dBm/3.84 MHz	-50		-72		-94	
Relative delay of path received from cell 2 with respect to cell 1	chip	x Note 2					
Propagation condition	-	AWGN		AWGN		AWGN	
NOTE 1: loc level shall be adjusted in each carrier frequency according the total signal power lo at receiver input and the geometry factor \hat{I}_{or}/loc .							
NOTE2: For example, x= 491520 or 9830399							
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.							

- 1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2.3. The RF parameters for Test 1 are set up according to table 8.7.4.2.2.

8.7.4.2.4.2 Procedure

- 1) SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message.
- 2) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.
- 3) SS shall transmit MEASUREMENT CONTROL message.
- 4) UE shall transmit periodically MEASUREMENT REPORT messages.
- 5) SS shall check "OFF" and "Tm" values in MEASUREMENT REPORT message and calculate SFN-CFN observed time difference value according to the definition in clause 5.1.8 of TS 25.215 [22]. This value shall be compared to the actual SFN-CFN observed time difference value for each MEASUREMENT REPORT message.
- 6) SS shall count number of MEASUREMENT REPORT messages transmitted by UE. After 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.4.2.2 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 3) and 4) above are repeated. After further 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.4.2.2 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 4) and 5) above are repeated.
- 7) After further 1000 MEASUREMENT REPORT messages have been received from UE, the SS shall transmit RRC CONNECTION RELEASE message.
- 8) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

PHYSICAL CHANNEL RECONFIGURATION message for inter frequency measurement

Information Element	Value/Remark
Message Type	
UE Information Elements -RRC transaction identifier -Integrity check info -Integrity protection mode info -Ciphering mode info -Activation time -New U-RNTI -New C-RNTI -RRC State Indicator -UTRAN DRX cycle length coefficient	0 Not Present Not Present Not Present Not Present Not Present Not Present CELL_DCH Not Present
CN Information Elements -CN Information info	Not Present
UTRAN mobility information elements -URA identity	Not Present
RB information elements -Downlink counter synchronisation info	Not Present
PhyCH information elements -Frequency info	Not Present
Uplink radio resources -Maximum allowed UL TX power - CHOICE <i>channel requirement</i>	Not Present Not Present
Downlink radio resources -CHOICE mode -Downlink PDSCH information -Downlink information common for all radio links -Downlink DPCH info common for all RL -CHOICE mode -DPCH compressed mode info -Transmission gap pattern sequence -TGPSI -TGPS Status Flag -TGCFN -Transmission gap pattern sequence configuration parameters -TGMP -TGPRC -TGSN -TGL1 -TGL2 -TGD -TGPL1 -TGPL2 -RPP -ITP -CHOICE UL/DL mode -Downlink compressed mode method -Uplink compressed mode method -Downlink frame type -DeltaSIR1 -DeltaSIRafter1 -DeltaSIR2 -DeltaSIRafter2 -N Identify abort -T Reconfirm abort -TX Diversity Mode -SSDT information -Default DPCH Offset Value -Downlink information per radio link list -Downlink information for each radio link -Choice mode -Primary CPICH info -Primary scrambling code	FDD Not Present Not Present FDD 1 Activate (Current CFN + (256 – TTI/10msec))mod 256 FDD measurement Infinity 4 7 Not Present 0 3 Not Present Mode 0 Mode 0 UL and DL SF/2 SF/2 B 3.0 3.0 Not Present Not Present Not Present Not Present Not Present Not Present Not Present Not Present Not Present FDD 100

-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	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400
-Secondary CPICH info	Not Present
-DL channelisation code	
-Secondary scrambling code	Not Present
-Spreading factor	128
-Code number	96
-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

MEASUREMENT CONTROL message for Inter frequency measurement

Information Element	Value/Remark
Message Type	
UE information elements -RRC transaction identifier -Integrity check info	0 Not Present
Measurement Information elements -Measurement Identity -Measurement Command -Measurement Reporting Mode - Measurement Report Transfer Mode - Periodical Reporting / Event Trigger Reporting Mode -Additional measurement list -CHOICE Measurement Type -Inter-frequency measurement -Inter-frequency cell info list -CHOICE Inter-frequency cell removal -New inter-frequency cells -Cell for measurement -Inter-frequency measurement quantity -CHOICE reporting criteria -Filter coefficient -CHOICE mode -Measurement quantity for frequency quality estimate -Inter-frequency reporting quantity -UTRA Carrier RSSI -Frequency quality estimate -Non frequency related cell reporting quantities -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator -Reporting cell status -CHOICE reported cell -Maximum number of reported cells -Measurement validity -Inter-frequency set update -CHOICE report criteria -Amount of reporting -Reporting interval	2 Setup Acknowledged mode RLC Periodical reporting Not Present Inter-frequency measurement Not Present Cell 2 information is included Inter-frequency reporting criteria 0 FDD CPICH RSCP TRUE TRUE No report TRUE TRUE FDD TRUE TRUE TRUE Report cells within monitored set on non-used frequency 2 Not Present Not Present Periodical reporting criteria Infinity 500 ms
Physical channel information elements -DPCH compressed mode status info	Not Present

MEASUREMENT REPORT message for Inter frequency test cases

This message is common for all inter frequency test cases in clause 8.7 and is described in Annex I.

8.7.4.2.5 Test requirements

The SFN-CFN observed time difference measurement accuracy shall meet the requirements in clause 8.7.4.2.2.

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.7.5 SFN-SFN observed time difference

8.7.5.1 SFN-SFN observed time difference type 1

8.7.5.1.1 Definition and applicability

This measurement is specified in clause 5.1.9 of TS 25.215 [22]. The reference point for the SFN-SFN observed time difference type 1 shall be the antenna connector of the UE.

The requirements and this test apply to all types of UTRA for the FDD UE.

8.7.5.1.2 Minimum requirements

The accuracy requirement in table 8.7.5.1.1 is valid under the following conditions:

$$CPICH_RSCP_{1,2}|_{dBm} \geq -114 \text{ dBm.}$$

$$\left| CPICH_RSCP1|_{in \text{ dBm}} - CPICH_RSCP2|_{in \text{ dBm}} \right| \leq 20 \text{ dB}$$

$$\left(\frac{I_o}{\hat{I}_{or}} \right)|_{in \text{ dB}} - \left(\frac{CPICH_E_c}{I_{or}} \right)|_{in \text{ dB}} \leq 20 \text{ dB}$$

$$\left(\frac{I_o}{\hat{I}_{or}} \right)|_{in \text{ dB}} - \left(\frac{P - CCPCH_E_c}{I_{or}} \right)|_{in \text{ dB}} \text{ is low enough to ensure successful SFN decoding.}$$

Table 8.7.5.1.1

Parameter	Unit	Accuracy [chip]	Conditions
			Io [dBm/3.84 MHz]
SFN-SFN observed time difference type1	chip	± 1	-94...-50

The normative reference for this requirement is TS 25.133 [2] clause 9.1.8.1.1 and A.9.1.5.1.2.

8.7.5.1.3 Test purpose

The purpose of this test is to verify that the measurement accuracy of SFN-SFN observed time difference type 1 is within the limit specified in clause 8.7.5.1.2. This measurement is for identifying time difference between two cells.

8.7.5.1.4 Method of test

8.7.5.1.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

During the test the timing difference between Cell 1 and 2 can be set to value from 0...9830399 chips.

- 1) Connect SS to the UE antenna connector as shown in figure A.1
- 2) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.3. The RF parameters for Test 1 are set up according to table 8.7.5.1.2.

In this case all cells are in the same frequency. Table 8.7.5.1.2 defines the limits of signal strengths and code powers, where the requirements are applicable.

Table 8.7.5.1.2: SFN-SFN observed time difference type 1 Intra frequency test parameters

Parameter	Unit	Test 1		Test 2		Test 3	
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1		Channel 1		Channel 1	
CPICH_Ec/lor	dB	-10		-10		-10	
PCCPCH_Ec/lor	dB	-12		-12		-12	
SCH_Ec/lor	dB	-12		-12		-12	
PICH_Ec/lor	dB	-15		-15		-15	
S-CCPCH_Ec/lor	dB	-12		-12		-12	
OCNS_Ec/lor	Db	-1.29		-1.29		-1.29	
$\hat{I}_{or/loc}$	dB	10.5		10.5		10.5	
loc	dBm/ 3.84 MHz	$I_o - 13.7 \text{ dB} = loc$, Note 1		$I_o - 13.7 \text{ dB} = loc$, Note 1		$I_o - 13.7 \text{ dB} = loc$, Note 1	
I _o	dBm/3.84 MHz	-50		-72		-94	
Relative delay of path received from cell 2 with respect to cell 1	chip	x Note 2					
Propagation condition	-	AWGN		AWGN		AWGN	
NOTE 1: I_{oc} level shall be adjusted according the total signal power I_o at receiver input and the geometry factor $\hat{I}_{or/loc}$.							
NOTE2: For example, x= 491520 or 9830399							
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.							

8.7.5.1.4.2 Procedure

- 1) SS shall transmit MEASUREMENT CONTROL message.
- 2) UE shall transmit periodically MEASUREMENT REPORT message.
- 3) SS shall check "SFN-SFN observed time difference type 1" value in MEASUREMENT REPORT message. The reported value shall be compared to actual SFN-SFN observed time difference type 1 value for each MEASUREMENT REPORT message.
- 4) SS shall count the number of MEASUREMENT REPORT messages transmitted by UE. After 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.5.1.2 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 3) above is repeated. After further 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.5.1.2 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 3) above is repeated.
- 5) After further 1000 MEASUREMENT REPORT messages have been received from UE, the SS shall transmit RRC CONNECTION RELEASE message.
- 6) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message for Intra frequency measurement (Step 1):

Information Element	Value/Remark
Message Type	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
Measurement Information elements	
-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-CHOICE	Not Present
Measurement Type	Intra-frequency measurement
-Intra-frequency measurement	
- Intra-frequency measurement objects list	Not Present
-Intra-frequency measurement quantity	
-Filter coefficient	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	Type 1
-Cell synchronisation information reporting indicator	TRUE
-Cell Identity reporting indicator	TRUE
-CHOICE mode	FDD
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	TRUE
-Reporting quantities for monitored set cells	
-SFN-SFN observed time difference reporting indicator	Type 1
-Cell synchronisation information reporting indicator	TRUE
-Cell Identity reporting indicator	TRUE
-CHOICE mode	FDD
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	TRUE
-Reporting quantities for detected set cells	Not Present
-Reporting cell status	
-CHOICE reported cell	Report all active set cells + cells within monitored set on used frequency
-Maximum number of reported cells	Virtual/active set cells + 2
-Measurement validity	Not Present
-CHOICE <i>report criteria</i>	Periodical reporting criteria
-Amount of reporting	Infinity
-Reporting interval	250 ms
Physical channel information elements	
-DPCH compressed mode status info	Not Present

MEASUREMENT REPORT message for Intra frequency test cases

This message is common for all intra frequency test cases in clause 8.7 and is described in Annex I.

8.7.5.1.5 Test requirements

The SFN-SFN observed time difference type 1 accuracy shall meet the requirements in clause 8.7.5.1.2.

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.7.5.2 SFN-SFN observed time difference type 2

Void.

8.7.6 UE Rx-Tx time difference

8.7.6.1 UE Rx-Tx time difference type 1

8.7.6.1.1 Definition and applicability

The UE Rx-Tx time difference is defined as the time difference between the UE uplink DPCCH/DPDCH frame transmission and the first detected path (in time) of the downlink DPCH frame from the measured radio link. The reference point of the UE Rx-Tx time difference shall be the antenna connector of the UE. This measurement is specified in clause 5.1.10 of TS 25.215.

The requirements and this test apply to all types of UTRA for the FDD UE.

8.7.6.1.2 Minimum requirements

Table 8.7.6.1.1

Parameter	Unit	Accuracy [chip]	Conditions
			Io [dBm/3.84Mz]
UE RX-TX time difference	chip	± 1.5	-94...-50

The normative reference for this requirement is TS 25.133 [2] clause 9.1.9.1.1 and A.9.1.6.1.2.

8.7.6.1.3 Test purpose

The purpose of this test is to verify that the measurement accuracy of Rx-Tx time difference is within the limit specified in clause 8.7.6.1.2. This measurement is used for call setup purposes to compensate propagation delay of DL and UL.

8.7.6.1.4 Method of test

8.7.6.1.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

- 1) Connect SS to the UE antenna connector as shown in figure A.1

Table 8.7.6.1.2: UE Rx-Tx time difference type 1 intra frequency test parameters

Parameter	Unit	Test 1	Test 2	Test 3
		Cell 1	Cell 1	Cell 1
UTRA RF Channel number		Channel 1	Channel 1	Channel 1
CPICH_Ec/Ior	dB	-10	-10	-10
PCCPCH_Ec/Ior	dB	-12	-12	-12
SCH_Ec/Ior	dB	-12	-12	-12
PICH_Ec/Ior	dB	-15	-15	-15
DPCH_Ec/Ior	dB	-15	-15	-15
OCNS	dB	-1.11	-1.11	-1.11
\hat{I}_{or}/I_{oc}	dB	10.5	10.5	10.5
I_{oc}	dBm/ 3.84 MHz	$I_{o} - 10.9 \text{ dB} = I_{oc}$, Note 1	$I_{o} - 10.9 \text{ dB} = I_{oc}$, Note 1	$I_{o} - 10.9 \text{ dB} = I_{oc}$, Note 1
I_{o}	dBm/3.84 MHz	-94	-72	-50
Propagation condition	-	AWGN	AWGN	AWGN
NOTE 1: I_{oc} level shall be adjusted according the total signal power spectral density I_{o} at receiver input and the geometry factor \hat{I}_{or}/I_{oc} .				

8.7.6.1.4.2 Procedure

- 1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2.3. The RF parameters are set up according to table 8.7.6.1.4 for Test 1.
- 2) SS shall transmit MEASUREMENT CONTROL message.
- 3) UE shall transmit periodically MEASUREMENT REPORT message.
- 4) SS shall check "UE Rx-Tx time difference type 1" value in MEASUREMENT REPORT message. The reported value shall be compared to actual UE Rx-Tx time difference value for each MEASUREMENT REPORT message. The comparison should be repeated 1000 times.
- 5) The RF parameters are set up according table 8.7.6.1.4 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period.
- 6) Step 3) above shall be repeated.
- 7) The RF parameters are set up according table 8.7.6.1.4 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period.
- 8) Step 3) above shall be repeated.
- 9) SS shall transmit RRC CONNECTION RELEASE message.

Specific Message Contents

All messages indicated above shall use the same content as described in default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message for Intra frequency measurement (Step 1):

Information Element	Value/Remark
Message Type	
UE information elements -RRC transaction identifier -Integrity check info	0 Not Present
Measurement Information elements -Measurement Identity -Measurement Command - Additional measurements list -Measurement Reporting Mode -Measurement Report Transfer Mode -Periodical Reporting / Event Trigger Reporting Mode -CHOICE Measurement type -UE Internal measurement quantity -CHOICE mode -Measurement quantity -Filter coefficient -UE Internal reporting quantity -UE Transmitted power -CHOICE mode -UE Rx-Tx time difference -CHOICE report criteria -Amount of reporting -Reporting interval -Measurement Reporting Mode -Measurement Report Transfer Mode -Periodical Reporting / Event Trigger Reporting Mode	1 Modify Not Present AM RLC Periodical reporting UE Internal measurement FDD UE Rx-Tx time difference 0 FALSE FDD TRUE Periodical reporting criteria Infinity 250 AM RLC Periodical reporting
Physical channel information elements -DPCH compressed mode status info	Not Present

MEASUREMENT REPORT message

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	
- CHOICE Measurement	UE Internal measured results
- Choice mode	FDD
- UE Transmitted power	Checked that this IE is absent
- UE Rx-Tx report entries	
- Primary CPICH info	Checked that this IE is present
- UE Rx-Tx time difference type 1	Checked that this IE is present
- Intra-frequency measured results	
- Cell measured results	
- Cell Identity	Not present
- 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	100
- CPICH Ec/No	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

8.7.6.1.5 Test requirements

Table 8.7.6.1.3

Parameter	Unit	Accuracy [chip]	Conditions
			Io [dBm]
UE RX-TX time difference	chip	[± 2.0]	-94...-50

Table 8.7.6.1.4: UE Rx-Tx time difference type 1 intra frequency test parameters

Parameter	Unit	Test 1	Test 2	Test 3
		Cell 1	Cell 1	Cell 1
UTRA RF Channel number		Channel 1	Channel 1	Channel 1
CPICH_Ec/Ior	dB	-10	-10	-10
PCCPCH_Ec/Ior	dB	-12	-12	-12
SCH_Ec/Ior	dB	-12	-12	-12
PICH_Ec/Ior	dB	-15	-15	-15
DPCH_Ec/Ior	dB	-15	-15	-15
OCNS	dB	-1.11	-1.11	-1.11
Ior/Ioc	dB	10.5	10.5	10.5
Ioc	dBm/ 3.84 MHz	-103.6	-82.9	-62.2
Io	dBm/3.84 MHz	-92.7	-72	-51.3
Propagation condition	-	AWGN	AWGN	AWGN
NOTE 1: Ioc level shall be adjusted according the total signal power spectral density Io at receiver input and the geometry factor Ior/Ioc.				

The UE Rx-Tx time difference accuracy shall meet the requirements in table 8.7.6.1.3.

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.7.6.2 UE Rx-Tx time difference type 2

Void

8.7.7 Observed time difference to GSM cell

Void

8.7.8 P-CCPCH RSCP

8.7.8.1 Absolute measurement accuracy

8.7.8.1.1 Definition and applicability

The absolute accuracy of P-CCPCH RSCP is defined as the P-CCPCH RSCP measured in an UTRA TDD cell on one frequency compared to the actual P-CCPCH RSCP power of that cell on the same frequency.

The requirements and this test apply only to UE supporting both UTRA FDD and UTRA TDD.

8.7.8.1.2 Minimum Requirements

The accuracy requirement in table 8.7.8.1.1 is valid under the following conditions:

$$P\text{-CCPCH_RSCP} \geq -102 \text{ dBm},$$

$$\left| \frac{I_o}{\hat{I}_{or}} \right|_{in \text{ dB}} - \left(\frac{P\text{-CCPCH} - E_c}{I_{or}} \right)_{in \text{ dB}} \leq 8 \text{ dB}$$

Table 8.7.8.1.1: P-CCPCH RSCP inter frequency absolute accuracy

Parameter	Unit	Accuracy [dB]		Conditions Io [dBm/3.84 MHz]
		Normal conditions	Extreme conditions	
P-CCPCH_RSCP	dBm	± 6	± 9	-94...-70
	dBm	± 8	± 11	-70...-50

The normative reference for this requirement is TS 25.133 [2] clauses 9.1.11.1 and A.9.1.8.

8.7.8.1.3 Test purpose

The purpose of this test is to verify that the P-CCPCH RSCP absolute measurement accuracy is within the specified limits.

8.7.8.1.4 Method of test

8.7.8.1.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

In this case both cells are on different frequencies. Cell 1 is a UTRA FDD cell and cell 2 is a UTRA TDD cell. The second Beacon timeslot shall be provided for cell 2 in timeslot 8. Compressed mode as specified in TS 25.101 [1] section A.5, set 3 of table A.22, is applied. TGPRC and TGCFN shall be set to "Infinity" and "(Current CFN + (256 –

TTI/10msec)) mod 256". P-CCPCH RSCP inter frequency absolute accuracy requirements are tested by using test parameters in Table 8.7.8.1.2.

Table 8.7.8.1.2: P-CCPCH RSCP inter frequency tests parameters

Parameter	Unit	Test 1		Test 2	
		Cell 1	Cell 2	Cell 1	Cell 2
DL timeslot number		n.a.	0 8	n.a.	0 8
UTRA RF Channel number		Channel 2	Channel 1	Channel 2	Channel 1
CPICH_Ec/Ior	dB	-10	n.a.	-10	n.a.
P-CCPCH_Ec/Ior	dB	-12	-3 n.a.	-12	-3 n.a.
SCH_Ec/Ior	dB	-12	-9	-12	-9
SCH_toffset		n.a.	5	n.a.	5
PICH_Ec/Ior	dB	-15	n.a. -3	-15	n.a. -3
DPCH_Ec/Ior	dB	-15	n.a.	-15	n.a.
OCNS_Ec/Ior	dB	-1.11	-3.12	-1.11	-3.12
Ior	dBm/ 3.84 MHz	-60	-57.7	-84	-84.7
Ior/Ior	dB	9.54	7	0	3
P-CCPCH RSCP, Note 1	dBm	n.a.	-53.7 n.a.	n.a.	-84.7 n.a.
CPICH RSCP, Note 1	dBm	-60.46	n.a.	-94	n.a.
Ior, Note 1	dBm/3.84 MHz	-50	-50	-81	-80
Propagation condition	-	AWGN		AWGN	
Note 1: P-CCPCH RSCP, CPICH RSCP and Ior levels have been calculated from other parameters for information purposes. They are not settable parameters themselves. Note that the transmit energy per PN chip for the SCH is averaged over the 256 chip duration when the SCH is present in the time slot.					
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed, test parameters for test 2 shall be set within 5 seconds so that the UE does not lose the Cell 2 in between the test.					

- 1) A call is set up according to the test procedure specified in TS 34.108 [3] clause 7.3.2.3. The RF parameters for Test 1 are set up according to table 8.7.8.1.2.

8.7.8.1.4.2 Procedure

- 1) SS shall transmit the PHYSICAL CHANNEL RECONFIGURATION message.
- 2) UE shall transmit the PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.
- 3) SS shall transmit the MEASUREMENT CONTROL message.
- 4) UE shall transmit periodically MEASUREMENT REPORT messages.
- 5) SS shall check P-CCPCH RSCP values of Cell 2 in the MEASUREMENT REPORT messages. P-CCPCH RSCP power level of Cell 2 reported by the UE shall be compared to the actually set P-CCPCH RSCP value of Cell 2 for each MEASUREMENT REPORT message.
- 6) SS shall count number of MEASUREMENT REPORT messages transmitted by UE. After 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.8.1.2 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 4) and 5) above are repeated.
- 7) After further 1000 MEASUREMENT REPORT messages have been received from UE, the SS shall transmit RRC CONNECTION RELEASE message.
- 8) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3] and in Annex I, with the following exceptions:

PHYSICAL CHANNEL RECONFIGURATION message for inter frequency measurement (Step 1):

Information Element	Value/Remark
Message Type	
UE Information Elements -RRC transaction identifier -Integrity check info -Integrity protection mode info -Ciphering mode info -Activation time -New U-RNTI -New C-RNTI -RRC State Indicator -UTRAN DRX cycle length coefficient	0 Not Present Not Present Not Present Not Present Not Present Not Present CELL_DCH Not Present
CN Information Elements -CN Information info	Not Present
UTRAN mobility information elements -URA identity	Not Present
RB information elements -Downlink counter synchronisation info	Not Present
PhyCH information elements -Frequency info	Not Present
Uplink radio resources -Maximum allowed UL TX power - CHOICE <i>channel requirement</i>	Not Present Not Present
Downlink radio resources -CHOICE mode -Downlink PDSCH information -Downlink information common for all radio links -Downlink DPCH info common for all RL -CHOICE mode -DPCH compressed mode info -Transmission gap pattern sequence -TGPSI -TGPS Status Flag -TGCFN -Transmission gap pattern sequence configuration parameters -TGMP -TGPRC -TGSN -TGL1 -TGL2 -TGD -TGPL1 -TGPL2 -RPP -ITP -CHOICE UL/DL mode -Downlink compressed mode method -Uplink compressed mode method -Downlink frame type -DeltaSIR1 -DeltaSIRafter1 -DeltaSIR2 -DeltaSIRafter2 -N Identify abort -T Reconfirm abort -TX Diversity Mode -SSDT information -Default DPCH Offset Value -Downlink information per radio link list -Downlink information for each radio link -Choice mode -Primary CPICH info -Primary scrambling code	FDD Not Present Not Present FDD 1 Activate (Current CFN + (256 – TTI/10msec))mod 256 TDD measurement Infinity 10 10 Not Present 0 11 Not Present Mode 0 Mode 0 UL and DL Puncturing SF/2 A 3.0 3.0 Not Present Not Present Not Present Not Present Not Present Not Present Not Present Not Present Not Present FDD 100

-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	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400
-Secondary CPICH info	Not Present
-DL channelisation code	
-Secondary scrambling code	Not Present
-Spreading factor	128
-Code number	96
-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

MEASUREMENT CONTROL message for inter frequency measurement (Step 3):

Information Element	Value/Remark
Message Type	
UE information elements -RRC transaction identifier -Integrity check info	0 Not Present
Measurement Information elements -Measurement Identity -Measurement Command -Measurement Reporting Mode - Measurement Report Transfer Mode - Periodical Reporting / Event Trigger Reporting Mode -Additional measurement list -CHOICE Measurement Type -Inter-frequency measurement -Inter-frequency cell info list -CHOICE Inter-frequency cell removal -New inter-frequency cells -Cell for measurement -Inter-frequency measurement quantity -CHOICE reporting criteria -Filter coefficient -CHOICE mode -Measurement quantity for frequency quality estimate -Inter-frequency reporting quantity -UTRA Carrier RSSI -Frequency quality estimate -Non frequency related cell reporting quantities -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -Timeslot ISCP reporting indicator -Proposed TGSN Reporting required -Primary CCPCH RSCP reporting indicator -Pathloss reporting indicator -Reporting cell status -CHOICE reported cell -Maximum number of reported cells -Measurement validity -Inter-frequency set update -CHOICE report criteria -Amount of reporting -Reporting interval	2 Setup Acknowledged mode RLC Periodical reporting Not Present Inter-frequency measurement Not Present Cell 2 information is included. Not Present Inter-frequency reporting criteria 0 TDD Primary CCPCH RSCP FALSE TRUE No report FALSE FALSE TDD FALSE FALSE TRUE FALSE Report cells within monitored set on non-used frequency 2 Not Present Not Present Periodical reporting criteria Infinity 500 ms
Physical channel information elements -DPCH compressed mode status info	Not Present

8.7.8.1.5 Test requirements

The PCCPCH RSCP measurement accuracy shall meet the requirements in clause 8.7.8.1.2.

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

Annex I (normative): Default Message Contents

This Annex contains the default values of common messages, other than those described in TS 34.108. The messages are primarily concerning the RRM test cases in clause 8 and unless indicated otherwise in specific test cases, shall be transmitted and checked by the system simulator. The necessary messages are listed in alphabetical order.

In this Annex, decimal values are normally used. However, sometimes, a hexadecimal value, indicated by an "H", or a binary value, indicated by a "B" is used.

Contents of MEASUREMENT REPORT message for Intra frequency test cases

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	Not present
SFN-SFN observed time difference	Checked that this IE is present
- Cell synchronisation information	
- Tm	Checked that this IE is present
- OFF	Checked that this IE is present
- CHOICE mode	FDD
- Primary CPICH info	Checked that this IE is present
- Primary scrambling code	150
- CPICH Ec/N0	Checked that this IE is present
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is present
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

Contents of MEASUREMENT REPORT message for Inter frequency test cases

Information Element	Value/remark
Message Type	
Integrity check info	The presence of this IE is dependent on IXT 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	
- Inter-frequency measured results list	
- UTRA Carrier RSSI	Checked that this IE is present
- Inter-frequency cell measurement results	
- Cell measured results	
- Cell Identity	Not present
- SFN-SFN observed time difference	Checked that this IE is present
- Cell synchronisation information	
-Tm	Checked that this IE is present
- OFF	Checked that this IE is present
- CHOICE mode	FDD
- Primary CPICH info	Checked that this IE is present
- Primary scrambling code	150
- CPICH Ec/N0	Checked that this IE is present
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is present
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

Contents of MEASUREMENT REPORT message for inter – RAT test cases

Information Element	Value/remark
Message Type	
Integrity check info	The presence of this IE is dependent on IXT 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	
- Inter-RAT measured results list	
- CHOICE system	GSM
- Measured GSM cells	Checked that this IE is present
- GSM carrier RSSI	Checked that this IE is present
- Pathloss	Checked that this IE is present
- Observed time difference to GSM cell	Checked that this IE is present
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

CHANGE REQUEST

34.121 CR 360 # rev **-** # Current version: **5.3.1**

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:	# Addition of unit for OCNS_Ec/Ior in RRM tests		
Source:	# Nokia		
Work item code:	# TEI	Date:	# 27/04/2004
Category:	# F	Release:	# Rel-5
	Use <u>one</u> of the following categories: F (correction) A (corresponds to a correction in an earlier release) B (addition of feature), C (functional modification of feature) D (editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900 .		Use <u>one</u> of the following releases: 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:	# - OCNS_Ec/Ior parameter is missing a unit [dB] in many RRM test cases - In many RRM tests OCNS_Ec/Ior parameter is not defined as ratio but falsely as "OCNS"
Summary of change:	# - Unit [dB] has been added for OCNS_Ec/Ior parameter in many RRM tests - In many RRM test cases parameter "OCNS" has been replaced with "OCNS_Ec/Ior"
Consequences if not approved:	# Incomplete test parameters in many RRM tests

Clauses affected:	# 8.3, 8.6, 8.7										
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;">#</td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;">#</td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;">#</td> <td style="text-align: center;">X</td> </tr> </table> Other core specifications # Test specifications # O&M Specifications #	Y	N	#	X	#	X	#	X		
Y	N										
#	X										
#	X										
#	X										
Other comments:	# This CR is applicable for UE's supporting Rel-99 or later.										

8.3 UTRAN Connected Mode Mobility

8.3.1 FDD/FDD Soft Handover

8.3.1.1 Definition and applicability

The active set update delay of the UE is defined as the time from the end of the last TTI containing an RRC message implying soft handover to the switch off of the old downlink DPCH.

The requirements and this test apply to the FDD UE.

8.3.1.2 Minimum requirement

The active set update delay shall be less than 60 ms in CELL_DCH state.

The active set update delay is defined as the time from when the UE has received the ACTIVE SET UPDATE message from UTRAN, or at the time stated through the activation time when to perform the active set update, to the time when the UE successfully uses the set of radio links stated in that message for power control.

The active set update delay is depending on the number of known cells referred to in the ACTIVE SET UPDATE message. A cell is known if either or both of the following conditions are true:

- the UE has had radio links connected to the cell in the previous (old) active set.
- the cell has been measured by the UE during the last 5 seconds and the SFN of the cell has been decoded by the UE.

And the phase reference is the primary CPICH.

The active set update delay shall be less than $50+10*KC+100*OC$ ms, where

KC is the number of known cells in the active set update message.

OC is the number of cells that are not known in the active set update message.

The normative reference for this requirement is TS 25.133 [2] clauses 5.1.2 and A.5.1.1.

8.3.1.3 Test purpose

To verify that the UE meets the minimum requirement.

8.3.1.4 Method of test

8.3.1.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

The test parameters are given in table 8.3.1.1.1 and 8.3.1.1.2 below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 1A shall be used, and that CPICH Ec/Io and SFN-CFN observed time difference shall be reported together with Event 1A. The test consists of six successive time periods, with a time duration of T1, T2, T3, T4, T5 and T6 respectively. At the start of time duration T1, the UE may not have any timing information of cell 2.

UTRAN shall send an Active Set Update command with activation time "now", adding cell 2 to the active set. The Active Set Update message shall be sent to the UE so that the whole message is available at the UE at the beginning of T4. The RRC procedure delay is defined in TS 25.133 [2].

Table 8.3.1.1.1: General test parameters for Soft handover

Parameter		Unit	Value	Comment
DCH parameters			DL and UL Reference Measurement Channel 12.2 kbps	As specified in clause C.3.1 and C.2.1
Power Control			On	
Target quality value on DTCH		BLER	0.01	
Initial conditions	Active cell		Cell 1	
	Neighbouring cell		Cell 2	
Final condition	Active cell		Cell 2	
Reporting range		dB	3	Applicable for event 1A and 1B
Hysteresis		dB	0	
W			1	Applicable for event 1A and 1B
Reporting deactivation threshold			0	Applicable for event 1A
Time to Trigger		ms	0	
Filter coefficient			0	
T1		s	5	
T2		s	3	
T3		s	0.5	
T4		ms	60	This is the requirement on active set update delay, see clause 5.1.2.2, where KC=1 and OC=0.
T5		s	10	
T6		s	2	

Table 8.3.1.1.2: Cell specific test parameters for Soft handover

Parameter	Unit	Cell 1						Cell 2					
		T1	T2	T3	T4	T5	T6	T1	T2	T3	T4	T5	T6
CPICH_Ec/Ior	dB	-10						-10					
PCCPCH_Ec/Ior	dB	-12						-12					
SCH_Ec/Ior	dB	-12						-12					
PICH_Ec/Ior	dB	-15						-15					
DPCH_Ec/Ior	dB	Note1	Note1	Note1	N/A	N/A	N/A	N/A	Note3	Note1	Note1		
OCNS_Ec/Ior	dB	Note2	Note2	Note2	-0.941	-0.941	-0.941	-0.941	Note2	Note2	Note2		
\hat{I}_{or}/I_{oc}	dB	0	2.91	2.91	2.91	2.91	-Inf	2.91	2.91	2.91	2.91		
I_{oc}	dBm/3.84 MHz	-70											
CPICH_Ec/Io	dB	-13	-14	-14	-14	-14	-Inf	-14	-14	-14	-14	-14	
Propagation Condition		AWGN											
Relative delay of paths received from cell 2 with respect to cell 1	chips	{-148 ... 148} Note 4											

Note 1: The DPCH level is controlled by the power control loop

Note 2: The power of the OCNS channel that is added shall make the total power from the cell to be equal to I_{or}

Note 3: The DPCH level is controlled by the power control loop. The initial power shall be set equal to the DPCH_Ec/Ior of Cell 1 at the end of T2.

Note 4: The relative delay of the path from cell 2 with respect to cell 1 shall always be within ± 148 chip.

8.3.1.4.2 Procedure

- 1) The RF parameters are set up according to T1.
- 2) The UE is switched on.

- 3) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.4 without Compressed mode parameters.

[Editor's note: subclause 7.3.4 in TS 34.108 (Message sequence chart for Handover Test procedure) is not yet specified]

- 4) SS shall transmit a MEASUREMENT CONTROL message.
- 5) 5 seconds after step4 has completed, the SS shall switch the power settings from T1 to T2.
- 6) UE shall transmit a MEASUREMENT REPORT message triggered by event 1A containing the CFN-SFN observed time difference between cell 1 and cell 2.
- 7) At the beginning of T3 the downlink DPCH of cell 2 shall be activated.
- 8) SS shall send an ACTIVE SET UPDATE message with activation time "now ", adding cell 2 to the active set. The ACTIVE SET UPDATE message shall be sent to the UE so that the whole message is available at the UE at the beginning of T4.
- 9) At the beginning of T5 the DPCH from cell 1 shall be switched off.
- 10) The UE downlink BLER shall be measured during time period T6.
- 11) 5 seconds after step10 has completed, the UE is switched off. Any timing information of cell 2 is deleted in the UE.
- 12) BLER is measured during concatenated time periods T6. Repeat step 1-11 until the confidence level for BLER is achieved. This is defined in annex F.6.1.10

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message (step 4):

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements -RRC transaction identifier -Integrity check info	0 Not Present
Measurement Information elements -Measurement Identity -Measurement Command (10.3.7.46) -Measurement Reporting Mode (10.3.7.49) -Measurement Report Transfer Mode -Periodical Reporting / Event Trigger Reporting Mode -Additional measurements list (10.3.7.1)	1 Modify AM RLC Event trigger Not Present
-CHOICE <i>Measurement type</i> -Intra-frequency measurement (10.3.7.36) -Intra-frequency measurement objects list (10.3.7.33) -Intra-frequency measurement quantity (10.3.7.38) -Filter coefficient (10.3.7.9) -CHOICE mode -Measurement quantity -Intra-frequency reporting quantity (10.3.7.41)	Intra-frequency measurement Not Present 0 FDD CPICH_Ec/N0
-Reporting quantities for active set cells (10.3.7.5) -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator	No report TRUE (Note 1) TRUE FDD TRUE TRUE TRUE
-Reporting quantities for monitored set cells (10.3.7.5) -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator	No report TRUE (Note 1) TRUE FDD TRUE TRUE TRUE
-Reporting quantities for detected set cells (10.3.7.5)	Not Present
-Reporting cell status (10.3.7.61) -Measurement validity (10.3.7.51) -CHOICE report criteria -Intra-frequency measurement reporting criteria (10.3.7.39) -Parameters required for each event	Not Present Not Present Intra-frequency measurement reporting criteria 2
-Intra-frequency event identity -Triggering condition 2 -Reporting Range Constant -Cells forbidden to affect Reporting Range -W -Hysteresis -Threshold used frequency -Reporting deactivation threshold -Replacement activation threshold -Time to trigger -Amount of reporting -Reporting interval -Reporting cell status	Event 1A Active set cells and monitored set cells 3 dB Not Present 1.0 0 dB Not Present 0 Not Present 0 ms Infinity 0 ms (Note 2) Not Present
-Intra-frequency event identity -Triggering condition 1 -Reporting Range Constant -Cells forbidden to affect Reporting Range -W -Hysteresis -Threshold used frequency -Reporting deactivation threshold -Replacement activation threshold -Time to trigger	Event 1B Active set cells and monitored set cells 3 dB Not Present 1.0 0 dB Not Present Not Present Not Present 0 ms

Information Element/Group name	Value/Remark
-Amount of reporting -Reporting interval -Reporting cell status	Not Present Not Present Not Present
Physical channel information elements -DPCH compressed mode status info (10.3.6.34)	Not Present
Note 1: The SFN-CFN observed time difference is calculated from the OFF and Tm parameters contained in the IE "Cell synchronisation information", TS 25.331, clause 10.3.7.6. According to TS 25.331, 8.6.7.7, this IE is included in MEASUREMENT REPORT if IE "Cell synchronisation information reporting indicator" in IE "Cell reporting quantities" TS 25.331, clause 10.3.7.5 is set to TRUE in MEASUREMENT CONTROL.	
Note 2: Reporting interval = 0 ms means no periodical reporting	

ACTIVE SET UPDATE message (step 8):

Information Element/Group name	Type and reference	Value/Remark
Message Type	Message Type	
UE information elements		
RRC transaction identifier	RRC transaction identifier 10.3.3.36	0
Integrity check info	Integrity check info 10.3.3.16	Not Present
Integrity protection mode info	Integrity protection mode info 10.3.3.19	Not Present
Ciphering mode info	Ciphering mode info 10.3.3.5	Not Present
Activation time	Activation time 10.3.3.1	"now".
New U-RNTI	U-RNTI 10.3.3.47	Not Present
CN information elements		
CN Information info	CN Information info 10.3.1.3	Not Present
Phy CH information elements		
Uplink radio resources		
Maximum allowed UL TX power	Maximum allowed UL TX power 10.3.6.39	33 dBm
Downlink radio resources		
Radio link addition information		Radio link addition information required for each RL to add
>Radio link addition information	Radio link addition information 10.3.6.68	
Radio link removal information		Radio link removal information required for each RL to remove
>Radio link removal information	Radio link removal information 10.3.6.69	Not Present
TX Diversity Mode	TX Diversity Mode 10.3.6.86	None
SSDT information	SSDT information 10.3.6.77	Not Present

Radio link addition information

Information Element/Group name	Need	Multi	Type and reference	Value/Remark
Primary CPICH info	MP		Primary CPICH info 10.3.6.60	Same as defined in cell2
Downlink DPCH info for each RL	MP		Downlink DPCH info for each RL 10.3.6.21	See below
TFCI combining indicator	MP		TFCI combining indicator 10.3.6.81	FALSE
SCCPCH Information for FACH	OP		SCCPCH Information for FACH 10.3.6.70	Not Present

Downlink DPCH info for each RL

Information Element/Group name	Type and reference	Value/Remark
CHOICE <i>mode</i>		
>FDD		
>>Primary CPICH usage for channel estimation	Primary CPICH usage for channel estimation 10.3.6.62	Primary CPICH may be used
>>DPCH frame offset	Integer(0..38144 by step of 256)	This should be reflected by the IE " Cell synchronisation information" in received MEASUREMENT REPORT message
>>Secondary CPICH info	Secondary CPICH info 10.3.6.73	Not Present
>>DL channelisation code		
>>>Secondary scrambling code	Secondary scrambling code 10.3.6.74	Not Present
>>>Spreading factor	Integer(4, 8, 16, 32, 64, 128, 256, 512)	128
>>>Code number	Integer(0..Spreading factor - 1)	96
>>>Scrambling code change	Enumerated (code change, no code change)	No code change
>>TPC combination index	TPC combination index 10.3.6.85	0
>>SSDT Cell Identity	SSDT Cell Identity 10.3.6.76	Not Present
>>Closed loop timing adjustment mode	Integer(1, 2)	Not Present

NOTE 1: These IEs are present when the UE needs to listen to system information on FACH in CELL_DCH state.

8.3.1.5 Test requirements

The average measured quality on the DTCH of the UE downlink during T6 shall be $BLER = 0.01 \pm 30\%$. (The final BLER shall be achieved by integrating over a number of repetitions of procedure step 10).

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.3.2 FDD/FDD Hard Handover

8.3.2.1 FDD/FDD Hard Handover to intra-frequency cell

8.3.2.1.1 Definition and applicability

The hard handover delay of the UE is defined as the time from the end of the last TTI containing an RRC message implying hard handover to the transmission of the new uplink DPCH.

The requirements and this test apply to the FDD UE.

8.3.2.1.2 Minimum requirement

The interruption time shall be less than 110 ms in CELL_DCH state in the single carrier case. The rate of correct handovers observed during repeated tests shall be at least 90% with a confidence level of 95 %.

The hard handover delay D_{handover} equals the RRC procedure delay defined in TS 25.331 clause 13.5.2 plus the interruption time stated in TS 25.133 clause 5.2.2.2 as follows:

The interruption time, i.e. the time between the last TTI containing a transport block on the old DPDCH and the time the UE starts transmission of the new uplink DPCCH, is depending on whether the target cell is known for the UE or not.

If intra-frequency hard handover is commanded or inter-frequency hard handover is commanded when the UE does not need compressed mode to perform inter-frequency measurements, the interruption time shall be less than $T_{\text{interrupt1}}$

$$T_{\text{interrupt1}} = T_{\text{IU}} + 40 + 20 * \text{KC} + 150 * \text{OC} + 10 * F_{\text{max}} \text{ ms}$$

where

T_{IU} is the interruption uncertainty when changing the timing from the old to the new cell. T_{IU} can be up to one frame (10 ms).

KC is the number of known target cells in the message, and

OC is the number of target cells that are not known in the message.

F_{max} denotes the maximum number of radio frames within the transmission time intervals of all transport channels that are multiplexed into the same CCTrCH.

Note: The figure 40 ms is the time required for measuring the downlink DPCCH channel as stated in TS 25.214 clause 4.3.1.2.

In the interruption requirement $T_{\text{interrupt1}}$ a cell is known if either or both of the following conditions are true:

- the UE has had radio links connected to the cell in the previous (old) active set
- the cell has been measured by the UE during the last 5 seconds and the SFN of the cell has been decoded by the UE.

The normative reference for this requirement is TS 25.133 [2] clauses 5.2.2 and A.5.2.1.

8.3.2.1.3 Test purpose

To verify that the UE meets the minimum requirement.

8.3.2.1.4 Method of test

8.3.2.1.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

The test parameters are given in tables 8.3.2.1.1 to 8.3.2.1.3 below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 1A and 1B shall be used, and that CPICH Ec/Io and SFN-CFN observed timed difference shall be reported together with Event 1A. The test consists of three successive time periods, with a time duration of T1, T2 and T3 respectively. At the start of time duration T1, the UE may not have any timing information of cell 2.

UTRAN shall send a PHYSICAL CHANNEL RECONFIGURATION with activation time "now" with one active cell, cell 2. The Physical Channel reconfiguration message shall be sent to the UE so that the whole message is available at the UE the RRC procedure delay prior to the beginning of T3. The RRC procedure delay is defined in TS 25.331 [8].

N312 shall have the smallest possible value i.e. only one insync is required.

Table 8.3.2.1.1: General test parameters for Handover to intra-frequency cell

Parameter		Unit	Value	Comment
DCH parameters			DL and UL Reference Measurement Channel 12.2 kbps	As specified in clause C.3.1 and C.2.1
Power Control			On	
Target quality value on DTCH		BLER	0.01	
Initial conditions	Active cell		Cell 1	
	Neighbouring cell		Cell 2	
Final condition	Active cell		Cell 2	
Reporting range		dB	3	Applicable for event 1A and 1B
Hysteresis		dB	0	
W			1	Applicable for event 1A and 1B
Reporting deactivation threshold			0	Applicable for event 1A
Time to Trigger		ms	0	
Filter coefficient			0	
T1		s	5	
T2		s	5	
T3		s	5	

Table 8.3.2.1.2: Cell specific test parameters for Handover to intra-frequency cell

Parameter	Unit	Cell 1			Cell 2		
		T1	T2	T3	T1	T2	T3
CPICH_Ec/Ior	dB	-10			-10		
PCCPCH_Ec/Ior	dB	-12			-12		
SCH_Ec/Ior	dB	-12			-12		
PICH_Ec/Ior	dB	-15			-15		
DPCH_Ec/Ior	dB	Note1	Note1	Note3	N/A	N/A	Note1
OCNS_Ec/Ior	dB	Note2	Note2	Note2	-0.941	-0.941	Note2
\hat{I}_{or}/I_{oc}	dB	0	6.97		-Infinity	5.97	
$\hat{I}_{or} (Note 4)$	dBm	-70.00	-63.03		-Infinity	-64.03	
I_{oc}	dBm/ 3.84 MHz	-70					
CPICH_Ec/Io	dB	-13			-Infinity	-14	
Propagation Condition		AWGN					
Note 1: The DPCH level is controlled by the power control loop Note 2: The power of the OCNS channel that is added shall make the total power from the cell to be equal to I_{or} . Note 3: The DPCH may not be power controlled by the power control loop. Note 4: The nominal \hat{I}_{or} values, although not explicitly defined in 25.133 are added here since they are implied and need to be identified so that the test equipment can be configured.							

8.3.2.1.4.2 Procedure

- 1) The RF parameters are set up according to T1 in table 8.3.2.1.3.
- 2) The UE is switched on.
- 3) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.4.
- 4) SS shall transmit a MEASUREMENT CONTROL message.
- 5) 5 seconds after step 4 has completed, the SS shall switch the power settings from T1 to T2 in table 8.3.2.1.3.
- 6) UE shall transmit a MEASUREMENT REPORT message triggered by event 1A

- 7) SS shall transmit a PHYSICAL CHANNEL RECONFIGURATION message with activation time set to "now". SS shall transmit the whole message such that it will be available at the UE no later than a period equals to the RRC procedure delay (= 80 ms) prior to the beginning of T3.
- 8) After 5 seconds from the beginning of time period T2, the SS shall switch the power settings from T2 to T3 in table 8.3.2.1.3.
- 9) UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the UL DCCH of cell 2. If the UE transmits the UL DPCCH to cell 2 less than 110 ms from the beginning of time period T3 then the number of successful tests is increased by one.
- 10) After 5 seconds from the beginning of time period T3, the UE is switched off. Any timing information of cell 2 is deleted in the UE.
- 11) Repeat step 1-10 until the confidence level according to annex F.6.2 is achieved

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message (step 4):

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements -RRC transaction identifier -Integrity check info	0 Not Present
Measurement Information elements -Measurement Identity -Measurement Command (10.3.7.46) -Measurement Reporting Mode (10.3.7.49) -Measurement Report Transfer Mode -Periodical Reporting / Event Trigger Reporting Mode -Additional measurements list (10.3.7.1)	1 Modify AM RLC Event trigger Not Present
-CHOICE <i>Measurement type</i> -Intra-frequency measurement (10.3.7.36) -Intra-frequency measurement objects list (10.3.7.33) -Intra-frequency measurement quantity (10.3.7.38) -Filter coefficient (10.3.7.9) -CHOICE mode -Measurement quantity -Intra-frequency reporting quantity (10.3.7.41)	Intra-frequency measurement Not Present 0 FDD CPICH_Ec/N0
-Reporting quantities for active set cells (10.3.7.5) -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator	No report TRUE (Note 1) TRUE FDD TRUE TRUE TRUE
-Reporting quantities for monitored set cells (10.3.7.5) -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator	No report TRUE (Note 1) TRUE FDD TRUE TRUE TRUE
-Reporting quantities for detected set cells (10.3.7.5)	Not Present
-Reporting cell status (10.3.7.61) -Measurement validity (10.3.7.51) -CHOICE report criteria -Intra-frequency measurement reporting criteria (10.3.7.39) -Parameters required for each event	Not Present Not Present Intra-frequency measurement reporting criteria 2
-Intra-frequency event identity -Triggering condition 2 -Reporting Range Constant -Cells forbidden to affect Reporting Range -W -Hysteresis -Threshold used frequency -Reporting deactivation threshold -Replacement activation threshold -Time to trigger -Amount of reporting -Reporting interval -Reporting cell status	Event 1A Active set cells and monitored set cells 3 dB Not Present 1.0 0 dB Not Present 0 Not Present 0 ms Infinity 0 ms (Note 2) Not Present
-Intra-frequency event identity -Triggering condition 1 -Reporting Range Constant -Cells forbidden to affect Reporting Range -W -Hysteresis -Threshold used frequency -Reporting deactivation threshold -Replacement activation threshold -Time to trigger	Event 1B Active set cells and monitored set cells 3 dB Not Present 1.0 0 dB Not Present Not Present Not Present 0 ms

Information Element/Group name	Value/Remark
-Amount of reporting -Reporting interval -Reporting cell status	Not Present Not Present Not Present
Physical channel information elements -DPCH compressed mode status info (10.3.6.34)	Not Present
<p>Note 1: The SFN-CFN observed time difference is calculated from the OFF and Tm parameters contained in the IE "Cell synchronisation information", TS 25.331, clause 10.3.7.6. According to TS 25.331, 8.6.7.7, this IE is included in MEASUREMENT REPORT if IE "Cell synchronisation information reporting indicator" in IE "Cell reporting quantities" TS 25.331, clause 10.3.7.5 is set to TRUE in MEASUREMENT CONTROL.</p> <p>Note 2: Reporting interval = 0 ms means no periodical reporting</p>	

PHYSICAL CHANNEL RECONFIGURATION message (step 7):

Information Element	Value/Remark
Message Type	
UE Information Elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
-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_DCH
-UTRAN DRX cycle length coefficient	Not Present
CN Information Elements	
-CN Information info	Not Present
UTRAN mobility information elements	
-URA identity	Not Present
RB information elements	
-Downlink counter synchronisation info	Not Present
PhyCH information elements	
-Frequency info (10.3.6.36)	
-CHOICE mode	FDD
-UARFCN uplink(Nu)	Same uplink UARFCN as used for cell 2
-UARFCN downlink(Nd)	Same downlink UARFCN as used for cell 2
Uplink radio resources	
-Maximum allowed UL TX power	33 dBm
-CHOICE <i>channel requirement</i>	Uplink DPCH info
-Uplink DPCH info (10.3.6.88)	
-Uplink DPCH power control info (10.3.6.91)	
-CHOICE mode	FDD
-DPCCH power offset	-6dB
- PC Preamble	1 frame
- SRB delay	7 frames
- Power Control Algorithm	Algorithm1
- TPC step size	1dB
-CHOICE mode	FDD
-Scrambling code type	Long
-Scrambling code number	0 (0 to 16777215)
-Number of DPDCH	Not Present(1)
-Spreading factor	64
-TFCI existence	TRUE
-Number of FBI bit	Not Present(0)
-Puncturing Limit	1
Downlink radio resources	
-CHOICE <i>mode</i>	FDD
-Downlink PDSCH information	Not Present
-Downlink information common for all radio links (10.3.6.24)	
-Downlink DPCH info common for all RL (10.3.6.18)	
-Timing indicator	Initialise
-CFN-targetSFN frame offset	Not Present
-Downlink DPCH power control information (10.3.6.23)	
-DPC mode	0 (single)
-CHOICE mode	FDD
-Power offset $P_{\text{Pilot-DPCH}}$	0
-DL rate matching restriction information	Not Present
-Spreading factor	128
-Fixed or Flexible Position	Fixed
-TFCI existence	TRUE
-CHOICE SF	128
-Number of bits for Pilot bits(SF=128,256)	8
-CHOICE mode	FDD
-DPCH compressed mode info (10.3.6.33)	Not Present
-TX Diversity mode (10.3.6.86)	None
-SSDT information (10.3.6.77)	Not Present
-Default DPCH Offset Value (10.3.6.16)	0
-Downlink information per radio link list	1
-Downlink information for each radio link (10.3.6.27)	

Information Element	Value/Remark
-CHOICE mode	FDD
-Primary CPICH info (10.3.6.60)	
-Primary scrambling code	350
-PDSCH with SHO DCH info (10.3.6.47)	Not Present
-PDSCH code mapping (10.3.6.43)	Not Present
-Downlink DPCH info for each RL (10.3.6.21)	
-CHOICE mode	FDD
-Primary CPICH usage for channel estimation	Primary CPICH may be used
-DPCH frame offset	0 chips
-Secondary CPICH info	Not Present
-DL channelisation code	
-Secondary scrambling code	Not Present
-Spreading factor	128
-Code number	96
-Scrambling code change	No change
-TPC combination index	0
-SSDT Cell Identity	Not Present
-Closed loop timing adjustment mode	Not Present
-SCCPCH information for FACH (10.3.6.70)	Not Present

MEASUREMENT REPORT message for Intra frequency test cases

This message is common for all intra frequency test cases in clause 8.7 and is described in Annex I.

8.3.2.1.5 Test requirements

For the test to pass, the total number of successful tests shall be more than 90% of the cases with a confidence level of 95 %.

Table 8.3.2.1.3: Test requirements for Handover to intra-frequency cell

Parameter	Unit	Cell 1			Cell 2		
		T1	T2	T3	T1	T2	T3
CPICH_Ec/lor	dB	-9.3			-9.3		
PCCPCH_Ec/lor	dB	-11.3			-11.3		
SCH_Ec/lor	dB	-11.3			-11.3		
PICH_Ec/lor	dB	-14.3			-14.3		
DPCH_Ec/lor	dB	Note1	Note1	Note3	N/A	N/A	Note1
OCNS_Ec/lor	dB	Note2	Note2	Note2	-1.13	-1.13	Note2
\hat{I}_{or}/I_{oc} (Note 4)	dB	0	7.0		-Infinity	6.0	
\hat{I}_{or}	dBm	-70.0	-63.0		-Infinity	-64.0	
I_{oc}	dBm/ 3.84 MHz	-70					
CPICH_Ec/lo (Note 4)	dB	-12.3			-Infinity	-13.3	
Propagation Condition		AWGN					
Note 1: The DPCH level is controlled by the power control loop							
Note 2: The power of the OCNS channel that is added shall make the total power from the cell to be equal to I_{or} .							
Note 3: The DPCH may not be power controlled by the power control loop.							
Note 4: These parameters are not directly settable, but are derived by calculation from the settable parameters.							

Note: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.3.2.2 FDD/FDD Hard Handover to inter-frequency cell

8.3.2.2.1 Definition and applicability

The hard handover delay is defined as the time from the end of the last TTI containing an RRC message implying hard handover to the transmission of the new uplink DPCH.

The requirements and this test apply to the FDD UE.

8.3.2.2.2 Minimum requirement

The interruption time shall be less than 140 ms in CELL_DCH state in the dual carrier case. The rate of correct handovers observed during repeated tests shall be at least 90% with a confidence level of 95 %.

The hard handover delay D_{handover} equals the RRC procedure delay defined in TS 25.331 clause 13.5.2 plus the interruption time stated in TS 25.133 clause 5.2.2.2 as follows:

If inter-frequency hard handover is commanded and the UE needs compressed mode to perform inter-frequency measurements, the interruption time shall be less than $T_{\text{interrupt2}}$

$$T_{\text{interrupt2}} = T_{\text{IU}} + 40 + 50 * \text{KC} + 150 * \text{OC} + 10 * F_{\text{max}} \text{ ms}$$

In the interruption requirement $T_{\text{interrupt2}}$ a cell is known if:

- the cell has been measured by the UE during the last 5 seconds.

The phase reference is the primary CPICH.

The normative reference for this requirement is TS 25.133 [2] clauses 5.2.2 and A.5.2.2.

8.3.2.2.3 Test purpose

To verify that the UE meets the minimum requirement.

8.3.2.2.4 Method of test

8.3.2.2.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

The test parameters are given in tables 8.3.2.2.1 to 8.3.2.2.3 below. The test consists of three successive time periods, with a time duration of T1, T2 and T3 respectively. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 2C shall be used. The CPICH Ec/I0 of the best cell on the unused frequency shall be reported together with Event 2C reporting. At the start of time duration T1, the UE may not have any timing information of cell 2.

UTRAN shall send a PHYSICAL CHANNEL RECONFIGURATION with activation time "now" with one active cell, cell 2. The Physical Channel reconfiguration message shall be sent to the UE so that the whole message is available at the UE the RRC procedure delay prior to the beginning of T3. The RRC procedure delay is defined in TS 25.331 [8].

N312 shall have the smallest possible value i.e. only one insync is required.

Table 8.3.2.2.1: General test parameters for Handover to inter-frequency cell

Parameter		Unit	Value	Comment
DCH parameters			DL and UL Reference Measurement Channel 12.2 kbps	As specified in clause C.3.1 and C.2.1
Power Control			On	
Target quality value on DTCH		BLER	0.01	
Compressed mode			A.22 set 1	As specified in TS 34.121 clause C.5.
Initial conditions	Active cell		Cell 1	
	Neighbour cell		Cell 2	
Final conditions	Active cell		Cell 2	
Threshold non used frequency		dB	-18	Absolute E_c/I_0 threshold for event 2C
Hysteresis		dB	0	
W non-used frequency			1	Applicable for event 2C
Time to Trigger		ms	0	
Filter coefficient			0	
T1		s	5	
T2		s	10	
T3		s	5	

Table 8.3.2.2.2: Cell Specific parameters for Handover to inter-frequency cell

Parameter	Unit	Cell 1			Cell 2		
		T1	T2	T3	T1	T2	T3
UTRA RF Channel Number		Channel 1			Channel 2		
CPICH_Ec/I _{or}	dB	-10			-10		
PCCPCH_Ec/I _{or}	dB	-12			-12		
SCH_Ec/I _{or}	dB	-12			-12		
PICH_Ec/I _{or}	dB	-15			-15		
DPCH_Ec/I _{or}	dB	Note1	Note1	Note3	N/A	N/A	Note1
OCNS_Ec/I _{or}	dB	Note2	Note2	Note2	-0.941	-0.941	Note2
\hat{I}_{or}/I_{oc}	dB	0			-Infinity	-1.8	-1.8
\hat{I}_{or} (Note 4)	dBm	-70.0			-Infinity	-71.8	-71.8
I_{oc}	dBm/ 3.84 MHz	-70					
CPICH_Ec/I _o	dB	-13			-Infinity	-14	
Propagation Condition		AWGN					
Note 1: The DPCH level is controlled by the power control loop Note 2: The power of the OCNS channel that is added shall make the total power from the cell to be equal to I_{or} . Note 3: The DPCH may not be power controlled by the power control loop. Note 4: The nominal \hat{I}_{or} values, although not explicitly defined in 25.133 are added here since they are implied and need to be identified so that the test equipment can be configured.							

8.3.2.2.4.2 Procedure

- 1) The RF parameters are set up according to T1 in table 8.3.2.2.3.
- 2) The UE is switched on.
- 3) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.4 with Compressed mode parameters as in Table 8.3.2.2.1.
- 4) SS shall transmit a MEASUREMENT CONTROL messages.
- 5) 5 seconds after step 4 has completed, the SS shall switch the power settings from T1 to T2 in table 8.3.2.2.3.

- 6) UE shall transmit a MEASUREMENT REPORT message triggered by event 2C
- 7) SS shall transmit a PHYSICAL CHANNEL RECONFIGURATION message with activation time "now". SS shall transmit the whole message such that will be available at the UE no later than a period equals to the RRC procedure delay (= 80 ms) prior to the beginning of T3.
- 8) After 10 seconds from the beginning of time period T2, the SS shall switch the power settings from T2 to T3 in table 8.3.2.2.3.
- 9) UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the UL DCCH of cell 2. If the UE transmits the UL DPCCH to cell 2 less than 140 ms from the beginning of time period T3 then the number of successful tests is increased by one.
- 10) After 5 seconds from the beginning of time period T3, the UE is switched off. Any timing information of cell 2 is deleted in the UE.
- 11) Repeat step 1-10 until the confidence level according to annex F.6.2 is achieved

Specific Message Contents

All messages indicated below shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message, event 2C (step 4):

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
Measurement Information elements	
-Measurement Identity	2
-Measurement Command (10.3.7.46)	Setup
-Measurement Reporting Mode (10.3.7.49)	AM RLC
-Measurement Report Transfer Mode	Event trigger
-Periodical Reporting / Event Trigger Reporting Mode	Not Present
-Additional measurements list (10.3.7.1)	Not Present
-CHOICE <i>Measurement type</i>	Inter-frequency measurement
-Inter-frequency measurement (10.3.7.16)	
-Inter-frequency measurement objects list (10.3.7.13)	
- CHOICE Inter-frequency cell removal	Not Present
- New Inter frequency cells	
- Inter frequency cell id	0
- Frequency info	
- CHOICE mode	FDD
- UARFCN uplink(Nu)	Not Present
- UARFCN downlink(Nd)	Same frequency as "Channel2" in Table 8.3.2.2.2
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Set to Primary scrambling code of Cell2
- Primary CPICH Tx Power	Set to Primary CPICH Tx Power of Cell2 described in Table 8.3.2.2.2
- Tx Diversity Indicator	FALSE
- Cell Selection and Re-selection info	Set to Cell Selection and Re-selection info of Cell2
- Cell for measurement	Not Present
-Inter-frequency measurement quantity (10.3.7.18)	
-CHOICE reporting criteria	Inter-frequency reporting criteria
-Inter-frequency reporting criteria	
-Filter coefficient	0
-CHOICE mode	FDD
-Measurement quantity for frequency quality estimate	CPICH Ec/N0
-Inter-frequency reporting quantity (10.3.7.21)	
-UTRA Carrier RSSI	FALSE
-Frequency quality estimate	FALSE
-Non frequency related cell reporting quantities (10.3.7.5)	
-SFN-SFN observed time difference reporting indicator	Type 1
-Cell synchronisation information reporting indicator	TRUE
-Cell Identity reporting indicator	TRUE
-CHOICE mode	FDD
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	TRUE
-Reporting cell status (10.3.7.61)	
-CHOICE reported cell	Report cells within monitored set on non-used frequency
-Maximum number of reported cells per reported non-used frequency	1
-Measurement validity (10.3.7.51)	Not Present
-Inter-frequency set update (10.3.7.22)	Not Present
-CHOICE report criteria	Inter-frequency measurement reporting criteria
-Inter-frequency measurement reporting criteria (10.3.7.19)	
-Parameters required for each event	1
-Inter-frequency event identity (10.3.7.14)	Event 2C
-Threshold used frequency	Not Present

Information Element/Group name	Value/Remark
-W used frequency -Hysteresis -Time to trigger -Reporting cell status (10.3.7.61) -CHOICE reported cell -Maximum number of reported cells per reported non-used frequency -Parameters required for each non-used frequency -Threshold non-used frequency -W non-used frequency	Not Present 0 dB 0 ms Report cells within monitored set on non-used frequency 1 1 -18 dB 1
Physical channel information elements -DPCH compressed mode status info (10.3.6.34)	Not Present

PHYSICAL CHANNEL RECONFIGURATION message (step 7):

Information Element	Value/Remark
Message Type	
UE Information Elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
-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_DCH
-UTRAN DRX cycle length coefficient	Not Present
CN Information Elements	
-CN Information info	Not Present
UTRAN mobility information elements	
-URA identity	Not Present
RB information elements	
-Downlink counter synchronisation info	Not Present
>RB with PDCP information list	Not Present
>>RB with PDCP information	Not Present
PhyCH information elements	
-Frequency info (10.3.6.36)	
-CHOICE mode	FDD
-UARFCN uplink(Nu)	Same uplink UARFCN as used for cell 2
-UARFCN downlink(Nd)	Same downlink UARFCN as used for cell 2
Uplink radio resources	
-Maximum allowed UL TX power	33 dBm
-CHOICE <i>channel requirement</i>	Uplink DPCH info
-Uplink DPCH info (10.3.6.88)	
-Uplink DPCH power control info (10.3.6.91)	
-CHOICE mode	FDD
-DPCCH power offset	-6dB
- PC Preamble	1 frame
- SRB delay	7 frames
- Power Control Algorithm	Algorithm1
- TPC step size	1dB
-CHOICE mode	FDD
-Scrambling code type	Long
-Scrambling code number	0 (0 to 16777215)
-Number of DPDCH	Not Present(1)
-Spreading factor	64
-TFCI existence	TRUE
-Number of FBI bit	Not Present(0)
-Puncturing Limit	1
Downlink radio resources	
-CHOICE <i>mode</i>	FDD
-Downlink PDSCH information	Not Present
-Downlink information common for all radio links (10.3.6.24)	
-Downlink DPCH info common for all RL (10.3.6.18)	
-Timing indicator	Initialise
-CFN-targetSFN frame offset	Not Present
-Downlink DPCH power control information (10.3.6.23)	
-DPC mode	0 (single)
-CHOICE mode	FDD
-Power offset $P_{\text{Pilot-DPDCH}}$	0
-DL rate matching restriction information	Not Present
-Spreading factor	128
-Fixed or Flexible Position	Fixed
-TFCI existence	TRUE
-CHOICE SF	128
-Number of bits for Pilot bits(SF=128,256)	8
-CHOICE mode	FDD
-DPCH compressed mode info (10.3.6.33)	
- Transmission gap pattern sequence	1
- TGPSI	1
- TGPS Status Flag	deactivate

Information Element	Value/Remark
- TGCFN	Not Present
- Transmission gap pattern sequence configuration parameters	Not Present
-TX Diversity mode (10.3.6.86)	None
-SSDT information (10.3.6.77)	Not Present
-Default DPCH Offset Value (10.3.6.16)	0
-Downlink information per radio link list	1
-Downlink information for each radio link (10.3.6.27)	
-CHOICE mode	FDD
-Primary CPICH info (10.3.6.60)	
-Primary scrambling code	350
-PDSCH with SHO DCH info (10.3.6.47)	Not Present
-PDSCH code mapping (10.3.6.43)	Not Present
-Downlink DPCH info for each RL (10.3.6.21)	
-CHOICE mode	FDD
-Primary CPICH usage for channel estimation	Primary CPICH may be used
-DPCH frame offset	0 chips
-Secondary CPICH info	Not Present
-DL channelisation code	
-Secondary scrambling code	Not Present
-Spreading factor	128
-Code number	96
-Scrambling code change	No change
-TPC combination index	0
- SSDT Cell Identity	Not Present
- Closed loop timing adjustment mode	Not Present
- SCCPCH information for FACH (10.3.6.70)	Not Present

MEASUREMENT REPORT message for Inter frequency test cases

This message is common for all inter frequency test cases in clause 8.7 and is described in Annex I.

8.3.2.2.5 Test requirements

For the test to pass, the total number of successful tests shall be more than 90% of the cases with a confidence level of 95 %.

Table 8.3.2.2.3: Test requirements for Handover to inter-frequency cell

Parameter	Unit	Cell 1			Cell 2		
		T1	T2	T3	T1	T2	T3
UTRA RF Channel Number		Channel 1			Channel 2		
CPICH_Ec/Ior	dB	-9.2			-9.2		
PCCPCH_Ec/Ior	dB	-11.2			-11.2		
SCH_Ec/Ior	dB	-11.2			-11.2		
PICH_Ec/Ior	dB	-14.2			-14.2		
DPCH_Ec/Ior	dB	Note1	Note1	Note3	N/A	N/A	Note1
OCNS_Ec/Ior	dB	Note2	Note2	Note2	-1.16	-1.16	Note2
\hat{I}_{or}/I_{oc} (Note 4)	dB	0			-Infinity	-1.8	-1.8
\hat{I}_{or}	dBm	-70.0			-Infinity	-71.8	-71.8
I_{oc}	dBm/ 3.84 MHz	-70					
CPICH_Ec/Io (Note 4)	dB	-12.2			-Infinity	-13.2	
Propagation Condition		AWGN					
Note 1:	The DPCH level is controlled by the power control loop						
Note 2:	The power of the OCNS channel that is added shall make the total power from the cell to be equal to I_{or} .						
Note 3:	The DPCH may not be power controlled by the power control loop.						
Note 4:	These parameters are not directly settable, but are derived by calculation from the settable parameters.						

Note: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.3.3 FDD/TDD Handover

8.3.3.1 Definition and applicability

The hard handover delay is defined as the time from the end of the last TTI containing an RRC message implying hard handover to the transmission of the new uplink DPCH.

The requirements and this test apply to the combined FDD and TDD UE.

8.3.3.2 Minimum requirement

The hard handover delay shall be less than 70 ms in CELL_DCH state in the dual carrier case. The rate of correct handovers observed during repeated tests shall be at least 90% with a confidence level of 95 %.

The hard handover delay D_{handover} equals the RRC procedure delay defined in TS 25.331 clause 13.5.2 plus the interruption time stated in TS 25.133 clause 5.3.2.2 as follows:

If FDD/TDD handover is commanded, the interruption time shall be less than,

$$T_{\text{interrupt}} = T_{\text{offset}} + T_{\text{UL}} + 30 * F_{\text{SFN}} + 20 * \text{KC} + 180 * \text{UC} \text{ ms}$$

where,

T_{offset}	Equal to 10 ms, the frame timing uncertainty between the old cell and the target cell and the time that can elapse until the appearance of a Beacon channel
T_{UL}	Equal to 10 ms, the time that can elapse until the appearance of the UL timeslot in the target cell
F_{SFN}	Equal to 1 if SFN decoding is required and equal to 0 otherwise
KC	Equal to 1 if a known target cell is indicated in the RRC message implying FDD/TDD handover and equal to 0 otherwise
UC	Equal to 1 if an unknown target cell is indicated in the RRC message implying FDD/TDD handover and equal to 0 otherwise

An inter-frequency TDD target cell shall be considered known by the UE, if the target cell has been measured by the UE during the last 5 seconds.

The phase reference is the primary CPICH.

The normative reference for this requirement is TS 25.133 [2] clauses 5.3.2 and A.5.3.2.

8.3.3.3 Test purpose

To verify that the UE meets the minimum requirement.

8.3.3.4 Method of test

8.3.3.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

The test parameters are given in Table 8.3.2.2.1 and 8.3.2.2.2 below. The test consists of three successive time periods, with a time duration of T1, T2 and T3 respectively. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 2C shall be used. The Primary CCPCH RSCP of the best cell on the unused

frequency shall be reported together with Event 2C reporting. At the start of time duration T1, the UE may not have any timing information of cell 2.

UTRAN shall send a PHYSICAL CHANNEL RECONFIGURATION with activation time "now" with one active cell, cell 2. The Physical Channel reconfiguration message shall be sent to the UE so that the whole message is available at the UE the RRC procedure delay prior to the beginning of T3. The RRC procedure delay is defined in TS 25.133 [2].

The UL DPCH in cell 2 shall be transmitted in timeslot 10.

Table 8.3.3.1: General test parameters for Handover to TDD cell

Parameter		Unit	Value	Comment
DCH parameters			DL Reference Measurement Channel 12.2 kbps	As specified in TS 34.121 clause C.3.1 and in TS 34.122 clause C.2.2
Power Control			On	
Target quality value on DTCH		BLER	0.01	
Compressed mode			A.22 set 3	As specified in TS 34.121 clause C.5
Initial conditions	Active cell		Cell 1	FDD cell
	Neighbour cell		Cell 2	TDD cell
Final condition	Active cell		Cell 2	TDD cell
O		dB	0	Cell individual offset. This value shall be used for all cells in the test.
Hysteresis		dB	0	Hysteresis parameter for event 2C
Time to Trigger		ms	0	
Threshold non-used frequency		dBm	-75	Applicable for Event 2C
Filter coefficient			0	
Monitored cell list size			6 FDD neighbours on Channel 1 6 TDD neighbours on Channel 2	
T _{SI}		s	1.28	The value shall be used for all cells in the test
T1		s	5	
T2		s	15	
T3		s	5	

Table 8.3.3.2: Cell Specific parameters for Handover to TDD cell (cell 1)

Parameter	Unit	Cell 1	
		T1, T2	T3
UTRA RF Channel Number		Channel 1	
CPICH_Ec/I _{or}	dB	-10	
P-CCPCH_Ec/I _{or}	dB	-12	
SCH_Ec/I _{or}	dB	-12	
PICH_Ec/I _{or}	dB	-15	
DPCH_Ec/I _{or}	dB	Note 1	n.a.
OCNS_Ec/I _{or}	dB	Note 2	
\hat{I}_{or}/I_{oc}	dB	0	
I_{oc}	dBm/3.84 MHz	-70	
CPICH_Ec/I _o	dB	-13	
Propagation Condition		AWGN	
Note 1: The DPCH level is controlled by the power control loop			
Note 2: The power of the OCNS channel that is added shall make the total power from the cell to be equal to I _{or}			

Table 8.3.3.3: Cell Specific parameters for Handover to TDD cell (cell 2)

Parameter	Unit	Cell 2								
		0			2			8		
DL timeslot number		T1	T2	T3	T1	T2	T3	T1	T2	T3
UTRA RF Channel Number		Channel 2								
P-CCPCH_Ec/I _{or}	dB	-3			n.a.			n.a.		
PICH_Ec/I _{or}	dB	n.a.			n.a.			-3		
SCH_Ec/I _{or}	dB	-9			n.a.			-9		
SCH_t _{offset}	dB	5			n.a.			5		
DPCH_Ec/I _{or}	dB	n.a.			n.a.		Note 1	n.a.		
OCNS_Ec/I _{or}	dB	-3.12			0		Note 2	-3.12		
\hat{I}_{or}/I_{oc}	dB	-Inf	6		-Inf	6		-Inf	6	
P-CCPCH RSCP	dBm	-Inf	-67		n.a.			n.a.		
I_{oc}	dBm/3.84 MHz	-70								
Propagation Condition		AWGN								
Note 1: The DPCH level is controlled by the power control loop										
Note 2: The power of the OCNS channel that is added shall make the total power from the cell to be equal to I _{or} .										
Note that the transmit energy per PN chip for the SCH is averaged over the 256 chip duration when the SCH is present in the time slot.										

8.3.3.4.2 Procedure

- 1) The RF parameters are set up according to T1.
- 2) The UE is switched on.
- 3) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.4 with Compressed mode parameters as in Table 8.3.2.2.1.
- 4) SS shall transmit a MEASUREMENT CONTROL message.
- 5) After 5 seconds, the SS shall switch the power settings from T1 to T2.
- 6) UE shall transmit a MEASUREMENT REPORT message triggered by event 2C.
- 7) SS shall transmit a PHYSICAL CHANNEL RECONFIGURATION message with activation time "now".

- 8) After 10 seconds, the SS shall switch the power settings from T2 to T3.
- 9) UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the UL DCCH of cell 2. If the UE transmits the UL DPCCH to cell 2 less than 70 ms from the beginning of time period T3 then the number of successful tests is increased by one.
- 10) After 5 seconds, the UE is switched off. Any timing information of cell 2 is deleted in the UE.
- 11) Repeat step 1-10 until the confidence level according to annex F.6.2 is achieved.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message, event 2C (step 4):

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements -RRC transaction identifier -Integrity check info	0 Not Present
Measurement Information elements -Measurement Identity -Measurement Command (10.3.7.46) -Measurement Reporting Mode (10.3.7.49) -Measurement Report Transfer Mode -Periodical Reporting / Event Trigger Reporting Mode -Additional measurements list (10.3.7.1)	1 Modify AM RLC Event trigger Not Present
-CHOICE <i>Measurement type</i> -Inter-frequency measurement (10.3.7.16) -Inter-frequency measurement objects list (10.3.7.13) -Inter-frequency measurement quantity (10.3.7.18) -CHOICE <i>reporting criteria</i> -Inter-frequency reporting criteria -Filter coefficient -CHOICE <i>mode</i> -Measurement quantity for frequency quality estimate	Inter-frequency measurement Not Present Inter-frequency reporting criteria 0 TDD Primary CCPCH RSCP
-Inter-frequency reporting quantity (10.3.7.21) -UTRA Carrier RSSI -Frequency quality estimate -Non frequency related cell reporting quantities (10.3.7.5) -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE <i>mode</i> -Timeslot ISCP reporting indicator -Proposed TGSN reporting required -Primary CCPCH RSCP reporting indicator -Pathloss reporting indicator	FALSE FALSE Type 1 TRUE TRUE TDD TRUE FALSE TRUE TRUE
-Reporting cell status (10.3.7.61) -CHOICE <i>reported cell</i> -Maximum number of reported cells per reported non-used frequency -Measurement validity (10.3.7.51) -Inter-frequency set update (10.3.7.22) -CHOICE <i>report criteria</i>	Report cells within monitored set on non-used frequency 1 Not Present Not Present Inter-frequency measurement reporting criteria
-Inter-frequency measurement reporting criteria (10.3.7.19) -Parameters required for each event -Inter-frequency event identity (10.3.7.14) -Threshold used frequency -W used frequency -Hysteresis -Time to trigger -Reporting cell status (10.3.7.61) -CHOICE <i>reported cell</i> -Maximum number of reported cells per reported non-used frequency -Parameters required for each non-used frequency -Threshold non-used frequency -W non-used frequency	1 Event 2C Not Present Not Present 0 dB 0 ms Report cells within monitored set on non-used frequency 1 1 -80 dBm 1
Physical channel information elements -DPCH compressed mode status info (10.3.6.34)	Not Present

PHYSICAL CHANNEL RECONFIGURATION message (step 7):

Information Element	Value/Remark
Message Type	
UE Information Elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
-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_DCH
-UTRAN DRX cycle length coefficient	Not Present
CN Information Elements	
-CN Information info	Not Present
UTRAN mobility information elements	
-URA identity	Not Present
RB information elements	
-Downlink counter synchronisation info	Not Present
-RB with PDCP information list	Not Present
-RB with PDCP information	Not Present
PhyCH information elements	
-Frequency info (10.3.6.36)	TDD
-CHOICE <i>mode</i>	Same UARFCN as used for cell 2
-UARFCN (Nt)	
Uplink radio resources	
-Maximum allowed UL TX power	33 dBm
-CHOICE <i>channel requirement</i>	Uplink DPCH info
-Uplink DPCH info (10.3.6.88)	
-Uplink DPCH power control info (10.3.6.91)	
-CHOICE <i>mode</i>	TDD
-CHOICE <i>TDD option</i>	3.84 Mcps TDD
-UL Target SIR	Not Present
-CHOICE <i>UL OL PC info</i>	Individually signalled
-CHOICE <i>TDD option</i>	3.84 Mcps TDD
-Individual Timeslot interference info	1
-Individual timeslot interference (10.3.6.38)	
-Timeslot Number (10.3.6.84)	
-CHOICE <i>TDD option</i>	3.84 Mcps TDD
-Timeslot number	10
- UL Timeslot Interference	-90 dBm
-CHOICE <i>mode</i>	TDD
-Uplink timing advance control (10.3.6.96)	
-CHOICE <i>Timing Advance</i>	Disabled
-UL CCTrCH list	1
-UL Target SIR	TBD dB
-Time Info (10.3.6.83)	
-Activation Time	"now"
-Duration	Infinite
-Common timeslot info	Not Present
-Uplink DPCH timeslots and codes (10.3.6.94)	
-Dynamic SF Usage	False
-First individual timeslot info (10.3.6.37)	
-Timeslot Number (10.3.6.84)	
-CHOICE <i>TDD option</i>	3.84 Mcps
-Timeslot number	10
-TFCl existence	True
-Midamble shift and burst type (10.3.6.41)	
-CHOICE <i>TDD option</i>	3.84 Mcps
-CHOICE <i>Burst Type</i>	Type 1
-Midamble Allocation Mode	Default
-Midamble configuration burst type 1 and 3	16
-Midamble shift	Not present
-CHOICE <i>TDD option</i>	3.84 Mcps
-First timeslot code list	1
-Channelisation code	8/1
-CHOICE <i>more timeslots</i>	No more timeslots

Information Element	Value/Remark
Downlink radio resources	
-CHOICE <i>mode</i>	TDD
-Downlink information common for all radio links (10.3.6.24)	
-Downlink DPCH info common for all RL (10.3.6.18)	
-Timing indicator	Initialise
-CFN-targetSFN frame offset	Not Present
-Downlink DPCH power control information (10.3.6.23)	
-CHOICE <i>mode</i>	TDD
-TPC Step size	1 dB
-CHOICE <i>mode</i>	TDD
-CHOICE <i>mode</i>	TDD
-CHOICE <i>TDD option</i>	3.84 Mcps
-TX Diversity mode (10.3.6.86)	None
-Default DPCH Offset Value (10.3.6.16)	0
-Downlink information per radio link list	1
-Downlink information for each radio link (10.3.6.27)	
-CHOICE <i>mode</i>	TDD
-Primary CCPCH info (10.3.6.57)	
- CHOICE <i>mode</i>	TDD
- CHOICE <i>TDD option</i>	3.84 Mcps
- CHOICE <i>sync case</i>	Case 2
- Timeslot	0
- Cell parameters ID	20
- SCTD indicator	False
-Downlink DPCH info for each RL (10.3.6.21)	
-CHOICE <i>mode</i>	TDD
- DL CCTrCH list	1
-TFCS ID	Not Present
-Time Info (10.3.6.83)	
-Activation Time	"now"
-Duration	Infinite
-Common timeslot info	Not Present
- Downlink DPCH timeslots and codes (10.3.6.32)	
- First individual timeslot info (10.3.6.37)	
- Timeslot Number (10.3.6.84)	
- CHOICE <i>TDD option</i>	3.84 Mcps
- Timeslot number	2
- TFCI existence	True
- Midamble shift and burst type (10.3.6.41)	
- CHOICE <i>TDD option</i>	3.84 Mcps
- CHOICE <i>Burst Type</i>	Type 1
- Midamble Allocation Mode	Default
- Midamble configuration burst type 1 and 3	16
- Midamble shift	Not present
- CHOICE <i>TDD option</i>	3.84 Mcps
- First timeslot channelisation codes (10.3.6.17)	
- CHOICE <i>codes representation</i>	Consecutive codes
- First channelisation code	16/1
- Last channelisation code	16/2
- CHOICE <i>more timeslots</i>	No more timeslots
- SCCPCH information for FACH (10.3.6.70)	Not Present

MEASUREMENT REPORT message for Inter frequency test cases

This message is common for all inter frequency test cases in clause 8.7 and is described in Annex I.

8.3.3.5 Test requirements

For the test to pass, the total number of successful tests shall be more than 90% of the cases with a confidence level of 95 %.

Note: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.3.4 Inter-system Handover from UTRAN FDD to GSM

8.3.4.1 Definition and applicability

The UTRAN to GSM cell handover delay is defined as the time from the end of the last TTI containing an RRC message implying hard handover to the transmission on the channel of the new RAT.

The requirements and this test apply to the combined FDD and GSM UE.

8.3.4.2 Minimum requirement

The hard handover delay shall be less than 40 ms. The rate of correct handovers observed during repeated tests shall be at least 90% with a confidence level of 95 %.

The hard handover delay as listed in table 8.3.4.1 equals the RRC procedure delay plus the interruption time listed in table 8.3.4.2. The UE shall process the RRC procedures for the RRC HANDOVER FROM UTRAN COMMAND within 50 ms.

Table 8.3.4.1: FDD/GSM handover - handover delay

UE synchronisation status	handover delay [ms]
The UE has synchronised to the GSM cell before the HANDOVER FROM UTRAN COMMAND is received	90
The UE has not synchronised to the GSM cell before the HANDOVER FROM UTRAN COMMAND is received	190

Table 8.3.4.2: FDD/GSM handover - interruption time

Synchronisation status	Interruption time [ms]
The UE has synchronised to the GSM cell before the HANDOVER FROM UTRAN COMMAND is received	40
The UE has not synchronised to the GSM cell before the HANDOVER FROM UTRAN COMMAND is received	140

The normative reference for this requirement is TS 25.133 [2] clauses 5.4.2 and A.5.4.

8.3.4.3 Test purpose

To verify that the UE meets the minimum requirement.

8.3.4.4 Method of test

8.3.4.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

[Editor's Note: Annex G.2 must be specified also for GSM; for instance as a reference to TS 51.010-1 clause A1.2]

The test parameters are given in table 8.3.4.3, 8.3.4.4 and 8.3.4.5 below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 3C shall be used.. The test consists of three successive time periods, with a time duration of T1, T2 and T3 respectively. At the start of time duration T1, the UE may not have any timing information of cell 2.

UTRAN shall send a HANDOVER FROM UTRAN COMMAND in advance to T3 with activation time "now". In GSM Handover command contained in that message, IE starting time shall not be included. The RRC HANDOVER FROM UTRAN COMMAND message shall be sent to the UE so that the whole message is available at the UE the RRC procedure delay prior to the beginning of T3. The RRC procedure delay is defined in TS 25.331 [8].

The requirements are also applicable for a UE not requiring compressed mode, in which case no compressed mode pattern should be sent for the parameters specified in table 8.3.4.3.

Table 8.3.4.3: General test parameters for Correct reporting of GSM neighbours in AWGN propagation condition

Parameter	Unit	Value	Comment
DCH parameters		DL Reference Measurement Channel 12.2 kbps	As specified in TS 34.121 clause C.3.1
Power Control		On	
Target quality value on DTCH	BLER	0.01	
Compressed mode patterns			Only applicable for UE requiring compressed mode patterns
- GSM carrier RSSI measurement		DL Compressed mode reference pattern 2 in Set 2	As specified in TS 34.121 [1] clause C.5, table C.5.2
- GSM Initial BSIC identification		Pattern 2	As specified in clause TS 25.133 [2] 8.1.2.5.2.1 table 8.7.
- GSM BSIC re-confirmation		Pattern 2	As specified in clause TS 25.133 [2] 8.1.2.5.2.2 table 8.8.
Active cell		Cell 1	
Inter-RAT measurement quantity		GSM Carrier RSSI	
BSIC verification required		Required	
Threshold other system	dBm	-80	Absolute GSM carrier RSSI threshold for event 3B and 3C.
Hysteresis	dB	0	
Time to Trigger	ms	0	
Filter coefficient		0	
Monitored cell list size		24 FDD neighbours on Channel 1 6 GSM neighbours including ARFCN 1	Measurement control information is sent before the compressed mode patterns starts.
N Identify abort		66	Taken from TS 25.133 [2] 8.1.2.5.2.1 table 8.7.
T Reconfirm abort		5.5	Taken from TS 25.133 [2] 8.1.2.5.2.2 table 8.8.
T1	s	20	
T2	s	5	
T3	s	5	

Table 8.3.4.4: Cell Specific Parameters for Handover UTRAN to GSM cell case (cell 1)

Parameter	Unit	Cell 1 (UTRA)
		T1, T2, T3
CPICH_Ec/Ior	dB	-10
PCCPCH_Ec/Ior	dB	-12
SCH_Ec/Ior	dB	-12
PICH_Ec/Ior	dB	-15
DCH_Ec/Ior	dB	Note 1
OCNS_Ec/Ior	dB	Note 2
\hat{I}_{or}/I_{oc}	dB	0
I_{oc}	dBm/3. 84 MHz	-70
CPICH_Ec/Io	dB	-13
Propagation Condition		AWGN
Note 1: The DPCH level is controlled by the power control loop Note 2: The power of the OCNS channel that is added shall make the total power from the cell to be equal to I_{or} .		

Table 8.3.4.5: Cell Specific Parameters for Handover UTRAN to GSM cell case (cell 2)

Parameter	Unit	Cell 2 (GSM)	
		T1	T2, T3
Absolute RF Channel Number		ARFCN 1	
RXLEV	dBm	-85	-75

8.3.4.4.2 Procedure

- 1) The RF parameters for cell 1 are set up according to T1.
 - 2) The UE is switched on
 - 3) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.4 and compressed mode parameters are configured as in the table 8.3.4.3. The compressed mode shall remain inactive.
 - 4) The RF parameters for cell 2 are set up according to T1 and the SS configures a traffic channel
 - 5) SS shall transmit a MEASUREMENT CONTROL message to cell 1
 - 6) After 20 seconds, the SS shall switch the power settings from T1 to T2
 - 7) UE shall transmit a MEASUREMENT REPORT message triggered by event 3C
 - 8) SS shall transmit a HANDOVER FROM UTRAN COMMAND message with activation time "now" and indicating the traffic channel of the target GSM cell to the UE through DCCH of the serving UTRAN cell.
 - 9) After 5 seconds, the time period T3 starts
 - 10) UE shall transmit a burst on the traffic channel of cell 2 implying that it has switched to the GSM cell. The UE sends a HANDOVER ACCESS message. If the UE transmits access bursts on the new DCCH of the target cell less than 40 ms from the beginning of time period T3, then the number of successful tests is increased by one.
- [Editor's note: TS 34.108, 7.3.4 shall specify the messages HANDOVER ACCESS, PHYSICAL INFORMATION, SABM, UA and HANDOVER COMPLETE]
- 11) After 5 seconds, the UE is switched off. Any timing information of cell 2 is deleted in the UE.
 - 12) Repeat step 1-11 until the confidence level according to annex F.6.2 is achieved.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message (step 5):

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
Measurement Information elements	
-Measurement Identity	2
-Measurement Command (10.3.7.46)	Setup
-Measurement Reporting Mode (10.3.7.49)	AM RLC
-Measurement Report Transfer Mode	Event trigger
-Periodical Reporting / Event Trigger Reporting Mode	Not Present
-Additional measurements list (10.3.7.1)	
-CHOICE <i>Measurement type</i>	Inter-RAT measurement
-Inter-RAT measurement (10.3.7.27)	
-Inter-RAT measurement objects list (10.3.7.23)	Not Present
-Inter-RAT measurement quantity (10.3.7.29)	
-Measurement quantity for UTRAN quality estimate (10.3.7.38)	
-Filter coefficient	0
-CHOICE mode	FDD
-Measurement quantity	CPICH Ec/N0
-CHOICE system	GSM
-Measurement quantity	GSM Carrier RSSI
-Filter coefficient	0
-BSIC verification required	Required
-Inter-RAT reporting quantity (10.3.7.32)	
-Reporting cell status (10.3.7.61)	
-CHOICE reported cell	Report cells within active set or within virtual active set or of the other RAT
-Maximum number of reported cells	2
-CHOICE report criteria	Inter-RAT measurement reporting criteria
-Inter-RAT measurement reporting criteria (10.3.7.30)	
-Parameters required for each event	1
-Inter-RAT event identity (10.3.7.24)	Event 3C
-Threshold own system	Not Present
-W	Not Present
-Threshold other system	-80 dBm
-Hysteresis	0 dB
-Time to trigger	0 ms
-Reporting cell status (10.3.7.61)	
-CHOICE reported cell	Report cells within active set or within virtual active set or of the other RAT
-Maximum number of reported cells	2
Physical channel information elements	
-DPCH compressed mode status info (10.3.6.34)	Active (for all three patterns specified in table 8.3.4.3)

HANDOVER FROM UTRAN COMMAND message (step 8):

Information Element	Value/remark
Message Type	
UE information elements -RRC transaction identifier -Integrity check info -Activation time	0 Not Present "now"
RB information elements -RAB information list -RAB Info	1 Not present
Other information elements -CHOICE System type -Frequency Band -GSM message -Single GSM message -GSM message List	GSM GSM/DCS 1800 Band [TBD] 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 TS 51.010, except that the CHANNEL MODE IE is included with value = speech full rate or half rate version 3

MEASUREMENT REPORT message for Inter-RAT test cases

This message is common for all inter RAT frequency test cases in clause 8.7 and is described in Annex I.

8.3.4.5 Test requirements

For the test to pass, the total number of successful tests shall be more than 90% of the cases with a confidence level of 95 %.

Note: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.3.5 Cell Re-selection in CELL_FACH

8.3.5.1 One frequency present in neighbour list

8.3.5.1.1 Definition and applicability

The cell re-selection delay is defined as the time between the occurrence of an event which will trigger Cell Reselection process and the moment in time when the UE starts sending the the preambles on the PRACH for sending RRC CELL UPDATE message to the UTRAN.

The requirements and this test apply to the FDD UE.

8.3.5.1.2 Minimum requirements

The cell re-selection delay shall be less than 1.6 s.

The rate of correct cell reselections observed during repeated tests shall be at least 90%.

If a cell has been detectable at least $T_{\text{identify,intra}}$, the cell reselection delay in CELL_FACH state to a cell in the same frequency shall be less than

$$T_{\text{reselection, intra}} = T_{\text{Measurement_Period Intra}} + T_{\text{IU}} + 20 + T_{\text{SI}} + T_{\text{RA}} \text{ ms}$$

where

$$T_{\text{Measurement_Period Intra}} = 200 \text{ ms.}$$

T_{IU} is the interruption uncertainty when changing the timing from the old to the new cell. T_{IU} can be up to one frame (10 ms).

T_{SI} = The time required for receiving all the relevant system information data according to the reception procedure and the RRC procedure delay of system information blocks defined in 25.331 for a UTRAN cell. 1280 ms is assumed in this test case.

T_{RA} = The additional delay caused by the random access procedure. T_{RA} is a delay is caused by the physical random access procedure described in TS 25.214 clause 6.1. A persistence value is assumed to be 1 in this test case and therefore T_{RA} in this test case is 40 ms.

These requirements assume radio conditions to be sufficient, so reading of system information can be done without errors.

The normative reference for this requirement is TS 25.133 [2] clauses 5.5.2.1.1 and A.5.5.1.

8.3.5.1.3 Test purpose

The purpose of this test is to verify the requirement for the cell re-selection delay in CELL_FACH state in the single carrier case

8.3.5.1.4 Method of test

8.3.5.1.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

The test parameters are given in table 8.3.5.1.1 to 8.3.5.1.5. The UE is requested to monitor neighbouring cells on 1 carrier. The maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell shall be 1280 ms.

Table 8.3.5.1.1: General test parameters for Cell Re-selection in CELL_FACH, one freq. in neighbour list

Parameter		Unit	Value	Comment
Initial condition	Active cell		Cell2	
	Neighbour cells		Cell1, Cell3, Cell4, Cell5, Cell6	
Final condition	Active cell		Cell1	
Access Service Class (ASC#0) – Persistence value		-	1	Selected so that no additional delay is caused by the random access procedure. The value shall be used for all cells in the test.
HCS				Not used
T1		s	15	
T2		s	15	

The transport and physical parameters of the S-CCPCH carrying the FACH are defined in table 8.3.5.1.2 and table 8.3.5.1.3.

Table 8.3.5.1.2: Physical channel parameters for S-CCPCH, one freq. in neighbour list

Parameter	Unit	Level
Channel bit rate	kbps	60
Channel symbol rate	ksps	30
Slot Format #1	-	4
TFCI	-	OFF
Power offsets of TFCI and Pilot fields relative to data field	dB	0

Table 8.3.5.1.3: Transport channel parameters for S-CCPCH, one freq. in neighbour list

Parameter	FACH
Transport Channel Number	1
Transport Block Size	240
Transport Block Set Size	240
Transmission Time Interval	10 ms
Type of Error Protection	Convolution Coding
Coding Rate	1/2
Rate Matching attribute	256
Size of CRC	16
Position of TrCH in radio frame	Fixed

Table 8.3.5.1.4: Cell specific conditions for Cell Re-selection in CELL_FACH, one freq. in neighbour list

Parameter	Unit	Cell 1		Cell 2		Cell 3		Cell 4		Cell 5		Cell 6	
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number		Channel 1		Channel 1		Channel 1		Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior	dB	-10		-10		-10		-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12		-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12		-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15		-15		-15		-15	
S-CCPCH_Ec/Ior	dB	-12		-12		-12		-12		-12		-12	
OCNS_Ec/Ior	dB	-1.295		-1.295		-1.295		-1.295		-1.295		-1.295	
\hat{I}_{or}/I_{oc}	dB	7.3	10.27	10.27	7.3	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27
\hat{I}_{or} (Note 1)	dBm	-62.73	-59.73	-59.73	-62.73	-69.73	-69.73	-69.73	-69.73	-69.73	-69.73	-69.73	-69.73
I_{oc}	dBm/3.84 MHz	-70											
CPICH_Ec/Io	dB	-16	-13	-13	-16	-23	-23	-23	-23	-23	-23	-23	-23
Propagation Condition		AWGN											
Cell_selection_and_reselection_quality_measure		CPICH E _c /N ₀		CPICH E _c /N ₀		CPICH E _c /N ₀		CPICH E _c /N ₀		CPICH E _c /N ₀		CPICH E _c /N ₀	
Qqualmin	dB	-20		-20		-20		-20		-20		-20	
Qrxlevmin	dBm	-115		-115		-115		-115		-115		-115	
UE_TXPWR_MAX_RACH	dBm	21		21		21		21		21		21	
Qoffset 2 _{s, n}	dB	C1, C2: 0 C1, C3: 0 C1, C4: 0 C1, C5: 0 C1, C6: 0		C2, C1: 0 C2, C3: 0 C2, C4: 0 C2, C5: 0 C2, C6: 0		C3, C1: 0 C3, C2: 0 C3, C4: 0 C3, C5: 0 C3, C6: 0		C4, C1: 0 C4, C2: 0 C4, C3: 0 C4, C5: 0 C4, C6: 0		C5, C1: 0 C5, C2: 0 C5, C3: 0 C5, C4: 0 C5, C6: 0		C6, C1: 0 C6, C2: 0 C6, C3: 0 C6, C4: 0 C6, C5: 0	
Qhyst	dB	0		0		0		0		0		0	
Treselection	s	0		0		0		0		0		0	
Sintrasearch	dB	not sent		not sent		not sent		not sent		not sent		not sent	
IE "FACH Measurement occasion info"		not sent		not sent		not sent		not sent		not sent		not sent	

Note 1 The nominal \hat{I}_{or} values, although not explicitly defined in 25.133 are added here since they are implied and need to be identified so that the test equipment can be configured.

8.3.5.1.4.2 Procedure

- 1) The SS activates cell 1-6 with RF parameters set up according to T1 in table 8.3.5.1.5.
- 2) The UE is switched on.
- 3) An RRC connection is set up according to the signalling sequence in the generic set-up procedure specified in TS 34.108 [3] subclause 7.3.3 to place the UE in the CELL_FACH state on Cell 2 and the SS waits for this process to complete.
- 4) After 15 seconds from completion of step 3 or the beginning of T1, the parameters are changed to those defined for T2 in table 8.3.5.1.5.
- 5) If the UE responds on Cell 1 with a PRACH (CELL UPDATE message cause "cell reselection") within 1.7 s, then the success is recorded, the SS shall transmit a CELL UPDATE CONFIRM message and then the procedure moves to step 7.
- 6) Since the UE has failed to respond with the correct message within the allowed time, a failure is recorded. The SS shall then wait for a total of 15 s from the beginning of T2 and if no response is received, the UE shall be switched off and the procedure returns to step 1. Otherwise the SS shall transmit a CELL UPDATE CONFIRM message and then the procedure continues with step 7.
- 7) After total of 15 s from the beginning of T2, the parameters are changed to those defined for T1 in table 8.3.5.1.5.
- 8) If the UE responds on Cell 2 with a PRACH (CELL UPDATE message cause "cell reselection") within 1.7 s, then a success is recorded and the procedure moves to step 10.
- 9) Since the UE has failed to respond with the correct message within the allowed time, a failure is recorded. The SS shall then wait for a total of 15 s from the beginning of T1 and if no response is received the UE shall be switched off and the procedure returns to step 1. Otherwise the SS shall transmit a CELL UPDATE CONFIRM message and then the procedure continues with step 10.
- 10) Steps 4 to 10 are repeated until the confidence level according to annex F.6.2 is achieved .

NOTE: The time required for receiving all the relevant system information data according to the reception procedure and the RRC procedure delay of system information blocks defined in 25.331 for a UTRAN cell. Since the maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell is 1280ms and the maximum RRC procedure delay for reception system information block is 100ms, 1380 ms is assumed in this test case. Therefore the cell re-selection delay shall be less than 1.7 s.(Minimum requirement + 100ms).

8.3.5.1.5 Test requirements

For the test to pass, the total number of successful attempts shall be more than 90% of the cases with a confidence level of 95 %.

Table 8.3.5.1.5: Cell specific test requirements for Cell Re-selection in CELL_FACH, one freq. in neighbour list

Parameter	Unit	Cell 1		Cell 2		Cell 3		Cell 4		Cell 5		Cell 6	
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number		Channel 1		Channel 1		Channel 1		Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior	dB	-9.4		-9.4		-10.5		-10.5		-10.5		-10.5	
PCCPCH_Ec/Ior	dB	-11.4		-11.4		-12.5		-12.5		-12.5		-12.5	
SCH_Ec/Ior	dB	-11.4		-11.4		-12.5		-12.5		-12.5		-12.5	
PICH_Ec/Ior	dB	-14.4		-14.4		-15.5		-15.5		-15.5		-15.5	
S-CCPCH_Ec/Ior	dB	-11.4		-11.4		-12.5		-12.5		-12.5		-12.5	
OCNS_Ec/Ior	dB	-1.52		-1.52		-1.13		-1.13		-1.13		-1.13	
\hat{I}_{or}/I_{oc} Note 1	dB	7.0	10.4	10.4	7.0	0.3	0.3	0.3	0.3	0.3	0.3	0.3	
\hat{I}_{or}	dBm	-63.0	-59.6	-59.6	-63.0	-69.7	-69.7	-69.7	-69.7	-69.7	-69.7	-69.7	
I_{oc}	dBm/3.84 MHz	-70											
CPICH_Ec/Io Note 1	dB	-15.7	-12.3	-12.3	-15.7	-23.5	-23.5	-23.5	-23.5	-23.5	-23.5	-23.5	

All other parameters and conditions specified in table 8.3.5.1.4 are unchanged.

Note 1: These parameters are not directly settable, but are derived by calculation from the settable parameters.

Note 2: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.3.5.2 Two frequencies present in the neighbour list

8.3.5.2.1 Definition and applicability

The cell re-selection delay is defined as the time between the occurrence of an event which will trigger Cell Reselection process and the moment in time when the UE starts sending the preambles on the PRACH for sending RRC CELL UPDATE message to the UTRAN.

The requirements and this test apply to the FDD UE.

8.3.5.2.2 Minimum requirements

The cell re-selection delay shall be less than 1.9 s.

The rate of correct cell reselections observed during repeated tests shall be at least 90%.

If a cell has been detectable at least $T_{\text{identify,inter}}$, the cell reselection delay in CELL_FACH state to a FDD cell on a different frequency shall be less than

$$T_{\text{reselection,inter}} = T_{\text{Measurement inter}} + T_{\text{IU}} + 20 + T_{\text{SI}} + T_{\text{RA}} \text{ ms}$$

where

$T_{\text{Measurement inter}}$ is 480 ms in this case

T_{IU} is the interruption uncertainty when changing the timing from the old to the new cell. T_{IU} can be up to one frame (10 ms).

T_{SI} = The time required for receiving all the relevant system information data according to the reception procedure and the RRC procedure delay of system information blocks defined in 25.331 for a UTRAN cell. 1280 ms is assumed in this test case.

T_{RA} = The additional delay caused by the random access procedure. T_{RA} is a delay is caused by the physical random access procedure described in TS 25.214 clause 6.1. A persistence value is assumed to be 1 in this test case and therefore T_{RA} in this test case is 40 ms.

These requirements assume radio conditions to be sufficient, so that reading of system information can be done without errors.

The normative reference for this requirement is TS 25.133 [2] clauses 5.5.2.1.2 and A.5.5.2.

8.3.5.2.3 Test purpose

The purpose of this test is to verify the requirement for the cell re-selection delay in CELL_FACH state in the single carrier case

8.3.5.2.4 Method of test

8.3.5.2.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

The test parameters are given in table 8.3.5.2.1 to 8.3.5.2.5. The UE is requested to monitor neighbouring cells on 2 carriers. The maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell shall be 1280 ms

Table 8.3.5.2.1: General test parameters for Cell Re-selection in CELL_FACH, two freqs. in neighbour list

Parameter		Unit	Value	Comment
Initial condition	Active cell		Cell2	
	Neighbour cells		Cell1, Cell3, Cell4, Cell5, Cell6	
Final condition	Active cell		Cell1	
Access Service Class (ASC#0) – Persistence value		-	1	Selected so that no additional delay is caused by the random access procedure. The value shall be used for all cells in the test.
HCS				Not used
T1		s	15	
T2		s	15	

The transport and physical parameters of the S-CCPCH carrying the FACH are defined in table 8.3.5.2.2 and table 8.3.5.2.3.

Table 8.3.5.2.2: Physical channel parameters for S-CCPCH, two freqs. in neighbour list

Parameter	Unit	Level
Channel bit rate	kbps	60
Channel symbol rate	ksps	30
Slot Format #1	-	4
TFCI	-	OFF
Power offsets of TFCI and Pilot fields relative to data field	dB	0

Table 8.3.5.2.3: Transport channel parameters for S-CCPCH, two freqs. in neighbour list

Parameter	FACH
Transport Channel Number	1
Transport Block Size	240
Transport Block Set Size	240
Transmission Time Interval	10 ms
Type of Error Protection	Convolution Coding
Coding Rate	$\frac{1}{2}$
Rate Matching attribute	256
Size of CRC	16
Position of TrCH in radio frame	Fixed

Table 8.3.5.2.4: Cell specific conditions for Cell re-selection in CELL_FACH state, two freqs. in neighbour list

Parameter	Unit	Cell 1		Cell 2		Cell 3		Cell 4		Cell 5		Cell 6	
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number		Channel 1		Channel 2		Channel 1		Channel 1		Channel 2		Channel 2	
CPICH_Ec/lor	dB	-10		-10		-10		-10		-10		-10	
PCCPCH_Ec/lor	dB	-12		-12		-12		-12		-12		-12	
SCH_Ec/lor	dB	-12		-12		-12		-12		-12		-12	
PICH_Ec/lor	dB	-15		-15		-15		-15		-15		-15	
S-CCPCH_Ec/lor	dB	-12		-12		-12		-12		-12		-12	
OCNS_Ec/lor	dB	-1.295		-1.295		-1.295		-1.295		-1.295		-1.295	
\hat{I}_{or}/I_{oc}	dB	-1.8	2.2	2.2	-1.8	-6.8	-4.8	-6.8	-4.8	-4.8	-6.8	-4.8	-6.8
\hat{I}_{or} (Note 1)	dBm	-71.85	-67.75	-67.75	-71.85	-76.85	-74.75	-76.85	-74.75	-74.75	-76.85	-74.75	-76.85
I_{oc}	dBm/3.84 MHz	-70											
CPICH_Ec/lo	dB	-15	-13	-13	-15	-20		-20		-20		-20	
Propagation Condition		AWGN											
Cell_selection_and_reselection_quality_measure		CPICH E _c /N ₀		CPICH E _c /N ₀		CPICH E _c /N ₀		CPICH E _c /N ₀		CPICH E _c /N ₀		CPICH E _c /N ₀	
Qqualmin	dB	-20		-20		-20		-20		-20		-20	
Qrxlevmin	dBm	-115		-115		-115		-115		-115		-115	
UE_TXPWR_MAX_RACH	dBm	21		21		21		21		21		21	
Qoffset2 _{s, n}	dB	C1, C2: 0 C1, C3: 0 C1, C4: 0 C1, C5: 0 C1, C6: 0	C2, C1: 0 C2, C3: 0 C2, C4: 0 C2, C5: 0 C2, C6: 0	C3, C1: 0 C3, C2: 0 C3, C4: 0 C3, C5: 0 C3, C6: 0	C4, C1: 0 C4, C2: 0 C4, C3: 0 C4, C5: 0 C4, C6: 0	C5, C1: 0 C5, C2: 0 C5, C3: 0 C5, C4: 0 C5, C6: 0	C6, C1: 0 C6, C2: 0 C6, C3: 0 C6, C4: 0 C6, C5: 0						
Qhyst2	dB	0		0		0		0		0		0	
Treselection	s	0		0		0		0		0		0	
Sintrasearch	dB	not sent		not sent		not sent		not sent		not sent		not sent	
Sintersearch	dB	not sent		not sent		not sent		not sent		not sent		not sent	
IE "FACH Measurement occasion info"		sent		sent		sent		sent		Sent		sent	
FACH Measurement occasion cycle length coefficient		3		3		3		3		3		3	
Inter-frequency FDD measurement indicator		TRUE		TRUE		TRUE		TRUE		TRUE		TRUE	
Inter-frequency TDD measurement indicator		FALSE		FALSE		FALSE		FALSE		FALSE		FALSE	

Note 1 The nominal \hat{I}_{or} values, although not explicitly defined in 25.133 are added here since they are implied and need to be identified so that the test equipment can be configured.

8.3.5.2.4.2 Procedure

- 1) The RF parameters for cell 1 are set up according to T1 in table 8.3.5.2.5.
- 2) The UE is switched on.
- 3) An RRC connection is set up according to the signalling sequence in the generic set-up procedure specified in TS 34.108 [3] subclause 7.3.3 to place the UE in the CELL_FACH state on Cell 2 and the SS waits for this process to complete.

- 4) After 15 seconds from completion of step3 or the beginning of T1, the parameters are changed to those defined for T2 in table 8.3.5.2.5.
- 5) If the UE responds on Cell 1 with a PRACH (CELL UPDATE message cause "cell reselection") within 2.0 s, then the success is recorded, the SS shall transmit a CELL UPDATE CONFIRM message and then the procedure moves to step 7.
- 6) Since the UE has failed to respond with the correct message within the allowed time, a failure is recorded. The SS shall then wait for a total of 15 s from the beginning of T2 and if no response is received, the UE shall be switched off and the procedure returns to step 1. Otherwise the SS shall transmit a CELL UPDATE CONFIRM message and then the procedure continues with step 7.
- 7) After total of 15 s from the beginning of T2, the parameters are changed to those defined for T1 in table 8.3.5.2.5.
- 8) If the UE responds on Cell 2 with a PRACH (CELL UPDATE message cause "cell reselection") within 2.0 s, then a success is recorded and the procedure moves to step 10.
- 9) Since the UE has failed to respond with the correct message within the allowed time, a failure is recorded. The SS shall then wait for a total of 15 s from the beginning of T1 and if no response is received the UE shall be switched off and the procedure returns to step 1. Otherwise the SS shall transmit a CELL UPDATE CONFIRM message and then the procedure continues with step 10.
- 10) Steps 4 to 10 are repeated until the confidence level according to annex F.6.2 is achieved.

NOTE: The time required for receiving all the relevant system information data according to the reception procedure and the RRC procedure delay of system information blocks defined in 25.331 for a UTRAN cell. Since the maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell is 1280ms and the maximum RRC procedure delay for reception system information block is 100ms, 1380 ms is assumed in this test case. Therefore the cell re-selection delay shall be less than 2.0 s.(Minimum requirement + 100ms).

8.3.5.2.5 Test requirements

For the test to pass, the total number of successful attempts shall be more than 90% of the cases with a confidence level of 95 %.

Table 8.3.5.2.5: Cell specific test requirements for Cell re-selection in CELL_FACH state, two freqs. in neighbour list

Parameter	Unit	Cell 1		Cell 2		Cell 3		Cell 4		Cell 5		Cell 6	
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number		Channel 1		Channel 2		Channel 1		Channel 1		Channel 2		Channel 2	
CPICH_Ec/Ior	dB	-9.4		-9.4		-10.7		-10.7		-10.7		-10.7	
PCCPCH_Ec/Ior	dB	-11.4		-11.4		-12.7		-12.7		-12.7		-12.7	
SCH_Ec/Ior	dB	-11.4		-11.4		-12.7		-12.7		-12.7		-12.7	
PICH_Ec/Ior	dB	-14.4		-14.4		-15.7		-15.7		-15.7		-15.7	
S-CCPCH_Ec/Ior	dB	-11.4		-11.4		-12.7		-12.7		-12.7		-12.7	
OCNS_Ec/Ior	dB	-1.52		-1.52		-1.08		-1.08		-1.08		-1.08	
\hat{I}_{or}/I_{oc} Note 1	dB	-1.80	+4.64	+4.64	-1.80	-6.80	-3.16	-6.80	-3.16	-3.16	-6.80	-3.16	-6.80
\hat{I}_{or}	dBm	-71.8	-67.0	-67.0	-71.8	-76.8	-74.8	-76.8	-74.8	-74.8	-76.8	-74.8	-76.8
I_{oc}	dBm/3.8 4 MHz	-70.0	-71.6	-71.6	-70.0	-70.0	-71.6	-70.0	-71.6	-71.6	-70.0	-71.6	-70.0
CPICH_Ec/Io Note 1	dB	-14.4	-11.6	-11.6	-14.4	-20.7	-20.7	-20.7	-20.7	-20.7	-20.7	-20.7	-20.7

All other parameters and conditions specified in table 8.3.5.2.4 are unchanged.

Note 1: These parameters are not directly settable, but are derived by calculation from the settable parameters.

Note 2: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.3.5.3 Cell Reselection to GSM

8.3.5.3.1 Definition and applicability

The cell re-reselection delay is defined as the time from the beginning of time period T2, to the moment when the UE starts to transmit the random access in Cell 2 (the GSM cell).

This requirements and this test apply to UE supporting FDD PS and GSM GPRS.

8.3.5.3.2 Minimum requirements

The cell re-selection delay shall be less than $5.5 + T_{RA}$ s.

The rate of correct reselections observed during repeated tests shall be at least 90%.

NOTE: The cell re-selection delay can be expressed

$$T_{\text{reselection,GSM}} = T_{\text{identify,GSM}} + T_{\text{measurement,GSM}} + 40 + T_{\text{BCCH}} + T_{\text{RA}} \text{ ms}$$

where:

$T_{\text{identify,GSM}}$ Specified in TS 25.133 [2] clause 8.4.2.5.2.1, here it is 2880 ms

$T_{\text{measurement,GSM}}$ Specified in TS 25.133 [2] clause 5.5.2.1.4, here it is 640 ms

T_{BCCH} According to TS 05.08 [xx], the maximum time allowed to read the BCCH data, when being synchronized to a BCCH carrier, is 1.9 s.

T_{RA} The additional delay caused by the random access procedure in the GSM cell, is 10 ms (2 GSM radio frames).

These requirements assume radio conditions to be sufficient, so reading of system information can be done without errors.

The normative reference for this requirement is TS 25.133 [2] clauses 5.5.2.1.4 and A.5.5.3.

8.3.5.3.3 Test purpose

The purpose of this test is to verify the requirement for the cell re-selection delay in CELL_FACH state.

8.3.5.3.4 Method of test

8.3.5.3.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

The test parameters are given in table 8.3.5.3.1 to 8.3.5.3.5. This scenario implies the presence of 1 UTRAN serving cell, and 1 GSM cell to be re-selected. The UTRAN cell and the GSM cell are set to belong to different location areas. The GSM cell shall be set up to allow UE to transmit radio access burst in every GSM radio frame. The UE is requested to monitor neighbouring cells on 1 UMTS carrier and 6 GSM cells.

Table 8.3.5.3.1: General test parameters for UTRAN to GSM Cell Re-selection

Parameter		Unit	Value	Comment
Initial condition	Active cell		Cell1	
	Neighbour cell		Cell2	
Final condition	Active cell		Cell2	
HCS				Not used
Neighbour cell list size			24 FDD neighbours on Channel 1 6 GSM neighbours including ARFCN 1	
T1		s	5	
T2		s	10	

The transport and physical parameters of the S-CCPCH carrying the FACH are defined in Table 8.3.5.3.2 and Table 8.3.5.3.3.

Table 8.3.5.3.2: Physical channel parameters for S-CCPCH.

Parameter	Unit	Level
Channel bit rate	kbps	60
Channel symbol rate	ksps	30
Slot Format #1	-	4
TFCI	-	OFF
Power offsets of TFCI and Pilot fields relative to data field	dB	0

Table 8.3.5.3.3: Transport channel parameters for S-CCPCH

Parameter	FACH
Transport Channel Number	1
Transport Block Size	240
Transport Block Set Size	240
Transmission Time Interval	10 ms
Type of Error Protection	Convolution Coding
Coding Rate	$\frac{1}{2}$
Rate Matching attribute	256
Size of CRC	16
Position of TrCH in radio frame	Fixed

Table 8.3.5.3.4: Cell re-selection UTRAN to GSM cell case (cell 1)

Parameter	Unit	Cell 1 (UTRA)	
		T1	T2
UTRA RF Channel Number		Channel 1	
CPICH_Ec/Ior	dB	-10	
PCCPCH_Ec/Ior	dB	-12	
SCH_Ec/Ior	dB	-12	
PICH_Ec/Ior	dB	-15	
S-CCPCH_Ec/Ior	dB	-12	
OCNS_Ec/Ior	dB	-1.295	
\hat{I}_{or}/I_{oc}	dB	0	-5
I_{oc}	dBm/3.84 MHz	-70	
CPICH_Ec/Io	dB	-13	-16.2
CPICH_RSCP	dBm	-80	-85
Propagation Condition		AWGN	
Cell_selection_and_reselection_quality_measure		CPICH Ec/Io	
Qqualmin	dB	-20	
Qrxlevmin	dBm	-115	
UE_TXPWR_MAX_RACH	dBm	21	
Qoffset1 _{s,n}	dB	C1, C2: 0	
Qhyst1	dB	0	
Treselection	s	0	
Ssearch _{RAT}	dB	Not sent	
IE "FACH Measurement occasion info"		Sent	
FACH Measurement occasion cycle length coefficient		3	
Inter-frequency FDD measurement indicator		FALSE	
Inter-frequency TDD measurement indicator		FALSE	
Inter-RAT measurement indicators		Included	
>RAT type		GSM	

Table 8.3.5.3.5: Cell re-selection UTRAN to GSM cell case (cell 2)

Parameter	Unit	Cell 2 (GSM)	
		T1	T2
Absolute RF Channel Number		ARFCN 1	
RXLEV	dBm	-90	-75
RXLEV_ACCESS_MIN	dBm	-104	
MS_TXPWR_MAX_CCH	dBm	33	

8.3.5.3.4.2 Procedure

- 1) The SS activates cell 1-2 with RF parameters set up according to T1 in tables 8.3.5.3.4 and 8.3.5.3.5.
- 2) The UE is switched on.
- 3) An RRC connection is set up according to the signalling sequence in the generic set-up procedure specified in TS 34.108 [3] subclause 7.3.3 to place the UE in CELL_FACH and the SS waits for this process to complete.
- 4) After 5 seconds from completion of step3 or the beginning of T1, the parameters are changed to those defined for T2 in tables 8.3.5.1.4 and 8.3.5.1.5.

- 5) The SS waits for random access requests from the UE. If the UE responds on cell 2 within 5.51 s ($=5.5 \text{ s} + T_{\text{RAS}}$) from the beginning of time period T2 then a success is recorded and the SS completes the location update procedure in GSM and the procedure continues with step 7.
- 6) Since the UE has failed to respond with the correct message within the allowed time, a failure is recorded. The SS shall then wait for a total of 10s from the beginning of T2 and if no response is received, the UE shall be switched off and the procedure returns to step 1. Otherwise the SS completes the location update procedure in GSM and the procedure continues with step 7.
- 7) After 10 s from the beginning of time period T2, the parameters are changed to those defined for T1 in tables 8.3.5.1.4 and 8.3.5.1.5.
- 8) The SS waits for random access requests from the UE on cell 1. The SS completes the location update procedure in UTRA
- 9) Repeat step 3) to 8) until the confidence level according to annex F.6.2 is achieved.

8.3.5.3.5 Test requirements

For the test to pass, the total number of successful attempts shall be more than 90% of the cases with a confidence level of 95 %.

Note: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.3.6 Cell Re-selection in CELL_PCH

8.3.6.1 One frequency present in the neighbour list

8.3.6.1.1 Definition and applicability

The cell re-selection delay is defined as the time from a change of cell levels to the moment when this change makes the UE camp on a new cell, and starts to send preambles on the PRACH for the CELL UPDATE message with cause value "cell reselection" in the new cell.

The requirements and this test apply to the FDD UE.

8.3.6.1.2 Minimum requirements

The cell re-selection delay shall be less than 8 s with a DRX cycle length of 1.28 s.

The rate of correct cell reselections observed during repeated tests shall be at least 90% with a confidence level of 95 %.

NOTE: The cell re-selection delay can be expressed as: $T_{\text{evaluateFDD}} + T_{\text{SI}}$, where:

$T_{\text{evaluateFDD}}$	See table 4.1 in TS 25.133 [2] clause 4.2.2.
T_{SI}	Maximum repetition period of relevant system info blocks that needs to be received by the UE to camp on a cell. 1280 ms is assumed in this test case.

This gives a total of 7.68 s, allow 8s in the test case.

The normative reference for this requirement is TS 25.133 [2] clauses 5.6.2 and A.5.6.1.

8.3.6.1.3 Test purpose

To verify that the UE meets the minimum requirements and is capable of camping on to a new cell, within the required time, when the preferred cell conditions change.

8.3.6.1.4 Method of test

8.3.6.1.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

This scenario implies the presence of 1 carrier and 6 cells as given in tables 8.3.6.1.1 to 8.3.6.1.3. The UE is requested to monitor neighbouring cells on 1 carrier. The maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell shall be 1280 ms.

Table 8.3.6.1.1: General test parameters for Cell Re-selection in CELL_PCH, one freq. in neighbour list

Parameter		Unit	Value	Comment
initial condition	Active cell		Cell2	
	Neighbour cells		Cell1, Cell3, Cell4, Cell5, Cell6	
final condition	Active cell		Cell1	
Access Service Class (ASC#0) - Persistence value		-	1	Selected so that no additional delay is caused by the random access procedure. The value shall be used for all cells in the test.
HCS				Not used
DRX cycle length		s	1.28	The value shall be used for all cells in the test.
T1		s	15	T1 need to be defined so that cell re-selection reaction time is taken into account.
T2		s	15	T2 need to be defined so that cell re-selection reaction time is taken into account.

Table 8.3.6.1.2: Cell specific test parameters for Cell re-selection in CELL_PCH state, one freq. in neighbour list

Parameter	Unit	Cell 1		Cell 2		Cell 3		Cell 4		Cell 5		Cell 6	
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number		Channel 1		Channel 1		Channel 1		Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior	dB	-10		-10		-10		-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12		-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12		-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15		-15		-15		-15	
OCNS_Ec/Ior	dB	-0.941		-0.941		-0.941		-0.941		-0.941		-0.941	
\hat{I}_{or}/I_{oc}	dB	7.3	10.27	10.27	7.3	0.27		0.27		0.27		0.27	
\hat{I}_{or} (Note 1)	dBm	-62.73	-59.73	-59.73	-62.73	-69.73		-69.73		-69.73		-69.73	
I_{oc}	dBm/ 3.84MHz	-70											
CPICH_Ec/Io	dB	-16	-13	-13	-16	-23		-23		-23		-23	
Propagation Condition		AWGN											
Cell_selection_and_reselection_quality_measure		CPICH E _c /N ₀		CPICH E _c /N ₀		CPICH E _c /N ₀		CPICH E _c /N ₀		CPICH E _c /N ₀		CPICH E _c /N ₀	
Qqualmin	dB	-20		-20		-20		-20		-20		-20	
Qrxlevmin	dBm	-115		-115		-115		-115		-115		-115	
UE_TXPWR_MAX_RACH	dBm	21		21		21		21		21		21	
Qoffset2 _{s,n}	dB	C1, C2: 0 C1, C3: 0 C1, C4: 0 C1, C5: 0 C1, C6: 0	C2, C1: 0 C2, C3: 0 C2, C4: 0 C2, C5: 0 C2, C6: 0	C3, C1: 0 C3, C2: 0 C3, C4: 0 C3, C5: 0 C3, C6: 0	C4, C1: 0 C4, C2: 0 C4, C3: 0 C4, C5: 0 C4, C6: 0	C5, C1: 0 C5, C2: 0 C5, C3: 0 C5, C4: 0 C5, C6: 0	C6, C1: 0 C6, C2: 0 C6, C3: 0 C6, C4: 0 C6, C5: 0						
Qhyst2	dB	0		0		0		0		0		0	
Treselection	s	0		0		0		0		0		0	
Sintrasearch	dB	not sent		not sent		not sent		not sent		not sent		not sent	

Note 1 The nominal \hat{I}_{or} values, although not explicitly defined in 25.133 are added here since they are implied and need to be identified so that the test equipment can be configured.

8.3.6.1.4.2 Procedure

- 1) The SS activates cell 1-6 with T1 defined parameters in table 8.3.6.1.3 and monitors cell 1 and 2 for random access requests from the UE.
- 2) The UE is switched on.
- 3) An RRC connection is set up according to the generic set-up procedure specified in TS 34.108 [3] subclause 7.3.3 to place the UE in the CELL_PCH state on Cell 2 and then the SS waits for this process to complete.
- 4) After 15 s from the completion of step 3 or the beginning of T1, the parameters are changed to those defined for T2 in table 8.3.6.1.3.
- 5) If the UE responds on Cell 1 with a PRACH (CELL UPDATE message cause "cell reselection") within 8s, then a success is recorded, the SS shall transmit a CELL UPDATE CONFIRM message and then the procedure moves to step 7.
- 6) Since the UE has failed to respond with the correct message within the allowed time, a failure is recorded. The SS shall then wait for a total of 15s from the beginning of T2 and if no response is received, the UE shall be switched off and the procedure returns to step 1. Otherwise the SS shall transmit a CELL UPDATE CONFIRM message and then the procedure continues with step 7.
- 7) After a total of 15 s from the beginning of T2, the parameters are changed to those defined for T1 in table 8.3.6.1.3.

- 8) If the UE responds on Cell 2 with a PRACH (CELL UPDATE message cause "cell reselection") within 8s, then a success is recorded and the procedure moves to step 10.
- 9) Since the UE has failed to respond with the correct message within the allowed time, a failure is recorded. The SS shall then wait for a total of 15s from the beginning of T1 and if no response is received the UE shall be switched off and the procedure returns to step 1. Otherwise the SS shall transmit a CELL UPDATE CONFIRM message and then the procedure continues with step 10.
- 10) Steps 4 to 10 are repeated until the confidence level according to annex F.6.2 is achieved.

NOTE: The time required for receiving all the relevant system information data according to the reception procedure and the RRC procedure delay of system information blocks defined in 25.331 for a UTRAN cell. Since the maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell is 1280ms and the maximum RRC procedure delay for reception system information block is 100ms, 1380 ms is assumed in this test case. Therefore this gives a total of 7.78s (Minimum requirement + 100ms), allow 8s in the test case.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

RADIO BEARER SETUP (Step 3)

Information Element	Value/remark
RRC State Indicator	CELL PCH
UTRAN DRX cycle length coefficient	7
Downlink information for each radio link - Primary CPICH info - Primary scrambling code	100

8.3.6.1.5 Test requirements

For the test to pass, the total number of successful attempts shall be more than 90% of the cases with a confidence level of 95 %.

Table 8.3.6.1.3: Cell specific test requirements for Cell re-selection in CELL_PCH state, one freq. in neighbour list

Parameter	Unit	Cell 1		Cell 2		Cell 3		Cell 4		Cell 5		Cell 6	
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number		Channel 1		Channel 1		Channel 1		Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior	dB	-9.4		-9.4		-10.5		-10.5		-10.5		-10.5	
PCCPCH_Ec/Ior	dB	-11.4		-11.4		-12.5		-12.5		-12.5		-12.5	
SCH_Ec/Ior	dB	-11.4		-11.4		-12.5		-12.5		-12.5		-12.5	
PICH_Ec/Ior	dB	-14.4		-14.4		-15.5		-15.5		-15.5		-15.5	
OCNS_Ec/Ior	dB	-1.10		-1.10		-0.83		-0.83		-0.83		-0.83	
\hat{I}_{or}/I_{oc} Note 1	dB	7.00	10.40	10.40	7.00	0.30		0.30		0.30		0.30	
\hat{I}_{or}	dBm	-63.0	-59.6	-59.6	-63.0	-69.7		-69.7		-69.7		-69.7	
I_{oc}	dBm / 3,84 MHz	-70											
CPICH_Ec/Io Note 1	dB	-15.7	-12.3	-12.3	-15.7	-23.5		-23.5		-23.5		-23.5	

All other parameters and conditions specified in table 8.3.6.1.2 are unchanged.

NOTE 1: These parameters are not directly settable, but are derived by calculation from the settable parameters.

NOTE 2: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.3.6.2 Two frequencies present in the neighbour list

8.3.6.2.1 Definition and applicability

The cell re-selection delay is defined as the time from a change of cell levels to the moment when this change makes the UE camp on a new cell, and starts to send preambles on the PRACH for the CELL UPDATE message with cause value "cell reselection" in the new cell.

The requirements and this test apply to the FDD UE.

8.3.6.2.2 Minimum requirement

The cell re-selection delay shall be less than 8 s with a DRX cycle length of 1.28 s.

The rate of correct cell reselections observed during repeated tests shall be at least 90% with a confidence level of 95 %.

NOTE: The cell re-selection delay can be expressed as: $T_{\text{evaluateFDD}} + T_{\text{SI}}$, where:

$T_{\text{evaluateFDD}}$	See table 4.1 in TS 25.133 [2] clause 4.2.2.
T_{SI}	Maximum repetition period of relevant system info blocks that needs to be received by the UE to camp on a cell. 1280 ms is assumed in this test case.

This gives a total of 7.68 s, allow 8s in the test case.

The normative reference for this requirement is TS 25.133 [2] clauses 5.6.2 and A.5.6.2.

8.3.6.2.3 Test purpose

To verify that the UE meets the minimum requirement and is capable of camping on to a new cell, within the required time, when the preferred cell conditions change.

8.3.6.2.4 Method of test

8.3.6.2.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

This scenario implies the presence of 2 carriers and 6 cells as given in tables 8.3.6.2.1 to 8.3.6.2.3. The UE is requested to monitor neighbouring cells on 2 carriers. The maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell shall be 1 280 ms.

Table 8.3.6.2.1: General test parameters for Cell Re-selection in CELL_PCH, two freqs. in neighbour list

Parameter		Unit	Value	Comment
initial condition	Active cell		Cell2	
	Neighbour cells		Cell1, Cell3, Cell4, Cell5, Cell6	
final condition	Active cell		Cell1	
Access Service Class (ASC#0) - Persistence value		-	1	Selected so that no additional delay is caused by the random access procedure. The value shall be used for all cells in the test.
HCS				Not used
DRX cycle length		s	1.28	The value shall be used for all cells in the test.
T1		s	15	T1 need to be defined so that cell re-selection reaction time is taken into account.
T2		s	15	T2 need to be defined so that cell re-selection reaction time is taken into account.

Table 8.3.6.2.2: Cell specific test parameters for Cell re-selection in CELL_PCH state, two freqs. in neighbour list

Parameter	Unit	Cell 1		Cell 2		Cell 3		Cell 4		Cell 5		Cell 6	
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number		Channel 1		Channel 2		Channel 1		Channel 1		Channel 2		Channel 2	
CPICH_Ec/lor	dB	-10		-10		-10		-10		-10		-10	
PCCPCH_Ec/lor	dB	-12		-12		-12		-12		-12		-12	
SCH_Ec/lor	dB	-12		-12		-12		-12		-12		-12	
PICH_Ec/lor	dB	-15		-15		-15		-15		-15		-15	
OCNS_Ec/lor	dB	-0.941		-0.941		-0.941		-0.941		-0.941		-0.941	
\hat{I}_{or}/I_{oc}	dB	-3.4	2.2	2.2	-3.4	-7.4	-4.8	-7.4	-4.8	-4.8	-7.4	-4.8	-7.4
\hat{I}_{or} (Note 1)	dBm	-73.3 9	-67.75	-67.7 5	-73.39	-77.39	-74.7 5	-77.39	-74.75	-74.75	-77.39	-74.7 5	-77.39
I_{oc}	dBm/3.8 4 MHz	-70											
CPICH_Ec/lo	dB	-16	-13	-13	-16	-20		-20		-20		-20	
Propagation Condition		AWGN											
Cell_selection_and_reselection_quality_measure		CPICH E _c /N ₀		CPICH E _c /N ₀		CPICH E _c /N ₀		CPICH E _c /N ₀		CPICH E _c /N ₀		CPICH E _c /N ₀	
Qqualmin	dB	-20		-20		-20		-20		-20		-20	
Qrxlevmin	dBm	-115		-115		-115		-115		-115		-115	
UE_TXPWR_MAX_RACH	dBm	21		21		21		21		21		21	
Qoffset2 _{s, n}	dB	C1, C2: 0 C1, C3: 0 C1, C4: 0 C1, C5: 0 C1, C6: 0	C2, C1: 0 C2, C3: 0 C2, C4: 0 C2, C5: 0 C2, C6: 0	C3, C1: 0 C3, C2: 0 C3, C4: 0 C3, C5: 0 C3, C6: 0	C4, C1: 0 C4, C2: 0 C4, C3: 0 C4, C5: 0 C4, C6: 0	C5, C1: 0 C5, C2: 0 C5, C3: 0 C5, C4: 0 C5, C6: 0	C6, C1: 0 C6, C2: 0 C6, C3: 0 C6, C4: 0 C6, C5: 0						
Qhyst2	dB	0		0		0		0		0		0	
Treselection	s	0		0		0		0		0		0	
Sintrasearch	dB	not sent		not sent		not sent		not sent		not sent		not sent	
Sintersearch	dB	not sent		not sent		not sent		not sent		not sent		not sent	

Note 1 The nominal \hat{I}_{or} values, although not explicitly defined in 25.133 are added here since they are implied and need to be identified so that the test equipment can be configured.

8.3.6.2.4.2 Procedure

- 1) The SS activates cell 1-6 with T1 defined parameters in table 8.3.6.2.3 and monitors cell 1 and 2 for random access requests from the UE.
- 2) The UE is switched on.
- 3) A RRC connection is set up according the generic set-up procedure specified in TS 34.108 [3] subclause 7.3.3 to place the UE in CELL_PCH state on cell 2. The SS waits for this process to complete.
- 4) After 15 s from the completion of step 3 or the beginning of T1, the parameters are changed to those defined for T2 in table 8.3.6.2.3.
- 5) If the UE responds on Cell 1 with a PRACH (CELL UPDATE message cause "cell reselection") within 8s, then a success is recorded, the SS shall transmit a CELL UPDATE CONFIRM message and then the procedure moves to step 7.
- 6) Since the UE has failed to respond with the correct message within the allowed time, a failure is recorded. The SS shall then wait for a total of 15s from the beginning of T2 and if no response is received the UE shall be switched off and the procedure returns to step 1. Otherwise the SS shall transmit a CELL UPDATE CONFIRM message and then the procedure continues with step 7.
- 7) After a total of 15 s from the beginning of T2, the parameters are changed to those defined for T1 in table 8.3.6.2.3.
- 8) If the UE responds on Cell 2 with a PRACH (CELL UPDATE message cause "cell reselection") within 8s, then a success is recorded and the procedure moves to step 10.
- 9) Since the UE has failed to respond with the correct message within the allowed time, a failure is recorded. The SS shall then wait for a total of 15s from the beginning of T1 and if no response is received the UE shall be switched off and the procedure returns to step 1. Otherwise the SS shall transmit a CELL UPDATE CONFIRM message and then the procedure continues with step 10.
- 10) Steps 4 to 10 are repeated until the confidence level according to annex F.6.2 is achieved.

NOTE: The time required for receiving all the relevant system information data according to the reception procedure and the RRC procedure delay of system information blocks defined in 25.331 for a UTRAN cell. Since the maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell is 1280ms and the maximum RRC procedure delay for reception system information block is 100ms, 1380 ms is assumed in this test case. Therefore this gives a total of 7.78s (Minimum requirement + 100ms), allow 8s in the test case.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

RADIO BEARER SETUP (Step 3)

Information Element	Value/remark
RRC State Indicator	CELL_PCH
UTRAN DRX cycle length coefficient	7
Downlink information for each radio link - Primary CPICH info - Primary scrambling code	100

8.3.6.2.5 Test requirements

For the test to pass, the total number of successful tests shall be more than 90% of the cases with a confidence level of 95 %.

Table 8.3.6.2.3: Cell specific test requirements for Cell re-selection in CELL_PCH state, two freqs. in neighbour list

Parameter	Unit	Cell 1		Cell 2		Cell 3		Cell 4		Cell 5		Cell 6	
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number		Channel 1		Channel 2		Channel 1		Channel 1		Channel 2		Channel 2	
CPICH_Ec/Ior	dB	-9.3		-9.3		-10.8		-10.8		-10.8		-10.8	
PCCPCH_Ec/Ior	dB	-11.3		-11.3		-12.8		-12.8		-12.8		-12.8	
SCH_Ec/Ior	dB	-11.3		-11.3		-12.8		-12.8		-12.8		-12.8	
PICH_Ec/Ior	dB	-14.3		-14.3		-15.8		-15.8		-15.8		-15.8	
OCNS_Ec/Ior	dB	-1.13		-1.13		-0.77		-0.77		-0.77		-0.77	
\hat{I}_{or}/I_{oc} Note 1	dB	-3.40	+4.80	+4.80	-3.40	-7.40	-3.00	-7.40	-3.00	-3.00	-7.40	-3.00	-7.40
\hat{I}_{or}	dBm	-73.4	-67.0	-67.0	-73.4	-77.4	-74.8	-77.4	-74.8	-74.8	-77.4	-74.8	-77.4
I_{oc}	dBm/3.8 4 MHz	-70.0	-71.8	-71.8	-70.0	-70.0	-71.8	-70.0	-71.8	-71.8	-70.0	-71.8	-70.0
CPICH_Ec/Io Note 1	dB	-15.3	-11.5	-11.5	-15.3	-20.8	-20.8	-20.8	-20.8	-20.8	-20.8	-20.8	-20.8

All other parameters and conditions specified in table 8.3.6.2.2 are unchanged.

NOTE 1: These parameters are not directly settable, but are derived by calculation from the settable parameters.

NOTE 2: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.3.7 Cell Re-selection in URA_PCH

8.3.7.1 One frequency present in the neighbour list

8.3.7.1.1 Definition and applicability

The cell re-selection delay is defined as the time from a change of cell levels to the moment when this change makes the UE camp on a new cell, and starts to send preambles on the PRACH for the URA UPDATE message with cause value "URA reselection" in the new cell.

The requirements and this test apply to the FDD UE.

8.3.7.1.2 Minimum requirement

The cell re-selection delay shall be less than 8 s with a DRX cycle length of 1.28 s.

The rate of correct cell reselections observed during repeated tests shall be at least 90% with a confidence level of 95 %.

NOTE: The cell re-selection delay can be expressed as: $T_{\text{evaluateFDD}} + T_{\text{SI}}$, where:

$T_{\text{evaluateFDD}}$	See table 4.1 in TS 25.133 [2] clause 4.2.2.
T_{SI}	Maximum repetition period of relevant system info blocks that needs to be received by the UE to camp on a cell. 1280 ms is assumed in this test case.

This gives a total of 7.68 s, allow 8s in the test case.

The normative reference for this requirement is TS 25.133 [2] clauses 5.7.2 and A.5.7.1.

8.3.7.1.3 Test purpose

To verify that the UE meets the minimum requirement and is capable of camping on to a new cell, within the required time, when the preferred cell conditions change.

8.3.7.1.4 Method of test

8.3.7.1.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

This scenario implies the presence of 1 carrier and 6 cells as given in tables 8.3.7.1.1 to 8.3.7.1.3. The UE is requested to monitor neighbouring cells on 1 carrier. The maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell shall be 1 280 ms. In System Information Block Type 2 cell1 and cell 2 URA identity is set to a different value.

Table 8.3.7.1.1: General test parameters for Cell Re-selection in URA_PCH, one freq. in neighbour list

Parameter		Unit	Value	Comment
Initial condition	Active cell		Cell2	
	Neighbour cells		Cell1, Cell3, Cell4, Cell5, Cell6	
Final condition	Active cell		Cell1	
SYSTEM INFORMATION BLOCK TYPE 2 - URA identity list - URA identity		-	0000 0000 0000 0001(B) (Cell 1) 0000 0000 0000 0002(B) (Cell 2)	
Access Service Class (ASC#0) - Persistence value		-	1	Selected so that no additional delay is caused by the random access procedure. The value shall be used for all cells in the test.
HCS				Not used
DRX cycle length		s	1,28	The value shall be used for all cells in the test.
T1		s	15	T1 need to be defined so that cell re-selection reaction time is taken into account.
T2		s	15	T2 need to be defined so that cell re-selection reaction time is taken into account.

Table 8.3.7.1.2: Cell specific test parameters for Cell re-selection in URA_PCH state, one freq. in neighbour list

Parameter	Unit	Cell 1		Cell 2		Cell 3		Cell 4		Cell 5		Cell 6	
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number		Channel 1		Channel 1		Channel 1		Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior	dB	-10		-10		-10		-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12		-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12		-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15		-15		-15		-15	
OCNS_Ec/Ior	dB	-0,941		-0,941		-0,941		-0,941		-0,941		-0,941	
\hat{I}_{or}/I_{oc}	dB	7,3	10,27	10,27	7,3	0,27		0,27		0,27		0,27	
\hat{I}_{or} (Note 1)	dBm	-62.73	-59.73	-59.73	-62.73	-69.73		-69.73		-69.73		-69.73	
I_{oc}	dBm / 3,84 MHz	-70											
CPICH_Ec/Io	dB	-16	-13	-13	-16	-23		-23		-23		-23	
Propagation Condition		AWGN											
Cell_selection_and_reselection_quality_measure		CPICH E _c /N ₀		CPICH E _c /N ₀		CPICH E _c /N ₀		CPICH E _c /N ₀		CPICH E _c /N ₀		CPICH E _c /N ₀	
Qqualmin	dB	-20		-20		-20		-20		-20		-20	
Qrxlevmin	dBm	-115		-115		-115		-115		-115		-115	
UE_TXPWR_MAX_RACH	dB	21		21		21		21		21		21	
Qoffset _{2s,n}	dB	C1, C2: 0 C1, C3: 0 C1, C4: 0 C1, C5: 0 C1, C6: 0	C2, C1: 0 C2, C3: 0 C2, C4: 0 C2, C5: 0 C2, C6: 0	C3, C1: 0 C3, C2: 0 C3, C4: 0 C3, C5: 0 C3, C6: 0	C4, C1: 0 C4, C2: 0 C4, C3: 0 C4, C5: 0 C4, C6: 0	C5, C1: 0 C5, C2: 0 C5, C3: 0 C5, C4: 0 C5, C6: 0	C6, C1: 0 C6, C2: 0 C6, C3: 0 C6, C4: 0 C6, C5: 0						
Qhyst2	dB	0		0		0		0		0		0	
Treselection	S	0		0		0		0		0		0	
Sintrasearch	dB	not sent		not sent		not sent		not sent		not sent		not sent	

Note 1 The nominal \hat{I}_{or} values, although not explicitly defined in 25.133 are added here since they are implied and need to be identified so that the test equipment can be configured.

8.3.7.1.4.2 Procedure

- 1) The SS activates cell 1-6 with T1 defined parameters in table 8.3.7.1.3 and monitors cell 1 and 2 for random access requests from the UE.
- 2) The UE is switched on.
- 3) An RRC connection is set up according to the generic set-up procedure specified in TS 34.108 [3] subclause 7.3.3 to place the UE in the URA_PCH state on Cell 2 and then the SS waits for this process to complete.
- 4) After 15 s from the completion of step 3 or the beginning of T1, the parameters are changed to those defined for T2 in table 8.3.7.1.3.
- 5) If the UE responds on Cell 1 with a PRACH (URA UPDATE message cause "URA reselection") within 8s, then a success is recorded, the SS shall transmit a URA UPDATE CONFIRM message and then the procedure moves to step 7.
- 6) Since the UE has failed to respond with the correct message within the allowed time, a failure is recorded. The SS shall then wait for a total of 15s from the beginning of T2 and if no response is received, the UE shall be switched off and the procedure returns to step 1. Otherwise the SS shall transmit a URA UPDATE CONFIRM message and then the procedure continues with step 7.
- 7) After a total of another 15 s from the beginning of T2, the parameters are changed to those defined for T1 in table 8.3.7.1.3.

- 8) If the UE responds on Cell 2 with a PRACH (URA UPDATE message cause "URA reselection") within 8s, then a success is recorded and the procedure moves to step 10.
- 9) Since the UE has failed to respond with the correct message within the allowed time, a failure is recorded. The SS shall then wait for a total of 15s from the beginning of T1 and if no response is received the UE shall be switched off and the procedure returns to step 1. Otherwise the SS shall transmit a URA UPDATE CONFIRM message and then the procedure continues with step 10.
- 10) Steps 4 to 10 are repeated until the confidence level according to annex F.6.2 is achieved.

NOTE: The time required for receiving all the relevant system information data according to the reception procedure and the RRC procedure delay of system information blocks defined in 25.331 for a UTRAN cell. Since the maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell is 1280ms and the maximum RRC procedure delay for reception system information block is 100ms, 1380 ms is assumed in this test case. Therefore this gives a total of 7.78s (Minimum requirement + 100ms), allow 8s in the test case.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

RADIO BEARER SETUP (Step 3)

Information Element	Value/remark
RRC State Indicator	URA PCH
UTRAN DRX cycle length coefficient	7
Downlink information for each radio link - Primary CPICH info - Primary scrambling code	100

8.3.7.1.5 Test requirements

For the test to pass, the total number of successful attempts shall be more than 90% with a confidence level of 95 % of the cases.

Table 8.3.7.1.3: Cell specific test requirements for Cell re-selection in URA_PCH state, one freq. in neighbour list

Parameter	Unit	Cell 1		Cell 2		Cell 3		Cell 4		Cell 5		Cell 6	
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number		Channel 1		Channel 1		Channel 1		Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior	dB	-9.4		-9.4		-10.5		-10.5		-10.5		-10.5	
PCCPCH_Ec/Ior	dB	-11.4		-11.4		-12.5		-12.5		-12.5		-12.5	
SCH_Ec/Ior	dB	-11.4		-11.4		-12.5		-12.5		-12.5		-12.5	
PICH_Ec/Ior	dB	-14.4		-14.4		-15.5		-15.5		-15.5		-15.5	
OCNS_Ec/Ior	dB	-1.10		-1.10		-0.83		-0.83		-0.83		-0.83	
\hat{I}_{or}/I_{oc} Note 1	dB	7.00	10.40	10.40	7.00	0.30		0.30		0.30		0.30	
\hat{I}_{or}	dBm	-63.0	-59.6	-59.6	-63.0	-69.7		-69.7		-69.7		-69.7	
I_{oc}	dBm / 3,84 MHz	-70											
CPICH_Ec/Io Note 1	dB	-15.7	-12.3	-12.3	-15.7	-23.5		-23.5		-23.5		-23.5	

All other parameters and conditions specified in table 8.3.7.1.2 are unchanged.

NOTE 1: These parameters are not directly settable, but are derived by calculation from the settable parameters.

NOTE 2: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.3.7.2 Two frequencies present in the neighbour list

8.3.7.2.1 Definition and applicability

The cell re-selection delay is defined as the time from a change of cell levels to the moment when this change makes the UE camp on a new cell, and starts to send preambles on the PRACH for the URA UPDATE message with cause value "URA reselection" in the new cell.

The requirements and this test apply to the FDD UE.

8.3.7.2.2 Minimum requirement

The cell re-selection delay shall be less than 8 s with a DRX cycle length of 1.28 s.

The rate of correct cell reselections observed during repeated tests shall be at least 90% with a confidence level of 95 %.

NOTE: The cell re-selection delay can be expressed as: $T_{\text{evaluateFDD}} + T_{\text{SI}}$, where:

$T_{\text{evaluateFDD}}$	See table 4.1 in TS 25.133 [2] clause 4.2.2.
T_{SI}	Maximum repetition period of relevant system info blocks that needs to be received by the UE to camp on a cell. 1280 ms is assumed in this test case.

This gives a total of 7.68 s, allow 8s in the test case.

The normative reference for this requirement is TS 25.133 [2] clauses 5.7.2 and A.5.7.2.

8.3.7.2.3 Test purpose

To verify that the UE meets the minimum requirement and is capable of camping on to a new cell, within the required time, when the preferred cell conditions change.

8.3.7.2.4 Method of test

8.3.7.2.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

This scenario implies the presence of 2 carriers and 6 cells as given in tables 8.3.7.2.1 to 8.3.7.2.3. The UE is requested to monitor neighbouring cells on 2 carriers. The maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell shall be 1 280 ms. In System Information Block Type 2 in cell 1 and cell 2 URA identity is set to different value.

Table 8.3.7.2.1: General test parameters for Cell Re-selection in URA_PCH, two freqs. in neighbour list

Parameter		Unit	Value	Comment
Initial condition	Active cell		Cell2	
	Neighbour cells		Cell1, Cell3, Cell4, Cell5, Cell6	
Initial condition	Active cell Cell2		Cell1	
SYSTEM INFORMATION BLOCK TYPE 2 - URA identity list - URA identity		-	0000 0000 0000 0001(B) (Cell 1) 0000 0000 0000 0002(B) (Cell 2)	
Access Service Class (ASC#0) - Persistence value		-	1	Selected so that no additional delay is caused by the random access procedure. The value shall be used for all cells in the test.
HCS				Not used
DRX cycle length		s	1,28	The value shall be used for all cells in the test.
T1		s	15	T1 need to be defined so that cell re-selection reaction time is taken into account.
T2		s	15	T2 need to be defined so that cell re-selection reaction time is taken into account.

Table 8.3.7.2.2: Cell specific test parameters for Cell Re-selection in URA_PCH state, two freqs. in neighbour list

Parameter	Unit	Cell 1		Cell 2		Cell 3		Cell 4		Cell 5		Cell 6	
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number		Channel 1		Channel 2		Channel 1		Channel 1		Channel 2		Channel 2	
CPICH_Ec/Ior	dB	-10		-10		-10		-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12		-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12		-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15		-15		-15		-15	
OCNS_Ec/Ior	dB	-0.941		-0.941		-0.941		-0.941		-0.941		-0.941	
\hat{I}_{or}/I_{oc}	dB	-3.4	2.2	2.2	-3.4	-7.4	-4.8	-7.4	-4.8	-4.8	-7.4	-4.8	-7.4
\hat{I}_{or} (Note 1)	dBm	-73.39	-67.7 5	-67.7 5	-73.3 9	-77.3 9	-74.7 5	-77.3 9	-74.7 5	-74.75	-77.3 9	-74.7 5	-77.39
I_{oc}	dBm / 3.84 MHz	-70											
CPICH_Ec/Io	dB	-16	-13	-13	-16	-20		-20		-20		-20	
Propagation Condition		AWGN											
Cell_selection_and_reselection_quality_measure		CPICH E _c /N ₀		CPICH E _c /N ₀		CPICH E _c /N ₀		CPICH E _c /N ₀		CPICH E _c /N ₀		CPICH E _c /N ₀	
Qqualmin	dB	-20		-20		-20		-20		-20		-20	
Qrxlevmin	dBm	-115		-115		-115		-115		-115		-115	
UE_TXPWR_MAX_RACH	dB	21		21		21		21		21		21	
Qoffset2 _{s, n}	dB	C1, C2: 0 C1, C3: 0 C1, C4: 0 C1, C5: 0 C1, C6: 0		C2, C1: 0 C2, C3: 0 C2, C4: 0 C2, C5: 0 C2, C6: 0		C3, C1: 0 C3, C2: 0 C3, C4: 0 C3, C5: 0 C3, C6: 0		C4, C1: 0 C4, C2: 0 C4, C3: 0 C4, C5: 0 C4, C6: 0		C5, C1: 0 C5, C2: 0 C5, C3: 0 C5, C4: 0 C5, C6: 0		C6, C1: 0 C6, C2: 0 C6, C3: 0 C6, C4: 0 C6, C5: 0	
Qhyst2	dB	0		0		0		0		0		0	
Treselection	s	0		0		0		0		0		0	
Sintrasearch	dB	not sent		not sent		not sent		not sent		not sent		not sent	
Sintersearch	dB	not sent		not sent		not sent		not sent		not sent		not sent	

Note 1 The nominal \hat{I}_{or} values, although not explicitly defined in 25.133 are added here since they are implied and need to be identified so that the test equipment can be configured.

8.3.7.2.4.2 Procedures

- 1) The SS activates cell 1-6 with T1 defined parameters in table 8.3.7.2.3 and monitors cell 1 and 2 for random access requests from the UE.
- 2) The UE is switched on.
- 3) An RRC connection is set up according the generic set-up procedure specified in TS 34.108 [3] subclause 7.3.3 to place the UE in URA_PCH state on cell 2. The SS waits for this process to complete.
- 4) After 15 s from the completion of step 3 or the beginning of T1, the parameters are changed to those defined for T2 in table 8.3.7.2.3.
- 5) If the UE responds on Cell 1 with a PRACH (URA UPDATE message cause "URA reselection") within 8s, then a success is recorded, the SS shall transmit a URA UPDATE CONFIRM message and then the procedure moves to step 7.
- 6) Since the UE has failed to respond with the correct message within the allowed time, a failure is recorded. The SS shall then wait for a total of 15s from the beginning of T2 and if no response is received the UE shall be switched off and the procedure returns to step 1. Otherwise the SS shall transmit a URA UPDATE CONFIRM message and then the procedure continues with step 7.
- 7) After a total of 15 s from the beginning of T2, the parameters are changed to those defined for T1 in table 8.3.7.2.3.

- 8) If the UE responds on Cell 2 with a PRACH (URA UPDATE message cause "URA reselection") within 8s, then a success is recorded and the procedure moves to step 10.
- 9) Since the UE has failed to respond with the correct message within the allowed time, a failure is recorded. The SS shall then wait for a total of 15s from the beginning of T1 and if no response is received the UE shall be switched off and the procedure returns to step 1. Otherwise the SS shall transmit a URA UPDATE CONFIRM message and then the procedure continues with step 10.
- 10) Steps 4 to 10 are repeated until the confidence level according to annex F.6.2 is achieved.

NOTE: The time required for receiving all the relevant system information data according to the reception procedure and the RRC procedure delay of system information blocks defined in 25.331 for a UTRAN cell. Since the maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell is 1280ms and the maximum RRC procedure delay for reception system information block is 100ms, 1380 ms is assumed in this test case. Therefore this gives a total of 7.78s (Minimum requirement + 100ms), allow 8s in the test case.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

RADIO BEARER SETUP (Step 3)

Information Element	Value/remark
RRC State Indicator	URA PCH
UTRAN DRX cycle length coefficient	7
Downlink information for each radio link - Primary CPICH info - Primary scrambling code	100

8.3.7.2.5 Test requirements

For the test to pass, the total number of successful tests shall be more than 90% of the cases with a confidence level of 95%.

Table 8.3.7.2.3: Cell specific test requirements for Cell re-selection in URA_PCH state, two freqs. in neighbour list

Parameter	Unit	Cell 1		Cell 2		Cell 3		Cell 4		Cell 5		Cell 6	
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number		Channel 1		Channel 2		Channel 1		Channel 1		Channel 2		Channel 2	
CPICH_Ec/lor	dB	-9.3		-9.3		-10.8		-10.8		-10.8		-10.8	
PCCPCH_Ec/lor	dB	-11.3		-11.3		-12.8		-12.8		-12.8		-12.8	
SCH_Ec/lor	dB	-11.3		-11.3		-12.8		-12.8		-12.8		-12.8	
PICH_Ec/lor	dB	-14.3		-14.3		-15.8		-15.8		-15.8		-15.8	
OCNS_Ec/lor	dB	-1.13		-1.13		-0.77		-0.77		-0.77		-0.77	
\hat{I}_{or}/I_{oc} Note 1	dB	-3.40	+4.80	+4.80	-3.40	-7.40	-3.00	-7.40	-3.00	-3.00	-7.40	-3.00	-7.40
\hat{I}_{or}	dBm	-73.4	-67.0	-67.0	-73.4	-77.4	-74.8	-77.4	-74.8	-74.8	-77.4	-74.8	-77.4
I_{oc}	dBm/3.8 4 MHz	-70.0	-71.8	-71.8	-70.0	-70.0	-71.8	-70.0	-71.8	-71.8	-70.0	-71.8	-70.0
CPICH_Ec/lor Note 1	dB	-15.3	-11.5	-11.5	-15.3	-20.8	-20.8	-20.8	-20.8	-20.8	-20.8	-20.8	-20.8

All other parameters and conditions specified in table 8.3.7.2.2 are unchanged.

NOTE 1: These parameters are not directly settable, but are derived by calculation from the settable parameters.

NOTE 2: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.6 UE Measurements Procedures

8.6.1 FDD intra frequency measurements

8.6.1.1 Event triggered reporting in AWGN propagation conditions

8.6.1.1.1 Definition and applicability

In the event triggered reporting period the measurement reporting delay is defined as the time between any event that will trigger a measurement report until the UE starts to transmit over the Uu interface. This requirement assumes that the measurement report is not delayed by other RRC signalling on the DCCH. This measurement reporting delay excludes a delay uncertainty resulted when inserting the measurement report to the TTI of the uplink DCCH. The delay uncertainty is twice the TTI of the uplink DCCH.

The requirements and this test apply to the FDD UE.

8.6.1.1.2 Minimum requirements

The UE shall be able to identify and decode the SFN of a new detectable cell belonging to the monitored set within

$$T_{\text{identify intra}} = \text{Max} \left\{ 800, T_{\text{basic identify FDD, intra}} \cdot \frac{T_{\text{Measurement Period, Intra}}}{T_{\text{Intra}}} \right\} \text{ms}$$

A cell shall be considered detectable when CPICH Ec/Io \geq -20 dB, SCH_Ec/Io \geq -20 dB for at least one channel tap and SCH_Ec/Io is equally divided between primary synchronisation code and secondary synchronisation code. When L3 filtering is used an additional delay can be expected.

In the CELL_DCH state the measurement period for intra frequency measurements is 200 ms. When no transmission gap pattern sequence is activated, the UE shall be capable of performing CPICH measurements for 8 identified intra-frequency cells of the monitored set and/or the active set, and the UE physical layer shall be capable of reporting measurements to higher layers with the measurement period of 200 ms. When one or more transmission gap pattern sequences are activated, the UE shall be capable of performing CPICH measurements for at least $Y_{\text{measurement intra}}$ cells, where $Y_{\text{measurement intra}}$ is defined in the following equation. The measurement accuracy for all measured cells shall be as specified in the sub-clause 9.1.1 and 9.1.2 of TS 25.133 [2]. If the UE has identified more than $Y_{\text{measurement intra}}$ cells, the UE shall perform measurements of all identified cells but the reporting rate of CPICH measurements of cells from UE physical layer to higher layers may be decreased.

$$Y_{\text{measurement intra}} = \text{Floor} \left\{ X_{\text{basic measurement FDD}} \cdot \frac{T_{\text{Intra}}}{T_{\text{Measurement Period, Intra}}} \right\} \text{ cells}$$

where

$$X_{\text{basic measurement FDD}} = 8 \text{ (cells)}$$

$$T_{\text{Measurement_Period Intra}} = 200 \text{ ms. The measurement period for Intra frequency CPICH measurements.}$$

T_{Intra} : This is the minimum time that is available for intra frequency measurements, during the measurement period with an arbitrarily chosen timing.

$T_{\text{basic_identify_FDD, intra}} = 800$ ms. This is the time period used in the intra frequency equation where the maximum allowed time for the UE to identify a new FDD cell is defined.

The event triggered measurement reporting delay, on cells belonging to monitored set, measured without L3 filtering, shall be less than the above defined $T_{\text{identify intra}}$ defined above.

If a cell, belonging to monitored set, which the UE has identified and measured at least once over the measurement period, becomes undetectable for a period < 5 seconds and then the cell becomes detectable again and triggers an event, the measurement reporting delay shall be less than $T_{\text{Measurement_Period Intra}}$ ms provided the timing to that cell has not

changed more than +/-32 chips, the UE CPICH measurement capabilities defined above are valid and L3 filtering has not been used. When L3 filtering is used an additional delay can be expected.

If a cell belonging to monitored set has been detectable at least for the time period $T_{\text{identify_intra}}$ and then enters or leaves the reporting range, the event triggered measurement reporting delay shall be less than $T_{\text{Measurement_Period Intra}}$ when the L3 filter has not been used and the UE CPICH measurement capabilities defined above are valid.

The normative reference for these requirements is TS 25.133 [2] clauses 8.1.2.2 and A.8.1.1.

8.6.1.1.3 Test purpose

To verify that the UE meets the minimum requirements.

8.6.1.1.4 Method of test

8.6.1.1.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

The test parameters are given in table 8.6.1.1.1 and 8.6.1.1.2 below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 1A and 1B shall be used. The test consists of three successive time periods, with a time duration of T1, T2 and T3 respectively. During time duration T1, the UE shall not have any timing information of cell 2.

Table 8.6.1.1.1: General test parameters for Event triggered reporting in AWGN propagation conditions

Parameter	Unit	Value	Comment
DCH parameters		DL and UL Reference Measurement Channel 12.2 kbps	As specified in C.3.1 and C.2.1
Power Control		On	
Active cell		Cell 1	
Reporting range	dB	3	Applicable for event 1A and 1B
Hysteresis	dB	0	
W		1	Applicable for event 1A and 1B
Reporting deactivation threshold		0	Applicable for event 1A
Time to Trigger	ms	0	
Filter coefficient		0	
Monitored cell list size		24	
T1	s	5	
T2	s	5	
T3	s	5	

Table 8.6.1.1.2: Cell specific test parameters for Event triggered reporting in AWGN propagation conditions

Parameter	Unit	Cell 1			Cell 2		
		T1	T2	T3	T1	T2	T3
CPICH_Ec/Ior	dB		-10			-10	
PCCPCH_Ec/Ior	dB		-12			-12	
SCH_Ec/Ior	dB		-12			-12	
PICH_Ec/Ior	dB		-15			-15	
DPCH_Ec/Ior	dB		-17			N/A	
OCNS_Ec/Ior	dB		-1.049			-0.941	
\hat{I}_{or}/I_{oc}	dB	0	6.97	0	-Infinity	5.97	-Infinity
I_{oc}	dBm/3.84 MHz	-70					
CPICH_Ec/Io	dB	-13	-13	-13	-Infinity	-14	-Infinity
Propagation Condition		AWGN					

8.6.1.1.4.2 Procedure

1. The RF parameters are set up according to T1.
2. The UE is switched on.
3. A call is set up according to the test procedure specified in TS 34.108 [3] sub clause 7.3.2.3.
4. SS shall transmit a MEASUREMENT CONTROL message.
5. After 5 seconds from the beginning of T1, the SS shall switch the power settings from T1 to T2.
6. UE shall transmit a MEASUREMENT REPORT message triggered by event 1A. The measurement reporting delay from the beginning of T2 shall be less than 880 ms. If the UE fails to report the event within the required delay, then a failure is recorded. If the reporting delay for this event is within the required limit, the number of successful tests is increased by one.
7. After 5 seconds from the beginning of T2, the SS shall switch the power settings from T2 to T3.
8. UE shall transmit a MEASUREMENT REPORT message triggered by event 1B. The measurement reporting delay from the beginning of T3 shall be less than 280 ms. If the reporting delay for this event is within the required limit, the number of successful tests is increased by one.
9. After 5 seconds from the beginning of T3, the UE is switched off. Any timing information of cell 2 is deleted in the UE.
10. Repeat steps 1-9 according to Annex F.6.2 Table 6.2.8.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message:

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements -RRC transaction identifier -Integrity check info	0 Not Present
Measurement Information elements -Measurement Identity -Measurement Command (10.3.7.46) -Measurement Reporting Mode (10.3.7.49) -Measurement Report Transfer Mode -Periodical Reporting / Event Trigger Reporting Mode -Additional measurements list (10.3.7.1)	1 Modify AM RLC Event trigger Not Present
-CHOICE <i>Measurement type</i> -Intra-frequency measurement (10.3.7.36) -Intra-frequency measurement objects list (10.3.7.33) -Intra-frequency measurement quantity (10.3.7.38) -Filter coefficient (10.3.7.9) -CHOICE mode -Measurement quantity -Intra-frequency reporting quantity (10.3.7.41)	Intra-frequency measurement Not Present 0 FDD CPICH_Ec/N0
-Reporting quantities for active set cells (10.3.7.5) -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator	No report TRUE (Note 1) TRUE FDD TRUE TRUE TRUE
-Reporting quantities for monitored set cells (10.3.7.5) -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator	No report TRUE (Note 1) TRUE FDD TRUE TRUE TRUE
-Reporting quantities for detected set cells (10.3.7.5)	Not Present
-Reporting cell status (10.3.7.61) -Measurement validity (10.3.7.51) -CHOICE report criteria -Intra-frequency measurement reporting criteria (10.3.7.39) -Parameters required for each event	Not Present Not Present Intra-frequency measurement reporting criteria 2
-Intra-frequency event identity -Triggering condition 2 -Reporting Range Constant -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W -Hysteresis -Threshold used frequency -Reporting deactivation threshold -Replacement activation threshold -Time to trigger -Amount of reporting -Reporting interval -Reporting cell status	Event 1A Monitored set cells 3 dB Not Present FDD 1.0 0 dB Not Present 0 Not Present 0 ms Not present 0 ms (Note 2) Not Present
-Intra-frequency event identity -Triggering condition 1 -Reporting Range Constant -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W -Hysteresis	Event 1B Active set cells and monitored set cells 3 dB Not Present FDD 1.0 0 dB

Information Element/Group name	Value/Remark
-Threshold used frequency	Not Present
-Reporting deactivation threshold	Not Present
-Replacement activation threshold	Not Present
-Time to trigger	0 ms
-Amount of reporting	Not Present
-Reporting interval	0 ms (note 2)
-Reporting cell status	Not Present
Physical channel information elements	
-DPCH compressed mode status info (10.3.6.34)	Not Present
Note 1: The SFN-CFN observed time difference is calculated from the OFF and Tm parameters contained in the IE "Cell synchronisation information", TS 25.331, clause 10.3.7.6. According to TS 25.331, 8.6.7.7, this IE is included in MEASUREMENT REPORT if IE "Cell synchronisation information reporting indicator" in IE "Cell reporting quantities" TS 25.331, clause 10.3.7.5 is set to TRUE in MEASUREMENT CONTROL.	
Note 2: Reporting interval = 0 ms means no periodical reporting	

MEASUREMENT REPORT message for Intra frequency test cases

This message is common for all intra frequency test cases is described in Annex I.

8.6.1.1.5 Test requirements

For the test to pass, the total number of successful tests shall be at least 90%, of the cases with a confidence level of s95%. The number of successful tests shall be on an event level, i.e. the SS shall check how many events are reported successfully out of the total number of events checked.

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.6.1.2 Event triggered reporting of multiple neighbours in AWGN propagation condition

8.6.1.2.1 Definition and applicability

In the event triggered reporting period the measurement reporting delay is defined as the time between any event that will trigger a measurement report until the UE starts to transmit over the Uu interface. This requirement assumes that the measurement report is not delayed by other RRC signalling on the DCCH. This measurement reporting delay excludes a delay uncertainty resulted when inserting the measurement report to the TTI of the uplink DCCH. The delay uncertainty is twice the TTI of the uplink DCCH.

The requirements and this test apply to the FDD UE.

8.6.1.2.2 Minimum requirements

The requirements are the same as in sub clause 8.6.1.1.2.

The normative reference for these requirements is TS 25.133 [2] clauses 8.1.2.2 and A.8.1.2.

8.6.1.2.3 Test purpose

To verify that the UE meets the minimum requirements.

8.6.1.2.4 Method of test

8.6.1.2.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

The initial test parameters are given in table 8.6.1.2.1.

Table 8.6.1.2.1: Cell specific initial test parameters for Event triggered reporting of multiple neighbours in AWGN propagation conditions

Parameter	Unit	Cell 1	Cell 2	Cell3
		T0	T0	T0
CPICH_Ec/Ior	dB	-10	-10	-10
PCCPCH_Ec/Ior	dB	-12	-12	-12
SCH_Ec/Ior	dB	-12	-12	-12
PICH_Ec/Ior	dB	-15	-15	-15
DPCH_Ec/Ior	dB	-17	N/A	N/A
OCNS_Ec/Ior	dB	-1.049	-0.941	-0.941
\hat{I}_{or}/I_{oc}	dB	0	-Inf	-Inf
I_{oc}	dBm/ 3.84 MHz	-85		
CPICH_Ec/Io	dB	-13	-Inf	-Inf
Propagation Condition	AWGN			

The test parameters are given in table 8.6.1.2.2 and 8.6.1.2.3. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 1A, 1C and 1B shall be used and the periodical reporting of the events is not applied. The test consists of four successive time periods, with a time duration of T1, T2, T3 and T4 respectively. In the initial condition before the time T1 only Cell1 is active.

Table 8.6.1.2.2: General test parameters for Event triggered reporting of multiple neighbours in AWGN propagation conditions

Parameter	Unit	Value	Comment
DCH parameters		DL and UL Reference Measurement Channel 12.2 kbps	As specified in C.3.1 and C.2.1
Power Control		On	
Active cell		Cell 1	
Reporting range	dB	3	Applicable for event 1A and 1B
Hysteresis	dB	0	
W		1	Applicable for event 1A and 1B
Replacement activation threshold		0	Applicable for event 1C
Reporting deactivation threshold		0	Applicable for event 1A
Time to Trigger	ms	0	
Filter coefficient		0	
Monitored cell list size		32	
T1	S	10	
T2	S	10	
T3	S	5	
T4	S	10	

Table 8.6.1.2.3: Cell specific test parameters for Event triggered reporting of multiple neighbours in AWGN propagation condition

Parameter	Unit	Cell 1				Cell 2				Cell3			
		T1	T2	T3	T4	T1	T2	T3	T4	T1	T2	T3	T4
CPICH_Ec/lor	dB	-10				-10				-10			
PCCPCH_Ec/lor	dB	-12				-12				-12			
SCH_Ec/lor	dB	-12				-12				-12			
PICH_Ec/lor	dB	-15				-15				-15			
DPCH_Ec/lor	dB	-17				N/A				N/A			
OCNS_Ec/lor	dB	-1.049				-0.941				-0.941			
\hat{I}_{or}/I_{oc}	dB	6.97	6.93	5.97	6.12	-Inf	9.43	6.97	7.62	5.97	6.93	-Inf	5.62
I_{oc}	dBm/ 3.84 MHz	-85											
CPICH_Ec/lo	dB	-13	-16	-14	-15.5	-Inf	-13.5	-13	-14	-14	-16	-Inf	-16
Propagation Condition	AWGN												

8.6.1.2.4.2 Procedure

- 1) The RF parameters are set up according to T0.
- 2) The UE is switched on.
- 3) A call is set up according to the test procedure specified in TS 34.108 [3] sub clause 7.3.2.3.
- 4) SS shall transmit a MEASUREMENT CONTROL message.
- 5) 5 seconds after step4 has completed, the SS shall switch the power settings for T0 to T1.
- 6) UE shall transmit a MEASUREMENT REPORT message for Cell 3 triggered by event 1A. The measurement reporting delay from the beginning of T1 shall be less than 880 ms. If the UE fails to report the event within the required delay, then a failure is recorded. If the reporting delay for this event is within the required limit, the number of successful tests is increased by one.
- 7) UE may transmit a MEASUREMENT REPORT message for Cell 3 triggered by event 1C. In case it doesn't this shall not be considered as a failure.
- 8) After 10 seconds from the beginning of T1, the SS shall switch the power settings from T1 to T2.
- 9) UE shall transmit a MEASUREMENT REPORT message for Cell 2 triggered by event 1C. The measurement reporting delay from the beginning of T2 shall be less than 880 ms. If the UE fails to report the event within the required delay, then a failure is recorded. If the reporting delay for this event is within the required limit, the number of successful tests is increased by one.
- 10) UE shall transmit a MEASUREMENT REPORT message for Cell 2 triggered by event 1A. The measurement reporting delay from the beginning of T2 shall be less than 880 ms. If the UE fails to report the event within the required delay, then a failure is recorded. If the reporting delay for this event is within the required limit, the number of successful tests is increased by one.
- 11) UE may transmit a MEASUREMENT REPORT message for Cell 3 triggered by event 1C. In case it doesn't this shall not be considered as a failure.
- 12) After 10 seconds from the beginning of T2, the SS shall switch the power settings from T2 to T3.
- 13) UE shall transmit a MEASUREMENT REPORT message for Cell 3 triggered by event 1B. The measurement reporting delay from the beginning of T3 shall be less than 280 ms. If the UE fails to report the event within the required delay, then a failure is recorded. If the reporting delay for this event is within the required limit, the number of successful tests is increased by one.
- 14) UE may transmit a MEASUREMENT REPORT message for Cell 2 triggered by event 1C. In case it doesn't this shall not be considered as a failure.

- 15) After 5 seconds from the beginning of T3, the SS shall switch the power settings from T3 to T4.
- 16) UE shall transmit a MEASUREMENT REPORT message for Cell 3 triggered by event 1A. The measurement reporting delay from the beginning of T4 shall be less than 280 ms. If the reporting delay for this event is within the required limit, the number of successful tests is increased by one.
- 17) UE may transmit a MEASUREMENT REPORT message for Cell 2 triggered by event 1C. In case it doesn't this shall not be considered as a failure.
- 18) UE may transmit a MEASUREMENT REPORT message for Cell 3 triggered by event 1C. In case it doesn't this shall not be considered as a failure.
- 19) After 10 seconds from the beginning of T4, the UE is switched off.
- 20) Repeat steps 1-19 until the confidence level according to annex F.6.2 is achieved.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message:

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements -RRC transaction identifier -Integrity check info	0 Not Present
Measurement Information elements -Measurement Identity -Measurement Command (10.3.7.46) -Measurement Reporting Mode (10.3.7.49) -Measurement Report Transfer Mode -Periodical Reporting / Event Trigger Reporting Mode -Additional measurements list (10.3.7.1)	1 Modify AM RLC Event trigger Not Present
-CHOICE <i>Measurement type</i> -Intra-frequency measurement (10.3.7.36) -Intra-frequency measurement objects list (10.3.7.33) -Intra-frequency measurement quantity (10.3.7.38) -Filter coefficient (10.3.7.9) -CHOICE mode -Measurement quantity -Intra-frequency reporting quantity (10.3.7.41)	Intra-frequency measurement Not Present 0 FDD CPICH_Ec/N0
-Reporting quantities for active set cells (10.3.7.5) -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator	No report TRUE (Note 1) TRUE FDD TRUE TRUE TRUE
-Reporting quantities for monitored set cells (10.3.7.5) -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator	No report TRUE (Note 1) TRUE FDD TRUE TRUE TRUE
-Reporting quantities for detected set cells (10.3.7.5)	Not Present
-Reporting cell status (10.3.7.61) -Measurement validity (10.3.7.51) -CHOICE report criteria -Intra-frequency measurement reporting criteria (10.3.7.39) -Parameters required for each event	Not Present Not Present Intra-frequency measurement reporting criteria 3
-Intra-frequency event identity -Triggering condition 2 -Reporting Range Constant -Cells forbidden to affect Reporting Range -W -Hysteresis -Threshold used frequency -Reporting deactivation threshold -Replacement activation threshold -Time to trigger -Amount of reporting -Reporting interval -Reporting cell status	Event 1A Monitored set cells 3 dB Not Present 1.0 0 dB Not Present 0 Not Present 0 ms Not Present 0 ms (Note 2) Not Present
-Intra-frequency event identity -Triggering condition 1 -Reporting Range Constant -Cells forbidden to affect Reporting Range -W -Hysteresis -Threshold used frequency -Reporting deactivation threshold -Replacement activation threshold -Time to trigger	Event 1B Active set cells and monitored set cells 3 dB Not Present 1.0 0 dB Not Present Not Present Not Present 0 ms

Information Element/Group name	Value/Remark
-Amount of reporting -Reporting interval -Reporting cell status	Not Present 0 ms (Note 2) Not Present
-Intra-frequency event identity -Triggering condition 2 -Reporting Range Constant -Cells forbidden to affect Reporting Range -W -Hysteresis -Threshold used frequency -Reporting deactivation threshold -Replacement activation threshold -Time to trigger -Amount of reporting -Reporting interval -Reporting cell status	Event 1C Active set cells and monitored set cells Not present Not Present Not present 0 dB Not Present Not present 0 0 ms Not Present 0 ms (Note 2) Not Present
Physical channel information elements -DPCH compressed mode status info (10.3.6.34)	Not Present
NOTE 1: The SFN-CFN observed time difference is calculated from the OFF and Tm parameters contained in the IE "Cell synchronisation information", TS 25.331, clause 10.3.7.6. According to TS 25.331, 8.6.7.7, this IE is included in MEASUREMENT REPORT if IE "Cell synchronisation information reporting indicator" in IE "Cell reporting quantities" TS 25.331, clause 10.3.7.5 is set to TRUE in MEASUREMENT CONTROL.	
NOTE 2: Reporting interval = 0 ms means no periodical reporting.	

MEASUREMENT REPORT message for Intra frequency test cases

This message is common for all intra frequency test cases is described in Annex I.

8.6.1.2.5 Test requirements

For the test to pass, the total number of successful tests shall be at least 90%, of the cases with a confidence level of 95%. The number of successful tests shall be on an event level, i.e. the SS shall check how many events are reported successfully out of the total number of events checked.

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.6.1.3 Event triggered reporting of two detectable neighbours in AWGN propagation condition

8.6.1.3.1 Definition and applicability

In the event triggered reporting period the measurement reporting delay is defined as the time between any event that will trigger a measurement report until the UE starts to transmit over the Uu interface. This requirement assumes that the measurement report is not delayed by other RRC signalling on the DCCH. This measurement reporting delay excludes a delay uncertainty resulted when inserting the measurement report to the TTI of the uplink DCCH. The delay uncertainty is twice the TTI of the uplink DCCH.

The requirements and this test apply to the FDD UE.

8.6.1.3.2 Minimum requirements

The requirements are the same as in sub clause 8.6.1.1.2.

The normative reference for these requirements is TS 25.133 [2] clauses 8.1.2.2 and A.8.1.3.

8.6.1.3.3 Test purpose

To verify that the UE meets the minimum requirements.

8.6.1.3.4 Method of test

8.6.1.3.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

The test parameters are given in table 8.6.1.3.1 and 8.6.1.3.2. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 1A and 1B shall be used and the periodical reporting of the events is not applied. The test consists of four successive time periods, with a time duration of T1, T2, T3 and T4 respectively. In the initial condition before the time T1 only Cell1 is active.

Table 8.6.1.3.1: General test parameters for Event triggered reporting of two detectable neighbours in AWGN propagation condition

Parameter	Unit	Value	Comment
DCH parameters		DL and UL Reference Measurement Channel 12.2 kbps	As specified in C.3.1 and C.2.1
Power Control		On	
Active cell		Cell 1	
Reporting range	dB	3	Applicable for event 1A and 1B
Hysteresis	dB	0	
W		1	Applicable for event 1A and 1B
Reporting deactivation threshold		0	Applicable for event 1A
Time to Trigger	ms	0	
Filter coefficient		0	
Monitored cell list size		32	
T1	s	10	
T2	s	10	
T3	s	10	
T4	s	10	

Table 8.6.1.3.2: Cell specific test parameters for Event triggered reporting of two detectable neighbours in AWGN propagation condition

Parameter	Unit	Cell 1				Cell 2				Cell3			
		T1	T2	T3	T4	T1	T2	T3	T4	T1	T2	T3	T4
CPICH_Ec/lor	dB	-10				-10				-10			
PCCPCH_Ec/lor	dB	-12				-12				-12			
SCH_Ec/lor	dB	-12				-12				-12			
PICH_Ec/lor	dB	-15				-15				-15			
DPCH_Ec/lor	dB	-17				N/A				N/A			
OCNS_Ec/lor	dB	-1.049				-0.941				-0.941			
\hat{I}_{or}/I_{oc}	dB	14.5 5	28.5 1	14.4 5	28.5 1	-Inf	27.5 1	13.9 5	21.5 1	8.05	21.5 1	13.9 5	27.5 1
I_{oc}	dBm/ 3.84 MHz	-85											
CPICH_Ec/lo	dB	-11	-13	-14.5	-13	-Inf	-14.0	-15	-20	-17.5	-20	-15	-14
Propagation Condition		AWGN											

8.6.1.3.4.2 Procedure

- 1) The RF parameters are set up according to T1.
- 2) The UE is switched on.
- 3) A call is set up according to the test procedure specified in TS 34.108 [3] sub clause 7.3.2.3.

- 4) SS shall transmit a MEASUREMENT CONTROL message.
- 5) After 10 seconds from the beginning T1, the SS shall switch the power settings from T1 to T2.
- 6) UE shall transmit a MEASUREMENT REPORT message for Cell 2 triggered by event 1A. The measurement reporting delay from the beginning of T2 shall be less than 880 ms. If the UE fails to report the event within the required delay, then a failure is recorded. If the reporting delay for this event is within the required limit, the number of successful tests is increased by one.
- 7) After 10 seconds from the beginning T2, the SS shall switch the power settings from T2 to T3.
- 8) UE shall transmit a MEASUREMENT REPORT message for Cell 3 triggered by event 1A. The measurement reporting delay from the beginning of T3 shall be less than 280 ms. If the UE fails to report the event within the required delay, then a failure is recorded. If the reporting delay for this event is within the required limit, the number of successful tests is increased by one.
- 9) After 10 seconds from the beginning T3, the SS shall switch the power settings from T3 to T4.
- 10) UE shall transmit a MEASUREMENT REPORT message for Cell 2 triggered by event 1B. The measurement reporting delay from the beginning of T4 shall be less than 280 ms. If the reporting delay for this event is within the required limit, the number of successful tests is increased by one.
- 11) After 10 seconds, the UE is switched off.
- 12) Repeat steps 1-11 until the confidence level according to annex F.6.2 is achieved.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message:

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements -RRC transaction identifier -Integrity check info	0 Not Present
Measurement Information elements -Measurement Identity -Measurement Command (10.3.7.46) -Measurement Reporting Mode (10.3.7.49) -Measurement Report Transfer Mode -Periodical Reporting / Event Trigger Reporting Mode -Additional measurements list (10.3.7.1)	1 Modify AM RLC Event trigger Not Present
-CHOICE <i>Measurement type</i> -Intra-frequency measurement (10.3.7.36) -Intra-frequency measurement objects list (10.3.7.33) -Intra-frequency measurement quantity (10.3.7.38) -Filter coefficient (10.3.7.9) -CHOICE mode -Measurement quantity -Intra-frequency reporting quantity (10.3.7.41)	Intra-frequency measurement Not Present 0 FDD CPICH_Ec/N0
-Reporting quantities for active set cells (10.3.7.5) -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator	No report TRUE (Note 1) TRUE FDD TRUE TRUE TRUE
-Reporting quantities for monitored set cells (10.3.7.5) -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator	No report TRUE (Note 1) TRUE FDD TRUE TRUE TRUE
-Reporting quantities for detected set cells (10.3.7.5)	Not Present
-Reporting cell status (10.3.7.61) -Measurement validity (10.3.7.51) -CHOICE report criteria -Intra-frequency measurement reporting criteria (10.3.7.39) -Parameters required for each event	Not Present Not Present Intra-frequency measurement reporting criteria 2
-Intra-frequency event identity -Triggering condition 2 -Reporting Range Constant -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W -Hysteresis -Threshold used frequency -Reporting deactivation threshold -Replacement activation threshold -Time to trigger -Amount of reporting -Reporting interval -Reporting cell status	Event 1A Monitored set cells 3 dB Not Present FDD 1.0 0 dB Not Present 0 Not Present 0 ms Not present 0 ms (Note 2) Not Present
-Intra-frequency event identity -Triggering condition 1 -Reporting Range Constant -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W -Hysteresis	Event 1B Active set cells and monitored set cells 3 dB Not Present FDD 1.0 0 dB

Information Element/Group name	Value/Remark
-Threshold used frequency	Not Present
-Reporting deactivation threshold	Not Present
-Replacement activation threshold	Not Present
-Time to trigger	0 ms
-Amount of reporting	Not Present
-Reporting interval	0 ms (Note 2)
-Reporting cell status	Not Present
Physical channel information elements	
-DPCH compressed mode status info (10.3.6.34)	Not Present
NOTE 1: The SFN-CFN observed time difference is calculated from the OFF and Tm parameters contained in the IE "Cell synchronisation information", TS 25.331, clause 10.3.7.6. According to TS 25.331, 8.6.7.7, this IE is included in MEASUREMENT REPORT if IE "Cell synchronisation information reporting indicator" in IE "Cell reporting quantities" TS 25.331, clause 10.3.7.5 is set to TRUE in MEASUREMENT CONTROL.	
NOTE 2: Reporting interval = 0 ms means no periodical reporting.	

MEASUREMENT REPORT message for Intra frequency test cases

This message is common for all intra frequency test cases is described in Annex I.

8.6.1.3.5 Test requirements

For the test to pass, the total number of successful tests shall be at least 90% of the cases with a confidence level of 95%. The number of successful tests shall be on an event level, i.e. the SS shall check how many events are reported successfully out of the total number of events checked.

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.6.1.4 Correct reporting of neighbours in fading propagation condition

8.6.1.4.1 Definition and applicability

In the event triggered reporting period the measurement reporting delay is defined as the time between any event that will trigger a measurement report until the UE starts to transmit over the Uu interface. This requirement assumes that the measurement report is not delayed by other RRC signalling on the DCCH. This measurement reporting delay excludes a delay uncertainty resulted when inserting the measurement report to the TTI of the uplink DCCH. The delay uncertainty is twice the TTI of the uplink DCCH.

The requirements and this test apply to the FDD UE.

8.6.1.4.2 Minimum requirements

The requirements are the same as in sub clause 8.6.1.1.2.

The normative reference for these requirements is TS 25.133 [2] clauses 8.1.2.2 and A.8.1.4.

8.6.1.4.3 Test purpose

To verify that the UE meets the minimum requirements and also verify that the UE performs sufficient layer 1 filtering of the measurements. The test is performed in fading propagation conditions.

8.6.1.4.4 Method of test

8.6.1.4.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

The test parameters are given in table 8.6.1.4.1 and 8.6.1.4.2. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 1A and Event 1B shall be used. The test consists of two successive time periods, each with time duration of T1 and T2 respectively.

The TTI of the uplink DCCCH shall be 20ms.

Table 8.6.1.4.1: General test parameters for correct reporting of neighbours in fading propagation condition

Parameter	Unit	Value	Comment
DCH parameters		DL and UL Reference Measurement Channel 12.2 kbps	As specified in C.3.1 and C.2.1
Power Control		On	
Active cell		Cell 1	
Reporting range	dB	0	Applicable for event 1A and 1B
Hysteresis	dB	0	
W		1	Applicable for event 1A and 1B
Reporting deactivation threshold		0	Applicable for event 1A
Time to Trigger	ms	120	
Filter coefficient		0	
Monitored cell list size		24	Signalled before time T1.
T1	s	200	
T2	s	201	

Table 8.6.1.4.2: Cell specific test parameters for correct reporting of neighbours in fading propagation condition

Parameter	Unit	Cell 1		Cell 2	
		T1	T2	T1	T2
CPICH_Ec/Ior	dB	-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12	
SCH_Ec/Ior	dB	-12		-12	
PICH_Ec/Ior	dB	-15		-15	
DPCH_Ec/Ior	dB	-17		N/A	
OCNS_Ec/Ior	dB	-1.049		-0.941	
\hat{I}_{or}/I_{oc}	dB	7.29	3.29	3.29	7.29
I_{oc}	dBm/3.84 MHz	-70			
CPICH_Ec/Io	dB	-12	-16	-16	-12
Propagation Condition	Case 5 as specified in table D.2.2.1				

8.6.1.4.4.2 Procedure

- 1) The RF parameters are set up according to T1.
- 2) The UE is switched on.
- 3) A call is set up in AWGN conditions, according to the test procedure specified in TS 34.108 [3] sub clause 7.3.2.3.
- 4) SS shall transmit a MEASUREMENT CONTROL message.
- 5) 5 seconds after step4 has completed, the fading simulator is switched on, configured with the settings described in the tables above at the beginning of T1.
- 6) UE shall start transmitting MEASUREMENT REPORT messages triggered by event 1A.
- 7) SS shall count the reports. The number of received event 1A reports shall be less than 60. If the SS fails to receive less than 60 event 1A reports, then then a failure is recorded. If the SS receives number of event 1A reports within the required limit, the number of successful tests is increased by one.

- 8) After 200 seconds from the beginning of T1, the SS shall switch the power settings from T1 to T2.
- 9) UE shall start transmitting MEASUREMENT REPORT messages triggered by event 1B.
- 10) During the first 1s of time period T2 no event reports shall be counted.
- 11) After the first 1s SS shall start counting the reports. The number of received event 1B reports shall be less than 60. If the SS receives number of event 1B reports within the required limit, the number of successful tests is increased by one.
- 12) After 201 seconds from the beginning of T2, the UE is switched off.
- 13) Repeat steps 1-12 until the confidence level according to annex F.6.2 is achieved.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message:

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements -RRC transaction identifier -Integrity check info	0 Not Present
Measurement Information elements -Measurement Identity -Measurement Command (10.3.7.46) -Measurement Reporting Mode (10.3.7.49) -Measurement Report Transfer Mode -Periodical Reporting / Event Trigger Reporting Mode -Additional measurements list (10.3.7.1)	1 Modify AM RLC Event trigger Not Present
-CHOICE <i>Measurement type</i> -Intra-frequency measurement (10.3.7.36) -Intra-frequency measurement objects list (10.3.7.33) -Intra-frequency measurement quantity (10.3.7.38) -Filter coefficient (10.3.7.9) -CHOICE mode -Measurement quantity -Intra-frequency reporting quantity (10.3.7.41)	Intra-frequency measurement Not Present 0 FDD CPICH_Ec/N0
-Reporting quantities for active set cells (10.3.7.5) -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator	No report TRUE (Note 1) TRUE FDD TRUE TRUE TRUE
-Reporting quantities for monitored set cells (10.3.7.5) -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator	No report TRUE (Note 1) TRUE FDD TRUE TRUE TRUE
-Reporting quantities for detected set cells (10.3.7.5)	Not Present
-Reporting cell status (10.3.7.61) -Measurement validity (10.3.7.51) -CHOICE report criteria -Intra-frequency measurement reporting criteria (10.3.7.39) -Parameters required for each event	Not Present Not Present Intra-frequency measurement reporting criteria 2
-Intra-frequency event identity -Triggering condition 2 -Reporting Range Constant -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W -Hysteresis -Threshold used frequency -Reporting deactivation threshold -Replacement activation threshold -Time to trigger -Amount of reporting -Reporting interval -Reporting cell status	Event 1A Active set cells and monitored set cells 0 dB Not Present FDD 1.0 0 dB Not Present 0 Not Present 120 ms Not present 0 ms (Note 2) Not Present
-Intra-frequency event identity -Triggering condition 1 -Reporting Range Constant -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W -Hysteresis	Event 1B Active set cells and monitored set cells 0 dB Not Present FDD 1.0 0 dB

Information Element/Group name	Value/Remark
-Threshold used frequency	Not Present
-Reporting deactivation threshold	Not Present
-Replacement activation threshold	Not Present
-Time to trigger	120 ms
-Amount of reporting	Not Present
-Reporting interval	0 ms (Note 2)
-Reporting cell status	Not Present
Physical channel information elements	
-DPCH compressed mode status info (10.3.6.34)	Not Present
Note 1: The SFN-CFN observed time difference is calculated from the OFF and Tm parameters contained in the IE "Cell synchronisation information", TS 25.331, clause 10.3.7.6. According to TS 25.331, 8.6.7.7, this IE is included in MEASUREMENT REPORT if IE "Cell synchronisation information reporting indicator" in IE "Cell reporting quantities" TS 25.331, clause 10.3.7.5 is set to TRUE in MEASUREMENT CONTROL.	
Note 2: Reporting interval = 0 ms means no periodical reporting	

MEASUREMENT REPORT message for Intra frequency test cases

This message is common for all intra frequency test cases is described in Annex I.

8.6.1.4.5 Test requirements

For the test to pass, the total number of successful tests shall be at least 90% of the cases with a confidence level of 95%. The number of successful tests shall be on an event level, i.e. the SS shall check every time first if the number of the event 1A events is within the required limit, and then, check if the number of the event 1B events is within the required limit.

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.6.2 FDD inter frequency measurements

8.6.2.1 Correct reporting of neighbours in AWGN propagation condition

8.6.2.1.1 Definition and applicability

In the event triggered reporting period the measurement reporting delay is defined as the time between any event that will trigger a measurement report until the UE starts to transmit the measurement report over the Uu interface. This requirement assumes that the measurement report is not delayed by other RRC signalling on the DCCH. This measurement reporting delay excludes a delay uncertainty resulted when inserting the measurement report to the TTI of the uplink DCCH. The delay uncertainty is twice the TTI of the uplink DCCH.

The requirements and this test apply to the FDD UE.

8.6.2.1.2 Minimum requirements

The UE shall be able to identify a new detectable cell belonging to the monitored set within

$$T_{\text{identify_inter}} = \text{Max} \left\{ 5000, T_{\text{basic_identify_FDD,inter}} \cdot \frac{T_{\text{Measurement_Period, Inter}}}{T_{\text{Inter}}} \cdot N_{\text{Freq}} \right\} \text{ms}$$

A cell shall be considered detectable when CPICH Ec/Io ≥ -20 dB, SCH_Ec/Io ≥ -17 dB for at least one channel tap and SCH_Ec/Ior is equally divided between primary synchronisation code and secondary synchronisation code. When L3 filtering is used an additional delay can be expected.

When transmission gaps are scheduled for FDD inter frequency measurements the UE physical layer shall be capable of reporting measurements to higher layers with measurement accuracy as specified in sub-clause 9.1.1 and 9.1.2 of 25.133 with measurement period given by

$$T_{\text{measurement_inter}} = \text{Max} \left\{ T_{\text{Measurement_Period Inter}}, T_{\text{basic_measurement FDD inter}} \cdot \frac{T_{\text{Measurement_Period Inter}}}{T_{\text{Inter}}} \cdot N_{\text{Freq}} \right\} \text{ms}$$

If the UE does not need compressed mode to perform inter-frequency measurements, the measurement period for inter frequency measurements is 480 ms.

The UE shall be capable of performing CPICH measurements for $X_{\text{basic_measurement FDD inter}}$ inter-frequency cells per FDD frequency of the monitored set or the virtual active set, and the UE physical layer shall be capable of reporting measurements to higher layers with the measurement period of $T_{\text{Measurement_Inter}}$.

$$X_{\text{basic_measurement FDD inter}} = 6$$

$T_{\text{Measurement_Period Inter}} = 480$ ms. The period used for calculating the measurement period $T_{\text{measurement_inter}}$ for inter frequency CPICH measurements.

T_{Inter} : This is the minimum time that is available for inter frequency measurements, during the period $T_{\text{Measurement_Period inter}}$ with an arbitrarily chosen timing. The minimum time per transmission gap is calculated by using the actual idle length within the transmission gap as given in the table 11 of Annex B in TS 25.212 and by assuming 2*0.5 ms for implementation margin and after that taking only full slots into account in the calculation.

$T_{\text{basic_identify_FDD,inter}} = 800$ ms. This is the time period used in the inter frequency equation where the maximum allowed time for the UE to identify a new FDD cell is defined.

$T_{\text{basic_measurement_FDD inter}} = 50$ ms. This is the time period used in the equation for defining the measurement period for inter frequency CPICH measurements.

N_{Freq} : Number of FDD frequencies indicated in the inter frequency measurement control information.

The event triggered measurement reporting delay, measured without L3 filtering shall be less than $T_{\text{identify inter}}$ defined in Clause 8.1.2.3.1 of 25.133 When L3 filtering is used an additional delay can be expected.

If a cell has been detectable at least for the time period $T_{\text{identify_inter}}$ and then enters or leaves the reporting range, the event triggered measurement reporting delay shall be less than $T_{\text{Measurement_Period Inter}}$ provided the timing to that cell has not changed more than +/-32 chips while transmission gap has not been available and the L3 filter has not been used.

The normative reference for these requirements is TS 25.133 [2] clauses 8.1.2.3 and A.8.2.1.

8.6.2.1.3 Test purpose

To verify that the UE meets the minimum requirements.

8.6.2.1.4 Method of test

8.6.2.1.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

The initial test parameters are given in table 8.6.2.1.1

Table 8.6.2.1.1: Cell specific initial test parameters for Correct reporting of neighbours in AWGN propagation condition

Parameter	Unit	Cell 1	Cell 2	Cell3
		T0	T0	T0
CPICH_Ec/I _{or}	dB	-10	-10	-10
PCCPCH_Ec/I _{or}	dB	-12	-12	-12
SCH_Ec/I _{or}	dB	-12	-12	-12
PICH_Ec/I _{or}	dB	-15	-15	-15
DPCH_Ec/I _{or}	dB	-17	N/A	N/A
OCNS_Ec/I _{or}	dB	-1.049	-0.941	-0.941
\hat{I}_{or}/I_{oc}	dB	0	-Inf	-Inf
I_{oc}	dBm/3 .84 MHz	-70		
CPICH_Ec/I _o	dB	-13	-Inf	-Inf
Propagation Condition	AWGN			

The test consists of two successive time periods, with a time duration T1 and T2. The test parameters are given in tables 8.6.2.1.2 and 8.6.2.1.3 below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 1A and 2C shall be used. The CPICH Ec/I_o of the best cell on the unused frequency shall be reported together with Event 2C reporting.

Table 8.6.2.1.2: General test parameters for Correct reporting of neighbours in AWGN propagation condition

Parameter	Unit	Value	Comment
DCH parameters		DL and UL Reference Measurement Channel 12.2 kbps	As specified in C.3.1 and C.2.1
Power Control		On	
Compressed mode		C.5.2 set 1	As specified in C.5.
Active cell		Cell 1	
Threshold non used frequency	dB	-18	Absolute Ec/I _o threshold for event 2C
Reporting range	dB	4	Applicable for event 1A
Hysteresis	dB	0	
W		1	Applicable for event 1A
W non-used frequency		1	Applicable for event 2C
Reporting deactivation threshold		0	Applicable for event 1A
Time to Trigger	ms	0	
Filter coefficient		0	
Monitored cell list size		24 on channel 1 16 on channel 2	Measurement control information is sent before the compressed mode pattern starts.
T1	s	10	
T2	s	5	

Table 8.6.2.1.3: Cell Specific parameters for Correct reporting of neighbours in AWGN propagation condition

Parameter	Unit	Cell 1		Cell 2		Cell 3	
		T1	T2	T1	T2	T1	T2
UTRA RF Channel Number		Channel 1		Channel 1		Channel 2	
CPICH_Ec/lor	dB	-10		-10		-10	
PCCPCH_Ec/lor	dB	-12		-12		-12	
SCH_Ec/lor	dB	-12		-12		-12	
PICH_Ec/lor	dB	-15		-15		-15	
DPCH_Ec/lor	dB	-17		N/A		N/A	
OCNS_Ec/lor	dB	-1.049		-0.941		-0.941	
\hat{I}_{or}/I_{oc}	dB	0	5.42	-Infinity	3.92	-1.8	-1.8
I_{oc}	dBm/3.84 MHz	-70				-70	
CPICH_Ec/lo	dB	-13	-13	-Infinity	-14.5	-14	-14
Propagation Condition	AWGN						

8.6.2.1.4.2 Procedure

- 1) The RF parameters are set up according to T0.
- 2) The UE is switched on.
- 3) A call is set up according to the test procedure specified in TS 34.108 [3] sub clause 7.3.2.3.
- 4) SS shall transmit a MEASUREMENT CONTROL message (inter frequency).
- 5) SS shall transmit a MEASUREMENT CONTROL message (intra frequency).
- 6) SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message.
- 7) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.
- 8) 5 seconds after step7 has completed, the SS shall switch the power settings from T0 to T1.
- 9) UE shall transmit a MEASUREMENT REPORT message (inter frequency) triggered by event 2C. The measurement reporting delay from the beginning of T1 shall be less than 9.08 seconds. If the UE fails to report the event within the required delay, then a failure is recorded. If the reporting delay for this event is within the required limit, the number of successful tests is increased by one.
- 10) After 10 seconds from the beginning of T1, the SS shall switch the power settings from T1 to T2.
- 11) UE shall transmit a MEASUREMENT REPORT message (intra frequency) triggered by event 1A. The measurement reporting delay from the beginning of T2 shall be less than 1040 ms. If the reporting delay for this event is within the required limit, the number of successful tests is increased by one.
- 12) After 5 seconds from the beginning of T2, the UE is switched off.
- 13) Repeat steps 1-12 until the confidence level according to annex F.6.2 is achieved.

NOTE: The measurement reporting delay is 956.2 ms plus 80 ms delay uncertainty (twice the TTI). This gives a total of 1036.2 ms and rounded off to 1040 ms.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

PHYSICAL CHANNEL RECONFIGURATION message for Inter frequency measurement:

Information Element	Value/Remark
Message Type	
UE Information Elements -RRC transaction identifier -Integrity check info -Integrity protection mode info -Ciphering mode info -Activation time -New U-RNTI -New C-RNTI -RRC State Indicator -UTRAN DRX cycle length coefficient	0 Not Present Not Present Not Present Not Present Not Present Not Present CELL_DCH Not Present
CN Information Elements -CN Information info	Not Present
UTRAN mobility information elements -URA identity	Not Present
RB information elements -Downlink counter synchronisation info	Not Present
PhyCH information elements -Frequency info	Not Present
Uplink radio resources -Maximum allowed UL TX power	Not Present
Downlink radio resources -CHOICE mode -Downlink PDSCH information -Downlink information common for all radio links -Downlink DPCH info common for all RL -CHOICE mode -DPCH compressed mode info -Transmission gap pattern sequence -TGPSI -TGPS Status Flag -TGCFN -Transmission gap pattern sequence configuration parameters -TGMP -TGPRC -TGSN -TGL1 -TGL2 -TGD -TGPL1 -TGPL2 -RPP -ITP -CHOICE UL/DL mode -Downlink compressed mode method -Uplink compressed mode method -Downlink frame type -DeltaSIR1 -DeltaSIRafter1 -DeltaSIR2 -DeltaSIRafter2 -N Identify abort -T Reconfirm abort -TX Diversity Mode -SSDT information -Default DPCH Offset Value -Downlink information per radio link list - Downlink information for each radio link -Choice mode -Primary CPICH info -Primary scrambling code -PDSCH with SHO DCH Info	FDD Not Present Not Present FDD 1 Activate (Current CFN + (256 – TTI/10msec))mod 256 FDD measurement Not present 4 7 Not Present UNDEFINED 3 Not Present Mode 0 Mode 0 UL and DL SF/2 SF/2 B 3.0 3.0 Not Present Not Present Not Present Not Present Not Present Not Present Not Present Not Present Not Present Not Present FDD 100 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	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400
-Secondary CPICH info	Not Present
-DL channelisation code	
-Secondary scrambling code	Not Present
-Spreading factor	128
-Code number	96
-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

MEASUREMENT CONTROL message (inter frequency):

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
Measurement Information elements	
-Measurement Identity	2
-Measurement Command (10.3.7.46)	Setup
-Measurement Reporting Mode (10.3.7.49)	
-Measurement Report Transfer Mode	AM RLC
-Periodical Reporting / Event Trigger Reporting Mode	Event trigger
-Additional measurements list (10.3.7.1)	Not Present
-CHOICE <i>Measurement type</i>	Inter-frequency measurement
-Inter-frequency measurement (10.3.7.16)	
-Inter-frequency measurement objects list (10.3.7.13)	
- CHOICE Inter-frequency cell removal	Not Present
- New Inter frequency cells	
- Inter frequency cell id	0
- Frequency info	
- CHOICE mode	FDD
- UARFCN uplink(Nu)	Not Present
- UARFCN downlink(Nd)	Same frequency as "Channel2" in Table 8.6.2.1.3
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Set to Primary scrambling code of Cell3
- Primary CPICH Tx Power	Set to Primary CPICH Tx Power of Cell3 described in Table 8.6.2.1.3
- Tx Diversity Indicator	FALSE
- Cell Selection and Re-selection info	Set to Cell Selection and Re-selection info of Cell3
- Cell for measurement	Not Present
-Inter-frequency measurement quantity (10.3.7.18)	
-Intra-frequency reporting criteria	
-Inter-frequency measurement quantity (10.3.7.38)	
-Filter coefficient (10.3.7.9)	0
-CHOICE mode	FDD
-Measurement quantity	CPICH_Ec/N0
-Inter-frequency reporting criteria	
-Filter coefficient (10.3.7.9)	0
-CHOICE mode	FDD
-Measurement quantity for frequency quality estimate	CPICH_Ec/N0
-Inter-frequency reporting quantity (10.3.7.21)	
-UTRA Carrier RSSI	FALSE
-Frequency quality estimate	FALSE
-Non frequency related cell reporting quantities (10.3.7.5)	
-SFN-SFN observed time difference reporting indicator	No report
-Cell synchronisation information reporting indicator	TRUE (Note 1)
-Cell Identity reporting indicator	TRUE
-CHOICE mode	FDD
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	TRUE
-Reporting cell status (10.3.7.61)	Not Present
-Measurement validity (10.3.7.51)	Not Present
-CHOICE report criteria	Inter-frequency measurement reporting criteria
-Inter-frequency measurement reporting criteria (10.3.7.19)	
-Parameters required for each event	1
-Inter-frequency event identity	Event 2C
-Threshold used frequency	Not present
-W used frequency	Not present

Information Element/Group name	Value/Remark
-Hysteresis -Time to trigger -Reporting cell status -CHOICE reported cell -Maximum number of reported cells -Parameters required for each non-used frequency -Threshold non used frequency -W non-used frequency	0 dB 0 ms Report cells within monitored set on non-used frequency 3 -18 dB 1
Physical channel information elements -DPCH compressed mode status info (10.3.6.34)	Not Present
NOTE 1: The SFN-CFN observed time difference is calculated from the OFF and Tm parameters contained in the IE "Cell synchronisation information", TS 25.331, clause 10.3.7.6. According to TS 25.331, 8.6.7.7, this IE is included in MEASUREMENT REPORT if IE "Cell synchronisation information reporting indicator" in IE "Cell reporting quantities" TS 25.331, clause 10.3.7.5 is set to TRUE in MEASUREMENT CONTROL.	

MEASUREMENT CONTROL message (intra frequency):

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements -RRC transaction identifier -Integrity check info	0 Not Present
Measurement Information elements -Measurement Identity -Measurement Command (10.3.7.46) -Measurement Reporting Mode (10.3.7.49) -Measurement Report Transfer Mode -Periodical Reporting / Event Trigger Reporting Mode -Additional measurements list (10.3.7.1)	1 Modify AM RLC Event trigger Not Present
-CHOICE <i>Measurement type</i> -Intra-frequency measurement (10.3.7.36) -Intra-frequency measurement objects list (10.3.7.33) -Intra-frequency measurement quantity (10.3.7.38) -Filter coefficient (10.3.7.9) -CHOICE mode -Measurement quantity -Intra-frequency reporting quantity (10.3.7.41)	Intra-frequency measurement Not Present 0 FDD CPICH_Ec/N0
-Reporting quantities for active set cells (10.3.7.5) -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator	No report TRUE (Note 1) TRUE FDD TRUE TRUE TRUE
-Reporting quantities for monitored set cells (10.3.7.5) -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator	No report TRUE (Note 1) TRUE FDD TRUE TRUE TRUE
-Reporting quantities for detected set cells (10.3.7.5)	Not Present
-Reporting cell status (10.3.7.61) -Measurement validity (10.3.7.51) -CHOICE report criteria -Intra-frequency measurement reporting criteria (10.3.7.39) -Parameters required for each event	Not Present Not Present Intra-frequency measurement reporting criteria 1
-Intra-frequency event identity -Triggering condition 2 -Reporting Range Constant -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W -Hysteresis -Threshold used frequency -Reporting deactivation threshold -Replacement activation threshold -Time to trigger -Amount of reporting -Reporting interval -Reporting cell status	Event 1A Monitored set cells 4 dB Not Present FDD 1.0 0 dB Not Present 0 Not Present 0 ms Not Present 0 ms (Note 2) Not Present
Physical channel information elements -DPCH compressed mode status info (10.3.6.34)	Not Present
Note 1: The SFN-CFN observed time difference is calculated from the OFF and Tm parameters contained in the IE "Cell synchronisation information", TS 25.331, clause 10.3.7.6. According to TS 25.331, 8.6.7.7, this IE is included in MEASUREMENT REPORT if IE "Cell synchronisation information reporting indicator" in IE "Cell reporting quantities" TS 25.331, clause 10.3.7.5 is set to TRUE in MEASUREMENT CONTROL.	
Note 2: Reporting interval = 0 ms means no periodical reporting	

MEASUREMENT REPORT message for Inter frequency test cases

MEASUREMENT REPORT message for Intra frequency test cases

These messages are common for all inter and intra frequency test cases and are described in Annex I.

8.6.2.1.5 Test requirements

For the test to pass, the total number of successful tests shall be at least 90% of the cases with a confidence level of 95%. The number of successful tests shall be on an event level, i.e. the SS shall check how many events are reported successfully out of the total number of events checked.

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.6.2.2 Correct reporting of neighbours in fading propagation condition

8.6.2.2.1 Definition and applicability

In the event triggered reporting period the measurement reporting delay is defined as the time between any event that will trigger a measurement report until the UE starts to transmit the measurement report over the Uu interface. This requirement assumes that the measurement report is not delayed by other RRC signalling on the DCCH. This measurement reporting delay excludes a delay uncertainty resulted when inserting the measurement report to the TTI of the uplink DCCH. The delay uncertainty is twice the TTI of the uplink DCCH. The requirements and this test apply to the FDD UE.

The requirements and this test apply to all types of UTRA for the FDD UE for Release 5 and later releases.

8.6.2.2.2 Minimum requirements

The requirements are the same as in sub clause 8.6.2.1.2.

The normative reference for these requirements is TS 25.133 [2] clauses 8.1.2.3 and A.8.2.2.

8.6.2.2.3 Test purpose

To verify that the UE meets the minimum requirements. The test is performed in fading propagation conditions.

8.6.2.2.4 Method of test

8.6.2.2.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mod range; see clause G.2.4.

The test parameters are given in table 8.6.2.2.4.1 and 8.6.2.2.4.2. In the measurement control information it is indicated to the UE that event-triggered reporting 2C shall be used. The test consists of two successive time periods, each with time duration of T1 and T2 respectively.

Table 8.6.2.2.4.1: General test parameters for correct reporting of neighbours in fading propagation condition

Parameter	Unit	Value	Comment
DCH parameters		DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.101 section A.3.1
Power Control		On	
Compressed mode		A.22 set 2 (TGPL1=12)	As specified in TS 25.101 section A.5.
Active cell		Cell 1	
Absolute Threshold (Ec/N0) for Event 2C	dB	-18	
Hysteresis	dB	0	
Time to Trigger	ms	0	
Filter coefficient		0	
Monitored cell list size		Total 24 8 on frequency Channel 2	Measurement control information is sent before the compressed mode pattern starts.
Propagation Condition		Case 5	As specified in Annex B of TS 25.101.
Frequency offset	ppm	+/- 0.1	Frequency offset between Cell 1 and Cell 2.
T1	s	2	
T2	s	40	

Table 8.6.2.2.4.2: Cell specific test parameters for correct reporting of neighbours in fading propagation condition

Parameter	Unit	Cell 1		Cell 2	
		T1	T2	T1	T2
UTRA RF Channel Number		Channel 1		Channel 2	
CPICH_Ec/I _{or}	dB	-10		-10	
PCCPCH_Ec/I _{or}	dB	-12		-12	
SCH_Ec/I _{or}	dB	-12		-12	
PICH_Ec/I _{or}	dB	-15		-15	
DPCH_Ec/I _{or}	dB	Note 1		N/A	
OCNS_Ec/I _{or}	dB	Note 2		-0.941	
\hat{I}_{or}/I_{oc}	dB	0		-Infinity	-1.8
I_{oc}	dBm/3.84 MHz	-70		-70	
CPICH_Ec/I _o	dB	-13		-Infinity	-14
Propagation Condition	Case 5 as specified in Annex B of TS25.101				
Note 1: The DPCH level is controlled by the power control loop					
Note 2: The power of the OCNS channel that is added shall make the total power from the cell to be equal to I_{or} .					

8.6.2.2.4.2 Procedure

- 1) The RF parameters are set up according to T1.
- 2) The UE is switched on.
- 3) A call is set up in AWGN conditions, according to the test procedure specified in TS 34.108 [3] sub clause 7.3.2.3.
- 4) SS shall transmit a MEASUREMENT CONTROL message.
- 5) After 2 seconds from the beginning of T1, the SS shall switch the power settings from T1 to T2.
- 6) UE shall transmit a MEASUREMENT REPORT message triggered by event 2C. The measurement reporting delay from the beginning of T2 shall be less than 36.4 s. If the UE fails to report the event within the required delay, then a failure is recorded. If the reporting delay for this event is within the required limit, the number of successful tests is increased by one.

- 7) After 40 seconds from the beginning of T2, the UE is switched off.
- 8) Repeat steps 1-7 according to Annex F.6.2 Table 6.2.8

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message:

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
Measurement Information elements	
-Measurement Identity	2
-Measurement Command (10.3.7.46)	Setup
-Measurement Reporting Mode (10.3.7.49)	
-Measurement Report Transfer Mode	AM RLC
-Periodical Reporting / Event Trigger Reporting Mode	Event trigger
-Additional measurements list (10.3.7.1)	Not Present
-CHOICE <i>Measurement type</i>	Inter-frequency measurement
-Inter-frequency measurement (10.3.7.16)	
-Inter-frequency measurement objects list (10.3.7.13)	
- CHOICE Inter-frequency cell removal	Not Present
- New Inter frequency cells	
- Inter frequency cell id	0
- Frequency info	
- CHOICE mode	FDD
- UARFCN uplink(Nu)	Not Present
- UARFCN downlink(Nd)	Same frequency as "Channel2" in Table 8.6.2.1.3
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Set to Primary scrambling code of Cell3
- Primary CPICH Tx Power	Set to Primary CPICH Tx Power of Cell3 described in Table 8.6.2.1.3
- Tx Diversity Indicator	FALSE
- Cell Selection and Re-selection info	Set to Cell Selection and Re-selection info of Cell3
- Cell for measurement	Not Present
-Inter-frequency measurement quantity (10.3.7.18)	
-Intra-frequency reporting criteria	
-Inter-frequency measurement quantity (10.3.7.38)	
-Filter coefficient (10.3.7.9)	0
-CHOICE mode	FDD
-Measurement quantity	CPICH_Ec/N0
-Inter-frequency reporting criteria	
-Filter coefficient (10.3.7.9)	0
-CHOICE mode	FDD
-Measurement quantity for frequency quality estimate	CPICH_Ec/N0
-Inter-frequency reporting quantity (10.3.7.21)	
-UTRA Carrier RSSI	FALSE
-Frequency quality estimate	FALSE
-Non frequency related cell reporting quantities (10.3.7.5)	
-SFN-SFN observed time difference reporting indicator	No report
-Cell synchronisation information reporting indicator	TRUE (Note 1)
-Cell Identity reporting indicator	TRUE
-CHOICE mode	FDD
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	TRUE
-Reporting cell status (10.3.7.61)	Not Present
-Measurement validity (10.3.7.51)	Not Present
-CHOICE report criteria	Inter-frequency measurement reporting criteria
-Inter-frequency measurement reporting criteria (10.3.7.19)	
-Parameters required for each event	1
-Inter-frequency event identity	Event 2C
-Threshold used frequency	Not present
-W used frequency	Not present

Information Element/Group name	Value/Remark
-Hysteresis	0 dB
-Time to trigger	0 ms
-Reporting cell status	
-CHOICE reported cell	Report all active set cells + cells within monitored set on used frequency
-Maximum number of reported cells	3
-Parameters required for each non-used frequency	
-Threshold non used frequency	-18 dB
-W non-used frequency	1
Physical channel information elements	
-DPCH compressed mode status info (10.3.6.34)	Not Present
NOTE 1: The SFN-CFN observed time difference is calculated from the OFF and Tm parameters contained in the IE "Cell synchronisation information", TS 25.331, clause 10.3.7.6. According to TS 25.331, 8.6.7.7, this IE is included in MEASUREMENT REPORT if IE "Cell synchronisation information reporting indicator" in IE "Cell reporting quantities" TS 25.331, clause 10.3.7.5 is set to TRUE in MEASUREMENT CONTROL.	

MEASUREMENT REPORT message for Inter frequency test cases

These messages are common for all inter frequency test cases and are described in Annex I.

8.6.2.2.5 Test requirements

For the test to pass, the total number of successful tests shall be at least 90% of the cases with a confidence level of 95% According to annex F.6.2. The number of successful tests shall be on an event level, i.e. the SS shall check how many events are reported successfully out of the total number of events checked.

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.6.3 TDD measurements

8.6.3.1 Correct reporting of TDD neighbours in AWGN propagation condition

8.6.3.1.1 Definition and applicability

In the event triggered reporting period the measurement reporting delay is defined as the time between any event that will trigger a measurement report until the UE starts to transmit over the Uu interface. This requirement assumes that the measurement report is not delayed by other RRC signalling on the DCCH. This measurement reporting delay excludes a delay uncertainty resulted when inserting the measurement report to the TTI of the uplink DCCH. The delay uncertainty is twice the TTI of the uplink DCCH.

The requirements and this test apply to the combined FDD and TDD UE.

8.6.3.1.2 Minimum requirement

When transmission gaps are scheduled for inter-frequency TDD measurements, the UE shall be able to identify a new detectable inter-frequency TDD cell belonging to the monitored set within

$$T_{\text{identify TDD inter}} = \text{Max} \left\{ 5000, N_{\text{basic identify TDD inter}} \cdot \frac{T_{\text{Measurement Period TDD inter}}}{N_{\text{TDD inter}}} \cdot N_{\text{Freq}} \right\} \text{ms}$$

If the UE does not need compressed mode to perform inter-frequency TDD measurements, the UE shall be able to identify a new detectable inter-frequency TDD cell belonging to the monitored set within 5000 ms.

An inter-frequency TDD cell shall be considered detectable when P-CCPCH Ec/Io ≥ -8 dB and SCH_Ec/Io ≥ -13 dB. When L3 filtering is used an additional delay can be expected.

When transmission gaps are scheduled for inter frequency TDD measurements the UE physical layer shall be capable of reporting measurements to higher layers with a measurement period as given by

$$T_{\text{measurement TDD inter}} = \text{Max} \left\{ T_{\text{Measurement Period TDD inter}}, N_{\text{basic measurement TDD inter}} \cdot \frac{T_{\text{Measurement Period TDD inter}}}{N_{\text{TDD inter}}} \cdot N_{\text{Freq}} \right\} \text{ms}$$

If the UE does not need compressed mode to perform inter-frequency TDD measurements, the measurement period for inter-frequency TDD measurements shall be 480 ms.

The UE shall be capable of performing P-CCPCH RSCP measurements for $X_{\text{basic measurement TDD inter}}$ inter-frequency TDD cells per TDD frequency of the monitored set and the UE physical layer shall be capable of reporting measurements to higher layers with the measurement period of $T_{\text{measurement TDD inter}}$.

where

$X_{\text{basic measurement TDD inter}} = 6$ (cells)

$T_{\text{Measurement_Period TDD inter}} = 480$ ms. The time period used for calculating the measurement period $T_{\text{measurement_TDD inter}}$ for inter frequency P-CCPCH RSCP measurements.

$N_{\text{TDD inter}}$: This is the smallest resulting integer number of transmission gap patterns in a transmission gap pattern sequence assigned to UE by UTRAN for inter frequency TDD measurements during the time period $T_{\text{Measurement_Period TDD inter}}$ with an arbitrarily chosen timing.

$N_{\text{basic_identify_TDD inter}} = 80$. This is the number of transmission gap patterns in a transmission gap pattern sequence for inter-frequency TDD measurements during the time period used in the inter frequency TDD equation where the maximum allowed time for the UE to identify a new inter frequency TDD cell is defined.

$N_{\text{basic_measurement_TDD inter}} = 5$. This is the number of transmission gap patterns in a transmission gap pattern sequence for inter-frequency TDD measurements during the time period $T_{\text{Measurement_Period TDD inter}}$ with an arbitrarily chosen timing that is used in the inter-frequency TDD equation for defining where the measurement period for inter frequency P-CCPCH RSCP measurements is defined.

N_{Freq} : This is the number of TDD frequencies indicated in the inter frequency measurement control information.

The normative reference for this requirement is TS 25.133 [2] clauses 8.1.2.4 and A.8.3.1

8.6.3.1.3 Test purpose

To verify that the UE meets the minimum requirement.

8.6.3.1.4 Method of test

8.6.3.1.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

The test parameters are given in Table 8.6.3.1.1, 8.6.3.1.2 and 8.6.3.1.3. The test consists of 2 successive time periods, with a time duration T1 and T2. Two cells shall be present in the test, cell 1 being the UTRA FDD serving cell and cell 2 being a UTRA TDD neighbour cell on the unused frequency. All cells shall be synchronised, i.e. share the same frame and timeslot timing.

In the measurement control information it is indicated to the UE that event-triggered reporting with Event 2C shall be used. P-CCPCH RSCP of the best cell on the unused frequency shall be reported together with Event 2C reporting. The Measurement control message shall be sent to the UE such that the delay between the end of the last received TTI containing the message and the beginning of T1 is at least equal to the RRC procedure delay as defined in [9].

The TTI of the uplink DCCH shall be 20 ms.

Table 8.6.3.1.1: General test parameters for Correct reporting of TDD inter-frequency neighbours in AWGN propagation condition

Parameter		Unit	Value	Comment
DCH parameters			DL Reference Measurement Channel 12.2 kbps	As specified in TS 34.121 Annex C
Power Control			On	
Target quality value on DTCH		BLER	0.01	
Compressed mode			A.22 set 3	As specified in TS 34.121 Annex C
Initial conditions	Active cell		Cell 1	FDD cell
	Neighbour cell		Cell 2	TDD cell
Final condition	Active cell		Cell 1	FDD cell
O	dB		0	Cell individual offset. This value shall be used for all cells in the test.
Hysteresis	dB		0	Hysteresis parameter for event 2C
Time to Trigger	ms		0	
Threshold non-used frequency	dBm		-71	Applicable for Event 2C
Filter coefficient			0	
Monitored cell list size			6 FDD neighbours on Channel 1 6 TDD neighbours on Channel 2	
T1	S		15	
T2	S		10	

Table 8.6.3.1.2: Cell 1 specific parameters for Correct reporting of TDD inter-frequency neighbours in AWGN propagation condition

Parameter	Unit	Cell 1
		T1, T2
UTRA RF Channel Number		Channel 1
CPICH_Ec/I _{or}	dB	-10
P-CCPCH_Ec/I _{or}	dB	-12
SCH_Ec/I _{or}	dB	-12
PICH_Ec/I _{or}	dB	-15
DPCH_Ec/I _{or}	dB	Note 1
OCNS_Ec/I _{or}	dB	Note 2
\hat{I}_{or}/I_{oc}	dB	0
I_{oc}	dBm/3.84 MHz	-70
CPICH_Ec/I _o	dB	-13
Propagation Condition		AWGN
Note 1: The DPCH level is controlled by the power control loop		
Note 2: The power of the OCNS channel that is added shall make the total power from the cell to be equal to I _{or} .		

Table 8.6.3.1.3: Cell 2 specific parameters for Correct reporting of TDD inter-frequency neighbours in AWGN propagation condition

Parameter	Unit	Cell 2			
		0		8	
DL timeslot number		T1	T2	T1	T2
UTRA RF Channel Number		Channel 2			
P-CCPCH_Ec/Ior	dB	-3		n.a.	
PICH_Ec/Ior	dB	n.a.		-3	
SCH_Ec/Ior	dB	-9			
SCH_toffset	dB	10			
OCNS_Ec/Ior	dB	-3.12			
P-CCPCH RSCP	dBm	-75	-67	n.a.	n.a.
\hat{I}_{or}/I_{oc}	dB	-2	6	-2	6
I_{oc}	dBm/3,84 MHz	-70			
Propagation Condition		AWGN			
Note that the transmit energy per PN chip for the SCH is averaged over the 256 chip duration when the SCH is present in the time slot.					

8.6.3.1.4.2 Procedure

- 1) The RF parameters are set up according to T1.
- 2) The UE is switched on.
- 3) A call is set up according to the generic set-up procedure specified in TS 34.108 [3] subclause 7.3.2.3.
- 4) SS shall transmit a MEASUREMENT CONTROL message.
- 5) SS shall transmit a PHYSICAL CHANNEL RECONFIGURATION message.
- 6) UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message
- 7) After 10 seconds from the beginning of T1, the SS shall switch the power settings from T1 to T2.
- 8) UE shall transmit a MEASUREMENT REPORT message triggered by event 2c for cell 2. The measurement reporting delay from the beginning of T2 shall be less than 9.2 s. If the UE fails to report the event within the required delay, then a failure is recorded. If the reporting delay for this event is within the required limit, the number of successful tests is increased by one.
- 9) After 10 seconds from the beginning of T3, the UE is switched off. Any timing information of cell 2 is deleted in the UE.
- 10) Repeat steps 1-9 until the confidence level according to annex F.6.2 is achieved.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message (step 4):

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
Measurement Information elements	
-Measurement Identity	1
-Measurement Command (10.3.7.46)	Modify
-Measurement Reporting Mode (10.3.7.49)	AM RLC
-Measurement Report Transfer Mode	Event trigger
-Periodical Reporting / Event Trigger Reporting Mode	Not Present
-Additional measurements list (10.3.7.1)	
-CHOICE <i>Measurement type</i>	Inter-frequency measurement
-Inter-frequency measurement (10.3.7.16)	
-Inter-frequency measurement objects list (10.3.7.13)	
-CHOICE <i>inter-frequency cell removal</i>	No inter-frequency cells removed
-New inter-frequency cells	1
-Inter-frequency cell id	1
-Frequency info (10.3.6.36)	
-CHOICE <i>mode</i>	TDD
-UARFCN(Nt)	Same frequency as channel 2 in Table 8.6.2.4.1.2
-Cell info (10.3.7.2)	
-Cell individual offset	Not Present
-Reference time difference to cell	Not Present
-Read SFN indicator	False
-CHOICE <i>mode</i>	TDD
-Primary CCPCH info (10.3.6.57)	
-CHOICE <i>mode</i>	TDD
-CHOICE Sync case	2
-Timeslot	0
-cell parameters ID	Set to cell parameters ID of cell 2
-SCTD indicator	FALSE
-Primary CCPCH Tx power	Set to Primary CCPCH Tx power of cell 2 as described in Table 8.6.2.4.1.2
-Timeslot list	Not Present
-Cell selection and re-selection info	Not Present
-Cell for measurement	Not Present
-Inter-frequency measurement quantity (10.3.7.18)	
-CHOICE <i>reporting criteria</i>	Inter-frequency reporting criteria
-Filter coefficient (10.3.7.9)	0
-CHOICE <i>mode</i>	TDD
-Measurement quantity for frequency quality estimate	Primary CCPCH RSCP
-Inter-frequency reporting quantity (10.3.7.21)	
-UTRA carrier RSSI	
-Frequency quality estimate	
-Non frequency related cell reporting quantities (10.3.7.5)	
-SFN-SFN observed time difference reporting indicator	No report
-Cell synchronisation information reporting indicator	FALSE
-Cell identity reporting indicator	FALSE
-CHOICE <i>mode</i>	TDD
-Timeslot ISCP reporting indicator	FALSE
-Proposed TGSN Reporting required	FALSE
-Primary CCPCH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	FALSE
-Reporting cell status (10.3.7.61)	Not Present
-Measurement validity (10.3.7.51)	Not Present
-CHOICE <i>report criteria</i>	Inter-frequency measurement reporting criteria
-Inter-frequency measurement reporting criteria (10.3.7.19)	
-Parameters required for each event	1
-Intra-frequency event identity	Event 2C
-Threshold used frequency	Not Present
-W Used frequency	Not Present
-Hysteresis	0 dB
-Time to trigger	0 ms

Information Element/Group name	Value/Remark
<ul style="list-style-type: none">-Reporting Cell Status (10.3..61)-CHOICE reported cell -Maximum number of reported cells-Parameters required for each non-used frequenc- Threshold non-used frequency- W non-used frequency	Report cells within active and/or monitored set on used frequency or within virtual active and/or monitored set on non-used frequency 3 -71 1
Physical channel information elements <ul style="list-style-type: none">-DPCH compressed mode status info (10.3.6.34)	Not Present

PHYSICAL CHANNEL RECONFIGURATION message (Step 6)

Information Element	Value/Remark
Message Type	
UE Information Elements -RRC transaction identifier -Integrity check info -Integrity protection mode info -Ciphering mode info -Activation time -New U-RNTI -New C-RNTI -RRC State Indicator -UTRAN DRX cycle length coefficient	0 Not Present Not Present Not Present Not Present Not Present Not Present CELL_DCH Not Present
CN Information Elements -CN Information info	Not Present
UTRAN mobility information elements -URA identity	Not Present
RB information elements -Downlink counter synchronisation info	Not Present
PhyCH information elements -Frequency info	Not Present
Uplink radio resources -Maximum allowed UL TX power	Not Present
Downlink radio resources -CHOICE mode -Downlink PDSCH information -Downlink information common for all radio links -Downlink DPCH info common for all RL -CHOICE mode -DPCH compressed mode info -Transmission gap pattern sequence -TGPSI -TGPS Status Flag -TGCFN -Transmission gap pattern sequence configuration parameters -TGMP -TGPRC -TGSN -TGL1 -TGL2 -TGD -TGPL1 -TGPL2 -RPP -ITP -CHOICE UL/DL mode -Downlink compressed mode method -Uplink compressed mode method -Downlink frame type -DeltaSIR1 -DeltaSIRafter1 -DeltaSIR2 -DeltaSIRafter2 -N Identify abort -T Reconfirm abort -TX Diversity Mode -SSDT information -Default DPCH Offset Value -Downlink information per radio link list - Downlink information for each radio link -Choice mode -Primary CPICH info -Primary scrambling code -PDSCH with SHO DCH Info	FDD Not Present Not Present FDD 1 Activate (Current CFN + (256 – TTI/10msec))mod 256 TDD measurement Not present 10 10 Not Present 0 11 Not Present Mode 0 Mode 0 UL and DL SF/2 puncturing A 3.0 3.0 Not Present Not Present Not Present Not Present Not Present Not Present Not Present Not Present Not Present Not Present Not Present FDD 100 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	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400
-Secondary CPICH info	Not Present
-DL channelisation code	
-Secondary scrambling code	Not Present
-Spreading factor	128
-Code number	96
-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

MEASUREMENT REPORT message (step 8)

Information Element	Value/remark
Message Type (10.2.17)	
Integrity check info	Not Present
Measurement identity	1
Measured Results (10.3.7.44)	
-CHOICE Measurement	Inter-frequency Measured results list
-Inter-frequency measured results	1
-Frequency info	
-CHOICE mode	TDD
-UARFCN(Nt)	Same frequency as channel 2
-UTRA carrier RSSI	Not Present
-Inter-frequency cell measured results	1
-Cell measured results (10.3.7.3)	
-Cell identity	Not Present
-SFN-SFN observed time difference	Not Present
-Cell synchronisation info	Not Present
-CHOICE mode	TDD
-Cell parameters ID	Set to cell parameters ID of Cell 2
-Proposed TGSN	Not Present
-Primary CCPCH RSCP	Checked that this IE is present
-Pathloss	Not Present
-Timeslot list	Not Present
Measured results on RACH	Not Present
Additional measured results	Not Present
Event results (10.3.7.7)	
-CHOICE event result	Inter-frequency measurement event results
-Inter-frequency event identity	2C
-Inter-frequency cells	1
-Frequency Info	
-CHOICE mode	TDD
-UARFCN(Nt)	Same frequency as channel 2
-CHOICE mode	TDD
-Primary CCPCH Info	
-CHOICE mode	TDD
-CHOICE Sync Case	Not Present
-Cell Parameters ID	Set to cell parameters ID of Cell 2
-SCTD Indicator	FALSE

8.6.3.1.5 Test requirements

The UE shall send one Event 2C triggered measurement report for Cell 2 with a measurement reporting delay less than 9.2 s from the beginning of time period T2.

The UE shall not send event triggered measurement reports, as long as the reporting criteria are not fulfilled.

For the test to pass, the total number of successful tests shall be more than 90% of the cases with a confidence level of 95%.

8.6.4 GSM measurements

8.6.4.1 Correct reporting of GSM neighbours in AWGN propagation condition

8.6.4.1.1 Definition and applicability

In the event triggered reporting period the measurement reporting delay is defined as the time between any event that will trigger a measurement report until the UE starts to transmit the measurement report over the Uu interface. This requirement assumes that the measurement report is not delayed by other RRC signalling on the DCCH. This measurement reporting delay excludes a delay uncertainty resulted when inserting the measurement report to the TTI of the uplink DCCH. The delay uncertainty is twice the TTI of the uplink DCCH.

The requirements in this section apply only to UE supporting FDD and GSM for Release 99, Release 4, Release 5 and later releases.

8.6.4.1.2 Minimum requirements

Measurements on GSM cells can be requested with BSIC verified or BSIC non-verified.

- 1) In CELL_DCH state when a transmission gap pattern sequence is provided by the UTRAN the UE shall continuously measure GSM cells and search for new GSM cells given in the monitored set.
- 2) If the UE does not need compressed mode to perform GSM measurements:
 - the UE shall measure all GSM cells present in the monitored set
 - the relevant requirements for GSM dedicated mode when a TCH channel is assigned in TS 45.008 shall apply.

The normative reference for these requirements is TS 25.133 [2] clauses 8.1.2.5 and A.8.4.1.

8.6.4.1.3 Test purpose

To verify that the UE meets the minimum requirements.

8.6.4.1.4 Method of test

8.6.4.1.4.1 Test 1 initial conditions

Test 1 with BSIC verification required case:

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

The test parameters are given in table 8.6.4.1, 8.6.4.2 and 8.6.4.3 below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 3B and 3C shall be used. The test consists of three successive time periods, with a time duration of T1, T2 and T3 respectively.

Table 8.6.4.1: General test parameters for Correct reporting of GSM neighbours in AWGN propagation condition, Test 1

Parameter	Unit	Value	Comment
DCH parameters		DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.101 section A.3.1
Power Control		On	
Target quality value on DTCH	BLER	0.01	
Compressed mode patterns - GSM carrier RSSI measurement - GSM Initial BSIC identification		DL Compressed mode reference pattern 2 in Set 2 Pattern 2	Only applicable for UE requiring compressed mode patterns As specified in table A.22 TS 25.101 section A.5 As specified in section 8.1.2.5.2.1 table 8.7.
Active cell		Cell 1	
Inter-RAT measurement quantity		GSM Carrier RSSI	
BSIC verification required		Required	
Threshold other system	dBm	-80	Absolute GSM carrier RSSI threshold for event 3B and 3C.
Hysteresis	dB	0	
Time to Trigger	ms	0	
Filter coefficient		0	
Monitored cell list size		24 FDD neighbours on Channel 1 6 GSM neighbours including ARFCN 1	Measurement control information is sent before the compressed mode patterns starts.
N Identify abort		66	Taken from table 8.7.
T1	s	5	
T2	s	7	
T3	s	5	

Table 8.6.4.2: Cell specific test parameters for Correct reporting of GSM neighbours in AWGN propagation condition (cell 1)

Parameter	Unit	Cell 1
		T1, T2, T3
UTRA RF Channel Number		Channel 1
CPICH_Ec/lor	dB	-10
PCCPCH_Ec/lor	dB	-12
SCH_Ec/lor	dB	-12
PICH_Ec/lor	dB	-15
DPCH_Ec/lor	dB	Note 1
OCNS_Ec/lor	dB	Note 2
\hat{I}_{or}/I_{oc}	dB	0
I_{oc}	dBm/ 3.84 MHz	-85
CPICH_Ec/lo	dB	-13
Propagation Condition		AWGN
Note 1: The DPCH level is controlled by the power control loop. Note 2: The power of the OCNS channel that is added shall make the total power from the cell to be equal to I_{or} .		

Table 8.6.4.3: Cell specific test parameters for Correct reporting of GSM neighbours in AWGN propagation condition (cell 2)

Parameter	Unit	Cell 2		
		T1	T2	T3
Absolute RF Channel Number		ARFCN 1		
RXLEV	dBm	-Infinity	-75	-85

8.6.4.1.4.2 Test 1 Procedure

- 1) The RF parameters are set up according to T1.
- 2) The UE is switched on.
- 3) A call is set up according to the test procedure specified in TS 34.108 [3] sub clause 7.3.2.3.
- 4) SS shall transmit a MEASUREMENT CONTROL message.
- 5) After 5 seconds from the beginning of T1, the SS shall switch the power settings from T1 to T2.
- 6) UE shall transmit a MEASUREMENT REPORT message triggered by event 3C. The measurement reporting delay from the beginning of T2 shall be less than 6.24s. If the UE fails to report the event within the required delay, then a failure is recorded. If the reporting delay for this event is within the required limit, the number of successful tests is increased by one.
- 7) After 7 seconds from the beginning of T2, the SS shall switch the power settings from T2 to T3.
- 8) UE shall transmit a MEASUREMENT REPORT message triggered by event 3B. The measurement reporting delay from the beginning of T3 shall be less than 960 ms. If the reporting delay for this event is within the required limit, the number of successful tests is increased by one.
- 9) After 5 seconds from the beginning of T3, the UE is switched off.
- 10) Repeat steps 1-9 according to Annex F.6.2 Table F.6.2.8.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message:

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
Measurement Information elements	
-Measurement Identity	2
-Measurement Command (10.3.7.46)	Modify
-Measurement Reporting Mode (10.3.7.49)	
-Measurement Report Transfer Mode	AM RLC
-Periodical Reporting / Event Trigger Reporting Mode	Event trigger
-Additional measurements list (10.3.7.1)	Not Present
-CHOICE <i>Measurement type</i>	Inter-RAT measurement
-Inter-RAT measurement (10.3.7.27)	
-Inter-RAT measurement objects list (10.3.7.23)	Not Present
-Inter-RAT measurement quantity (10.3.7.29)	
-Measurement quantity for UTRAN quality estimate (10.3.7.38)	
-Filter coefficient	0
-CHOICE mode	FDD
-Measurement quantity	CPICH Ec/N0
-CHOICE system	GSM
-Measurement quantity	GSM Carrier RSSI
-Filter coefficient	0
-BSIC verification required	Required
-Inter-RAT reporting quantity (10.3.7.32)	
-Reporting cell status (10.3.7.61)	
-CHOICE reported cell	
-Maximum number of reported cells	Report cells within active set or within virtual active set or of the other RAT
-CHOICE report criteria	2
-Inter-RAT measurement reporting criteria (10.3.7.30)	Inter-RAT measurement reporting criteria
-Parameters required for each event	1
-Inter-RAT event identity (10.3.7.24)	Event 3C
-Threshold own system	Not Present
-W	Not Present
-Threshold other system	-80 dBm
-Hysteresis	0 dB
-Time to trigger	0 ms
-Reporting cell status (10.3.7.61)	
-CHOICE reported cell	
-Maximum number of reported cells	Report cells within active set or within virtual active set or of the other RAT
	2
Physical channel information elements	
-DPCH compressed mode status info (10.3.6.34)	Active (for all three patterns specified in table 8.6.4.1)

8.6.4.1.4.3 Test 2 initial conditions

Test 2 without BSIC verification required case:

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

The test parameters are given in table 8.6.4.4, 8.6.4.5 and 8.6.4.6 below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 3B and 3C shall be used. The test consists of three successive time periods, with a time duration of T1, T2 and T3 respectively.

Table 8.6.4.4: General test parameters for Correct reporting of GSM neighbours in AWGN propagation condition, Test 2

Parameter	Unit	Value	Comment
DCH parameters		DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.101 section A.3.1
Power Control		On	
Target quality value on DTCH	BLER	0.01	
Compressed mode patterns - GSM carrier RSSI measurement		DL Compressed mode reference pattern 2 in Set 2	Only applicable for UE requiring compressed mode patterns As specified in table A.22 TS 25.101 section A.5
Active cell		Cell 1	
Inter-RAT measurement quantity		GSM Carrier RSSI	
BSIC verification required		not required	
Threshold other system	dBm	-80	Absolute GSM carrier RSSI threshold for event 3B and 3C.
Hysteresis	dB	0	
Time to Trigger	Ms	0	
Filter coefficient		0	
Monitored cell list size		24 FDD neighbours on Channel 1 6 GSM neighbours including ARFCN 1	Measurement control information is sent before the compressed mode patterns starts.
T1	s	5	
T2	s	2	
T3	s	5	

Table 8.6.4.5: Cell specific test parameters for Correct reporting of GSM neighbours in AWGN propagation condition (cell 1)

Parameter	Unit	Cell 1
		T1, T2, T3
UTRA RF Channel Number		Channel 1
CPICH_Ec/lor	dB	-10
PCCPCH_Ec/lor	dB	-12
SCH_Ec/lor	dB	-12
PICH_Ec/lor	dB	-15
DPCH_Ec/lor	dB	Note 1
OCNS_Ec/lor	dB	Note 2
\hat{I}_{or}/I_{oc}	dB	0
I_{oc}	dBm/ 3.84 MHz	-85
CPICH_Ec/lo	dB	-13
Propagation Condition		AWGN
Note 1: The DPCH level is controlled by the power control loop. Note 2: The power of the OCNS channel that is added shall make the total power from the cell to be equal to I_{or} .		

Table 8.6.4.6: Cell specific test parameters for Correct reporting of GSM neighbours in AWGN propagation condition (cell 2)

Parameter	Unit	Cell 2		
		T1	T2	T3
Absolute RF Channel Number		ARFCN 1		
RXLEV	dBm	-Infinity	-75	-85

8.6.4.1.4.4 Test 2 Procedure

- 1) The RF parameters are set up according to T1.
- 2) The UE is switched on.
- 3) A call is set up according to the test procedure specified in TS 34.108 [3] sub clause 7.3.2.3.
- 4) SS shall transmit a MEASUREMENT CONTROL message.
- 5) After 5 seconds from the beginning of T1, the SS shall switch the power settings from T1 to T2.
- 6) UE shall transmit a MEASUREMENT REPORT message triggered by event 3C. The measurement reporting delay from the beginning of T2 shall be less than 960 ms. If the UE fails to report the event within the required delay, then a failure is recorded. If the reporting delay for this event is within the required limit, the number of successful tests is increased by one.
- 7) After 7 seconds from the beginning of T2, the SS shall switch the power settings from T2 to T3.
- 8) UE shall transmit a MEASUREMENT REPORT message triggered by event 3B. The measurement reporting delay from the beginning of T3 shall be less than 960 ms. If the reporting delay for this event is within the required limit, the number of successful tests is increased by one.
- 9) After 5 seconds from the beginning of T3, the UE is switched off.
- 10) Repeat steps 1-9 according to Annex F.6.2 Table F.6.2.8.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message:

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
Measurement Information elements	
-Measurement Identity	2
-Measurement Command (10.3.7.46)	Modify
-Measurement Reporting Mode (10.3.7.49)	
-Measurement Report Transfer Mode	AM RLC
-Periodical Reporting / Event Trigger Reporting Mode	Event trigger
-Additional measurements list (10.3.7.1)	Not Present
-CHOICE <i>Measurement type</i>	Inter-RAT measurement
-Inter-RAT measurement (10.3.7.27)	
-Inter-RAT measurement objects list (10.3.7.23)	Not Present
-Inter-RAT measurement quantity (10.3.7.29)	
-Measurement quantity for UTRAN quality estimate (10.3.7.38)	
-Filter coefficient	0
-CHOICE mode	FDD
-Measurement quantity	CPICH Ec/N0
-CHOICE system	GSM
-Measurement quantity	GSM Carrier RSSI
-Filter coefficient	0
-BSIC verification required	Not Required
-Inter-RAT reporting quantity (10.3.7.32)	
-Reporting cell status (10.3.7.61)	
-CHOICE reported cell	Report cells within active set or within virtual active set or of the other RAT
-Maximum number of reported cells	2
-CHOICE report criteria	Inter-RAT measurement reporting criteria
-Inter-RAT measurement reporting criteria (10.3.7.30)	
-Parameters required for each event	1
-Inter-RAT event identity (10.3.7.24)	Event 3C
-Threshold own system	Not Present
-W	Not Present
-Threshold other system	-80 dBm
-Hysteresis	0 dB
-Time to trigger	0 ms
-Reporting cell status (10.3.7.61)	
-CHOICE reported cell	Report cells within active set or within virtual active set or of the other RAT
-Maximum number of reported cells	2
Physical channel information elements	
-DPCH compressed mode status info (10.3.6.34)	Active (for all three patterns specified in table 8.6.4.4)

MEASUREMENT REPORT message for inter – RAT test cases

These messages are common for all inter-RAT test cases and are described in Annex I.

8.6.4.1.5 Test requirements

8.6.4.1.5.1 TEST 1 With BSIC verification required

For the test to pass, the total number of successful tests shall be at least 90% of the cases, with a confidence level of 95%. The number of successful tests shall be on an event level, i.e. the SS shall check how many events are reported successfully out of the total number of events checked.

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.6.4.1.5.2 TEST 2 Without BSIC verification required

For the test to pass, the total number of successful tests shall be at least 90% of the cases, with a confidence level of 95%. The number of successful tests shall be on an event level, i.e. the SS shall check how many events are reported successfully out of the total number of events checked.

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.7 Measurements Performance Requirements

Unless explicitly stated:

- Reported measurements shall be within defined range in 90 % of the cases.
- Measurement channel is 12.2 kbps as defined in Annex C, sub-clause C.3.1. This measurement channel is used both in active cell and cells to be measured.
- Physical channels used as defined in Annex E.
- Cell 1 is the active cell.
- Single task reporting.
- Power control is active.

8.7.1 CPICH RSCP

8.7.1.1 Intra frequency measurements accuracy

8.7.1.1.1 Absolute accuracy requirement

8.7.1.1.1.1 Definition and applicability

The absolute accuracy of CPICH RSCP is defined as the CPICH RSCP measured from one cell compared to the actual CPICH RSCP power from same cell.

The requirements and this test apply to all types of UTRA for the FDD UE.

8.7.1.1.1.2 Minimum Requirements

The accuracy requirements in table 8.7.1.1.1 are valid under the following conditions:

- $CPICH_RSCP1|_{dBm} \geq -114$ dBm.

$$- \left. \frac{I_o}{(\hat{I}_{or})} \right|_{in\ dB} - \left. \left(\frac{CPICH_E_c}{I_{or}} \right) \right|_{in\ dB} \leq 20dB$$

Table 8.7.1.1.1: CPICH_RSCP Intra frequency absolute accuracy

Parameter	Unit	Accuracy [dB]		Conditions Io [dBm/3.84 MHz]
		Normal condition	Extreme condition	
CPICH_RSCP	dBm	±6	±9	-94...-70
	dBm	±8	±11	-70...-50

The normative reference for this requirement is TS 25.133 [2] clauses 9.1.1.1.1 and A.9.1.1.2.

8.7.1.1.1.3 Test purpose

The purpose of this test is to verify that the CPICH RSCP absolute measurement accuracy is within the specified limits in clause 8.7.1.1.2. This measurement is for handover evaluation, DL open loop power control, UL open loop control and for the calculation of pathloss.

8.7.1.1.1.4 Method of test

8.7.1.1.1.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

In this case all cells are on the same frequency. CPICH RSCP intra frequency absolute accuracy requirements are tested by using test parameters in table 8.7.1.1.2.

Table 8.7.1.1.2: CPICH RSCP Intra frequency parameters

Parameter	Unit	Test 1		Test 2		Test 3	
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior	dB	-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15	
DPCH_Ec/Ior	dB	-15	-	-15	-	-15	-
OCNS_Ec/Ior	dB	-1.11	-0.94	-1.11	-0.94	-1.11	-0.94
Ior	dBm/ 3.84 MHz	-75.54		-59.98		-97.47	
Ior/Ior	dB	4	0	9	0	0	-6.53
CPICH RSCP, Note 1	dBm	-81.5	-85.5	-60.98	-69.88	-107.47	-114.0
Ior, Note 1	dBm/3.84 MHz	-69		-50		-94	
Propagation condition	-	AWGN		AWGN		AWGN	
NOTE 1: CPICH RSCP and Ior levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.							
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.							

8.7.1.1.1.4.2 Procedure

- 1) A call is set up according to the test procedure specified in TS 34.108 [3] clause 7.3.2.3. The RF parameters for Test 1 are set up according to table 8.7.1.1.4.
- 2) SS shall transmit MEASUREMENT CONTROL message.
- 3) UE shall transmit periodically MEASUREMENT REPORT messages.
- 4) SS shall check CPICH_RSCP value in MEASUREMENT REPORT messages. CPICH RSCP power of Cell 1 reported by UE is compared to actual CPICH RSCP power for each MEASUREMENT REPORT message.
- 5) SS shall count number of MEASUREMENT REPORT messages transmitted by UE. After 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.1.1.4 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 4) above is repeated. After further 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.1.1.4 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 4) above is repeated.
- 6) After further 1000 MEASUREMENT REPORT messages have been received from UE, the SS shall transmit RRC CONNECTION RELEASE message.
- 7) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message for Intra frequency measurement (Step 1):

Information Element	Value/Remark
Message Type	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
Measurement Information elements	
-Measurement Identity	5
-Measurement Command	SETUP
-Measurement Reporting Mode	
- Measurement Report Transfer Mode	Acknowledged mode RLC
- Periodical Reporting / Event Trigger Reporting Mode	Periodical reporting
-Additional measurement list	Not Present
-CHOICE Measurement Type	Intra-frequency measurement
-Intra-frequency measurement	
- Intra-frequency measurement objects list	Not Present
-Intra-frequency measurement quantity	
-Filter coefficient	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	
-Cell Identity reporting indicator	TRUE
-CHOICE mode	TRUE
-CPICH Ec/N0 reporting indicator	FDD
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	TRUE
-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	TRUE
-CPICH Ec/N0 reporting indicator	FDD
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	TRUE
-Reporting quantities for detected set cells	Not Present
-Reporting cell status	
-CHOICE reported cell	Report all active set cells + cells within monitored set on used frequency
-Maximum number of reported cells	Virtual/active set cells + 2
-Measurement validity	Not Present
-CHOICE <i>report criteria</i>	Periodical reporting criteria
-Amount of reporting	Infinity
-Reporting interval	250 ms
Physical channel information elements	
-DPCH compressed mode status info	Not Present

MEASUREMENT REPORT message for Intra frequency test cases

This message is common for all intra frequency test cases in clause 8.7 and is described in Annex I.

8.7.1.1.1.5 Test requirements

Table 8.7.1.1.1.3: CPICH_RSCP Intra frequency absolute accuracy, test requirement

Parameter	Unit	Accuracy [dB]		Conditions
		Normal condition	Extreme condition	Io [dBm]
CPICH_RSCP	dBm	±7.4	±10.4	-94...-70
	dBm	±9.4	±12.4	-70...-50

Table 8.7.1.1.1.4: CPICH RSCP Intra frequency test parameters

Parameter	Unit	Test 1		Test 2		Test 3	
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior	dB	-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15	
DPCH_Ec/Ior	dB	-15	-	-15	-	-15	-
OCNS_Ec/Ior	dB	-1.11	-0.94	-1.11	-0.94	-1.11	-0.94
Ioc	dBm/ 3.84 MHz	-74.54		-61,6		-96.47	
Ior/Ioc	dB	4.3	0.3	9.3	0.3	0.3	-6.23
CPICH RSCP, Note 1	dBm	-80.2	-84.2	-62.3	-71.3	-106.17	-112.7
Io, Note 1	dBm	-67.8		-51,4		-92,8	
Propagation condition	-	AWGN		AWGN		AWGN	
NOTE 1: CPICH RSCP and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.							
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.							

The reported values for the absolut intra frequency CPICH RSCP measurement shall meet the requirements in table 8.7.1.1.1.5.

Table 8.7.1.1.1.5: CPICH_RSCP Intra frequency absolute accuracy requirements for the reported values

	Test 1	Test 2	Test 3
Normal Conditions			
Lowest reported value	CPICH_RSCP_26	CPICH_RSCP_44	CPICH_RSCP_2
Highest reported value	CPICH_RSCP_45	CPICH_RSCP_63	CPICH_RSCP_17
Extreme Conditions			
Lowest reported value	CPICH_RSCP_23	CPICH_RSCP_41	CPICH_RSCP_0
Highest reported value	CPICH_RSCP_48	CPICH_RSCP_66	CPICH_RSCP_20

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.7.1.1.2 Relative accuracy requirement

8.7.1.1.2.1 Definition and applicability

The relative accuracy of CPICH RSCP is defined as the CPICH RSCP measured from one cell compared to the CPICH RSCP measured from another cell on the same frequency.

The requirements and this test apply to all types of UTRA for the FDD UE.

8.7.1.1.2.2 Minimum Requirements

The accuracy requirements in table 8.7.1.1.2.1 are valid under the following conditions:

- $CPICH_RSCP_{1,2}|_{dBm} \geq -114$ dBm.
- $\left| CPICH_RSCP1|_{in\ dBm} - CPICH_RSCP2|_{in\ dBm} \right| \leq 20dB$
- $\left(\frac{I_o}{\hat{I}_{or}} \right)|_{in\ dB} - \left(\frac{CPICH - E_c}{I_{or}} \right)|_{in\ dB} \leq 20dB$

Table 8.7.1.1.2.1: CPICH_RSCP Intra frequency relative accuracy

Parameter	Unit	Accuracy [dB]		Conditions
		Normal condition	Extreme condition	Io [dBm/3.84 MHz]
CPICH_RSCP	dBm	±3	±3	-94...-50

The normative reference for this requirement is TS 25.133 [2] clauses 9.1.1.1.2 and A.9.1.1.2.

8.7.1.1.2.3 Test purpose

The purpose of this test is to verify that the CPICH RSCP relative measurement accuracy is within the specified limits in clause 8.7.1.1.2.2. This measurement is for handover evaluation, DL open loop power control, UL open loop control and for the calculation of pathloss.

8.7.1.1.2.4 Method of test

8.7.1.1.2.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

In this case all cells are on the same frequency. CPICH RSCP intra frequency relative accuracy requirements are tested by using test parameters in table 8.7.1.1.1.2.

8.7.1.1.2.4.2 Procedure

- 1) A call is set up according to the test procedure specified in TS 34.108 [3] clause 7.3.2.3. The RF parameters for Test 1 are set up according to table 8.7.1.1.1.2.
- 2) SS shall transmit MEASUREMENT CONTROL message.
- 3) UE shall transmit periodically MEASUREMENT REPORT messages.
- 4) SS shall check CPICH_RSCP value of Cell 1 and Cell 2 in MEASUREMENT REPORT messages. CPICH RSCP power value measured from Cell 1 is compared to CPICH RSCP power value measured from Cell 2 for each MEASUREMENT REPORT message.
- 5) The result of step 3) is compared to actual power level difference of CPICH RSCP of Cell 1 and Cell 2.
- 6) SS shall count number of MEASUREMENT REPORT messages transmitted by UE. After 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.1.1.2.3 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 4) and 5) above are repeated. After further 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.1.1.2.3 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for

additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 4) and 5) above are repeated.

- 7) After further 1000 MEASUREMENT REPORT messages have been received from UE, the SS shall transmit RRC CONNECTION RELEASE message.
- 8) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message for Intra frequency measurement in clause 8.7.1.1.4.2 is used.

MEASUREMENT REPORT message for Intra frequency test cases

This message is common for all intra frequency test cases in clause 8.7 and is described in Annex I.

8.7.1.1.2.5 Test requirements

Table 8.7.1.1.2.2: CPICH_RSCP Intra frequency relative accuracy, test requirements

Parameter	Unit	Accuracy [dB]		Conditions
		Normal condition	Extreme condition	Io [dBm]
CPICH_RSCP	dBm	±3.8	±3.8	-94...-50

Table 8.7.1.1.2.3: CPICH RSCP Intra frequency test parameters

Parameter	Unit	Test 1		Test 2		Test 3	
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior	dB	-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15	
DPCH_Ec/Ior	dB	-15	-	-15	-	-15	-
OCNS_Ec/Ior	dB	-1.11	-0.94	-1.11	-0.94	-1.11	-0.94
Io	dBm/ 3.84 MHz	-74.54		-61,6		-96.47	
Ior/Ioc	dB	4.3	0.3	9.3	0.3	0.3	-6.23
CPICH RSCP, Note 1	dBm	-80.2	-84.2	-62.3	-71.3	-106.17	-112.7
Io, Note 1	dBm	-67.8		-51,4		-92,8	
Propagation condition	-	AWGN		AWGN		AWGN	
NOTE 1: CPICH RSCP and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.							
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.							

The reported values for the relative intra frequency CPICH RSCP measurement shall meet the requirements in table 8.7.1.1.2.4.

Table 8.7.1.1.2.4: CPICH_RSCP Intra frequency relative accuracy requirements for the reported values

	Test 1	Test 2	Test 3
Normal Conditions			
Lowest reported value cell 2	CPICH_RSCP_(x - 8)	CPICH_RSCP_(x - 13)	CPICH_RSCP_(x - 11)
Highest reported value cell 2	CPICH_Ec/No_x	CPICH_Ec/No_(x - 5)	CPICH_Ec/No_(x - 3)
Extreme Conditions			
Lowest reported value cell2	CPICH_RSCP_(x - 8)	CPICH_RSCP_(x - 13)	CPICH_RSCP_(x - 11)
Highest reported value cell2	CPICH_Ec/No_x	CPICH_Ec/No_(x - 5)	CPICH_Ec/No_(x - 3)
CPICH_RSCP_x is the reported value of cell 1			

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.7.1.2 Inter frequency measurement accuracy

8.7.1.2.1 Relative accuracy requirement

8.7.1.2.1.1 Definition and applicability

The relative accuracy of CPICH RSCP in inter frequency case is defined as the CPICH RSCP measured from one cell compared to the CPICH RSCP measured from another cell on a different frequency.

The requirements and this test apply to all types of UTRA for the FDD UE.

8.7.1.2.1.2 Minimum Requirements

The accuracy requirements in table 8.7.1.2.1.1 are valid under the following conditions:

- $CPICH_RSCP_{1,2}|_{dBm} \geq -114$ dBm.
- $\left| CPICH_RSCP1|_{in\ dBm} - CPICH_RSCP2|_{in\ dBm} \right| \leq 20dB$.
- $| Channel\ 1_Io|_{dBm/3.84\ MHz} - Channel\ 2_Io|_{dBm/3.84\ MHz} | \leq 20$ dB.
- $\left(\frac{I_o}{\hat{I}_{or}} \right) |_{in\ dB} - \left(\frac{CPICH_E_c}{I_{or}} \right) |_{in\ dB} \leq 20dB$.

Table 8.7.1.2.1.1: CPICH_RSCP Inter frequency relative accuracy

Parameter	Unit	Accuracy [dB]		Conditions Io [dBm/3.84 MHz]
		Normal condition	Extreme condition	
CPICH_RSCP	dBm	±6	±6	-94...-50

The normative reference for this requirement is TS 25.133 [2] clauses 9.1.1.2.1 and A.9.1.1.2.

8.7.1.2.1.3 Test purpose

The purpose of this test is to verify that the CPICH RSCP relative measurement accuracy is within the specified limits in clause 8.7.1.2.1.2. This measurement is for handover evaluation, DL open loop power control, UL open loop control and for the calculation of pathloss.

8.7.1.2.1.4 Method of test

8.7.1.2.1.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

In this case both cells are on different frequencies and compressed mode is applied. The gap length is 7, detailed definition is in clause C.5, set 1 of table C.5.2 except for TGRRC and TGCFN. TGPRC and TGCFN shall set to "Infinity" and "(Current CFN + (256 – TTI/10msec))mod 256". CPICH RSCP inter frequency relative accuracy requirements are tested by using test parameters in table 8.7.1.2.1.2.

Table 8.7.1.2.1.2: CPICH RSCP Inter frequency parameters

Parameter	Unit	Test 1		Test 2	
		Cell 1 Channel 1	Cell 2 Channel 2	Cell 1 Channel 1	Cell 2 Channel 2
UTRA RF Channel number					
CPICH_Ec/lor	dB	-10		-10	
PCCPCH_Ec/lor	dB	-12		-12	
SCH_Ec/lor	dB	-12		-12	
PICH_Ec/lor	dB	-15		-15	
DPCH_Ec/lor	dB	-15	-	-15	-
OCNS_Ec/lor	dB	-1.11	-0.94	-1.11	-0.94
loc	dBm/ 3.84 MHz	-60.00	-60.00	-84.00	-94.46
lor/loc	dB	9.54	9.54	0	-9.54
CPICH RSCP, Note 1	dBm	-60.46	-60.46	-94.0	-114.0
lo, Note 1	dBm/3.84 MHz	-50.00	-50.00	-81.0	-94.0
Propagation condition	-	AWGN		AWGN	
NOTE 1: CPICH RSCP and lo levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.					
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for test 2 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.					

8.7.1.2.1.4.2 Procedure

- 1) A call is set up according to the test procedure specified in TS 34.108 [3] clause 7.3.2.3. The RF parameters for Test 1 are set up according to table 8.7.1.2.1.4.
- 2) SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message.
- 3) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.
- 4) SS shall transmit MEASUREMENT CONTROL message for intra frequency measurement and transmit MEASUREMENT CONTROL message for inter frequency measurement.
- 5) UE shall transmit periodically MEASUREMENT REPORT messages.
- 6) SS shall check CPICH_RSCP value of Cell 1 and Cell 2 in MEASUREMENT REPORT messages. CPICH RSCP power value measured from Cell 1 is compared to CPICH RSCP power value measured from Cell 2 for each MEASUREMENT REPORT message.
- 7) The result of step 5) is compared to actual power level difference of CPICH RSCP of Cell 1 and Cell 2.
- 8) SS shall count number of MEASUREMENT REPORT messages transmitted by UE. After 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.1.2.1.4 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 6) and 7) above are repeated.
- 9) After further 1000 MEASUREMENT REPORT messages have been received from UE, the SS shall transmit RRC CONNECTION RELEASE message.
- 10) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

PHYSICAL CHANNEL RECONFIGURATION message for Inter frequency measurement (step 1):

Information Element	Value/Remark
Message Type	
UE Information Elements -RRC transaction identifier -Integrity check info -Integrity protection mode info -Ciphering mode info -Activation time -New U-RNTI -New C-RNTI -RRC State Indicator -UTRAN DRX cycle length coefficient	0 Not Present Not Present Not Present Not Present Not Present Not Present CELL_DCH Not Present
CN Information Elements -CN Information info	Not Present
UTRAN mobility information elements -URA identity	Not Present
RB information elements -Downlink counter synchronisation info	Not Present
PhyCH information elements -Frequency info	Not Present
Uplink radio resources -Maximum allowed UL TX power - CHOICE <i>channel requirement</i>	Not Present Not Present
Downlink radio resources -CHOICE mode -Downlink PDSCH information -Downlink information common for all radio links -Downlink DPCH info common for all RL -CHOICE mode -DPCH compressed mode info -Transmission gap pattern sequence -TGPSI -TGPS Status Flag -TGCFN -Transmission gap pattern sequence configuration parameters -TGMP -TGPRC -TGSN -TGL1 -TGL2 -TGD -TGPL1 -TGPL2 -RPP -ITP -CHOICE UL/DL mode -Downlink compressed mode method -Uplink compressed mode method -Downlink frame type -DeltaSIR1 -DeltaSIRafter1 -DeltaSIR2 -DeltaSIRafter2 -N Identify abort -T Reconfirm abort -TX Diversity Mode -SSDT information -Default DPCH Offset Value -Downlink information per radio link list -Downlink information for each radio link -Choice mode -Primary CPICH info -Primary scrambling code	FDD Not Present Not Present FDD 1 Activate (Current CFN + (256 – TTI/10msec))mod 256 FDD measurement Infinity 4 7 Not Present 0 3 Not Present Mode 0 Mode 0 UL and DL SF/2 SF/2 B 3.0 3.0 Not Present Not Present Not Present Not Present Not Present Not Present Not Present Not Present Not Present FDD 100

-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	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400
-Secondary CPICH info	Not Present
-DL channelisation code	
-Secondary scrambling code	Not Present
-Spreading factor	128
-Code number	96
-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

First MEASUREMENT CONTROL message for Intra frequency measurement (Step 3):

Information Element	Value/Remark
Message Type	
UE information elements -RRC transaction identifier -Integrity check info	0 Not Present
Measurement Information elements -Measurement Identity -Measurement Command -Measurement Reporting Mode - Measurement Report Transfer Mode - Periodical Reporting / Event Trigger Reporting Mode -Additional measurement list -CHOICE Measurement Type -Intra-frequency measurement - Intra-frequency measurement objects list -Intra-frequency cell info list -Intra-frequency measurement quantity -Filter coefficient -CHOICE mode -Measurement quantity -Intra-frequency reporting quantity -Reporting quantities for active set cells -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator -Reporting quantities for monitored set cells -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator -Reporting quantities for detected set cells -Reporting cell status -CHOICE reported cell -Maximum number of reported cells -Measurement validity -CHOICE <i>report criteria</i> -Amount of reporting -Reporting interval	1 Modify Acknowledged mode RLC Periodical reporting Not Present Intra-frequency measurement Not Present 0 FDD CPICH RSCP No report TRUE TRUE FDD TRUE TRUE TRUE No report FALSE TRUE FDD TRUE TRUE TRUE TRUE Not Present Report all active set cells + cells within monitored set on used frequency Virtual/active set cells + 2 Not Present Periodical reporting criteria Infinity 250 ms
Physical channel information elements -DPCH compressed mode status info	Not Present

Second MEASUREMENT CONTROL message for Inter frequency measurement (step 3):

Information Element	Value/Remark
Message Type	
UE information elements -RRC transaction identifier -Integrity check info	0 Not Present
Measurement Information elements -Measurement Identity -Measurement Command -Measurement Reporting Mode - Measurement Report Transfer Mode - Periodical Reporting / Event Trigger Reporting Mode -Additional measurement list -CHOICE Measurement Type -Inter-frequency measurement object list -CHOICE Inter-frequency cell removal -New inter-frequency cells -Cell for measurement -Inter-frequency measurement quantity -CHOICE reporting criteria -Filter coefficient -CHOICE mode -Measurement quantity for frequency quality estimate -Inter-frequency reporting quantity -UTRA Carrier RSSI -Frequency quality estimate -Non frequency related cell reporting quantities -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator -Reporting cell status -CHOICE reported cell -Maximum number of reported cells -Measurement validity -Inter-frequency set update -CHOICE report criteria -Amount of reporting -Reporting interval	2 Setup Acknowledged mode RLC Periodical reporting Not Present Inter-frequency measurement Not Present Cell 2 information is included Not Present Inter-frequency reporting criteria 0 FDD CPICH RSCP TRUE TRUE No report TRUE TRUE FDD TRUE TRUE TRUE Report cells within monitored set on non-used frequency 2 Not Present Not Present Periodical reporting criteria Infinity 500 ms
Physical channel information elements -DPCH compressed mode status info	Not Present

MEASUREMENT REPORT message for Inter frequency test cases

This message is common for all inter frequency test cases in clause 8.7 and is described in Annex I.

8.7.1.2.1.5 Test requirements

Table 8.7.1.2.1.3: CPICH_RSCP Inter frequency relative accuracy, test requirements

Parameter	Unit	Accuracy [dB]		Conditions
		Normal condition	Extreme condition	Io [dBm]
CPICH_RSCP	dBm	±7.1	±7.1	-94...-50

Table 8.7.1.2.1.4: CPICH RSCP Inter frequency tests parameters

Parameter	Unit	Test 1		Test 2	
		Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1	Channel 2	Channel 1	Channel 2
CPICH_Ec/Ior	dB	-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12	
SCH_Ec/Ior	dB	-12		-12	
PICH_Ec/Ior	dB	-15		-15	
DPCH_Ec/Ior	dB	-15	-	-15	-
OCNS_Ec/Ior	dB	-1.11	-0.94	-1.11	-0.94
Ior	dBm/ 3.84 MHz	-61.6	-61.6	-83.00	-93.46
Ior/Ior	dB	9.84	9.84	0.3	-9.24
CPICH RSCP, Note 1	dBm	-61.8	-61.8	-92.7	-112.7
Io, Note 1	dBm	-51.3	-51.3	-79.8	-93.0
Propagation condition	-	AWGN		AWGN	
NOTE 1: CPICH RSCP and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.					
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for test 2 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.					

The reported values for the relative inter frequency CPICH RSCP measurement shall meet the requirements in table 8.7.1.2.1.5.

Table 8.7.1.2.1.5: CPICH_RSCP Inter frequency relative accuracy requirements for the reported values

	Test 1	Test 2
Normal Conditions		
Lowest reported value cell 2	CPICH_RSCP_(x - 8)	CPICH_RSCP_(x - 28)
Highest reported value cell 2	CPICH_Ec/No_(x + 8)	CPICH_Ec/No_(x - 12)
Extreme Conditions		
Lowest reported value cell2	CPICH_RSCP_(x - 8)	CPICH_RSCP_(x - 28)
Highest reported value cell2	CPICH_Ec/No_(x + 8)	CPICH_Ec/No_(x - 12)
CPICH_RSCP_x is the reported value of cell 1		

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.7.2 CPICH Ec/Io

8.7.2.1 Intra frequency measurements accuracy

8.7.2.1.1 Absolute accuracy requirement

8.7.2.1.1.1 Definition and applicability

The absolute accuracy of CPICH Ec/Io is defined as the CPICH Ec/Io measured from one cell compared to the actual CPICH_Ec/Io power ratio from same cell.

The requirements and this test apply to all types of UTRA for the FDD UE.

8.7.2.1.1.2 Minimum Requirements

The accuracy requirements in table 8.7.2.1.1.1 are valid under the following conditions:

- CPICH_RSCP1|_{dBm} ≥ -114 dBm.

$$\left| \frac{I_o}{\hat{I}_{or}} \right|_{in \text{ dB}} - \left(\frac{CPICH - E_c}{I_{or}} \right)_{in \text{ dB}} \leq 20 \text{ dB}.$$

Table 8.7.2.1.1.1: CPICH_Ec/Io Intra frequency absolute accuracy, minimum requirements

Parameter	Unit	Accuracy [dB]		Conditions
		Normal condition	Extreme condition	Io [dBm/3.84 MHz]
CPICH_Ec/Io	dB	±1,5 for -14 ≤ CPICH Ec/Io ±2 for -16 ≤ CPICH Ec/Io < -14 ±3 for -20 ≤ CPICH Ec/Io < -16	±3	-94...-50

The normative reference for this requirement is TS 25.133 [2] clause 9.1.2.1.1.

8.7.2.1.1.3 Test purpose

The purpose of this test is to verify that the CPICH Ec/Io absolute measurement accuracy is within the specified limits in clause 8.7.2.1.1.2. This measurement is for Cell selection/re-selection and for handover evaluation.

8.7.2.1.1.4 Method of test

8.7.2.1.1.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

In this case all cells are on the same frequency. CPICH Ec/Io intra frequency absolute accuracy requirements are tested by using the test parameters in table 8.7.2.1.1.2.

Table 8.7.2.1.1.2: CPICH_Ec/Io Intra frequency parameters

Parameter	Unit	Test 1		Test 2		Test 3	
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior	dB	-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15	
DPCH_Ec/Ior	dB	-15	-	-15	-	-6	-
OCNS_Ec/Ior	dB	-1.11	-0.94	-1.11	-0.94	-2.56	-0.94
Ioc	dBm/ 3.84 MHz	-56.98		-89.07		-94.98	
Ior/Ioc	dB	3.0	3.0	-2.9	-2.9	-9.0	-9.0
CPICH Ec/Io, Note 1	dBm	-14.0	-14.0	-16.0	-16.0	-20.0	-20.0
Io, Note 1	dBm/3.84 MHz	-50		-86		-94	
Propagation condition	-	AWGN		AWGN		AWGN	
NOTE 1: CPICH Ec/Io and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.							
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.							

8.7.2.1.1.4.2 Procedure

- 1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2.3. The RF parameters for Test 1 are set up according to table 8.7.2.1.1.5.
- 2) SS shall transmit MEASUREMENT CONTROL message.
- 3) UE shall transmit periodically MEASUREMENT REPORT messages.

- 4) SS shall check CPICH_Ec/No value in MEASUREMENT REPORT messages. According to table 8.7.2.1.1.3 the SS calculates CPICH_Ec/Io power ratio of Cell 1, which is compared to the actual CPICH Ec/Io power ratio from the same cell for each MEASUREMENT REPORT message.
- 5) SS shall count number of MEASUREMENT REPORT messages transmitted by UE. After 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.2.1.1.5 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 4) above is repeated. After further 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.2.1.1.5 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 4) above is repeated.
- 6) After further 1000 MEASUREMENT REPORT messages have been received from UE, the SS shall transmit RRC CONNECTION RELEASE message.
- 7) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Table 8.7.2.1.1.3: CPICH Ec/Io measurement report mapping

Reported value	Measured quantity value	Unit
CPICH_Ec/No _00	$\text{CPICH Ec/Io} < -24$	dB
CPICH_Ec/No _01	$-24 \leq \text{CPICH Ec/Io} < -23.5$	dB
CPICH_Ec/No _02	$-23.5 \leq \text{CPICH Ec/Io} < -23$	dB
...
CPICH_Ec/No _47	$-1 \leq \text{CPICH Ec/Io} < -0.5$	dB
CPICH_Ec/No _48	$-0.5 \leq \text{CPICH Ec/Io} < 0$	dB
CPICH_Ec/No _49	$0 \leq \text{CPICH Ec/Io}$	dB

Specific Message Contents

All messages indicated above shall use the same content as described in default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message for Intra frequency measurement (Step 1):

Information Element	Value/Remark
Message Type	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
Measurement Information elements	
-Measurement Identity	1
-Measurement Command	Modify
-Measurement Reporting Mode	Acknowledged mode RLC
- Measurement Report Transfer Mode	Periodical reporting
- Periodical Reporting / Event Trigger Reporting Mode	Not Present
-Additional measurement list	Intra-frequency measurement
-CHOICE Measurement Type	
-Intra-frequency measurement	
- Intra-frequency measurement objects list	Not Present
-Intra-frequency measurement quantity	
-Filter coefficient	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	TRUE
-Cell Identity reporting indicator	TRUE
-CHOICE mode	FDD
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	TRUE
-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
-CHOICE mode	FDD
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	FALSE
-Reporting quantities for detected set cells	Not Present
-Reporting cell status	
-CHOICE reported cell	Report all active set cells + cells within monitored set on used frequency
-Maximum number of reported cells	Virtual/active set cells + 2
-Measurement validity	Not Present
-CHOICE <i>report criteria</i>	Periodical reporting criteria
-Amount of reporting	Infinity
-Reporting interval	250 ms
Physical channel information elements	
-DPCH compressed mode status info	Not Present

MEASUREMENT REPORT message for Intra frequency test cases

This message is common for all intra frequency test cases in clause 8.7 and is described in Annex I.

8.7.2.1.1.5 Test requirements

The CPICH Ec/Io measurement accuracy shall meet the requirements in clause 8.7.2.1.1.2. The effect of assumed thermal noise and noise generated in the receiver (−99 dBm) shall be added into the required accuracy defined in subclause 8.7.2.1.1.2 as shown in table 8.7.2.1.1.4.

Table 8.7.2.1.1.4: CPICH_Ec/Io Intra frequency absolute accuracy, test requirements

Parameter	Unit	Accuracy [dB]		Conditions
		Normal condition	Extreme condition	Io [dBm/3.84 MHz]
CPICH_Ec/Io	dB	-3.1...1.9 for $-14 \leq \text{CPICH Ec/Io}$ -3.6...2.4 for $-16 \leq \text{CPICH Ec/Io} < -14$ -4.6...3.4 for $-20 \leq \text{CPICH Ec/Io} < -16$	-4.6...3.4	-94...-87
		± 1.95 for $-14 \leq \text{CPICH Ec/Io}$ ± 2.4 for $-16 \leq \text{CPICH Ec/Io} < -14$ ± 3.4 for $-20 \leq \text{CPICH Ec/Io} < -16$	± 3.4	-87...-50

The normative reference for this requirement is TS 25.133 [2] clause A.9.1.2.2.

Table 8.7.2.1.1.5: CPICH_Ec/Io Intra frequency tests parameters

Parameter	Unit	Test 1		Test 2		Test 3	
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior	dB	-9.7		-9.8		-9.9	
PCCPCH_Ec/Ior	dB	-11.7		-11.8		-11.9	
SCH_Ec/Ior	dB	-11.7		-11.8		-11.9	
PICH_Ec/Ior	dB	-14.7		-14.8		-14.9	
DPCH_Ec/Ior	dB	-14.7	-	-14.8	-	-5.9	-
OCNS_Ec/Ior	dB	-1.2	-1.02	-1.17	-0.99	-2.64	-0.97
Io	dBm/ 3.84 MHz	-58.5		-89.07		-93.98	
Ior/Ioc	dB	3.3	3.3	-2.6	-2.6	-8.7	-8.7
CPICH Ec/Io, Note 1	dBm	-13.6	-13.6	-15.6	-15.6	-19.6	-19.6
Io, Note 1	dBm	-51.3		-85.85		-92.9	
Propagation condition	-	AWGN		AWGN		AWGN	
NOTE 1: CPICH Ec/Io and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.							
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.							

The reported values for the absolut intra frequency CPICH Ec/Io measurement shall meet the requirements in table 8.7.2.1.1.6.

Table 8.7.2.1.1.6: CPICH_Ec/Io Intra frequency absolute accuracy requirements for the reported values

	Test 1	Test 2	Test 3
Normal Conditions			
Lowest reported value	CPICH_Ec/No_17	CPICH_Ec/No_12	CPICH_Ec/No_0
Highest reported value	CPICH_Ec/No_25	CPICH_Ec/No_22	CPICH_Ec/No_16
Extreme Conditions			
Lowest reported value	CPICH_Ec/No_14	CPICH_Ec/No_10	CPICH_Ec/No_0
Highest reported value	CPICH_Ec/No_28	CPICH_Ec/No_24	CPICH_Ec/No_16

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.7.2.1.2 Relative accuracy requirement

8.7.2.1.2.1 Definition and applicability

The relative accuracy of CPICH Ec/Io is defined as the CPICH Ec/Io measured from one cell compared to the CPICH Ec/Io measured from another cell on the same frequency.

The requirements and this test apply to all types of UTRA for the FDD UE.

8.7.2.1.2.2 Minimum Requirements

The accuracy requirements in table 8.7.2.1.2.1 are valid under the following conditions:

- $CPICH_RSCP_{1,2}|_{dBm} \geq -114$ dBm.
- $\left| CPICH_RSCP_{1}|_{in\ dBm} - CPICH_RSCP_{2}|_{in\ dBm} \right| \leq 20$ dB .
- $\left| \frac{I_o}{\hat{I}_{or}} \right|_{in\ dB} - \left(\frac{CPICH - E_c}{I_{or}} \right)_{in\ dB} \leq 20$ dB .

Table 8.7.2.1.2.1: CPICH_Ec/Io Intra frequency relative accuracy

Parameter	Unit	Accuracy [dB]		Conditions
		Normal condition	Extreme condition	Io [dBm/3.84 MHz]
CPICH_Ec/Io	dB	±1,5 for $-14 \leq CPICH\ Ec/Io$ ±2 for $-16 \leq CPICH\ Ec/Io < -14$ ±3 for $-20 \leq CPICH\ Ec/Io < -16$	±3	-94...-50

The normative reference for this requirement is TS 25.133 [2] clauses 9.1.2.1.2 and A.9.1.2.2.

8.7.2.1.2.3 Test purpose

The purpose of this test is to verify that the CPICH Ec/Io relative measurement accuracy is within the specified limits in clause 8.7.2.1.2.2. This measurement is for Cell selection/re-selection and for handover evaluation.

8.7.2.1.2.4 Method of test

8.7.2.1.2.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

In this case all cells are in the same frequency. CPICH Ec/Io intra frequency relative accuracy requirements are tested by using test parameters in table 8.7.2.1.1.2.

8.7.2.1.2.4.2 Procedure

- 1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2.3. The RF parameters for Test 1 are set up according to table 8.7.2.1.1.3.
- 2) SS shall transmit MEASUREMENT CONTROL message.
- 3) UE shall transmit periodically MEASUREMENT REPORT messages.
- 4) SS shall check CPICH_Ec/Io value of Cell 1 and Cell 2 in MEASUREMENT REPORT messages. According to table 8.7.2.1.1.3 the SS calculates CPICH_Ec/Io power ratio of Cell 1 and Cell 2. CPICH_Ec/Io power ratio value measured from Cell 1 is compared to CPICH_Ec/Io power ratio value measured from Cell 2 for each MEASUREMENT REPORT message.
- 5) The result of step 3) is compared to actual power level difference of CPICH_Ec/Io of Cell 1 and Cell 2.
- 6) SS shall count number of MEASUREMENT REPORT messages transmitted by UE. After 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.2.1.1.3 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 4) and 5) above are repeated. After further 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.2.1.1.3 for Test 3. While RF

parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 4) and 5) above are repeated.

- 7) After further 1000 MEASUREMENT REPORT messages have been received from UE, the SS shall transmit RRC CONNECTION RELEASE message.
- 8) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message for Intra frequency measurement in clause 8.7.2.1.1.4.2 is used.

MEASUREMENT REPORT message for Intra frequency test cases

This message is common for all intra frequency test cases in clause 8.7 and is described in Annex I.

8.7.2.1.2.5 Test requirements

Table 8.7.2.1.2.2: CPICH_Ec/Io Intra frequency relative accuracy

Parameter	Unit	Accuracy [dB]		Conditions
		Normal condition	Extreme condition	Io [dBm]
CPICH_Ec/Io	dB	±2.3 for -14 ≤ CPICH Ec/Io ±2.8 for -16 ≤ CPICH Ec/Io < -14 ±3.8 for -20 ≤ CPICH Ec/Io < -16	±3.8	-94...-50

Table 8.7.2.1.2.3: CPICH_Ec/Io Intra frequency tests parameters

Parameter	Unit	Test 1		Test 2		Test 3	
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1		Channel 1		Channel 1	
CPICH_Ec/Io	dB	-9.7		-9.8		-9.9	
PCCPCH_Ec/Io	dB	-11.7		-11.8		-11.9	
SCH_Ec/Io	dB	-11.7		-11.8		-11.9	
PICH_Ec/Io	dB	-14.7		-14.8		-14.9	
DPCH_Ec/Io	dB	-14.7	-	-14.8	-	-5.9	-
OCNS_Ec/Io	dB	-1.2	-1.02	-1.17	-0.99	-2.64	-0.97
Io	dBm/ 3.84 MHz	-58.5		-89.07		-93.98	
Ior/Ioc	dB	3.3	3.3	-2.6	-2.6	-8.7	-8.7
CPICH Ec/Io, Note 1	dBm	-13.6	-13.6	-15.6	-15.6	-19.6	-19.6
Io, Note 1	dBm	-51,3		-85.85		-92.9	
Propagation condition	-	AWGN		AWGN		AWGN	
NOTE 1: CPICH Ec/Io and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.							
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.							

The reported values for the relative intra frequency CPICH Ec/Io measurement shall meet the requirements in table 8.7.2.1.2.4.

Table 8.7.2.1.2.4: CPICH_Ec/Io Intra frequency relative accuracy requirements for the reported values

	Test 1	Test 2	Test 3
Normal Conditions			
Lowest reported value cell 2	CPICH_Ec/No_(x - 5)	CPICH_Ec/No_(x - 6)	CPICH_Ec/No_(x - 8)
Highest reported value cell 2	CPICH_Ec/No_(x+ 5)	CPICH_Ec/No_(x - 6)	CPICH_Ec/No_(x+ 8)
Extreme Conditions			
Lowest reported value cell2	CPICH_Ec/No_(x - 8)	CPICH_Ec/No_(x - 8)	CPICH_Ec/No_(x - 8)
Highest reported value cell2	CPICH_Ec/No_(x + 8)	CPICH_Ec/No_(x+ 8)	CPICH_Ec/No_(x+ 8)
CPICH_Ec/No_x is the reported value of cell 1			

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.7.2.2 Inter frequency measurement accuracy

8.7.2.2.1 Void

8.7.2.2.2 Relative accuracy requirement

8.7.2.2.2.1 Definition and applicability

The relative accuracy of CPICH Ec/Io in the inter frequency case is defined as the CPICH Ec/Io measured from one cell compared to the CPICH Ec/Io measured from another cell on a different frequency.

The requirements and this test apply to all types of UTRA for the FDD UE.

8.7.2.2.2.2 Minimum Requirements

The accuracy requirements in table 8.7.2.2.2.1 are valid under the following conditions:

- CPICH_RSCP1,2|_{dBm} ≥ -114 dBm.
- $\left| CPICH_RSCP1 \Big|_{in\ dBm} - CPICH_RSCP2 \Big|_{in\ dBm} \right| \leq 20\ dB$.
- $| Channel\ 1_Io |_{dBm/3.84\ MHz} - Channel\ 2_Io |_{dBm/3.84\ MHz} | \leq 20\ dB$.
- $\left(\frac{I_o}{\hat{I}_{or}} \right) \Big|_{in\ dB} - \left(\frac{CPICH_E_c}{I_{or}} \right) \Big|_{in\ dB} \leq 20\ dB$.

Table 8.7.2.2.2.1: CPICH_Ec/Io Inter frequency relative accuracy, minimum requirements

Parameter	Unit	Accuracy [dB]		Conditions Io [dBm/3.84 MHz]
		Normal condition	Extreme condition	
CPICH_Ec/Io	dB	±1.5 for -14 ≤ CPICH Ec/Io ±2 for -16 ≤ CPICH Ec/Io < -14 ±3 for -20 ≤ CPICH Ec/Io < -16	±3	-94...-50

The normative reference for this requirement is TS 25.133 [2] clauses 9.1.2.2.2 and A.9.1.2.2.

8.7.2.2.2.3 Test purpose

The purpose of this test is to verify that the CPICH Ec/Io relative measurement accuracy is within the specified limits in clause 8.7.2.2.2.2. This measurement is for Cell selection/re-selection and for handover evaluation.

8.7.2.2.2.4 Method of test

8.7.2.2.2.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

In this case both cells are in different frequency and compressed mode is applied. The gap length is 7, detailed definition is in clause C.5, set 1 of table C.5.2 except for TGRRC and TGCFN. TGPRC and TGCFN shall set to "Infinity" and "(Current CFN + (256 – TTI/10msec))mod 256". CPICH Ec/Io inter frequency relative accuracy requirements are tested by using test parameters in table 8.7.2.2.2.2.

Table 8.7.2.2.2.2: CPICH Ec/Io Inter frequency parameters

Parameter	Unit	Test 1		Test 2		Test 3	
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1	Channel 2	Channel 1	Channel 2	Channel 1	Channel 2
CPICH_Ec/Ior	dB	-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15	
DPCH_Ec/Ior	dB	-15	-	-6	-	-6	-
OCNS_Ec/Ior	dB	-1.11	-0.94	-2.56	-0.94	-2.56	-0.94
Ior	dBm/ 3.84 MHz	-52.22	-52.22	-87.27	-87.27	-94.46	-94.46
Ior/Ior	dB	-1.75	-1.75	-4.7	-4.7	-9.54	-9.54
CPICH Ec/Io, Note 1	dBm	-14.0	-14.0	-16.0	-16.0	-20.0	-20.0
Io, Note 1	dBm/3.84 MHz	-50	-50	-86	-86	-94	-94
Propagation condition	-	AWGN		AWGN		AWGN	
NOTE 1: CPICH Ec/Io and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.							
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.							

8.7.2.2.2.4.2 Procedure

- 1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2.3. The RF parameters for Test 1 are set up according to table 8.7.2.2.2.4.
- 2) SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message.
- 3) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.
- 4) SS shall transmit a MEASUREMENT CONTROL message for intra frequency measurement and transmit another MEASUREMENT CONTROL message for inter frequency measurement.
- 5) UE shall transmit periodically MEASUREMENT REPORT messages.
- 6) SS shall check CPICH_Ec/Io value of Cell 1 and Cell 2 in MEASUREMENT REPORT messages. According to table 8.7.2.1.1.3 the SS calculates CPICH_Ec/Io power ratio of Cell 1 and Cell 2. CPICH_Ec/Io power ratio measured from Cell 1 is compared to CPICH_Ec/Io power value measured from Cell 2 for each MEASUREMENT REPORT message.
- 7) The result of step 6) is compared to actual power level difference of CPICH_Ec/Io of Cell 1 and Cell 2.
- 8) SS shall count number of MEASUREMENT REPORT messages transmitted by UE. After 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.2.2.2.4 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 6) and 7) above are repeated. After further 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.2.2.2.4 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for

additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 6) and 7) above are repeated.

9) After 1000 MEASUREMENT REPORT messages have been received from UE, the SS shall transmit RRC CONNECTION RELEASE message.

10) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

All messages indicated above shall use the same content as described in default message content in clause 9 of 34.108 [3], with the following exceptions:

PHYSICAL CHANNEL RECONFIGURATION message for Inter frequency measurement (step 1):

Information Element	Value/Remark
Message Type	
UE Information Elements -RRC transaction identifier -Integrity check info -Integrity protection mode info -Ciphering mode info -Activation time -New U-RNTI -New C-RNTI -RRC State Indicator -UTRAN DRX cycle length coefficient	0 Not Present Not Present Not Present Not Present Not Present Not Present CELL_DCH Not Present
CN Information Elements -CN Information info	Not Present
UTRAN mobility information elements -URA identity	Not Present
RB information elements -Downlink counter synchronisation info	Not Present
PhyCH information elements -Frequency info	Not Present
Uplink radio resources -Maximum allowed UL TX power - CHOICE <i>channel requirement</i>	Not Present Not Present
Downlink radio resources -CHOICE mode -Downlink PDSCH information -Downlink information common for all radio links -Downlink DPCH info common for all RL -CHOICE mode -DPCH compressed mode info -Transmission gap pattern sequence -TGPSI -TGPS Status Flag -TGCFN -Transmission gap pattern sequence configuration parameters -TGMP -TGPRC -TGSN -TGL1 -TGL2 -TGD -TGPL1 -TGPL2 -RPP -ITP -CHOICE UL/DL mode -Downlink compressed mode method -Uplink compressed mode method -Downlink frame type -DeltaSIR1 -DeltaSIRafter1 -DeltaSIR2 -DeltaSIRafter2 -N Identify abort -T Reconfirm abort -TX Diversity Mode -SSDT information -Default DPCH Offset Value -Downlink information per radio link list -Downlink information for each radio link -Choice mode -Primary CPICH info -Primary scrambling code	FDD Not Present Not Present FDD 1 Activate (Current CFN + (256 – TTI/10msec))mod 256 FDD measurement Infinity 4 7 Not Present 0 3 Not Present Mode 0 Mode 0 UL and DL SF/2 SF/2 B 3.0 3.0 Not Present Not Present Not Present Not Present Not Present Not Present Not Present Not Present Not Present FDD 100

-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	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400
-Secondary CPICH info	Not Present
-DL channelisation code	
-Secondary scrambling code	Not Present
-Spreading factor	128
-Code number	96
-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

First MEASUREMENT CONTROL message for Intra frequency measurement (Step 3):

Information Element	Value/Remark
Message Type	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
Measurement Information elements	
-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	Intra-frequency measurement
-Intra-frequency measurement	
- Intra-frequency measurement objects list	
-Intra-frequency cell info list	Not Present
-Intra-frequency measurement quantity	
-Filter coefficient	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	TRUE
-Cell Identity reporting indicator	TRUE
-CHOICE mode	FDD
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	TRUE
-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	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	TRUE
-Reporting quantities for detected set cells	Not Present
-Reporting cell status	
-CHOICE reported cell	Report all active set cells + cells within monitored set on used frequency
-Maximum number of reported cells	Virtual/active set cells + 2
-Measurement validity	Not Present
-CHOICE <i>report criteria</i>	Periodical reporting criteria
-Amount of reporting	Infinity
-Reporting interval	250 ms
Physical channel information elements	
-DPCH compressed mode status info	Not Present

Second MEASUREMENT CONTROL message for Inter frequency measurement (step 3):

Information Element	Value/Remark
Message Type	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
Measurement Information elements	
-Measurement Identity	2
-Measurement Command	Setup
-Measurement Reporting Mode	
- Measurement Report Transfer Mode	Acknowledged mode RLC
- Periodical Reporting / Event Trigger Reporting Mode	Periodical reporting
-Additional measurement list	Not Present
-CHOICE Measurement Type	Inter-frequency measurement
-Inter-frequency measurement	
-Inter-frequency cell info list	
-CHOICE Inter-frequency cell removal	Not Present
-New inter-frequency cells	Cell 2 information is included
-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	TRUE
-Frequency quality estimate	TRUE
-Non frequency related cell reporting quantities	
-SFN-SFN observed time difference reporting indicator	No report
-Cell synchronisation information reporting indicator	TRUE
-Cell Identity reporting indicator	TRUE
-CHOICE mode	FDD
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	TRUE
-Reporting cell status	
-CHOICE reported cell	Report cells within 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	Periodical reporting criteria
-Amount of reporting	Infinity
-Reporting interval	500 ms
Physical channel information elements	
-DPCH compressed mode status info	Not Present

MEASUREMENT REPORT message for Intra frequency test cases

This message is common for all inter frequency test cases in clause 8.7 and is described in Annex I.

8.7.2.2.2.5 Test requirements

The effect of assumed thermal noise and noise generated in the receiver (−99 dBm) shall be added into the required accuracy defined in clause 8.7.2.2.2.2 as shown in table 8.7.2.2.3.

Table 8.7.2.2.3: CPICH_Ec/Io Inter frequency relative accuracy, test requirements

Parameter	Unit	Normal condition	Extreme condition	Io [dBm/3.84 MHz]
CPICH_Ec/Io	dB	±3.5 for $-14 \leq \text{CPICH Ec/Io}$ ±4 for $-16 \leq \text{CPICH Ec/Io} < -14$ ±5 for $-20 \leq \text{CPICH Ec/Io} < -16$	± 5	-94...-87
		±2.3 for $-14 \leq \text{CPICH Ec/Io}$ ± 2.8 for $-16 \leq \text{CPICH Ec/Io} < -14$ ± 3.8 for $-20 \leq \text{CPICH Ec/Io} < -16$	± 3.8	-87...-50

The normative reference for this requirement is TS 25.133 [2] clause A.9.1.2.2.

Table 8.7.2.2.4: CPICH Ec/Io Inter frequency tests parameters

Parameter	Unit	Test 1		Test 2		Test 3	
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1	Channel 2	Channel 1	Channel 2	Channel 1	Channel 2
CPICH_Ec/Ior	dB	-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15	
DPCH_Ec/Ior	dB	-15	-	-6	-	-6	-
OCNS_Ec/Ior	dB	-1.12	-0.95	-2.55	-0.94	-2.55	-0.94
Ioc	dBm/ 3.84 MHz	-53.5	-53.5	-86.27	-86.27	-93.46	-93.46
Ior/Ioc	dB	-1.45	-1.45	-4.4	-4.4	-9.24	-9.24
CPICH Ec/Io, Note 1	dBm	-13.8	-13.8	-15.7	-15.7	-19.7	-19.7
Io, Note 1	dBm	-51.15	-51.15	-84.9	-84.9	-93	-93
Propagation condition	-	AWGN		AWGN		AWGN	
NOTE 1: CPICH Ec/Io and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.							
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.							

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

The reported values for the relative inter frequency CPICH Ec/Io measurement shall meet the requirements in table 8.7.2.2.5.

Table 8.7.2.2.5: CPICH_Ec/Io Inter frequency relative accuracy requirements for the reported values

	Test 1	Test 2	Test 3
Normal Conditions			
Lowest reported value cell 2	CPICH_Ec/No_(x - 5)	CPICH_Ec/No_(x - 6)	CPICH_Ec/No_(x - 10)
Highest reported value cell 2	CPICH_Ec/No_(x+5)	CPICH_Ec/No_(x + 6)	CPICH_Ec/No_(x + 10)
Extreme Conditions			
Lowest reported value cell2	CPICH_Ec/No_(x - 8)	CPICH_Ec/No_(x - 8)	CPICH_Ec/No_(x - 10)
Highest reported value cell2	CPICH_Ec/No_(x + 8)	CPICH_Ec/No_(x + 8)	CPICH_Ec/No_(x + 10)
CPICH_Ec/No_x is the reported value of cell 1			

8.7.3 UTRA Carrier RSSI

NOTE: This measurement is for Inter-frequency handover evaluation.

8.7.3.1 Absolute measurement accuracy requirement

8.7.3.1.1 Definition and applicability

The absolute accuracy of UTRA Carrier RSSI is defined as the UTRA Carrier RSSI measured from one frequency compared to the actual UTRA Carrier RSSI power of that same frequency.

The requirements and this test apply to all types of UTRA for the FDD UE.

8.7.3.1.2 Minimum Requirements

Table 8.7.3.1.1: UTRA Carrier RSSI Inter frequency absolute accuracy

Parameter	Unit	Accuracy [dB]		Conditions
		Normal condition	Extreme condition	Io [dBm/3.84 MHz]
UTRA Carrier RSSI	dBm	± 4	± 7	-94...-70
	dBm	± 6	± 9	-70...-50

The normative reference for this requirement is TS 25.133 [2] clause 9.1.3.1.

8.7.3.1.3 Test purpose

The purpose of this test is to verify that the UTRA Carrier RSSI measurement is within the specified limits. This measurement is for inter-frequency handover evaluation.

8.7.3.1.4 Method of test

8.7.3.1.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

In this case both cells are on different frequencies and compressed mode is applied. The gap length is 7, detailed definition is in clause C.5, Set 1 of table C.5.2 except for TGRRC and TGCFN. TGPRC and TGCFN shall set to "Infinity" and "(Current CFN + (256 – TTI/10msec))mod 256". UTRA Carrier RSSI absolute accuracy requirements are tested by using test parameters in table 8.7.3.1.2.

Table 8.7.3.1.2: UTRA Carrier RSSI Inter frequency test parameters

Parameter	Unit	Test 1		Test 2		Test 3	
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1	Channel 2	Channel 1	Channel 2	Channel 1	Channel 2
CPICH_Ec/Ior	dB	-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15	
DPCH_Ec/Ior	dB	-15	-	-6	-	-6	-
OCNS_Ec/Ior	dB	-1.11	-0.94	-2.56	-0.94	-2.56	-0.94
I _{oc}	dBm/ 3.84 MHz	-52.22	-52.22	-70.27	-70.27	-94.46	-94.46
I _{or/Ioc}	dB	-1.75	-1.75	-4.7	-4.7	-9.54	-9.54
CPICH Ec/Io, Note 1	dBm	-14.0	-14.0	-16.0	-16.0	-20.0	-20.0
I _o , Note 1	dBm/3.84 MHz	-50	-50	-69	-69	-94	-94
Propagation condition	-	AWGN		AWGN		AWGN	
NOTE 1: CPICH Ec/Io and I _o levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.							
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.							

- 1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2.3. The RF parameters for Test 1 are set up according to table 8.7.3.1.2.

8.7.3.1.4.2 Procedure

- 1) SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message.
- 2) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.
- 3) SS shall transmit MEASUREMENT CONTROL message.
- 4) UE shall transmit periodically MEASUREMENT REPORT messages.
- 5) SS shall check UTRA carrier RSSI value of Channel 2 in MEASUREMENT REPORT messages. UTRA carrier RSSI power of Channel 2 reported by UE is compared to actual UTRA Carrier RSSI value of Channel 2 for each MEASUREMENT REPORT message.
- 6) SS shall count number of MEASUREMENT REPORT messages transmitted by UE. After 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.3.1.2 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 5) above is repeated. After further 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.3.1.2 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 5) above is repeated.
- 7) After further 1000 MEASUREMENT REPORT messages have been received from UE, the SS shall transmit RRC CONNECTION RELEASE message.
- 8) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

All messages indicated above shall use the same content as described in default message content in clause 9 of 34.108 [3], with the following exceptions:

PHYSICAL CHANNEL RECONFIGURATION message for Inter frequency measurement (step 1):

Information Element	Value/Remark
Message Type	
UE Information Elements -RRC transaction identifier -Integrity check info -Integrity protection mode info -Ciphering mode info -Activation time -New U-RNTI -New C-RNTI -RRC State Indicator -UTRAN DRX cycle length coefficient	0 Not Present Not Present Not Present Not Present Not Present Not Present CELL_DCH Not Present
CN Information Elements -CN Information info	Not Present
UTRAN mobility information elements -URA identity	Not Present
RB information elements -Downlink counter synchronisation info	Not Present
PhyCH information elements -Frequency info	Not Present
Uplink radio resources -Maximum allowed UL TX power - CHOICE <i>channel requirement</i>	Not Present Not Present
Downlink radio resources -CHOICE mode -Downlink PDSCH information -Downlink information common for all radio links -Downlink DPCH info common for all RL -CHOICE mode -DPCH compressed mode info -Transmission gap pattern sequence -TGPSI -TGPS Status Flag -TGCFN -Transmission gap pattern sequence configuration parameters -TGMP -TGPRC -TGSN -TGL1 -TGL2 -TGD -TGPL1 -TGPL2 -RPP -ITP -CHOICE UL/DL mode -Downlink compressed mode method -Uplink compressed mode method -Downlink frame type -DeltaSIR1 -DeltaSIRafter1 -DeltaSIR2 -DeltaSIRafter2 -N Identify abort -T Reconfirm abort -TX Diversity Mode -SSDT information -Default DPCH Offset Value -Downlink information per radio link list -Downlink information for each radio link -Choice mode -Primary CPICH info -Primary scrambling code	FDD Not Present Not Present FDD 1 Activate (Current CFN + (256 – TTI/10msec))mod 256 FDD measurement Infinity 4 7 Not Present 0 3 Not Present Mode 0 Mode 0 UL and DL SF/2 SF/2 B 3.0 3.0 Not Present Not Present Not Present Not Present Not Present Not Present Not Present Not Present FDD 100

-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	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400
-Secondary CPICH info	Not Present
-DL channelisation code	
-Secondary scrambling code	Not Present
-Spreading factor	128
-Code number	96
-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

MEASUREMENT CONTROL message for Inter frequency measurement (step 3):

Information Element	Value/Remark
Message Type	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
Measurement Information elements	
-Measurement Identity	2
-Measurement Command	Setup
-Measurement Reporting Mode	
- Measurement Report Transfer Mode	Acknowledged mode RLC
- Periodical Reporting / Event Trigger Reporting Mode	Periodical reporting
-Additional measurement list	Not Present
-CHOICE Measurement Type	Inter-frequency measurement
-Inter-frequency measurement	
-Inter-frequency cell info list	
-CHOICE Inter-frequency cell removal	Not Present
-New inter-frequency cells	Cell 2 information is included.
-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	TRUE
-Frequency quality estimate	TRUE
-Non frequency related cell reporting quantities	
-SFN-SFN observed time difference reporting indicator	Type 1
-Cell synchronisation information reporting indicator	TRUE
-Cell Identity reporting indicator	TRUE
-CHOICE mode	FDD
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	TRUE
-Reporting cell status	
-CHOICE reported cell	Report cells within 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	Periodical reporting criteria
-Amount of reporting	Infinity
-Reporting interval	500 ms
Physical channel information elements	
-DPCH compressed mode status info	Not Present

MEASUREMENT REPORT message for Inter frequency test cases

This message is common for all inter frequency test cases in clause 8.7 and is described in Annex I.

8.7.3.1.5 Test requirements

The UTRA Carrier RSSI absolute measurement accuracy shall meet the requirements in clause 8.7.3.1.2. The effect of assumed thermal noise and noise generated in the receiver (-99 dBm) shall be added into the required accuracy defined in subclause 8.7.3.1.2 as shown in table 8.7.3.1.3.

Table 8.7.3.1.3: UTRA Carrier RSSI absolute accuracy

Parameter	Unit	Accuracy [dB]		Conditions
		Normal condition	Extreme condition	Io [dBm/3.84 MHz]
UTRA Carrier RSSI	dBm	-4...5.2	-7...8.2	-94...-87
	dBm	± 4	± 7	-87...-70
	dBm	± 6	± 9	-70...-50

The normative reference for this requirement is TS 25.133 [2] clause A.9.1.3.2.

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.7.3.2 Relative measurement accuracy requirement

8.7.3.2.1 Definition and applicability

The relative accuracy requirement is defined as the UTRA Carrier RSSI measured from one frequency compared to the UTRA Carrier RSSI measured from another frequency.

The requirements and this test apply to all types of UTRA for the FDD UE.

8.7.3.2.2 Minimum Requirements

The accuracy requirements in table 8.7.3.2.1 are valid under the following condition:

$$|\text{Channel 1}_{\text{Io}}|_{\text{dBm}/3.84 \text{ MHz}} - \text{Channel 2}_{\text{Io}}|_{\text{dBm}/3.84 \text{ MHz}}| < 20 \text{ dB}.$$

Table 8.7.3.2.1: UTRA Carrier RSSI Inter frequency relative accuracy

Parameter	Unit	Accuracy [dB]		Conditions
		Normal condition	Extreme condition	Io [dBm/3.84 MHz]
UTRA Carrier RSSI	dBm	± 7	± 11	-94...-50

The normative reference for this requirement is TS 25.133 [2] clause 9.1.3.2.

8.7.3.2.3 Test purpose

The purpose of this test is to verify that the UTRA Carrier RSSI measurement is within the specified limits. This measurement is for inter-frequency handover evaluation.

8.7.3.2.4 Method of test

8.7.3.2.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

In this case both cells are on different frequencies and compressed mode is applied. The gap length is 7, detailed definition is in clause C.5, Set 1 of table C.5.2 except for TGRRC and TGCFN. TGPRC and TGCFN shall set to "Infinity" and "(Current CFN + (256 – TTI/10msec))mod 256". UTRA Carrier RSSI relative accuracy requirements are tested by using test parameters in table 8.7.3.1.2.

- 1) A call is set up according to the test procedure specified in TS 34.108 [3] clause 7.3.2.3. The RF parameters for Test 1 are set up according to table 8.7.3.1.2.

8.7.3.2.4.2 Procedure

- 1) SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message.
- 2) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.
- 3) SS shall transmit MEASUREMENT CONTROL message.
- 4) UE shall transmit periodically MEASUREMENT REPORT messages.
- 5) SS shall check UTRA carrier RSSI value of Channel 1 and Channel 2 in MEASUREMENT REPORT messages. UTRA carrier RSSI power value measured from Channel 1 is compared to UTRA carrier RSSI power value measured from Channel 2 for each MEASUREMENT REPORT message.
- 6) The result of step 5) is compared to actual power level difference of UTRA Carrier RSSI of Channel 1 and Channel 2.
- 7) SS shall count number of MEASUREMENT REPORT messages transmitted by UE. After 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.3.1.2 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 5) and 6) above are repeated. After further 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.3.1.2 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 5) and 6) above are repeated.
- 8) After further 1000 MEASUREMENT REPORT messages have been received from UE, the SS shall transmit RRC CONNECTION RELEASE message.
- 9) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

All messages indicated above shall use the same content as described in default message content in clause 9 of 34.108 [3], with the following exceptions:

PHYSICAL CHANNEL RECONFIGURATION message and MEASUREMENT CONTROL message for Inter frequency measurement in clause 8.7.3.1.4.2 is used.

MEASUREMENT REPORT message for inter – frequency test cases

This message is common for all inter frequency test cases in clause 8.7 and is described in Annex I.

8.7.3.2.5 Test requirements

The UTRA Carrier RSSI relative measurement accuracy shall meet the requirements in clause 8.7.3.2.2. The effect of assumed thermal noise and noise generated in the receiver (–99 dBm) shall be added into the required accuracy defined in clause 8.7.3.2.2 as shown in table 8.7.3.2.2.

Table 8.7.3.2.2: UTRA Carrier RSSI relative accuracy

Parameter	Unit	Accuracy [dB]		Conditions
		Normal condition	Extreme condition	Io [dBm/3.84 MHz]
UTRA Carrier RSSI	dBm	-4...5.2	-7...8.2	-94...-87
	dBm	± 4	± 7	-87...-70
	dBm	± 6	± 9	-70...-50

The normative reference for this requirement is TS 25.133 [2] clause A.9.1.3.2.

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.7.3A GSM Carrier RSSI

Void.

8.7.3B Transport channel BLER

Void.

8.7.3C UE transmitted power

8.7.3C.1 Definition and applicability

The UE transmitted power absolute accuracy is defined as difference between the UE reported value and the UE transmitted power measured by test system. The reference point for the UE transmitted power shall be the antenna connector of the UE.

The requirements and this test apply to all types of UTRA for the FDD UE.

8.7.3C.2 Minimum requirements

The measurement period in CELL_DCH state is 1 slot.

Table 8.7.3C.2.1 UE transmitted power absolute accuracy

Parameter	Unit	Accuracy [dB]	
		PUEMAX 24dBm	PUEMAX 21dBm
UE transmitted power=PUEMAX	dBm	+1/-3	±2
UE transmitted power=PUEMAX-1	dBm	+1.5/-3.5	±2.5
UE transmitted power=PUEMAX-2	dBm	+2/-4	±3
UE transmitted power=PUEMAX-3	dBm	+2.5/-4.5	±3.5
PUEMAX-10≤UE transmitted power<PUEMAX-3	dBm	+3/-5	±4

NOTE 1: User equipment maximum output power, PUEMAX, is the maximum output power level without tolerance defined for the power class of the UE in TS 25.101 [1] section 6.2.1.

NOTE 2: UE transmitted power is the reported value.

For each empty slot created by compressed mode, no value shall be reported by the UE L1 for those slots.

The normative reference for this requirement is TS 25.133 [2] clause 9.1.6.

8.7.3C.3 Test purpose

The purpose of this test is to verify that for any reported value of UE Transmitted Power in the range PUEMAX to PUEMAX-10 that the actual UE mean power lies within the range specified in clause 8.7.3C.2.

8.7.3C.4 Method of test

8.7.3C.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

- 1) Connect SS to the UE antenna connector as shown in figure A.1.

The test parameters are given in Table 8.7.3C.4.1 and 8.7.3C.4.2 below. In the measurement control information it shall be indicated to the UE that periodic reporting of the UE transmitted power measurement shall be used.

Table 8.7.3C.4.1: General test parameters for UE transmitted power

Parameter	Unit	Value	Comment
DCH parameters		DL Reference Measurement Channel 12.2 kbps	As specified in clause C.3.1
Power Control		On	
Target quality value on DTCH	BLER	0.01	

Table 8.7.3C.4.2: Cell Specific parameters for UE transmitted power

Parameter	Unit	Cell 1
CPICH_Ec/I _{or}	dB	-10
PCCPCH_Ec/I _{or}	dB	-12
SCH_Ec/I _{or}	dB	-12
PICH_Ec/I _{or}	dB	-15
DPCH_Ec/I _{or}	dB	Note1
OCNS_Ec/I _{or}	dB	Note 2
\hat{I}_{or}/I_{oc}	dB	0
I _{oc}	dBm/3.84 MHz	-70
CPICH_Ec/I _o	dB	-13
Propagation Condition		AWGN
Note 1: The DPCH level is controlled by the power control loop		
Note 2: The power of the OCNS channel that is added shall make the total power from the cell to be equal to I _{or} .		

8.7.3C.4.2 Procedure

- 1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2.3. The RF parameters are set up according to table 8.7.3C.4.1 and 8.7.3C.4.2. Set the UE power and Maximum allowed UL TX power to the maximum power for the UE power class.
- 2) SS shall send continuously during the entire test Up power control commands to the UE.
- 3) SS shall transmit the MEASUREMENT CONTROL message as defined in the specific message contents below.
- 4) Decode the UE Transmitted power reported by the UE in the next available MEASUREMENT REPORT message.
- 5) Measure the mean power of the UE over a period of one timeslot.
- 6) Steps 4 and 5 shall be repeated [100] times.
- 7) Decrease the Maximum allowed UL TX power by 1 dB. The SS shall transmit the PHYSICAL CHANNEL RECONFIGURATION message, as defined in the specific message contents below.
- 8) SS shall wait for the PHYSICAL CHANNEL RECONFIGURATION COMPLETE message from the UE.
- 9) Repeat from step 4) until the Maximum allowed UL TX Power reaches PUEMAX-10.

Specific Message Contents

All messages indicated above shall use the same content as described in default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message:

Information Element	Value/Remark
Message Type	
UE information elements -RRC transaction identifier -Integrity check info	0 Not Present
Measurement Information elements -Measurement Identity -Measurement Command -CHOICE Measurement type -UE Internal measurement quantity -Measurement quantity -Filter coefficient -UE Internal reporting quantity -UE Transmitted power -CHOICE mode -UE Rx-Tx time difference -CHOICE report criteria -Amount of reporting -Reporting interval -Measurement Reporting Mode -Measurement Report Transfer Mode -Periodical Reporting / Event Trigger Reporting Mode -AdditionalMeasurementList	5 SETUP UE Internal measurement UE Transmitted power 0 TRUE FDD FALSE Periodical reporting criteria Infinity 250 AM RLC Periodical reporting Not Present
Physical channel information elements -DPCH compressed mode status info	Not Present

MEASUREMENT REPORT message:

Information Element	Value/remark
Message Type	
Integrity check info	The presence of this IE is dependent on PIXIT 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	5
Measured Results	UE Internal measured results
- CHOICE Measurement	FDD
- Choice mode	Checked that this IE is present
- UE Transmitted power	Checked that this IE is absent
- UE Rx-Tx report entries	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

PHYSICAL CHANNEL RECONFIGURATION message:

Information Element	Value/Remark
Message Type	
UE Information Elements -RRC transaction identifier -Integrity check info -Integrity protection mode info -Ciphering mode info -Activation time -New U-RNTI -New C-RNTI -RRC State Indicator -UTRAN DRX cycle length coefficient	0 Not Present Not Present Not Present Not Present Not Present Not Present CELL_DCH Not Present
CN Information Elements -CN information info	Not Present
UTRAN mobility information elements -URA identity	Not Present
RB information elements -Downlink counter synchronisation info	Not Present
PhyCH information elements -Frequency info	Not Present
Uplink radio resources -Maximum allowed UL TX power	At the first time this value is set to PUEMAX-1. After the second time this value is decreased with 1 dB from previous value.
Downlink radio resources -CHOICE mode -Downlink PDSCH information -Downlink information common for all radio links -Downlink information per radio link list	FDD Not Present Not Present Not Present

8.7.3C.5 Test requirements

Compare each of the UE transmitted power reports against the following mean power measurement. At least 90% of the mean power measurements for any one value of reported UE transmitted power shall be within the range specified in table 8.7.3C.5.

NOTE It is not expected or required that the distribution of UE transmitted power reports is even for the 11 possible reported values.

Table 8.7.3C.5 UE transmitted power test requirements

Parameter	Unit	Mean Power range [dB]	
		PUEMAX 24dBm	PUEMAX 21dBm
UE transmitted power=PUEMAX	dBm	+1.7/-3.7	±2.7
UE transmitted power=PUEMAX-1	dBm	+2.2/-4.2	±3.2
UE transmitted power=PUEMAX-2	dBm	+2.7/-4.7	±3.7
UE transmitted power=PUEMAX-3	dBm	+3.2/-5.2	±4.2
UE transmitted power=PUEMAX-4	dBm	+3.7/-5.7	±4.7
UE transmitted power=PUEMAX-5	dBm	+3.7/-5.7	±4.7
UE transmitted power=PUEMAX-6	dBm	+3.7/-5.7	±4.7
UE transmitted power=PUEMAX-7	dBm	+3.7/-5.7	±4.7
UE transmitted power=PUEMAX-8	dBm	+3.7/-5.7	±4.7
UE transmitted power=PUEMAX-9	dBm	+3.7/-5.7	±4.7
UE transmitted power=PUEMAX-10	dBm	+3.7/-5.7	±4.7

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.7.4 SFN-CFN observed time difference

8.7.4.1 Intra frequency measurement requirement

8.7.4.1.1 Definition and applicability

The intra frequency SFN-CFN observed time difference is defined as the SFN-CFN observed time difference from the active cell to a neighbour cell that is in the same frequency. This measurement is specified in clause 5.1.8 of TS 25.215 [22].

The reference point for the SFN-CFN observed time difference shall be the antenna connector of the UE.

The requirements and this test apply to all types of UTRA for the FDD UE.

8.7.4.1.2 Minimum requirements

The accuracy requirement in table 8.7.4.1.1 is valid under the following conditions:

$$CPICH_RSCP1,2|_{dBm} \geq -114 \text{ dBm.}$$

$$\left| CPICH_RSCP1|_{in \text{ dBm}} - CPICH_RSCP2|_{in \text{ dBm}} \right| \leq 20 \text{ dB}$$

$$\left(\frac{I_o}{\hat{I}_{or}} \right)_{in \text{ dB}} - \left(\frac{CPICH - E_c}{I_{or}} \right)_{in \text{ dB}} \leq 20 \text{ dB}$$

$$\left(\frac{I_o}{\hat{I}_{or}} \right)_{in \text{ dB}} - \left(\frac{P - CCPCH - E_c}{I_{or}} \right)_{in \text{ dB}} \text{ is low enough to ensure successful SFN decoding.}$$

Table 8.7.4.1.1

Parameter	Unit	Accuracy [chip]	Conditions
			Io [dBm/3.84 MHz]
SFN-CFN observed time difference	chip	± 1	-94...-50

The normative reference for this requirement is TS 25.133 [2] clauses 9.1.7.1 and A.9.1.4.2.

8.7.4.1.3 Test Purpose

The purpose of this test is to verify that the SFN-CFN observed time difference measurement accuracy is within the specified limits in the clause 8.7.4.1.2. This measurement is for handover timing purposes to identify active cell and neighbour cell time difference.

8.7.4.1.4 Method of test

8.7.4.1.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

During the test the timing difference between Cell 1 and 2 can be set to value from 0...9830399 chips.

In this case all cells are in the same frequency. Table 8.7.4.1.2 defines the limits of signal strengths and code powers, where the requirements are applicable.

Table 8.7.4.1.2: SFN-CFN observed time difference Intra frequency test parameters

Parameter	Unit	Test 1		Test 2		Test 3	
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior	dB	-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15	
DPCH_Ec/Ior	dB	-15		-15		-15	
OCNS_Ec/Ior	dB	-1.11		-1.11		-1.11	
Ior/Ioc	dB	10.5		10.5		10.5	
Ioc	dBm/ 3.84 MHz	$I_o - 13.7 \text{ dB} = I_{oc}$, Note 1		$I_o - 13.7 \text{ dB} = I_{oc}$, Note 1		$I_o - 13.7 \text{ dB} = I_{oc}$, Note 1	
Io	dBm/3.84 MHz	-50		-72		-94	
Relative delay of path received from cell 2 with respect to cell 1	chip	x Note 2					
Propagation condition	-	AWGN		AWGN		AWGN	
NOTE 1: I_{oc} level shall be adjusted according the total signal power I_o at receiver input and the geometry factor I_{or}/I_{oc} .							
NOTE2: For example, x= 491520 or 9830399							
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.							

- 1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2.3. The RF parameters for Test 1 are set up according to table 8.7.4.1.2.

8.7.4.1.4.2 Procedure

- 1) SS shall transmit MEASUREMENT CONTROL message.
- 2) UE shall transmit periodically MEASUREMENT REPORT message.
- 3) SS shall check "OFF" and "Tm" values in MEASUREMENT REPORT message and calculate SFN-CFN observed time difference value according to the definition in clause 5.1.8 of TS 25.215 [22]. This value shall be compared to the actual SFN-CFN observed time difference value for each MEASUREMENT REPORT message.
- 4) SS shall count the number of MEASUREMENT REPORT messages transmitted by UE. After 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.4.1.2 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 3) above is repeated. After further 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.4.1.2 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 3) above is repeated.
- 5) After further 1000 MEASUREMENT REPORT messages have been received from UE, the SS shall transmit RRC CONNECTION RELEASE message.
- 6) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message for intra frequency measurement

Information Element	Value/Remark
Message Type	
UE information elements -RRC transaction identifier -Integrity check info	0 Not Present
Measurement Information elements -Measurement Identity -Measurement Command -Measurement Reporting Mode - Measurement Report Transfer Mode - Periodical Reporting / Event Trigger Reporting Mode -Additional measurement list -CHOICE Measurement Type -Intra-frequency measurement - Intra-frequency measurement objects list -Intra-frequency measurement quantity -Filter coefficient -CHOICE mode -Measurement quantity -Intra-frequency reporting quantity -Reporting quantities for active set cells -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator -Reporting quantities for monitored set cells -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator -Reporting quantities for detected set cells -Reporting cell status -CHOICE reported cell -Maximum number of reported cells -Measurement validity -CHOICE <i>report criteria</i> -Amount of reporting -Reporting interval	1 Modify Acknowledged mode RLC Periodical reporting Not Present Intra-frequency measurement Not Present 0 FDD CPICH RSCP No report TRUE TRUE FDD TRUE TRUE TRUE No report TRUE TRUE TRUE TRUE TRUE TRUE TRUE Not Present Report all active set cells + cells within monitored set on used frequency Virtual/active set cells + 2 Not Present Periodical reporting criteria Infinity 250 ms
Physical channel information elements -DPCH compressed mode status info	Not Present

MEASUREMENT REPORT message for Intra frequency test cases

This message is common for all intra frequency test cases in clause 8.7 and is described in Annex I.

8.7.4.1.5 Test requirements

The SFN-CFN observed time difference measurement accuracy shall meet the requirements in clause 8.7.4.1.2.

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.7.4.2 Inter frequency measurement requirement

8.7.4.2.1 Definition and applicability

The inter frequency SFN-CFN observed time difference is defined as the SFN-CFN time difference from the active cell to a neighbour cell that is in a different frequency. This measurement is specified in clause 5.1.8 of TS 25.215 [22].

The reference point for the SFN-CFN observed time difference shall be the antenna connector of the UE.

The requirements and this test apply to all types of UTRA for the FDD UE.

8.7.4.2.2 Minimum requirements

The accuracy requirement in table 8.7.4.2.1 is valid under the following conditions:

$CPICH_RSCP_{1,2}|_{dBm} \geq -114$ dBm.

$$\left| CPICH_RSCP1|_{in\ dBm} - CPICH_RSCP2|_{in\ dBm} \right| \leq 20dB$$

$| Channel\ 1_Io|_{dBm/3.84\ MHz} - Channel\ 2_Io|_{dBm/3.84\ MHz} | \leq 20$ dB.

$$\left(\frac{I_o}{\hat{I}_{or}} \right) |_{in\ dB} - \left(\frac{CPICH_E_c}{I_{or}} \right) |_{in\ dB} \leq 20dB$$

Table 8.7.4.2.1

Parameter	Unit	Accuracy [chip]	Conditions
			Io [dBm/3.84 MHz]
SFN-CFN observed time difference	chip	± 1	-94...-50

The normative reference for this requirement is TS 25.133 [2] clauses 9.1.7.2 and A.9.1.4.2.

8.7.4.2.3 Test purpose

The purpose of this test is to verify that the SFN-CFN observed time difference measurement accuracy is within the specified limits in the clause 8.7.4.2.2. This measurement is for handover timing purposes to identify active cell and neighbour cell time difference.

8.7.4.2.4 Method of test

8.7.4.2.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

During the test the timing difference between Cell 1 and 2 can be set to value from 0...9830399 chips.

In this test case both cells are in different frequency and compressed mode is applied. The gap length is 7, detailed definition is in clause C.5, set 1 of table C.5.2 except for TGRRC and TGCFN. TGPRC and TGCFN shall set to "Infinity" and "(Current CFN + (256 - TTI/10msec))mod 256". Table 8.7.4.2.2 defines the limits of signal strengths and code powers, where the requirement is applicable.

Table 8.7.4.2.2: SFN-CFN observed time difference Inter frequency tests parameters

Parameter	Unit	Test 1		Test 2		Test 3	
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1	Channel 2	Channel 1	Channel 2	Channel 1	Channel 2
CPICH_Ec/lor	dB	-10		-10		-10	
PCCPCH_Ec/lor	dB	-12		-12		-12	
SCH_Ec/lor	dB	-12		-12		-12	
PICH_Ec/lor	dB	-15		-15		-15	
DPCH_Ec/lor	dB	-15		-15		-15	
OCNS_Ec/lor	dB	-1.11		-1.11		-1.11	
\hat{I} or/loc	dB	10.1		10.1		10.1	
loc	dBm/ 3.84 MHz	$l_o - 10.6 \text{ dB} = l_{oc}$, Note 1		$l_o - 10.6 \text{ dB} = l_{oc}$, Note 1		$l_o - 10.6 \text{ dB} = l_{oc}$, Note 1	
l _o	dBm/3.84 MHz	-50		-72		-94	
Relative delay of path received from cell 2 with respect to cell 1	chip	x Note 2					
Propagation condition	-	AWGN		AWGN		AWGN	
NOTE 1: l_{oc} level shall be adjusted in each carrier frequency according the total signal power l_o at receiver input and the geometry factor \hat{I} or/ l_{oc} .							
NOTE2: For example, x= 491520 or 9830399							
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.							

- 1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2.3. The RF parameters for Test 1 are set up according to table 8.7.4.2.2.

8.7.4.2.4.2 Procedure

- 1) SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message.
- 2) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.
- 3) SS shall transmit MEASUREMENT CONTROL message.
- 4) UE shall transmit periodically MEASUREMENT REPORT messages.
- 5) SS shall check "OFF" and "Tm" values in MEASUREMENT REPORT message and calculate SFN-CFN observed time difference value according to the definition in clause 5.1.8 of TS 25.215 [22]. This value shall be compared to the actual SFN-CFN observed time difference value for each MEASUREMENT REPORT message.
- 6) SS shall count number of MEASUREMENT REPORT messages transmitted by UE. After 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.4.2.2 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 3) and 4) above are repeated. After further 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.4.2.2 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 4) and 5) above are repeated.
- 7) After further 1000 MEASUREMENT REPORT messages have been received from UE, the SS shall transmit RRC CONNECTION RELEASE message.
- 8) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

PHYSICAL CHANNEL RECONFIGURATION message for inter frequency measurement

Information Element	Value/Remark
Message Type	
UE Information Elements -RRC transaction identifier -Integrity check info -Integrity protection mode info -Ciphering mode info -Activation time -New U-RNTI -New C-RNTI -RRC State Indicator -UTRAN DRX cycle length coefficient	0 Not Present Not Present Not Present Not Present Not Present Not Present CELL_DCH Not Present
CN Information Elements -CN Information info	Not Present
UTRAN mobility information elements -URA identity	Not Present
RB information elements -Downlink counter synchronisation info	Not Present
PhyCH information elements -Frequency info	Not Present
Uplink radio resources -Maximum allowed UL TX power - CHOICE <i>channel requirement</i>	Not Present Not Present
Downlink radio resources -CHOICE mode -Downlink PDSCH information -Downlink information common for all radio links -Downlink DPCH info common for all RL -CHOICE mode -DPCH compressed mode info -Transmission gap pattern sequence -TGPSI -TGPS Status Flag -TGCFN -Transmission gap pattern sequence configuration parameters -TGMP -TGPRC -TGSN -TGL1 -TGL2 -TGD -TGPL1 -TGPL2 -RPP -ITP -CHOICE UL/DL mode -Downlink compressed mode method -Uplink compressed mode method -Downlink frame type -DeltaSIR1 -DeltaSIRafter1 -DeltaSIR2 -DeltaSIRafter2 -N Identify abort -T Reconfirm abort -TX Diversity Mode -SSDT information -Default DPCH Offset Value -Downlink information per radio link list -Downlink information for each radio link -Choice mode -Primary CPICH info -Primary scrambling code	FDD Not Present Not Present FDD 1 Activate (Current CFN + (256 – TTI/10msec))mod 256 FDD measurement Infinity 4 7 Not Present 0 3 Not Present Mode 0 Mode 0 UL and DL SF/2 SF/2 B 3.0 3.0 Not Present Not Present Not Present Not Present Not Present Not Present Not Present Not Present FDD 100

-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	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400
-Secondary CPICH info	Not Present
-DL channelisation code	
-Secondary scrambling code	Not Present
-Spreading factor	128
-Code number	96
-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

MEASUREMENT CONTROL message for Inter frequency measurement

Information Element	Value/Remark
Message Type	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
Measurement Information elements	
-Measurement Identity	2
-Measurement Command	Setup
-Measurement Reporting Mode	
- Measurement Report Transfer Mode	Acknowledged mode RLC
- Periodical Reporting / Event Trigger Reporting Mode	Periodical reporting
-Additional measurement list	Not Present
-CHOICE Measurement Type	Inter-frequency measurement
-Inter-frequency measurement	
-Inter-frequency cell info list	
-CHOICE Inter-frequency cell removal	Not Present
-New inter-frequency cells	Cell 2 information is included
-Cell for measurement	
-Inter-frequency measurement quantity	Inter-frequency reporting criteria
-CHOICE reporting criteria	
-Filter coefficient	0
-CHOICE mode	FDD
-Measurement quantity for frequency quality estimate	CPICH RSCP
-Inter-frequency reporting quantity	
-UTRA Carrier RSSI	TRUE
-Frequency quality estimate	TRUE
-Non frequency related cell reporting quantities	
-SFN-SFN observed time difference reporting indicator	No report
-Cell synchronisation information reporting indicator	TRUE
-Cell Identity reporting indicator	TRUE
-CHOICE mode	FDD
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	TRUE
-Reporting cell status	
-CHOICE reported cell	Report cells within 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	Periodical reporting criteria
-Amount of reporting	Infinity
-Reporting interval	500 ms
Physical channel information elements	
-DPCH compressed mode status info	Not Present

MEASUREMENT REPORT message for Inter frequency test cases

This message is common for all inter frequency test cases in clause 8.7 and is described in Annex I.

8.7.4.2.5 Test requirements

The SFN-CFN observed time difference measurement accuracy shall meet the requirements in clause 8.7.4.2.2.

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.7.5 SFN-SFN observed time difference

8.7.5.1 SFN-SFN observed time difference type 1

8.7.5.1.1 Definition and applicability

This measurement is specified in clause 5.1.9 of TS 25.215 [22]. The reference point for the SFN-SFN observed time difference type 1 shall be the antenna connector of the UE.

The requirements and this test apply to all types of UTRA for the FDD UE.

8.7.5.1.2 Minimum requirements

The accuracy requirement in table 8.7.5.1.1 is valid under the following conditions:

$$CPICH_RSCP_{1,2}|_{dBm} \geq -114 \text{ dBm.}$$

$$\left| CPICH_RSCP1|_{in \text{ dBm}} - CPICH_RSCP2|_{in \text{ dBm}} \right| \leq 20 \text{ dB}$$

$$\left(\frac{I_o}{\hat{I}_{or}} \right) |_{in \text{ dB}} - \left(\frac{CPICH_E_c}{I_{or}} \right) |_{in \text{ dB}} \leq 20 \text{ dB}$$

$$\left(\frac{I_o}{\hat{I}_{or}} \right) |_{in \text{ dB}} - \left(\frac{P - CCPCH_E_c}{I_{or}} \right) |_{in \text{ dB}} \text{ is low enough to ensure successful SFN decoding.}$$

Table 8.7.5.1.1

Parameter	Unit	Accuracy [chip]	Conditions
			Io [dBm/3.84 MHz]
SFN-SFN observed time difference type1	chip	± 1	-94...-50

The normative reference for this requirement is TS 25.133 [2] clause 9.1.8.1.1 and A.9.1.5.1.2.

8.7.5.1.3 Test purpose

The purpose of this test is to verify that the measurement accuracy of SFN-SFN observed time difference type 1 is within the limit specified in clause 8.7.5.1.2. This measurement is for identifying time difference between two cells.

8.7.5.1.4 Method of test

8.7.5.1.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

During the test the timing difference between Cell 1 and 2 can be set to value from 0...9830399 chips.

- 1) Connect SS to the UE antenna connector as shown in figure A.1
- 2) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.3. The RF parameters for Test 1 are set up according to table 8.7.5.1.2.

In this case all cells are in the same frequency. Table 8.7.5.1.2 defines the limits of signal strengths and code powers, where the requirements are applicable.

Table 8.7.5.1.2: SFN-SFN observed time difference type 1 Intra frequency test parameters

Parameter	Unit	Test 1		Test 2		Test 3	
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior	dB	-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15	
S-CCPCH_Ec/Ior	dB	-12		-12		-12	
OCNS_Ec/Ior	DbdB	-1.29		-1.29		-1.29	
Ior/Ioc	dB	10.5		10.5		10.5	
Ioc	dBm/ 3.84 MHz	$I_o - 13.7 \text{ dB} = I_{oc}$, Note 1		$I_o - 13.7 \text{ dB} = I_{oc}$, Note 1		$I_o - 13.7 \text{ dB} = I_{oc}$, Note 1	
Io	dBm/3.84 MHz	-50		-72		-94	
Relative delay of path received from cell 2 with respect to cell 1	chip	x Note 2					
Propagation condition	-	AWGN		AWGN		AWGN	
NOTE 1: I_{oc} level shall be adjusted according the total signal power I_o at receiver input and the geometry factor I_{or}/I_{oc} .							
NOTE2: For example, x= 491520 or 9830399							
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.							

8.7.5.1.4.2 Procedure

- 1) SS shall transmit MEASUREMENT CONTROL message.
- 2) UE shall transmit periodically MEASUREMENT REPORT message.
- 3) SS shall check "SFN-SFN observed time difference type 1" value in MEASUREMENT REPORT message. The reported value shall be compared to actual SFN-SFN observed time difference type 1 value for each MEASUREMENT REPORT message.
- 4) SS shall count the number of MEASUREMENT REPORT messages transmitted by UE. After 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.5.1.2 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 3) above is repeated. After further 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.5.1.2 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 3) above is repeated.
- 5) After further 1000 MEASUREMENT REPORT messages have been received from UE, the SS shall transmit RRC CONNECTION RELEASE message.
- 6) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message for Intra frequency measurement (Step 1):

Information Element	Value/Remark
Message Type	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
Measurement Information elements	
-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-CHOICE	Not Present
Measurement Type	Intra-frequency measurement
-Intra-frequency measurement	
- Intra-frequency measurement objects list	Not Present
-Intra-frequency measurement quantity	
-Filter coefficient	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	Type 1
-Cell synchronisation information reporting indicator	TRUE
-Cell Identity reporting indicator	TRUE
-CHOICE mode	FDD
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	TRUE
-Reporting quantities for monitored set cells	
-SFN-SFN observed time difference reporting indicator	Type 1
-Cell synchronisation information reporting indicator	TRUE
-Cell Identity reporting indicator	TRUE
-CHOICE mode	FDD
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	TRUE
-Reporting quantities for detected set cells	Not Present
-Reporting cell status	
-CHOICE reported cell	Report all active set cells + cells within monitored set on used frequency
-Maximum number of reported cells	Virtual/active set cells + 2
-Measurement validity	Not Present
-CHOICE <i>report criteria</i>	Periodical reporting criteria
-Amount of reporting	Infinity
-Reporting interval	250 ms
Physical channel information elements	
-DPCH compressed mode status info	Not Present

MEASUREMENT REPORT message for Intra frequency test cases

This message is common for all intra frequency test cases in clause 8.7 and is described in Annex I.

8.7.5.1.5 Test requirements

The SFN-SFN observed time difference type 1 accuracy shall meet the requirements in clause 8.7.5.1.2.

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.7.5.2 SFN-SFN observed time difference type 2

Void.

8.7.6 UE Rx-Tx time difference

8.7.6.1 UE Rx-Tx time difference type 1

8.7.6.1.1 Definition and applicability

The UE Rx-Tx time difference is defined as the time difference between the UE uplink DPCCH/DPDCH frame transmission and the first detected path (in time) of the downlink DPCH frame from the measured radio link. The reference point of the UE Rx-Tx time difference shall be the antenna connector of the UE. This measurement is specified in clause 5.1.10 of TS 25.215.

The requirements and this test apply to all types of UTRA for the FDD UE.

8.7.6.1.2 Minimum requirements

Table 8.7.6.1.1

Parameter	Unit	Accuracy [chip]	Conditions
			Io [dBm/3.84Mz]
UE RX-TX time difference	chip	± 1.5	-94...-50

The normative reference for this requirement is TS 25.133 [2] clause 9.1.9.1.1 and A.9.1.6.1.2.

8.7.6.1.3 Test purpose

The purpose of this test is to verify that the measurement accuracy of Rx-Tx time difference is within the limit specified in clause 8.7.6.1.2. This measurement is used for call setup purposes to compensate propagation delay of DL and UL.

8.7.6.1.4 Method of test

8.7.6.1.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

- 1) Connect SS to the UE antenna connector as shown in figure A.1

Table 8.7.6.1.2: UE Rx-Tx time difference type 1 intra frequency test parameters

Parameter	Unit	Test 1	Test 2	Test 3
		Cell 1	Cell 1	Cell 1
UTRA RF Channel number		Channel 1	Channel 1	Channel 1
CPICH_Ec/lor	dB	-10	-10	-10
PCCPCH_Ec/lor	dB	-12	-12	-12
SCH_Ec/lor	dB	-12	-12	-12
PICH_Ec/lor	dB	-15	-15	-15
DPCH_Ec/lor	dB	-15	-15	-15
OCNS_Ec/lor	dB	-1.11	-1.11	-1.11
$\hat{I}_{or/loc}$	dB	10.5	10.5	10.5
loc	dBm/ 3.84 MHz	$I_o - 10.9 \text{ dB} = loc$, Note 1	$I_o - 10.9 \text{ dB} = loc$, Note 1	$I_o - 10.9 \text{ dB} = loc$, Note 1
I _o	dBm/3.84 MHz	-94	-72	-50
Propagation condition	-	AWGN	AWGN	AWGN

NOTE 1: *I_o* level shall be adjusted according the total signal power spectral density *I_o* at receiver input and the geometry factor $\hat{I}_{or/loc}$.

8.7.6.1.4.2 Procedure

- 1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2.3. The RF parameters are set up according to table 8.7.6.1.4 for Test 1.
- 2) SS shall transmit MEASUREMENT CONTROL message.
- 3) UE shall transmit periodically MEASUREMENT REPORT message.
- 4) SS shall check "UE Rx-Tx time difference type 1" value in MEASUREMENT REPORT message. The reported value shall be compared to actual UE Rx-Tx time difference value for each MEASUREMENT REPORT message. The comparison should be repeated 1000 times.
- 5) The RF parameters are set up according table 8.7.6.1.4 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period.
- 6) Step 3) above shall be repeated.
- 7) The RF parameters are set up according table 8.7.6.1.4 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period.
- 8) Step 3) above shall be repeated.
- 9) SS shall transmit RRC CONNECTION RELEASE message.

Specific Message Contents

All messages indicated above shall use the same content as described in default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message for Intra frequency measurement (Step 1):

Information Element	Value/Remark
Message Type	
UE information elements -RRC transaction identifier -Integrity check info	0 Not Present
Measurement Information elements -Measurement Identity -Measurement Command - Additional measurements list -Measurement Reporting Mode -Measurement Report Transfer Mode -Periodical Reporting / Event Trigger Reporting Mode -CHOICE Measurement type -UE Internal measurement quantity -CHOICE mode -Measurement quantity -Filter coefficient -UE Internal reporting quantity -UE Transmitted power -CHOICE mode -UE Rx-Tx time difference -CHOICE report criteria -Amount of reporting -Reporting interval -Measurement Reporting Mode -Measurement Report Transfer Mode -Periodical Reporting / Event Trigger Reporting Mode	1 Modify Not Present AM RLC Periodical reporting UE Internal measurement FDD UE Rx-Tx time difference 0 FALSE FDD TRUE Periodical reporting criteria Infinity 250 AM RLC Periodical reporting
Physical channel information elements -DPCH compressed mode status info	Not Present

MEASUREMENT REPORT message

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	
- CHOICE Measurement	UE Internal measured results
- Choice mode	FDD
- UE Transmitted power	Checked that this IE is absent
- UE Rx-Tx report entries	
- Primary CPICH info	Checked that this IE is present
- UE Rx-Tx time difference type 1	Checked that this IE is present
- Intra-frequency measured results	
- Cell measured results	
- Cell Identity	Not present
- 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	100
- CPICH Ec/NO	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

8.7.6.1.5 Test requirements

Table 8.7.6.1.3

Parameter	Unit	Accuracy [chip]	Conditions
			Io [dBm]
UE RX-TX time difference	chip	[± 2.0]	-94...-50

Table 8.7.6.1.4: UE Rx-Tx time difference type 1 intra frequency test parameters

Parameter	Unit	Test 1	Test 2	Test 3
		Cell 1	Cell 1	Cell 1
UTRA RF Channel number		Channel 1	Channel 1	Channel 1
CPICH_Ec/Ior	dB	-10	-10	-10
PCCPCH_Ec/Ior	dB	-12	-12	-12
SCH_Ec/Ior	dB	-12	-12	-12
PICH_Ec/Ior	dB	-15	-15	-15
DPCH_Ec/Ior	dB	-15	-15	-15
OCNS_Ec/Ior	dB	-1.11	-1.11	-1.11
Ior/Ioc	dB	10.5	10.5	10.5
Ioc	dBm/ 3.84 MHz	-103.6	-82.9	-62.2
Io	dBm/3.84 MHz	-92.7	-72	-51.3
Propagation condition	-	AWGN	AWGN	AWGN
NOTE 1: Ioc level shall be adjusted according the total signal power spectral density Io at receiver input and the geometry factor Ior/Ioc.				

The UE Rx-Tx time difference accuracy shall meet the requirements in table 8.7.6.1.3.

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.7.6.2 UE Rx-Tx time difference type 2

Void

CHANGE REQUEST

34.121 CR 362 # rev **-** # Current version: **5.3.1**

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 F1.5		
Source:	# Anritsu		
Work item code:	#	Date:	# 10/05/2004
Category:	# F	Release:	# Rel-5
	<i>Use one of the following categories:</i> 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 .		<i>Use one of the following releases:</i> 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 system uncertainty will not be interpreted and setup correctly.
Summary of change:	# Previously specified test system uncertainty for 8.2.2.1 and 8.2.2.2 is deleted.
Consequences if not approved:	# Test system uncertainty will not be interpreted and setup correctly.

Clauses affected:	# F.1.5 (8.2.2.1,8.2.2.2)						
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="padding: 2px;">Y</td> <td style="padding: 2px;">N</td> </tr> <tr> <td style="text-align: center; padding: 2px;"><input type="checkbox"/></td> <td style="text-align: center; padding: 2px;"><input checked="" type="checkbox"/></td> </tr> </table>	Y	N	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Other core specifications	#
	Y	N					
	<input type="checkbox"/>	<input checked="" type="checkbox"/>					
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Test specifications	#				
<input type="checkbox"/>	<input checked="" type="checkbox"/>	O&M Specifications	#				
Other comments:	# This CR applies for Rel-99 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.

F.1.5 Requirements for support of RRM

Table F.1.5: Maximum Test System Uncertainty for Radio Resource Management Tests

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
8.2 Idle Mode Tasks		
8.2.2 Cell Re-Selection		
8.2.2.1 Scenario 1: Single carrier case	<p><u>During T1 and T2:</u></p> $\frac{CPICH - E_c}{I_{or}} \quad \pm 0.1 \text{ dB}$ $I_{oc} \quad \pm 1.0 \text{ dB}$ <p><u>During T1:</u></p> $I_{or} (2) \quad \pm 0.7 \text{ dB}$ $I_{or} (1, 3, 4, 5, 6) \text{ relative to } I_{or} (2) \quad \pm 0.3 \text{ dB}$ <p><u>During T2:</u></p> $I_{or} (1) \quad \pm 0.7 \text{ dB}$ $I_{or} (2, 3, 4, 5, 6) \text{ relative to } I_{or} (1) \quad \pm 0.3 \text{ dB}$ <p>Assumptions:</p> <p>a) The contributing uncertainties for $I_{or}(n)$, channel power ratio, and I_{oc} are derived according to ETR 273-1-2 [16], with a coverage factor of $k=2$.</p> <p>b) Within each cell, the uncertainty for $I_{or}(n)$, and channel power ratio are uncorrelated to each other.</p> <p>c) The relative uncertainties for $I_{or}(n)$ across different cells may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).</p> <p>d) Across different cells, the channel power ratio uncertainties may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).</p> <p>e) The uncertainty for I_{oc} and $I_{or}(n)$ may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).</p> <p>f) The absolute uncertainty of $I_{or}(2)$ at T1 and the relative uncertainty of $I_{or}(1, 3, 4, 5, 6)$, are uncorrelated to each other. Similarly, the absolute uncertainty of $I_{or}(1)$ at T2 and the relative uncertainty of $I_{or}(2, 3, 4, 5, 6)$, are uncorrelated to each other.</p> <p>An explanation of correlation between uncertainties, and of the rationale behind the assumptions, is recorded in 3GPP TR 34 902 [24].</p>	

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
8.2.2.2 Scenario 2: Multi carrier case	<p><u>Channel 1 during T1 and T2:</u></p> $\frac{CPICH - E_c}{I_{or}} \quad \pm 0.1 \text{ dB}$ $I_{oc}(1) \quad \pm 1.0 \text{ dB}$ <p><u>Channel 1 during T1:</u></p> $I_{or}(1) \quad \pm 0.7 \text{ dB}$ <p>$I_{or}(3, 4)$ relative to $I_{or}(1)$ $\pm 0.3 \text{ dB}$</p> <p><u>Channel 1 during T2:</u></p> $I_{or}(1) \quad \pm 0.7 \text{ dB}$ <p>$I_{or}(3, 4)$ relative to $I_{or}(1)$ $\pm 0.3 \text{ dB}$</p> <p><u>Channel 2 during T1 and T2:</u></p> $\frac{CPICH - E_c}{I_{or}} \quad \pm 0.1 \text{ dB}$ $I_{oc}(2) \quad \pm 1.0 \text{ dB}$ <p><u>Channel 2 during T1:</u></p> $I_{or}(2) \quad \pm 0.7 \text{ dB}$ <p>$I_{or}(5, 6)$ relative to $I_{or}(2)$ $\pm 0.3 \text{ dB}$</p> <p><u>Channel 2 during T2:</u></p> $I_{or}(2) \quad \pm 0.7 \text{ dB}$ <p>$I_{or}(5, 6)$ relative to $I_{or}(2)$ $\pm 0.3 \text{ dB}$</p>	
	<p>Assumptions:</p> <p>a) to e): Same as for the one-frequency test 8.2.2.1.</p> <p>f) The absolute uncertainty of $I_{or}(1)$ and the relative uncertainty of $I_{or}(3, 4)$, are uncorrelated to each other. Similarly, the absolute uncertainty of $I_{or}(2)$ and the relative uncertainty of $I_{or}(5, 6)$, are uncorrelated to each other.</p> <p>g) The absolute uncertainties for $I_{or}(1)$ and $I_{or}(2)$ may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).</p> <p>h) The absolute uncertainties for $I_{oc}(1)$ and $I_{oc}(2)$ may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).</p> <p>An explanation of correlation between uncertainties, and of the rationale behind the assumptions, is recorded in 3GPP TR 34 902 [24].</p>	

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
8.2.2.1 Scenario 1: Single carrier case	 $\frac{\hat{I}_{or}}{I_{oc}} \pm 0.3 \text{ dB}$ $I_{oc} \pm 1.0 \text{ dB}$ $\frac{CPICH_E_c}{I_{or}} \pm 0.1 \text{ dB}$ 	 0.1 dB uncertainty in CPICH_Ec ratio 0.3 dB uncertainty in $\frac{\hat{I}_{or}}{I_{oc}}$ based on power meter measurement after the combiner The absolute error of the AWGN is specified as 1.0 dB.
8.2.2.2 Scenario 2: Multi carrier case	 $\frac{\hat{I}_{or}}{I_{oc}} \pm 0.3 \text{ dB}$ $I_{oc} \pm 1.0 \text{ dB}$ $\frac{I_{oc1}}{I_{oc2}} \pm 0.3 \text{ dB}$ $\frac{CPICH_E_c}{I_{or}} \pm 0.1 \text{ dB}$ 	 0.1 dB uncertainty in CPICH_Ec ratio 0.3 dB uncertainty in $\frac{\hat{I}_{or}}{I_{oc}}$ based on power meter measurement after the combiner 0.3 dB uncertainty in loc1/loc2 based on power meter measurement after the combiner Overall error for the CPICH_Ec/Io is the sum of the $\frac{\hat{I}_{or}}{I_{oc}}$ ratio error and the CPICH_Ec/Ior ratio. The absolute error of the AWGN is specified as 1.0 dB.
8.2.3 UTRAN to GSM Cell Re-Selection		
8.2.3.1 Scenario 1: Both UTRA and GSM level changed	$\frac{\hat{I}_{or}}{I_{oc}} \pm 0.3 \text{ dB}$ $\frac{I_{oc}}{RXLEV} \pm 0.3 \text{ dB}$ $I_{oc} \pm 1.0 \text{ dB}$ $RXLEV \pm 1.0 \text{ dB}$ $\frac{CPICH_E_c}{I_{or}} \pm 0.1 \text{ dB}$	0.1 dB uncertainty in CPICH_Ec ratio 0.3 dB uncertainty in $\frac{\hat{I}_{or}}{I_{oc}}$ based on power meter measurement after the combiner 0.3 dB uncertainty in Ioc/RXLEV based on power meter measurement after the combiner The absolute error of the AWGN is specified as 1.0 dB. The absolute error of the RXLEV is specified as 1.0 dB.

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
8.2.3.2 Scenario 2: Only UTRA level changed	\hat{I}_{or}/I_{oc} ± 0.3 dB $I_{oc}/RXLEV$ ± 0.3 dB I_{oc} ± 1.0 dB RXLEV ± 1.0 dB $\frac{CPICH - E_c}{I_{or}}$ ± 0.1 dB	Same as 8.2.3.1
8.2.4 FDD/TDD cell re-selection	\hat{I}_{or}/I_{oc} ± 0.3 dB I_{oc} ± 1.0 dB I_{oc1}/I_{oc2} ± 0.3 dB $\frac{CPICH - E_c}{I_{or}}$ ± 0.1 dB	Same as 8.2.2.2
8.3 UTRAN Connected Mode Mobility		
8.3.1 FDD/FDD Soft Handover	TBD	
8.3.2 FDD/FDD Hard Handover		
8.3.2.1 Handover to intra-frequency cell	<p><u>During T1 and T2 / T3:</u></p> $\frac{CPICH - E_c}{I_{or}}$ ± 0.1 dB	
	$I_{or}(1)$ ± 0.7 dB I_{oc} ± 1.0 dB	
	<p><u>During T1:</u> Already covered above</p>	
	<p><u>During T2 / T3:</u> $I_{or}(2)$ relative to $I_{or}(1) \pm 0.3$ dB</p>	
	<p>Assumptions:</p> <p>a) The contributing uncertainties for $I_{or}(n)$, channel power ratio, and I_{oc} are derived according to ETR 273-1-2 [16], with a coverage factor of $k=2$.</p> <p>b) Within each cell, the uncertainty for $I_{or}(n)$, and channel power ratio are uncorrelated to each other.</p> <p>c) Across different cells, the channel power ratio uncertainties may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).</p> <p>d) The uncertainty for I_{oc} and $I_{or}(n)$ may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).</p> <p>e) The absolute uncertainty of $I_{or}(1)$ and the relative uncertainty of $I_{or}(2)$, are uncorrelated to each other.</p> <p>An explanation of correlation between uncertainties, and of the rationale behind the assumptions, is recorded in 3GPP TR 34 902 [24].</p>	

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
8.3.2.2 Handover to inter-frequency cell	<p><u>Channel 1 during T1 and T2 / T3:</u></p> $\frac{CPICH - E_c}{I_{or}} \quad \pm 0.1 \text{ dB}$ $I_{or} (1) \quad \pm 0.7 \text{ dB}$ $I_{oc} (1) \quad \pm 1.0 \text{ dB}$ <p><u>Channel 2 during T1 and T2 / T3:</u></p> $I_{oc} (2) \quad \pm 1.0 \text{ dB}$ <p><u>Channel 2 during T1:</u> Already covered above</p> <p><u>Channel 2 during T2 / T3:</u></p> $\frac{CPICH - E_c}{I_{or}} \quad \pm 0.1 \text{ dB}$ $I_{or} (2) \quad \pm 0.7 \text{ dB}$	
8.3.3 FDD/TDD Handover	TBD	
8.3.4 Inter-system Handover from UTRAN FDD to GSM	TBD	
8.3.5 Cell Re-selection in CELL_FACH		

Assumptions:

- a) The contributing uncertainties for $I_{or}(n)$, channel power ratio, and I_{oc} are derived according to ETR 273-1-2 [16], with a coverage factor of $k=2$.
- b) Within each cell, the uncertainty for $I_{or}(n)$, and channel power ratio are uncorrelated to each other.
- c) Across different cells, the channel power ratio uncertainties may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).
- d) The uncertainty for $I_{oc}(n)$ and $I_{or}(n)$ may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).
- e) The absolute uncertainties for $I_{or}(1)$ and $I_{or}(2)$ may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).
- f) The absolute uncertainties for $I_{oc}(1)$ and $I_{oc}(2)$ may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).

An explanation of correlation between uncertainties, and of the rationale behind the assumptions, is recorded in 3GPP TR 34 902 [24].

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
<p>8.3.5.1 One frequency present in the neighbour list</p>	<p><u>During T1 and T2:</u></p> $\frac{CPICH - E_c}{I_{or}} \quad \pm 0.1 \text{ dB}$ <p>$I_{oc} \quad \pm 1.0 \text{ dB}$</p> <p><u>During T1:</u></p> <p>$I_{or} (2) \quad \pm 0.7 \text{ dB}$</p> <p>$I_{or} (1, 3, 4, 5, 6) \text{ relative to } I_{or} (2) \quad \pm 0.3 \text{ dB}$</p> <p><u>During T2:</u></p> <p>$I_{or} (1) \quad \pm 0.7 \text{ dB}$</p> <p>$I_{or} (2, 3, 4, 5, 6) \text{ relative to } I_{or} (1) \quad \pm 0.3 \text{ dB}$</p>	
	<p>Assumptions:</p> <p>a) The contributing uncertainties for $I_{or}(n)$, channel power ratio, and I_{oc} are derived according to ETR 273-1-2 [16], with a coverage factor of $k=2$.</p> <p>b) Within each cell, the uncertainty for $I_{or}(n)$, and channel power ratio are uncorrelated to each other.</p> <p>c) The relative uncertainties for $I_{or}(n)$ across different cells may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).</p> <p>d) Across different cells, the channel power ratio uncertainties may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).</p> <p>e) The uncertainty for I_{oc} and $I_{or}(n)$ may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).</p> <p>f) The absolute uncertainty of $I_{or}(2)$ at T1 and the relative uncertainty of $I_{or}(1, 3, 4, 5, 6)$, are uncorrelated to each other. Similarly, the absolute uncertainty of $I_{or}(1)$ at T2 and the relative uncertainty of $I_{or}(2, 3, 4, 5, 6)$, are uncorrelated to each other.</p> <p>An explanation of correlation between uncertainties, and of the rationale behind the assumptions, is recorded in 3GPP TR 34 902 [24].</p>	

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
<p>8.3.5.2 Two frequencies present in the neighbour list</p>	<p><u>Channel 1 during T1 and T2:</u></p> $\frac{CPICH - E_c}{I_{or}} \quad \pm 0.1 \text{ dB}$ <p>$I_{oc}(1) \quad \pm 1.0 \text{ dB}$</p> <p><u>Channel 1 during T1:</u></p> $I_{or}(1) \quad \pm 0.7 \text{ dB}$ <p>$I_{or}(3, 4) \text{ relative to } I_{or}(1) \quad \pm 0.3 \text{ dB}$</p> <p><u>Channel 1 during T2:</u></p> $I_{or}(1) \quad \pm 0.7 \text{ dB}$ <p>$I_{or}(3, 4) \text{ relative to } I_{or}(1) \quad \pm 0.3 \text{ dB}$</p> <p><u>Channel 2 during T1 and T2:</u></p> $\frac{CPICH - E_c}{I_{or}} \quad \pm 0.1 \text{ dB}$ <p>$I_{oc}(2) \quad \pm 1.0 \text{ dB}$</p> <p><u>Channel 2 during T1:</u></p> $I_{or}(2) \quad \pm 0.7 \text{ dB}$ <p>$I_{or}(5, 6) \text{ relative to } I_{or}(2) \quad \pm 0.3 \text{ dB}$</p> <p><u>Channel 2 during T2:</u></p> $I_{or}(2) \quad \pm 0.7 \text{ dB}$ <p>$I_{or}(5, 6) \text{ relative to } I_{or}(2) \quad \pm 0.3 \text{ dB}$</p>	
	<p>Assumptions:</p> <p>a) to e): Same as for the one-frequency test 8.3.5.1.</p> <p>f) The absolute uncertainty of $I_{or}(1)$ and the relative uncertainty of $I_{or}(3, 4)$, are uncorrelated to each other. Similarly, the absolute uncertainty of $I_{or}(2)$ and the relative uncertainty of $I_{or}(5, 6)$, are uncorrelated to each other.</p> <p>g) The absolute uncertainties for $I_{or}(1)$ and $I_{or}(2)$ may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).</p> <p>h) The absolute uncertainties for $I_{oc}(1)$ and $I_{oc}(2)$ may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).</p> <p>An explanation of correlation between uncertainties, and of the rationale behind the assumptions is recorded in 3GPP TR 34 902 [24].</p>	
8.3.5.3 Cell Re-selection to GSM	TBD	
8.3.6 Cell Re-selection in CELL_PCH		
8.3.6.1 One frequency present in the neighbour list	Same as 8.2.2.1	Same as 8.2.2.1

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
8.3.6.2 Two frequencies present in the neighbour list	Same as 8.2.2.2	Same as 8.2.2.2
8.3.7 Cell Re-selection in URA_PCH		
8.3.7.1 One frequency present in the neighbour list	Same as 8.2.2.1	Same as 8.2.2.1
8.3.7.2 Two frequencies present in the neighbour list	Same as 8.2.2.2	Same as 8.2.2.2
8.4 RRC Connection Control		
8.4.1 RRC Re-establishment delay	TBD	
8.4.2 Random Access	<p>Settings.</p> $\hat{I}_{or}/I_{oc} \quad \pm 0.3 \text{ dB}$ $I_{oc} \quad \pm 1.0 \text{ dB}$ $\frac{AICH - E_c}{I_{or}} \quad \pm 0.1 \text{ dB}$ <p>Measurements: Power difference. $\pm 1 \text{ dB}$ Maximum Power: same as 5.5.2</p>	<p>0.1 dB uncertainty in AICH_Ec ratio</p> <p>0.3 dB uncertainty in \hat{I}_{or}/I_{oc} based on power meter measurement after the combiner</p> <p>Overall error is the sum of the \hat{I}_{or}/I_{oc} ratio error and the AICH_Ec/Ior ratio.</p> <p>The absolute error of the AWGN is specified as 1.0 dB</p> <p>Power difference: Assume symmetric meas error $\pm 1.0 \text{ dB}$ comprising RSS of: -0.7 dB downlink error plus -0.7 dB meas error.</p> <p>Maximum Power: Assume asymmetric meas error -1.0 dB / 0.7 dB comprising RSS of: -0.7 dB downlink error plus -0.7 dB meas error, and +0.7 dB for upper limit</p>
8.4.3 Transport format combination selection in UE	TBD	
8.5 Timing and Signalling Characteristics		
8.5.1 UE Transmit Timing	$I_{or} \quad \pm 1.0 \text{ dB}$ $I_{or1}/I_{or2} \quad \pm 0.3 \text{ dB}$ $\frac{DPCH - E_c}{I_{or}} \quad \pm 0.1 \text{ dB}$	<p>0.1 dB uncertainty in DPCH_Ec ratio</p> <p>0.3 dB uncertainty in Ior1/Ior2 based on power meter measurement after the combiner</p> <p>The absolute error of the Ior is specified as 1.0 dB.</p>
8.6 UE Measurements Procedures		
8.6.1 FDD intra frequency measurements		
8.6.1.1 Event triggered reporting in AWGN propagation conditions	TBD	
8.6.1.2 Event triggered reporting of multiple neighbours in AWGN propagation condition	TBD	
8.6.1.3 Event triggered reporting of two detectable neighbours in AWGN propagation condition	TBD	

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
8.6.1.4 Correct reporting of neighbours in fading propagation condition	TBD	
8.6.2 FDD inter frequency measurements		
8.6.2.1 Correct reporting of neighbours in AWGN propagation condition	TBD	
8.6.2.2 Correct reporting of neighbours in Fading propagation condition	TBD	
8.6.3 TDD measurements		
8.6.3.1 Correct reporting of TDD neighbours in AWGN propagation condition	TBD	
8.6.4 GSM Measurement	TBD	
8.7 Measurements Performance Requirements		
8.7.1 CPICH RSCP		
8.7.1.1 Intra frequency measurements accuracy	\hat{I}_{or}/I_{oc} ± 0.3 dB I_{oc} ± 1.0 dB $\frac{CPICH - E_c}{I_{or}}$ ± 0.1 dB	Same as 8.2.2.1
8.7.1.2 Inter frequency measurement accuracy	\hat{I}_{or}/I_{oc} ± 0.3 dB I_{oc} ± 1.0 dB I_{oc1}/I_{oc2} ± 0.3 dB $\frac{CPICH - E_c}{I_{or}}$ ± 0.1 dB	Same as 8.2.2.2
8.7.2 CPICH Ec/Io		
8.7.2.1 Intra frequency measurements accuracy	\hat{I}_{or}/I_{oc} ± 0.3 dB I_{oc} ± 1.0 dB $\frac{CPICH - E_c}{I_{or}}$ ± 0.1 dB	Same as 8.2.2.1
8.7.2.2 Inter frequency measurement accuracy	\hat{I}_{or}/I_{oc} ± 0.3 dB I_{oc} ± 1.0 dB I_{oc1}/I_{oc2} ± 0.3 dB $\frac{CPICH - E_c}{I_{or}}$ ± 0.1 dB	Same as 8.2.2.2
8.7.3 UTRA Carrier RSSI	\hat{I}_{or}/I_{oc} ± 0.3 dB I_{oc} ± 1.0 dB I_{oc1}/I_{oc2} ± 0.3 dB	<p>0.3 dB uncertainty in \hat{I}_{or}/I_{oc} based on power meter measurement after the combiner</p> <p>0.3 dB uncertainty in I_{oc1}/I_{oc2} based on power meter measurement after the combiner</p> <p>The absolute error of the AWGN is specified as 1.0 dB</p>
8.7.3A GSM Carrier RSSI	TBD	
8.7.3C UE Transmitted power	Mean power measurement $\pm 0,7$ dB	Downlink parameters are unimportant.
8.7.4 SFN-CFN observed time difference	TBD	
8.7.5 SFN-SFN observed time difference	TBD	

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
8.7.6 UE Rx-Tx time difference	\hat{I}_{or}/I_{oc} ± 0.3 dB I_{oc} ± 1.0 dB Rx-Tx Timing Accuracy $[\pm 0.5$ chip]	0.3 dB uncertainty in \hat{I}_{or}/I_{oc} based on power meter measurement after the combiner The absolute error of the AWGN is specified as 1.0 dB.
8.7.8 P-CCPCH RSCP	TBD	

CR-Form-v7
CHANGE REQUEST
⌘ 34.121 CR 363 ⌘ rev - ⌘ Current version: 5.3.1 ⌘

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 Spurious Emissions for UMTS800(band VI)		
Source:	⌘ NTT DoCoMo Inc.		
Work item code:	⌘	Date:	⌘ 30/04/2004
Category:	⌘ F	Release:	⌘ Rel-5
	Use <u>one</u> of the following categories: F (correction) A (corresponds to a correction in an earlier release) B (addition of feature), C (functional modification of feature) D (editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900 .		Use <u>one</u> of the following releases: 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) Rel-4 (Release 4) Rel-5 (Release 5) Rel-6 (Release 6)

Reason for change:	⌘ Current version test specification was not revised properly.(T1-031553 CR316r2) Test specification differ from core specification TS25.101.		
Summary of change:	⌘ Spurious emissions requirements of band VI cover UE receive band. Test specification is align with core specification.		
Consequences if not approved:	⌘ Test specification is not consistent with the core specification.		

Clauses affected:	⌘ 5.11, 6.8										
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="padding: 2px;">Y</td> <td style="padding: 2px;">N</td> </tr> <tr> <td style="padding: 2px;"><input type="checkbox"/></td> <td style="padding: 2px;"><input checked="" type="checkbox"/></td> </tr> <tr> <td style="padding: 2px;"><input type="checkbox"/></td> <td style="padding: 2px;"><input checked="" type="checkbox"/></td> </tr> <tr> <td style="padding: 2px;"><input type="checkbox"/></td> <td style="padding: 2px;"><input checked="" type="checkbox"/></td> </tr> </table>	Y	N	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Other core specifications ⌘ Test specifications ⌘ O&M Specifications ⌘	⌘
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Other comments:	⌘										

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- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under <ftp://ftp.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

5.11 Spurious Emissions

5.11.1 Definition and applicability

Spurious emissions are emissions which are caused by unwanted transmitter effects such as harmonics emission, parasitic emission, intermodulation products and frequency conversion products, but exclude out of band emissions.

The frequency boundary and the detailed transitions of the limits between the requirement for out band emissions and spectrum emissions are based on ITU-R Recommendations SM.329.

The requirements and this test apply to all types of UTRA for the FDD UE.

5.11.2 Minimum Requirements

These requirements are only applicable for frequencies, which are greater than 12.5 MHz away from the UE centre carrier frequency.

Table 5.11.1a: General spurious emissions requirements

Frequency Bandwidth	Measurement Bandwidth	Minimum requirement
$9 \text{ kHz} \leq f < 150 \text{ kHz}$	1 kHz	-36 dBm
$150 \text{ kHz} \leq f < 30 \text{ MHz}$	10 kHz	-36 dBm
$30 \text{ MHz} \leq f < 1 \text{ 000 MHz}$	100 kHz	-36 dBm
$1 \text{ GHz} \leq f < 12,75 \text{ GHz}$	1 MHz	-30 dBm

Table 5.11.1b: Additional spurious emissions requirements

Operating Band	Frequency Bandwidth	Measurement Bandwidth	Minimum requirement
I	$925 \text{ MHz} \leq f \leq 935 \text{ MHz}$	100 kHz	-67 dBm (see note)
	$935 \text{ MHz} < f \leq 960 \text{ MHz}$	100 kHz	-79 dBm (see note)
	$1805 \text{ MHz} \leq f \leq 1880 \text{ MHz}$	100 kHz	-71 dBm (see note)
	$1893.5 \text{ MHz} < f < 1919.6 \text{ MHz}$	300 kHz	-41 dBm
II	-	-	-
III	$925 \text{ MHz} \leq f \leq 935 \text{ MHz}$	100 kHz	-67 dBm (see note)
	$935 \text{ MHz} < f \leq 960 \text{ MHz}$	100 kHz	-79 dBm (see note)
	$2110 \text{ MHz} \leq f \leq 2170 \text{ MHz}$	3.84 MHz	-60 dBm
VI	$875 \text{ MHz} \leq f \leq 885 \text{ MHz}$	3.84 MHz	-60 dBm
	$1893.5 \text{ MHz} \leq f \leq 1919.6 \text{ MHz}$	300 kHz	-41 dBm
	$2110 \text{ MHz} \leq f \leq 2170 \text{ MHz}$	3.84 MHz	-60 dBm
NOTE: The measurements are made on frequencies which are integer multiples of 200 kHz. As exceptions, up to five measurements with a level up to the applicable requirements defined in table 5.11.1a are permitted for each UARFCN used in the measurement			

The normative reference for this requirement is TS 25.101 [23] clause 6.6.3.1.

5.11.3 Test purpose

To verify that the UE spurious emissions do not exceed described value shown in table 5.11.1a and table 5.11.1b.

Excess spurious emissions increase the interference to other systems.

5.11.4 Method of test

5.11.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: low range, mid range, high range; see clause G.2.4.

- 1) Connect the SS to the UE antenna connector as shown in figure A.8.
- 2) A call is set up according to the Generic call setup procedure.
- 3) Enter the UE into loopback test mode and start the loopback test.

See TS 34.108 [3] and TS 34.109 [4] for details regarding generic call setup procedure and loopback test.

5.11.4.2 Procedure

- 1) Set and send continuously Up power control commands to the UE until the UE output power shall be maximum level.
- 2) Sweep the spectrum analyzer (or equivalent equipment) over a frequency range and measure the average power of spurious emission.

5.11.5 Test requirements

The measured average power of spurious emission, derived in step 2), shall not exceed the described value in tables 5.11.2a and 5.11.2b.

These requirements are only applicable for frequencies, which are greater than 12,5 MHz away from the UE centre carrier frequency.

Table 5.11.2a: General spurious emissions test requirements

Frequency Bandwidth	Measurement Bandwidth	Minimum requirement
$9 \text{ kHz} \leq f < 150 \text{ kHz}$	1 kHz	-36 dBm
$150 \text{ kHz} \leq f < 30 \text{ MHz}$	10 kHz	-36 dBm
$30 \text{ MHz} \leq f < 1 \text{ 000 MHz}$	100 kHz	-36 dBm
$1 \text{ GHz} \leq f < 12,75 \text{ GHz}$	1 MHz	-30 dBm

Table 5.11.2b: Additional spurious emissions test requirements

Operating Band	Frequency Bandwidth	Measurement Bandwidth	Minimum requirement
I	$925 \text{ MHz} \leq f \leq 935 \text{ MHz}$	100 kHz	-67 dBm (see note)
	$935 \text{ MHz} < f \leq 960 \text{ MHz}$	100 kHz	-79 dBm (see note)
	$1805 \text{ MHz} \leq f \leq 1880 \text{ MHz}$	100 kHz	-71 dBm (see note)
	$1893.5 \text{ MHz} < f < 1919.6 \text{ MHz}$	300 kHz	-41 dBm
II	-	-	-
III	$925 \text{ MHz} \leq f \leq 935 \text{ MHz}$	100 kHz	-67 dBm (see note)
	$935 \text{ MHz} < f \leq 960 \text{ MHz}$	100 kHz	-79 dBm (see note)
	$2110 \text{ MHz} \leq f \leq 2170 \text{ MHz}$	3.84 MHz	-60 dBm
VI	$875 \text{ MHz} \leq f \leq 885 \text{ MHz}$	3.84 MHz	-60 dBm
	$1893.5 \text{ MHz} \leq f \leq 1919.6 \text{ MHz}$	300 kHz	-41 dBm
	$2110 \text{ MHz} \leq f \leq 2170 \text{ MHz}$	3.84 MHz	-60 dBm
NOTE: The measurements are made on frequencies which are integer multiples of 200 kHz. As exceptions, up to five measurements with a level up to the applicable requirements defined in table 5.11.1a are permitted for each UARFCN used in the measurement			

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

{Unchanged Sections are snipped here}

6.8 Spurious Emissions

6.8.1 Definition and applicability

The spurious emissions power is the power of emissions generated or amplified in a receiver that appear at the UE antenna connector.

The requirements and this test apply to all types of UTRA for the FDD UE.

6.8.2 Minimum Requirements

The power of any narrow band CW spurious emission shall not exceed the maximum level specified in table 6.8.1 and table 6.8.2.

Table 6.8.1: General receiver spurious emission requirements

Frequency Band	Measurement Bandwidth	Maximum level	Note
$30 \text{ MHz} \leq f < 1 \text{ GHz}$	100 kHz	-57 dBm	
$1 \text{ GHz} \leq f \leq 12,75 \text{ GHz}$	1 MHz	-47 dBm	

Table 6.8.2: Additional receiver spurious emission requirements

Operating band	Frequency Band	Measurement Bandwidth	Maximum level	Note
I	$1\,920 \text{ MHz} \leq f \leq 1\,980 \text{ MHz}$	3,84 MHz	-60 dBm	UE transmit band in URA_PCH, Cell_PCH and idle state
	$2\,110 \text{ MHz} \leq f \leq 2\,170 \text{ MHz}$	3,84 MHz	-60 dBm	UE receive band
II	$1850 \text{ MHz} \leq f \leq 1910 \text{ MHz}$	3.84 MHz	-60 dBm	UE transmit band in URA_PCH, Cell_PCH and idle state
	$1930 \text{ MHz} \leq f \leq 1990 \text{ MHz}$	3.84 MHz	-60 dBm	UE receive band
III	$1710 \text{ MHz} \leq f \leq 1785 \text{ MHz}$	3.84 MHz	-60 dBm	UE transmit band in URA_PCH, Cell_PCH and idle state
	$1805 \text{ MHz} \leq f \leq 1880 \text{ MHz}$	3.84 MHz	-60 dBm	UE receive band
VI	$830 \text{ MHz} \leq f \leq 840 \text{ MHz}$	3.84 MHz	-60 dBm	UE transmit band in URA_PCH, Cell_PCH and idle state
	$875 \text{ MHz} \leq f \leq 885 \text{ MHz}$	3.84 MHz	-60 dBm	UE receive band
	2110 MHz ≤ f ≤ 2170 MHz	3.84 MHz	-60 dBm	

The reference for this requirement is TS 25.101 [1] clause 7.9.1.

6.8.3 Test purpose

To verify that the UE spurious emission meets the specifications described in clause 6.8.2.

Excess spurious emissions increase the interference to other systems.

6.8.4 Method of test

6.8.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: low range, mid range, high range; see clause G.2.4.

- 1) Connect a spectrum analyzer (or other suitable test equipment) to the UE antenna connector as shown in figure A.8.
- 2) RF parameters are setup according to table E.3.2.2.
- 3) A call is set up according to the setup procedure specified in TS34.108 [3] sub clause 7.3.3, with the following exceptions for information elements in System Information Block type3.

Information Element	Value/Remark
- Cell selection and re-selection info	
- CHOICE mode	FDD
- Sintrasearch	0 dB
- Sintersearch	0 dB
- RAT List	This parameter is configurable
- Ssearch,RAT	0 dB
- Maximum allowed UL TX power	Power level where Pcompensation=0

NOTE: The setup procedure (3) sets the UE into the CELL_FACH state. With this state and the SS level (2) it is ensured that UE continuously monitors the S-CCPCH and no cell reselections are performed [see 3GPP TS 25.304, clauses 5.2.3.and 5.2.6]. No transmission of the UE will interfere the measurement.

6.8.4.2 Procedure

- 1) Sweep the spectrum analyzer (or equivalent equipment) over a frequency range and measure the average power of spurious emission.

6.8.5 Test requirements

The all measured spurious emissions, derived in step 1), shall not exceed the maximum level specified in table 6.8.3 and table 6.8.4.

Table 6.8.3: General receiver spurious emission requirements

Frequency Band	Measurement Bandwidth	Maximum level	Note
$30 \text{ MHz} \leq f < 1 \text{ GHz}$	100 kHz	-57 dBm	
$1 \text{ GHz} \leq f \leq 12,75 \text{ GHz}$	1 MHz	-47 dBm	

Table 6.8.4: Additional receiver spurious emission requirements

Operating Band	Frequency Band	Measurement Bandwidth	Maximum level	Note
I	$1\ 920\ \text{MHz} \leq f \leq 1\ 980\ \text{MHz}$	3,84 MHz	-60 dBm	UE transmit band in URA_PCH, Cell_PCH and idle state
	$2\ 110\ \text{MHz} \leq f \leq 2\ 170\ \text{MHz}$	3,84 MHz	-60 dBm	UE receive band
II	$1850\ \text{MHz} \leq f \leq 1910\ \text{MHz}$	3.84 MHz	-60 dBm	UE transmit band in URA_PCH, Cell_PCH and idle state
	$1930\ \text{MHz} \leq f \leq 1990\ \text{MHz}$	3.84 MHz	-60 dBm	UE receive band
III	$1710\ \text{MHz} \leq f \leq 1785\ \text{MHz}$	3.84 MHz	-60 dBm	UE transmit band in URA_PCH, Cell_PCH and idle state
	$1805\ \text{MHz} \leq f \leq 1880\ \text{MHz}$	3.84 MHz	-60 dBm	UE receive band
VI	$830\ \text{MHz} \leq f \leq 840\ \text{MHz}$	3.84 MHz	-60 dBm	UE transmit band in URA_PCH, Cell_PCH and idle state
	$875\ \text{MHz} \leq f \leq 885\ \text{MHz}$	3.84 MHz	-60 dBm	UE receive band
	<u>$2110\ \text{MHz} \leq f \leq 2170\ \text{MHz}$</u>	<u>3.84 MHz</u>	<u>-60 dBm</u>	

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

CHANGE REQUEST

⌘ **34.121 CR 364** ⌘ rev **-** ⌘ Current version: **5.3.1** ⌘

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:	⌘ Removal of [] for UE transmit power test case 8.7.3C		
Source:	⌘ NEC		
Work item code:	⌘ TEI	Date:	⌘ 2004-05-03
Category:	⌘ F	Release:	⌘ REL-5
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	F (correction)	2	(GSM Phase 2)
	A (corresponds to a correction in an earlier release)	R96	(Release 1996)
	B (addition of feature),	R97	(Release 1997)
	C (functional modification of feature)	R98	(Release 1998)
	D (editorial modification)	R99	(Release 1999)
	Detailed explanations of the above categories can be found in 3GPP TR 21.900 .	Rel-4	(Release 4)
		Rel-5	(Release 5)
		Rel-6	(Release 6)

Reason for change:	⌘ Remove the square brackets for test case 8.7.3C (UE transmitted power)		
Summary of change:	⌘ Define the number of MEASUREMENT REPORTS to be used per power level to 1000. This number is the same as for other test cases in section 8.7 (Measurement Performance Requirements).		
Consequences if not approved:	⌘ RRM test case 8.7.3C (UE transmitted power) is incomplete.		

Clauses affected:	⌘ 8.3.7C.4.2										
Other specs Affected:	<table border="1" style="border-collapse: collapse;"> <tr> <td style="width: 20px;">Y</td> <td style="width: 20px;">N</td> </tr> <tr> <td style="text-align: center;">⌘</td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;">⌘</td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;">⌘</td> <td style="text-align: center;">X</td> </tr> </table>	Y	N	⌘	X	⌘	X	⌘	X	Other core specifications	⌘
Y	N										
⌘	X										
⌘	X										
⌘	X										
		Test specifications									
		O&M Specifications									
Other comments:	⌘										

How to create CRs using this form:

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

- 1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under <ftp://ftp.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

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

<Start of first modified section>**8.7.3C.4.2 Procedure**

- 1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2.3. The RF parameters are set up according to table 8.7.3C.4.1 and 8.7.3C.4.2. Set the UE power and Maximum allowed UL TX power to the maximum power for the UE power class.
- 2) SS shall send continuously during the entire test Up power control commands to the UE.
- 3) SS shall transmit the MEASUREMENT CONTROL message as defined in the specific message contents below.
- 4) Decode the UE Transmitted power reported by the UE in the next available MEASUREMENT REPORT message.
- 5) Measure the mean power of the UE over a period of one timeslot.
- 6) Steps 4 and 5 shall be repeated ~~1000~~1000 times.
- 7) Decrease the Maximum allowed UL TX power by 1 dB. The SS shall transmit the PHYSICAL CHANNEL RECONFIGURATION message, as defined in the specific message contents below.
- 8) SS shall wait for the PHYSICAL CHANNEL RECONFIGURATION COMPLETE message from the UE.
- 9) Repeat from step 4) until the Maximum allowed UL TX Power reaches PUEMAX-10.

<End of modified section>

CHANGE REQUEST

34.121 CR 365 # rev **-** # Current version: **5.3.0**

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

Proposed change affects: UICC apps# ME Radio Access Network Core Network

Title:	#	Correction to 8.7.6 UE Rx-Tx time difference	
Source:	#	Motorola	
Work item code:	#		Date: # 10/05/2004
Category:	#	F	Release: # Rel-99
		Use <u>one</u> of the following categories:	Use <u>one</u> of the following releases:
		F (correction)	2 (GSM Phase 2)
		A (corresponds to a correction in an earlier release)	R96 (Release 1996)
		B (addition of feature),	R97 (Release 1997)
		C (functional modification of feature)	R98 (Release 1998)
		D (editorial modification)	R99 (Release 1999)
		Detailed explanations of the above categories can be found in 3GPP TR 21.900 .	Rel-4 (Release 4)
			Rel-5 (Release 5)
			Rel-6 (Release 6)

Reason for change:	#	The test case for UE Rx-Tx time difference test tolerances brackets removed in section F.1.5
Summary of change:	#	Bracket removed in section F.1.5 for UE Rx-Tx time difference
Consequences if not approved:	#	UE might not be tested properly.

Clauses affected:	#	F.1.5									
Other specs affected:	#	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;">#</td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;">#</td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;">#</td> <td style="text-align: center;">X</td> </tr> </table>	Y	N	#	X	#	X	#	X	Other core specifications
		Y	N								
		#	X								
#	X										
#	X										
		Test specifications									
		O&M Specifications									
Other comments:	#										

F.1.5 Requirements for support of RRM

Table F.1.5: Maximum Test System Uncertainty for Radio Resource Management Tests

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
8.2 Idle Mode Tasks		
8.2.2 Cell Re-Selection		
8.2.2.1 Scenario 1: Single carrier case	<p><u>During T1 and T2:</u></p> $\frac{CPICH - E_c}{I_{or}} \quad \pm 0.1 \text{ dB}$ $I_{oc} \quad \pm 1.0 \text{ dB}$ <p><u>During T1:</u></p> $I_{or} (2) \quad \pm 0.7 \text{ dB}$ $I_{or} (1, 3, 4, 5, 6) \text{ relative to } I_{or} (2) \quad \pm 0.3 \text{ dB}$ <p><u>During T2:</u></p> $I_{or} (1) \quad \pm 0.7 \text{ dB}$ $I_{or} (2, 3, 4, 5, 6) \text{ relative to } I_{or} (1) \quad \pm 0.3 \text{ dB}$	
	<p>Assumptions:</p> <p>a) The contributing uncertainties for $I_{or}(n)$, channel power ratio, and I_{oc} are derived according to ETR 273-1-2 [16], with a coverage factor of $k=2$.</p> <p>b) Within each cell, the uncertainty for $I_{or}(n)$, and channel power ratio are uncorrelated to each other.</p> <p>c) The relative uncertainties for $I_{or}(n)$ across different cells may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).</p> <p>d) Across different cells, the channel power ratio uncertainties may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).</p> <p>e) The uncertainty for I_{oc} and $I_{or}(n)$ may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).</p> <p>f) The absolute uncertainty of $I_{or}(2)$ at T1 and the relative uncertainty of $I_{or}(1, 3, 4, 5, 6)$, are uncorrelated to each other. Similarly, the absolute uncertainty of $I_{or}(1)$ at T2 and the relative uncertainty of $I_{or}(2, 3, 4, 5, 6)$, are uncorrelated to each other.</p> <p>An explanation of correlation between uncertainties, and of the rationale behind the assumptions, is recorded in 3GPP TR 34 902 [24].</p>	

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
8.2.2.2 Scenario 2: Multi carrier case	<p><u>Channel 1 during T1 and T2:</u></p> $\frac{CPICH_E_c}{I_{or}} \quad \pm 0.1 \text{ dB}$ $I_{oc}(1) \quad \pm 1.0 \text{ dB}$ <p><u>Channel 1 during T1:</u></p> $I_{or}(1) \quad \pm 0.7 \text{ dB}$ $I_{or}(3, 4) \text{ relative to } I_{or}(1) \quad \pm 0.3 \text{ dB}$ <p><u>Channel 1 during T2:</u></p> $I_{or}(1) \quad \pm 0.7 \text{ dB}$ $I_{or}(3, 4) \text{ relative to } I_{or}(1) \quad \pm 0.3 \text{ dB}$ <p><u>Channel 2 during T1 and T2:</u></p> $\frac{CPICH_E_c}{I_{or}} \quad \pm 0.1 \text{ dB}$ $I_{oc}(2) \quad \pm 1.0 \text{ dB}$ <p><u>Channel 2 during T1:</u></p> $I_{or}(2) \quad \pm 0.7 \text{ dB}$ $I_{or}(5, 6) \text{ relative to } I_{or}(2) \quad \pm 0.3 \text{ dB}$ <p><u>Channel 2 during T2:</u></p> $I_{or}(2) \quad \pm 0.7 \text{ dB}$ $I_{or}(5, 6) \text{ relative to } I_{or}(2) \quad \pm 0.3 \text{ dB}$	

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty								
	<p>Assumptions:</p> <p>a) to e): Same as for the one-frequency test 8.2.2.1.</p> <p>f) The absolute uncertainty of $I_{or}(1)$ and the relative uncertainty of $I_{or}(3, 4)$, are uncorrelated to each other. Similarly, the absolute uncertainty of $I_{or}(2)$ and the relative uncertainty of $I_{or}(5, 6)$, are uncorrelated to each other.</p> <p>g) The absolute uncertainties for $I_{or}(1)$ and $I_{or}(2)$ may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).</p> <p>h) The absolute uncertainties for $I_{oc}(1)$ and $I_{oc}(2)$ may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).</p> <p>An explanation of correlation between uncertainties, and of the rationale behind the assumptions, is recorded in 3GPP TR 34 902 [24].</p>									
8.2.2.1 Scenario 1: Single carrier case	<table border="0"> <tr> <td>\hat{I}_{or}/I_{oc}</td> <td>± 0.3 dB</td> </tr> <tr> <td>I_{oc}</td> <td>± 1.0 dB</td> </tr> <tr> <td>$\frac{CPICH_E_c}{I_{or}}$</td> <td>± 0.1 dB</td> </tr> </table>	\hat{I}_{or}/I_{oc}	± 0.3 dB	I_{oc}	± 1.0 dB	$\frac{CPICH_E_c}{I_{or}}$	± 0.1 dB	<p>0.1 dB uncertainty in CPICH_Ec ratio</p> <p>0.3 dB uncertainty in \hat{I}_{or}/I_{oc} based on power meter measurement after the combiner</p> <p>The absolute error of the AWGN is specified as 1.0 dB.</p>		
\hat{I}_{or}/I_{oc}	± 0.3 dB									
I_{oc}	± 1.0 dB									
$\frac{CPICH_E_c}{I_{or}}$	± 0.1 dB									
8.2.2.2 Scenario 2: Multi carrier case	<table border="0"> <tr> <td>\hat{I}_{or}/I_{oc}</td> <td>± 0.3 dB</td> </tr> <tr> <td>I_{oc}</td> <td>± 1.0 dB</td> </tr> <tr> <td>I_{oc1}/I_{oc2}</td> <td>± 0.3 dB</td> </tr> <tr> <td>$\frac{CPICH_E_c}{I_{or}}$</td> <td>± 0.1 dB</td> </tr> </table>	\hat{I}_{or}/I_{oc}	± 0.3 dB	I_{oc}	± 1.0 dB	I_{oc1}/I_{oc2}	± 0.3 dB	$\frac{CPICH_E_c}{I_{or}}$	± 0.1 dB	<p>0.1 dB uncertainty in CPICH_Ec ratio</p> <p>0.3 dB uncertainty in \hat{I}_{or}/I_{oc} based on power meter measurement after the combiner</p> <p>0.3 dB uncertainty in I_{oc1}/I_{oc2} based on power meter measurement after the combiner</p> <p>Overall error for the CPICH_Ec/Io is the sum of the \hat{I}_{or}/I_{oc} ratio error and the CPICH_Ec/Ior ratio.</p> <p>The absolute error of the AWGN is specified as 1.0 dB.</p>
\hat{I}_{or}/I_{oc}	± 0.3 dB									
I_{oc}	± 1.0 dB									
I_{oc1}/I_{oc2}	± 0.3 dB									
$\frac{CPICH_E_c}{I_{or}}$	± 0.1 dB									
8.2.3 UTRAN to GSM Cell Re-Selection										

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
8.2.3.1 Scenario 1: Both UTRA and GSM level changed	\hat{I}_{or}/I_{oc} ± 0.3 dB $I_{oc}/RXLEV$ ± 0.3 dB I_{oc} ± 1.0 dB RXLEV ± 1.0 dB $\frac{CPICH_E_c}{I_{or}}$ ± 0.1 dB	0.1 dB uncertainty in CPICH_Ec ratio 0.3 dB uncertainty in \hat{I}_{or}/I_{oc} based on power meter measurement after the combiner 0.3 dB uncertainty in loc/RXLEV based on power meter measurement after the combiner The absolute error of the AWGN is specified as 1.0 dB. The absolute error of the RXLEV is specified as 1.0 dB.
8.2.3.2 Scenario 2: Only UTRA level changed	\hat{I}_{or}/I_{oc} ± 0.3 dB $I_{oc}/RXLEV$ ± 0.3 dB I_{oc} ± 1.0 dB RXLEV ± 1.0 dB $\frac{CPICH_E_c}{I_{or}}$ ± 0.1 dB	Same as 8.2.3.1
8.2.4 FDD/TDD cell re-selection	\hat{I}_{or}/I_{oc} ± 0.3 dB I_{oc} ± 1.0 dB I_{oc1}/I_{oc2} ± 0.3 dB $\frac{CPICH_E_c}{I_{or}}$ ± 0.1 dB	Same as 8.2.2.2
8.3 UTRAN Connected Mode Mobility		
8.3.1 FDD/FDD Soft Handover	TBD	
8.3.2 FDD/FDD Hard Handover	TBD	
8.3.3 FDD/TDD Handover	TBD	
8.3.4 Inter-system Handover from UTRAN FDD to GSM	TBD	
8.3.5 Cell Re-selection in CELL_FACH		

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
8.3.5.1 One frequency present in the neighbour list	<p><u>During T1 and T2:</u></p> $\frac{CPICH - E_c}{I_{or}} \quad \pm 0.1 \text{ dB}$ $I_{oc} \quad \pm 1.0 \text{ dB}$ <p><u>During T1:</u></p> $I_{or} (2) \quad \pm 0.7 \text{ dB}$ $I_{or} (1, 3, 4, 5, 6) \text{ relative to } I_{or} (2) \quad \pm 0.3 \text{ dB}$ <p><u>During T2:</u></p> $I_{or} (1) \quad \pm 0.7 \text{ dB}$ $I_{or} (2, 3, 4, 5, 6) \text{ relative to } I_{or} (1) \quad \pm 0.3 \text{ dB}$	<p>Assumptions:</p> <p>a) The contributing uncertainties for $I_{or}(n)$, channel power ratio, and I_{oc} are derived according to ETR 273-1-2 [16], with a coverage factor of $k=2$.</p> <p>b) Within each cell, the uncertainty for $I_{or}(n)$, and channel power ratio are uncorrelated to each other.</p> <p>c) The relative uncertainties for $I_{or}(n)$ across different cells may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).</p> <p>d) Across different cells, the channel power ratio uncertainties may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).</p> <p>e) The uncertainty for I_{oc} and $I_{or}(n)$ may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).</p> <p>f) The absolute uncertainty of $I_{or}(2)$ at T1 and the relative uncertainty of $I_{or}(1, 3, 4, 5, 6)$, are uncorrelated to each other. Similarly, the absolute uncertainty of $I_{or}(1)$ at T2 and the relative uncertainty of $I_{or}(2, 3, 4, 5, 6)$, are uncorrelated to each other.</p> <p>An explanation of correlation between uncertainties, and of the rationale behind the assumptions, is recorded in 3GPP TR 34 902 [24].</p>

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
8.3.5.2 Two frequencies present in the neighbour list	<p><u>Channel 1 during T1 and T2:</u></p> $\frac{CPICH - E_c}{I_{or}} \quad \pm 0.1 \text{ dB}$ $I_{oc} (1) \quad \pm 1.0 \text{ dB}$ <p><u>Channel 1 during T1:</u></p> $I_{or} (1) \quad \pm 0.7 \text{ dB}$ $I_{or} (3, 4) \text{ relative to } I_{or} (1) \quad \pm 0.3 \text{ dB}$ <p><u>Channel 1 during T2:</u></p> $I_{or} (1) \quad \pm 0.7 \text{ dB}$ $I_{or} (3, 4) \text{ relative to } I_{or} (1) \quad \pm 0.3 \text{ dB}$ <p><u>Channel 2 during T1 and T2:</u></p> $\frac{CPICH - E_c}{I_{or}} \quad \pm 0.1 \text{ dB}$ $I_{oc} (2) \quad \pm 1.0 \text{ dB}$ <p><u>Channel 2 during T1:</u></p> $I_{or} (2) \quad \pm 0.7 \text{ dB}$ $I_{or} (5, 6) \text{ relative to } I_{or} (2) \quad \pm 0.3 \text{ dB}$ <p><u>Channel 2 during T2:</u></p> $I_{or} (2) \quad \pm 0.7 \text{ dB}$ $I_{or} (5, 6) \text{ relative to } I_{or} (2) \quad \pm 0.3 \text{ dB}$	

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
	<p>Assumptions:</p> <p>a) to e): Same as for the one-frequency test 8.3.5.1.</p> <p>f) The absolute uncertainty of $lor(1)$ and the relative uncertainty of $lor(3, 4)$, are uncorrelated to each other. Similarly, the absolute uncertainty of $lor(2)$ and the relative uncertainty of $lor(5, 6)$, are uncorrelated to each other.</p> <p>g) The absolute uncertainties for $lor(1)$ and $lor(2)$ may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).</p> <p>h) The absolute uncertainties for $loc(1)$ and $loc(2)$ may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).</p> <p>An explanation of correlation between uncertainties, and of the rationale behind the assumptions is recorded in 3GPP TR 34 902 [24].</p>	
8.3.5.3 Cell Re-selection to GSM	TBD	
8.3.6 Cell Re-selection in CELL_PCH		
8.3.6.1 One frequency present in the neighbour list	Same as 8.2.2.1	Same as 8.2.2.1
8.3.6.2 Two frequencies present in the neighbour list	Same as 8.2.2.2	Same as 8.2.2.2
8.3.7 Cell Re-selection in URA_PCH		
8.3.7.1 One frequency present in the neighbour list	Same as 8.2.2.1	Same as 8.2.2.1
8.3.7.2 Two frequencies present in the neighbour list	Same as 8.2.2.2	Same as 8.2.2.2
8.4 RRC Connection Control		
8.4.1 RRC Re-establishment delay	TBD	

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
8.4.2 Random Access	<p>Settings.</p> $\hat{I}_{or}/I_{oc} \quad \pm 0.3 \text{ dB}$ $I_{oc} \quad \pm 1.0 \text{ dB}$ $\frac{AICH_E_c}{I_{or}} \quad \pm 0.1 \text{ dB}$ <p>Measurements: Power difference. $\pm 1 \text{ dB}$ Maximum Power: same as 5.5.2</p>	<p>0.1 dB uncertainty in AICH_Ec ratio</p> <p>0.3 dB uncertainty in \hat{I}_{or}/I_{oc} based on power meter measurement after the combiner</p> <p>Overall error is the sum of the \hat{I}_{or}/I_{oc} ratio error and the AICH_Ec/Ior ratio.</p> <p>The absolute error of the AWGN is specified as 1.0 dB</p> <p>Power difference: Assume symmetric meas error $\pm 1.0 \text{ dB}$ comprising RSS of: -0.7 dB downlink error plus -0.7 dB meas error.</p> <p>Maximum Power: Assume asymmetric meas error -1.0 dB / 0.7 dB comprising RSS of: -0.7 dB downlink error plus -0.7 dB meas error, and +0.7 dB for upper limit</p>
8.4.3 Transport format combination selection in UE	TBD	
8.5 Timing and Signalling Characteristics		
8.5.1 UE Transmit Timing	$I_{or} \quad \pm 1.0 \text{ dB}$ $I_{or1}/I_{or2} \quad \pm 0.3 \text{ dB}$ $\frac{DPCH_E_c}{I_{or}} \quad \pm 0.1 \text{ dB}$	<p>0.1 dB uncertainty in DPCH_Ec ratio</p> <p>0.3 dB uncertainty in Ior1/Ior2 based on power meter measurement after the combiner</p> <p>The absolute error of the Ior is specified as 1.0 dB.</p>
8.6 UE Measurements Procedures		
8.6.1 FDD intra frequency measurements		
8.6.1.1 Event triggered reporting in AWGN propagation conditions	TBD	
8.6.1.2 Event triggered reporting of multiple neighbours in AWGN propagation condition	TBD	
8.6.1.3 Event triggered reporting of two detectable neighbours in AWGN propagation condition	TBD	
8.6.1.4 Correct reporting of neighbours in fading propagation condition	TBD	
8.6.2 FDD inter frequency measurements		

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
8.6.2.1 Correct reporting of neighbours in AWGN propagation condition	TBD	
8.6.2.2 Correct reporting of neighbours in Fading propagation condition	TBD	
8.6.3 TDD measurements		
8.6.3.1 Correct reporting of TDD neighbours in AWGN propagation condition	TBD	
8.6.4 GSM Measurement	TBD	
8.7 Measurements Performance Requirements		
8.7.1 CPICH RSCP		
8.7.1.1 Intra frequency measurements accuracy	\hat{I}_{or}/I_{oc} ±0.3 dB I_{oc} ±1.0 dB $\frac{CPICH_E_c}{I_{or}}$ ±0.1 dB	Same as 8.2.2.1
8.7.1.2 Inter frequency measurement accuracy	\hat{I}_{or}/I_{oc} ±0.3 dB I_{oc} ±1.0 dB I_{oc1}/I_{oc2} ±0.3 dB $\frac{CPICH_E_c}{I_{or}}$ ±0.1 dB	Same as 8.2.2.2
8.7.2 CPICH Ec/Io		
8.7.2.1 Intra frequency measurements accuracy	\hat{I}_{or}/I_{oc} ±0.3 dB I_{oc} ±1.0 dB $\frac{CPICH_E_c}{I_{or}}$ ±0.1 dB	Same as 8.2.2.1
8.7.2.2 Inter frequency measurement accuracy	\hat{I}_{or}/I_{oc} ±0.3 dB I_{oc} ±1.0 dB I_{oc1}/I_{oc2} ±0.3 dB $\frac{CPICH_E_c}{I_{or}}$ ±0.1 dB	Same as 8.2.2.2
8.7.3 UTRA Carrier RSSI	\hat{I}_{or}/I_{oc} ±0.3 dB I_{oc} ±1.0 dB I_{oc1}/I_{oc2} ±0.3 dB	0.3 dB uncertainty in \hat{I}_{or}/I_{oc} based on power meter measurement after the combiner 0.3 dB uncertainty in I_{oc1}/I_{oc2} based on power meter measurement after the combiner The absolute error of the AWGN is specified as 1.0 dB
8.7.3A GSM Carrier RSSI	TBD	

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
8.7.3C UE Transmitted power	Mean power measurement $\pm 0,7$ dB	Downlink parameters are unimportant.
8.7.4 SFN-CFN observed time difference	TBD	
8.7.5 SFN-SFN observed time difference	TBD	
8.7.6 UE Rx-Tx time difference	\hat{I}_{or}/I_{oc} ± 0.3 dB I_{oc} ± 1.0 dB Rx-Tx Timing Accuracy $\{\pm 0.5 \text{ chip}\}$	0.3 dB uncertainty in \hat{I}_{or}/I_{oc} based on power meter measurement after the combiner The absolute error of the AWGN is specified as 1.0 dB.
8.7.8 P-CCPCH RSCP	TBD	

3GPP TSG-T1 Meeting #23
Beijing, China, 10th - 14th May 2004

Tdoc # T1-040815

<small>CR-Form-v7</small>
<h2 style="margin: 0;">CHANGE REQUEST</h2>
34.121 CR 367 # rev - # Current version: 5.3.1

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 to BTFD test case 7.10
Source:	# NEC
Work item code:	# TEI Date: # 14/05/2004
Category:	# F Release: # Rel-5
<p style="margin: 0;"><i>Use <u>one</u> of the following categories:</i></p> <p style="margin: 0;">F (correction) A (corresponds to a correction in an earlier release) B (addition of feature), C (functional modification of feature) D (editorial modification)</p> <p style="margin: 0; font-size: small;">Detailed explanations of the above categories can be found in 3GPP TR 21.900.</p>	
<p style="margin: 0;"><i>Use <u>one</u> of the following releases:</i></p> <p style="margin: 0;">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)</p>	

Reason for change: # There is inconsistency between the BTFD test description in section 7.10 and the description of the reference measurement channel in Annex C.

Summary of change: # Correction of BTFD test case:

7.10.2: Add references to Tables and to Annex C. Align Table 7.10.3 to Table 8.39 in 25.101 to indicate that downlink data on DCCH shall be transmitted for all 9 data rates. Correct the Note regarding the valid 9 Transport Format Combinations. Add a Note that Table 7.10.3 is currently not aligned with the reference measurement channel for BTFD in Annex C.

7.10.4.1: Explicitly allow all Transport Format Combinations defined in the Annex C on uplink while in loopback test mode 2.

7.10.4.2: Add details on how to measure FDR and define that TF0 and TF10 on UL DTCH shall be counted as block errors in this test case.

7.10.5: Remove duplicated note (below Table 7.10.3) on TFCS.

Editorial corrections.

Consequences if not approved: # Test case requirements conflict with the Transport Format Combinations defined in the Annex C for downlink. Test case will not be fully defined.

Clauses affected: # 7.10

Other specs affected:		Y	N		
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Other core specifications		
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Test specifications		
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	O&M Specifications		
				# TS 34.108 section 9.2.1	

Other comments: ☞ This CR is applicable for UE's supporting Rel-99 or later.

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.

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7.10 Blind transport format detection

7.10.1 Definition and applicability

Performance of Blind transport format detection is determined by the Block Error Ratio (BLER) values and by the measured average transmitted DPCH_{E_c}/I_{or} value.

7.10.2 Minimum requirements

For the parameters specified in table 7.10.1 the average downlink $\frac{DPCH_E_c}{I_{or}}$ power ratio shall be below the specified value for the BLER and FDR shown in table 7.10.2. [Table 7.10.3 defines the Transport Format Combinations Set for the downlink. The reference measurement channel used in this test case is defined in Annex C.4.](#)

Table 7.10.1: Test parameters for Blind transport format detection

Parameter	Test 1	Test 2	Test 3	Test 4	Test 5	Test 6	Unit
\hat{I}_{or}/I_{oc}	-1				-3		dB
I_{oc}	-60						dBm / 3.84 MHz
Information Data Rate	12,2 (rate 1)	7,95 (rate 2)	1,95 (rate 3)	12,2 (rate 1)	7,95 (rate 2)	1,95 (rate 3)	kbps
propagation condition	static			multi-path fading case 3			-
TFCI	off						-

Table 7.10.2: The Requirements for DCH reception in Blind transport format detection

Test Number	$\frac{DPCH_E_c}{I_{or}}$	BLER	FDR
1	-17,7dB	10 ⁻²	10 ⁻⁴
2	-17,8dB	10 ⁻²	10 ⁻⁴
3	-18,4dB	10 ⁻²	10 ⁻⁴
4	-13,0dB	10 ⁻²	10 ⁻⁴
5	-13,2dB	10 ⁻²	10 ⁻⁴
6	-13,8dB	10 ⁻²	10 ⁻⁴
NOTE: The value of DPCH _{E_c} /I _{or} , I _{oc} , and I _{or} /I _{oc} are defined in case of DPCH is transmitted.			

NOTE: In the test, 9 different Transport Format Combinations (table 7.10.3) are sent during the call set up procedure, so that [the](#) UE has to detect [the](#) correct transport format [from these](#) ~~in this~~ 9 candidates.

Table 7.10.3: Transport format combinations informed during the call set up procedure in the test

	1	2	3	4	5	6	7	8	9
DTCH	12,2 k	10,2 k	7,95 k	7,4 k	6,7 k	5,9 k	5,15 k	4,75 k	1,95 k
DCCH					2,4 k				

Table 7.10.3: Transport format combinations informed during the call set up procedure in the test

	1	2	3	4	5	6	7	8	9
DTCH	12,2 k	10,2 k	7,95 k	7,4 k	6,7 k	5,9 k	5,15 k	4,75 k	1,95 k
DCCH					2,4 k				

Editor's Note: The downlink TFCS of the BTFD reference measurement channel defined in Annex C.4.2 is currently not aligned with Table 7.10.3. The TFCS to be used in this test case is TBD.

7.10.3 Test purpose

To verify the ability of the blind transport format detection to receive a predefined test signal, representing a static propagation channel for the wanted and for the co-channel signals from serving and adjacent cells, with a block error ratio (BLER) and false transport format detection ratio (FDR) not exceeding a specified value.

To verify the ability of the blind transport format detection to receive a predefined test signal, representing a multi-path propagation channel for the wanted and for the co-channel signals from serving and adjacent cells, with a block error ratio (BLER) and false transport format detection ratio (FDR) not exceeding a specified value.

7.10.4 Method of test

7.10.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

1. Connect the SS and AWGN noise source to the UE antenna connector as shown in figure A.9 in the case for test 1-3. Connect the SS, multipath fading simulator and an AWGN noise source to the UE antenna connector as shown in figure A.10 in the case of test 4-6.
2. Set up a call according to the Generic call setup procedure.
3. Set the test parameters for test 1-6 as specified table 7.10.4 and table 7.10.5.
4. Enter the UE into loopback test mode [2](#) and start the loopback test.
5. In the case of test 4-6, Setup fading simulator as fading condition case 3 which are described in table D.2.2.1.

Note: In loopback test mode 2 the UE may return any valid uplink Transport Format Combination.

7.10.4.2 Procedure

Measure BLER and FDR of DCH.

For FDR, the SS shall check the TFI of the UE transmitted transport format to verify that the UE has detected the correct downlink transport format.

In this test TF0 and TF10 on uplink DTCH shall be counted as block errors.

7.10.5 Test requirements

The test parameters are specified in table 7.10.4.

Table 7.10.4: Test parameters for Blind transport format detection

Parameter	Test 1	Test 2	Test 3	Test 4	Test 5	Test 6	Unit
\hat{I}_{or}/I_{oc}	-0,7			-2,4			dB
I_{oc}	-60						dBm / 3.84 MHz
Information Data Rate	12,2 (rate 1)	7,95 (rate 2)	1,95 (rate 3)	12,2 (rate 1)	7,95 (rate 2)	1,95 (rate 3)	kbps
propagation condition	Static			multi-path fading case 3			-
TFCI	off						-

BLER and FDR shall not exceed the values at the $DPCH_{Ec}/I_{or}$ specified in table 7.10.5.

Table 7.10.5: The Requirements for DCH reception in Blind transport format detection

Test Number	$\frac{DPCH_{Ec}}{I_{or}}$	BLER	FDR
1	-17,6dB	10^{-2}	10^{-4}
2	-17,7dB	10^{-2}	10^{-4}
3	-18,3dB	10^{-2}	10^{-4}
4	-12,9dB	10^{-2}	10^{-4}
5	-13,1dB	10^{-2}	10^{-4}
6	-13,7dB	10^{-2}	10^{-4}
NOTE: The value of $DPCH_{Ec}/I_{or}$, I_{oc} , and I_{or}/I_{oc} are defined in case of DPCH is transmitted.			

~~NOTE: In the test, 9 different Transport Format Combinations (table 7.10.3) are sent during the call set up procedure, so that UE has to detect correct transport format in this 9 candidates.~~

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

C.4.2 DL reference measurement channel for BTFD performance requirements

The parameters for DL reference measurement channel for BTFD are specified in table C.4.2.1, table C.4.2.2, table C.4.2.3 and table C.4.2.4. The channel coding for information is shown in figures C.4.1, C.4.2, and C.4.3. For the RLC configuration of AM DCCHs Timer_STATUS_Periodic shall not be set in RRC CONNECTION SETUP message used in test procedure for RF test as defined in TS34.108 clause 7.3. This is to prevent unexpected DCHs from being transmitted through such RLC entities when the timer has expired in order to ensure that the required TFC from the minimum set of TFCs can continuously convey a DCH for DTCH during the test.

Table C.4.2.1: DL reference measurement channel physical parameters for BTFD

Parameter	Rate 1	Rate 2	Rate 3	Unit
Information bit rate	12,2	7,95	1,95	kbps
DPCH	30			ksps
Slot Format #1	8			-
TFCI	Off			-
Power offsets PO1, PO2 and PO3	0			dB
DTX position	Fixed			-

Table C.4.2.2: DL reference measurement channel, transport channel parameters for SRB

Higher Layer	RAB/Signalling RB	SRB	
RLC	Logical channel type	DCCH	
	RLC mode	UM/AM	
	Payload sizes, bit	88/80	
	Max data rate, bps	2200/2000	
	PDU header, bit	8/16	
	TrD PDU header, bit	N/A	
MAC	MAC header, bit	4	
	MAC multiplexing	Yes	
Layer 1	TrCH type	DCH	
	Transport Channel Identity	20	
	TB sizes, bit	100	
	TFS	TF0, bits	0*100
		TF1, bits	1*100
	TTI, ms	40	
	Coding type	Convolution Coding	
	Coding Rate	1/3	
	CRC, bit	12	
	Max number of bits/TTI after channel coding	360	
	Uplink: Max number of bits/radio frame before rate matching	90	
	RM attribute	256	

Table C.4.2.3: DL reference measurement channel using RLC-TM for DTCH, transport channel parameters

Higher Layer	RAB/Signalling RB	12.2k/10.2k/7.95k/7.4k/6.7k/5.9k/5.15k/4.75k/1.95k	
RLC	Logical channel type	DTCH	
	RLC mode	TM	
	Payload sizes, bit	244, 204, 159, 148, 134, 118, 103, 95, 39	
	Max data rate, bps	12200	
	PDU header, bit	N/A	
	TrD PDU header, bit	0	
MAC	MAC header, bit	0	
	MAC multiplexing	N/A	
Layer 1	TrCH type	DCH	
	Transport Channel Identity	1	
	TB sizes, bit	244, 204, 159, 148, 134, 118, 103, 95, 39,0	
	TFS	TF0 bit	1x0
		TF1 bit	1x244
		TF2 bit	1x204
		TF3 bit	1x159
		TF4 bit	1x148
		TF5 bit	1x134
		TF6 bit	1x118
		TF7 bit	1x103
		TF8 bit	1x95
		TF9 bit	1x39
	TTI, ms	20	
Coding type	CC		
Coding Rate	1/3		
CRC, bit	12		
RM attribute	256		

Table C.4.2.4: DL reference measurement channel, TFCS

TFCS size	20
TFCS	(DTCH, DCCH)= (TF0, TF0), (TF1, TF0), (TF2, TF0), (TF3, TF0), (TF4, TF0), (TF5, TF0), (TF6, TF0), (TF7, TF0), (TF8, TF0), (TF9, TF0), (TF0, TF1), (TF1, TF1), (TF2, TF1), (TF3, TF1), (TF4, TF1), (TF5, TF1), (TF6, TF1), (TF7, TF1), (TF8, TF1), (TF9, TF1),

CHANGE REQUEST

34.121 CR 371 # rev **-** # Current version: **5.3.1**

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 to Transmit Off Power	
Source:	#	Motorola	
Work item code:	#		Date: # 10/05/2004
Category:	#	F	Release: # R99
		Use <u>one</u> of the following categories:	Use <u>one</u> of the following releases:
		F (correction)	2 (GSM Phase 2)
		A (corresponds to a correction in an earlier release)	R96 (Release 1996)
		B (addition of feature),	R97 (Release 1997)
		C (functional modification of feature)	R98 (Release 1998)
		D (editorial modification)	R99 (Release 1999)
		Detailed explanations of the above categories can be found in 3GPP TR 21.900 .	Rel-4 (Release 4)
			Rel-5 (Release 5)
			Rel-6 (Release 6)

Reason for change:	#	The initial conditions for RF testing are not defined. For this test case the RF testing conditions are such that a UE will not find the cell. Furthermore, all cell parameters are not given in this test case.
Summary of change:	#	The initialisation of Transmit Off power testcase is corrected so that the UE initially relatively fast will find the network and so that all relevant cell parameters are defined. <ul style="list-style-type: none"> a. Initial channel conditions are set so that CPICH_RSCP is larger than -85 dBm. This makes it easy to find the cell, in cell selection requirement in 25.304, the high quality criterion is fulfilled for measured CPICH_RSCP > -95 dBm. A margin of 10 dB is proposed to simplify the cell detection and for the inaccuracy of the measurement. b. Also the parameters Qqualmin and Qrxlevmin are defined so that the cell is suitable throughout the test. Otherwise the cell may be lost for the test at the Rx Sensitivity level
Consequences if not approved:	#	If the tests follows the initial power settings in 34.108 and 34.121, the UE may not find the network. Furthermore all cell parametes are not defined. Therefore test cases may fail a conformant UE.

Clauses affected:	#	5.5				
Other specs Affected:	#	<table border="1" style="display: inline-table; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 20px;">Y</td> <td style="width: 20px;">N</td> </tr> <tr> <td style="width: 20px;">X</td> <td style="width: 20px;">X</td> </tr> </table> Other core specifications # 34.108 Test specifications O&M Specifications	Y	N	X	X
Y	N					
X	X					

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

5.5 Transmit ON/OFF Power

5.5.1 Transmit OFF Power

5.5.1.1 Definition and applicability

Transmit OFF power is defined as the RRC filtered mean power when the transmitter is off. The transmit OFF power state is when the UE does not transmit. During transmission gaps in UL compressed mode, the UE is not considered to be in the OFF state.

The requirements and this test apply to all types of UTRA for the FDD UE.

5.5.1.2 Minimum Requirements

The requirement for the transmit OFF power shall be less than -56 dBm.

The normative reference for this requirement is TS 25.101 [1] clause 6.5.1.1.

5.5.1.3 Test purpose

To verify that the UE transmit OFF power is less than -56 dBm.

An excess transmit OFF power increases the interference to other channels, and decreases the system capacity.

5.5.1.4 Method of test

This test is covered by clause 5.5.2 Transmit ON/OFF Time mask.

5.5.1.5 Test requirements

The measured RRC filtered mean power shall be less than -55 dBm.

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

5.5.2 Transmit ON/OFF Time mask

5.5.2.1 Definition and applicability

The time mask for transmit ON/OFF defines the ramping time allowed for the UE between transmit OFF power and transmit ON power. Possible ON/OFF scenarios are PRACH, CPCH or uplink compressed mode.

The requirements and this test apply to all types of UTRA for the FDD UE.

5.5.2.2 Minimum requirements

The transmit power levels versus time shall meet the mask specified in figure 5.5.1 for PRACH preambles, and the mask in figure 5.5.2 for all other cases. The off signal is defined as the RRC filtered mean power.

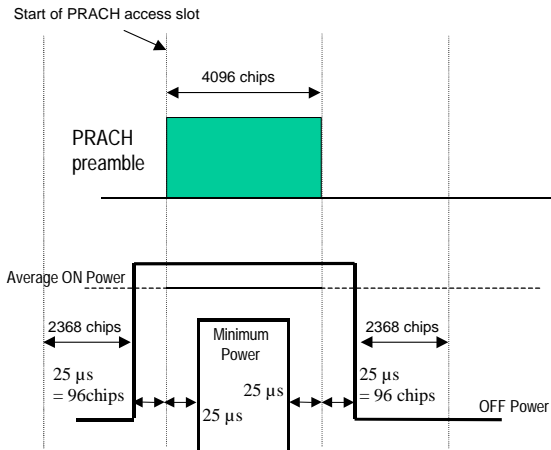


Figure 5.5.1: Transmit ON/OFF template for PRACH preambles

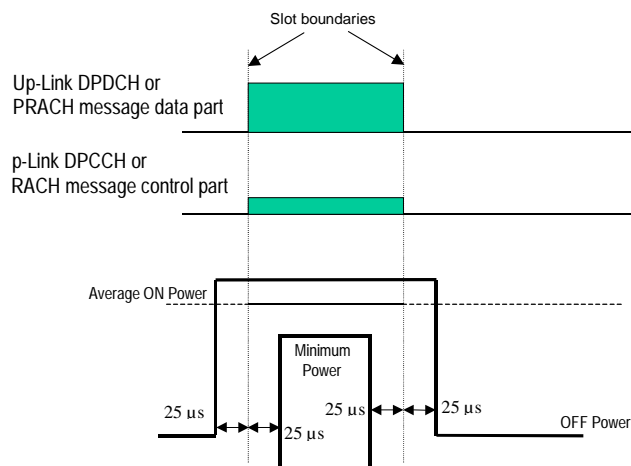


Figure 5.5.2: Transmit ON/OFF template for all other On/Off cases

OFF Power is defined in clause 5.5.1.2.

ON power is defined as the mean power. The specification depends on each possible case.

- First preamble of PRACH: Open loop accuracy (table 5.4.1.1).
- During preamble ramping of the RACH and between final RACH preamble and RACH message part: Accuracy depending on size of the required power difference (table 5.5.2.1).
- After transmission gaps in compressed mode: Accuracy as in table 5.7.1.
- Power step to Maximum Power: Maximum power accuracy (table 5.2.1).

Table 5.5.2.1: Transmitter power difference tolerance for RACH preamble ramping, and between final RACH preamble and RACH message part

Power difference size ΔP [dB]	Transmitter power difference tolerance [dB]
0	± 1
1	± 1
2	$\pm 1,5$
3	± 2
$4 \leq \Delta P \leq 10$	$\pm 2,5$
$11 \leq \Delta P \leq 15$	$\pm 3,5$
$16 \leq \Delta P \leq 20$	$\pm 4,5$
$21 \leq \Delta P$	$\pm 6,5$

The reference for this requirement is TS 25.101 [1] clause 6.5.2.1.

This is tested using PRACH operation.

5.5.2.3 Test purpose

To verify that the UE transmit ON/OFF power levels versus time meets the described mask shown in figure 5.5.1 and figure 5.5.2.

An excess error of transmit ON/OFF response increases the interference to other channels, or increases transmission errors in the up link own channel.

5.5.2.4 Method of test

5.5.2.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: low range, mid range, high range; see clause G.2.4.

- 1) Connect the SS to the UE antenna connector as shown in figure A.1.
- 2) Channel conditions are initially set up with received CPICH RSCP >-85 dBm. The relative power level of downlink physical channels to I_{or} are set up according to clause E.2.1. The parameter settings of the cell are set up according to table 5.5.2.1A.
- 3) Switch on the phone.
- 4) After the UE has performed registration and entered idle mode, \hat{I}_{or} is set up according to table 5.4.1.2. The relative power level of downlink physical channels to I_{or} are set up according to clause E.2.1
- 2) A call is set up according to the Generic call setup procedure, in [3] clause 7.3.1 with channel conditions according the test parameters in table 5.5.2.3, and \hat{I}_{or} is are set up according to table 5.5.2.2. The relative power level of downlink physical channels to I_{or} are set up according to clause E.2.1.

The RACH procedure within the call setup is used for the test. The number of the available subchannels should be limited to one. This ensures that the preamble sequence is known to the SS. The preamble retransmission shall be at least 3. The power ramping step size shall be 1 dB. Note that the maximum number of preamble retransmissions is limited to 5 due to the fact that the commanded uplink power exceeds the allowed uplink power of more than 6 dB. The SS shall not send either an ACK or a NACK.

~~See TS 34.108 [3] for details regarding generic call setup procedure.~~

Table 5.5.2.1A: Settings for the serving cell

<u>Parameter</u>	<u>Unit</u>	<u>Cell 1</u>
<u>Cell type</u>		<u>Serving cell</u>
<u>UTRA RF Channel Number</u>		<u>Channel 1</u>
<u>Qqualmin</u>	<u>DB</u>	<u>-24</u>
<u>Qrxlevmin</u>	<u>DBm</u>	<u>-115</u>
<u>UE_TXPWR_MAX_RACH</u>	<u>DBm</u>	<u>21</u>

Table 5.5.2.2: Test parameters for Transmit ON/OFF Time mask (UE)

<u>Parameter</u>	<u>Level / Status</u>	<u>Unit</u>
I_{or}	See table 5.5.2.3	dBm / 3,84 MHz

Table 5.5.2.3: Test parameters for Transmit ON/OFF Time mask (SS)

Parameter	Power Class 1	Power Class 2	Power Class 3	Power Class 4	Unit
\hat{I}_{or} (note 1)	-106,7	-106,7	-106,7	-106,7	dBm / 3,84 MHz
CPICH_RSCP (notes 1 and 2)	-110	-110	-110	-110	dBm
Primary CPICH DL TX power	+19	+19	+19	+19	dBm
Simulated path loss = Primary CPICH DL TX power – CPICH_RSCP	+129	+129	+129	+129	dB
UL interference	-86	-92	-95	-98	dBm
Constant Value	-10	-10	-10	-10	dB
Expected nominal UE TX power (note 3)	+33	+27	+24	+21	dBm
<p>NOTE 1: The power level of S-CCPCH should be defined because S-CCPCH is transmitted during Preamble RACH transmission period. The power level of S-CCPCH is temporarily set to -10,3 dB relative to \hat{I}_{or}. However, it is necessary to check whether the above S-CCPCH level is enough to establish a connection with the reference measurement channels.</p> <p>NOTE 2: The purpose of this parameter is to calculate the Expected nominal UE TX power.</p> <p>NOTE 3: The Expected nominal UE TX power is calculated by using the equation in the clause 8.5.7 Open Loop Power Control of TS 25.331 [8].</p>					

5.5.2.4.2 Procedure

- 1) Set the TX output level of the SS to obtain \hat{I}_{or} at the UE antenna connector and select the test parameters of table 5.5.2.3 according to the power class. \hat{I}_{or} shall be according to table 5.5.2.3 (-106,7 dBm / 3,84 MHz).
- 2) Measure the mean power (ON power) of the UE on the first RACH preamble or two consecutive RACH preambles. The measurements shall not include the transient periods. From the occurrence of the first RACH preamble the SS shall predict the following RACH preamble timing.
- 3) Measure the RRC filtered mean power (OFF power) in a 2368 chip time interval before a transient period of 25 μ s (96 chips) prior to a RACH preamble (ON power). Measure the RRC filtered mean power (OFF power) in a 2368 chip time interval after a transient period of 25 μ s (96 chips) after a RACH preamble (ON power).

5.5.2.5 Test requirements

The deviation with respect to the Expected nominal UE TX power (table 5.5.2.3), derived in step 2), shall not exceed the prescribed upper tolerance in table 5.2.2 (clause 5.2.5) and lower tolerance in table 5.4.1.1. (clause 5.4.1.2) for the first preamble, or shall meet the tolerance in table 5.5.2.1 for two consecutive preambles.

The measured RRC filtered mean power, derived in step 3), shall be less than -55 dBm. (clause 5.5.1.5).

CHANGE REQUEST

34.121 CR 372 # rev **-** # Current version: **5.3.1**

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 UTRA Carrier RSSI test cases		
Source:	# Nokia		
Work item code:	# TEI	Date:	# 12/05/2004
Category:	# F	Release:	# Rel-5
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	F (correction)		2 (GSM Phase 2)
	A (corresponds to a correction in an earlier release)		R96 (Release 1996)
	B (addition of feature),		R97 (Release 1997)
	C (functional modification of feature)		R98 (Release 1998)
	D (editorial modification)		R99 (Release 1999)
	Detailed explanations of the above categories can be found in 3GPP TR 21.900 .		Rel-4 (Release 4)
			Rel-5 (Release 5)
			Rel-6 (Release 6)

Reason for change:	# - TS 25.133 specifies Frequency Band (I,II,III) dependent constraints on Io levels for UTRA Carrier RSSI measurement. These constraints have not been taken into account in UTRA Carrier RSSI test cases defined in Section 8.7.3 of TS 34.121. - Test Tolerances have not been taken into account in test parameters both in absolute and relative measurement test cases. Range for UTRA carrier RSSI relative measurement is up to -70 dBm not up to -50 dB. Hence tests 1 and 2 are not valid for UTRA carrier RSSI relative measurement test case. - Test Requirements for UTRA Carrier RSSI relative measurement test cases are in error since the test requirements are tighter than minimum requirements. Also test requirements are not described with UE reported values - Derivation of Test Requirement for UTRA Carrier RSSI measurement in Table F.4.4 is empty.
Summary of change:	# - Frequency Band constraints for Io have been added into " Minimum Requirements" section of all UTRA Carrier RSSI tests. - Range for UTRA carrier RSSI relative measurement has been corrected to -70 dBm in minimum requirements. Tests 1 and 2 are deleted from UTRA carrier RSSI relative measurement test case. - For Frequency Band II and III some test parameters have been slightly modified so that Io levels are within the constraints that have been specified for these frequency bands. - Two new test parameter tables have been created i.e., Table 8.7.3.1.4 and Table 8.7.3.2.3. These tables now include test tolerances. Also Test Procedure sections

are modified according to this change.

- Test Requirements for UTRA Carrier RSSI relative measurement test cases have been corrected.
- Test requirements are described with UE reported values in Tables 8.7.3.1.5 and 8.7.3.2.4
- Derivation of test requirement for UTRA Carrier RSSI measurement is now included into Table F.4.4.

Consequences if not approved: ⌘ UTRA Carrier RSSI test cases are not compliant with core specification when operating with Frequency Band II or III. Incorrect test requirements for UTRA Carrier RSSI relative measurement.

Clauses affected: ⌘ 8.7.3, Annex F.4

	Y	N		⌘
Other specs affected:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Other core specifications	
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Test specifications	
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	O&M Specifications	

Other comments: ⌘ This CR is applicable for UE's supporting Rel-99 or later.

8.7.3 UTRA Carrier RSSI

NOTE: This measurement is for Inter-frequency handover evaluation.

8.7.3.1 Absolute measurement accuracy requirement

8.7.3.1.1 Definition and applicability

The absolute accuracy of UTRA Carrier RSSI is defined as the UTRA Carrier RSSI measured from one frequency compared to the actual UTRA Carrier RSSI power of that same frequency.

The requirements and this test apply to all types of UTRA for the FDD UE.

8.7.3.1.2 Minimum Requirements

Table 8.7.3.1.1: UTRA Carrier RSSI Inter frequency absolute accuracy

Parameter	Unit	Accuracy [dB]		Conditions		
		Normal condition	Extreme condition	Io [dBm/3.84 MHz]		
				Band I	Band II	Band III
UTRA Carrier RSSI	dBm	± 4	± 7	-94...-70	<u>-92...-70</u>	<u>-91...-70</u>
	dBm	± 6	± 9	-70...-50	<u>-70...-50</u>	<u>-70...-50</u>

The normative reference for this requirement is TS 25.133 [2] clause 9.1.3.1.

8.7.3.1.3 Test purpose

The purpose of this test is to verify that the UTRA Carrier RSSI measurement is within the specified limits. This measurement is for inter-frequency handover evaluation.

8.7.3.1.4 Method of test

8.7.3.1.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

In this case both cells are on different frequencies and compressed mode is applied. The gap length is 7, detailed definition is in clause C.5, Set 1 of table C.5.2 except for TGRR and TGCFN. TGPRC and TGCFN shall set to "Infinity" and "(Current CFN + (256 – TTI/10msec))mod 256". UTRA Carrier RSSI absolute accuracy requirements are tested by using test parameters in table 8.7.3.1.2.

Table 8.7.3.1.2: UTRA Carrier RSSI Inter frequency test parameters

Parameter	Unit	Test 1		Test 2		Test 3	
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1	Channel 2	Channel 1	Channel 2	Channel 1	Channel 2
CPICH_Ec/Ior	dB	-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15	
DPCH_Ec/Ior	dB	-15	-	-6	-	-6	-
OCNS_Ec/Ior	dB	-1.11	-0.94	-2.56	-0.94	-2.56	-0.94
Ior	Band I	dBm/ 3.84 MHz	-52.22	-52.22	-70.27	-70.27	-94.46
	Band II						-92.46
	Band III						-91.46
Ior/Io	dB	-1.75	-1.75	-4.7	-4.7	-9.54	-9.54
CPICH Ec/Io, Note 1	dBm	-14.0	-14.0	-16.0	-16.0	-20.0	-20.0
Io, Note 1	Band I	dBm/3.84 MHz	-50	-50	-69	-69	-94
	Band II						-92
	Band III						-91
Propagation condition	-	AWGN		AWGN		AWGN	
NOTE 1: CPICH Ec/Io and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.							
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.							

1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2.3. The RF parameters for Test 1 are set up according to table 8.7.3.1.2.

8.7.3.1.4.2 Procedure

1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2.3. The RF parameters for Test 1 are set up according to table 8.7.3.1.4.

2) SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message.

3) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

4) SS shall transmit MEASUREMENT CONTROL message.

5) UE shall transmit periodically MEASUREMENT REPORT messages.

6) SS shall check UTRA carrier RSSI value of Channel 2 in MEASUREMENT REPORT messages. UTRA carrier RSSI power of Channel 2 reported by UE is compared to actual UTRA Carrier RSSI value of Channel 2 for each MEASUREMENT REPORT message.

7) SS shall count number of MEASUREMENT REPORT messages transmitted by UE. After 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.3.1.2 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 6) above is repeated. After further 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.3.1.2 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 6) above is repeated.

8) After further 1000 MEASUREMENT REPORT messages have been received from UE, the SS shall transmit RRC CONNECTION RELEASE message.

9) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

All messages indicated above shall use the same content as described in default message content in clause 9 of 34.108 [3], with the following exceptions:

PHYSICAL CHANNEL RECONFIGURATION message for Inter frequency measurement (step 24):

Information Element	Value/Remark
Message Type	
UE Information Elements -RRC transaction identifier -Integrity check info -Integrity protection mode info -Ciphering mode info -Activation time -New U-RNTI -New C-RNTI -RRC State Indicator -UTRAN DRX cycle length coefficient	0 Not Present Not Present Not Present Not Present Not Present Not Present CELL_DCH Not Present
CN Information Elements -CN Information info	Not Present
UTRAN mobility information elements -URA identity	Not Present
RB information elements -Downlink counter synchronisation info	Not Present
PhyCH information elements -Frequency info	Not Present
Uplink radio resources -Maximum allowed UL TX power - CHOICE <i>channel requirement</i>	Not Present Not Present
Downlink radio resources -CHOICE mode -Downlink PDSCH information -Downlink information common for all radio links -Downlink DPCH info common for all RL -CHOICE mode -DPCH compressed mode info -Transmission gap pattern sequence -TGPSI -TGPS Status Flag -TGCFN -Transmission gap pattern sequence configuration parameters -TGMP -TGPRC -TGSN -TGL1 -TGL2 -TGD -TGPL1 -TGPL2 -RPP -ITP -CHOICE UL/DL mode -Downlink compressed mode method -Uplink compressed mode method -Downlink frame type -DeltaSIR1 -DeltaSIRafter1 -DeltaSIR2 -DeltaSIRafter2 -N Identify abort -T Reconfirm abort -TX Diversity Mode -SSDT information -Default DPCH Offset Value -Downlink information per radio link list -Downlink information for each radio link -Choice mode -Primary CPICH info -Primary scrambling code	FDD Not Present Not Present FDD 1 Activate (Current CFN + (256 – TTI/10msec))mod 256 FDD measurement Infinity 4 7 Not Present 0 3 Not Present Mode 0 Mode 0 UL and DL SF/2 SF/2 B 3.0 3.0 Not Present Not Present Not Present Not Present Not Present Not Present Not Present Not Present FDD 100

-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	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400
-Secondary CPICH info	Not Present
-DL channelisation code	
-Secondary scrambling code	Not Present
-Spreading factor	128
-Code number	96
-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

MEASUREMENT CONTROL message for Inter frequency measurement (step 43):

Information Element	Value/Remark
Message Type	
UE information elements -RRC transaction identifier -Integrity check info	0 Not Present
Measurement Information elements -Measurement Identity -Measurement Command -Measurement Reporting Mode - Measurement Report Transfer Mode - Periodical Reporting / Event Trigger Reporting Mode -Additional measurement list -CHOICE Measurement Type -Inter-frequency measurement -Inter-frequency cell info list -CHOICE Inter-frequency cell removal -New inter-frequency cells -Cell for measurement -Inter-frequency measurement quantity -CHOICE reporting criteria -Filter coefficient -CHOICE mode -Measurement quantity for frequency quality estimate -Inter-frequency reporting quantity -UTRA Carrier RSSI -Frequency quality estimate -Non frequency related cell reporting quantities -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator -Reporting cell status -CHOICE reported cell -Maximum number of reported cells -Measurement validity -Inter-frequency set update -CHOICE report criteria -Amount of reporting -Reporting interval	2 Setup Acknowledged mode RLC Periodical reporting Not Present Inter-frequency measurement Not Present Cell 2 information is included. Not Present Inter-frequency reporting criteria 0 FDD CPICH RSCP TRUE TRUE Type 1 TRUE TRUE FDD TRUE TRUE TRUE Report cells within monitored set on non-used frequency 2 Not Present Not Present Periodical reporting criteria Infinity 500 ms
Physical channel information elements -DPCH compressed mode status info	Not Present

MEASUREMENT REPORT message for Inter frequency test cases

This message is common for all inter frequency test cases in clause 8.7 and is described in Annex I.

8.7.3.1.5 Test requirements

The UTRA Carrier RSSI absolute measurement accuracy shall meet the requirements in clause 8.7.3.1.2. The effect of assumed thermal noise and noise generated in the receiver (-99 dBm, [-97 dBm](#), [-96 dBm for Frequency Band I, II and III respectively](#)) shall be added into the required accuracy defined in subclause 8.7.3.1.2 as shown in table 8.7.3.1.3.

Table 8.7.3.1.3: UTRA Carrier RSSI absolute accuracy

Parameter	Unit	Accuracy [dB]		Conditions I _o [dBm/3.84 MHz]
		Normal-condition	Extreme-condition	
UTRA Carrier RSSI	dBm	-4...5.2	-7...8.2	-94...-87
	dBm	±4	±7	-87...-70
	dBm	±6	±9	-70...-50

Parameter	Unit	Accuracy [dB]					
		Normal condition			Extreme condition		
		Test 1	Test 2	Test 3	Test 1	Test 2	Test 3
UTRA Carrier RSSI	dBm	± 7.15	± 5.1	-5...5.8	± 10.15	± 8.1	-8...8.8

The normative reference for this requirement is TS 25.133 [2] clause A.9.1.3.2.

Table 8.7.3.1.4: UTRA Carrier RSSI Inter frequency test parameters

Parameter	Unit	Test 1		Test 2		Test 3		
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2	
UTRA RF Channel number		Channel 1	Channel 2	Channel 1	Channel 2	Channel 1	Channel 2	
CPICH Ec/Ior	dB	-10		-10		-10		
PCCPCH Ec/Ior	dB	-12		-12		-12		
SCH Ec/Ior	dB	-12		-12		-12		
PICH Ec/Ior	dB	-15		-15		-15		
DPCH Ec/Ior	dB	-15	-	-6	-	-6	-	
OCNS Ec/Ior	dB	-1.11	-0.94	-2.56	-0.94	-2.56	-0.94	
I _{oc}	Band I	dBm/ 3.84 MHz	-53.5	-53.5	-69.27	-69.27	-93.46	-93.46
	Band II		-53.5	-53.5	-69.27	-69.27	-91.46	-91.46
	Band III		-53.5	-53.5	-69.27	-69.27	-90.46	-90.46
I _{or} /I _{oc}	dB	-1.45	-1.45	-4.4	-4.4	-9.24	-9.24	
CPICH Ec/I _o , Note 1	dBm	-13.8	-13.8	-15.7	-15.7	-19.7	-19.7	
I _o , Note 1	Band I	dBm/3.84 MHz	-51.15	-51.15	-67.9	-67.9	-93	-93
	Band II						-91	-91
	Band III						-90	-90
Propagation condition	-	AWGN		AWGN		AWGN		
NOTE 1: CPICH Ec/I _o and I _o levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.								
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.								

The reported values for the UTRA Carrier RSSI absolute measurement shall meet the requirements in table 8.7.3.1.5.

Table 8.7.3.1.5: UTRA Carrier RSSI absolute accuracy requirements for the reported values

	Test 1	Test 2	Test 3
Normal Conditions			
Lowest reported value (Cell 2)	UTRA carrier RSSI LEV 42	UTRA carrier RSSI LEV 27	UTRA carrier RSSI LEV 02
Highest reported value (Cell 2)	UTRA carrier RSSI LEV 57	UTRA carrier RSSI LEV 38	UTRA carrier RSSI LEV 13
Extreme Conditions			
Lowest reported value (Cell 2)	UTRA carrier RSSI LEV 39	UTRA carrier RSSI LEV 24	UTRA carrier RSSI LEV 00
Highest reported value (Cell 2)	UTRA carrier RSSI LEV 60	UTRA carrier RSSI LEV 41	UTRA carrier RSSI LEV 16

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.7.3.2 Relative measurement accuracy requirement

8.7.3.2.1 Definition and applicability

The relative accuracy requirement is defined as the UTRA Carrier RSSI measured from one frequency compared to the UTRA Carrier RSSI measured from another frequency.

The requirements and this test apply to all types of UTRA for the FDD UE.

8.7.3.2.2 Minimum Requirements

The accuracy requirements in table 8.7.3.2.1 are valid under the following condition:

$$| \text{Channel 1}_{\text{Io}}|_{\text{dBm}/3.84 \text{ MHz}} - \text{Channel 2}_{\text{Io}}|_{\text{dBm}/3.84 \text{ MHz}} | < 20 \text{ dB.}$$

Table 8.7.3.2.1: UTRA Carrier RSSI Inter frequency relative accuracy

Parameter	Unit	Accuracy [dB]		Conditions		
		Normal condition	Extreme condition	Io [dBm/3.84 MHz]		
				Band I	Band II	Band III
UTRA Carrier RSSI	dBm	± 7	± 11	-94...-750	-92...-70	-91...-70

The normative reference for this requirement is TS 25.133 [2] clause 9.1.3.2.

8.7.3.2.3 Test purpose

The purpose of this test is to verify that the UTRA Carrier RSSI measurement is within the specified limits. This measurement is for inter-frequency handover evaluation.

8.7.3.2.4 Method of test

8.7.3.2.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

In this case both cells are on different frequencies and compressed mode is applied. The gap length is 7, detailed definition is in clause C.5, Set 1 of table C.5.2 except for TGRR and TGCFN. TGPRC and TGCFN shall set to "Infinity" and "(Current CFN + (256 – TTI/10msec))mod 256". UTRA Carrier RSSI relative accuracy requirements are tested by using test [3](#) parameters in table 8.7.3.1.2.

~~1) A call is set up according to the test procedure specified in TS 34.108 [3] clause 7.3.2.3. The RF parameters for Test 1 are set up according to table 8.7.3.1.2.~~

8.7.3.2.4.2 Procedure

[1\)](#) A call is set up according to the test procedure specified in TS 34.108 [3] clause 7.3.2.3. The RF parameters for Test 3 are set up according to table 8.7.3.2.3.

[2\)](#) SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message.

[3\)](#) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

[4\)](#) SS shall transmit MEASUREMENT CONTROL message.

[5\)](#) UE shall transmit periodically MEASUREMENT REPORT messages.

- 6) SS shall check UTRA carrier RSSI value of Channel 1 and Channel 2 in MEASUREMENT REPORT messages. UTRA carrier RSSI power value measured from Channel 1 is compared to UTRA carrier RSSI power value measured from Channel 2 for each MEASUREMENT REPORT message.
- 7) The result of step 6) is compared to actual power level difference of UTRA Carrier RSSI of Channel 1 and Channel 2.
- ~~7) SS shall count number of MEASUREMENT REPORT messages transmitted by UE. After 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.3.1.2 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 5) and 6) above are repeated. After further 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.3.1.2 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 5) and 6) above are repeated.~~
- 8) After further 1000 MEASUREMENT REPORT messages have been received from UE, the SS shall transmit RRC CONNECTION RELEASE message.
- 9) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

All messages indicated above shall use the same content as described in default message content in clause 9 of 34.108 [3], with the following exceptions:

PHYSICAL CHANNEL RECONFIGURATION message and MEASUREMENT CONTROL message for Inter frequency measurement in clause 8.7.3.1.4.2 is used.

MEASUREMENT REPORT message for inter – frequency test cases

This message is common for all inter frequency test cases in clause 8.7 and is described in Annex I.

8.7.3.2.5 Test requirements

The UTRA Carrier RSSI relative measurement accuracy shall meet the requirements in clause 8.7.3.2.2. The effect of assumed thermal noise and noise generated in the receiver (-99 dBm, ~~-97 dBm, -96 dBm for Frequency Band I, II and III respectively~~) shall be added into the required accuracy defined in clause 8.7.3.2.2 as shown in table 8.7.3.2.2.

Table 8.7.3.2.2: UTRA Carrier RSSI relative accuracy

Parameter	Unit	Accuracy [dB]		Conditions
		Normal condition	Extreme condition	I_0 [dBm/3.84 MHz]
UTRA Carrier RSSI	dBm	$-4 \dots -5.2$	$-7 \dots -8.2$	$-94 \dots -87$
	dBm	± 4	± 7	$-87 \dots -70$
	dBm	± 6	± 9	$-70 \dots -50$

Parameter	Unit	Accuracy [dB]	
		Normal condition	Extreme condition
		Test 3	Test 3
UTRA Carrier RSSI	dBm	± 7.4	± 11.4

The normative reference for this requirement is TS 25.133 [2] clause A.9.1.3.2.

Table 8.7.3.2.3: UTRA Carrier RSSI Inter frequency test parameters

Parameter	Unit	Test 3	
		Cell 1 Channel 1	Cell 2 Channel 2
UTRA RF Channel number			
CPICH E_c/I_o	dB	-10	
PCCPCH E_c/I_o	dB	-12	
SCH E_c/I_o	dB	-12	
PICH E_c/I_o	dB	-15	
DPCH E_c/I_o	dB	-6	-
OCNS E_c/I_o	dB	-2.56	-0.94
I_{or}/I_o	Band I	dBm/ 3.84	-93.46
	Band II	MHz	-91.46
	Band III		-90.46
I_{or}/I_o	dB	-9.24	-9.24
CPICH E_c/I_o , Note 1	dBm	-19.7	-19.7
I_o , Note 1	Band I	dBm/3.84	-93
	Band II	MHz	-91
	Band III		-90
Propagation condition	-	AWGN	
NOTE 1: CPICH E_c/I_o and I_o levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.			

The reported values for the UTRA Carrier RSSI relative measurement shall meet the requirements in table 8.7.3.2.4.

Table 8.7.3.2.4: UTRA Carrier RSSI relative accuracy requirements for the reported values

	Test 3
<u>Normal Conditions</u>	
Lowest reported value (Cell 2)	UTRA carrier RSSI LEV (x - 8)
Highest reported value (Cell 2)	UTRA carrier RSSI LEV (x + 8)
<u>Extreme Conditions</u>	
Lowest reported value (Cell 2)	UTRA carrier RSSI LEV (x - 12)
Highest reported value (Cell 2)	UTRA carrier RSSI LEV (x + 12)
UTRA carrier RSSI LEV x is the reported value of cell 1	

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

Table F.4.4: Derivation of Test Requirements (RRM tests)

Test	Test Parameters in TS 25.133	Test Tolerance (TT)	Test Requirement in TS 34.121
8.2 Idle Mode Tasks			
8.2.2 Cell Re-Selection			
8.2.2.1 Scenario 1: Single carrier case	Because the relationships between the Test system uncertainties and the Test Tolerances are complex, it is not possible to give a simple derivation of the Test Requirement in this document. The analysis is recorded in 3GPP TR 34 902 [24].		
	<u>During T1 and T2:</u> Cells 1 and 2: CPICH_Ec/Ior = -10 dB PCCPCH_Ec/Ior = -12 dB SCH_Ec/Ior = -12 dB PICH_Ec/Ior = -15 dB Cells 3, 4, 5, 6: CPICH_Ec/Ior = -10 dB PCCPCH_Ec/Ior = -12 dB SCH_Ec/Ior = -12 dB PICH_Ec/Ior = -15 dB Ior(3, 4, 5, 6) = -69.73 dBm	<u>During T1 and T2:</u> +0.60 dB +0.60 dB +0.60 dB +0.60 dB -0.50 dB -0.50 dB -0.50 dB -0.50 dB +0.03 dB for Ior(3, 4, 5, 6)	<u>During T1 and T2:</u> Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ior(3, 4, 5, 6) + TT
	<u>During T1:</u> Ior(1) = -62.73 dBm Ior(2) = -59.73 dBm	<u>During T1:</u> -0.27 dB for Ior(1) +0.13 dB for Ior(2)	<u>During T1:</u> Ior(1) + TT Ior(2) + TT
	<u>During T2:</u> Ior(1) = -59.73 dBm Ior(2) = -62.73 dBm	<u>During T2:</u> +0.13 dB for Ior(1) -0.27 dB for Ior(2)	<u>During T2:</u> Ior(1) + TT Ior(2) + TT
8.2.2.2 Scenario 2: Multi carrier case	Because the relationships between the Test system uncertainties and the Test Tolerances are complex, it is not possible to give a simple derivation of the Test Requirement in this document. The analysis is recorded in 3GPP TR 34 902 [24].		

Test	Test Parameters in TS 25.133	Test Tolerance (TT)	Test Requirement in TS 34.121
	<u>Channel 1 during T1 and T2:</u> Cell 1: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB Cells 3 and 4: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB	<u>Channel 1 during T1 and T2:</u> +0.70 dB +0.70 dB +0.70 dB +0.70 dB -0.80 dB -0.80 dB -0.80 dB -0.80 dB	<u>Channel 1 during T1 and T2:</u> Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT
	<u>Channel 1 during T1:</u> lor(1) = -73.39 dBm lor(3, 4) = -77.39 dBm loc(1) = -70.00 dBm	<u>Channel 1 during T1:</u> -0.01 dB for lor(1) -0.01 dB for lor(3, 4) 0.00 dB for loc(1)	<u>Channel 1 during T1:</u> lor(1) + TT lor(3, 4) + TT loc(1) + TT
	<u>Channel 1 during T2:</u> lor(1) = -67.75 dBm lor(3, 4) = -74.75 dBm loc(1) = -70.00 dBm	<u>Channel 1 during T2:</u> +0.75 dB for lor(1) -0.05 dB for lor(3, 4) -1.80 dB for loc(1)	<u>Channel 1 during T2:</u> lor(1) + TT lor(3, 4) + TT loc(1) + TT
	<u>Channel 2 during T1 and T2:</u> Cell 2: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB Cells 5 and 6: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB	<u>Channel 2 during T1 and T2:</u> +0.70 dB +0.70 dB +0.70 dB +0.70 dB -0.80 dB -0.80 dB -0.80 dB -0.80 dB	<u>Channel 2 during T1 and T2:</u> Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT
	<u>Channel 2 during T1:</u> lor(2) = -67.75 dBm lor(5, 6) = -74.75 dBm loc(2) = -70.00 dBm	<u>Channel 2 during T1:</u> +0.75 dB for lor(2) -0.05 dB for lor(5, 6) -1.80 dB for loc(2)	<u>Channel 2 during T1:</u> lor(2) + TT lor(5, 6) + TT loc(2) + TT

Test	Test Parameters in TS 25.133	Test Tolerance (TT)	Test Requirement in TS 34.121
	<u>Channel 2 during T2:</u> lor(2) = -73.39 dBm lor(5, 6) = -77.39 dBm loc(2) = -70.00 dBm	<u>Channel 2 during T2:</u> -0.01 dB for lor(2) -0.01 dB for lor(5,6) 0.00 dB for loc(2)	<u>Channel 2 during T2:</u> lor(2) + TT lor(5, 6) + TT loc(2) + TT
8.2.3 UTRAN to GSM Cell Re-Selection	TBD		
8.2.3.1 Scenario 1: Both UTRA and GSM level changed	$\frac{CPICH_E_c}{I_{or}} = -10$ dB lor/loc = 0 dB	0.1 dB for $\frac{CPICH_E_c}{I_{or}}$ 0.3 dB for lor/loc 0.3 dB for loc/RXLEV	Formulas: $\frac{CPICH_E_c}{I_{or}} = \text{ratio} + TT$ lor/loc = ratio + TT $(\text{loc/Rxlev})_{\text{test requirement}} = (\text{loc/Rxlev})_{\text{minimum requirement}} + TT$ lor/loc = 0.3 dB $\frac{CPICH_E_c}{I_{or}} = -9.9 \text{ dB:}$
	$\frac{CPICH_E_c}{I_{or}} = -10$ dB lor/loc = -5 dB	0.1 dB for $\frac{CPICH_E_c}{I_{or}}$ 0.3 dB for lor/loc 0.3 dB for loc/RXLEV	Formulas: $\frac{CPICH_E_c}{I_{or}} = \text{ratio} - TT$ lor/loc = ratio - TT $(\text{loc/Rxlev})_{\text{test requirement}} = (\text{loc/Rxlev})_{\text{minimum requirement}} - TT$ lor/loc = -5.3 dB $\frac{CPICH_E_c}{I_{or}} - 10.1 \text{ dB:}$
8.2.3.2 Scenario 2: Only UTRA level changed	$\frac{CPICH_E_c}{I_{or}} = -10$ dB lor/loc = 20 dB	0.1 dB for $\frac{CPICH_E_c}{I_{or}}$ 0.3 dB for lor/loc 0.3 dB for loc/RXLEV	Formulas: $\frac{CPICH_E_c}{I_{or}} = \text{ratio} + TT$ lor/loc = ratio + TT $(\text{loc/Rxlev})_{\text{test requirement}} = (\text{loc/Rxlev})_{\text{minimum requirement}} + TT$ lor/loc = 20.3 dB $\frac{CPICH_E_c}{I_{or}} = -9.9 \text{ dB:}$

Test	Test Parameters in TS 25.133	Test Tolerance (TT)	Test Requirement in TS 34.121
	$\frac{CPICH_E_c}{I_{or}} = -10$ dB lor/loc = 20 dB	0.1 dB for $\frac{CPICH_E_c}{I_{or}}$ 0.3 dB for lor/loc 0.3 dB for loc/RXLEV	Formulas: $\frac{CPICH_E_c}{I_{or}} = \text{ratio} + TT$ lor/loc = ratio + TT $(\text{loc/Rxlev})_{\text{test requirement}} = (\text{loc/Rxlev})_{\text{minimum requirement}} + TT$ lor/loc = 20.3 dB $\frac{CPICH_E_c}{I_{or}} = -9.9 \text{ dB:}$
8.2.4 FDD/TDD cell re-selection	TBD		
8.3 UTRAN Connected Mode Mobility	TBD		
8.3.1 FDD/FDD Soft Handover	TBD		
8.3.2 FDD/FDD Hard Handover			
8.3.2.1 Handover to intra-frequency cell	Because the relationships between the Test system uncertainties and the Test Tolerances are complex, it is not possible to give a simple derivation of the Test Requirement in this document. The analysis is recorded in 3GPP TR 34 902 [24].		
	<u>During T1 and T2 / T3:</u> Cell 1: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB	<u>During T1 / T2 / T3:</u> +0.70 dB +0.70 dB +0.70 dB +0.70 dB	<u>During T1 and T2 / T3:</u> Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT
	<u>During T1:</u> Already covered above	<u>During T1:</u> Covered above	<u>During T1:</u> Already covered above
	<u>During T2 / T3:</u> Cell 2: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB	<u>During T2 / T3:</u> +0.70 dB +0.70 dB +0.70 dB +0.70 dB	<u>During T2 / T3:</u> Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT
8.3.2.2 Handover to inter-frequency cell	Because the relationships between the Test system uncertainties and the Test Tolerances are complex, it is not possible to give a simple derivation of the Test Requirement in this document. The analysis is recorded in 3GPP TR 34 902 [24].		

Test	Test Parameters in TS 25.133	Test Tolerance (TT)	Test Requirement in TS 34.121
	<u>Channel 1 during T1 and T2 / T3:</u> Cell 1: CPICH_Ec/Ior = -10 dB PCCPCH_Ec/Ior = -12 dB SCH_Ec/Ior = -12 dB PICH_Ec/Ior = -15 dB	<u>Channel 1 during T1 and T2 / T3:</u> +0.80 dB +0.80 dB +0.80 dB +0.80 dB	<u>Channel 1 during T1 and T2 / T3:</u> Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT
	<u>Channel 2 during T1:</u> Not applicable	<u>Channel 2 during T1:</u> Not applicable	<u>Channel 2 during T1:</u> Not applicable
	<u>Channel 2 during T2 / T3:</u> Cell 2: CPICH_Ec/Ior = -10 dB PCCPCH_Ec/Ior = -12 dB SCH_Ec/Ior = -12 dB PICH_Ec/Ior = -15 dB	<u>Channel 2 during T2 / T3:</u> +0.80 dB +0.80 dB +0.80 dB +0.80 dB	<u>Channel 2 during T2 / T3:</u> Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT
8.3.3 FDD/TDD Handover	TBD		
8.3.4 Inter-system Handover from UTRAN FDD to GSM	TBD		
8.3.5 Cell Re-selection in CELL_FACH			
8.3.5.1 One frequency present in the neighbour list	Because the relationships between the Test system uncertainties and the Test Tolerances are complex, it is not possible to give a simple derivation of the Test Requirement in this document. The analysis is recorded in 3GPP TR 34 902 [24].		
	<u>During T1 and T2:</u> Cells 1 and 2: CPICH_Ec/Ior = -10 dB PCCPCH_Ec/Ior = -12 dB SCH_Ec/Ior = -12 dB PICH_Ec/Ior = -15 dB S-CCPCH_Ec/Ior = -12 dB Cells 3, 4, 5, 6: CPICH_Ec/Ior = -10 dB PCCPCH_Ec/Ior = -12 dB SCH_Ec/Ior = -12 dB PICH_Ec/Ior = -15 dB S-CCPCH_Ec/Ior = -12 dB Ior(3, 4, 5, 6) = -69.73 dBm	<u>During T1 and T2:</u> +0.60 dB +0.60 dB +0.60 dB +0.60 dB +0.60 dB -0.50 dB -0.50 dB -0.50 dB -0.50 dB -0.50 dB -0.50 dB +0.03 dB for Ior(3, 4, 5, 6)	<u>During T1 and T2:</u> Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ior(3, 4, 5, 6) + TT

Test	Test Parameters in TS 25.133	Test Tolerance (TT)	Test Requirement in TS 34.121
	<u>During T1:</u> lor(1) = -62.73 dBm lor(2) = -59.73 dBm	<u>During T1:</u> -0.27 dB for lor(1) +0.13 dB for lor(2)	<u>During T1:</u> lor(1) + TT lor(2) + TT
	<u>During T2:</u> lor(1) = -59.73 dBm lor(2) = -62.73 dBm	<u>During T2:</u> +0.13 dB for lor(1) -0.27 dB for lor(2)	<u>During T2:</u> lor(1) + TT lor(2) + TT
8.3.5.2 Two frequencies present in the neighbour list	Because the relationships between the Test system uncertainties and the Test Tolerances are complex, it is not possible to give a simple derivation of the Test Requirement in this document. The analysis is recorded in 3GPP TR 34 902 [24].		
	<u>Channel 1 during T1 and T2:</u> Cell 1: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB S-CCPCH_Ec/lor = -12 dB Cells 3 and 4: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB S-CCPCH_Ec/lor = -12 dB	<u>Channel 1 during T1 and T2:</u> +0.60 dB +0.60 dB +0.60 dB +0.60 dB +0.60 dB -0.70 dB -0.70 dB -0.70 dB -0.70 dB -0.70 dB	<u>Channel 1 during T1 and T2:</u> Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT
	<u>Channel 1 during T1:</u> lor(1) = -71.85 dBm lor(3, 4) = -76.85 dBm loc(1) = -70.00 dBm	<u>Channel 1 during T1:</u> +0.05 dB for lor(1) +0.05 dB for lor(3,4) 0.00 dB for loc(1)	<u>Channel 1 during T1:</u> lor(1) + TT lor(3, 4) + TT loc(1) + TT
	<u>Channel 1 during T2:</u> lor(1) = -67.75 dBm lor(3, 4) = -74.75 dBm loc(1) = -70.00 dBm	<u>Channel 1 during T2:</u> +0.75 dB for lor(1) -0.05 dB for lor(3, 4) -1.60 dB for loc(1)	<u>Channel 1 during T2:</u> lor(1) + TT lor(3, 4) + TT loc(1) + TT

Test	Test Parameters in TS 25.133	Test Tolerance (TT)	Test Requirement in TS 34.121
	<u>Channel 2 during T1 and T2:</u> Cell 2: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB S-CCPCH_Ec/lor = -12 dB Cells 5 and 6: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB S-CCPCH_Ec/lor = -12 dB	<u>Channel 2 during T1 and T2:</u> +0.60 dB +0.60 dB +0.60 dB +0.60 dB +0.60 dB -0.70 dB -0.70 dB -0.70 dB -0.70 dB -0.70 dB	<u>Channel 2 during T1 and T2:</u> Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT
	<u>Channel 2 during T1:</u> lor(2) = -67.75 dBm lor(5, 6) = -74.75 dBm loc(2) = -70.00 dBm	<u>Channel 2 during T1:</u> +0.75 dB for lor(2) -0.05 dB for lor(5, 6) -1.60 dB for loc(2)	<u>Channel 2 during T1:</u> lor(2) + TT lor(5, 6) + TT loc(2) + TT
	<u>Channel 2 during T2:</u> lor(2) = -71.85 dBm lor(5, 6) = -76.85 dBm loc(2) = -70.00 dBm	<u>Channel 2 during T2:</u> +0.05 dB for lor(2) +0.05 dB for lor(5,6) 0.00 dB for loc(2)	<u>Channel 2 during T2:</u> lor(2) + TT lor(5, 6) + TT loc(2) + TT
8.3.6 Cell Re-selection in CELL_PCH			
8.3.6.1 One frequency present in the neighbour list	Same as 8.2.2.1	Same as 8.2.2.1	Same as 8.2.2.1
	$\frac{CPICH_E_c}{I_{or}} = -10$ dB $I_{oc} = -70$ dBm lor/loc = 10.27 dB Note: Parameters are valid for cell 1 at time T2 and cell 2 at time T1	0.1 dB for $\frac{CPICH_E_c}{I_{or}}$ I_{or} 0.3 dB for lor/loc	Formulas: $\frac{CPICH_E_c}{I_{or}} = \text{ratio} + TT$ lor/loc = ratio + TT loc unchanged lor/loc = 10.57 dB $\frac{CPICH_E_c}{I_{or}} -9.9$ dB:
8.3.6.2 Two frequencies present in the neighbour list	Same as 8.2.2.2	Same as 8.2.2.2	Same as 8.2.2.2

Test	Test Parameters in TS 25.133	Test Tolerance (TT)	Test Requirement in TS 34.121
	$\frac{CPICH_E_c}{I_{or}} = -10$ dB $I_{oc} = -70$ dBm lor/loc = 2.2 dB Note: Parameters are valid for cell 1 at time T2 and cell 2 at time T1	0.1 dB for $\frac{CPICH_E_c}{I_{or}}$ 0.3 dB for lor/loc	Formulas: $\frac{CPICH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ lor/loc = ratio + TT loc unchanged loc ratio unchanged lor/loc = 2.5 dB $\frac{CPICH_E_c}{I_{or}} -9.9$ dB:
8.3.7 Cell Re-selection in URA_PCH			
8.3.7.1 One frequency present in the neighbour list	Same as 8.2.2.1	Same as 8.2.2.1	Same as 8.2.2.1
8.3.7.2 Two frequencies present in the neighbour list	Same as 8.2.2.2	Same as 8.2.2.2	Same as 8.2.2.2
8.4 RRC Connection Control	TBD		
8.4.1 RRC Re-establishment delay	TBD		
8.4.2 Random Access	RACH power difference nominal 3dB ± 2dB UE setting uncertainty	Measurement TT: Power difference ± 1dB Maximum Power-1dB / +0.7dB	Test parameter settings unchanged. Power measurement: Upper limit +TT Lower limit -TT
8.5 Timing and Signalling Characteristics	TBD		
8.5.1 UE Transmit Timing	TBD		
8.6 UE Measurements Procedures	TBD		
8.6.1 FDD intra frequency measurements	TBD		
8.6.1.1 Event triggered reporting in AWGN propagation conditions	TBD		
8.6.1.2 Event triggered reporting of multiple neighbours in AWGN propagation condition	TBD		
8.6.1.3 Event triggered reporting of two detectable neighbours in AWGN propagation condition	TBD		
8.6.1.4 Correct reporting of neighbours in fading propagation condition	TBD		

Test	Test Parameters in TS 25.133	Test Tolerance (TT)	Test Requirement in TS 34.121
8.6.2 FDD inter frequency measurements	TBD		
8.6.2.1 Correct reporting of neighbours in AWGN propagation condition	TBD		
8.6.2.2 Correct reporting of neighbours in Fading propagation condition	TBD		
8.6.3 TDD measurements	TBD		
8.6.3.1 Correct reporting of TDD neighbours in AWGN propagation condition	TBD		
8.7 Measurements Performance Requirements	TBD		
8.7.1 CPICH RSCP	TBD		
8.7.1.1 Intra frequency measurements accuracy	TBD		
8.7.1.2 Inter frequency measurement accuracy	TBD		
8.7.2 CPICH Ec/Io			
8.7.1.1 Intra frequency measurements accuracy	see table 8.7.1.1.1.1 and table 8.7.1.1.1.2	± 1 dB for $loc \pm 0.3$ dB for $lor/loc \pm 0.1$ dB for_Ec/lor	Any TT applied to the nominal setting shall fulfil: Test 1 (absolute and relative): Io shall not go below -69 dBm Test 2 (absolute and relative): Io shall not go above -50 dBm Test 3 (absolute and relative): Io shall not go below -94 dBm $lor/loc + TTTT$ on top of UE measurement accuracy: Absolute ± 1.0 dB for $loc \pm 0.3$ dB for $lor/loc \pm 0.1$ dB for CPICH_Ec/lor $\sum 1.4$ dB Relative ± 0.3 dB for lor/loc (cell1) ± 0.3 dB for lor/loc (cell2) ± 0.1 dB for CPICH_Ec/lor (cell1) ± 0.1 dB for CPICH_Ec/lor (cell2) $\sum 0.8$ dB
8.7.1.2 Inter frequency measurement accuracy	See table 8.7.1.2.1.1 and table 8.7.1.2.1.2	± 1 dB for $loc \pm 0.3$ dB for $loc1/loc2 \pm 0.3$ dB for $lor/loc \pm 0.1$ dB for_Ec/lor	Any TT applied to the nominal setting shall fulfil: Test 1: Io shall not go above -50 dBm Test 2: Io shall not go below -94 dBm $lor/loc + TTTT$ on top of UE measurement accuracy: ± 0.3 dB for $loc1/loc2 \pm 0.3$ dB for lor/loc (cell1) ± 0.3 dB for lor/loc (cell2) ± 0.1 dB for CPICH_Ec/lor (cell1) ± 0.1 dB for CPICH_Ec/lor (cell2) $\sum 1.1$ dB
8.7.2 CPICH Ec/Io			

Test	Test Parameters in TS 25.133	Test Tolerance (TT)	Test Requirement in TS 34.121
8.7.2.1 Intra frequency measurements accuracy	table 8.7.2.1.1.1 and table 8.7.2.1.1.2	± 1 dB for Ioc ± 0.3 dB for Ior/Ioc ± 0.1 dB forEc/Ior	<p>Any TT applied to the nominal setting shall fulfil:</p> <p>Test 1 (absolute and relative): I_o shall not go above -50 dBm</p> <p>Test 2 (absolute and relative): I_o shall not go below -87dBm</p> <p>Test 3 (absolute and relative): I_o shall not go below -94 dBm</p> <p>CPICH Ec/I_o shall stay in the UE accuracy ranges</p> <p>I_{or}/I_{oc} + TT</p> <p>TT on top of UE measurement accuracy:</p> <p>Absolute</p> <p style="padding-left: 40px;">± 0.3 dB for I_{or}/I_{oc}</p> <p style="padding-left: 40px;">± 0.1 dB for CPICH_Ec/I_{or}</p> <p style="padding-left: 40px;">Σ 0.4dB</p> <p>Relative</p> <p style="padding-left: 40px;">I_{oc1}=I_{oc2}</p> <p style="padding-left: 40px;">± 0.3 dB for I_{or}/I_{oc} (cell1)</p> <p style="padding-left: 40px;">± 0.3 dB for I_{or}/I_{oc} (cell2)</p> <p style="padding-left: 40px;">± 0.1 dB for CPICH_Ec/I_{or} (cell1)</p> <p style="padding-left: 40px;">± 0.1 dB for CPICH_Ec/I_{or} (cell2)</p> <p style="padding-left: 40px;">Σ 0.8dB</p>

Test	Test Parameters in TS 25.133	Test Tolerance (TT)	Test Requirement in TS 34.121
8.7.2.2 Inter frequency measurement accuracy	table 8.7.2.2.2.1 and table 8.7.2.2.2.2	± 1 dB for Ioc ± 0.3 dB for Ioc1/Ioc2 ± 0.3 dB for Ior/Ioc ± 0.1 dB for_Ec/Ior	<p>Any TT applied to the nominal setting shall fulfil:</p> <p>Test 1: Io shall not go above -50 dBm</p> <p>Test 2: Io shall not go below -87 dBm</p> <p>Test 3: Io shall not go below -94 dBm</p> <p>Ior/Ioc + TT</p> <p>TT on top of UE measurement accuracy:</p> <p>Ioc1=Ioc2.</p> <p>± 0.3 dB for Ior/Ioc (cell1)</p> <p>± 0.3 dB for Ior/Ioc (cell2)</p> <p>± 0.1 dB for CPICH_Ec/Ior (cell1)</p> <p>± 0.1 dB for CPICH_Ec/Ior (cell2)</p> <p>$\sum 0.8$ dB</p>
8.7.3A UTRA Carrier RSSI	Table 8.7.3.1.2 TBD	± 1 dB for Ioc ± 0.3 dB for Ioc1/Ioc2 ± 0.3 dB for \hat{I} or/Ioc	<p><u>Any TT applied to the nominal setting shall fulfil:</u></p> <p><u>Test 1 (absolute): Io shall not go above -50 dBm</u></p> <p><u>Test 2 (absolute): Io shall not go below -69 dBm</u></p> <p><u>Test 3 (absolute and relative): Io shall not go below -94 dBm</u></p> <p><u>Ior/Ioc + TT</u></p> <p><u>TT on top of UE measurement accuracy:</u></p> <p><u>Absolute tests:</u></p> <p><u>Test 1:</u></p> <p><u>Max TT= $I_{O_{max}} - I_{O_{nominal}}$</u></p> <p><u>$I_{O_{nominal}} = -51.15$ dBm</u></p>

Test	Test Parameters in TS 25.133	Test Tolerance (TT)	Test Requirement in TS 34.121
			<p><u>$I_{o_{max}} = I_{oc_{max}} + I_{or_{max}} = (-53.5 \text{ dBm} + 1 \text{ dB}) + (-52.5 \text{ dBm} - 1.45 \text{ dB} + 0.3 \text{ dB}) = -50.0 \text{ dBm}$</u></p> <p><u>$\Rightarrow \text{Max TT} = 1.15 \text{ dB}$</u></p> <p><u>$\text{Min TT} = I_{o_{min}} - I_o$</u></p> <p><u>$I_{o_{min}} = I_{oc_{min}} + I_{or_{min}} = (-53.5 \text{ dBm} - 1 \text{ dB}) + (-54.5 \text{ dBm} - 1.45 \text{ dB} - 0.3 \text{ dB}) = -52.3 \text{ dBm}$</u></p> <p><u>$\Rightarrow \text{Min TT} = -1.15 \text{ dB}$</u></p> <p><u>Test 2:</u></p> <p><u>$\text{Max TT} = I_{o_{max}} - I_{o_{nominal}}$</u></p> <p><u>$I_{o_{nominal}} = -67.9 \text{ dBm}$</u></p> <p><u>$I_{o_{max}} = I_{oc_{max}} + I_{or_{max}} = (-69.27 \text{ dBm} + 1 \text{ dB}) + (-68.27 \text{ dBm} - 4.4 \text{ dB} + 0.3 \text{ dB}) = -66.8 \text{ dBm}$</u></p> <p><u>$\Rightarrow \text{Max TT} = 1.1 \text{ dB}$</u></p> <p><u>$\text{Min TT} = I_{o_{min}} - I_o$</u></p> <p><u>$I_{o_{min}} = I_{oc_{min}} + I_{or_{min}} = (-69.27 \text{ dBm} - 1 \text{ dB}) + (-70.27 \text{ dBm} - 4.4 \text{ dB} - 0.3 \text{ dB}) = -69.0 \text{ dBm}$</u></p> <p><u>$\Rightarrow \text{Min TT} = -1.1 \text{ dB}$</u></p> <p><u>Test 3 (Band I):</u></p> <p><u>$\text{Max TT} = I_{o_{max}} - I_{o_{nominal}}$</u></p> <p><u>$I_{o_{nominal}} = -93 \text{ dBm}$</u></p> <p><u>$I_{o_{max}} = I_{oc_{max}} + I_{or_{max}} + N_o = (-93.46 \text{ dBm} + 1 \text{ dB}) + (-92.46 \text{ dBm} - 9.24 \text{ dB} + 0.3 \text{ dB}) + -99 \text{ dBm} = -91.2$</u></p> <p><u>$\Rightarrow \text{Max TT} = 1.8 \text{ dB}$</u></p> <p><u>$\text{Min TT} = I_{o_{min}} - I_o$</u></p> <p><u>$I_{o_{min}} = I_{oc_{min}} + I_{or_{min}} = (-93.46 \text{ dBm} - 1 \text{ dB}) + (-94.46 \text{ dBm} - 9.24 \text{ dB} - 0.3 \text{ dB}) = -94.0 \text{ dBm}$</u></p> <p><u>$\Rightarrow \text{Min TT} = -1.0 \text{ dB}$</u></p> <p><u>The same TT for Band II and Band III</u></p> <p><u>Relative tests:</u></p> <p><u>Test 3 (Band I):</u></p> <p><u>$\text{TT} = \pm 10 \log (I_{o1_{max}} / I_{o2_{min}})$</u></p> <p><u>$I_{o1_{max}} = I_{oc1_{max}} + I_{or1_{max}} + N_o =$</u></p>

Test	Test Parameters in TS 25.133	Test Tolerance (TT)	Test Requirement in TS 34.121
			<p><u>$(-93.46 \text{ dBm} + 1 \text{ dB}) + (-92.46 \text{ dBm} - 9.24 \text{ dB} + 0.3 \text{ dB}) + -99 \text{ dBm} = -91.16 \text{ dBm}$</u></p> <p><u>$I_{o2_min} = I_{oc2_min} + I_{or2_min} + N_o = (-92.46 \text{ dBm} - 0.3 \text{ dB}) + (-92.76 \text{ dBm} - 9.24 \text{ dB} - 0.3 \text{ dB}) + -99 \text{ dBm} = -91.46 \text{ dBm}$</u></p> <p><u>$\Rightarrow TT = \pm 0.3 \text{ dB}$</u></p> <p><u>For a UE with very good NF impact of N_o shall be neglected. Then the same calculations give $TT = \pm 0.4 \text{ dB}$</u></p> <p><u>Hence the final $TT = \pm 0.4 \text{ dB}$</u></p> <p><u>The same TT for Band II and Band III</u></p>
8.7.3B Transport channel BLER	TBD		
8.7.3C UE Transmitted power	Accuracy upper limit Accuracy lower limit Depends on PUEMAX see table 8.7.3C.2.1	0.7 dB	Formula: Upper accuracy limit + TT Lower accuracy limit - TT Add and subtract TT to all the values in table 8.7.3C.2.1.
8.7.4 SFN-CFN observed time difference	TBD		
8.7.5 SFN-SFN observed time difference	TBD		
8.7.6 UE Rx-Tx time difference	<p>$I_o - 10.9 \text{ dB} = I_{oc}$, Test 1: $I_o = -94 \text{ dBm}$ Test2 : $I_o = -72 \text{ dBm}$ Test3 : $I_o = -50 \text{ dBm}$</p> <p>Timing Accuracy $\pm 1.5 \text{ chip}$</p>	<p>1 dB for I_{oc}</p> <p>0.3 dB for I_{or}/I_{oc}</p> <p>[0.5 chip for timing accuracy]</p>	<p>Test 1: $I_o = -92.7 \text{ dBm}$, $I_{oc} = -103.6 \text{ dBm}$</p> <p>Formula: $I_{oc} * (1 - TT_{I_{oc}} + (I_{or}/I_{oc} - TT_{I_{or}/I_{oc}})) \geq -94$</p> <p>Test 2: unchanged (no critical RF parameters)</p> <p>Test 3: $I_o = -51.3 \text{ dBm}$, $I_{oc} = -62.2 \text{ dBm}$</p> <p>Formula: $I_{oc} * (1 + TT_{I_{oc}} + (I_{or}/I_{oc} + TT_{I_{or}/I_{oc}})) \leq -50$</p> <p>Timing accuracy $[\pm 2.0] \text{ chip}$</p> <p>Formulas: Upper limit +TT Lower limit -TT</p>
8.7.7 Observed time difference to GSM cell	TBD		
8.7.8 P-CCPCH RSCP	TBD		

CHANGE REQUEST

34.121 CR 373 # rev **-** # Current version: **5.3.1**

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 FDD/FDD Soft Handover test cases		
Source:	# Nokia		
Work item code:	# TEI	Date:	# 12/05/2004
Category:	# F	Release:	# Rel-5
	Use <u>one</u> of the following categories: F (correction) A (corresponds to a correction in an earlier release) B (addition of feature), C (functional modification of feature) D (editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900 .		Use <u>one</u> of the following releases: 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:	# - Minimum requirements section (8.3.1.2) is missing one sentence from core specification (TS25.133). Also current 60 ms requirement is confusing since it has not been explained that it is only valid when using parameters as specified for given test - Initial conditions section (8.3.1.4.1) contains unnecessary duplication of test procedure that has been already explained in step 8 of test procedure section 8.3.1.4.2. Also RRC procedure delay mentioned in initial condition is not relevant for this test. - Parameter T4 in table 8.3.1.1.1 refers to wrong clause. - In table 8.3.1.1.2 the parameter value for OCNS is given with 3 decimals although core specification uses only 2 decimals. - The RF parameters referred in test procedure section do not include test tolerances. - There is an editor's note in test procedure section 8.3.1.4.2 that is not anymore valid. - Test procedure section 8.3.1.4.2 contains a table "Downlink DPCH info for each RL". There is a note 1 under this table and it is not clear to which IE's that note is referring. Also a typo exists in the same table. - Test tolerances are not included into test parameters. - Minimum test system uncertainties, test tolerances and derivation of test requirements have not been defined for FDD/FDD SHO test case in Annex F.
Summary of change:	# - Following sentence from TS 25.133 was added into minimum requirements: "If the UE have radio links in the active set that it can not use for data detection (due

to low signal level), the UE shall at least every 150 ms search for the radio link". Also it has been clarified that 60 ms requirement is valid only when using parameters as given in table 8.3.1.1.1.

- Unnecessary duplication of test procedure has been removed from initial conditions section (8.3.1.4.1). Also RRC procedure delay sentence has been removed from the same section.
- Reference to clause 5.1.2.2 has been replaced with reference to clause 8.3.1.2 in table 8.3.1.1.1
- OCNS value is given in two decimals instead of three in table 8.3.1.1.2
- Test procedure section now refers to table 8.3.1.1.3 that takes into account test tolerances.
- Editor's note has been removed from test procedure section
- Note 1 has been removed under the table "Downlink DPCH infor for each RL" since it was confusing. Typo corrected from the same table
- Table 8.3.1.1.3 has been added into Test Requirement section (8.3.1.5). This table includes test tolerances.
- Maximum test system uncertainties have been added into table F.1.5
- Test tolerances have been added into Table F.2.4
- Derivation of test requirements has been added into table F.4.4

Consequences if not approved: ⌘ - Good UE may fail the test since test tolerances are not taken into account. Incomplete test case.

Clauses affected: ⌘ 8.3.1, Annex F.1.5, Annex F.2.4, Annex F.4

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

Other comments: ⌘ This CR is applicable for UE's supporting Rel-99 or later.

8.3.1 FDD/FDD Soft Handover

8.3.1.1 Definition and applicability

The active set update delay of the UE is defined as the time from the end of the last TTI containing an RRC message implying soft handover to the switch off of the old downlink DPCH.

The requirements and this test apply to the FDD UE.

8.3.1.2 Minimum requirement

~~The active set update delay shall be less than 60 ms in CELL_DCH state.~~

The active set update delay is defined as the time from when the UE has received the ACTIVE SET UPDATE message from UTRAN, or at the time stated through the activation time when to perform the active set update, to the time when the UE successfully uses the set of radio links stated in that message for power control.

The active set update delay is depending on the number of known cells referred to in the ACTIVE SET UPDATE message. A cell is known if either or both of the following conditions are true:

- the UE has had radio links connected to the cell in the previous (old) active set.
- the cell has been measured by the UE during the last 5 seconds and the SFN of the cell has been decoded by the UE.

And the phase reference is the primary CPICH.

The active set update delay shall be less than $50+10*KC+100*OC$ ms, where

KC is the number of known cells in the active set update message.

OC is the number of cells that are not known in the active set update message.

If the UE have radio links in the active set that it can not use for data detection (due to low signal level), the UE shall at least every 150 ms search for the radio link.

The normative reference for this requirement is TS 25.133 [2] clauses 5.1.2 and A.5.1.1. The active set update delay shall be less than 60 ms in CELL_DCH state when using test parameters as given in table 8.3.1.1.1.

8.3.1.3 Test purpose

To verify that the UE meets the minimum requirement.

8.3.1.4 Method of test

8.3.1.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

The test parameters are given in table 8.3.1.1.1 and 8.3.1.1.2 below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 1A shall be used, and that CPICH Ec/Io and SFN-CFN observed time difference shall be reported together with Event 1A. The test consists of six successive time periods, with a time duration of T1, T2, T3, T4, T5 and T6 respectively. At the start of time duration T1, the UE may not have any timing information of cell 2.

~~UTRAN shall send an Active Set Update command with activation time "now", adding cell 2 to the active set. The Active Set Update message shall be sent to the UE so that the whole message is available at the UE at the beginning of T4. The RRC procedure delay is defined in TS 25.133 [2].~~

Table 8.3.1.1.1: General test parameters for Soft handover

Parameter		Unit	Value	Comment
DCH parameters			DL and UL Reference Measurement Channel 12.2 kbps	As specified in clause C.3.1 and C.2.1
Power Control			On	
Target quality value on DTCH		BLER	0.01	
Initial conditions	Active cell		Cell 1	
	Neighbouring cell		Cell 2	
Final condition	Active cell		Cell 2	
Reporting range		dB	3	Applicable for event 1A and 1B
Hysteresis		dB	0	
W			1	Applicable for event 1A and 1B
Reporting deactivation threshold			0	Applicable for event 1A
Time to Trigger		ms	0	
Filter coefficient			0	
T1		s	5	
T2		s	3	
T3		s	0.5	
T4		ms	60	This is the requirement on active set update delay, see clause 8.3.1.2 5.1.2.2 , where KC=1 and OC=0.
T5		s	10	
T6		s	2	

Table 8.3.1.1.2: Cell specific test parameters for Soft handover

Parameter	Unit	Cell 1						Cell 2					
		T1	T2	T3	T4	T5	T6	T1	T2	T3	T4	T5	T6
CPICH_Ec/I _{or}	dB	-10						-10					
PCCPCH_Ec/I _{or}	dB	-12						-12					
SCH_Ec/I _{or}	dB	-12						-12					
PICH_Ec/I _{or}	dB	-15						-15					
DPCH_Ec/I _{or}	dB	Note1	Note1	Note1		N/A	N/A	N/A	N/A	Note3	Note1	Note1	
OCNS		Note2	Note2	Note2		-0.944	-0.944	-0.944	-0.944	Note2	Note2	Note2	
\hat{I}_{or}/I_{oc}	dB	0	2.91	2.91		2.91	2.91	-Inf	2.91	2.91	2.91	2.91	
I_{oc}	dBm/3.84 MHz	-70											
CPICH_Ec/I _o	dB	-13	-14	-14		-14	-14	-Inf	-14	-14	-14	-14	
Propagation Condition		AWGN											
Relative delay of paths received from cell 2 with respect to cell 1	chips	{-148 ... 148} Note 4											
Note 1: The DPCH level is controlled by the power control loop Note 2: The power of the OCNS channel that is added shall make the total power from the cell to be equal to I _{or} Note 3: The DPCH level is controlled by the power control loop. The initial power shall be set equal to the DPCH_Ec/I _{or} of Cell 1 at the end of T2. Note 4: The relative delay of the path from cell 2 with respect to cell 1 shall always be within ±148 chip.													

8.3.1.4.2 Procedure

- 1) The RF parameters are set up according to T1 [in table 8.3.1.1.3](#).
- 2) The UE is switched on.

- 3) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.4 without Compressed mode parameters.

~~[Editor's note: subclause 7.3.4 in TS 34.108 (Message sequence chart for Handover Test procedure) is not yet specified]~~

- 4) SS shall transmit a MEASUREMENT CONTROL message.
- 5) 5 seconds after step4 has completed, the SS shall switch the power settings from T1 to T2.
- 6) UE shall transmit a MEASUREMENT REPORT message triggered by event 1A containing the CFN-SFN observed time difference between cell 1 and cell 2.
- 7) At the beginning of T3 the downlink DPCH of cell 2 shall be activated.
- 8) SS shall send an ACTIVE SET UPDATE message with activation time "now ", adding cell 2 to the active set. The ACTIVE SET UPDATE message shall be sent to the UE so that the whole message is available at the UE at the beginning of T4.
- 9) At the beginning of T5 the DPCH from cell 1 shall be switched off.
- 10) The UE downlink BLER shall be measured during time period T6.
- 11) 5 seconds after step10 has completed, the UE is switched off. Any timing information of cell 2 is deleted in the UE.
- 12) BLER is measured during concatenated time periods T6. Repeat step 1-11 until the confidence level for BLER is achieved. This is defined in annex F.6.1.10

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message (step 4):

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements -RRC transaction identifier -Integrity check info	0 Not Present
Measurement Information elements -Measurement Identity -Measurement Command (10.3.7.46) -Measurement Reporting Mode (10.3.7.49) -Measurement Report Transfer Mode -Periodical Reporting / Event Trigger Reporting Mode -Additional measurements list (10.3.7.1)	1 Modify AM RLC Event trigger Not Present
-CHOICE <i>Measurement type</i> -Intra-frequency measurement (10.3.7.36) -Intra-frequency measurement objects list (10.3.7.33) -Intra-frequency measurement quantity (10.3.7.38) -Filter coefficient (10.3.7.9) -CHOICE mode -Measurement quantity -Intra-frequency reporting quantity (10.3.7.41)	Intra-frequency measurement Not Present 0 FDD CPICH_Ec/N0
-Reporting quantities for active set cells (10.3.7.5) -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator	No report TRUE (Note 1) TRUE FDD TRUE TRUE TRUE
-Reporting quantities for monitored set cells (10.3.7.5) -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator	No report TRUE (Note 1) TRUE FDD TRUE TRUE TRUE
-Reporting quantities for detected set cells (10.3.7.5)	Not Present
-Reporting cell status (10.3.7.61) -Measurement validity (10.3.7.51) -CHOICE report criteria -Intra-frequency measurement reporting criteria (10.3.7.39) -Parameters required for each event	Not Present Not Present Intra-frequency measurement reporting criteria 2
-Intra-frequency event identity -Triggering condition 2 -Reporting Range Constant -Cells forbidden to affect Reporting Range -W -Hysteresis -Threshold used frequency -Reporting deactivation threshold -Replacement activation threshold -Time to trigger -Amount of reporting -Reporting interval -Reporting cell status	Event 1A Active set cells and monitored set cells 3 dB Not Present 1.0 0 dB Not Present 0 Not Present 0 ms Infinity 0 ms (Note 2) Not Present
-Intra-frequency event identity -Triggering condition 1 -Reporting Range Constant -Cells forbidden to affect Reporting Range -W -Hysteresis -Threshold used frequency -Reporting deactivation threshold -Replacement activation threshold -Time to trigger	Event 1B Active set cells and monitored set cells 3 dB Not Present 1.0 0 dB Not Present Not Present Not Present 0 ms

Information Element/Group name	Value/Remark
-Amount of reporting -Reporting interval -Reporting cell status	Not Present Not Present Not Present
Physical channel information elements -DPCH compressed mode status info (10.3.6.34)	Not Present
Note 1: The SFN-CFN observed time difference is calculated from the OFF and Tm parameters contained in the IE "Cell synchronisation information", TS 25.331, clause 10.3.7.6. According to TS 25.331, 8.6.7.7, this IE is included in MEASUREMENT REPORT if IE "Cell synchronisation information reporting indicator" in IE "Cell reporting quantities" TS 25.331, clause 10.3.7.5 is set to TRUE in MEASUREMENT CONTROL.	
Note 2: Reporting interval = 0 ms means no periodical reporting	

ACTIVE SET UPDATE message (step 8):

Information Element/Group name	Type and reference	Value/Remark
Message Type	Message Type	
UE information elements		
RRC transaction identifier	RRC transaction identifier 10.3.3.36	0
Integrity check info	Integrity check info 10.3.3.16	Not Present
Integrity protection mode info	Integrity protection mode info 10.3.3.19	Not Present
Ciphering mode info	Ciphering mode info 10.3.3.5	Not Present
Activation time	Activation time 10.3.3.1	"now".
New U-RNTI	U-RNTI 10.3.3.47	Not Present
CN information elements		
CN Information info	CN Information info 10.3.1.3	Not Present
Phy CH information elements		
Uplink radio resources		
Maximum allowed UL TX power	Maximum allowed UL TX power 10.3.6.39	33 dBm
Downlink radio resources		
Radio link addition information		Radio link addition information required for each RL to add
>Radio link addition information	Radio link addition information 10.3.6.68	
Radio link removal information		Radio link removal information required for each RL to remove
>Radio link removal information	Radio link removal information 10.3.6.69	Not Present
TX Diversity Mode	TX Diversity Mode 10.3.6.86	None
SSDT information	SSDT information 10.3.6.77	Not Present

Radio link addition information

Information Element/Group name	Need	Multi	Type and reference	Value/Remark
Primary CPICH info	MP		Primary CPICH info 10.3.6.60	Same as defined in cell2
Downlink DPCH info for each RL	MP		Downlink DPCH info for each RL 10.3.6.21	See below
TFCI combining indicator	MP		TFCI combining indicator 10.3.6.81	FALSE
SCCPCH Information for FACH	OP		SCCPCH Information for FACH 10.3.6.70	Not Present

Downlink DPCH info for each RL

Information Element/Group name	Type and reference	Value/Remark
CHOICE mode		
>FDD		
>>Primary CPICH usage for channel estimation	Primary CPICH usage for channel estimation 10.3.6.62	Primary CPICH may be used
>>DPCH frame offset	Integer(0..38144 by step of 256)	This should be reflected by the IE " Cell synchronisation information" in received MEASUREMENT REPORT message
>>Secondary CPICH info	Secondary CPICH info 10.3.6.73	Not Present
>>DL channelisation code		
>>>Secondary scrambling code	Secondary scrambling code 10.3.6.74	Not Present
>>>Spreading factor	Integer(4, 8, 16, 32, 64, 128, 256, 512)	128
>>>Code number	Integer(0..Spreading factor - 1)	96
>>>Scrambling code change	Enumerated (code change, no code change)	No code change
>>TPC combination index	TPC combination index 10.3.6.85	0
>>SSDT Cell Identity	SSDT Cell Identity 10.3.6.76	Not Present
>>Closed loop timing adjustment mode	Integer(1, 2)	Not Present

NOTE 1: These IEs are present when the UE needs to listen to system information on FACH in CELL_DCH state.

8.3.1.5 Test requirements

Table 8.3.1.1.3: Cell specific test parameters for Soft handover

Parameter	Unit	Cell 1						Cell 2					
		T1	T2	T3	T4	T5	T6	T1	T2	T3	T4	T5	T6
CPICH Ec/Ior	dB	-9.3						-9.3					
PCCPCH Ec/Ior	dB	-11.3						-11.3					
SCH Ec/Ior	dB	-11.3						-11.3					
PICH Ec/Ior	dB	-14.3						-14.3					
DPCH Ec/Ior	dB	Note1	Note1	Note1	N/A	N/A	N/A	N/A	Note3	Note1	Note1		
OCNS		Note2	Note2	Note2	-1.13	-1.13	-1.13	-1.13	Note2	Note2	Note2		
\hat{I}_{or}/I_{oc}	dB	0	2.91	2.91	2.91	2.91	-Inf	2.91	2.91	2.91	2.91	2.91	
I_{oc}	dBm/ 3.84 MHz	-70											
CPICH Ec/Io	dB	-12.3	-13.3	-13.3	-13.3	-13.3	-Inf	-13.3	-13.3	-13.3	-13.3	-13.3	
Propagation Condition		AWGN											
Relative delay of paths received from cell 2 with respect to cell 1	chips	{-147.5 ... 147.5} Note 4											

Note 1: The DPCH level is controlled by the power control loop.
 Note 2: The power of the OCNS channel that is added shall make the total power from the cell to be equal to I_{or}
 Note 3: The DPCH level is controlled by the power control loop. The initial power shall be set equal to the DPCH Ec/Ior of Cell 1 at the end of T2.
 Note 4: The relative delay of the path from cell 2 with respect to cell 1 shall always be within -147.5 ... 147.5 chip.

-The average measured quality on the DTCH of the UE downlink during T6 shall be BLER =0.01±30%. (The final BLER shall be achieved by integrating over a number of repetitions of procedure step 10).

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

F.1.5 Requirements for support of RRM

Table F.1.5: Maximum Test System Uncertainty for Radio Resource Management Tests

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
8.2 Idle Mode Tasks		
8.2.2 Cell Re-Selection		
8.2.2.1 Scenario 1: Single carrier case	<p><u>During T1 and T2:</u></p> $\frac{CPICH - E_c}{I_{or}} \quad \pm 0.1 \text{ dB}$ $I_{oc} \quad \pm 1.0 \text{ dB}$ <p><u>During T1:</u></p> $I_{or} (2) \quad \pm 0.7 \text{ dB}$ $I_{or} (1, 3, 4, 5, 6) \text{ relative to } I_{or} (2) \quad \pm 0.3 \text{ dB}$ <p><u>During T2:</u></p> $I_{or} (1) \quad \pm 0.7 \text{ dB}$ $I_{or} (2, 3, 4, 5, 6) \text{ relative to } I_{or} (1) \quad \pm 0.3 \text{ dB}$	
	<p>Assumptions:</p> <p>a) The contributing uncertainties for $I_{or}(n)$, channel power ratio, and I_{oc} are derived according to ETR 273-1-2 [16], with a coverage factor of $k=2$.</p> <p>b) Within each cell, the uncertainty for $I_{or}(n)$, and channel power ratio are uncorrelated to each other.</p> <p>c) The relative uncertainties for $I_{or}(n)$ across different cells may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).</p> <p>d) Across different cells, the channel power ratio uncertainties may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).</p> <p>e) The uncertainty for I_{oc} and $I_{or}(n)$ may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).</p> <p>f) The absolute uncertainty of $I_{or}(2)$ at T1 and the relative uncertainty of $I_{or}(1, 3, 4, 5, 6)$, are uncorrelated to each other. Similarly, the absolute uncertainty of $I_{or}(1)$ at T2 and the relative uncertainty of $I_{or}(2, 3, 4, 5, 6)$, are uncorrelated to each other.</p> <p>An explanation of correlation between uncertainties, and of the rationale behind the assumptions, is recorded in 3GPP TR 34 902 [24].</p>	

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
8.2.2.2 Scenario 2: Multi carrier case	<p><u>Channel 1 during T1 and T2:</u></p> $\frac{CPICH - E_c}{I_{or}} \quad \pm 0.1 \text{ dB}$ $I_{oc}(1) \quad \pm 1.0 \text{ dB}$ <p><u>Channel 1 during T1:</u></p> $I_{or}(1) \quad \pm 0.7 \text{ dB}$ <p>$I_{or}(3, 4)$ relative to $I_{or}(1)$ $\pm 0.3 \text{ dB}$</p> <p><u>Channel 1 during T2:</u></p> $I_{or}(1) \quad \pm 0.7 \text{ dB}$ <p>$I_{or}(3, 4)$ relative to $I_{or}(1)$ $\pm 0.3 \text{ dB}$</p> <p><u>Channel 2 during T1 and T2:</u></p> $\frac{CPICH - E_c}{I_{or}} \quad \pm 0.1 \text{ dB}$ $I_{oc}(2) \quad \pm 1.0 \text{ dB}$ <p><u>Channel 2 during T1:</u></p> $I_{or}(2) \quad \pm 0.7 \text{ dB}$ <p>$I_{or}(5, 6)$ relative to $I_{or}(2)$ $\pm 0.3 \text{ dB}$</p> <p><u>Channel 2 during T2:</u></p> $I_{or}(2) \quad \pm 0.7 \text{ dB}$ <p>$I_{or}(5, 6)$ relative to $I_{or}(2)$ $\pm 0.3 \text{ dB}$</p>	
	<p>Assumptions:</p> <p>a) to e): Same as for the one-frequency test 8.2.2.1.</p> <p>f) The absolute uncertainty of $I_{or}(1)$ and the relative uncertainty of $I_{or}(3, 4)$, are uncorrelated to each other. Similarly, the absolute uncertainty of $I_{or}(2)$ and the relative uncertainty of $I_{or}(5, 6)$, are uncorrelated to each other.</p> <p>g) The absolute uncertainties for $I_{or}(1)$ and $I_{or}(2)$ may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).</p> <p>h) The absolute uncertainties for $I_{oc}(1)$ and $I_{oc}(2)$ may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).</p> <p>An explanation of correlation between uncertainties, and of the rationale behind the assumptions, is recorded in 3GPP TR 34 902 [24].</p>	

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
8.2.2.1 Scenario 1: Single carrier case	$\hat{I}_{or}/I_{oc} \quad \pm 0.3 \text{ dB}$ $I_{oc} \quad \pm 1.0 \text{ dB}$ $\frac{CPICH_E_c}{I_{or}} \quad \pm 0.1 \text{ dB}$	<p>0.1 dB uncertainty in CPICH_Ec ratio</p> <p>0.3 dB uncertainty in \hat{I}_{or}/I_{oc} based on power meter measurement after the combiner</p> <p>The absolute error of the AWGN is specified as 1.0 dB.</p>
8.2.2.2 Scenario 2: Multi carrier case	$\hat{I}_{or}/I_{oc} \quad \pm 0.3 \text{ dB}$ $I_{oc} \quad \pm 1.0 \text{ dB}$ $I_{oc1}/I_{oc2} \quad \pm 0.3 \text{ dB}$ $\frac{CPICH_E_c}{I_{or}} \quad \pm 0.1 \text{ dB}$	<p>0.1 dB uncertainty in CPICH_Ec ratio</p> <p>0.3 dB uncertainty in \hat{I}_{or}/I_{oc} based on power meter measurement after the combiner</p> <p>0.3 dB uncertainty in loc1/loc2 based on power meter measurement after the combiner</p> <p>Overall error for the CPICH_Ec/Io is the sum of the \hat{I}_{or}/I_{oc} ratio error and the CPICH_Ec/Ior ratio.</p> <p>The absolute error of the AWGN is specified as 1.0 dB.</p>
8.2.3 UTRAN to GSM Cell Re-Selection		
8.2.3.1 Scenario 1: Both UTRA and GSM level changed	$\hat{I}_{or}/I_{oc} \quad \pm 0.3 \text{ dB}$ $I_{oc}/RXLEV \quad \pm 0.3 \text{ dB}$ $I_{oc} \quad \pm 1.0 \text{ dB}$ $RXLEV \quad \pm 1.0 \text{ dB}$ $\frac{CPICH_E_c}{I_{or}} \quad \pm 0.1 \text{ dB}$	<p>0.1 dB uncertainty in CPICH_Ec ratio</p> <p>0.3 dB uncertainty in \hat{I}_{or}/I_{oc} based on power meter measurement after the combiner</p> <p>0.3 dB uncertainty in Ioc/RXLEV based on power meter measurement after the combiner</p> <p>The absolute error of the AWGN is specified as 1.0 dB.</p> <p>The absolute error of the RXLEV is specified as 1.0 dB.</p>

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
8.2.3.2 Scenario 2: Only UTRA level changed	\hat{I}_{or}/I_{oc} ±0.3 dB $I_{oc}/RXLEV$ ±0.3 dB I_{oc} ±1.0 dB $RXLEV$ ±1.0 dB $\frac{CPICH - E_c}{I_{or}}$ ±0.1 dB	Same as 8.2.3.1
8.2.4 FDD/TDD cell re-selection	\hat{I}_{or}/I_{oc} ±0.3 dB I_{oc} ±1.0 dB I_{oc1}/I_{oc2} ±0.3 dB $\frac{CPICH - E_c}{I_{or}}$ ±0.1 dB	Same as 8.2.2.2
8.3 UTRAN Connected Mode Mobility		
8.3.1 FDD/FDD Soft Handover	<p>TDD During T1 and T2/T3/T4/T5/T6: $\frac{CPICH - E_c}{I_{or}}$ ±0.1 dB $I_{or} (1)$ ±0.7 dB I_{oc} ±1.0 dB <u>Relative delay of paths received from cell 2 with respect to cell 1: ±0.5 chips</u> <u>During T1:</u> <u>Already covered above</u> <u>During T2/T3/T4/T5/T6:</u> $I_{or} (2)$ relative to $I_{or} (1)$ ±0.3 dB</p> <p><u>Assumptions:</u> a) <u>The contributing uncertainties for lor(n), channel power ratio, and loc are derived according to ETR 273-1-2 [16], with a coverage factor of k=2.</u> b) <u>Within each cell, the uncertainty for lor(n), and channel power ratio are uncorrelated to each other.</u> c) <u>Across different cells, the channel power ratio uncertainties may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).</u> d) <u>The uncertainty for loc and lor(n) may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).</u> e) <u>The absolute uncertainty of lor(1) and the relative uncertainty of lor(2), are uncorrelated to each other.</u> <u>An explanation of correlation between uncertainties, and of the rationale behind the assumptions, is recorded in 3GPP TR 34 902 [24].</u></p>	
8.3.2 FDD/FDD Hard Handover		

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
8.3.2.1 Handover to intra-frequency cell	<p><u>During T1 and T2 / T3:</u></p> $\frac{CPICH - E_c}{I_{or}} \quad \pm 0.1 \text{ dB}$ $I_{or} (1) \quad \pm 0.7 \text{ dB}$ $I_{oc} \quad \pm 1.0 \text{ dB}$ <p><u>During T1:</u> Already covered above</p> <p><u>During T2 / T3:</u> $I_{or} (2)$ relative to $I_{or} (1) \pm 0.3 \text{ dB}$</p> <p>Assumptions:</p> <p>a) The contributing uncertainties for $I_{or}(n)$, channel power ratio, and I_{oc} are derived according to ETR 273-1-2 [16], with a coverage factor of $k=2$.</p> <p>b) Within each cell, the uncertainty for $I_{or}(n)$, and channel power ratio are uncorrelated to each other.</p> <p>c) Across different cells, the channel power ratio uncertainties may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).</p> <p>d) The uncertainty for I_{oc} and $I_{or}(n)$ may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).</p> <p>e) The absolute uncertainty of $I_{or}(1)$ and the relative uncertainty of $I_{or}(2)$, are uncorrelated to each other.</p> <p>An explanation of correlation between uncertainties, and of the rationale behind the assumptions, is recorded in 3GPP TR 34 902 [24].</p>	
8.3.2.2 Handover to inter-frequency cell	<p><u>Channel 1 during T1 and T2 / T3:</u></p> $\frac{CPICH - E_c}{I_{or}} \quad \pm 0.1 \text{ dB}$ $I_{or} (1) \quad \pm 0.7 \text{ dB}$ $I_{oc} (1) \quad \pm 1.0 \text{ dB}$ <p><u>Channel 2 during T1 and T2 / T3:</u> $I_{oc} (2) \quad \pm 1.0 \text{ dB}$</p> <p><u>Channel 2 during T1:</u> Already covered above</p> <p><u>Channel 2 during T2 / T3:</u></p> $\frac{CPICH - E_c}{I_{or}} \quad \pm 0.1 \text{ dB}$ $I_{or} (2) \quad \pm 0.7 \text{ dB}$	

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
	Assumptions: a) The contributing uncertainties for $I_{or}(n)$, channel power ratio, and I_{oc} are derived according to ETR 273-1-2 [16], with a coverage factor of $k=2$. b) Within each cell, the uncertainty for $I_{or}(n)$, and channel power ratio are uncorrelated to each other. c) Across different cells, the channel power ratio uncertainties may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated). d) The uncertainty for $I_{oc}(n)$ and $I_{or}(n)$ may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated). e) The absolute uncertainties for $I_{or}(1)$ and $I_{or}(2)$ may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated). f) The absolute uncertainties for $I_{oc}(1)$ and $I_{oc}(2)$ may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated). An explanation of correlation between uncertainties, and of the rationale behind the assumptions, is recorded in 3GPP TR 34 902 [24].	
8.3.3 FDD/TDD Handover	TBD	
8.3.4 Inter-system Handover from UTRAN FDD to GSM	TBD	
8.3.5 Cell Re-selection in CELL_FACH		
8.3.5.1 One frequency present in the neighbour list	During T1 and T2: $\frac{CPICH - E_c}{I_{or}} \quad \pm 0.1 \text{ dB}$ $I_{oc} \quad \pm 1.0 \text{ dB}$ During T1: $I_{or}(2) \quad \pm 0.7 \text{ dB}$ $I_{or}(1, 3, 4, 5, 6) \text{ relative to } I_{or}(2) \quad \pm 0.3 \text{ dB}$ During T2: $I_{or}(1) \quad \pm 0.7 \text{ dB}$ $I_{or}(2, 3, 4, 5, 6) \text{ relative to } I_{or}(1) \quad \pm 0.3 \text{ dB}$	

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
		<p>Assumptions:</p> <p>a) The contributing uncertainties for $\text{lor}(n)$, channel power ratio, and loc are derived according to ETR 273-1-2 [16], with a coverage factor of $k=2$.</p> <p>b) Within each cell, the uncertainty for $\text{lor}(n)$, and channel power ratio are uncorrelated to each other.</p> <p>c) The relative uncertainties for $\text{lor}(n)$ across different cells may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).</p> <p>d) Across different cells, the channel power ratio uncertainties may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).</p> <p>e) The uncertainty for loc and $\text{lor}(n)$ may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).</p> <p>f) The absolute uncertainty of $\text{lor}(2)$ at T1 and the relative uncertainty of $\text{lor}(1, 3, 4, 5, 6)$, are uncorrelated to each other. Similarly, the absolute uncertainty of $\text{lor}(1)$ at T2 and the relative uncertainty of $\text{lor}(2, 3, 4, 5, 6)$, are uncorrelated to each other.</p> <p>An explanation of correlation between uncertainties, and of the rationale behind the assumptions, is recorded in 3GPP TR 34 902 [24].</p>

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
8.3.5.2 Two frequencies present in the neighbour list	<p><u>Channel 1 during T1 and T2:</u></p> $\frac{CPICH - E_c}{I_{or}} \quad \pm 0.1 \text{ dB}$ $I_{oc}(1) \quad \pm 1.0 \text{ dB}$ <p><u>Channel 1 during T1:</u></p> $I_{or}(1) \quad \pm 0.7 \text{ dB}$ $I_{or}(3, 4) \text{ relative to } I_{or}(1) \quad \pm 0.3 \text{ dB}$ <p><u>Channel 1 during T2:</u></p> $I_{or}(1) \quad \pm 0.7 \text{ dB}$ $I_{or}(3, 4) \text{ relative to } I_{or}(1) \quad \pm 0.3 \text{ dB}$ <p><u>Channel 2 during T1 and T2:</u></p> $\frac{CPICH - E_c}{I_{or}} \quad \pm 0.1 \text{ dB}$ $I_{oc}(2) \quad \pm 1.0 \text{ dB}$ <p><u>Channel 2 during T1:</u></p> $I_{or}(2) \quad \pm 0.7 \text{ dB}$ $I_{or}(5, 6) \text{ relative to } I_{or}(2) \quad \pm 0.3 \text{ dB}$ <p><u>Channel 2 during T2:</u></p> $I_{or}(2) \quad \pm 0.7 \text{ dB}$ $I_{or}(5, 6) \text{ relative to } I_{or}(2) \quad \pm 0.3 \text{ dB}$	
	<p>Assumptions:</p> <p>a) to e): Same as for the one-frequency test 8.3.5.1.</p> <p>f) The absolute uncertainty of $I_{or}(1)$ and the relative uncertainty of $I_{or}(3, 4)$, are uncorrelated to each other. Similarly, the absolute uncertainty of $I_{or}(2)$ and the relative uncertainty of $I_{or}(5, 6)$, are uncorrelated to each other.</p> <p>g) The absolute uncertainties for $I_{or}(1)$ and $I_{or}(2)$ may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).</p> <p>h) The absolute uncertainties for $I_{oc}(1)$ and $I_{oc}(2)$ may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).</p> <p>An explanation of correlation between uncertainties, and of the rationale behind the assumptions is recorded in 3GPP TR 34 902 [24].</p>	
8.3.5.3 Cell Re-selection to GSM	TBD	
8.3.6 Cell Re-selection in CELL_PCH		
8.3.6.1 One frequency present in the neighbour list	Same as 8.2.2.1	Same as 8.2.2.1

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
8.3.6.2 Two frequencies present in the neighbour list	Same as 8.2.2.2	Same as 8.2.2.2
8.3.7 Cell Re-selection in URA_PCH		
8.3.7.1 One frequency present in the neighbour list	Same as 8.2.2.1	Same as 8.2.2.1
8.3.7.2 Two frequencies present in the neighbour list	Same as 8.2.2.2	Same as 8.2.2.2
8.4 RRC Connection Control		
8.4.1 RRC Re-establishment delay	TBD	
8.4.2 Random Access	<p>Settings.</p> $\hat{I}_{or}/I_{oc} \quad \pm 0.3 \text{ dB}$ $I_{oc} \quad \pm 1.0 \text{ dB}$ $\frac{AICH - E_c}{I_{or}} \quad \pm 0.1 \text{ dB}$ <p>Measurements: Power difference. $\pm 1 \text{ dB}$ Maximum Power: same as 5.5.2</p>	<p>0.1 dB uncertainty in AICH_Ec ratio</p> <p>0.3 dB uncertainty in \hat{I}_{or}/I_{oc} based on power meter measurement after the combiner</p> <p>Overall error is the sum of the \hat{I}_{or}/I_{oc} ratio error and the AICH_Ec/Ior ratio.</p> <p>The absolute error of the AWGN is specified as 1.0 dB</p> <p>Power difference: Assume symmetric meas error $\pm 1.0 \text{ dB}$ comprising RSS of: -0.7 dB downlink error plus -0.7 dB meas error.</p> <p>Maximum Power: Assume asymmetric meas error -1.0 dB / 0.7 dB comprising RSS of: -0.7 dB downlink error plus -0.7 dB meas error, and +0.7 dB for upper limit</p>
8.4.3 Transport format combination selection in UE	TBD	
8.5 Timing and Signalling Characteristics		
8.5.1 UE Transmit Timing	$I_{or} \quad \pm 1.0 \text{ dB}$ $I_{or1}/I_{or2} \quad \pm 0.3 \text{ dB}$ $\frac{DPCH - E_c}{I_{or}} \quad \pm 0.1 \text{ dB}$	<p>0.1 dB uncertainty in DPCH_Ec ratio</p> <p>0.3 dB uncertainty in Ior1/Ior2 based on power meter measurement after the combiner</p> <p>The absolute error of the Ior is specified as 1.0 dB.</p>
8.6 UE Measurements Procedures		
8.6.1 FDD intra frequency measurements		
8.6.1.1 Event triggered reporting in AWGN propagation conditions	TBD	
8.6.1.2 Event triggered reporting of multiple neighbours in AWGN propagation condition	TBD	
8.6.1.3 Event triggered reporting of two detectable neighbours in AWGN propagation condition	TBD	

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
8.6.1.4 Correct reporting of neighbours in fading propagation condition	TBD	
8.6.2 FDD inter frequency measurements		
8.6.2.1 Correct reporting of neighbours in AWGN propagation condition	TBD	
8.6.2.2 Correct reporting of neighbours in Fading propagation condition	TBD	
8.6.3 TDD measurements		
8.6.3.1 Correct reporting of TDD neighbours in AWGN propagation condition	TBD	
8.6.4 GSM Measurement	TBD	
8.7 Measurements Performance Requirements		
8.7.1 CPICH RSCP		
8.7.1.1 Intra frequency measurements accuracy	\hat{I}_{or}/I_{oc} ± 0.3 dB I_{oc} ± 1.0 dB $\frac{CPICH - E_c}{I_{or}}$ ± 0.1 dB	Same as 8.2.2.1
8.7.1.2 Inter frequency measurement accuracy	\hat{I}_{or}/I_{oc} ± 0.3 dB I_{oc} ± 1.0 dB I_{oc1}/I_{oc2} ± 0.3 dB $\frac{CPICH - E_c}{I_{or}}$ ± 0.1 dB	Same as 8.2.2.2
8.7.2 CPICH Ec/Io		
8.7.2.1 Intra frequency measurements accuracy	\hat{I}_{or}/I_{oc} ± 0.3 dB I_{oc} ± 1.0 dB $\frac{CPICH - E_c}{I_{or}}$ ± 0.1 dB	Same as 8.2.2.1
8.7.2.2 Inter frequency measurement accuracy	\hat{I}_{or}/I_{oc} ± 0.3 dB I_{oc} ± 1.0 dB I_{oc1}/I_{oc2} ± 0.3 dB $\frac{CPICH - E_c}{I_{or}}$ ± 0.1 dB	Same as 8.2.2.2
8.7.3 UTRA Carrier RSSI	\hat{I}_{or}/I_{oc} ± 0.3 dB I_{oc} ± 1.0 dB I_{oc1}/I_{oc2} ± 0.3 dB	<p>0.3 dB uncertainty in \hat{I}_{or}/I_{oc} based on power meter measurement after the combiner</p> <p>0.3 dB uncertainty in I_{oc1}/I_{oc2} based on power meter measurement after the combiner</p> <p>The absolute error of the AWGN is specified as 1.0 dB</p>
8.7.3A GSM Carrier RSSI	TBD	
8.7.3C UE Transmitted power	Mean power measurement $\pm 0,7$ dB	Downlink parameters are unimportant.
8.7.4 SFN-CFN observed time difference	TBD	
8.7.5 SFN-SFN observed time difference	TBD	

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
8.7.6 UE Rx-Tx time difference	\hat{I}_{or}/I_{oc} ± 0.3 dB I_{oc} ± 1.0 dB Rx-Tx Timing Accuracy $[\pm 0.5$ chip]	0.3 dB uncertainty in \hat{I}_{or}/I_{oc} based on power meter measurement after the combiner The absolute error of the AWGN is specified as 1.0 dB.
8.7.8 P-CCPCH RSCP	TBD	

F.1.6 Performance requirement (HSDPA)

Table F.1.6: Maximum Test System Uncertainty for Performance Requirements (HSDPA)

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
9.2.1 Single Link Performance	\hat{I}_{or}/I_{oc} ± 0.3 dB I_{oc} ± 1.0 dB $\frac{E_c}{I_{or}}$ ± 0.1 dB	0.1 dB uncertainty in E_c/I_{or} ratio 0.3 dB uncertainty in \hat{I}_{or}/I_{oc} based on power meter measurement after the combiner The absolute error of the AWGN loc is not important for any tests in clause 9 but is specified as 1.0 dB.
9.3.1 AWGN propagation conditions	No test system uncertainty applied	

F.2 Test Tolerances (This clause is informative)

The Test Tolerances defined in this clause have been used to relax the Minimum Requirements in the present document to derive the Test Requirements.

The Test Tolerances are derived from Test System uncertainties, regulatory requirements and criticality to system performance. As a result, the Test Tolerances may sometimes be set to zero.

The test tolerances should not be modified for any reason e.g. to take account of commonly known test system errors (such as mismatch, cable loss, etc.).

F.2.1 Transmitter

Table F.2.1: Test Tolerances for transmitter tests.

Clause	Test Tolerance
5.2 Maximum Output Power	0.7 dB
5.3 Frequency error	10 Hz
5.4.1 Open loop power control in uplink	1.0 dB
5.4.2 Inner loop power control in the uplink - One step	0.1 dB (1 dB and 0 dB step) 0.15 dB (2 dB step) 0.2 dB (3 dB step)
5.4.2 Inner loop power control in the uplink - seven and ten steps	0.3 dB
5.4.3 Minimum Output Power	1.0 dB
5.4.4 Out-of-synchronisation handling of output power: $\frac{DPCCH_E_c}{I_{or}}$	0.4 dB
5.4.4 Out-of-synchronisation handling of output power: transmit ON/OFF time	0 ms
5.5.1 Transmit OFF power	1.0 dB
5.5.2 Transmit ON/OFF time mask (dynamic case)	On power +0.7 dB / -1.0 dB Off power TT [] dB
5.6 Change of TFC: power control step size	0.3 dB
5.7 Power setting in uplink compressed mode:-UE output power	See subset of 5.4.2
5.8 Occupied Bandwidth	0 kHz
5.9 Spectrum emission mask	1.5 dB (0 dB for additional requirements for Band II)
5.10 ACLR	0.8 dB for ratio 0.0 dB for absolute power
5.11 Spurious emissions	0 dB
5.12 Transmit Intermodulation	0 dB
5.13.1 Transmit modulation: EVM	0%
5.13.2 Transmit modulation: peak code domain error	1.0 dB
5.13.4 PRACH preamble quality (EVM)	0%
5.13.4 PRACH preamble quality (Frequency error)	10 Hz

F.2.2 Receiver

Table F.2.2: Test Tolerances for receiver tests.

Clause	Test Tolerance
6.2 Reference sensitivity level	0.7 dB
6.3 Maximum input level:	0.7 dB for Ior
6.4 Adjacent channel selectivity	0 dB
6.5 Blocking characteristics	0 dB
6.6 Spurious Response	0 dB
6.7 Intermodulation Characteristics	0 dB
6.8 Spurious emissions	0 dB

F.2.3 Performance requirements

Table F.2.3: Test Tolerances for Performance Requirements.

Clause	Test Tolerance
7.2 Demodulation in Static Propagation Condition	0.3 dB for \hat{I}_{or}/I_{oc} 0.1 dB for DPCH_Ec/lor
7.3 Demodulation of DCH in multipath Fading Propagation conditions	0.6 dB for \hat{I}_{or}/I_{oc} 0.1 dB for DPCH_Ec/lor
7.4 Demodulation of DCH in Moving Propagation conditions	0.6 dB for \hat{I}_{or}/I_{oc} 0.1 dB for DPCH_Ec/lor
7.5 Demodulation of DCH in Birth-Death Propagation conditions	0.6 dB for \hat{I}_{or}/I_{oc} 0.1 dB for DPCH_Ec/lor
7.6.1 Demodulation of DCH in open loop Transmit diversity mode	0.8 dB for \hat{I}_{or}/I_{oc} 0.1 dB for DPCH_Ec/lor
7.6.2 Demodulation of DCH in closed loop Transmit diversity mode	0.8 dB for \hat{I}_{or}/I_{oc} 0.1 dB for DPCH_Ec/lor
7.6.3, Demodulation of DCH in site selection diversity Transmission power control mode	0.8 dB for \hat{I}_{or}/I_{oc} 0.1 dB for DPCH_Ec/lor
7.7.1 Demodulation in inter-cell soft Handover conditions	0.8 dB for \hat{I}_{or}/I_{oc} 0.1 dB for DPCH_Ec/lor
7.7.2 Combining of TPC commands Test 1	0 dB for lor1, lor2 0.1 dB for DPCH_Ec/lor
7.7.2 Combining of TPC commands Test 2	0.8 dB for \hat{I}_{or}/I_{oc} 0.1 dB for DPCH_Ec/lor
7.8.1 Power control in downlink constant BLER target	0.6 dB for \hat{I}_{or}/I_{oc} 0.1 dB for DPCH_Ec/lor
7.8.2, Power control in downlink initial convergence	0.6 dB for \hat{I}_{or}/I_{oc} 0.1 dB for DPCH_Ec/lor
7.8.3, Power control in downlink: wind up effects	0.6 dB for \hat{I}_{or}/I_{oc} 0.1 dB for DPCH_Ec/lor
7.9 Downlink compressed mode	0.6 dB for \hat{I}_{or}/I_{oc} 0.1 dB for DPCH_Ec/lor
7.10 Blind transport format detection Tests 1, 2, 3	0.3 dB for \hat{I}_{or}/I_{oc} 0.1 dB for DPCH_Ec/lor
7.10 Blind transport format detection Tests 4, 5, 6	0.6 dB for \hat{I}_{or}/I_{oc} 0.1 dB for DPCH_Ec/lor
7.11 Demodulation of paging channel (PCH)	TBD
7.12 Detection of acquisition indicator (AI)	TBD

F.2.4 Requirements for support of RRM

Table F.2.4: Test Tolerances for Radio Resource Management Tests

Clause	Test Tolerance
8.2 Idle Mode Tasks	
8.2.2 Cell Re-Selection	

Clause	Test Tolerance
8.2.2.1 Scenario 1: Single carrier case	<p><u>During T1 and T2:</u> +0.60 dB for all Cell 1 and 2 Ec/Ior ratios -0.50 dB for all Cell 3, 4, 5, 6 Ec/Ior ratios +0.03 dB for Ior(3, 4, 5, 6)</p> <p><u>During T1:</u> -0.27 dB for Ior(1) +0.13 dB for Ior(2)</p> <p><u>During T2:</u> +0.13 dB for Ior(1) -0.27 dB for Ior(2)</p>
8.2.2.2 Scenario 2: Multi carrier case	<p><u>Channel 1 during T1 and T2:</u> +0.70 dB for all Cell 1 Ec/Ior ratios -0.80 dB for all Cell 3 and 4 Ec/Ior ratios</p> <p><u>Channel 1 during T1:</u> -0.01 dB for Ior(1) -0.01 dB for Ior(3, 4) No change for Ioc(1)</p> <p><u>Channel 1 during T2:</u> +0.75 dB for Ior(1) -0.05 dB for Ior(3, 4) -1.80 dB for Ioc(1)</p> <p><u>Channel 2 during T1 and T2:</u> +0.70 dB for all Cell 2 Ec/Ior ratios -0.80 dB for all Cell 5 and 6 Ec/Ior ratios</p> <p><u>Channel 2 during T1:</u> +0.75 dB for Ior(2) -0.05 dB for Ior(5, 6) -1.80 dB for Ioc(2)</p> <p><u>Channel 2 during T2:</u> -0.01 dB for Ior(2) -0.01 dB for Ior(5, 6) No change for Ioc(2)</p>
8.2.3 UTRAN to GSM Cell Re-Selection	
8.2.3.1 Scenario 1: Both UTRA and GSM level changed	0.3 dB for \hat{I}_{or}/I_{oc} 0.1 dB for CPICH_Ec/Ior 0.3 dB for Ioc/RXLEV
8.2.3.2 Scenario 2: Only UTRA level changed	0.3 dB for \hat{I}_{or}/I_{oc} 0.1 dB for CPICH_Ec/Ior 0.3 dB for Ioc/RXLEV
8.2.4 FDD/TDD cell re-selection	0.3 dB for \hat{I}_{or}/I_{oc} 0.1 dB for CPICH_Ec/Ior 0.3 dB for Ioc1/Ioc2
8.3 UTRAN Connected Mode Mobility	
8.3.1 FDD/FDD Soft Handover	<p><u>During T1 and T2/T3/T4/T5/T6:</u> +0.70 dB for all Cell 1 Ec/Ior ratios Relative delay: {-147.5 ... +147.5} chips</p> <p><u>During T1:</u> Already covered above</p> <p><u>During T2/T3/T4/T5/T6:</u> +0.70 dB for all Cell 2 Ec/Ior ratios</p>
8.3.2 FDD/FDD Hard Handover	

Clause	Test Tolerance
8.3.2.1 Handover to intra-frequency cell	<p><u>During T1 and T2 / T3:</u> +0.70 dB for all Cell 1 Ec/Ior ratios</p> <p><u>During T1:</u> Already covered above</p> <p><u>During T2 / T3:</u> +0.70 dB for all Cell 2 Ec/Ior ratios</p>
8.3.2.2 Handover to inter-frequency cell	<p><u>Channel 1 during T1 and T2 / T3:</u> +0.80 dB for all Cell 1 Ec/Ior ratios</p> <p><u>Channel 2 during T1:</u> Not applicable</p> <p><u>Channel 2 during T2 / T3:</u> +0.80 dB for all Cell 2 Ec/Ior ratios</p>
8.3.3 FDD/TDD Handover	TBD
8.3.4 Inter-system Handover form UTRAN FDD to GSM	TBD
8.3.5 Cell Re-selection in CELL_FACH	
8.3.5.1 One frequency present in the neighbour list	<p><u>During T1 and T2:</u> +0.60 dB for all Cell 1 and 2 Ec/Ior ratios -0.50 dB for all Cell 3, 4, 5, 6 Ec/Ior ratios +0.03 dB for Ior(3, 4, 5, 6)</p> <p><u>During T1:</u> -0.27 dB for Ior(1) +0.13 dB for Ior(2)</p> <p><u>During T2:</u> +0.13 dB for Ior(1) -0.27 dB for Ior(2)</p>
8.3.5.2 Two frequencies present in the neighbour list	<p><u>Channel 1 during T1 and T2:</u> +0.60 dB for all Cell 1 Ec/Ior ratios -0.70 dB for all Cell 3 and 4 Ec/Ior ratios</p> <p><u>Channel 1 during T1:</u> +0.05 dB for Ior(1) +0.05 dB for Ior(3, 4) No change for Ioc(1)</p> <p><u>Channel 1 during T2:</u> +0.75 dB for Ior(1) -0.05 dB for Ior(3, 4) -1.60 dB for Ioc(1)</p> <p><u>Channel 2 during T1 and T2:</u> +0.60 dB for all Cell 2 Ec/Ior ratios -0.70 dB for all Cell 5 and 6 Ec/Ior ratios</p> <p><u>Channel 2 during T1:</u> +0.75 dB for Ior(2) -0.05 dB for Ior(5, 6) -1.60 dB for Ioc(2)</p> <p><u>Channel 2 during T2:</u> +0.05 dB for Ior(2) +0.05 dB for Ior(5, 6) No change for Ioc(2)</p>
8.3.6 Cell Re-selection in CELL_PCH	
8.3.6.1 One frequency present in the neighbour list	Same as 8.2.2.1
8.3.6.2 Two frequencies present in the neighbour list	Same as 8.2.2.2
8.3.7 Cell Re-selection in URA_PCH	

Clause	Test Tolerance
8.3.7.1 One frequency present in the neighbour list	Same as 8.2.2.1
8.3.7.2 Two frequencies present in the neighbour list	Same as 8.2.2.2
8.4 RRC Connection Control	
8.4.1 RRC Re-establishment delay	TBD
8.4.2 Random Access	Settings: 0.3 dB for \hat{I}_{or}/I_{oc} 0.1 dB for AICH_Ec/lor Measurements: Power difference: ± 1 dB Maximum Power: -1dB / +0.7dB
8.5 Timing and Signalling Characteristics	
8.5.1 UE Transmit Timing	TBD
8.6 UE Measurements Procedures	
8.6.1 FDD intra frequency measurements	
8.6.1.1 Event triggered reporting in AWGN propagation conditions	TBD
8.6.1.2 Event triggered reporting of multiple neighbours in AWGN propagation condition	TBD
8.6.1.3 Event triggered reporting of two detectable neighbours in AWGN propagation condition	TBD
8.6.1.4 Correct reporting of neighbours in fading propagation condition	TBD
8.6.2 FDD inter frequency measurements	
8.6.2.1 Correct reporting of neighbours in AWGN propagation condition	TBD
8.6.2.2 Correct reporting of neighbours in Fading propagation condition	TBD
8.6.3 TDD measurements	
8.6.3.1 Correct reporting of TDD neighbours in AWGN propagation condition	TBD
8.7 Measurements Performance Requirements	TBD
8.7.1 CPICH RSCP	
8.7.2.1 Intra frequency measurements accuracy	0.3 dB for \hat{I}_{or}/I_{oc} 0.1 dB for CPICH_Ec/lor 1.0 dB for loc
8.7.2.2 Inter frequency measurement accuracy	0.3 dB for \hat{I}_{or}/I_{oc} 0.1 dB for CPICH_Ec/lor 0.3 dB for loc1/loc2 1.0 dB for loc
8.7.2 CPICH Ec/Io	
8.7.1.1 Intra frequency measurements accuracy	0.3 dB for \hat{I}_{or}/I_{oc} 0.1 dB for CPICH_Ec/lor
8.7.1.2 Inter frequency measurement accuracy	0.3 dB for \hat{I}_{or}/I_{oc} 0.1 dB for CPICH_Ec/lor
8.7.3A UTRA Carrier RSSI	0.3 dB for \hat{I}_{or}/I_{oc} 1.0 dB for loc
8.7.3B Transport channel BLER	TBD
8.7.3C UE Transmitted power	0.7 dB for mean power measurement by test system
8.7.4 SFN-CFN observed time difference	
8.7.5 SFN-SFN observed time difference	

Clause	Test Tolerance
8.7.6 UE Rx-Tx time difference	0.3 dB for \hat{I}_{or}/I_{oc} 1.0 dB for loc [0.5 chip] for Rx-Tx Timing Accuracy
8.7.7 Observed time difference to GSM cell	TBD
8.7.8 P-CCPCH RSCP	TBD

F.2.5 Performance requirements (HSDPA)

Table F.2.5: Test Tolerances for Performance Requirements (HSDPA).

Clause	Test Tolerance
9.2.1 Single Link Performance	0.3 dB for \hat{I}_{or}/I_{oc} 0.1 dB for E_c/I_{or}

F.3 Interpretation of measurement results

The measurement results returned by the Test System are compared – without any modification – against the Test Requirements as defined by the shared risk principle.

The Shared Risk principle is defined in ETR 273-1-2 clause 6.5.

The actual measurement uncertainty of the Test System for the measurement of each parameter shall be included in the test report.

The recorded value for the Test System uncertainty shall be, for each measurement, equal to or lower than the appropriate figure in clause F.1 of the present document.

If the Test System for a test is known to have a measurement uncertainty greater than that specified in clause F.1, it is still permitted to use this apparatus provided that an adjustment is made value as follows.

Any additional uncertainty in the Test System over and above that specified in clause F.1 shall be used to tighten the Test Requirement – making the test harder to pass. (For some tests e.g. receiver tests, this may require modification of stimulus signals). This procedure will ensure that a Test System not compliant with clause F.1 does not increase the chance of passing a device under test where that device would otherwise have failed the test if a Test System compliant with clause F.1 had been used.

For some of the more complex tests e.g. RRM, deriving the overall test system uncertainty is not straightforward. In such cases the derivation is given in TR 34.902 [24] rather than in subclause F.1. If it is deemed necessary to apply the additional test system uncertainty rules to these tests, the formula for deriving the new overall uncertainty from any excess fundamental test system uncertainties, shall use the formulas provided in 34.902.

F.4 Derivation of Test Requirements (This clause is informative)

The Test Requirements in the present document have been calculated by relaxing the Minimum Requirements of the core specification using the Test Tolerances defined in clause F.2. When the Test Tolerance is zero, the Test Requirement will be the same as the Minimum Requirement. When the Test Tolerance is non-zero, the Test Requirements will differ from the Minimum Requirements, and the formula used for this relaxation is given in table F.4.

Table F.4.1: Derivation of Test Requirements (Transmitter tests)

Test	Minimum Requirement in TS 25.101	Test Tolerance (TT)	Test Requirement in TS 34.121
5.2 Maximum Output Power	Power class 1 (33 dBm) Tolerance = +1/-3 dB Power class 2 (27 dBm) Tolerance = +1/-3 dB Power class 3 (24 dBm) Tolerance = +1/-3 dB Power class 4 (21 dBm) Tolerance = ± 2 dB	0.7 dB	Formula: Upper Tolerance limit + TT Lower Tolerance limit – TT For power classes 1-3: Upper Tolerance limit = +1.7 dB Lower Tolerance limit = -3.7 dB For power class 4: Upper Tolerance limit = +2.7 dB Lower Tolerance limit = -2.7 dB
5.3 Frequency Error	The UE modulated carrier frequency shall be accurate to within ± 0.1 ppm compared to the carrier frequency received from the Node B.	10 Hz	Formula: modulated carrier frequency error + TT modulated carrier frequency error = $\pm(0.1 \text{ ppm} + 10 \text{ Hz})$.
5.4.1 Open loop power control in the uplink	Open loop power control tolerance ± 9 dB (Normal) Open loop power control tolerance ± 12 dB (Normal)	1.0 dB	Formula: Upper Tolerance limit + TT Lower Tolerance limit – TT For Normal conditions: Upper Tolerance limit = +10 dB Lower Tolerance limit = -10 dB For Extreme conditions: Upper Tolerance limit = +13 dB Lower Tolerance limit = -13 dB
5.4.2 Inner loop power control in uplink	See table 5.4.2.1 and 5.4.2.2	0.1dB 0.15 dB 0.2 dB 0.3 dB	Formula: Upper Tolerance limit + TT Lower Tolerance limit – TT
5.4.3 Minimum Output Power	UE minimum transmit power shall be less than -50 dBm	1.0 dB	Formula: UE minimum transmit power + TT UE minimum transmit power = -49 dBm

Test	Minimum Requirement in TS 25.101	Test Tolerance (TT)	Test Requirement in TS 34.121
5.4.4 Out-of-synchronisation handling of output power:	$\frac{DPCCH_E_c}{I_{or}}$ levels AB: -22 dB BD: -28 dB DE: -24 dB EF: -18 dB transmit ON/OFF time 200ms $\frac{DPDCH_E_c}{I_{or}} = -16.6$ dB $I_{oc} - 60$ dBm $\hat{I}_{or}/I_{oc} = -1$ dB	0.4 dB for $\frac{DPCCH_E_c}{I_{or}}$ 0 ms for timing measurement	Formulas: Ratio between A and B + TT Ratio between B and D – TT Ratio between D and E – TT Ratio between E and F + TT transmit ON/OFF time + TT timing $\frac{DPDCH_E_c}{I_{or}} = -16.6$ dB $I_{oc} - 60$ dBm $\hat{I}_{or}/I_{oc} = -1$ dB $\frac{DPCCH_E_c}{I_{or}}$ levels: AB: -21.6 dB BD: -28.4 dB DE: -24.4 dB EF: -17.6 dB transmit ON/OFF time 200ms timing Uncertainty of OFF power measurement is handled by Transmit OFF power test and uncertainty of ON power measurement is handled by Minimum output power test.
5.5.1 Transmit OFF power (static case)	Transmit OFF power shall be less than -56 dBm	1.0 dB	Formula: Transmit OFF power + TT Transmit OFF power = -55dBm.
5.5.2 Transmit ON/OFF time mask (dynamic case)	Transmit ON power shall be the target value as defined in clause 5.5.2.2 Transmit OFF power shall be less than -56 dBm	On power upper TT = 0.7 dB On power lower TT = 1.0 dB Off power TT [] dB	Formula for transmit ON power: Transmit ON power target upper limit + On power upper TT Transmit ON power target lower limit - On power lower TT To calculate Transmit ON power target value range take the nominal TX power range from Table 5.5.2.3 then apply table 5.4.1.1 open limits then apply table 5.7.1 (only if there has been a transmission gap) then cap the upper value using table 5.2.1. Formula for transmit OFF power: Transmit OFF power + Off power TT Transmit OFF power = [] dBm
5.6 Change of TFC: power control step size	TFC step size = +5 to +9 dB	0.3 dB	Formula: Upper Tolerance limit + TT Lower Tolerance limit – TT Upper limit = -4.7 dB Lower limit = -9.3 dB
5.7 Power setting in uplink compressed mode	Various	TBD (Subset of 5.4.2)	TBD

Test	Minimum Requirement in TS 25.101	Test Tolerance (TT)	Test Requirement in TS 34.121		
5.8 Occupied Bandwidth	The occupied channel bandwidth shall be less than 5 MHz based on a chip rate of 3.84 Mcps.	0 kHz	Formula: occupied channel bandwidth: + TT occupied channel bandwidth = 5.0 MHz		
5.9 Spectrum emission mask	Minimum requirement defined in TS25.101 Table 6.10. The lower limit shall be -50 dBm / 3.84 MHz or which ever is higher.	1.5 dB	Formula: Minimum requirement + TT Lower limit + TT Add 1.5 to Minimum requirement entries in TS25.101 Table 6.10. Zero test tolerance is applied for Additional requirements for Band II due to FCC regulatory requirements. The lower limit shall be -48.5 dBm / 3.84 MHz or which ever is higher.		
5.10 Adjacent Channel Leakage Power Ratio (ACLR)	If the adjacent channel power is greater than -50 dBm then the ACLR shall be higher than the values specified below.	0.0 dB	Formula: Absolute power threshold + TT		
	Power Classes 3 and 4: UE channel +5 MHz or -5 MHz, ACLR limit: 33 dB UE channel +10 MHz or -10 MHz, ACLR limit: 43 dB	0.8 dB	Formula: ACLR limit - TT Power Classes 3 and 4: UE channel +5 MHz or -5 MHz, ACLR limit: 32.2 dB UE channel +10 MHz or -10 MHz, ACLR limit: 42.2 dB		
5.11 Spurious Emissions			Formula: Minimum Requirement+ TT Add zero to all the values of Minimum Requirements in table 5.11.1a and 5.11.1b.		
	Frequency Band	Minimum Requirement	Frequency Band	Minimum Requirement	
	9 kHz ≤ f < 150 kHz	-36dBm /1kHz	0 dB	9kHz ≤ f < 1GHz	-36dBm /1kHz
	150 kHz ≤ f < 30 MHz	-36dBm /10kHz	0 dB	150 kHz ≤ f < 30 MHz	-36dBm /10kHz
	30 MHz ≤ f < 1000 MHz	-36dBm /100kHz	0 dB	30 MHz ≤ f < 1000 MHz	-36dBm /100kHz
	1 GHz ≤ f < 12.75 GHz	-30dBm /1MHz	0 dB	1 GHz ≤ f < 2.2 GHz	-30dBm /1MHz
			0 dB	2.2 GHz ≤ f < 4 GHz	-30dBm /1MHz
			0 dB	4 GHz ≤ f < 12.75 GHz	-30dBm /1MHz
	1893.5 MHz < f < 1919.6 MHz	-41dBm /300kHz	0 dB	1893.5 MHz < f < 1919.6 MHz	-41dBm /300kHz
	925 MHz ≤ f ≤ 935 MHz	-67dBm /100kHz	0 dB	925 MHz ≤ f ≤ 935 MHz	-67dBm /100kHz
935 MHz < f ≤ 960 MHz	-79dBm /100kHz	0 dB	935 MHz < f ≤ 960 MHz	-79dBm /100kHz	
1805 MHz ≤ f ≤ 1880 MHz	-71dBm /100kHz	0 dB	1805 MHz ≤ f ≤ 1880 MHz	-71dBm /100kHz	
5.12 Transmit Intermodulation	Intermodulation Product 5MHz -31 dBc 10MHz -41 dBc CW Interferer level = -40 dBc	0 dB	Formula: CW interferer level – TT/2 Intermod Products limits remain unchanged. CW interferer level = -40 dBc		
5.13.1 Transmit modulation: EVM	The measured EVM shall not exceed 17.5%.	0%	Formula: EVM limit + TT EVM limit = 17.5 %		
5.13.2 Transmit modulation: peak code domain error	The measured Peak code domain error shall not exceed -15 dB.	1.0 dB	Formula: Peak code domain error + TT Peak code domain error = -14 dB		

Test	Minimum Requirement in TS 25.101	Test Tolerance (TT)	Test Requirement in TS 34.121
5.13.4 PRACH preamble quality (EVM)	The measured EVM shall not exceed 17.5%.	0%	Formula: EVM limit + TT EVM limit = 17.5 %
5.13.4 PRACH preamble quality (Frequency error)	The UE modulated carrier frequency shall be accurate to within ± 0.1 ppm compared to the carrier frequency received from the Node B.	10 Hz	Formula: modulated carrier frequency error + TT modulated carrier frequency error = $\pm(0.1 \text{ ppm} + 10 \text{ Hz})$.

Table F.4.2: Derivation of Test Requirements (Receiver tests)

Test	Minimum Requirement in TS 25.101	Test Tolerance (TT)	Test Requirement in TS 34.121		
6.2 Reference sensitivity level	$\hat{I}_{or} = -106.7 \text{ dBm} / 3.84 \text{ MHz}$ DPCH_Ec = -117 dBm / 3.84 MHz BER limit = 0.001	0.7 dB	Formula: $\hat{I}_{or} + TT$ DPCH_Ec + TT BER limit unchanged $\hat{I}_{or} = -106 \text{ dBm} / 3.84 \text{ MHz}$ DPCH_Ec = -116.3 dBm / 3.84 MHz		
6.3 Maximum input level	-25 dBm I_{or} -19 dBc DPCH_Ec/ I_{or}	0.7 dB	Formula: $I_{or} - TT$ $I_{or} = -25.7 \text{ dBm}$		
6.4 Adjacent Channel Selectivity	$\hat{I}_{or} = -92.7 \text{ dBm} / 3.84 \text{ MHz}$ DPCH_Ec = -103 dBm / 3.84 MHz $I_{oac}(\text{modulated}) = -52 \text{ dBm} / 3.84 \text{ MHz}$ BER limit = 0.001	0 dB	Formula: \hat{I}_{or} unchanged DPCH_Ec unchanged $I_{oac} - TT$ BER limit unchanged $I_{oac} = -52 \text{ dBm} / 3.84 \text{ MHz}$		
6.5 Blocking Characteristics	See Table 6.5.3 and 6.5.4. in TS34.121 BER limit = 0.001	0 dB	Formula: $I_{\text{blocking}}(\text{modulated}) - TT \text{ (dBm} / 3.84 \text{ MHz)}$ $I_{\text{blocking}}(\text{CW}) - TT \text{ (dBm)}$ BER limit unchanged		
6.6 Spurious Response	$I_{\text{blocking}}(\text{CW}) -44 \text{ dBm}$ Fuw: Spurious response frequencies BER limit = 0.001	0 dB	Formula: $I_{\text{blocking}}(\text{CW}) - TT \text{ (dBm)}$ Fuw unchanged BER limit unchanged $I_{\text{blocking}}(\text{CW}) = -44 \text{ dBm}$		
6.7 Intermodulation Characteristics	$I_{ouw1}(\text{CW}) -46 \text{ dBm}$ $I_{ouw2}(\text{modulated}) -46 \text{ dBm} / 3.84 \text{ MHz}$ Fuw1 (offset) 10 MHz Fuw2 (offset) 20 MHz $I_{or} = -103.7 \text{ dBm} / 3.84 \text{ MHz}$ DPCH_Ec = -114 dBm/3.84 BER limit = 0.001	0 dB	Formula: $I_{or} + TT$ DPCH_Ec + TT I_{ouw1} level unchanged I_{ouw2} level unchanged BER limit unchanged. $I_{or} = -114 \text{ dBm}$ BER limit. = 0.001		
6.8 Spurious Emissions			Formula: Maximum level + TT Add zero to all the values of Maximum Level in table 6.8.1.		
	Frequency Band	Maximum level	Frequency Band	Maximum level	
	9kHz $\leq f < 1\text{GHz}$	-57dBm /100kHz	0 dB	9kHz $\leq f < 1\text{GHz}$	-57dBm /100kHz
	1GHz $\leq f \leq 12.75\text{GHz}$	-47dBm /1MHz	0 dB	1GHz $\leq f \leq 2.2\text{GHz}$	-47dBm /1MHz
			0 dB	2.2GHz $< f \leq 4\text{GHz}$	-47dBm /1MHz
			0 dB	4GHz $< f \leq 12.75\text{GHz}$	-47dBm /1MHz
	1920MHz $\leq f \leq 1980\text{MHz}$	-60dBm /3.84MHz	0 dB	1920MHz $\leq f \leq 1980\text{MHz}$	-60dBm /3.84MHz
2110MHz $\leq f \leq 2170\text{MHz}$	-60dBm /3.84MHz	0 dB	2110MHz $\leq f \leq 2170\text{MHz}$	-60dBm /3.84MHz	

Table F.4.3: Derivation of Test Requirements (Performance tests)

Test	Minimum Requirement in TS 25.101	Test Tolerance (TT)	Test Requirement in TS 34.121
7.2 Demodulation of DPCH in static conditions	$\frac{DPCH_E_c}{I_{or}} \text{ -5.5 to -16.6 dB}$ $I_{oc} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = -1 \text{ dB}$	0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.3 dB for \hat{I}_{or}/I_{oc}	Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ $I_{oc} \text{ unchanged}$ $\hat{I}_{or}/I_{oc} = -0.7 \text{ dB}$ $\frac{DPCH_E_c}{I_{or}} \text{ -5.4 to -16.5 dB:}$
7.3 Demodulation of DPCH in multi-path fading propagation conditions Tests 1-4	$\frac{DPCH_E_c}{I_{or}} \text{ -2.2 to -15.0}$ $I_{oc} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = 9 \text{ dB to -3 dB}$	0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.6 dB for \hat{I}_{or}/I_{oc}	Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} + \text{ratio} + \text{TT}$ $I_{oc} \text{ unchanged}$ $\hat{I}_{or}/I_{oc} = 9.6 \text{ to } -2.4 \text{ dB}$ $\frac{DPCH_E_c}{I_{or}} \text{ -2.1 to -14.9 dB:}$
7.3 Demodulation of DPCH in multi-path fading propagation conditions Tests 5-8	$\frac{DPCH_E_c}{I_{or}} \text{ -3.2 to -7.7 dB}$ $I_{oc} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = 6 \text{ dB to -3 dB}$	0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.6 dB for \hat{I}_{or}/I_{oc}	Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ $I_{oc} \text{ unchanged}$ $\hat{I}_{or}/I_{oc} = 6.6 \text{ to } -2.4 \text{ dB}$ $\frac{DPCH_E_c}{I_{or}} \text{ -3.1 to -7.6 dB:}$
7.3 Demodulation of DPCH in multi-path fading propagation conditions Tests 9-12	$\frac{DPCH_E_c}{I_{or}} \text{ -4.4 to -11.8 dB}$ $I_{oc} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = 6 \text{ dB to -3 dB}$	0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.6 dB for \hat{I}_{or}/I_{oc}	Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ $I_{oc} \text{ unchanged}$ $\hat{I}_{or}/I_{oc} = 6.6 \text{ to } -2.4 \text{ dB}$ $\frac{DPCH_E_c}{I_{or}} \text{ -4.3 to -11.7 dB:}$

Test	Minimum Requirement in TS 25.101	Test Tolerance (TT)	Test Requirement in TS 34.121
7.3 Demodulation of DPCH in multi-path fading propagation conditions Tests 13-16	$\frac{DPCH_E_c}{I_{or}} -2.2 \text{ to } -15.0 \text{ dB}$ $I_{oc} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = 9 \text{ dB}$	0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.6 dB for \hat{I}_{or}/I_{oc}	Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ $I_{oc} \text{ unchanged}$ $\hat{I}_{or}/I_{oc} = 9.6$ $\frac{DPCH_E_c}{I_{or}} -2.1 \text{ to } -14.9 \text{ dB:}$
7.3 Demodulation of DPCH in multi-path fading propagation conditions Tests 17-20	$\frac{DPCH_E_c}{I_{or}} -1.4 \text{ to } -8.8 \text{ dB}$ $I_{oc} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = 6 \text{ to } -3 \text{ dB}$	0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.6 dB for \hat{I}_{or}/I_{oc}	Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ $I_{oc} \text{ unchanged}$ $\hat{I}_{or}/I_{oc} = 6.6 \text{ to } -2.4 \text{ dB}$ $\frac{DPCH_E_c}{I_{or}} -1.3 \text{ to } -8.7 \text{ dB:}$
7.4 Demodulation of DPCH in moving propagation conditions	$\frac{DPCH_E_c}{I_{or}} -10.9 \text{ to } -14.5$ $I_{oc} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = -1 \text{ dB}$	0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.6 dB for \hat{I}_{or}/I_{oc}	Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ $I_{oc} \text{ unchanged}$ $\hat{I}_{or}/I_{oc} = -0.4 \text{ dB}$ $\frac{DPCH_E_c}{I_{or}} -10.8 \text{ to } -14.4 \text{ dB:}$
7.5 Demodulation of DPCH birth-death propagation conditions	$\frac{DPCH_E_c}{I_{or}} -8.7 \text{ to } -12.6 \text{ dB}$ $I_{oc} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = -1 \text{ dB}$	0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.6 dB for \hat{I}_{or}/I_{oc}	Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ $I_{oc} \text{ unchanged}$ $\hat{I}_{or}/I_{oc} = -0.4 \text{ dB}$ $\frac{DPCH_E_c}{I_{or}} -18.6 \text{ to } -12.5 \text{ dB:}$

Test	Minimum Requirement in TS 25.101	Test Tolerance (TT)	Test Requirement in TS 34.121
7.6.1 Demodulation of DPCH in transmit diversity propagation conditions	$\frac{DPCH_E_c}{I_{or}} -16.8 \text{ dB}$ $I_{oc} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = 9 \text{ dB}$	0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.8 dB for \hat{I}_{or}/I_{oc}	Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ $I_{oc} \text{ unchanged}$ $\hat{I}_{or}/I_{oc} = 9.8 \text{ dB}$ $\frac{DPCH_E_c}{I_{or}} -16.7 \text{ dB:}$
7.6.2 Demodulation of DCH in closed loop Transmit diversity mode	$\frac{DPCH_E_c}{I_{or}} -18 \text{ to } -18.3 \text{ dB}$ $I_{oc} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = 9 \text{ dB}$	0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.8 dB for \hat{I}_{or}/I_{oc}	Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ $I_{oc} \text{ unchanged}$ $\hat{I}_{or}/I_{oc} = 9.8 \text{ dB}$ $\frac{DPCH_E_c}{I_{or}} -17.9 \text{ to } -18.2 \text{ dB:}$
7.6.3, Demodulation of DCH in site selection diversity Transmission power control mode	$\frac{DPCH_E_c}{I_{or}} -5.0 \text{ to } -10.5 \text{ dB}$ $I_{oc} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = 0 \text{ to } -3 \text{ dB}$	0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.8 dB for \hat{I}_{or}/I_{oc}	Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ $I_{oc} \text{ unchanged}$ $\hat{I}_{or}/I_{oc} = 0.8 \text{ to } -2.2 \text{ dB}$ $\frac{DPCH_E_c}{I_{or}} -4.9 \text{ to } -10.4 \text{ dB:}$
7.7.1 Demodulation in inter-cell soft Handover	$\frac{DPCH_E_c}{I_{or}} -5.5 \text{ to } -15.2 \text{ dB}$ $I_{oc} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = \text{lor2}/\text{loc} = 6 \text{ to } 0 \text{ dB}$	0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.8 dB for \hat{I}_{or}/I_{oc}	Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ $I_{oc} \text{ unchanged}$ $\hat{I}_{or}/I_{oc} = 6.8 \text{ to } 0.8 \text{ dB}$ $\frac{DPCH_E_c}{I_{or}} -5.4 \text{ to } -15.4 \text{ dB:}$

Test	Minimum Requirement in TS 25.101	Test Tolerance (TT)	Test Requirement in TS 34.121
7.7.2 Combining of TPC commands Test 1	$\frac{DPCH_E_c}{I_{or}} -12 \text{ dB}$ lor1 and lor2 -60dBm	0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0dB for lor1 and lor2	Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\frac{DPCH_E_c}{I_{or}} = -11,9 \text{ dB}$: lor1 = -60dBm lor2 = -60dBm The absolute levels of lor1 and lor2 are not important to this test.
7.7.2 Combining of TPC commands Test 2	$\frac{DPCH_E_c}{I_{or}} -12 \text{ dB}$ $I_{oc} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = 0 \text{ dB}$	0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.8 dB for \hat{I}_{or}/I_{oc}	Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ I_{oc} unchanged $\hat{I}_{or}/I_{oc} = 0.8 \text{ dB}$ $\frac{DPCH_E_c}{I_{or}} -11,9 \text{ dB}$:
7.8.1 Power control in downlink constant BLER target	$\frac{DPCH_E_c}{I_{or}} -9 \text{ to } -16 \text{ dB}$ $I_{oc} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = 9 \text{ to } -1 \text{ dB}$	0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.6 dB for \hat{I}_{or}/I_{oc}	Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ I_{oc} unchanged $\hat{I}_{or}/I_{oc} = 9.6 \text{ to } -0.4 \text{ dB}$ $\frac{DPCH_E_c}{I_{or}} -8.9 \text{ to } -15.9 \text{ dB}$:
7.8.2, Power control in downlink initial convergence	$\frac{DPCH_E_c}{I_{or}} -8.1 \text{ to } -18.9 \text{ dB}$ $I_{oc} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = -1 \text{ dB}$	0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.6 dB for \hat{I}_{or}/I_{oc}	Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ I_{oc} unchanged $\hat{I}_{or}/I_{oc} = -0.4 \text{ dB}$ $\frac{DPCH_E_c}{I_{or}} -8.0 \text{ to } -18.8 \text{ dB}$:

Test	Minimum Requirement in TS 25.101	Test Tolerance (TT)	Test Requirement in TS 34.121
7.8.3, Power control in downlink: wind up effects	$\frac{DPCH_E_c}{I_{or}} -13.3 \text{ dB}$ $I_{oc} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = 5 \text{ dB}$	0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.6 dB for \hat{I}_{or}/I_{oc}	Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ $I_{oc} \text{ unchanged}$ $\hat{I}_{or}/I_{oc} = 5.6 \text{ dB}$ $\frac{DPCH_E_c}{I_{or}} -13.2 \text{ dB:}$
7.9 Downlink compressed mode	$\frac{DPCH_E_c}{I_{or}}$ Test 1 -14.6 dB Test 3 -15.2 dB $I_{oc} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = 9 \text{ dB}$	0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.6 dB for \hat{I}_{or}/I_{oc}	Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ $I_{oc} \text{ unchanged}$ $\hat{I}_{or}/I_{oc} = 9.6 \text{ dB}$ $\frac{DPCH_E_c}{I_{or}}$ Test 1 -14.5 dB Test 3 -15.1 dB:
7.10 Blind transport format detection Tests 1, 2, 3	$\frac{DPCH_E_c}{I_{or}} -17.7 \text{ to } -18.4 \text{ dB}$ $I_{oc} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = -1 \text{ dB}$	0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.3 dB for \hat{I}_{or}/I_{oc}	Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ $I_{oc} \text{ unchanged}$ $\hat{I}_{or}/I_{oc} = -0.7 \text{ dB}$ $\frac{DPCH_E_c}{I_{or}} -17.6 \text{ to } -18.3 \text{ dB:}$
7.10 Blind transport format detection Tests 4, 5, 6	$\frac{DPCH_E_c}{I_{or}} -13.0 \text{ to } -13.8 \text{ dB}$ $I_{oc} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = -3 \text{ dB}$	0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.6 dB for \hat{I}_{or}/I_{oc}	Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ $I_{oc} \text{ unchanged}$ $\hat{I}_{or}/I_{oc} = -2.4 \text{ dB}$ $\frac{DPCH_E_c}{I_{or}} -12.9 \text{ to } -13.7 \text{ dB:}$
7.11 Demodulation of paging channel (PCH)	TBD		
7.12 Detection of acquisition indicator (AI)	TBD		

Table F.4.4: Derivation of Test Requirements (RRM tests)

Test	Test Parameters in TS 25.133	Test Tolerance (TT)	Test Requirement in TS 34.121
8.2 Idle Mode Tasks			
8.2.2 Cell Re-Selection			
8.2.2.1 Scenario 1: Single carrier case	Because the relationships between the Test system uncertainties and the Test Tolerances are complex, it is not possible to give a simple derivation of the Test Requirement in this document. The analysis is recorded in 3GPP TR 34 902 [24].		
	<u>During T1 and T2:</u> Cells 1 and 2: CPICH_Ec/Ior = -10 dB PCCPCH_Ec/Ior = -12 dB SCH_Ec/Ior = -12 dB PICH_Ec/Ior = -15 dB Cells 3, 4, 5, 6: CPICH_Ec/Ior = -10 dB PCCPCH_Ec/Ior = -12 dB SCH_Ec/Ior = -12 dB PICH_Ec/Ior = -15 dB Ior(3, 4, 5, 6) = -69.73 dBm	<u>During T1 and T2:</u> +0.60 dB +0.60 dB +0.60 dB +0.60 dB -0.50 dB -0.50 dB -0.50 dB -0.50 dB +0.03 dB for Ior(3, 4, 5, 6)	<u>During T1 and T2:</u> Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ior(3, 4, 5, 6) + TT
	<u>During T1:</u> Ior(1) = -62.73 dBm Ior(2) = -59.73 dBm	<u>During T1:</u> -0.27 dB for Ior(1) +0.13 dB for Ior(2)	<u>During T1:</u> Ior(1) + TT Ior(2) + TT
	<u>During T2:</u> Ior(1) = -59.73 dBm Ior(2) = -62.73 dBm	<u>During T2:</u> +0.13 dB for Ior(1) -0.27 dB for Ior(2)	<u>During T2:</u> Ior(1) + TT Ior(2) + TT
8.2.2.2 Scenario 2: Multi carrier case	Because the relationships between the Test system uncertainties and the Test Tolerances are complex, it is not possible to give a simple derivation of the Test Requirement in this document. The analysis is recorded in 3GPP TR 34 902 [24].		
	<u>Channel 1 during T1 and T2:</u> Cell 1: CPICH_Ec/Ior = -10 dB PCCPCH_Ec/Ior = -12 dB SCH_Ec/Ior = -12 dB PICH_Ec/Ior = -15 dB Cells 3 and 4: CPICH_Ec/Ior = -10 dB PCCPCH_Ec/Ior = -12 dB SCH_Ec/Ior = -12 dB PICH_Ec/Ior = -15 dB	<u>Channel 1 during T1 and T2:</u> +0.70 dB +0.70 dB +0.70 dB +0.70 dB -0.80 dB -0.80 dB -0.80 dB -0.80 dB	<u>Channel 1 during T1 and T2:</u> Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT
	<u>Channel 1 during T1:</u> Ior(1) = -73.39 dBm Ior(3, 4) = -77.39 dBm Ioc(1) = -70.00 dBm	<u>Channel 1 during T1:</u> -0.01 dB for Ior(1) -0.01 dB for Ior(3,4) 0.00 dB for Ioc(1)	<u>Channel 1 during T1:</u> Ior(1) + TT Ior(3, 4) + TT Ioc(1) + TT
	<u>Channel 1 during T2:</u> Ior(1) = -67.75 dBm Ior(3, 4) = -74.75 dBm Ioc(1) = -70.00 dBm	<u>Channel 1 during T2:</u> +0.75 dB for Ior(1) -0.05 dB for Ior(3, 4) -1.80 dB for Ioc(1)	<u>Channel 1 during T2:</u> Ior(1) + TT Ior(3, 4) + TT Ioc(1) + TT

Test	Test Parameters in TS 25.133	Test Tolerance (TT)	Test Requirement in TS 34.121
	<p><u>Channel 2 during T1 and T2:</u></p> <p>Cell 2: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB</p> <p>Cells 5 and 6: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB</p>	<p><u>Channel 2 during T1 and T2:</u></p> <p>+0.70 dB +0.70 dB +0.70 dB +0.70 dB</p> <p>-0.80 dB -0.80 dB -0.80 dB -0.80 dB</p>	<p><u>Channel 2 during T1 and T2:</u></p> <p>Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT</p> <p>Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT</p>
	<p><u>Channel 2 during T1:</u></p> <p>lor(2) = -67.75 dBm lor(5, 6) = -74.75 dBm loc(2) = -70.00 dBm</p>	<p><u>Channel 2 during T1:</u></p> <p>+0.75 dB for lor(2) -0.05 dB for lor(5, 6) -1.80 dB for loc(2)</p>	<p><u>Channel 2 during T1:</u></p> <p>lor(2) + TT lor(5, 6) + TT loc(2) + TT</p>
	<p><u>Channel 2 during T2:</u></p> <p>lor(2) = -73.39 dBm lor(5, 6) = -77.39 dBm loc(2) = -70.00 dBm</p>	<p><u>Channel 2 during T2:</u></p> <p>-0.01 dB for lor(2) -0.01 dB for lor(5,6) 0.00 dB for loc(2)</p>	<p><u>Channel 2 during T2:</u></p> <p>lor(2) + TT lor(5, 6) + TT loc(2) + TT</p>
8.2.3 UTRAN to GSM Cell Re-Selection	TBD		
8.2.3.1 Scenario 1: Both UTRA and GSM level changed	<p>$\frac{CPICH_E_c}{I_{or}} = -10$ dB</p> <p>lor/loc = 0 dB</p>	<p>0.1 dB for $\frac{CPICH_E_c}{I_{or}}$</p> <p>0.3 dB for lor/loc</p> <p>0.3 dB for loc/RXLEV</p>	<p>Formulas:</p> <p>$\frac{CPICH_E_c}{I_{or}} = \text{ratio} + TT$</p> <p>lor/loc = ratio + TT</p> <p>$(\text{loc/Rxlev})_{\text{test requirement}} = (\text{loc/Rxlev})_{\text{minimum requirement}} + TT$</p> <p>lor/loc = 0.3 dB</p> <p>$\frac{CPICH_E_c}{I_{or}} = -9.9$ dB:</p>
	<p>$\frac{CPICH_E_c}{I_{or}} = -10$ dB</p> <p>lor/loc = -5 dB</p>	<p>0.1 dB for $\frac{CPICH_E_c}{I_{or}}$</p> <p>0.3 dB for lor/loc</p> <p>0.3 dB for loc/RXLEV</p>	<p>Formulas:</p> <p>$\frac{CPICH_E_c}{I_{or}} = \text{ratio} - TT$</p> <p>lor/loc = ratio - TT</p> <p>$(\text{loc/Rxlev})_{\text{test requirement}} = (\text{loc/Rxlev})_{\text{minimum requirement}} - TT$</p> <p>lor/loc = -5.3 dB</p> <p>$\frac{CPICH_E_c}{I_{or}} = -10.1$ dB:</p>

Test	Test Parameters in TS 25.133	Test Tolerance (TT)	Test Requirement in TS 34.121
8.2.3.2 Scenario 2: Only UTRA level changed	$\frac{CPICH_E_c}{I_{or}} = -10$ dB lor/loc = 20 dB	0.1 dB for $\frac{CPICH_E_c}{I_{or}}$ 0.3 dB for lor/loc 0.3 dB for loc/RXLEV	Formulas: $\frac{CPICH_E_c}{I_{or}} = \text{ratio} + TT$ lor/loc = ratio + TT (loc/Rxlev) _{test requirement} = (loc/Rxlev) _{minimum requirement} + TT lor/loc = 20.3 dB $\frac{CPICH_E_c}{I_{or}} = -9.9$ dB:
	$\frac{CPICH_E_c}{I_{or}} = -10$ dB lor/loc = 20 dB	0.1 dB for $\frac{CPICH_E_c}{I_{or}}$ 0.3 dB for lor/loc 0.3 dB for loc/RXLEV	Formulas: $\frac{CPICH_E_c}{I_{or}} = \text{ratio} + TT$ lor/loc = ratio + TT (loc/Rxlev) _{test requirement} = (loc/Rxlev) _{minimum requirement} + TT lor/loc = 20.3 dB $\frac{CPICH_E_c}{I_{or}} = -9.9$ dB:
8.2.4 FDD/TDD cell re-selection	TBD		
8.3 UTRAN Connected Mode Mobility	TBD		
8.3.1 FDD/FDD Soft Handover	TBD Because the relationships between the Test system uncertainties and the Test Tolerances are complex, it is not possible to give a simple derivation of the Test Requirement in this document. The analysis is recorded in 3GPP TR 34 902 [24].		
	During T1 and T2/T3/T4/T5/T6: Cell 1: CPICH Ec/lor = -10 dB PCCPCH Ec/lor = -12 dB SCH Ec/lor = -12 dB PICH Ec/lor = -15 dB Relative delay of paths received from cell 2 with respect to cell 1 = {-148 ... 148} chips	During T1 and T2/T3/T4/T5/T6: +0.70 dB +0.70 dB +0.70 dB +0.70 dB 0.5 chips	During T1 and T2/T3/T4/T5/T6: Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT {-148+TT ... 148-TT} chips
	During T1: Already covered above	During T1: Covered above	During T1: Already covered above
	During T2/T3/T4/T5/T6: Cell 2: CPICH Ec/lor = -10 dB PCCPCH Ec/lor = -12 dB SCH Ec/lor = -12 dB PICH Ec/lor = -15 dB	During T2/T3/T4/T5/T6: +0.70 dB +0.70 dB +0.70 dB +0.70 dB	During T2/T3/T4/T5/T6: Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT
8.3.2 FDD/FDD Hard Handover			

Test	Test Parameters in TS 25.133	Test Tolerance (TT)	Test Requirement in TS 34.121
8.3.2.1 Handover to intra-frequency cell	Because the relationships between the Test system uncertainties and the Test Tolerances are complex, it is not possible to give a simple derivation of the Test Requirement in this document. The analysis is recorded in 3GPP TR 34 902 [24].		
	<u>During T1 and T2 / T3:</u> Cell 1: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB	<u>During T1 / T2 / T3:</u> +0.70 dB +0.70 dB +0.70 dB +0.70 dB	<u>During T1 and T2 / T3:</u> Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT
	<u>During T1:</u> Already covered above	<u>During T1:</u> Covered above	<u>During T1:</u> Already covered above
	<u>During T2 / T3:</u> Cell 2: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB	<u>During T2 / T3:</u> +0.70 dB +0.70 dB +0.70 dB +0.70 dB	<u>During T2 / T3:</u> Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT
8.3.2.2 Handover to inter-frequency cell	Because the relationships between the Test system uncertainties and the Test Tolerances are complex, it is not possible to give a simple derivation of the Test Requirement in this document. The analysis is recorded in 3GPP TR 34 902 [24].		
	<u>Channel 1 during T1 and T2 / T3:</u> Cell 1: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB	<u>Channel 1 during T1 and T2 / T3:</u> +0.80 dB +0.80 dB +0.80 dB +0.80 dB	<u>Channel 1 during T1 and T2 / T3:</u> Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT
	<u>Channel 2 during T1:</u> Not applicable	<u>Channel 2 during T1:</u> Not applicable	<u>Channel 2 during T1:</u> Not applicable
	<u>Channel 2 during T2 / T3:</u> Cell 2: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB	<u>Channel 2 during T2 / T3:</u> +0.80 dB +0.80 dB +0.80 dB +0.80 dB	<u>Channel 2 during T2 / T3:</u> Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT
8.3.3 FDD/TDD Handover	TBD		
8.3.4 Inter-system Handover form UTRAN FDD to GSM	TBD		
8.3.5 Cell Re-selection in CELL_FACH			
8.3.5.1 One frequency present in the neighbour list	Because the relationships between the Test system uncertainties and the Test Tolerances are complex, it is not possible to give a simple derivation of the Test Requirement in this document. The analysis is recorded in 3GPP TR 34 902 [24].		

Test	Test Parameters in TS 25.133	Test Tolerance (TT)	Test Requirement in TS 34.121
	<u>During T1 and T2:</u> Cells 1 and 2: CPICH_Ec/Ior = -10 dB PCCPCH_Ec/Ior = -12 dB SCH_Ec/Ior = -12 dB PICH_Ec/Ior = -15 dB S-CCPCH_Ec/Ior = -12 dB Cells 3, 4, 5, 6: CPICH_Ec/Ior = -10 dB PCCPCH_Ec/Ior = -12 dB SCH_Ec/Ior = -12 dB PICH_Ec/Ior = -15 dB S-CCPCH_Ec/Ior = -12 dB Ior(3, 4, 5, 6) = -69.73 dBm	<u>During T1 and T2:</u> +0.60 dB +0.60 dB +0.60 dB +0.60 dB +0.60 dB -0.50 dB -0.50 dB -0.50 dB -0.50 dB -0.50 dB +0.03 dB for Ior(3, 4, 5, 6)	<u>During T1 and T2:</u> Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ior(3, 4, 5, 6) + TT
	<u>During T1:</u> Ior(1) = -62.73 dBm Ior(2) = -59.73 dBm	<u>During T1:</u> -0.27 dB for Ior(1) +0.13 dB for Ior(2)	<u>During T1:</u> Ior(1) + TT Ior(2) + TT
	<u>During T2:</u> Ior(1) = -59.73 dBm Ior(2) = -62.73 dBm	<u>During T2:</u> +0.13 dB for Ior(1) -0.27 dB for Ior(2)	<u>During T2:</u> Ior(1) + TT Ior(2) + TT
8.3.5.2 Two frequencies present in the neighbour list	Because the relationships between the Test system uncertainties and the Test Tolerances are complex, it is not possible to give a simple derivation of the Test Requirement in this document. The analysis is recorded in 3GPP TR 34 902 [24].		
	<u>Channel 1 during T1 and T2:</u> Cell 1: CPICH_Ec/Ior = -10 dB PCCPCH_Ec/Ior = -12 dB SCH_Ec/Ior = -12 dB PICH_Ec/Ior = -15 dB S-CCPCH_Ec/Ior = -12 dB Cells 3 and 4: CPICH_Ec/Ior = -10 dB PCCPCH_Ec/Ior = -12 dB SCH_Ec/Ior = -12 dB PICH_Ec/Ior = -15 dB S-CCPCH_Ec/Ior = -12 dB	<u>Channel 1 during T1 and T2:</u> +0.60 dB +0.60 dB +0.60 dB +0.60 dB +0.60 dB -0.70 dB -0.70 dB -0.70 dB -0.70 dB -0.70 dB	<u>Channel 1 during T1 and T2:</u> Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT
	<u>Channel 1 during T1:</u> Ior(1) = -71.85 dBm Ior(3, 4) = -76.85 dBm Ioc(1) = -70.00 dBm	<u>Channel 1 during T1:</u> +0.05 dB for Ior(1) +0.05 dB for Ior(3,4) 0.00 dB for Ioc(1)	<u>Channel 1 during T1:</u> Ior(1) + TT Ior(3, 4) + TT Ioc(1) + TT
	<u>Channel 1 during T2:</u> Ior(1) = -67.75 dBm Ior(3, 4) = -74.75 dBm Ioc(1) = -70.00 dBm	<u>Channel 1 during T2:</u> +0.75 dB for Ior(1) -0.05 dB for Ior(3, 4) -1.60 dB for Ioc(1)	<u>Channel 1 during T2:</u> Ior(1) + TT Ior(3, 4) + TT Ioc(1) + TT

Test	Test Parameters in TS 25.133	Test Tolerance (TT)	Test Requirement in TS 34.121
	<p><u>Channel 2 during T1 and T2:</u></p> <p>Cell 2: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB S-CCPCH_Ec/lor = -12 dB</p> <p>Cells 5 and 6: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB S-CCPCH_Ec/lor = -12 dB</p>	<p><u>Channel 2 during T1 and T2:</u></p> <p>+0.60 dB +0.60 dB +0.60 dB +0.60 dB +0.60 dB</p> <p>-0.70 dB -0.70 dB -0.70 dB -0.70 dB -0.70 dB</p>	<p><u>Channel 2 during T1 and T2:</u></p> <p>Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT</p> <p>Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT</p>
	<p><u>Channel 2 during T1:</u></p> <p>lor(2) = -67.75 dBm lor(5, 6) = -74.75 dBm loc(2) = -70.00 dBm</p>	<p><u>Channel 2 during T1:</u></p> <p>+0.75 dB for lor(2) -0.05 dB for lor(5, 6) -1.60 dB for loc(2)</p>	<p><u>Channel 2 during T1:</u></p> <p>lor(2) + TT lor(5, 6) + TT loc(2) + TT</p>
	<p><u>Channel 2 during T2:</u></p> <p>lor(2) = -71.85 dBm lor(5, 6) = -76.85 dBm loc(2) = -70.00 dBm</p>	<p><u>Channel 2 during T2:</u></p> <p>+0.05 dB for lor(2) +0.05 dB for lor(5,6) 0.00 dB for loc(2)</p>	<p><u>Channel 2 during T2:</u></p> <p>lor(2) + TT lor(5, 6) + TT loc(2) + TT</p>
8.3.6 Cell Re-selection in CELL_PCH			
8.3.6.1 One frequency present in the neighbour list	<p>Same as 8.2.2.1</p> <p>$\frac{CPICH_E_c}{I_{or}} = -10$ dB</p> <p>$I_{oc} = -70$ dBm</p> <p>lor/loc = 10.27 dB</p> <p>Note: Parameters are valid for cell 1 at time T2 and cell 2 at time T1</p>	<p>Same as 8.2.2.1</p> <p>0.1 dB for $\frac{CPICH_E_c}{I_{or}}$</p> <p>0.3 dB for lor/loc</p>	<p>Same as 8.2.2.1</p> <p>Formulas:</p> <p>$\frac{CPICH_E_c}{I_{or}} = \text{ratio} + TT$</p> <p>lor/loc = ratio + TT</p> <p>loc unchanged</p> <p>lor/loc = 10.57 dB</p> <p>$\frac{CPICH_E_c}{I_{or}} - 9.9$ dB:</p>
8.3.6.2 Two frequencies present in the neighbour list	Same as 8.2.2.2	Same as 8.2.2.2	Same as 8.2.2.2

Test	Test Parameters in TS 25.133	Test Tolerance (TT)	Test Requirement in TS 34.121
	$\frac{CPICH_E_c}{I_{or}} = -10 \text{ dB}$ $I_{oc} = -70 \text{ dBm}$ <p>lor/loc = 2.2 dB</p> <p>Note: Parameters are valid for cell 1 at time T2 and cell 2 at time T1</p>	0.1 dB for $\frac{CPICH_E_c}{I_{or}}$ 0.3 dB for lor/loc	Formulas: $\frac{CPICH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\text{lor/loc} = \text{ratio} + \text{TT}$ <p>loc unchanged</p> <p>loc ratio unchanged</p> $\text{lor/loc} = 2.5 \text{ dB}$ $\frac{CPICH_E_c}{I_{or}} -9.9 \text{ dB:}$
8.3.7 Cell Re-selection in URA_PCH			
8.3.7.1 One frequency present in the neighbour list	Same as 8.2.2.1	Same as 8.2.2.1	Same as 8.2.2.1
8.3.7.2 Two frequencies present in the neighbour list	Same as 8.2.2.2	Same as 8.2.2.2	Same as 8.2.2.2
8.4 RRC Connection Control	TBD		
8.4.1 RRC Re-establishment delay	TBD		
8.4.2 Random Access	RACH power difference nominal 3dB ± 2dB UE setting uncertainty	Measurement TT: Power difference ± 1dB Maximum Power-1dB / +0.7dB	Test parameter settings unchanged. Power measurement: Upper limit +TT Lower limit -TT
8.5 Timing and Signalling Characteristics	TBD		
8.5.1 UE Transmit Timing	TBD		
8.6 UE Measurements Procedures	TBD		
8.6.1 FDD intra frequency measurements	TBD		
8.6.1.1 Event triggered reporting in AWGN propagation conditions	TBD		
8.6.1.2 Event triggered reporting of multiple neighbours in AWGN propagation condition	TBD		
8.6.1.3 Event triggered reporting of two detectable neighbours in AWGN propagation condition	TBD		
8.6.1.4 Correct reporting of neighbours in fading propagation condition	TBD		

Test	Test Parameters in TS 25.133	Test Tolerance (TT)	Test Requirement in TS 34.121
8.6.2 FDD inter frequency measurements	TBD		
8.6.2.1 Correct reporting of neighbours in AWGN propagation condition	TBD		
8.6.2.2 Correct reporting of neighbours in Fading propagation condition	TBD		
8.6.3 TDD measurements	TBD		
8.6.3.1 Correct reporting of TDD neighbours in AWGN propagation condition	TBD		
8.7 Measurements Performance Requirements	TBD		
8.7.1 CPICH RSCP	TBD		
8.7.1.1 Intra frequency measurements accuracy	TBD		
8.7.1.2 Inter frequency measurement accuracy	TBD		
8.7.2 CPICH Ec/Io			
8.7.1.1 Intra frequency measurements accuracy	see table 8.7.1.1.1.1 and table 8.7.1.1.1.2	± 1 dB for loc ± 0.3 dB for lor/loc ± 0.1 dB for....._Ec/lor	Any TT applied to the nominal setting shall fulfil: Test 1 (absolute and relative): lo shall not go below -69dBm Test 2 (absolute and relative): lo shall not go above -50 dBm Test 3 (absolute and relative): lo shall not go below -94 dBm lor/loc + TTTT on top of UE measurement accuracy: Absolute ± 1.0 dB for loc ± 0.3 dB for lor/loc ± 0.1 dB for CPICH_Ec/lor $\sum 1.4$ dB Relative ± 0.3 dB for lor/loc (cell1) ± 0.3 dB for lor/loc (cell2) ± 0.1 dB for CPICH_Ec/lor (cell1) ± 0.1 dB for CPICH_Ec/lor (cell2) $\sum 0.8$ dB
8.7.1.2 Inter frequency measurement accuracy	See table 8.7.1.2.1.1 and table 8.7.1.2.1.2	± 1 dB for loc ± 0.3 dB for loc1/loc2 ± 0.3 dB for lor/loc ± 0.1 dB for_Ec/lor	Any TT applied to the nominal setting shall fulfil: Test 1: lo shall not go above -50 dBm Test 2: lo shall not go below -94 dBm lor/loc + TTTT on top of UE measurement accuracy: ± 0.3 dB for loc1/loc2 ± 0.3 dB for lor/loc (cell1) ± 0.3 dB for lor/loc (cell2) ± 0.1 dB for CPICH_Ec/lor (cell1) ± 0.1 dB for CPICH_Ec/lor (cell2) $\sum 1.1$ dB
8.7.2 CPICH Ec/Io			

Test	Test Parameters in TS 25.133	Test Tolerance (TT)	Test Requirement in TS 34.121
8.7.2.1 Intra frequency measurements accuracy	table 8.7.2.1.1.1 and table 8.7.2.1.1.2	<p>± 1 dB for Ioc</p> <p>± 0.3 dB for Ior/Ioc</p> <p>± 0.1dB for_Ec/Ior</p>	<p>Any TT applied to the nominal setting shall fulfil:</p> <p>Test 1 (absolute and relative): I_o shall not go above -50 dBm</p> <p>Test 2 (absolute and relative): I_o shall not go below -87dBm</p> <p>Test 3 (absolute and relative): I_o shall not go below -94 dBm</p> <p>CPICH Ec/I_o shall stay in the UE accuracy ranges</p> <p>I_{or}/I_{oc} + TT</p> <p>TT on top of UE measurement accuracy:</p> <p>Absolute</p> <p style="padding-left: 40px;">± 0.3 dB for I_{or}/I_{oc}</p> <p style="padding-left: 40px;">± 0.1dB for CPICH_Ec/I_{or}</p> <p style="padding-left: 40px;">$\sum 0.4$dB</p> <p>Relative</p> <p style="padding-left: 40px;">I_{oc1}=I_{oc2}</p> <p style="padding-left: 40px;">± 0.3 dB for I_{or}/I_{oc} (cell1)</p> <p style="padding-left: 40px;">± 0.3 dB for I_{or}/I_{oc} (cell2)</p> <p style="padding-left: 40px;">± 0.1dB for CPICH_Ec/I_{or} (cell1)</p> <p style="padding-left: 40px;">± 0.1dB for CPICH_Ec/I_{or} (cell2)</p> <p style="padding-left: 40px;">$\sum 0.8$dB</p>

Test	Test Parameters in TS 25.133	Test Tolerance (TT)	Test Requirement in TS 34.121
8.7.2.2 Inter frequency measurement accuracy	table 8.7.2.2.2.1 and table 8.7.2.2.2.2	± 1 dB for Ioc ± 0.3 dB for Ioc1/Ioc2 ± 0.3 dB for Ior/Ioc ± 0.1 dB for_Ec/Ior	Any TT applied to the nominal setting shall fulfil: Test 1: Io shall not go above -50 dBm Test 2: Io shall not go below -87 dBm Test 3: Io shall not go below -94 dBm Ior/Ioc + TT TT on top of UE measurement accuracy: Ioc1=Ioc2. ± 0.3 dB for Ior/Ioc (cell1) ± 0.3 dB for Ior/Ioc (cell2) ± 0.1 dB for CPICH_Ec/Ior (cell1) ± 0.1 dB for CPICH_Ec/Ior (cell2) $\Sigma 0.8$ dB
8.7.3A UTRA Carrier RSSI	TBD		
8.7.3B Transport channel BLER	TBD		
8.7.3C UE Transmitted power	Accuracy upper limit Accuracy lower limit Depends on PUEMAX see table 8.7.3C.2.1	0.7 dB	Formula: Upper accuracy limit + TT Lower accuracy limit – TT Add and subtract TT to all the values in table 8.7.3C.2.1.
8.7.4 SFN-CFN observed time difference	TBD		
8.7.5 SFN-SFN observed time difference	TBD		

Test	Test Parameters in TS 25.133	Test Tolerance (TT)	Test Requirement in TS 34.121
8.7.6 UE Rx-Tx time difference	$I_o - 10.9 \text{ dB} = I_{oc}$, Test 1: $I_o = -94 \text{ dBm}$ Test2 : $I_o = -72 \text{ dBm}$ Test3 : $I_o = -50 \text{ dBm}$ Timing Accuracy $\pm 1.5 \text{ chip}$	1 dB for I_{oc} 0.3 dB for I_{or}/I_{oc} [0.5 chip for timing accuracy]	Test 1: $I_o = -92.7 \text{ dBm}$, $I_{oc} = -103.6 \text{ dBm}$ Formula: $I_{oc} * (1 - TT_{I_{oc}} + (I_{or}/I_{oc} - TT_{I_{or}/I_{oc}})) \geq -94$ Test 2: unchanged (no critical RF parameters) Test 3: $I_o = -51.3 \text{ dBm}$, $I_{oc} = -62.2 \text{ dBm}$ Formula: $I_{oc} * (1 + TT_{I_{oc}} + (I_{or}/I_{oc} + TT_{I_{or}/I_{oc}})) \leq -50$ Timing accuracy $[\pm 2.0] \text{ chip}$ Formulas: Upper limit +TT Lower limit -TT
8.7.7 Observed time difference to GSM cell	TBD		
8.7.8 P-CCPCH RSCP	TBD		

Table F.4.5: Derivation of Test Requirements (Performance tests HSDPA)

Test	Minimum Requirement in TS 25.101	Test Tolerance (TT)	Test Requirement in TS 34.121
9.2.1 Single Link Performance	$\frac{E_c}{I_{or}} - 6 \text{ and } -3 \text{ dB}$ $I_{oc} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = 0 \text{ and } 10 \text{ dB}$	0.1 dB for $\frac{E_c}{I_{or}}$ 0.3 dB for \hat{I}_{or}/I_{oc}	Formulas: $\frac{E_c}{I_{or}} = \text{ratio} + TT$ $\hat{I}_{or}/I_{oc} = \text{ratio} + TT$ I_{oc} unchanged

CHANGE REQUEST

⌘ **34.121 CR 374** ⌘ rev **-** ⌘ Current version: **5.3.1** ⌘

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 to the pathloss indicator in measurement control messages		
Source:	⌘ Anritsu		
Work item code:	⌘	Date:	⌘ 11/05/2004
Category:	⌘ F	Release:	⌘ Rel-5
	<i>Use one of the following categories:</i> 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 .		<i>Use one of the following releases:</i> 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:	⌘ Pathloss measurement reports are not required for this test. In addition, the default RF test setup does not include information about the neighbour CPICH power so any UE reports would not contain useful information.
Summary of change:	⌘ The pathloss reporting indicator in the measurement control message is changed to false.
Consequences if not approved:	⌘ The test setup will include unnecessary measurement reporting by the UE. The test will be more complicated than it needs to be.

Clauses affected:	⌘ 8.3.1, 8.3.2.1, 8.3.2.2, 8.6						
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </table> Other core specifications	Y	N	<input type="checkbox"/>	<input checked="" type="checkbox"/>	⌘	
Y	N						
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	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </table> Test specifications	<input type="checkbox"/>	<input checked="" type="checkbox"/>	⌘			
<input type="checkbox"/>	<input checked="" type="checkbox"/>						
	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </table> O&M Specifications	<input type="checkbox"/>	<input checked="" type="checkbox"/>	⌘			
<input type="checkbox"/>	<input checked="" type="checkbox"/>						
Other comments:	⌘ This CR applies for 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.

8.3 UTRAN Connected Mode Mobility

8.3.1 FDD/FDD Soft Handover

8.3.1.1 Definition and applicability

The active set update delay of the UE is defined as the time from the end of the last TTI containing an RRC message implying soft handover to the switch off of the old downlink DPCH.

The requirements and this test apply to the FDD UE.

8.3.1.2 Minimum requirement

The active set update delay shall be less than 60 ms in CELL_DCH state.

The active set update delay is defined as the time from when the UE has received the ACTIVE SET UPDATE message from UTRAN, or at the time stated through the activation time when to perform the active set update, to the time when the UE successfully uses the set of radio links stated in that message for power control.

The active set update delay is depending on the number of known cells referred to in the ACTIVE SET UPDATE message. A cell is known if either or both of the following conditions are true:

- the UE has had radio links connected to the cell in the previous (old) active set.
- the cell has been measured by the UE during the last 5 seconds and the SFN of the cell has been decoded by the UE.

And the phase reference is the primary CPICH.

The active set update delay shall be less than $50+10*KC+100*OC$ ms, where

KC is the number of known cells in the active set update message.

OC is the number of cells that are not known in the active set update message.

The normative reference for this requirement is TS 25.133 [2] clauses 5.1.2 and A.5.1.1.

{Unchanged Sections are snipped here}

8.3.1.4.2 Procedure

- 1) The RF parameters are set up according to T1.
- 2) The UE is switched on.
- 3) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.4 without Compressed mode parameters.

[Editor's note: subclause 7.3.4 in TS 34.108 (Message sequence chart for Handover Test procedure) is not yet specified]

- 4) SS shall transmit a MEASUREMENT CONTROL message.
- 5) 5 seconds after step4 has completed, the SS shall switch the power settings from T1 to T2.
- 6) UE shall transmit a MEASUREMENT REPORT message triggered by event 1A containing the CFN-SFN observed time difference between cell 1 and cell 2.
- 7) At the beginning of T3 the downlink DPCH of cell 2 shall be activated.

- 8) SS shall send an ACTIVE SET UPDATE message with activation time "now ", adding cell 2 to the active set. The ACTIVE SET UPDATE message shall be sent to the UE so that the whole message is available at the UE at the beginning of T4.
- 9) At the beginning of T5 the DPCH from cell 1 shall be switched off.
- 10) The UE downlink BLER shall be measured during time period T6.
- 11) 5 seconds after step 10 has completed, the UE is switched off. Any timing information of cell 2 is deleted in the UE.
- 12) BLER is measured during concatenated time periods T6. Repeat step 1-11 until the confidence level for BLER is achieved. This is defined in annex F.6.1.10

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message (step 4):

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
Measurement Information elements	
-Measurement Identity	1
-Measurement Command (10.3.7.46)	Modify
-Measurement Reporting Mode (10.3.7.49)	AM RLC
-Measurement Report Transfer Mode	Event trigger
-Periodical Reporting / Event Trigger Reporting Mode	Not Present
-Additional measurements list (10.3.7.1)	
-CHOICE <i>Measurement type</i>	Intra-frequency measurement
-Intra-frequency measurement (10.3.7.36)	Not Present
-Intra-frequency measurement objects list (10.3.7.33)	
-Intra-frequency measurement quantity (10.3.7.38)	
-Filter coefficient (10.3.7.9)	0
-CHOICE mode	FDD
-Measurement quantity	CPICH_Ec/N0
-Intra-frequency reporting quantity (10.3.7.41)	
-Reporting quantities for active set cells (10.3.7.5)	No report
-SFN-SFN observed time difference reporting indicator	TRUE (Note 1)
-Cell synchronisation information reporting indicator	TRUE
-Cell Identity reporting indicator	FDD
-CHOICE mode	TRUE
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	TRUEFALSE
-Reporting quantities for monitored set cells (10.3.7.5)	No report
-SFN-SFN observed time difference reporting indicator	TRUE (Note 1)
-Cell synchronisation information reporting indicator	TRUE
-Cell Identity reporting indicator	FDD
-CHOICE mode	TRUE
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	TRUEFALSE
-Reporting quantities for detected set cells (10.3.7.5)	Not Present
-Reporting cell status (10.3.7.61)	Not Present
-Measurement validity (10.3.7.51)	Not Present
-CHOICE report criteria	Intra-frequency measurement reporting criteria
-Intra-frequency measurement reporting criteria (10.3.7.39)	
-Parameters required for each event	2
-Intra-frequency event identity	Event 1A
-Triggering condition 2	Active set cells and monitored set cells
-Reporting Range Constant	3 dB
-Cells forbidden to affect Reporting Range	Not Present
-W	1.0
-Hysteresis	0 dB
-Threshold used frequency	Not Present
-Reporting deactivation threshold	0
-Replacement activation threshold	Not Present
-Time to trigger	0 ms
-Amount of reporting	Infinity
-Reporting interval	0 ms (Note 2)
-Reporting cell status	Not Present
-Intra-frequency event identity	Event 1B
-Triggering condition 1	Active set cells and monitored set cells
-Reporting Range Constant	3 dB
-Cells forbidden to affect Reporting Range	Not Present
-W	1.0
-Hysteresis	0 dB
-Threshold used frequency	Not Present
-Reporting deactivation threshold	Not Present
-Replacement activation threshold	Not Present
-Time to trigger	0 ms

Information Element/Group name	Value/Remark
-Amount of reporting -Reporting interval -Reporting cell status	Not Present Not Present Not Present
Physical channel information elements -DPCH compressed mode status info (10.3.6.34)	Not Present
Note 1: The SFN-CFN observed time difference is calculated from the OFF and Tm parameters contained in the IE "Cell synchronisation information", TS 25.331, clause 10.3.7.6. According to TS 25.331, 8.6.7.7, this IE is included in MEASUREMENT REPORT if IE "Cell synchronisation information reporting indicator" in IE "Cell reporting quantities" TS 25.331, clause 10.3.7.5 is set to TRUE in MEASUREMENT CONTROL.	
Note 2: Reporting interval = 0 ms means no periodical reporting	

{Unchanged Sections are snipped here}

8.3.2 FDD/FDD Hard Handover

8.3.2.1 FDD/FDD Hard Handover to intra-frequency cell

8.3.2.1.1 Definition and applicability

The hard handover delay of the UE is defined as the time from the end of the last TTI containing an RRC message implying hard handover to the transmission of the new uplink DPCH.

The requirements and this test apply to the FDD UE.

8.3.2.1.2 Minimum requirement

The interruption time shall be less than 110 ms in CELL_DCH state in the single carrier case. The rate of correct handovers observed during repeated tests shall be at least 90% with a confidence level of 95 %.

The hard handover delay D_{handover} equals the RRC procedure delay defined in TS 25.331 clause 13.5.2 plus the interruption time stated in TS 25.133 clause 5.2.2.2 as follows:

The interruption time, i.e. the time between the last TTI containing a transport block on the old DPCH and the time the UE starts transmission of the new uplink DPCH, is depending on whether the target cell is known for the UE or not.

If intra-frequency hard handover is commanded or inter-frequency hard handover is commanded when the UE does not need compressed mode to perform inter-frequency measurements, the interruption time shall be less than $T_{\text{interrupt1}}$

$$T_{\text{interrupt1}} = T_{\text{IU}} + 40 + 20 * \text{KC} + 150 * \text{OC} + 10 * F_{\text{max}} \text{ ms}$$

where

T_{IU} is the interruption uncertainty when changing the timing from the old to the new cell. T_{IU} can be up to one frame (10 ms).

KC is the number of known target cells in the message, and

OC is the number of target cells that are not known in the message.

F_{max} denotes the maximum number of radio frames within the transmission time intervals of all transport channels that are multiplexed into the same CCTrCH.

Note: The figure 40 ms is the time required for measuring the downlink DPCH channel as stated in TS 25.214 clause 4.3.1.2.

In the interruption requirement $T_{\text{interrupt1}}$ a cell is known if either or both of the following conditions are true:

- the UE has had radio links connected to the cell in the previous (old) active set

- the cell has been measured by the UE during the last 5 seconds and the SFN of the cell has been decoded by the UE.

The normative reference for this requirement is TS 25.133 [2] clauses 5.2.2 and A.5.2.1.

{Unchanged Sections are snipped here }

8.3.2.1.4.2 Procedure

- 1) The RF parameters are set up according to T1 in table 8.3.2.1.3.
- 2) The UE is switched on.
- 3) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.4.
- 4) SS shall transmit a MEASUREMENT CONTROL message.
- 5) 5 seconds after step 4 has completed, the SS shall switch the power settings from T1 to T2 in table 8.3.2.1.3.
- 6) UE shall transmit a MEASUREMENT REPORT message triggered by event 1A
- 7) SS shall transmit a PHYSICAL CHANNEL RECONFIGURATION message with activation time set to "now". SS shall transmit the whole message such that it will be available at the UE no later than a period equals to the RRC procedure delay (= 80 ms) prior to the beginning of T3.
- 8) After 5 seconds from the beginning of time period T2, the SS shall switch the power settings from T2 to T3 in table 8.3.2.1.3.
- 9) UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the UL DCCH of cell 2. If the UE transmits the UL DPCCH to cell 2 less than 110 ms from the beginning of time period T3 then the number of successful tests is increased by one.
- 10) After 5 seconds from the beginning of time period T3, the UE is switched off. Any timing information of cell 2 is deleted in the UE.
- 11) Repeat step 1-10 until the confidence level according to annex F.6.2 is achieved

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message (step 4):

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
Measurement Information elements	
-Measurement Identity	1
-Measurement Command (10.3.7.46)	Modify
-Measurement Reporting Mode (10.3.7.49)	AM RLC
-Measurement Report Transfer Mode	Event trigger
-Periodical Reporting / Event Trigger Reporting Mode	Not Present
-Additional measurements list (10.3.7.1)	
-CHOICE <i>Measurement type</i>	Intra-frequency measurement
-Intra-frequency measurement (10.3.7.36)	Not Present
-Intra-frequency measurement objects list (10.3.7.33)	
-Intra-frequency measurement quantity (10.3.7.38)	
-Filter coefficient (10.3.7.9)	0
-CHOICE mode	FDD
-Measurement quantity	CPICH_Ec/N0
-Intra-frequency reporting quantity (10.3.7.41)	
-Reporting quantities for active set cells (10.3.7.5)	No report
-SFN-SFN observed time difference reporting indicator	TRUE (Note 1)
-Cell synchronisation information reporting indicator	TRUE
-Cell Identity reporting indicator	FDD
-CHOICE mode	TRUE
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	TRUEFALSE
-Reporting quantities for monitored set cells (10.3.7.5)	No report
-SFN-SFN observed time difference reporting indicator	TRUE (Note 1)
-Cell synchronisation information reporting indicator	TRUE
-Cell Identity reporting indicator	FDD
-CHOICE mode	TRUE
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	TRUEFALSE
-Reporting quantities for detected set cells (10.3.7.5)	Not Present
-Reporting cell status (10.3.7.61)	Not Present
-Measurement validity (10.3.7.51)	Not Present
-CHOICE report criteria	Intra-frequency measurement reporting criteria
-Intra-frequency measurement reporting criteria (10.3.7.39)	
-Parameters required for each event	2
-Intra-frequency event identity	Event 1A
-Triggering condition 2	Active set cells and monitored set cells
-Reporting Range Constant	3 dB
-Cells forbidden to affect Reporting Range	Not Present
-W	1.0
-Hysteresis	0 dB
-Threshold used frequency	Not Present
-Reporting deactivation threshold	0
-Replacement activation threshold	Not Present
-Time to trigger	0 ms
-Amount of reporting	Infinity
-Reporting interval	0 ms (Note 2)
-Reporting cell status	Not Present
-Intra-frequency event identity	Event 1B
-Triggering condition 1	Active set cells and monitored set cells
-Reporting Range Constant	3 dB
-Cells forbidden to affect Reporting Range	Not Present
-W	1.0
-Hysteresis	0 dB
-Threshold used frequency	Not Present
-Reporting deactivation threshold	Not Present
-Replacement activation threshold	Not Present
-Time to trigger	0 ms

Information Element/Group name	Value/Remark
-Amount of reporting -Reporting interval -Reporting cell status	Not Present Not Present Not Present
Physical channel information elements -DPCH compressed mode status info (10.3.6.34)	Not Present
Note 1: The SFN-CFN observed time difference is calculated from the OFF and Tm parameters contained in the IE "Cell synchronisation information", TS 25.331, clause 10.3.7.6. According to TS 25.331, 8.6.7.7, this IE is included in MEASUREMENT REPORT if IE "Cell synchronisation information reporting indicator" in IE "Cell reporting quantities" TS 25.331, clause 10.3.7.5 is set to TRUE in MEASUREMENT CONTROL.	
Note 2: Reporting interval = 0 ms means no periodical reporting	

{Unchanged Sections are snipped here }

8.3.2.2 FDD/FDD Hard Handover to inter-frequency cell

8.3.2.2.1 Definition and applicability

The hard handover delay is defined as the time from the end of the last TTI containing an RRC message implying hard handover to the transmission of the new uplink DPCCH.

The requirements and this test apply to the FDD UE.

8.3.2.2.2 Minimum requirement

The interruption time shall be less than 140 ms in CELL_DCH state in the dual carrier case. The rate of correct handovers observed during repeated tests shall be at least 90% with a confidence level of 95 %.

The hard handover delay D_{handover} equals the RRC procedure delay defined in TS 25.331 clause 13.5.2 plus the interruption time stated in TS 25.133 clause 5.2.2.2 as follows:

If inter-frequency hard handover is commanded and the UE needs compressed mode to perform inter-frequency measurements, the interruption time shall be less than $T_{\text{interrupt2}}$

$$T_{\text{interrupt2}} = T_{\text{IU}} + 40 + 50 * \text{KC} + 150 * \text{OC} + 10 * F_{\text{max}} \text{ ms}$$

In the interruption requirement $T_{\text{interrupt2}}$ a cell is known if:

- the cell has been measured by the UE during the last 5 seconds.

The phase reference is the primary CPICH.

The normative reference for this requirement is TS 25.133 [2] clauses 5.2.2 and A.5.2.2.

{Unchanged Sections are snipped here }

8.3.2.2.4.2 Procedure

- 1) The RF parameters are set up according to T1 in table 8.3.2.2.3.
- 2) The UE is switched on.
- 3) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.4 with Compressed mode parameters as in Table 8.3.2.2.1.
- 4) SS shall transmit a MEASUREMENT CONTROL messages.

- 5) 5 seconds after step 4 has completed, the SS shall switch the power settings from T1 to T2 in table 8.3.2.2.3.
- 6) UE shall transmit a MEASUREMENT REPORT message triggered by event 2C
- 7) SS shall transmit a PHYSICAL CHANNEL RECONFIGURATION message with activation time "now". SS shall transmit the whole message such that will be is available at the UE no later than a period equals to the RRC procedure delay (= 80 ms) prior to the beginning of T3.
- 8) After 10 seconds from the beginning of time period T2, the SS shall switch the power settings from T2 to T3 in table 8.3.2.2.3.
- 9) UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the UL DCCH of cell 2. If the UE transmits the UL DPCCH to cell 2 less than 140 ms from the beginning of time period T3 then the number of successful tests is increased by one.
- 10) After 5 seconds from the beginning of time period T3, the UE is switched off. Any timing information of cell 2 is deleted in the UE.
- 11) Repeat step 1-10 until the confidence level according to annex F.6.2 is achieved

Specific Message Contents

All messages indicated below shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message, event 2C (step 4):

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
Measurement Information elements	
-Measurement Identity	2
-Measurement Command (10.3.7.46)	Setup
-Measurement Reporting Mode (10.3.7.49)	
-Measurement Report Transfer Mode	AM RLC
-Periodical Reporting / Event Trigger Reporting Mode	Event trigger
-Additional measurements list (10.3.7.1)	Not Present
-CHOICE <i>Measurement type</i>	Inter-frequency measurement
-Inter-frequency measurement (10.3.7.16)	
-Inter-frequency measurement objects list (10.3.7.13)	
- CHOICE Inter-frequency cell removal	Not Present
- New Inter frequency cells	
- Inter frequency cell id	0
- Frequency info	
- CHOICE mode	FDD
- UARFCN uplink(Nu)	Not Present
- UARFCN downlink(Nd)	Same frequency as "Channel2" in Table 8.3.2.2.2
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Set to Primary scrambling code of Cell2
- Primary CPICH Tx Power	Set to Primary CPICH Tx Power of Cell2 described in Table 8.3.2.2.2
- Tx Diversity Indicator	FALSE
- Cell Selection and Re-selection info	Set to Cell Selection and Re-selection info of Cell2
- Cell for measurement	Not Present
-Inter-frequency measurement quantity (10.3.7.18)	
-CHOICE reporting criteria	Inter-frequency reporting criteria
-Inter-frequency reporting criteria	
-Filter coefficient	0
-CHOICE mode	FDD
-Measurement quantity for frequency quality estimate	CPICH Ec/N0
-Inter-frequency reporting quantity (10.3.7.21)	
-UTRA Carrier RSSI	FALSE
-Frequency quality estimate	FALSE
-Non frequency related cell reporting quantities (10.3.7.5)	
-SFN-SFN observed time difference reporting indicator	Type 1
-Cell synchronisation information reporting indicator	TRUE
-Cell Identity reporting indicator	TRUE
-CHOICE mode	FDD
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	TRUEFALSE
-Reporting cell status (10.3.7.61)	
-CHOICE reported cell	Report cells within monitored set on non-used frequency
-Maximum number of reported cells per reported non-used frequency	1
-Measurement validity (10.3.7.51)	Not Present
-Inter-frequency set update (10.3.7.22)	Not Present
-CHOICE report criteria	Inter-frequency measurement reporting criteria
-Inter-frequency measurement reporting criteria (10.3.7.19)	
-Parameters required for each event	1
-Inter-frequency event identity (10.3.7.14)	Event 2C
-Threshold used frequency	Not Present

Information Element/Group name	Value/Remark
-W used frequency	Not Present
-Hysteresis	0 dB
-Time to trigger	0 ms
-Reporting cell status (10.3.7.61)	
-CHOICE reported cell	Report cells within monitored set on non-used frequency
-Maximum number of reported cells per reported non-used frequency	1
-Parameters required for each non-used frequency	1
-Threshold non-used frequency	-18 dB
-W non-used frequency	1
Physical channel information elements	
-DPCH compressed mode status info (10.3.6.34)	Not Present

{Unchanged Sections are snipped here}

8.6 UE Measurements Procedures

8.6.1 FDD intra frequency measurements

8.6.1.1 Event triggered reporting in AWGN propagation conditions

8.6.1.1.1 Definition and applicability

In the event triggered reporting period the measurement reporting delay is defined as the time between any event that will trigger a measurement report until the UE starts to transmit over the Uu interface. This requirement assumes that the measurement report is not delayed by other RRC signalling on the DCCH. This measurement reporting delay excludes a delay uncertainty resulted when inserting the measurement report to the TTI of the uplink DCCH. The delay uncertainty is twice the TTI of the uplink DCCH.

The requirements and this test apply to the FDD UE.

8.6.1.1.2 Minimum requirements

The UE shall be able to identify and decode the SFN of a new detectable cell belonging to the monitored set within

$$T_{\text{identify intra}} = \text{Max} \left\{ 800, T_{\text{basic identify FDD, intra}} \cdot \frac{T_{\text{Measurement Period, Intra}}}{T_{\text{Intra}}} \right\} \text{ms}$$

A cell shall be considered detectable when CPICH Ec/Io ≥ -20 dB, SCH_Ec/Io ≥ -20 dB for at least one channel tap and SCH_Ec/Io is equally divided between primary synchronisation code and secondary synchronisation code. When L3 filtering is used an additional delay can be expected.

In the CELL_DCH state the measurement period for intra frequency measurements is 200 ms. When no transmission gap pattern sequence is activated, the UE shall be capable of performing CPICH measurements for 8 identified intra-frequency cells of the monitored set and/or the active set, and the UE physical layer shall be capable of reporting measurements to higher layers with the measurement period of 200 ms. When one or more transmission gap pattern sequences are activated, the UE shall be capable of performing CPICH measurements for at least $Y_{\text{measurement intra}}$ cells, where $Y_{\text{measurement intra}}$ is defined in the following equation. The measurement accuracy for all measured cells shall be as specified in the sub-clause 9.1.1 and 9.1.2 of TS 25.133 [2]. If the UE has identified more than $Y_{\text{measurement intra}}$ cells, the UE shall perform measurements of all identified cells but the reporting rate of CPICH measurements of cells from UE physical layer to higher layers may be decreased.

$$Y_{\text{measurement intra}} = \text{Floor} \left\{ X_{\text{basic measurement FDD}} \cdot \frac{T_{\text{Intra}}}{T_{\text{Measurement Period, Intra}}} \right\} \text{ cells}$$

where

$$X_{\text{basic measurement FDD}} = 8 \text{ (cells)}$$

$T_{\text{Measurement_Period Intra}} = 200$ ms. The measurement period for Intra frequency CPICH measurements.

T_{Intra} : This is the minimum time that is available for intra frequency measurements, during the measurement period with an arbitrarily chosen timing.

$T_{\text{basic_identify_FDD, intra}} = 800$ ms. This is the time period used in the intra frequency equation where the maximum allowed time for the UE to identify a new FDD cell is defined.

The event triggered measurement reporting delay, on cells belonging to monitored set, measured without L3 filtering, shall be less than the above defined $T_{\text{identify_intra}}$ defined above.

If a cell, belonging to monitored set, which the UE has identified and measured at least once over the measurement period, becomes undetectable for a period < 5 seconds and then the cell becomes detectable again and triggers an event, the measurement reporting delay shall be less than $T_{\text{Measurement_Period Intra}}$ ms provided the timing to that cell has not changed more than ± 32 chips, the UE CPICH measurement capabilities defined above are valid and L3 filtering has not been used. When L3 filtering is used an additional delay can be expected.

If a cell belonging to monitored set has been detectable at least for the time period $T_{\text{identify_intra}}$ and then enters or leaves the reporting range, the event triggered measurement reporting delay shall be less than $T_{\text{Measurement_Period Intra}}$ when the L3 filter has not been used and the UE CPICH measurement capabilities defined above are valid.

The normative reference for these requirements is TS 25.133 [2] clauses 8.1.2.2 and A.8.1.1.

{ Unchanged Sections are snipped here }

8.6.1.1.4.2 Procedure

1. The RF parameters are set up according to T1.
2. The UE is switched on.
3. A call is set up according to the test procedure specified in TS 34.108 [3] sub clause 7.3.2.3.
4. SS shall transmit a MEASUREMENT CONTROL message.
5. After 5 seconds from the beginning of T1, the SS shall switch the power settings from T1 to T2.
6. UE shall transmit a MEASUREMENT REPORT message triggered by event 1A. The measurement reporting delay from the beginning of T2 shall be less than 880 ms. If the UE fails to report the event within the required delay, then a failure is recorded. If the reporting delay for this event is within the required limit, the number of successful tests is increased by one.
7. After 5 seconds from the beginning of T2, the SS shall switch the power settings from T2 to T3.
8. UE shall transmit a MEASUREMENT REPORT message triggered by event 1B. The measurement reporting delay from the beginning of T3 shall be less than 280 ms. If the reporting delay for this event is within the required limit, the number of successful tests is increased by one.
9. After 5 seconds from the beginning of T3, the UE is switched off. Any timing information of cell 2 is deleted in the UE.
10. Repeat steps 1-9 according to Annex F.6.2 Table 6.2.8.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message:

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
Measurement Information elements	
-Measurement Identity	1
-Measurement Command (10.3.7.46)	Modify
-Measurement Reporting Mode (10.3.7.49)	
-Measurement Report Transfer Mode	AM RLC
-Periodical Reporting / Event Trigger Reporting Mode	Event trigger
-Additional measurements list (10.3.7.1)	Not Present
-CHOICE <i>Measurement type</i>	Intra-frequency measurement
-Intra-frequency measurement (10.3.7.36)	
-Intra-frequency measurement objects list (10.3.7.33)	Not Present
-Intra-frequency measurement quantity (10.3.7.38)	
-Filter coefficient (10.3.7.9)	0
-CHOICE mode	FDD
-Measurement quantity	CPICH_Ec/N0
-Intra-frequency reporting quantity (10.3.7.41)	
-Reporting quantities for active set cells (10.3.7.5)	
-SFN-SFN observed time difference reporting indicator	No report
-Cell synchronisation information reporting indicator	TRUE (Note 1)
-Cell Identity reporting indicator	TRUE
-CHOICE mode	FDD
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	TRUEFALSE
-Reporting quantities for monitored set cells (10.3.7.5)	
-SFN-SFN observed time difference reporting indicator	No report
-Cell synchronisation information reporting indicator	TRUE (Note 1)
-Cell Identity reporting indicator	TRUE
-CHOICE mode	FDD
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	TRUEFALSE
-Reporting quantities for detected set cells (10.3.7.5)	Not Present
-Reporting cell status (10.3.7.61)	Not Present
-Measurement validity (10.3.7.51)	Not Present
-CHOICE report criteria	Intra-frequency measurement reporting criteria
-Intra-frequency measurement reporting criteria (10.3.7.39)	
-Parameters required for each event	2
-Intra-frequency event identity	Event 1A
-Triggering condition 2	Monitored set cells
-Reporting Range Constant	3 dB
-Cells forbidden to affect Reporting Range	Not Present
-CHOICE mode	FDD
-Primary CPICH info (10.3.6.60)	
-W	1.0
-Hysteresis	0 dB
-Threshold used frequency	Not Present
-Reporting deactivation threshold	0
-Replacement activation threshold	Not Present
-Time to trigger	0 ms
-Amount of reporting	Not present
-Reporting interval	0 ms (Note 2)
-Reporting cell status	Not Present
-Intra-frequency event identity	Event 1B
-Triggering condition 1	Active set cells and monitored set cells
-Reporting Range Constant	3 dB
-Cells forbidden to affect Reporting Range	Not Present
-CHOICE mode	FDD
-Primary CPICH info (10.3.6.60)	
-W	1.0
-Hysteresis	0 dB

Information Element/Group name	Value/Remark
-Threshold used frequency	Not Present
-Reporting deactivation threshold	Not Present
-Replacement activation threshold	Not Present
-Time to trigger	0 ms
-Amount of reporting	Not Present
-Reporting interval	0 ms (note 2)
-Reporting cell status	Not Present
Physical channel information elements	
-DPCH compressed mode status info (10.3.6.34)	Not Present
Note 1: The SFN-CFN observed time difference is calculated from the OFF and Tm parameters contained in the IE "Cell synchronisation information", TS 25.331, clause 10.3.7.6. According to TS 25.331, 8.6.7.7, this IE is included in MEASUREMENT REPORT if IE "Cell synchronisation information reporting indicator" in IE "Cell reporting quantities" TS 25.331, clause 10.3.7.5 is set to TRUE in MEASUREMENT CONTROL.	
Note 2: Reporting interval = 0 ms means no periodical reporting	

MEASUREMENT REPORT message for Intra frequency test cases

This message is common for all intra frequency test cases is described in Annex I.

8.6.1.1.5 Test requirements

For the test to pass, the total number of successful tests shall be at least 90%, of the cases with a confidence level of 95%. The number of successful tests shall be on an event level, i.e. the SS shall check how many events are reported successfully out of the total number of events checked.

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.6.1.2 Event triggered reporting of multiple neighbours in AWGN propagation condition

8.6.1.2.1 Definition and applicability

In the event triggered reporting period the measurement reporting delay is defined as the time between any event that will trigger a measurement report until the UE starts to transmit over the Uu interface. This requirement assumes that the measurement report is not delayed by other RRC signalling on the DCCH. This measurement reporting delay excludes a delay uncertainty resulted when inserting the measurement report to the TTI of the uplink DCCH. The delay uncertainty is twice the TTI of the uplink DCCH.

The requirements and this test apply to the FDD UE.

8.6.1.2.2 Minimum requirements

The requirements are the same as in sub clause 8.6.1.1.2.

The normative reference for these requirements is TS 25.133 [2] clauses 8.1.2.2 and A.8.1.2.

{ Unchanged Sections are snipped here }

8.6.1.2.4.2 Procedure

- 1) The RF parameters are set up according to T0.
- 2) The UE is switched on.

- 3) A call is set up according to the test procedure specified in TS 34.108 [3] sub clause 7.3.2.3.
- 4) SS shall transmit a MEASUREMENT CONTROL message.
- 5) 5 seconds after step4 has completed, the SS shall switch the power settings for T0 to T1.
- 6) UE shall transmit a MEASUREMENT REPORT message for Cell 3 triggered by event 1A. The measurement reporting delay from the beginning of T1 shall be less than 880 ms. If the UE fails to report the event within the required delay, then a failure is recorded. If the reporting delay for this event is within the required limit, the number of successful tests is increased by one.
- 7) UE may transmit a MEASUREMENT REPORT message for Cell 3 triggered by event 1C. In case it doesn't this shall not be considered as a failure.
- 8) After 10 seconds from the beginning of T1, the SS shall switch the power settings from T1 to T2.
- 9) UE shall transmit a MEASUREMENT REPORT message for Cell 2 triggered by event 1C. The measurement reporting delay from the beginning of T2 shall be less than 880 ms. If the UE fails to report the event within the required delay, then a failure is recorded. If the reporting delay for this event is within the required limit, the number of successful tests is increased by one.
- 10) UE shall transmit a MEASUREMENT REPORT message for Cell 2 triggered by event 1A. The measurement reporting delay from the beginning of T2 shall be less than 880 ms. If the UE fails to report the event within the required delay, then a failure is recorded. If the reporting delay for this event is within the required limit, the number of successful tests is increased by one.
- 11) UE may transmit a MEASUREMENT REPORT message for Cell 3 triggered by event 1C. In case it doesn't this shall not be considered as a failure.
- 12) After 10 seconds from the beginning of T2, the SS shall switch the power settings from T2 to T3.
- 13) UE shall transmit a MEASUREMENT REPORT message for Cell 3 triggered by event 1B. The measurement reporting delay from the beginning of T3 shall be less than 280 ms. If the UE fails to report the event within the required delay, then a failure is recorded. If the reporting delay for this event is within the required limit, the number of successful tests is increased by one.
- 14) UE may transmit a MEASUREMENT REPORT message for Cell 2 triggered by event 1C. In case it doesn't this shall not be considered as a failure.
- 15) After 5 seconds from the beginning of T3, the SS shall switch the power settings from T3 to T4.
- 16) UE shall transmit a MEASUREMENT REPORT message for Cell 3 triggered by event 1A. The measurement reporting delay from the beginning of T4 shall be less than 280 ms. If the reporting delay for this event is within the required limit, the number of successful tests is increased by one.
- 17) UE may transmit a MEASUREMENT REPORT message for Cell 2 triggered by event 1C. In case it doesn't this shall not be considered as a failure.
- 18) UE may transmit a MEASUREMENT REPORT message for Cell 3 triggered by event 1C. In case it doesn't this shall not be considered as a failure.
- 19) After 10 seconds from the beginning of T4, the UE is switched off.
- 20) Repeat steps 1-19 until the confidence level according to annex F.6.2 is achieved.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message:

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
Measurement Information elements	
-Measurement Identity	1
-Measurement Command (10.3.7.46)	Modify
-Measurement Reporting Mode (10.3.7.49)	AM RLC
-Measurement Report Transfer Mode	Event trigger
-Periodical Reporting / Event Trigger Reporting Mode	Not Present
-Additional measurements list (10.3.7.1)	
-CHOICE <i>Measurement type</i>	Intra-frequency measurement
-Intra-frequency measurement (10.3.7.36)	Not Present
-Intra-frequency measurement objects list (10.3.7.33)	
-Intra-frequency measurement quantity (10.3.7.38)	
-Filter coefficient (10.3.7.9)	0
-CHOICE mode	FDD
-Measurement quantity	CPICH_Ec/N0
-Intra-frequency reporting quantity (10.3.7.41)	
-Reporting quantities for active set cells (10.3.7.5)	No report
-SFN-SFN observed time difference reporting indicator	TRUE (Note 1)
-Cell synchronisation information reporting indicator	TRUE
-Cell Identity reporting indicator	FDD
-CHOICE mode	TRUE
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	TRUEFALSE
-Reporting quantities for monitored set cells (10.3.7.5)	No report
-SFN-SFN observed time difference reporting indicator	TRUE (Note 1)
-Cell synchronisation information reporting indicator	TRUE
-Cell Identity reporting indicator	FDD
-CHOICE mode	TRUE
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	TRUEFALSE
-Reporting quantities for detected set cells (10.3.7.5)	Not Present
-Reporting cell status (10.3.7.61)	Not Present
-Measurement validity (10.3.7.51)	Not Present
-CHOICE report criteria	Intra-frequency measurement reporting criteria
-Intra-frequency measurement reporting criteria (10.3.7.39)	
-Parameters required for each event	3
-Intra-frequency event identity	Event 1A
-Triggering condition 2	Monitored set cells
-Reporting Range Constant	3 dB
-Cells forbidden to affect Reporting Range	Not Present
-W	1.0
-Hysteresis	0 dB
-Threshold used frequency	Not Present
-Reporting deactivation threshold	0
-Replacement activation threshold	Not Present
-Time to trigger	0 ms
-Amount of reporting	Not Present
-Reporting interval	0 ms (Note 2)
-Reporting cell status	Not Present
-Intra-frequency event identity	Event 1B
-Triggering condition 1	Active set cells and monitored set cells
-Reporting Range Constant	3 dB
-Cells forbidden to affect Reporting Range	Not Present
-W	1.0
-Hysteresis	0 dB
-Threshold used frequency	Not Present
-Reporting deactivation threshold	Not Present
-Replacement activation threshold	Not Present
-Time to trigger	0 ms

Information Element/Group name	Value/Remark
-Amount of reporting -Reporting interval -Reporting cell status	Not Present 0 ms (Note 2) Not Present
-Intra-frequency event identity -Triggering condition 2 -Reporting Range Constant -Cells forbidden to affect Reporting Range -W -Hysteresis -Threshold used frequency -Reporting deactivation threshold -Replacement activation threshold -Time to trigger -Amount of reporting -Reporting interval -Reporting cell status	Event 1C Active set cells and monitored set cells Not present Not Present Not present 0 dB Not Present Not present 0 0 ms Not Present 0 ms (Note 2) Not Present
Physical channel information elements -DPCH compressed mode status info (10.3.6.34)	Not Present
NOTE 1: The SFN-CFN observed time difference is calculated from the OFF and Tm parameters contained in the IE "Cell synchronisation information", TS 25.331, clause 10.3.7.6. According to TS 25.331, 8.6.7.7, this IE is included in MEASUREMENT REPORT if IE "Cell synchronisation information reporting indicator" in IE "Cell reporting quantities" TS 25.331, clause 10.3.7.5 is set to TRUE in MEASUREMENT CONTROL.	
NOTE 2: Reporting interval = 0 ms means no periodical reporting.	

MEASUREMENT REPORT message for Intra frequency test cases

This message is common for all intra frequency test cases is described in Annex I.

8.6.1.2.5 Test requirements

For the test to pass, the total number of successful tests shall be at least 90%, of the cases with a confidence level of 95%. The number of successful tests shall be on an event level, i.e. the SS shall check how many events are reported successfully out of the total number of events checked.

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.6.1.3 Event triggered reporting of two detectable neighbours in AWGN propagation condition

8.6.1.3.1 Definition and applicability

In the event triggered reporting period the measurement reporting delay is defined as the time between any event that will trigger a measurement report until the UE starts to transmit over the Uu interface. This requirement assumes that the measurement report is not delayed by other RRC signalling on the DCCH. This measurement reporting delay excludes a delay uncertainty resulted when inserting the measurement report to the TTI of the uplink DCCH. The delay uncertainty is twice the TTI of the uplink DCCH.

The requirements and this test apply to the FDD UE.

8.6.1.3.2 Minimum requirements

The requirements are the same as in sub clause 8.6.1.1.2.

The normative reference for these requirements is TS 25.133 [2] clauses 8.1.2.2 and A.8.1.3.

{Unchanged Sections are snipped here}

8.6.1.3.4.2 Procedure

- 1) The RF parameters are set up according to T1.
- 2) The UE is switched on.
- 3) A call is set up according to the test procedure specified in TS 34.108 [3] sub clause 7.3.2.3.
- 4) SS shall transmit a MEASUREMENT CONTROL message.
- 5) After 10 seconds from the beginning T1, the SS shall switch the power settings from T1 to T2.
- 6) UE shall transmit a MEASUREMENT REPORT message for Cell 2 triggered by event 1A. The measurement reporting delay from the beginning of T2 shall be less than 880 ms. If the UE fails to report the event within the required delay, then a failure is recorded. If the reporting delay for this event is within the required limit, the number of successful tests is increased by one.
- 7) After 10 seconds from the beginning T2, the SS shall switch the power settings from T2 to T3.
- 8) UE shall transmit a MEASUREMENT REPORT message for Cell 3 triggered by event 1A. The measurement reporting delay from the beginning of T3 shall be less than 280 ms. If the UE fails to report the event within the required delay, then a failure is recorded. If the reporting delay for this event is within the required limit, the number of successful tests is increased by one.
- 9) After 10 seconds from the beginning T3, the SS shall switch the power settings from T3 to T4.
- 10) UE shall transmit a MEASUREMENT REPORT message for Cell 2 triggered by event 1B. The measurement reporting delay from the beginning of T4 shall be less than 280 ms. If the reporting delay for this event is within the required limit, the number of successful tests is increased by one.
- 11) After 10 seconds, the UE is switched off.
- 12) Repeat steps 1-11 until the confidence level according to annex F.6.2 is achieved.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message:

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
Measurement Information elements	
-Measurement Identity	1
-Measurement Command (10.3.7.46)	Modify
-Measurement Reporting Mode (10.3.7.49)	
-Measurement Report Transfer Mode	AM RLC
-Periodical Reporting / Event Trigger Reporting Mode	Event trigger
-Additional measurements list (10.3.7.1)	Not Present
-CHOICE <i>Measurement type</i>	Intra-frequency measurement
-Intra-frequency measurement (10.3.7.36)	
-Intra-frequency measurement objects list (10.3.7.33)	Not Present
-Intra-frequency measurement quantity (10.3.7.38)	
-Filter coefficient (10.3.7.9)	0
-CHOICE mode	FDD
-Measurement quantity	CPICH_Ec/N0
-Intra-frequency reporting quantity (10.3.7.41)	
-Reporting quantities for active set cells (10.3.7.5)	
-SFN-SFN observed time difference reporting indicator	No report
-Cell synchronisation information reporting indicator	TRUE (Note 1)
-Cell Identity reporting indicator	TRUE
-CHOICE mode	FDD
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	TRUEFALSE
-Reporting quantities for monitored set cells (10.3.7.5)	
-SFN-SFN observed time difference reporting indicator	No report
-Cell synchronisation information reporting indicator	TRUE (Note 1)
-Cell Identity reporting indicator	TRUE
-CHOICE mode	FDD
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	TRUEFALSE
-Reporting quantities for detected set cells (10.3.7.5)	Not Present
-Reporting cell status (10.3.7.61)	Not Present
-Measurement validity (10.3.7.51)	Not Present
-CHOICE report criteria	Intra-frequency measurement reporting criteria
-Intra-frequency measurement reporting criteria (10.3.7.39)	
-Parameters required for each event	2
-Intra-frequency event identity	Event 1A
-Triggering condition 2	Monitored set cells
-Reporting Range Constant	3 dB
-Cells forbidden to affect Reporting Range	Not Present
-CHOICE mode	FDD
-Primary CPICH info (10.3.6.60)	
-W	1.0
-Hysteresis	0 dB
-Threshold used frequency	Not Present
-Reporting deactivation threshold	0
-Replacement activation threshold	Not Present
-Time to trigger	0 ms
-Amount of reporting	Not present
-Reporting interval	0 ms (Note 2)
-Reporting cell status	Not Present
-Intra-frequency event identity	Event 1B
-Triggering condition 1	Active set cells and monitored set cells
-Reporting Range Constant	3 dB
-Cells forbidden to affect Reporting Range	Not Present
-CHOICE mode	FDD
-Primary CPICH info (10.3.6.60)	
-W	1.0
-Hysteresis	0 dB

Information Element/Group name	Value/Remark
-Threshold used frequency	Not Present
-Reporting deactivation threshold	Not Present
-Replacement activation threshold	Not Present
-Time to trigger	0 ms
-Amount of reporting	Not Present
-Reporting interval	0 ms (Note 2)
-Reporting cell status	Not Present
Physical channel information elements	
-DPCH compressed mode status info (10.3.6.34)	Not Present
NOTE 1: The SFN-CFN observed time difference is calculated from the OFF and Tm parameters contained in the IE "Cell synchronisation information", TS 25.331, clause 10.3.7.6. According to TS 25.331, 8.6.7.7, this IE is included in MEASUREMENT REPORT if IE "Cell synchronisation information reporting indicator" in IE "Cell reporting quantities" TS 25.331, clause 10.3.7.5 is set to TRUE in MEASUREMENT CONTROL.	
NOTE 2: Reporting interval = 0 ms means no periodical reporting.	

MEASUREMENT REPORT message for Intra frequency test cases

This message is common for all intra frequency test cases is described in Annex I.

8.6.1.3.5 Test requirements

For the test to pass, the total number of successful tests shall be at least 90% of the cases with a confidence level of 95%. The number of successful tests shall be on an event level, i.e. the SS shall check how many events are reported successfully out of the total number of events checked.

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.6.1.4 Correct reporting of neighbours in fading propagation condition

8.6.1.4.1 Definition and applicability

In the event triggered reporting period the measurement reporting delay is defined as the time between any event that will trigger a measurement report until the UE starts to transmit over the Uu interface. This requirement assumes that the measurement report is not delayed by other RRC signalling on the DCCH. This measurement reporting delay excludes a delay uncertainty resulted when inserting the measurement report to the TTI of the uplink DCCH. The delay uncertainty is twice the TTI of the uplink DCCH.

The requirements and this test apply to the FDD UE.

8.6.1.4.2 Minimum requirements

The requirements are the same as in sub clause 8.6.1.1.2.

The normative reference for these requirements is TS 25.133 [2] clauses 8.1.2.2 and A.8.1.4.

{ Unchanged Sections are snipped here }

8.6.1.4.4.2 Procedure

- 1) The RF parameters are set up according to T1.
- 2) The UE is switched on.

- 3) A call is set up in AWGN conditions, according to the test procedure specified in TS 34.108 [3] sub clause 7.3.2.3.
- 4) SS shall transmit a MEASUREMENT CONTROL message.
- 5) 5 seconds after step4 has completed, the fading simulator is switched on, configured with the settings described in the tables above at the beginning of T1.
- 6) UE shall start transmitting MEASUREMENT REPORT messages triggered by event 1A.
- 7) SS shall count the reports. The number of received event 1A reports shall be less than 60. If the SS fails to receive less than 60 event 1A reports, then a failure is recorded. If the SS receives number of event 1A reports within the required limit, the number of successful tests is increased by one.
- 8) After 200 seconds from the beginning of T1, the SS shall switch the power settings from T1 to T2.
- 9) UE shall start transmitting MEASUREMENT REPORT messages triggered by event 1B.
- 10) During the first 1s of time period T2 no event reports shall be counted.
- 11) After the first 1s SS shall start counting the reports. The number of received event 1B reports shall be less than 60. If the SS receives number of event 1B reports within the required limit, the number of successful tests is increased by one.
- 12) After 201 seconds from the beginning of T2, the UE is switched off.
- 13) Repeat steps 1-12 until the confidence level according to annex F.6.2 is achieved.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message:

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
Measurement Information elements	
-Measurement Identity	1
-Measurement Command (10.3.7.46)	Modify
-Measurement Reporting Mode (10.3.7.49)	
-Measurement Report Transfer Mode	AM RLC
-Periodical Reporting / Event Trigger Reporting Mode	Event trigger
-Additional measurements list (10.3.7.1)	Not Present
-CHOICE <i>Measurement type</i>	Intra-frequency measurement
-Intra-frequency measurement (10.3.7.36)	
-Intra-frequency measurement objects list (10.3.7.33)	Not Present
-Intra-frequency measurement quantity (10.3.7.38)	
-Filter coefficient (10.3.7.9)	0
-CHOICE mode	FDD
-Measurement quantity	CPICH_Ec/N0
-Intra-frequency reporting quantity (10.3.7.41)	
-Reporting quantities for active set cells (10.3.7.5)	
-SFN-SFN observed time difference reporting indicator	No report
-Cell synchronisation information reporting indicator	TRUE (Note 1)
-Cell Identity reporting indicator	TRUE
-CHOICE mode	FDD
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	TRUEFALSE
-Reporting quantities for monitored set cells (10.3.7.5)	
-SFN-SFN observed time difference reporting indicator	No report
-Cell synchronisation information reporting indicator	TRUE (Note 1)
-Cell Identity reporting indicator	TRUE
-CHOICE mode	FDD
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	TRUEFALSE
-Reporting quantities for detected set cells (10.3.7.5)	Not Present
-Reporting cell status (10.3.7.61)	Not Present
-Measurement validity (10.3.7.51)	Not Present
-CHOICE report criteria	Intra-frequency measurement reporting criteria
-Intra-frequency measurement reporting criteria (10.3.7.39)	
-Parameters required for each event	2
-Intra-frequency event identity	Event 1A
-Triggering condition 2	Active set cells and monitored set cells
-Reporting Range Constant	0 dB
-Cells forbidden to affect Reporting Range	Not Present
-CHOICE mode	FDD
-Primary CPICH info (10.3.6.60)	
-W	1.0
-Hysteresis	0 dB
-Threshold used frequency	Not Present
-Reporting deactivation threshold	0
-Replacement activation threshold	Not Present
-Time to trigger	120 ms
-Amount of reporting	Not present
-Reporting interval	0 ms (Note 2)
-Reporting cell status	Not Present
-Intra-frequency event identity	Event 1B
-Triggering condition 1	Active set cells and monitored set cells
-Reporting Range Constant	0 dB
-Cells forbidden to affect Reporting Range	Not Present
-CHOICE mode	FDD
-Primary CPICH info (10.3.6.60)	
-W	1.0
-Hysteresis	0 dB

Information Element/Group name	Value/Remark
-Threshold used frequency	Not Present
-Reporting deactivation threshold	Not Present
-Replacement activation threshold	Not Present
-Time to trigger	120 ms
-Amount of reporting	Not Present
-Reporting interval	0 ms (Note 2)
-Reporting cell status	Not Present
Physical channel information elements	
-DPCH compressed mode status info (10.3.6.34)	Not Present
Note 1: The SFN-CFN observed time difference is calculated from the OFF and Tm parameters contained in the IE "Cell synchronisation information", TS 25.331, clause 10.3.7.6. According to TS 25.331, 8.6.7.7, this IE is included in MEASUREMENT REPORT if IE "Cell synchronisation information reporting indicator" in IE "Cell reporting quantities" TS 25.331, clause 10.3.7.5 is set to TRUE in MEASUREMENT CONTROL.	
Note 2: Reporting interval = 0 ms means no periodical reporting	

MEASUREMENT REPORT message for Intra frequency test cases

This message is common for all intra frequency test cases is described in Annex I.

8.6.1.4.5 Test requirements

For the test to pass, the total number of successful tests shall be at least 90% of the cases with a confidence level of 95%. The number of successful tests shall be on an event level, i.e. the SS shall check every time first if the number of the event 1A events is within the required limit, and then, check if the number of the event 1B events is within the required limit.

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.6.2 FDD inter frequency measurements

8.6.2.1 Correct reporting of neighbours in AWGN propagation condition

8.6.2.1.1 Definition and applicability

In the event triggered reporting period the measurement reporting delay is defined as the time between any event that will trigger a measurement report until the UE starts to transmit the measurement report over the Uu interface. This requirement assumes that the measurement report is not delayed by other RRC signalling on the DCCH. This measurement reporting delay excludes a delay uncertainty resulted when inserting the measurement report to the TTI of the uplink DCCH. The delay uncertainty is twice the TTI of the uplink DCCH.

The requirements and this test apply to the FDD UE.

8.6.2.1.2 Minimum requirements

The UE shall be able to identify a new detectable cell belonging to the monitored set within

$$T_{\text{identify_inter}} = \text{Max} \left\{ 5000, T_{\text{basic_identify_FDD,inter}} \cdot \frac{T_{\text{Measurement_Period, Inter}}}{T_{\text{Inter}}} \cdot N_{\text{Freq}} \right\} \text{ms}$$

A cell shall be considered detectable when CPICH Ec/Io ≥ -20 dB, SCH_Ec/Io ≥ -17 dB for at least one channel tap and SCH_Ec/Ior is equally divided between primary synchronisation code and secondary synchronisation code. When L3 filtering is used an additional delay can be expected.

When transmission gaps are scheduled for FDD inter frequency measurements the UE physical layer shall be capable of reporting measurements to higher layers with measurement accuracy as specified in sub-clause 9.1.1 and 9.1.2 of 25.133 with measurement period given by

$$T_{\text{measurement_inter}} = \text{Max} \left\{ T_{\text{Measurement_Period_Inter}}, T_{\text{basic_measurement_FDD_inter}} \cdot \frac{T_{\text{Measurement_Period_Inter}}}{T_{\text{Inter}}} \cdot N_{\text{Freq}} \right\} \text{ms}$$

If the UE does not need compressed mode to perform inter-frequency measurements, the measurement period for inter frequency measurements is 480 ms.

The UE shall be capable of performing CPICH measurements for $X_{\text{basic_measurement_FDD_inter}}$ inter-frequency cells per FDD frequency of the monitored set or the virtual active set, and the UE physical layer shall be capable of reporting measurements to higher layers with the measurement period of $T_{\text{Measurement_Inter}}$.

$$X_{\text{basic_measurement_FDD_inter}} = 6$$

$T_{\text{Measurement_Period_Inter}} = 480$ ms. The period used for calculating the measurement period $T_{\text{measurement_inter}}$ for inter frequency CPICH measurements.

T_{Inter} : This is the minimum time that is available for inter frequency measurements, during the period $T_{\text{Measurement_Period_inter}}$ with an arbitrarily chosen timing. The minimum time per transmission gap is calculated by using the actual idle length within the transmission gap as given in the table 11 of Annex B in TS 25.212 and by assuming 2*0.5 ms for implementation margin and after that taking only full slots into account in the calculation.

$T_{\text{basic_identify_FDD,inter}} = 800$ ms. This is the time period used in the inter frequency equation where the maximum allowed time for the UE to identify a new FDD cell is defined.

$T_{\text{basic_measurement_FDD_inter}} = 50$ ms. This is the time period used in the equation for defining the measurement period for inter frequency CPICH measurements.

N_{Freq} : Number of FDD frequencies indicated in the inter frequency measurement control information.

The event triggered measurement reporting delay, measured without L3 filtering shall be less than $T_{\text{identify_inter}}$ defined in Clause 8.1.2.3.1 of 25.133 When L3 filtering is used an additional delay can be expected.

If a cell has been detectable at least for the time period $T_{\text{identify_inter}}$ and then enters or leaves the reporting range, the event triggered measurement reporting delay shall be less than $T_{\text{Measurement_Period_Inter}}$ provided the timing to that cell has not changed more than +/-32 chips while transmission gap has not been available and the L3 filter has not been used.

The normative reference for these requirements is TS 25.133 [2] clauses 8.1.2.3 and A.8.2.1.

{Unchanged Sections are snipped here}

8.6.2.1.4.2 Procedure

- 1) The RF parameters are set up according to T0.
- 2) The UE is switched on.
- 3) A call is set up according to the test procedure specified in TS 34.108 [3] sub clause 7.3.2.3.
- 4) SS shall transmit a MEASUREMENT CONTROL message (inter frequency).
- 5) SS shall transmit a MEASUREMENT CONTROL message (intra frequency).
- 6) SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message.
- 7) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.
- 8) 5 seconds after step7 has completed, the SS shall switch the power settings from T0 to T1.
- 9) UE shall transmit a MEASUREMENT REPORT message (inter frequency) triggered by event 2C. The measurement reporting delay from the beginning of T1 shall be less than 9.08 seconds. If the UE fails to report the event within the required delay, then a failure is recorded. If the reporting delay for this event is within the required limit, the number of successful tests is increased by one.

- 10) After 10 seconds from the beginning of T1, the SS shall switch the power settings from T1 to T2.
- 11) UE shall transmit a MEASUREMENT REPORT message (intra frequency) triggered by event 1A. The measurement reporting delay from the beginning of T2 shall be less than 1040 ms. If the reporting delay for this event is within the required limit, the number of successful tests is increased by one.
- 12) After 5 seconds from the beginning of T2, the UE is switched off.
- 13) Repeat steps 1-12 until the confidence level according to annex F.6.2 is achieved.

NOTE: The measurement reporting delay is 956.2 ms plus 80 ms delay uncertainty (twice the TTI). This gives a total of 1036.2 ms and rounded off to 1040 ms.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

PHYSICAL CHANNEL RECONFIGURATION message for Inter frequency measurement:

Information Element	Value/Remark
Message Type	
UE Information Elements -RRC transaction identifier -Integrity check info -Integrity protection mode info -Ciphering mode info -Activation time -New U-RNTI -New C-RNTI -RRC State Indicator -UTRAN DRX cycle length coefficient	0 Not Present Not Present Not Present Not Present Not Present Not Present CELL_DCH Not Present
CN Information Elements -CN Information info	Not Present
UTRAN mobility information elements -URA identity	Not Present
RB information elements -Downlink counter synchronisation info	Not Present
PhyCH information elements -Frequency info	Not Present
Uplink radio resources -Maximum allowed UL TX power	Not Present
Downlink radio resources -CHOICE mode -Downlink PDSCH information -Downlink information common for all radio links -Downlink DPCH info common for all RL -CHOICE mode -DPCH compressed mode info -Transmission gap pattern sequence -TGPSI -TGPS Status Flag -TGCFN -Transmission gap pattern sequence configuration parameters -TGMP -TGPRC -TGSN -TGL1 -TGL2 -TGD -TGPL1 -TGPL2 -RPP -ITP -CHOICE UL/DL mode -Downlink compressed mode method -Uplink compressed mode method -Downlink frame type -DeltaSIR1 -DeltaSIRafter1 -DeltaSIR2 -DeltaSIRafter2 -N Identify abort -T Reconfirm abort -TX Diversity Mode -SSDT information -Default DPCH Offset Value -Downlink information per radio link list - Downlink information for each radio link -Choice mode -Primary CPICH info -Primary scrambling code -PDSCH with SHO DCH Info	FDD Not Present Not Present FDD 1 Activate (Current CFN + (256 – TTI/10msec))mod 256 FDD measurement Not present 4 7 Not Present UNDEFINED 3 Not Present Mode 0 Mode 0 UL and DL SF/2 SF/2 B 3.0 3.0 Not Present Not Present Not Present Not Present Not Present Not Present Not Present Not Present Not Present Not Present FDD 100 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	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400
-Secondary CPICH info	Not Present
-DL channelisation code	
-Secondary scrambling code	Not Present
-Spreading factor	128
-Code number	96
-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

MEASUREMENT CONTROL message (inter frequency):

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
Measurement Information elements	
-Measurement Identity	2
-Measurement Command (10.3.7.46)	Setup
-Measurement Reporting Mode (10.3.7.49)	AM RLC
-Measurement Report Transfer Mode	Event trigger
-Periodical Reporting / Event Trigger Reporting Mode	Not Present
-Additional measurements list (10.3.7.1)	Not Present
-CHOICE <i>Measurement type</i>	Inter-frequency measurement
-Inter-frequency measurement (10.3.7.16)	
-Inter-frequency measurement objects list (10.3.7.13)	
- CHOICE Inter-frequency cell removal	Not Present
- New Inter frequency cells	
- Inter frequency cell id	0
- Frequency info	
- CHOICE mode	FDD
- UARFCN uplink(Nu)	Not Present
- UARFCN downlink(Nd)	Same frequency as "Channel2" in Table 8.6.2.1.3
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Set to Primary scrambling code of Cell3
- Primary CPICH Tx Power	Set to Primary CPICH Tx Power of Cell3 described in Table 8.6.2.1.3
- Tx Diversity Indicator	FALSE
- Cell Selection and Re-selection info	Set to Cell Selection and Re-selection info of Cell3
- Cell for measurement	Not Present
-Inter-frequency measurement quantity (10.3.7.18)	
-Intra-frequency reporting criteria	
-Inter-frequency measurement quantity (10.3.7.38)	
-Filter coefficient (10.3.7.9)	0
-CHOICE mode	FDD
-Measurement quantity	CPICH_Ec/N0
-Inter-frequency reporting criteria	
-Filter coefficient (10.3.7.9)	0
-CHOICE mode	FDD
-Measurement quantity for frequency quality estimate	CPICH_Ec/N0
-Inter-frequency reporting quantity (10.3.7.21)	
-UTRA Carrier RSSI	FALSE
-Frequency quality estimate	FALSE
-Non frequency related cell reporting quantities (10.3.7.5)	
-SFN-SFN observed time difference reporting indicator	No report
-Cell synchronisation information reporting indicator	TRUE (Note 1)
-Cell Identity reporting indicator	TRUE
-CHOICE mode	FDD
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	TRUEFALSE
-Reporting cell status (10.3.7.61)	Not Present
-Measurement validity (10.3.7.51)	Not Present
-CHOICE report criteria	Inter-frequency measurement reporting criteria
-Inter-frequency measurement reporting criteria (10.3.7.19)	
-Parameters required for each event	1
-Inter-frequency event identity	Event 2C
-Threshold used frequency	Not present
-W used frequency	Not present

Information Element/Group name	Value/Remark
-Hysteresis -Time to trigger -Reporting cell status -CHOICE reported cell -Maximum number of reported cells -Parameters required for each non-used frequency -Threshold non used frequency -W non-used frequency	0 dB 0 ms Report cells within monitored set on non-used frequency 3 -18 dB 1
Physical channel information elements -DPCH compressed mode status info (10.3.6.34)	Not Present
NOTE 1: The SFN-CFN observed time difference is calculated from the OFF and Tm parameters contained in the IE "Cell synchronisation information", TS 25.331, clause 10.3.7.6. According to TS 25.331, 8.6.7.7, this IE is included in MEASUREMENT REPORT if IE "Cell synchronisation information reporting indicator" in IE "Cell reporting quantities" TS 25.331, clause 10.3.7.5 is set to TRUE in MEASUREMENT CONTROL.	

MEASUREMENT CONTROL message (intra frequency):

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
Measurement Information elements	
-Measurement Identity	1
-Measurement Command (10.3.7.46)	Modify
-Measurement Reporting Mode (10.3.7.49)	AM RLC
-Measurement Report Transfer Mode	Event trigger
-Periodical Reporting / Event Trigger Reporting Mode	Not Present
-Additional measurements list (10.3.7.1)	
-CHOICE <i>Measurement type</i>	Intra-frequency measurement
-Intra-frequency measurement (10.3.7.36)	Not Present
-Intra-frequency measurement objects list (10.3.7.33)	
-Intra-frequency measurement quantity (10.3.7.38)	
-Filter coefficient (10.3.7.9)	0
-CHOICE mode	FDD
-Measurement quantity	CPICH_Ec/N0
-Intra-frequency reporting quantity (10.3.7.41)	
-Reporting quantities for active set cells (10.3.7.5)	No report
-SFN-SFN observed time difference reporting indicator	TRUE (Note 1)
-Cell synchronisation information reporting indicator	TRUE
-Cell Identity reporting indicator	FDD
-CHOICE mode	TRUE
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	TRUEFALSE
-Reporting quantities for monitored set cells (10.3.7.5)	No report
-SFN-SFN observed time difference reporting indicator	TRUE (Note 1)
-Cell synchronisation information reporting indicator	TRUE
-Cell Identity reporting indicator	FDD
-CHOICE mode	TRUE
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	TRUEFALSE
-Reporting quantities for detected set cells (10.3.7.5)	Not Present
-Reporting cell status (10.3.7.61)	Not Present
-Measurement validity (10.3.7.51)	Not Present
-CHOICE report criteria	Intra-frequency measurement reporting criteria
-Intra-frequency measurement reporting criteria (10.3.7.39)	
-Parameters required for each event	1
-Intra-frequency event identity	Event 1A
-Triggering condition 2	Monitored set cells
-Reporting Range Constant	4 dB
-Cells forbidden to affect Reporting Range	Not Present
-CHOICE mode	FDD
-Primary CPICH info (10.3.6.60)	
-W	1.0
-Hysteresis	0 dB
-Threshold used frequency	Not Present
-Reporting deactivation threshold	0
-Replacement activation threshold	Not Present
-Time to trigger	0 ms
-Amount of reporting	Not Present
-Reporting interval	0 ms (Note 2)
-Reporting cell status	Not Present
Physical channel information elements	
-DPCH compressed mode status info (10.3.6.34)	Not Present
Note 1: The SFN-CFN observed time difference is calculated from the OFF and Tm parameters contained in the IE "Cell synchronisation information", TS 25.331, clause 10.3.7.6. According to TS 25.331, 8.6.7.7, this IE is included in MEASUREMENT REPORT if IE "Cell synchronisation information reporting indicator" in IE "Cell reporting quantities" TS 25.331, clause 10.3.7.5 is set to TRUE in MEASUREMENT CONTROL.	
Note 2: Reporting interval = 0 ms means no periodical reporting	

MEASUREMENT REPORT message for Inter frequency test cases

MEASUREMENT REPORT message for Intra frequency test cases

These messages are common for all inter and intra frequency test cases and are described in Annex I.

8.6.2.1.5 Test requirements

For the test to pass, the total number of successful tests shall be at least 90% of the cases with a confidence level of 95%. The number of successful tests shall be on an event level, i.e. the SS shall check how many events are reported successfully out of the total number of events checked.

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.6.2.2 Correct reporting of neighbours in fading propagation condition

8.6.2.2.1 Definition and applicability

In the event triggered reporting period the measurement reporting delay is defined as the time between any event that will trigger a measurement report until the UE starts to transmit the measurement report over the Uu interface. This requirement assumes that the measurement report is not delayed by other RRC signalling on the DCCH. This measurement reporting delay excludes a delay uncertainty resulted when inserting the measurement report to the TTI of the uplink DCCH. The delay uncertainty is twice the TTI of the uplink DCCH. The requirements and this test apply to the FDD UE.

The requirements and this test apply to all types of UTRA for the FDD UE for Release 5 and later releases.

8.6.2.2.2 Minimum requirements

The requirements are the same as in sub clause 8.6.2.1.2.

The normative reference for these requirements is TS 25.133 [2] clauses 8.1.2.3 and A.8.2.2.

{Unchanged Sections are snipped here }

8.6.2.2.4.2 Procedure

- 1) The RF parameters are set up according to T1.
- 2) The UE is switched on.
- 3) A call is set up in AWGN conditions, according to the test procedure specified in TS 34.108 [3] sub clause 7.3.2.3.
- 4) SS shall transmit a MEASUREMENT CONTROL message.
- 5) After 2 seconds from the beginning of T1, the SS shall switch the power settings from T1 to T2.
- 6) UE shall transmit a MEASUREMENT REPORT message triggered by event 2C. The measurement reporting delay from the beginning of T2 shall be less than 36.4 s. If the UE fails to report the event within the required delay, then a failure is recorded. If the reporting delay for this event is within the required limit, the number of successful tests is increased by one.
- 7) After 40 seconds from the beginning of T2, the UE is switched off.

8) Repeat steps 1-7 according to Annex F.6.2 Table 6.2.8

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message:

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
Measurement Information elements	
-Measurement Identity	2
-Measurement Command (10.3.7.46)	Setup
-Measurement Reporting Mode (10.3.7.49)	AM RLC
-Measurement Report Transfer Mode	Event trigger
-Periodical Reporting / Event Trigger Reporting Mode	Not Present
-Additional measurements list (10.3.7.1)	
-CHOICE <i>Measurement type</i>	Inter-frequency measurement
-Inter-frequency measurement (10.3.7.16)	
-Inter-frequency measurement objects list (10.3.7.13)	Not Present
- CHOICE Inter-frequency cell removal	
- New Inter frequency cells	
- Inter frequency cell id	0
- Frequency info	
- CHOICE mode	FDD
- UARFCN uplink(Nu)	Not Present
- UARFCN downlink(Nd)	Same frequency as "Channel2" in Table 8.6.2.1.3
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Set to Primary scrambling code of Cell3
- Primary CPICH Tx Power	Set to Primary CPICH Tx Power of Cell3 described in Table 8.6.2.1.3
- Tx Diversity Indicator	FALSE
- Cell Selection and Re-selection info	Set to Cell Selection and Re-selection info of Cell3
- Cell for measurement	Not Present
-Inter-frequency measurement quantity (10.3.7.18)	
-Intra-frequency reporting criteria	
-Inter-frequency measurement quantity (10.3.7.38)	
-Filter coefficient (10.3.7.9)	0
-CHOICE mode	FDD
-Measurement quantity	CPICH_Ec/N0
-Inter-frequency reporting criteria	
-Filter coefficient (10.3.7.9)	0
-CHOICE mode	FDD
-Measurement quantity for frequency quality estimate	CPICH_Ec/N0
-Inter-frequency reporting quantity (10.3.7.21)	
-UTRA Carrier RSSI	FALSE
-Frequency quality estimate	FALSE
-Non frequency related cell reporting quantities (10.3.7.5)	
-SFN-SFN observed time difference reporting indicator	No report
-Cell synchronisation information reporting indicator	TRUE (Note 1)
-Cell Identity reporting indicator	TRUE
-CHOICE mode	FDD
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	TRUEFALSE
-Reporting cell status (10.3.7.61)	Not Present
-Measurement validity (10.3.7.51)	Not Present
-CHOICE report criteria	Inter-frequency measurement reporting criteria
-Inter-frequency measurement reporting criteria (10.3.7.19)	
-Parameters required for each event	1
-Inter-frequency event identity	Event 2C
-Threshold used frequency	Not present
-W used frequency	Not present

Information Element/Group name	Value/Remark
-Hysteresis	0 dB
-Time to trigger	0 ms
-Reporting cell status	
-CHOICE reported cell	Report all active set cells + cells within monitored set on used frequency
-Maximum number of reported cells	3
-Parameters required for each non-used frequency	
-Threshold non used frequency	-18 dB
-W non-used frequency	1
Physical channel information elements	
-DPCH compressed mode status info (10.3.6.34)	Not Present
NOTE 1: The SFN-CFN observed time difference is calculated from the OFF and Tm parameters contained in the IE "Cell synchronisation information", TS 25.331, clause 10.3.7.6. According to TS 25.331, 8.6.7.7, this IE is included in MEASUREMENT REPORT if IE "Cell synchronisation information reporting indicator" in IE "Cell reporting quantities" TS 25.331, clause 10.3.7.5 is set to TRUE in MEASUREMENT CONTROL.	

MEASUREMENT REPORT message for Inter frequency test cases

These messages are common for all inter frequency test cases and are described in Annex I.

8.6.2.2.5 Test requirements

For the test to pass, the total number of successful tests shall be at least 90% of the cases with a confidence level of 95% According to annex F.6.2. The number of successful tests shall be on an event level, i.e. the SS shall check how many events are reported successfully out of the total number of events checked.

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

{Unchanged Sections are snipped here }

CHANGE REQUEST

⌘ **34.121 CR 375** ⌘ rev **-** ⌘ Current version: **5.3.1** ⌘

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 SFN-CFN observed time difference test cases		
Source:	⌘ Nokia		
Work item code:	⌘ TEI	Date:	⌘ 12/05/2004
Category:	⌘ F	Release:	⌘ Rel-5
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	F (correction)		2 (GSM Phase 2)
	A (corresponds to a correction in an earlier release)		R96 (Release 1996)
	B (addition of feature),		R97 (Release 1997)
	C (functional modification of feature)		R98 (Release 1998)
	D (editorial modification)		R99 (Release 1999)
	Detailed explanations of the above categories can be found in 3GPP TR 21.900 .		Rel-4 (Release 4)
			Rel-5 (Release 5)
			Rel-6 (Release 6)

Reason for change: ⌘ - TS 25.133 specifies Frequency Band (I,II,III) dependent constraints on CPICH RSCP and I_o levels for SFN-CFN observed time difference measurement. These constraints have not been taken into account in SFN-CFN observed time difference measurement test cases defined in Section 8.7.4 of TS 34.121.

- Test parameter "Relative delay of path received from cell 2 with respect to cell 1" is ambiguous.
- Test tolerances have not been taken into account in test parameters both in intra and inter frequency measurement test cases
- The test requirements do not take into account test tolerances. Also test requirements are not described with UE reported values
- Maximum test system uncertainties, test tolerances and derivation of test requirements have not been defined for SFN-CFN observed time difference measurement in Annex F
- Tables 8.7.4.1.1 and 8.7.4.2.1 do not have titles

Summary of change: ⌘ - Frequency Band constraints for CPICH RSCP and I_o have been added into "Minimum Requirements" and "Test Requirement" sections of all SFN-CFN observed time difference measurement tests.

- For Frequency Band II and III some test parameters have been slightly modified so that I_o levels are within the constraints that have been specified for these frequency bands.
- Test parameter "Relative delay of path received from cell 2 with respect to cell 1" has been replaced with SFN-CFN observed time difference as specified in TS 25.215 [22].

- Two new tables have been created (Table 8.7.4.1.4 and Table 8.7.4.2.4). These tables include test tolerances for test parameters. Also test procedure sections are modified according to this change
- Two new tables have been created (Table 8.7.4.1.3 and Table 8.7.4.2.3). These tables include test tolerances for test requirements.
- Test requirements are described with UE reported values in table 8.7.4.1.5 and 8.7.4.2.5.
- Maximum test system uncertainties have been added into Table F.1.5
- Test tolerances have been added into table F.2.4
- Derivation of test requirements have been added into table F.4.4
- Titles have been added for Tables 8.7.4.1.1 and 8.7.4.2.1

Consequences if not approved: ⌘ SFN-CFN observed time difference measurement test cases are not compliant with core specification when operating with Frequency Band II or III. Test cases are incomplete.

Clauses affected: ⌘ 8.7.4, Annex F.1.5, Annex F.2.4, Annex F.4

Other specs affected:	⌘	<table border="1" style="display: inline-table; vertical-align: middle;"><tr><th>Y</th><th>N</th></tr><tr><td></td><td>X</td></tr><tr><td></td><td>X</td></tr><tr><td></td><td>X</td></tr></table>	Y	N		X		X		X	Other core specifications	⌘
		Y	N									
			X									
	X											
	X											
	Test specifications											
	O&M Specifications											

Other comments: ⌘ This CR is applicable for UE's supporting Rel-99 or later.

8.7.4 SFN-CFN observed time difference

8.7.4.1 Intra frequency measurement requirement

8.7.4.1.1 Definition and applicability

The intra frequency SFN-CFN observed time difference is defined as the SFN-CFN observed time difference from the active cell to a neighbour cell that is in the same frequency. This measurement is specified in clause 5.1.8 of TS 25.215 [22].

The reference point for the SFN-CFN observed time difference shall be the antenna connector of the UE.

The requirements and this test apply to all types of UTRA for the FDD UE.

8.7.4.1.2 Minimum requirements

The accuracy requirement in table 8.7.4.1.1 is valid under the following conditions:

$CPICH_RSCP1,2|_{dBm} \geq -114$ dBm [for Band I](#).

$CPICH_RSCP1,2|_{dBm} \geq -112$ dBm [for Band II](#).

$CPICH_RSCP1,2|_{dBm} \geq -111$ dBm [for Band III](#).

$$\left| CPICH_RSCP1|_{in\ dBm} - CPICH_RSCP2|_{in\ dBm} \right| \leq 20\text{dB}$$

$$\left(\frac{I_o}{\hat{I}_{or}} \right)_{in\ dB} - \left(\frac{CPICH_E_c}{I_{or}} \right)_{in\ dB} \leq 20\text{dB}$$

$$\left(\frac{I_o}{\hat{I}_{or}} \right)_{in\ dB} - \left(\frac{P - CCPCH_E_c}{I_{or}} \right)_{in\ dB} \text{ is low enough to ensure successful SFN decoding.}$$

Table 8.7.4.1.1 [SFN-CFN observed time difference intra frequency accuracy](#)

Parameter	Unit	Accuracy [chip]	Conditions		
			Io [dBm/3.84 MHz]		
			Band I	Band II	Band III
SFN-CFN observed time difference	chip	± 1	-94...-50	-92...-50	-91...-50

The normative reference for this requirement is TS 25.133 [2] clauses 9.1.7.1 and A.9.1.4.2.

8.7.4.1.3 Test Purpose

The purpose of this test is to verify that the SFN-CFN observed time difference measurement accuracy is within the specified limits in the clause 8.7.4.1.2. This measurement is for handover timing purposes to identify active cell and neighbour cell time difference.

8.7.4.1.4 Method of test

8.7.4.1.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

During the test the timing difference between Cell 1 and 2 can be set to value from 0...9830399 chips.

In this case all cells are in the same frequency. Table 8.7.4.1.2 defines the limits of signal strengths and code powers, where the requirements are applicable.

Table 8.7.4.1.2: SFN-CFN observed time difference Intra frequency test parameters

Parameter	Unit	Test 1		Test 2		Test 3	
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior	dB	-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15	
DPCH_Ec/Ior	dB	-15		-15		-15	
OCNS_Ec/Ior	dB	-1.11		-1.11		-1.11	
Ior/Ioc	dB	10.5		10.5		10.5	
Ioc	dBm/ 3.84 MHz	$I_o - 13.7 \text{ dB} = I_{oc}$, Note 1		$I_o - 13.7 \text{ dB} = I_{oc}$, Note 1		$I_o - 13.7 \text{ dB} = I_{oc}$, Note 1	
Io	Band I	-50		-72		-94	
	Band II					-92	
	Band III					-91	
Relative delay of path received from cell 2 with respect to cell 1 + SFN-CFN observed time difference as specified in TS 25.215 [22]		chip	x Note 2				
Propagation condition		-	AWGN	AWGN	AWGN		
NOTE 1: I_{oc} level shall be adjusted according the total signal power I_o at receiver input and the geometry factor I_{or}/I_{oc} .							
NOTE2: For example, x= 491520 or 9830399. This is a calculated value using parameters "OFF" and "Tm" as specified in TS 25.215 [22].							
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.							

1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2.3. The RF parameters for Test 1 are set up according to table 8.7.4.1.2.

8.7.4.1.4.2 Procedure

- 1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2.3. The RF parameters for Test 1 are set up according to table 8.7.4.1.4.
- 2) SS shall transmit MEASUREMENT CONTROL message.
- 3) UE shall transmit periodically MEASUREMENT REPORT message.
- 4) SS shall check "OFF" and "Tm" values in MEASUREMENT REPORT message and calculate SFN-CFN observed time difference value according to the definition in clause 5.1.8 of TS 25.215 [22]. This value shall be compared to the actual SFN-CFN observed time difference value for each MEASUREMENT REPORT message.
- 5) SS shall count the number of MEASUREMENT REPORT messages transmitted by UE. After 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.4.1.4 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 4) above is repeated. After further 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.4.1.4 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 4) above is repeated.
- 6) After further 1000 MEASUREMENT REPORT messages have been received from UE, the SS shall transmit RRC CONNECTION RELEASE message.
- 7) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message for intra frequency measurement

Information Element	Value/Remark
Message Type	
UE information elements -RRC transaction identifier -Integrity check info	0 Not Present
Measurement Information elements -Measurement Identity -Measurement Command -Measurement Reporting Mode - Measurement Report Transfer Mode - Periodical Reporting / Event Trigger Reporting Mode -Additional measurement list -CHOICE Measurement Type -Intra-frequency measurement - Intra-frequency measurement objects list -Intra-frequency measurement quantity -Filter coefficient -CHOICE mode -Measurement quantity -Intra-frequency reporting quantity -Reporting quantities for active set cells -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator -Reporting quantities for monitored set cells -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator -Reporting quantities for detected set cells -Reporting cell status -CHOICE reported cell -Maximum number of reported cells -Measurement validity -CHOICE <i>report criteria</i> -Amount of reporting -Reporting interval	1 Modify Acknowledged mode RLC Periodical reporting Not Present Intra-frequency measurement Not Present 0 FDD CPICH RSCP No report TRUE TRUE FDD TRUE TRUE TRUE No report TRUE TRUE FDD TRUE TRUE TRUE Not Present Report all active set cells + cells within monitored set on used frequency Virtual/active set cells + 2 Not Present Periodical reporting criteria Infinity 250 ms
Physical channel information elements -DPCH compressed mode status info	Not Present

MEASUREMENT REPORT message for Intra frequency test cases

This message is common for all intra frequency test cases in clause 8.7 and is described in Annex I.

8.7.4.1.5 Test requirements

Table 8.7.4.1.3 SFN-CFN observed time difference intra frequency accuracy

Parameter	Unit	Accuracy [chip]	Conditions		
			Io [dBm/3.84 MHz]		
			Band I	Band II	Band III
SFN-CFN observed time difference	chip	± 1.5	-94...-50	-92...-50	-91...-50

Table 8.7.4.1.4: SFN-CFN observed time difference Intra frequency test parameters

Parameter	Unit	Test 1		Test 2		Test 3		
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2	
UTRA RF Channel number		Channel 1		Channel 1		Channel 1		
CPICH Ec/Ior	dB	-10		-10		-10		
PCCPCH Ec/Ior	dB	-12		-12		-12		
SCH Ec/Ior	dB	-12		-12		-12		
PICH Ec/Ior	dB	-15		-15		-15		
DPCH Ec/Ior	dB	-15		-15		-15		
OCNS Ec/Ior	dB	-1.11		-1.11		-1.11		
Ior/Ioc	dB	10.8		10.8		10.8		
Ioc	Band I	dBm/ 3.84 MHz	-65.3		-85.7		-106.7	
	Band II						-104.7	
	Band III						-103.7	
Io, Note 1	Band I	dBm/3.84 MHz	-51.3		-71.7		-92.7	
	Band II						-90.7	
	Band III						-89.7	
SFN-CFN observed time difference as specified in TS 25.215 [22]	chip	\times Note 2						
Propagation condition	-	AWGN		AWGN		AWGN		
NOTE 1: Io level has been calculated from other parameters for information purposes. It is not a settable parameter itself.								
NOTE2: For example, x= 491520 or 9830399. This is a calculated value using parameters "OFF" and "Tm" as specified in TS 25.215 [22].								
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.								

~~The SFN-CFN observed time difference measurement accuracy shall meet the requirements in clause 8.7.4.1.2.~~

The accuracy of the SFN-CFN observed time difference measurement value calculated from the reported "OFF" and "Tm" values shall meet the requirements in table 8.7.4.1.5.

Table 8.7.4.1.5: SFN-CFN observed time difference measurement accuracy requirements for the reported values

	Test 1	Test 2	Test 3
Lowest reported value	SFN_CFN_TIME (X - 2)	SFN_CFN_TIME (X - 2)	SFN_CFN_TIME (X - 2)
Highest reported value	SFN_CFN_TIME (X + 2)	SFN_CFN_TIME (X + 2)	SFN_CFN_TIME (X + 2)
SFN-CFN_TIME (X) is the reported value for the actual SFN-CFN observed time difference value as defined in table 8.7.4.1.4			

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.7.4.2 Inter frequency measurement requirement

8.7.4.2.1 Definition and applicability

The inter frequency SFN-CFN observed time difference is defined as the SFN-CFN time difference from the active cell to a neighbour cell that is in a different frequency. This measurement is specified in clause 5.1.8 of TS 25.215 [22].

The reference point for the SFN-CFN observed time difference shall be the antenna connector of the UE.

The requirements and this test apply to all types of UTRA for the FDD UE.

8.7.4.2.2 Minimum requirements

The accuracy requirement in table 8.7.4.2.1 is valid under the following conditions:

$CPICH_RSCP_{1,2}|_{dBm} \geq -114$ dBm [for Band I](#),

$CPICH_RSCP_{1,2}|_{dBm} \geq -112$ dBm [for Band II](#),

$CPICH_RSCP_{1,2}|_{dBm} \geq -111$ dBm [for Band III](#).

$$\left| CPICH_RSCP1|_{in\ dBm} - CPICH_RSCP2|_{in\ dBm} \right| \leq 20dB$$

$$| Channel\ 1_Io|_{dBm/3.84\ MHz} - Channel\ 2_Io|_{dBm/3.84\ MHz} | \leq 20\ dB.$$

$$\left(\frac{I_o}{\hat{I}_{or}} \right) |_{in\ dB} - \left(\frac{CPICH_E_c}{I_{or}} \right) |_{in\ dB} \leq 20dB$$

Table 8.7.4.2.1 [SFN-CFN observed time difference inter frequency accuracy](#)

Parameter	Unit	Accuracy [chip]	Conditions		
			Io [dBm/3.84 MHz]		
			Band I	Band II	Band III
SFN-CFN observed time difference	chip	± 1	-94...-50	-92...-50	-91...-50

The normative reference for this requirement is TS 25.133 [2] clauses 9.1.7.2 and A.9.1.4.2.

8.7.4.2.3 Test purpose

The purpose of this test is to verify that the SFN-CFN observed time difference measurement accuracy is within the specified limits in the clause 8.7.4.2.2. This measurement is for handover timing purposes to identify active cell and neighbour cell time difference.

8.7.4.2.4 Method of test

8.7.4.2.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

During the test the timing difference between Cell 1 and 2 can be set to value from 0...9830399 chips.

In this test case both cells are in different frequency and compressed mode is applied. The gap length is 7, detailed definition is in clause C.5, set 1 of table C.5.2 except for TGRRC and TGCFN. TGPRC and TGCFN shall set to "Infinity" and "(Current CFN + (256 – TTI/10msec))mod 256". Table 8.7.4.2.2 defines the limits of signal strengths and code powers, where the requirement is applicable.

Table 8.7.4.2.2: SFN-CFN observed time difference Inter frequency tests parameters

Parameter	Unit	Test 1		Test 2		Test 3	
		Cell 1 Channel 1	Cell 2 Channel 2	Cell 1 Channel 1	Cell 2 Channel 2	Cell 1 Channel 1	Cell 2 Channel 2
UTRA RF Channel number							
CPICH_Ec/lor	dB	-10		-10		-10	
PCCPCH_Ec/lor	dB	-12		-12		-12	
SCH_Ec/lor	dB	-12		-12		-12	
PICH_Ec/lor	dB	-15		-15		-15	
DPCH_Ec/lor	dB	-15		-15		-15	
OCNS_Ec/lor	dB	-1.11		-1.11		-1.11	
\hat{I} or/loc	dB	10.1		10.1		10.1	
loc	dBm/ 3.84 MHz	$l_o - 10.6 \text{ dB} = l_{oc}$, Note 1		$l_o - 10.6 \text{ dB} = l_{oc}$, Note 1		$l_o - 10.6 \text{ dB} = l_{oc}$, Note 1	
l _o	Band I	-50		-72		-94	
	Band II					-92	
	Band III					-91	
Relative delay of path received from cell 2 with respect to cell 1 SFN-CFN observed time difference as specified in TS 25.215 [22]		chip	x Note 2				
Propagation condition		-	AWGN		AWGN		AWGN
NOTE 1: l_{oc} level shall be adjusted in each carrier frequency according the total signal power l_o at receiver input and the geometry factor \hat{I} or/ l_{oc} .							
NOTE2: For example, x= 491520 or 9830399. <u>This is a calculated value using parameters "OFF" and "Tm" as specified in TS 25.215 [22].</u>							
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.							

~~1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2.3. The RF parameters for Test 1 are set up according to table 8.7.4.2.2.~~

8.7.4.2.4.2 Procedure

~~1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2.3. The RF parameters for Test 1 are set up according to table 8.7.4.2.4.~~

~~2) SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message.~~

~~3) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.~~

~~4) SS shall transmit MEASUREMENT CONTROL message.~~

~~5) UE shall transmit periodically MEASUREMENT REPORT messages.~~

~~6) SS shall check "OFF" and "Tm" values in MEASUREMENT REPORT message and calculate SFN-CFN observed time difference value according to the definition in clause 5.1.8 of TS 25.215 [22]. Note that according to TS 25.215 [22] UE is always reporting "OFF" parameter to be zero. This value shall be compared to the actual SFN-CFN observed time difference value for each MEASUREMENT REPORT message taking into account that "OFF" parameter is set to zero.~~

~~7) SS shall count number of MEASUREMENT REPORT messages transmitted by UE. After 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.4.2.4.2 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps ~~5) and 6)~~ above are repeated. After further 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.4.2.4.2 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps ~~5) and 6)~~ above are repeated.~~

~~8) After further 1000 MEASUREMENT REPORT messages have been received from UE, the SS shall transmit RRC CONNECTION RELEASE message.~~

98) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

PHYSICAL CHANNEL RECONFIGURATION message for inter frequency measurement

Information Element	Value/Remark
Message Type	
UE Information Elements -RRC transaction identifier -Integrity check info -Integrity protection mode info -Ciphering mode info -Activation time -New U-RNTI -New C-RNTI -RRC State Indicator -UTRAN DRX cycle length coefficient	0 Not Present Not Present Not Present Not Present Not Present Not Present CELL_DCH Not Present
CN Information Elements -CN Information info	Not Present
UTRAN mobility information elements -URA identity	Not Present
RB information elements -Downlink counter synchronisation info	Not Present
PhyCH information elements -Frequency info	Not Present
Uplink radio resources -Maximum allowed UL TX power - CHOICE <i>channel requirement</i>	Not Present Not Present
Downlink radio resources -CHOICE mode -Downlink PDSCH information -Downlink information common for all radio links -Downlink DPCH info common for all RL -CHOICE mode -DPCH compressed mode info -Transmission gap pattern sequence -TGPSI -TGPS Status Flag -TGCFN -Transmission gap pattern sequence configuration parameters -TGMP -TGPRC -TGSN -TGL1 -TGL2 -TGD -TGPL1 -TGPL2 -RPP -ITP -CHOICE UL/DL mode -Downlink compressed mode method -Uplink compressed mode method -Downlink frame type -DeltaSIR1 -DeltaSIRafter1 -DeltaSIR2 -DeltaSIRafter2 -N Identify abort -T Reconfirm abort -TX Diversity Mode -SSDT information -Default DPCH Offset Value -Downlink information per radio link list -Downlink information for each radio link -Choice mode -Primary CPICH info -Primary scrambling code	FDD Not Present Not Present FDD 1 Activate (Current CFN + (256 – TTI/10msec))mod 256 FDD measurement Infinity 4 7 Not Present 0 3 Not Present Mode 0 Mode 0 UL and DL SF/2 SF/2 B 3.0 3.0 Not Present Not Present Not Present Not Present Not Present Not Present Not Present Not Present FDD 100

-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	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400
-Secondary CPICH info	Not Present
-DL channelisation code	
-Secondary scrambling code	Not Present
-Spreading factor	128
-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

MEASUREMENT CONTROL message for Inter frequency measurement

Information Element	Value/Remark
Message Type	
UE information elements -RRC transaction identifier -Integrity check info	0 Not Present
Measurement Information elements -Measurement Identity -Measurement Command -Measurement Reporting Mode - Measurement Report Transfer Mode - Periodical Reporting / Event Trigger Reporting Mode -Additional measurement list -CHOICE Measurement Type -Inter-frequency measurement -Inter-frequency cell info list -CHOICE Inter-frequency cell removal -New inter-frequency cells -Cell for measurement -Inter-frequency measurement quantity -CHOICE reporting criteria -Filter coefficient -CHOICE mode -Measurement quantity for frequency quality estimate -Inter-frequency reporting quantity -UTRA Carrier RSSI -Frequency quality estimate -Non frequency related cell reporting quantities -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator -Reporting cell status -CHOICE reported cell -Maximum number of reported cells -Measurement validity -Inter-frequency set update -CHOICE report criteria -Amount of reporting -Reporting interval	2 Setup Acknowledged mode RLC Periodical reporting Not Present Inter-frequency measurement Not Present Cell 2 information is included Inter-frequency reporting criteria 0 FDD CPICH RSCP TRUE TRUE No report TRUE TRUE FDD TRUE TRUE TRUE Report all active set cells + cells within monitored set on used frequency Virtual/active set cells + 2 Not Present Not Present Periodical reporting criteria Infinity 500 ms
Physical channel information elements -DPCH compressed mode status info	Not Present

MEASUREMENT REPORT message for Inter frequency test cases

This message is common for all inter frequency test cases in clause 8.7 and is described in Annex I.

8.7.4.2.5 Test requirements

Table 8.7.4.2.3 SFN-CFN observed time difference inter frequency accuracy

Parameter	Unit	Accuracy [chip]	Conditions		
			Io [dBm/3.84 MHz]		
			Band I	Band II	Band III

<u>SFN-CFN observed time difference</u>	<u>chip</u>	<u>± 1.5</u>	<u>-94...-50</u>	<u>-92...-50</u>	<u>-91...-50</u>
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Table 8.7.4.2.4: SFN-CFN observed time difference Inter frequency tests parameters

<u>Parameter</u>	<u>Unit</u>	<u>Test 1</u>		<u>Test 2</u>		<u>Test 3</u>	
		<u>Cell 1</u>	<u>Cell 2</u>	<u>Cell 1</u>	<u>Cell 2</u>	<u>Cell 1</u>	<u>Cell 2</u>
<u>UTRA RF Channel number</u>		<u>Channel 1</u>	<u>Channel 2</u>	<u>Channel 1</u>	<u>Channel 2</u>	<u>Channel 1</u>	<u>Channel 2</u>
<u>CPICH Ec/lor</u>	<u>dB</u>	<u>-10</u>	<u>-10</u>	<u>-10</u>	<u>-10</u>	<u>-10</u>	<u>-10</u>
<u>PCCPCH Ec/lor</u>	<u>dB</u>	<u>-12</u>	<u>-12</u>	<u>-12</u>	<u>-12</u>	<u>-12</u>	<u>-12</u>
<u>SCH Ec/lor</u>	<u>dB</u>	<u>-12</u>	<u>-12</u>	<u>-12</u>	<u>-12</u>	<u>-12</u>	<u>-12</u>
<u>PICH Ec/lor</u>	<u>dB</u>	<u>-15</u>	<u>-15</u>	<u>-15</u>	<u>-15</u>	<u>-15</u>	<u>-15</u>
<u>DPCH Ec/lor</u>	<u>dB</u>	<u>-15</u>	<u>-15</u>	<u>-15</u>	<u>-15</u>	<u>-15</u>	<u>-15</u>
<u>OCNS Ec/lor</u>	<u>dB</u>	<u>-1.11</u>	<u>-1.11</u>	<u>-1.11</u>	<u>-1.11</u>	<u>-1.11</u>	<u>-1.11</u>
<u>lor/loc</u>	<u>dB</u>	<u>10.4</u>	<u>10.4</u>	<u>10.4</u>	<u>10.4</u>	<u>10.4</u>	<u>10.4</u>
<u>loc</u>	<u>Band I</u>	<u>dBm/ 3.84 MHz</u>	<u>-62.1</u>	<u>-82.6</u>	<u>103.5</u>	<u>101.5</u>	<u>100.5</u>
	<u>Band II</u>						
	<u>Band III</u>						
<u>lo, Note 1</u>	<u>Band I</u>	<u>dBm/3.84 MHz</u>	<u>-51.3</u>	<u>-71.8</u>	<u>-92.7</u>	<u>-90.7</u>	<u>-89.7</u>
	<u>Band II</u>						
	<u>Band III</u>						
<u>SFN-CFN observed time difference as specified in TS 25.215 [22]</u>	<u>chip</u>	<u>x</u> <u>Note 2</u>					
<u>Propagation condition</u>	<u>-</u>	<u>AWGN</u>	<u>AWGN</u>	<u>AWGN</u>	<u>AWGN</u>	<u>AWGN</u>	<u>AWGN</u>
<u>NOTE 1: lo level has been calculated from other parameters for information purposes. It is not a settable parameter itself.</u>							
<u>NOTE2: For example, x= 491520 or 9830399. This is a calculated value using parameters "OFF" and "Tm" as specified in TS 25.215 [22].</u>							
<u>Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.</u>							

~~The SFN-CFN observed time difference measurement accuracy shall meet the requirements in clause 8.7.4.2.2:~~

The accuracy of the SFN-CFN observed time difference measurement value calculated from the reported "OFF" and "Tm" values shall meet the requirements in table 8.7.4.2.5.

Table 8.7.4.2.5: SFN-CFN observed time difference measurement accuracy requirements for the reported values

	<u>Test 1</u>	<u>Test 2</u>	<u>Test 3</u>
<u>Lowest reported value</u>	<u>SFN_CFN_TIME (X - 2)</u>	<u>SFN_CFN_TIME (X - 2)</u>	<u>SFN_CFN_TIME (X - 2)</u>
<u>Highest reported value</u>	<u>SFN_CFN_TIME (X + 2)</u>	<u>SFN_CFN_TIME (X + 2)</u>	<u>SFN_CFN_TIME (X + 2)</u>
<u>SFN_CFN_TIME (X) is the reported value for the actual SFN-CFN observed time difference value as defined in table 8.7.4.2.4 taking into account that "OFF" parameter is set to zero.</u>			

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

Table F.1.5: Maximum Test System Uncertainty for Radio Resource Management Tests

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
8.2 Idle Mode Tasks		
8.2.2 Cell Re-Selection		
8.2.2.1 Scenario 1: Single carrier case	<p><u>During T1 and T2:</u></p> $\frac{CPICH - E_c}{I_{or}} \quad \pm 0.1 \text{ dB}$ $I_{oc} \quad \pm 1.0 \text{ dB}$ <p><u>During T1:</u></p> $I_{or} (2) \quad \pm 0.7 \text{ dB}$ $I_{or} (1, 3, 4, 5, 6) \text{ relative to } I_{or} (2) \quad \pm 0.3 \text{ dB}$ <p><u>During T2:</u></p> $I_{or} (1) \quad \pm 0.7 \text{ dB}$ $I_{or} (2, 3, 4, 5, 6) \text{ relative to } I_{or} (1) \quad \pm 0.3 \text{ dB}$ <p>Assumptions:</p> <p>a) The contributing uncertainties for $I_{or}(n)$, channel power ratio, and I_{oc} are derived according to ETR 273-1-2 [16], with a coverage factor of $k=2$.</p> <p>b) Within each cell, the uncertainty for $I_{or}(n)$, and channel power ratio are uncorrelated to each other.</p> <p>c) The relative uncertainties for $I_{or}(n)$ across different cells may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).</p> <p>d) Across different cells, the channel power ratio uncertainties may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).</p> <p>e) The uncertainty for I_{oc} and $I_{or}(n)$ may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).</p> <p>f) The absolute uncertainty of $I_{or}(2)$ at T1 and the relative uncertainty of $I_{or}(1, 3, 4, 5, 6)$, are uncorrelated to each other. Similarly, the absolute uncertainty of $I_{or}(1)$ at T2 and the relative uncertainty of $I_{or}(2, 3, 4, 5, 6)$, are uncorrelated to each other.</p> <p>An explanation of correlation between uncertainties, and of the rationale behind the assumptions, is recorded in 3GPP TR 34 902 [24].</p>	

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
8.2.2.2 Scenario 2: Multi carrier case	<p><u>Channel 1 during T1 and T2:</u></p> $\frac{CPICH - E_c}{I_{or}} \quad \pm 0.1 \text{ dB}$ $I_{oc}(1) \quad \pm 1.0 \text{ dB}$ <p><u>Channel 1 during T1:</u></p> $I_{or}(1) \quad \pm 0.7 \text{ dB}$ $I_{or}(3, 4) \text{ relative to } I_{or}(1) \quad \pm 0.3 \text{ dB}$ <p><u>Channel 1 during T2:</u></p> $I_{or}(1) \quad \pm 0.7 \text{ dB}$ $I_{or}(3, 4) \text{ relative to } I_{or}(1) \quad \pm 0.3 \text{ dB}$ <p><u>Channel 2 during T1 and T2:</u></p> $\frac{CPICH - E_c}{I_{or}} \quad \pm 0.1 \text{ dB}$ $I_{oc}(2) \quad \pm 1.0 \text{ dB}$ <p><u>Channel 2 during T1:</u></p> $I_{or}(2) \quad \pm 0.7 \text{ dB}$ $I_{or}(5, 6) \text{ relative to } I_{or}(2) \quad \pm 0.3 \text{ dB}$ <p><u>Channel 2 during T2:</u></p> $I_{or}(2) \quad \pm 0.7 \text{ dB}$ $I_{or}(5, 6) \text{ relative to } I_{or}(2) \quad \pm 0.3 \text{ dB}$	
	<p>Assumptions:</p> <p>a) to e): Same as for the one-frequency test 8.2.2.1.</p> <p>f) The absolute uncertainty of $I_{or}(1)$ and the relative uncertainty of $I_{or}(3, 4)$, are uncorrelated to each other. Similarly, the absolute uncertainty of $I_{or}(2)$ and the relative uncertainty of $I_{or}(5, 6)$, are uncorrelated to each other.</p> <p>g) The absolute uncertainties for $I_{or}(1)$ and $I_{or}(2)$ may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).</p> <p>h) The absolute uncertainties for $I_{oc}(1)$ and $I_{oc}(2)$ may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).</p> <p>An explanation of correlation between uncertainties, and of the rationale behind the assumptions, is recorded in 3GPP TR 34 902 [24].</p>	

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
8.2.2.1 Scenario 1: Single carrier case	$\frac{\hat{I}_{or}}{I_{oc}} \quad \pm 0.3 \text{ dB}$ $I_{oc} \quad \pm 1.0 \text{ dB}$ $\frac{CPICH_E_c}{I_{or}} \quad \pm 0.1 \text{ dB}$	<p>0.1 dB uncertainty in CPICH_Ec ratio</p> <p>0.3 dB uncertainty in \hat{I}_{or}/I_{oc} based on power meter measurement after the combiner</p> <p>The absolute error of the AWGN is specified as 1.0 dB.</p>
8.2.2.2 Scenario 2: Multi carrier case	$\hat{I}_{or}/I_{oc} \quad \pm 0.3 \text{ dB}$ $I_{oc} \quad \pm 1.0 \text{ dB}$ $I_{oc1}/I_{oc2} \quad \pm 0.3 \text{ dB}$ $\frac{CPICH_E_c}{I_{or}} \quad \pm 0.1 \text{ dB}$	<p>0.1 dB uncertainty in CPICH_Ec ratio</p> <p>0.3 dB uncertainty in \hat{I}_{or}/I_{oc} based on power meter measurement after the combiner</p> <p>0.3 dB uncertainty in loc1/loc2 based on power meter measurement after the combiner</p> <p>Overall error for the CPICH_Ec/Io is the sum of the \hat{I}_{or}/I_{oc} ratio error and the CPICH_Ec/Ior ratio.</p> <p>The absolute error of the AWGN is specified as 1.0 dB.</p>
8.2.3 UTRAN to GSM Cell Re-Selection		
8.2.3.1 Scenario 1: Both UTRA and GSM level changed	$\hat{I}_{or}/I_{oc} \quad \pm 0.3 \text{ dB}$ $I_{oc}/RXLEV \quad \pm 0.3 \text{ dB}$ $I_{oc} \quad \pm 1.0 \text{ dB}$ $RXLEV \quad \pm 1.0 \text{ dB}$ $\frac{CPICH_E_c}{I_{or}} \quad \pm 0.1 \text{ dB}$	<p>0.1 dB uncertainty in CPICH_Ec ratio</p> <p>0.3 dB uncertainty in \hat{I}_{or}/I_{oc} based on power meter measurement after the combiner</p> <p>0.3 dB uncertainty in Ioc/RXLEV based on power meter measurement after the combiner</p> <p>The absolute error of the AWGN is specified as 1.0 dB.</p> <p>The absolute error of the RXLEV is specified as 1.0 dB.</p>

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
8.2.3.2 Scenario 2: Only UTRA level changed	\hat{I}_{or}/I_{oc} ±0.3 dB $I_{oc}/RXLEV$ ±0.3 dB I_{oc} ±1.0 dB RXLEV ±1.0 dB $\frac{CPICH - E_c}{I_{or}}$ ±0.1 dB	Same as 8.2.3.1
8.2.4 FDD/TDD cell re-selection	\hat{I}_{or}/I_{oc} ±0.3 dB I_{oc} ±1.0 dB I_{oc1}/I_{oc2} ±0.3 dB $\frac{CPICH - E_c}{I_{or}}$ ±0.1 dB	Same as 8.2.2.2
8.3 UTRAN Connected Mode Mobility		
8.3.1 FDD/FDD Soft Handover	TBD	
8.3.2 FDD/FDD Hard Handover	TBD	
8.3.3 FDD/TDD Handover	TBD	
8.3.4 Inter-system Handover from UTRAN FDD to GSM	TBD	
8.3.5 Cell Re-selection in CELL_FACH		
8.3.5.1 One frequency present in the neighbour list	<u>During T1 and T2:</u> $\frac{CPICH - E_c}{I_{or}}$ ±0.1 dB I_{oc} ±1.0 dB <u>During T1:</u> $I_{or} (2)$ ±0.7 dB $I_{or} (1, 3, 4, 5, 6)$ relative to $I_{or} (2)$ ±0.3 dB <u>During T2:</u> $I_{or} (1)$ ±0.7 dB $I_{or} (2, 3, 4, 5, 6)$ relative to $I_{or} (1)$ ±0.3 dB	

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
		<p>Assumptions:</p> <p>a) The contributing uncertainties for $\text{lor}(n)$, channel power ratio, and loc are derived according to ETR 273-1-2 [16], with a coverage factor of $k=2$.</p> <p>b) Within each cell, the uncertainty for $\text{lor}(n)$, and channel power ratio are uncorrelated to each other.</p> <p>c) The relative uncertainties for $\text{lor}(n)$ across different cells may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).</p> <p>d) Across different cells, the channel power ratio uncertainties may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).</p> <p>e) The uncertainty for loc and $\text{lor}(n)$ may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).</p> <p>f) The absolute uncertainty of $\text{lor}(2)$ at T1 and the relative uncertainty of $\text{lor}(1, 3, 4, 5, 6)$, are uncorrelated to each other. Similarly, the absolute uncertainty of $\text{lor}(1)$ at T2 and the relative uncertainty of $\text{lor}(2, 3, 4, 5, 6)$, are uncorrelated to each other.</p> <p>An explanation of correlation between uncertainties, and of the rationale behind the assumptions, is recorded in 3GPP TR 34 902 [24].</p>

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
8.3.5.2 Two frequencies present in the neighbour list	<p><u>Channel 1 during T1 and T2:</u></p> $\frac{CPICH - E_c}{I_{or}} \quad \pm 0.1 \text{ dB}$ $I_{oc}(1) \quad \pm 1.0 \text{ dB}$ <p><u>Channel 1 during T1:</u></p> $I_{or}(1) \quad \pm 0.7 \text{ dB}$ $I_{or}(3, 4) \text{ relative to } I_{or}(1) \quad \pm 0.3 \text{ dB}$ <p><u>Channel 1 during T2:</u></p> $I_{or}(1) \quad \pm 0.7 \text{ dB}$ $I_{or}(3, 4) \text{ relative to } I_{or}(1) \quad \pm 0.3 \text{ dB}$ <p><u>Channel 2 during T1 and T2:</u></p> $\frac{CPICH - E_c}{I_{or}} \quad \pm 0.1 \text{ dB}$ $I_{oc}(2) \quad \pm 1.0 \text{ dB}$ <p><u>Channel 2 during T1:</u></p> $I_{or}(2) \quad \pm 0.7 \text{ dB}$ $I_{or}(5, 6) \text{ relative to } I_{or}(2) \quad \pm 0.3 \text{ dB}$ <p><u>Channel 2 during T2:</u></p> $I_{or}(2) \quad \pm 0.7 \text{ dB}$ $I_{or}(5, 6) \text{ relative to } I_{or}(2) \quad \pm 0.3 \text{ dB}$ <p>Assumptions: a) to e): Same as for the one-frequency test 8.3.5.1. f) The absolute uncertainty of $I_{or}(1)$ and the relative uncertainty of $I_{or}(3, 4)$, are uncorrelated to each other. Similarly, the absolute uncertainty of $I_{or}(2)$ and the relative uncertainty of $I_{or}(5, 6)$, are uncorrelated to each other. g) The absolute uncertainties for $I_{or}(1)$ and $I_{or}(2)$ may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated). h) The absolute uncertainties for $I_{oc}(1)$ and $I_{oc}(2)$ may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated). An explanation of correlation between uncertainties, and of the rationale behind the assumptions is recorded in 3GPP TR 34 902 [24].</p>	
8.3.5.3 Cell Re-selection to GSM	TBD	
8.3.6 Cell Re-selection in CELL_PCH		
8.3.6.1 One frequency present in the neighbour list	Same as 8.2.2.1	Same as 8.2.2.1

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
8.3.6.2 Two frequencies present in the neighbour list	Same as 8.2.2.2	Same as 8.2.2.2
8.3.7 Cell Re-selection in URA_PCH		
8.3.7.1 One frequency present in the neighbour list	Same as 8.2.2.1	Same as 8.2.2.1
8.3.7.2 Two frequencies present in the neighbour list	Same as 8.2.2.2	Same as 8.2.2.2
8.4 RRC Connection Control		
8.4.1 RRC Re-establishment delay	TBD	
8.4.2 Random Access	<p>Settings:</p> $\hat{I}_{or}/I_{oc} \quad \pm 0.3 \text{ dB}$ $I_{oc} \quad \pm 1.0 \text{ dB}$ $\frac{AICH - E_c}{I_{or}} \quad \pm 0.1 \text{ dB}$ <p>Measurements: Power difference: $\pm 1 \text{ dB}$ Maximum Power: same as 5.5.2</p>	<p>0.1 dB uncertainty in AICH_Ec ratio</p> <p>0.3 dB uncertainty in \hat{I}_{or}/I_{oc} based on power meter measurement after the combiner</p> <p>Overall error is the sum of the \hat{I}_{or}/I_{oc} ratio error and the AICH_Ec/Ior ratio.</p> <p>The absolute error of the AWGN is specified as 1.0 dB</p> <p>Power difference: Assume symmetric meas error $\pm 1.0 \text{ dB}$ comprising RSS of: -0.7 dB downlink error plus -0.7 dB meas error.</p> <p>Maximum Power: Assume asymmetric meas error -1.0 dB / 0.7 dB comprising RSS of: -0.7 dB downlink error plus -0.7 dB meas error, and +0.7 dB for upper limit</p>
8.4.3 Transport format combination selection in UE	TBD	
8.5 Timing and Signalling Characteristics		
8.5.1 UE Transmit Timing	$I_{or} \quad \pm 1.0 \text{ dB}$ $I_{or1}/I_{or2} \quad \pm 0.3 \text{ dB}$ $\frac{DPCH - E_c}{I_{or}} \quad \pm 0.1 \text{ dB}$	<p>0.1 dB uncertainty in DPCH_Ec ratio</p> <p>0.3 dB uncertainty in Ior1/Ior2 based on power meter measurement after the combiner</p> <p>The absolute error of the Ior is specified as 1.0 dB.</p>
8.6 UE Measurements Procedures		
8.6.1 FDD intra frequency measurements		
8.6.1.1 Event triggered reporting in AWGN propagation conditions	TBD	
8.6.1.2 Event triggered reporting of multiple neighbours in AWGN propagation condition	TBD	
8.6.1.3 Event triggered reporting of two detectable neighbours in AWGN propagation condition	TBD	

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
8.6.1.4 Correct reporting of neighbours in fading propagation condition	TBD	
8.6.2 FDD inter frequency measurements		
8.6.2.1 Correct reporting of neighbours in AWGN propagation condition	TBD	
8.6.2.2 Correct reporting of neighbours in Fading propagation condition	TBD	
8.6.3 TDD measurements		
8.6.3.1 Correct reporting of TDD neighbours in AWGN propagation condition	TBD	
8.6.4 GSM Measurement	TBD	
8.7 Measurements Performance Requirements		
8.7.1 CPICH RSCP		
8.7.1.1 Intra frequency measurements accuracy	\hat{I}_{or}/I_{oc} ±0.3 dB I_{oc} ±1.0 dB $\frac{CPICH - E_c}{I_{or}}$ ±0.1 dB	Same as 8.2.2.1
8.7.1.2 Inter frequency measurement accuracy	\hat{I}_{or}/I_{oc} ±0.3 dB I_{oc} ±1.0 dB I_{oc1}/I_{oc2} ±0.3 dB $\frac{CPICH - E_c}{I_{or}}$ ±0.1 dB	Same as 8.2.2.2
8.7.2 CPICH Ec/Io		
8.7.2.1 Intra frequency measurements accuracy	\hat{I}_{or}/I_{oc} ±0.3 dB I_{oc} ±1.0 dB $\frac{CPICH - E_c}{I_{or}}$ ±0.1 dB	Same as 8.2.2.1
8.7.2.2 Inter frequency measurement accuracy	\hat{I}_{or}/I_{oc} ±0.3 dB I_{oc} ±1.0 dB I_{oc1}/I_{oc2} ±0.3 dB $\frac{CPICH - E_c}{I_{or}}$ ±0.1 dB	Same as 8.2.2.2
8.7.3 UTRA Carrier RSSI	\hat{I}_{or}/I_{oc} ±0.3 dB I_{oc} ±1.0 dB I_{oc1}/I_{oc2} ±0.3 dB	0.3 dB uncertainty in \hat{I}_{or}/I_{oc} based on power meter measurement after the combiner 0.3 dB uncertainty in I_{oc1}/I_{oc2} based on power meter measurement after the combiner The absolute error of the AWGN is specified as 1.0 dB
8.7.3A GSM Carrier RSSI	TBD	
8.7.3C UE Transmitted power	Mean power measurement ±0,7 dB	Downlink parameters are unimportant.
8.7.4 SFN-CFN observed time difference	TBD	

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
8.7.4.1 Intra frequency measurements accuracy	\hat{I}_{or}/I_{oc} ± 0.3 dB I_{oc} ± 1.0 dB Actual SFN-CFN observed time difference: ± 0.5 chips	0.3 dB uncertainty in \hat{I}_{or}/I_{oc} based on power meter measurement after the combiner The absolute error of the AWGN is specified as 1.0 dB
8.7.4.2 Inter frequency measurements accuracy	\hat{I}_{or}/I_{oc} ± 0.3 dB I_{oc} ± 1.0 dB Actual SFN-CFN observed time difference: ± 0.5 chips	0.3 dB uncertainty in \hat{I}_{or}/I_{oc} based on power meter measurement after the combiner The absolute error of the AWGN is specified as 1.0 dB
8.7.5 SFN-SFN observed time difference	TBD	
8.7.6 UE Rx-Tx time difference	\hat{I}_{or}/I_{oc} ± 0.3 dB I_{oc} ± 1.0 dB Rx-Tx Timing Accuracy [± 0.5 chip]	0.3 dB uncertainty in \hat{I}_{or}/I_{oc} based on power meter measurement after the combiner The absolute error of the AWGN is specified as 1.0 dB.
8.7.8 P-CCPCH RSCP	TBD	

F.2 Test Tolerances (This clause is informative)

The Test Tolerances defined in this clause have been used to relax the Minimum Requirements in the present document to derive the Test Requirements.

The Test Tolerances are derived from Test System uncertainties, regulatory requirements and criticality to system performance. As a result, the Test Tolerances may sometimes be set to zero.

The test tolerances should not be modified for any reason e.g. to take account of commonly known test system errors (such as mismatch, cable loss, etc.).

F.2.1 Transmitter

Table F.2.1: Test Tolerances for transmitter tests.

Clause	Test Tolerance
5.2 Maximum Output Power	0.7 dB
5.3 Frequency error	10 Hz
5.4.1 Open loop power control in uplink	1.0 dB
5.4.2 Inner loop power control in the uplink - One step	0.1 dB (1 dB and 0 dB step) 0.15 dB (2 dB step) 0.2 dB (3 dB step)
5.4.2 Inner loop power control in the uplink - seven and ten steps	0.3 dB
5.4.3 Minimum Output Power	1.0 dB
5.4.4 Out-of-synchronisation handling of output power: $\frac{DPCCH_E_c}{I_{or}}$	0.4 dB
5.4.4 Out-of-synchronisation handling of output power: transmit ON/OFF time	0 ms
5.5.1 Transmit OFF power	1.0 dB
5.5.2 Transmit ON/OFF time mask (dynamic case)	On power +0.7 dB / -1.0 dB Off power TT [] dB
5.6 Change of TFC: power control step size	0.3 dB
5.7 Power setting in uplink compressed mode:- UE output power	See subset of 5.4.2
5.8 Occupied Bandwidth	0 kHz
5.9 Spectrum emission mask	1.5 dB (0 dB for additional requirements for Band II)
5.10 ACLR	0.8 dB for ratio 0.0 dB for absolute power
5.11 Spurious emissions	0 dB
5.12 Transmit Intermodulation	0 dB
5.13.1 Transmit modulation: EVM	0%
5.13.2 Transmit modulation: peak code domain error	1.0 dB

F.2.2 Receiver

Table F.2.2: Test Tolerances for receiver tests.

Clause	Test Tolerance
6.2 Reference sensitivity level	0.7 dB
6.3 Maximum input level:	0.7 dB
6.4 Adjacent channel selectivity	0 dB
6.5 Blocking characteristics	0 dB
6.6 Spurious Response	0 dB
6.7 Intermodulation Characteristics	0 dB
6.8 Spurious emissions	0 dB

F.2.3 Performance requirements

Table F.2.3: Test Tolerances for Performance Requirements.

Clause	Test Tolerance
7.2 Demodulation in Static Propagation Condition	0.3 dB for \hat{I}_{or}/I_{oc} 0.1 dB for DPCH_Ec/lor
7.3 Demodulation of DCH in multipath Fading Propagation conditions	0.6 dB for \hat{I}_{or}/I_{oc} 0.1 dB for DPCH_Ec/lor
7.4 Demodulation of DCH in Moving Propagation conditions	0.6 dB for \hat{I}_{or}/I_{oc} 0.1 dB for DPCH_Ec/lor
7.5 Demodulation of DCH in Birth-Death Propagation conditions	0.6 dB for \hat{I}_{or}/I_{oc} 0.1 dB for DPCH_Ec/lor
7.6.1 Demodulation of DCH in open loop Transmit diversity mode	0.8 dB for \hat{I}_{or}/I_{oc} 0.1 dB for DPCH_Ec/lor
7.6.2 Demodulation of DCH in closed loop Transmit diversity mode	0.8 dB for \hat{I}_{or}/I_{oc} 0.1 dB for DPCH_Ec/lor
7.6.3, Demodulation of DCH in site selection diversity Transmission power control mode	0.8 dB for \hat{I}_{or}/I_{oc} 0.1 dB for DPCH_Ec/lor
7.7.1 Demodulation in inter-cell soft Handover conditions	0.8 dB for \hat{I}_{or}/I_{oc} 0.1 dB for DPCH_Ec/lor
7.7.2 Combining of TPC commands Test 1	0 dB for lor1, lor2 0.1 dB for DPCH_Ec/lor
7.7.2 Combining of TPC commands Test 2	0.8 dB for \hat{I}_{or}/I_{oc} 0.1 dB for DPCH_Ec/lor
7.8.1 Power control in downlink constant BLER target	0.6 dB for \hat{I}_{or}/I_{oc} 0.1 dB for DPCH_Ec/lor
7.8.2, Power control in downlink initial convergence	0.6 dB for \hat{I}_{or}/I_{oc} 0.1 dB for DPCH_Ec/lor
7.8.3, Power control in downlink: wind up effects	0.6 dB for \hat{I}_{or}/I_{oc} 0.1 dB for DPCH_Ec/lor
7.9 Downlink compressed mode	0.6 dB for \hat{I}_{or}/I_{oc} 0.1 dB for DPCH_Ec/lor
7.10 Blind transport format detection Tests 1, 2, 3	0.3 dB for \hat{I}_{or}/I_{oc} 0.1 dB for DPCH_Ec/lor
7.10 Blind transport format detection Tests 4, 5, 6	0.6 dB for \hat{I}_{or}/I_{oc} 0.1 dB for DPCH_Ec/lor
7.11 Demodulation of paging channel (PCH)	TBD
7.12 Detection of acquisition indicator (AI)	TBD

F.2.4 Requirements for support of RRM

Table F.2.4: Test Tolerances for Radio Resource Management Tests

Clause	Test Tolerance
8.2 Idle Mode Tasks	
8.2.2 Cell Re-Selection	

Clause	Test Tolerance
8.2.2.1 Scenario 1: Single carrier case	<p><u>During T1 and T2:</u> +0.60 dB for all Cell 1 and 2 Ec/Ior ratios -0.50 dB for all Cell 3, 4, 5, 6 Ec/Ior ratios +0.03 dB for Ior(3, 4, 5, 6)</p> <p><u>During T1:</u> -0.27 dB for Ior(1) +0.13 dB for Ior(2)</p> <p><u>During T2:</u> +0.13 dB for Ior(1) -0.27 dB for Ior(2)</p>
8.2.2.2 Scenario 2: Multi carrier case	<p><u>Channel 1 during T1 and T2:</u> +0.70 dB for all Cell 1 Ec/Ior ratios -0.80 dB for all Cell 3 and 4 Ec/Ior ratios</p> <p><u>Channel 1 during T1:</u> -0.01 dB for Ior(1) -0.01 dB for Ior(3, 4) No change for Ioc(1)</p> <p><u>Channel 1 during T2:</u> +0.75 dB for Ior(1) -0.05 dB for Ior(3, 4) -1.80 dB for Ioc(1)</p> <p><u>Channel 2 during T1 and T2:</u> +0.70 dB for all Cell 2 Ec/Ior ratios -0.80 dB for all Cell 5 and 6 Ec/Ior ratios</p> <p><u>Channel 2 during T1:</u> +0.75 dB for Ior(2) -0.05 dB for Ior(5, 6) -1.80 dB for Ioc(2)</p> <p><u>Channel 2 during T2:</u> -0.01 dB for Ior(2) -0.01 dB for Ior(5, 6) No change for Ioc(2)</p>
8.2.3 UTRAN to GSM Cell Re-Selection	
8.2.3.1 Scenario 1: Both UTRA and GSM level changed	0.3 dB for \hat{I}_{or}/I_{oc} 0.1 dB for CPICH_Ec/Ior 0.3 dB for Ioc/RXLEV
8.2.3.2 Scenario 2: Only UTRA level changed	0.3 dB for \hat{I}_{or}/I_{oc} 0.1 dB for CPICH_Ec/Ior 0.3 dB for Ioc/RXLEV
8.2.4 FDD/TDD cell re-selection	0.3 dB for \hat{I}_{or}/I_{oc} 0.1 dB for CPICH_Ec/Ior 0.3 dB for Ioc1/Ioc2
8.3 UTRAN Connected Mode Mobility	
8.3.1 FDD/FDD Soft Handover	
8.3.2 FDD/FDD Hard Handover	TBD
8.3.3 FDD/TDD Handover	TBD
8.3.4 Inter-system Handover form UTRAN FDD to GSM	TBD
8.3.5 Cell Re-selection in CELL_FACH	

Clause	Test Tolerance
8.3.5.1 One frequency present in the neighbour list	<p><u>During T1 and T2:</u> +0.60 dB for all Cell 1 and 2 Ec/Ior ratios -0.50 dB for all Cell 3, 4, 5, 6 Ec/Ior ratios +0.03 dB for Ior(3, 4, 5, 6)</p> <p><u>During T1:</u> -0.27 dB for Ior(1) +0.13 dB for Ior(2)</p> <p><u>During T2:</u> +0.13 dB for Ior(1) -0.27 dB for Ior(2)</p>
8.3.5.2 Two frequencies present in the neighbour list	<p><u>Channel 1 during T1 and T2:</u> +0.60 dB for all Cell 1 Ec/Ior ratios -0.70 dB for all Cell 3 and 4 Ec/Ior ratios</p> <p><u>Channel 1 during T1:</u> +0.05 dB for Ior(1) +0.05 dB for Ior(3, 4) No change for Ioc(1)</p> <p><u>Channel 1 during T2:</u> +0.75 dB for Ior(1) -0.05 dB for Ior(3, 4) -1.60 dB for Ioc(1)</p> <p><u>Channel 2 during T1 and T2:</u> +0.60 dB for all Cell 2 Ec/Ior ratios -0.70 dB for all Cell 5 and 6 Ec/Ior ratios</p> <p><u>Channel 2 during T1:</u> +0.75 dB for Ior(2) -0.05 dB for Ior(5, 6) -1.60 dB for Ioc(2)</p> <p><u>Channel 2 during T2:</u> +0.05 dB for Ior(2) +0.05 dB for Ior(5, 6) No change for Ioc(2)</p>
8.3.6 Cell Re-selection in CELL_PCH	
8.3.6.1 One frequency present in the neighbour list	Same as 8.2.2.1
8.3.6.2 Two frequencies present in the neighbour list	Same as 8.2.2.2
8.3.7 Cell Re-selection in URA_PCH	
8.3.7.1 One frequency present in the neighbour list	Same as 8.2.2.1
8.3.7.2 Two frequencies present in the neighbour list	Same as 8.2.2.2
8.4 RRC Connection Control	
8.4.1 RRC Re-establishment delay	TBD
8.4.2 Random Access	<p>Settings:</p> <p>0.3 dB for \hat{I}_{or}/I_{oc} 0.1 dB for AICH_Ec/Ior</p> <p>Measurements: Power difference: ± 1 dB Maximum Power: -1 dB / +0.7 dB</p>
8.5 Timing and Signalling Characteristics	
8.5.1 UE Transmit Timing	TBD
8.6 UE Measurements Procedures	
8.6.1 FDD intra frequency measurements	
8.6.1.1 Event triggered reporting in AWGN propagation conditions	TBD

Clause	Test Tolerance
8.6.1.2 Event triggered reporting of multiple neighbours in AWGN propagation condition	TBD
8.6.1.3 Event triggered reporting of two detectable neighbours in AWGN propagation condition	TBD
8.6.1.4 Correct reporting of neighbours in fading propagation condition	TBD
8.6.2 FDD inter frequency measurements	
8.6.2.1 Correct reporting of neighbours in AWGN propagation condition	TBD
8.6.2.2 Correct reporting of neighbours in Fading propagation condition	TBD
8.6.3 TDD measurements	
8.6.3.1 Correct reporting of TDD neighbours in AWGN propagation condition	TBD
8.7 Measurements Performance Requirements	TBD
8.7.1 CPICH RSCP	
8.7.2.1 Intra frequency measurements accuracy	0.3 dB for \hat{I}_{or}/I_{oc} 0.1 dB for CPICH_Ec/lor 1.0 dB for loc
8.7.2.2 Inter frequency measurement accuracy	0.3 dB for \hat{I}_{or}/I_{oc} 0.1 dB for CPICH_Ec/lor 0.3 dB for loc1/loc2 1.0 dB for loc
8.7.2 CPICH Ec/lo	
8.7.1.1 Intra frequency measurements accuracy	0.3 dB for \hat{I}_{or}/I_{oc} 0.1 dB for CPICH_Ec/lor
8.7.1.2 Inter frequency measurement accuracy	0.3 dB for \hat{I}_{or}/I_{oc} 0.1 dB for CPICH_Ec/lor
8.7.3A UTRA Carrier RSSI	0.3 dB for \hat{I}_{or}/I_{oc} 1.0 dB for loc
8.7.3B Transport channel BLER	TBD
8.7.3C UE Transmitted power	0.7 dB for mean power measurement by test system
8.7.4 SFN-CFN observed time difference	<u>0.3 dB for \hat{I}_{or}/I_{oc}</u> <u>1.0 dB for loc</u> <u>± 0.5 chips for the actual SFN-CFN observed time difference</u>
8.7.5 SFN-SFN observed time difference	
8.7.6 UE Rx-Tx time difference	0.3 dB for \hat{I}_{or}/I_{oc} 1.0 dB for loc [0.5 chip] for Rx-Tx Timing Accuracy
8.7.7 Observed time difference to GSM cell	TBD
8.7.8 P-CCPCH RSCP	TBD

F.3 Interpretation of measurement results

The measurement results returned by the Test System are compared – without any modification – against the Test Requirements as defined by the shared risk principle.

The Shared Risk principle is defined in ETR 273-1-2 clause 6.5.

The actual measurement uncertainty of the Test System for the measurement of each parameter shall be included in the test report.

The recorded value for the Test System uncertainty shall be, for each measurement, equal to or lower than the appropriate figure in clause F.1 of the present document.

If the Test System for a test is known to have a measurement uncertainty greater than that specified in clause F.1, it is still permitted to use this apparatus provided that an adjustment is made value as follows.

Any additional uncertainty in the Test System over and above that specified in clause F.1 shall be used to tighten the Test Requirement – making the test harder to pass. (For some tests e.g. receiver tests, this may require modification of stimulus signals). This procedure will ensure that a Test System not compliant with clause F.1 does not increase the chance of passing a device under test where that device would otherwise have failed the test if a Test System compliant with clause F.1 had been used.

F.4 Derivation of Test Requirements (This clause is informative)

The Test Requirements in the present document have been calculated by relaxing the Minimum Requirements of the core specification using the Test Tolerances defined in clause F.2. When the Test Tolerance is zero, the Test Requirement will be the same as the Minimum Requirement. When the Test Tolerance is non-zero, the Test Requirements will differ from the Minimum Requirements, and the formula used for this relaxation is given in table F.4.

Table F.4.1: Derivation of Test Requirements (Transmitter tests)

Test	Minimum Requirement in TS 25.101	Test Tolerance (TT)	Test Requirement in TS 34.121
5.2 Maximum Output Power	Power class 1 (33 dBm) Tolerance = +1/-3 dB Power class 2 (27 dBm) Tolerance = +1/-3 dB Power class 3 (24 dBm) Tolerance = +1/-3 dB Power class 4 (21 dBm) Tolerance = ± 2 dB	0.7 dB	Formula: Upper Tolerance limit + TT Lower Tolerance limit – TT For power classes 1-3: Upper Tolerance limit = +1.7 dB Lower Tolerance limit = -3.7 dB For power class 4: Upper Tolerance limit = +2.7 dB Lower Tolerance limit = -2.7 dB
5.3 Frequency Error	The UE modulated carrier frequency shall be accurate to within ± 0.1 ppm compared to the carrier frequency received from the Node B.	10 Hz	Formula: modulated carrier frequency error + TT modulated carrier frequency error = $\pm(0.1$ ppm + 10 Hz).
5.4.1 Open loop power control in the uplink	Open loop power control tolerance ± 9 dB (Normal) Open loop power control tolerance ± 12 dB (Normal)	1.0 dB	Formula: Upper Tolerance limit + TT Lower Tolerance limit – TT For Normal conditions: Upper Tolerance limit = +10 dB Lower Tolerance limit = -10 dB For Extreme conditions: Upper Tolerance limit = +13 dB Lower Tolerance limit = -13 dB
5.4.2 Inner loop power control in uplink	See table 5.4.2.1 and 5,4,2,2	0.25dB 0.15 dB 0.2 dB 0.3 dB	Formula: Upper Tolerance limit + TT Lower Tolerance limit – TT
5.4.3 Minimum Output Power	UE minimum transmit power shall be less than -50 dBm	1.0 dB	Formula: UE minimum transmit power + TT UE minimum transmit power = -49 dBm

Test	Minimum Requirement in TS 25.101	Test Tolerance (TT)	Test Requirement in TS 34.121
5.4.4 Out-of-synchronisation handling of output power:	$\frac{DPCCH_E_c}{I_{or}}$ levels AB: -22 dB BD: -28 dB DE: -24 dB EF: -18 dB transmit ON/OFF time 200ms $\frac{DPDCH_E_c}{I_{or}} = -16.6$ dB $I_{oc} - 60$ dBm $\hat{I}_{or}/I_{oc} = -1$ dB	0.4 dB for $\frac{DPCCH_E_c}{I_{or}}$ 0 ms for timing measurement	Formulas: Ratio between A and B + TT Ratio between B and D – TT Ratio between D and E – TT Ratio between E and F + TT transmit ON/OFF time + TT timing $\frac{DPDCH_E_c}{I_{or}} = -16.6$ dB $I_{oc} - 60$ dBm $\hat{I}_{or}/I_{oc} = -1$ dB $\frac{DPCCH_E_c}{I_{or}}$ levels: AB: -21.6 dB BD: -28.4 dB DE: -24.4 dB EF: -17.6 dB transmit ON/OFF time 200ms timing Uncertainty of OFF power measurement is handled by Transmit OFF power test and uncertainty of ON power measurement is handled by Minimum output power test.
5.5.1 Transmit OFF power (static case)	Transmit OFF power shall be less than -56 dBm	1.0 dB	Formula: Transmit OFF power + TT Transmit OFF power = -55dBm.
5.5.2 Transmit ON/OFF time mask (dynamic case)	Transmit ON power shall be the target value as defined in clause 5.5.2.2 Transmit OFF power shall be less than -56 dBm	On power upper TT = 0.7 dB On power lower TT = 1.0 dB Off power TT [] dB	Formula for transmit ON power: Transmit ON power target upper limit + On power upper TT Transmit ON power target lower limit - On power lower TT To calculate Transmit ON power target value range take the nominal TX power range from Table 5.5.2.3 then apply table 5.4.1.1 open limits then apply table 5.7.1 (only if there has been a transmission gap) then cap the upper value using table 5.2.1. Formula for transmit OFF power: Transmit OFF power + Off power TT Transmit OFF power = []dBm
5.6 Change of TFC: power control step size	TFC step size = +5 to +9 dB	0.3 dB	Formula: Upper Tolerance limit + TT Lower Tolerance limit – TT Upper limit = -4.7 dB Lower limit = -9.3 dB
5.7 Power setting in uplink compressed mode	Various	TBD (Subset of 5.4.2)	TBD

Test	Minimum Requirement in TS 25.101	Test Tolerance (TT)	Test Requirement in TS 34.121		
5.8 Occupied Bandwidth	The occupied channel bandwidth shall be less than 5 MHz based on a chip rate of 3.84 Mcps.	0 kHz	Formula: occupied channel bandwidth: + TT occupied channel bandwidth = 5.0 MHz		
5.9 Spectrum emission mask	Minimum requirement defined in TS25.101 Table 6.10. The lower limit shall be -50 dBm / 3.84 MHz or which ever is higher.	1.5 dB	Formula: Minimum requirement + TT Lower limit + TT Add 1.5 to Minimum requirement entries in TS25.101 Table 6.10. Zero test tolerance is applied for Additional requirements for Band II due to FCC regulatory requirements. The lower limit shall be -48.5 dBm / 3.84 MHz or which ever is higher.		
5.10 Adjacent Channel Leakage Power Ratio (ACLR)	If the adjacent channel power is greater than -50 dBm then the ACLR shall be higher than the values specified below.	0.0 dB	Formula: Absolute power threshold + TT		
	Power Classes 3 and 4: UE channel +5 MHz or -5 MHz, ACLR limit: 33 dB UE channel +10 MHz or -10 MHz, ACLR limit: 43 dB	0.8 dB	Formula: ACLR limit - TT Power Classes 3 and 4: UE channel +5 MHz or -5 MHz, ACLR limit: 32.2 dB UE channel +10 MHz or -10 MHz, ACLR limit: 42.2 dB		
5.11 Spurious Emissions			Formula: Minimum Requirement+ TT Add zero to all the values of Minimum Requirements in table 5.11.1a and 5.11.1b.		
	Frequency Band	Minimum Requirement	Frequency Band	Minimum Requirement	
	9 kHz ≤ f < 150 kHz	-36dBm /1kHz	0 dB	9kHz ≤ f < 1GHz	-36dBm /1kHz
	150 kHz ≤ f < 30 MHz	-36dBm /10kHz	0 dB	150 kHz ≤ f < 30 MHz	-36dBm /10kHz
	30 MHz ≤ f < 1000 MHz	-36dBm /100kHz	0 dB	30 MHz ≤ f < 1000 MHz	-36dBm /100kHz
	1 GHz ≤ f < 12.75 GHz	-30dBm /1MHz	0 dB	1 GHz ≤ f < 2.2 GHz	-30dBm /1MHz
			0 dB	2.2 GHz ≤ f < 4 GHz	-30dBm /1MHz
			0 dB	4 GHz ≤ f < 12.75 GHz	-30dBm /1MHz
	1893.5 MHz < f < 1919.6 MHz	-41dBm /300kHz	0 dB	1893.5 MHz < f < 1919.6 MHz	-41dBm /300kHz
	925 MHz ≤ f ≤ 935 MHz	-67dBm /100kHz	0 dB	925 MHz ≤ f ≤ 935 MHz	-67dBm /100kHz
935 MHz < f ≤ 960 MHz	-79dBm /100kHz	0 dB	935 MHz < f ≤ 960 MHz	-79dBm /100kHz	
1805 MHz ≤ f ≤ 1880 MHz	-71dBm /100kHz	0 dB	1805 MHz ≤ f ≤ 1880 MHz	-71dBm /100kHz	
5.12 Transmit Intermodulation	Intermodulation Product 5MHz -31 dBc 10MHz -41 dBc CW Interferer level = -40 dBc	0 dB	Formula: CW interferer level – TT/2 Intermod Products limits remain unchanged. CW interferer level = -40 dBc		
5.13.1 Transmit modulation: EVM	The measured EVM shall not exceed 17.5%.	0%	Formula: EVM limit + TT EVM limit = 17.5 %		
5.13.2 Transmit modulation: peak code domain error	The measured Peak code domain error shall not exceed -15 dB.	1.0 dB	Formula: Peak code domain error + TT Peak code domain error = -14 dB		

Table F.4.2: Derivation of Test Requirements (Receiver tests)

Test	Minimum Requirement in TS 25.101		Test Tolerance (TT)	Test Requirement in TS 34.121	
6.2 Reference sensitivity level	$\hat{I}_{or} = -106.7 \text{ dBm} / 3.84 \text{ MHz}$ DPCH_Ec = -117 dBm / 3.84 MHz BER limit = 0.001		0.7 dB	Formula: $\hat{I}_{or} + TT$ DPCH_Ec + TT BER limit unchanged $\hat{I}_{or} = -106 \text{ dBm} / 3.84 \text{ MHz}$ DPCH_Ec = -116.3 dBm / 3.84 MHz	
6.3 Maximum input level	-25 dBm I_{or} -19 dBc DPCH_Ec/ I_{or}		0.7 dB	Formula: $I_{or} - TT$ $I_{or} = -25.7 \text{ dBm}$	
6.4 Adjacent Channel Selectivity	$\hat{I}_{or} = -92.7 \text{ dBm} / 3.84 \text{ MHz}$ DPCH_Ec = -103 dBm / 3.84 MHz $I_{oac} \text{ (modulated)} = -52 \text{ dBm} / 3.84 \text{ MHz}$ BER limit = 0.001		0 dB	Formula: \hat{I}_{or} unchanged DPCH_Ec unchanged $I_{oac} - TT$ BER limit unchanged $I_{oac} = -52 \text{ dBm} / 3.84 \text{ MHz}$	
6.5 Blocking Characteristics	See Table 6.5.3 and 6.5.4. in TS34.121 BER limit = 0.001		0 dB	Formula: $I_{\text{blocking (modulated)}} - TT \text{ (dBm} / 3.84 \text{ MHz)}$ $I_{\text{blocking (CW)}} - TT \text{ (dBm)}$ BER limit unchanged	
6.6 Spurious Response	$I_{\text{blocking (CW)}} -44 \text{ dBm}$ Fuw: Spurious response frequencies BER limit = 0.001		0 dB	Formula: $I_{\text{blocking (CW)}} - TT \text{ (dBm)}$ Fuw unchanged BER limit unchanged $I_{\text{blocking (CW)}} = -44 \text{ dBm}$	
6.7 Intermodulation Characteristics	$I_{ow1} \text{ (CW)} -46 \text{ dBm}$ $I_{ow2} \text{ (modulated)} -46 \text{ dBm} / 3.84 \text{ MHz}$ Fuw1 (offset) 10 MHz Fuw2 (offset) 20 MHz $I_{or} = -103.7 \text{ dBm} / 3.84 \text{ MHz}$ DPCH_Ec = -114 dBm/3.84 BER limit = 0.001		0 dB	Formula: $I_{or} + TT$ DPCH_Ec + TT I_{ow1} level unchanged I_{ow2} level unchanged BER limit unchanged. $I_{or} = -114 \text{ dBm}$ BER limit. = 0.001	
6.8 Spurious Emissions				Formula: Maximum level + TT Add zero to all the values of Maximum Level in table 6.8.1.	
	Frequency Band	Maximum level		Frequency Band	Maximum level
	$9 \text{ kHz} \leq f < 1 \text{ GHz}$	-57dBm /100kHz	0 dB	$9 \text{ kHz} \leq f < 1 \text{ GHz}$	-57dBm /100kHz
	$1 \text{ GHz} \leq f \leq 12.75 \text{ GHz}$	-47dBm /1MHz	0 dB	$1 \text{ GHz} \leq f \leq 2.2 \text{ GHz}$	-47dBm /1MHz
			0 dB	$2.2 \text{ GHz} < f \leq 4 \text{ GHz}$	-47dBm /1MHz
			0 dB	$4 \text{ GHz} < f \leq 12.75 \text{ GHz}$	-47dBm /1MHz
$1920 \text{ MHz} \leq f \leq 1980 \text{ MHz}$	-60dBm /3.84MHz	0 dB	$1920 \text{ MHz} \leq f \leq 1980 \text{ MHz}$	-60dBm /3.84MHz	

Test	Minimum Requirement in TS 25.101		Test Tolerance (TT)	Test Requirement in TS 34.121	
	$2110\text{MHz} \leq f \leq 2170\text{MHz}$	-60dBm /3.84MHz	0 dB	$2110\text{MHz} \leq f \leq 2170\text{MHz}$	-60dBm /3.84MHz

Table F.4.3: Derivation of Test Requirements (Performance tests)

Test	Minimum Requirement in TS 25.101	Test Tolerance (TT)	Test Requirement in TS 34.121
7.2 Demodulation of DPCH in static conditions	$\frac{DPCH_E_c}{I_{or}} \text{ -5.5 to -16.6 dB}$ $I_{oc} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = -1 \text{ dB}$	0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.3 dB for \hat{I}_{or}/I_{oc}	Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ $I_{oc} \text{ unchanged}$ $\hat{I}_{or}/I_{oc} = -0.7 \text{ dB}$ $\frac{DPCH_E_c}{I_{or}} \text{ -5.4 to -16.5 dB:}$
7.3 Demodulation of DPCH in multi-path fading propagation conditions Tests 1-4	$\frac{DPCH_E_c}{I_{or}} \text{ -2.2 to -15.0}$ $I_{oc} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = 9 \text{ dB to -3 dB}$	0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.6 dB for \hat{I}_{or}/I_{oc}	Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} + \text{ratio} + \text{TT}$ $I_{oc} \text{ unchanged}$ $\hat{I}_{or}/I_{oc} = 9.6 \text{ to } -2.4 \text{ dB}$ $\frac{DPCH_E_c}{I_{or}} \text{ -2.1 to -14.9 dB:}$
7.3 Demodulation of DPCH in multi-path fading propagation conditions Tests 5-8	$\frac{DPCH_E_c}{I_{or}} \text{ -3.2 to -7.7 dB}$ $I_{oc} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = 6 \text{ dB to -3 dB}$	0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.6 dB for \hat{I}_{or}/I_{oc}	Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ $I_{oc} \text{ unchanged}$ $\hat{I}_{or}/I_{oc} = 6.6 \text{ to } -2.4 \text{ dB}$ $\frac{DPCH_E_c}{I_{or}} \text{ -3.1 to -7.6 dB:}$
7.3 Demodulation of DPCH in multi-path fading propagation conditions Tests 9-12	$\frac{DPCH_E_c}{I_{or}} \text{ -4.4 to -11.8 dB}$ $I_{oc} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = 6 \text{ dB to -3 dB}$	0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.6 dB for \hat{I}_{or}/I_{oc}	Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ $I_{oc} \text{ unchanged}$ $\hat{I}_{or}/I_{oc} = 6.6 \text{ to } -2.4 \text{ dB}$ $\frac{DPCH_E_c}{I_{or}} \text{ -4.3 to -11.7 dB:}$

Test	Minimum Requirement in TS 25.101	Test Tolerance (TT)	Test Requirement in TS 34.121
7.3 Demodulation of DPCH in multi-path fading propagation conditions Tests 13-16	$\frac{DPCH_E_c}{I_{or}} -2.2 \text{ to } -15.0 \text{ dB}$ $I_{oc} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = 9 \text{ dB}$	0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.6 dB for \hat{I}_{or}/I_{oc}	Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ $I_{oc} \text{ unchanged}$ $\hat{I}_{or}/I_{oc} = 9.6$ $\frac{DPCH_E_c}{I_{or}} -2.1 \text{ to } -14.9 \text{ dB:}$
7.3 Demodulation of DPCH in multi-path fading propagation conditions Tests 17-20	$\frac{DPCH_E_c}{I_{or}} -1.4 \text{ to } -8.8 \text{ dB}$ $I_{oc} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = 6 \text{ to } -3 \text{ dB}$	0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.6 dB for \hat{I}_{or}/I_{oc}	Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ $I_{oc} \text{ unchanged}$ $\hat{I}_{or}/I_{oc} = 6.6 \text{ to } -2.4 \text{ dB}$ $\frac{DPCH_E_c}{I_{or}} -1.3 \text{ to } -8.7 \text{ dB:}$
7.4 Demodulation of DPCH in moving propagation conditions	$\frac{DPCH_E_c}{I_{or}} -10.9 \text{ to } -14.5$ $I_{oc} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = -1 \text{ dB}$	0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.6 dB for \hat{I}_{or}/I_{oc}	Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ $I_{oc} \text{ unchanged}$ $\hat{I}_{or}/I_{oc} = -0.4 \text{ dB}$ $\frac{DPCH_E_c}{I_{or}} -10.8 \text{ to } -14.4 \text{ dB:}$
7.5 Demodulation of DPCH birth-death propagation conditions	$\frac{DPCH_E_c}{I_{or}} -8.7 \text{ to } -12.6 \text{ dB}$ $I_{oc} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = -1 \text{ dB}$	0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.6 dB for \hat{I}_{or}/I_{oc}	Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ $I_{oc} \text{ unchanged}$ $\hat{I}_{or}/I_{oc} = -0.4 \text{ dB}$ $\frac{DPCH_E_c}{I_{or}} -18.6 \text{ to } -12.5 \text{ dB:}$

Test	Minimum Requirement in TS 25.101	Test Tolerance (TT)	Test Requirement in TS 34.121
7.6.1 Demodulation of DPCH in transmit diversity propagation conditions	$\frac{DPCH_E_c}{I_{or}} -16.8 \text{ dB}$ $I_{oc} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = 9 \text{ dB}$	0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.8 dB for \hat{I}_{or}/I_{oc}	Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ $I_{oc} \text{ unchanged}$ $\hat{I}_{or}/I_{oc} = 9.8 \text{ dB}$ $\frac{DPCH_E_c}{I_{or}} -16.7 \text{ dB:}$
7.6.2 Demodulation of DCH in closed loop Transmit diversity mode	$\frac{DPCH_E_c}{I_{or}} -18 \text{ to } -18.3 \text{ dB}$ $I_{oc} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = 9 \text{ dB}$	0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.8 dB for \hat{I}_{or}/I_{oc}	Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ $I_{oc} \text{ unchanged}$ $\hat{I}_{or}/I_{oc} = 9.8 \text{ dB}$ $\frac{DPCH_E_c}{I_{or}} -17.9 \text{ to } -18.2 \text{ dB:}$
7.6.3, Demodulation of DCH in site selection diversity Transmission power control mode	$\frac{DPCH_E_c}{I_{or}} -5.0 \text{ to } -10.5 \text{ dB}$ $I_{oc} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = 0 \text{ to } -3 \text{ dB}$	0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.8 dB for \hat{I}_{or}/I_{oc}	Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ $I_{oc} \text{ unchanged}$ $\hat{I}_{or}/I_{oc} = 0.8 \text{ to } -2.2 \text{ dB}$ $\frac{DPCH_E_c}{I_{or}} -4.9 \text{ to } -10.4 \text{ dB:}$
7.7.1 Demodulation in inter-cell soft Handover	$\frac{DPCH_E_c}{I_{or}} -5.5 \text{ to } -15.2 \text{ dB}$ $I_{oc} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = \text{lor2}/\text{loc} = 6 \text{ to } 0 \text{ dB}$	0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.8 dB for \hat{I}_{or}/I_{oc}	Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ $I_{oc} \text{ unchanged}$ $\hat{I}_{or}/I_{oc} = 6.8 \text{ to } 0.8 \text{ dB}$ $\frac{DPCH_E_c}{I_{or}} -5.4 \text{ to } -15.4 \text{ dB:}$

Test	Minimum Requirement in TS 25.101	Test Tolerance (TT)	Test Requirement in TS 34.121
7.7.2 Combining of TPC commands Test 1	$\frac{DPCH_E_c}{I_{or}} -12 \text{ dB}$ lor1 and lor2 -60dBm	0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0dB for lor1 and lor2	Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\frac{DPCH_E_c}{I_{or}} = -11,9 \text{ dB:}$ lor1 = -60dBm lor2 = -60dBm The absolute levels of lor1 and lor2 are not important to this test.
7.7.2 Combining of TPC commands Test 2	$\frac{DPCH_E_c}{I_{or}} -12 \text{ dB}$ $I_{oc} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = 0 \text{ dB}$	0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.8 dB for \hat{I}_{or}/I_{oc}	Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ I_{oc} unchanged $\hat{I}_{or}/I_{oc} = 0.8 \text{ dB}$ $\frac{DPCH_E_c}{I_{or}} -11,9 \text{ dB:}$
7.8.1 Power control in downlink constant BLER target	$\frac{DPCH_E_c}{I_{or}} -9 \text{ to } -16 \text{ dB}$ $I_{oc} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = 9 \text{ to } -1 \text{ dB}$	0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.6 dB for \hat{I}_{or}/I_{oc}	Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ I_{oc} unchanged $\hat{I}_{or}/I_{oc} = 9.6 \text{ to } -0.4 \text{ dB}$ $\frac{DPCH_E_c}{I_{or}} -8.9 \text{ to } -15.9 \text{ dB:}$
7.8.2, Power control in downlink initial convergence	$\frac{DPCH_E_c}{I_{or}} -8.1 \text{ to } -18.9 \text{ dB}$ $I_{oc} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = -1 \text{ dB}$	0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.6 dB for \hat{I}_{or}/I_{oc}	Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ I_{oc} unchanged $\hat{I}_{or}/I_{oc} = -0.4 \text{ dB}$ $\frac{DPCH_E_c}{I_{or}} -8.0 \text{ to } -18.8 \text{ dB:}$

Test	Minimum Requirement in TS 25.101	Test Tolerance (TT)	Test Requirement in TS 34.121
7.8.3, Power control in downlink: wind up effects	$\frac{DPCH_E_c}{I_{or}} -13.3 \text{ dB}$ $I_{oc} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = 5 \text{ dB}$	0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.6 dB for \hat{I}_{or}/I_{oc}	Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ $I_{oc} \text{ unchanged}$ $\hat{I}_{or}/I_{oc} = 5.6 \text{ dB}$ $\frac{DPCH_E_c}{I_{or}} -13.2 \text{ dB:}$
7.9 Downlink compressed mode	$\frac{DPCH_E_c}{I_{or}}$ Test 1 -14.6 dB Test 3 -15.2 dB $I_{oc} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = 9 \text{ dB}$	0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.6 dB for \hat{I}_{or}/I_{oc}	Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ $I_{oc} \text{ unchanged}$ $\hat{I}_{or}/I_{oc} = 9.6 \text{ dB}$ $\frac{DPCH_E_c}{I_{or}}$ Test 1 -14.5 dB Test 3 -15.1 dB:
7.10 Blind transport format detection Tests 1, 2, 3	$\frac{DPCH_E_c}{I_{or}} -17.7 \text{ to } -18.4 \text{ dB}$ $I_{oc} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = -1 \text{ dB}$	0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.3 dB for \hat{I}_{or}/I_{oc}	Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ $I_{oc} \text{ unchanged}$ $\hat{I}_{or}/I_{oc} = -0.7 \text{ dB}$ $\frac{DPCH_E_c}{I_{or}} -17.6 \text{ to } -18.3 \text{ dB:}$
7.10 Blind transport format detection Tests 4, 5, 6	$\frac{DPCH_E_c}{I_{or}} -13.0 \text{ to } -13.8 \text{ dB}$ $I_{oc} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = -3 \text{ dB}$	0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.6 dB for \hat{I}_{or}/I_{oc}	Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ $I_{oc} \text{ unchanged}$ $\hat{I}_{or}/I_{oc} = -2.4 \text{ dB}$ $\frac{DPCH_E_c}{I_{or}} -12.9 \text{ to } -13.7 \text{ dB:}$
7.11 Demodulation of paging channel (PCH)	TBD		
7.12 Detection of acquisition indicator (AI)	TBD		

Table F.4.4: Derivation of Test Requirements (RRM tests)

Test	Test Parameters in TS 25.133	Test Tolerance (TT)	Test Requirement in TS 34.121
8.2 Idle Mode Tasks			
8.2.2 Cell Re-Selection			
8.2.2.1 Scenario 1: Single carrier case	Because the relationships between the Test system uncertainties and the Test Tolerances are complex, it is not possible to give a simple derivation of the Test Requirement in this document. The analysis is recorded in 3GPP TR 34 902 [24].		
	<u>During T1 and T2:</u> Cells 1 and 2: CPICH_Ec/Ior = -10 dB PCCPCH_Ec/Ior = -12 dB SCH_Ec/Ior = -12 dB PICH_Ec/Ior = -15 dB Cells 3, 4, 5, 6: CPICH_Ec/Ior = -10 dB PCCPCH_Ec/Ior = -12 dB SCH_Ec/Ior = -12 dB PICH_Ec/Ior = -15 dB Ior(3, 4, 5, 6) = -69.73 dBm	<u>During T1 and T2:</u> +0.60 dB +0.60 dB +0.60 dB +0.60 dB -0.50 dB -0.50 dB -0.50 dB -0.50 dB +0.03 dB for Ior(3, 4, 5, 6)	<u>During T1 and T2:</u> Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ior(3, 4, 5, 6) + TT
	<u>During T1:</u> Ior(1) = -62.73 dBm Ior(2) = -59.73 dBm	<u>During T1:</u> -0.27 dB for Ior(1) +0.13 dB for Ior(2)	<u>During T1:</u> Ior(1) + TT Ior(2) + TT
	<u>During T2:</u> Ior(1) = -59.73 dBm Ior(2) = -62.73 dBm	<u>During T2:</u> +0.13 dB for Ior(1) -0.27 dB for Ior(2)	<u>During T2:</u> Ior(1) + TT Ior(2) + TT
8.2.2.2 Scenario 2: Multi carrier case	Because the relationships between the Test system uncertainties and the Test Tolerances are complex, it is not possible to give a simple derivation of the Test Requirement in this document. The analysis is recorded in 3GPP TR 34 902 [24].		
	<u>Channel 1 during T1 and T2:</u> Cell 1: CPICH_Ec/Ior = -10 dB PCCPCH_Ec/Ior = -12 dB SCH_Ec/Ior = -12 dB PICH_Ec/Ior = -15 dB Cells 3 and 4: CPICH_Ec/Ior = -10 dB PCCPCH_Ec/Ior = -12 dB SCH_Ec/Ior = -12 dB PICH_Ec/Ior = -15 dB	<u>Channel 1 during T1 and T2:</u> +0.70 dB +0.70 dB +0.70 dB +0.70 dB -0.80 dB -0.80 dB -0.80 dB -0.80 dB	<u>Channel 1 during T1 and T2:</u> Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT
	<u>Channel 1 during T1:</u> Ior(1) = -73.39 dBm Ior(3, 4) = -77.39 dBm Ioc(1) = -70.00 dBm	<u>Channel 1 during T1:</u> -0.01 dB for Ior(1) -0.01 dB for Ior(3,4) 0.00 dB for Ioc(1)	<u>Channel 1 during T1:</u> Ior(1) + TT Ior(3, 4) + TT Ioc(1) + TT
	<u>Channel 1 during T2:</u> Ior(1) = -67.75 dBm Ior(3, 4) = -74.75 dBm Ioc(1) = -70.00 dBm	<u>Channel 1 during T2:</u> +0.75 dB for Ior(1) -0.05 dB for Ior(3, 4) -1.80 dB for Ioc(1)	<u>Channel 1 during T2:</u> Ior(1) + TT Ior(3, 4) + TT Ioc(1) + TT

Test	Test Parameters in TS 25.133	Test Tolerance (TT)	Test Requirement in TS 34.121
	<p><u>Channel 2 during T1 and T2:</u></p> <p>Cell 2: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB</p> <p>Cells 5 and 6: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB</p>	<p><u>Channel 2 during T1 and T2:</u></p> <p>+0.70 dB +0.70 dB +0.70 dB +0.70 dB</p> <p>-0.80 dB -0.80 dB -0.80 dB -0.80 dB</p>	<p><u>Channel 2 during T1 and T2:</u></p> <p>Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT</p> <p>Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT</p>
	<p><u>Channel 2 during T1:</u></p> <p>lor(2) = -67.75 dBm lor(5, 6) = -74.75 dBm loc(2) = -70.00 dBm</p>	<p><u>Channel 2 during T1:</u></p> <p>+0.75 dB for lor(2) -0.05 dB for lor(5, 6) -1.80 dB for loc(2)</p>	<p><u>Channel 2 during T1:</u></p> <p>lor(2) + TT lor(5, 6) + TT loc(2) + TT</p>
	<p><u>Channel 2 during T2:</u></p> <p>lor(2) = -73.39 dBm lor(5, 6) = -77.39 dBm loc(2) = -70.00 dBm</p>	<p><u>Channel 2 during T2:</u></p> <p>-0.01 dB for lor(2) -0.01 dB for lor(5,6) 0.00 dB for loc(2)</p>	<p><u>Channel 2 during T2:</u></p> <p>lor(2) + TT lor(5, 6) + TT loc(2) + TT</p>
8.2.3 UTRAN to GSM Cell Re-Selection	TBD		
8.2.3.1 Scenario 1: Both UTRA and GSM level changed	<p>$\frac{CPICH_E_c}{I_{or}} = -10$ dB</p> <p>lor/loc = 0 dB</p>	<p>0.1 dB for $\frac{CPICH_E_c}{I_{or}}$</p> <p>0.3 dB for lor/loc</p> <p>0.3 dB for loc/RXLEV</p>	<p>Formulas:</p> <p>$\frac{CPICH_E_c}{I_{or}} = \text{ratio} + TT$</p> <p>lor/loc = ratio + TT</p> <p>$(\text{loc/Rxlev})_{\text{test requirement}} = (\text{loc/Rxlev})_{\text{minimum requirement}} + TT$</p> <p>lor/loc = 0.3 dB</p> <p>$\frac{CPICH_E_c}{I_{or}} = -9.9$ dB:</p>
	<p>$\frac{CPICH_E_c}{I_{or}} = -10$ dB</p> <p>lor/loc = -5 dB</p>	<p>0.1 dB for $\frac{CPICH_E_c}{I_{or}}$</p> <p>0.3 dB for lor/loc</p> <p>0.3 dB for loc/RXLEV</p>	<p>Formulas:</p> <p>$\frac{CPICH_E_c}{I_{or}} = \text{ratio} - TT$</p> <p>lor/loc = ratio - TT</p> <p>$(\text{loc/Rxlev})_{\text{test requirement}} = (\text{loc/Rxlev})_{\text{minimum requirement}} - TT$</p> <p>lor/loc = -5.3 dB</p> <p>$\frac{CPICH_E_c}{I_{or}} = -10.1$ dB:</p>

Test	Test Parameters in TS 25.133	Test Tolerance (TT)	Test Requirement in TS 34.121
8.2.3.2 Scenario 2: Only UTRA level changed	$\frac{CPICH_E_c}{I_{or}} = -10$ dB lor/loc = 20 dB	0.1 dB for $\frac{CPICH_E_c}{I_{or}}$ 0.3 dB for lor/loc 0.3 dB for loc/RXLEV	Formulas: $\frac{CPICH_E_c}{I_{or}} = \text{ratio} + TT$ lor/loc = ratio + TT (loc/Rxlev) _{test requirement} = (loc/Rxlev) _{minimum requirement} + TT lor/loc = 20.3 dB $\frac{CPICH_E_c}{I_{or}} = -9.9$ dB:
	$\frac{CPICH_E_c}{I_{or}} = -10$ dB lor/loc = 20 dB	0.1 dB for $\frac{CPICH_E_c}{I_{or}}$ 0.3 dB for lor/loc 0.3 dB for loc/RXLEV	Formulas: $\frac{CPICH_E_c}{I_{or}} = \text{ratio} + TT$ lor/loc = ratio + TT (loc/Rxlev) _{test requirement} = (loc/Rxlev) _{minimum requirement} + TT lor/loc = 20.3 dB $\frac{CPICH_E_c}{I_{or}} = -9.9$ dB:
8.2.4 FDD/TDD cell re-selection	TBD		
8.3 UTRAN Connected Mode Mobility	TBD		
8.3.1 FDD/FDD Soft Handover	TBD		
8.3.2 FDD/FDD Hard Handover	TBD		
8.3.3 FDD/TDD Handover	TBD		
8.3.4 Inter-system Handover from UTRAN FDD to GSM	TBD		
8.3.5 Cell Re-selection in CELL_FACH			
8.3.5.1 One frequency present in the neighbour list	Because the relationships between the Test system uncertainties and the Test Tolerances are complex, it is not possible to give a simple derivation of the Test Requirement in this document. The analysis is recorded in 3GPP TR 34 902 [24].		
	<u>During T1 and T2:</u> Cells 1 and 2: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB S-CCPCH_Ec/lor = -12 dB Cells 3, 4, 5, 6: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB S-CCPCH_Ec/lor = -12 dB lor(3, 4, 5, 6) = -69.73 dBm	<u>During T1 and T2:</u> +0.60 dB +0.60 dB +0.60 dB +0.60 dB +0.60 dB -0.50 dB -0.50 dB -0.50 dB -0.50 dB -0.50 dB +0.03 dB for lor(3, 4, 5, 6)	<u>During T1 and T2:</u> Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT lor(3, 4, 5, 6) + TT

Test	Test Parameters in TS 25.133	Test Tolerance (TT)	Test Requirement in TS 34.121
	<u>During T1:</u> lor(1) = -62.73 dBm lor(2) = -59.73 dBm	<u>During T1:</u> -0.27 dB for lor(1) +0.13 dB for lor(2)	<u>During T1:</u> lor(1) + TT lor(2) + TT
	<u>During T2:</u> lor(1) = -59.73 dBm lor(2) = -62.73 dBm	<u>During T2:</u> +0.13 dB for lor(1) -0.27 dB for lor(2)	<u>During T2:</u> lor(1) + TT lor(2) + TT
8.3.5.2 Two frequencies present in the neighbour list	Because the relationships between the Test system uncertainties and the Test Tolerances are complex, it is not possible to give a simple derivation of the Test Requirement in this document. The analysis is recorded in 3GPP TR 34 902 [24].		
	<u>Channel 1 during T1 and T2:</u> Cell 1: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB S-CCPCH_Ec/lor = -12 dB Cells 3 and 4: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB S-CCPCH_Ec/lor = -12 dB	<u>Channel 1 during T1 and T2:</u> +0.60 dB +0.60 dB +0.60 dB +0.60 dB +0.60 dB -0.70 dB -0.70 dB -0.70 dB -0.70 dB -0.70 dB	<u>Channel 1 during T1 and T2:</u> Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT
	<u>Channel 1 during T1:</u> lor(1) = -71.85 dBm lor(3, 4) = -76.85 dBm loc(1) = -70.00 dBm	<u>Channel 1 during T1:</u> +0.05 dB for lor(1) +0.05 dB for lor(3,4) 0.00 dB for loc(1)	<u>Channel 1 during T1:</u> lor(1) + TT lor(3, 4) + TT loc(1) + TT
	<u>Channel 1 during T2:</u> lor(1) = -67.75 dBm lor(3, 4) = -74.75 dBm loc(1) = -70.00 dBm	<u>Channel 1 during T2:</u> +0.75 dB for lor(1) -0.05 dB for lor(3, 4) -1.60 dB for loc(1)	<u>Channel 1 during T2:</u> lor(1) + TT lor(3, 4) + TT loc(1) + TT
	<u>Channel 2 during T1 and T2:</u> Cell 2: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB S-CCPCH_Ec/lor = -12 dB Cells 5 and 6: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB S-CCPCH_Ec/lor = -12 dB	<u>Channel 2 during T1 and T2:</u> +0.60 dB +0.60 dB +0.60 dB +0.60 dB +0.60 dB -0.70 dB -0.70 dB -0.70 dB -0.70 dB -0.70 dB	<u>Channel 2 during T1 and T2:</u> Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT

Test	Test Parameters in TS 25.133	Test Tolerance (TT)	Test Requirement in TS 34.121
	<u>Channel 2 during T1:</u> lor(2) = -67.75 dBm lor(5, 6) = -74.75 dBm loc(2) = -70.00 dBm	<u>Channel 2 during T1:</u> +0.75 dB for lor(2) -0.05 dB for lor(5, 6) -1.60 dB for loc(2)	<u>Channel 2 during T1:</u> lor(2) + TT lor(5, 6) + TT loc(2) + TT
	<u>Channel 2 during T2:</u> lor(2) = -71.85 dBm lor(5, 6) = -76.85 dBm loc(2) = -70.00 dBm	<u>Channel 2 during T2:</u> +0.05 dB for lor(2) +0.05 dB for lor(5,6) 0.00 dB for loc(2)	<u>Channel 2 during T2:</u> lor(2) + TT lor(5, 6) + TT loc(2) + TT
8.3.6 Cell Re-selection in CELL_PCH			
8.3.6.1 One frequency present in the neighbour list	Same as 8.2.2.1	Same as 8.2.2.1	Same as 8.2.2.1
	$\frac{CPICH_E_c}{I_{or}} = -10$ dB $I_{oc} = -70$ dBm lor/loc = 10.27 dB Note: Parameters are valid for cell 1 at time T2 and cell 2 at time T1	0.1 dB for $\frac{CPICH_E_c}{I_{or}}$ 0.3 dB for lor/loc	Formulas: $\frac{CPICH_E_c}{I_{or}} = \text{ratio} + TT$ lor/loc = ratio + TT loc unchanged lor/loc = 10.57 dB $\frac{CPICH_E_c}{I_{or}} -9.9$ dB:
8.3.6.2 Two frequencies present in the neighbour list	Same as 8.2.2.2	Same as 8.2.2.2	Same as 8.2.2.2
	$\frac{CPICH_E_c}{I_{or}} = -10$ dB $I_{oc} = -70$ dBm lor/loc = 2.2 dB Note: Parameters are valid for cell 1 at time T2 and cell 2 at time T1	0.1 dB for $\frac{CPICH_E_c}{I_{or}}$ 0.3 dB for lor/loc	Formulas: $\frac{CPICH_E_c}{I_{or}} = \text{ratio} + TT$ lor/loc = ratio + TT loc unchanged loc ratio unchanged lor/loc = 2.5 dB $\frac{CPICH_E_c}{I_{or}} -9.9$ dB:
8.3.7 Cell Re-selection in URA_PCH			
8.3.7.1 One frequency present in the neighbour list	Same as 8.2.2.1	Same as 8.2.2.1	Same as 8.2.2.1
8.3.7.2 Two frequencies present in the neighbour list	Same as 8.2.2.2	Same as 8.2.2.2	Same as 8.2.2.2

Test	Test Parameters in TS 25.133	Test Tolerance (TT)	Test Requirement in TS 34.121
8.4 RRC Connection Control	TBD		
8.4.1 RRC Re-establishment delay	TBD		
8.4.2 Random Access	RACH power difference nominal $3\text{dB} \pm 2\text{dB}$ UE setting uncertainty	Measurement TT:Power difference $\pm 1\text{dB}$ Maximum Power-1dB / +0.7dB	Test parameter settings unchanged.Power measurement:Upper limit +TT Lower limit -TT
8.5 Timing and Signalling Characteristics	TBD		
8.5.1 UE Transmit Timing	TBD		
8.6 UE Measurements Procedures	TBD		
8.6.1 FDD intra frequency measurements	TBD		
8.6.1.1 Event triggered reporting in AWGN propagation conditions	TBD		
8.6.1.2 Event triggered reporting of multiple neighbours in AWGN propagation condition	TBD		
8.6.1.3 Event triggered reporting of two detectable neighbours in AWGN propagation condition	TBD		
8.6.1.4 Correct reporting of neighbours in fading propagation condition	TBD		
8.6.2 FDD inter frequency measurements	TBD		
8.6.2.1 Correct reporting of neighbours in AWGN propagation condition	TBD		
8.6.2.2 Correct reporting of neighbours in Fading propagation condition	TBD		
8.6.3 TDD measurements	TBD		
8.6.3.1 Correct reporting of TDD neighbours in AWGN propagation condition	TBD		
8.7 Measurements Performance Requirements	TBD		
8.7.1 CPICH RSCP	TBD		
8.7.1.1 Intra frequency measurements accuracy	TBD		
8.7.1.2 Inter frequency measurement accuracy	TBD		
8.7.2 CPICH Ec/Io			

Test	Test Parameters in TS 25.133	Test Tolerance (TT)	Test Requirement in TS 34.121
8.7.1.1 Intra frequency measurements accuracy	see table 8.7.1.1.1.1 and table 8.7.1.1.1.2	± 1 dB for loc ± 0.3 dB for lor/loc ± 0.1 dB for....._Ec/lor	Any TT applied to the nominal setting shall fulfil: Test 1 (absolute and relative): lo shall not go below -69dBm Test 2 (absolute and relative): lo shall not go above -50 dBm Test 3 (absolute and relative): lo shall not go below -94 dBm lor/loc + TTTT on top of UE measurement accuracy: Absolute ± 1.0 dB for loc ± 0.3 dB for lor/loc ± 0.1 dB for CPICH_Ec/lor $\sum 1.4$ dB Relative ± 0.3 dB for lor/loc (cell1) ± 0.3 dB for lor/loc (cell2) ± 0.1 dB for CPICH_Ec/lor (cell1) ± 0.1 dB for CPICH_Ec/lor (cell2) $\sum 0.8$ dB
8.7.1.2 Inter frequency measurement accuracy	See table 8.7.1.2.1.1 and table 8.7.1.2.1.2	± 1 dB for loc ± 0.3 dB for loc1/loc2 ± 0.3 dB for lor/loc ± 0.1 dB for_Ec/lor	Any TT applied to the nominal setting shall fulfil: Test 1: lo shall not go above -50 dBm Test 2: lo shall not go below -94 dBm lor/loc + TTTT on top of UE measurement accuracy: ± 0.3 dB for loc1/loc2 ± 0.3 dB for lor/loc (cell1) ± 0.3 dB for lor/loc (cell2) ± 0.1 dB for CPICH_Ec/lor (cell1) ± 0.1 dB for CPICH_Ec/lor (cell2) $\sum 1.1$ dB
8.7.2 CPICH Ec/lo			

Test	Test Parameters in TS 25.133	Test Tolerance (TT)	Test Requirement in TS 34.121
8.7.2.1 Intra frequency measurements accuracy	table 8.7.2.1.1.1 and table 8.7.2.1.1.2	± 1 dB for Ioc ± 0.3 dB for Ior/Ioc ± 0.1 dB for_Ec/Ior	<p>Any TT applied to the nominal setting shall fulfil:</p> <p>Test 1 (absolute and relative): I_o shall not go above -50 dBm</p> <p>Test 2 (absolute and relative): I_o shall not go below -87dBm</p> <p>Test 3 (absolute and relative): I_o shall not go below -94 dBm</p> <p>CPICH Ec/I_o shall stay in the UE accuracy ranges</p> <p>I_{or}/I_{oc} + TT</p> <p>TT on top of UE measurement accuracy:</p> <p>Absolute</p> <p style="padding-left: 40px;">± 0.3 dB for I_{or}/I_{oc}</p> <p style="padding-left: 40px;">± 0.1 dB for CPICH_Ec/I_{or}</p> <p style="padding-left: 40px;">$\sum 0.4$dB</p> <p>Relative</p> <p style="padding-left: 40px;">I_{oc}1=I_{oc}2</p> <p style="padding-left: 40px;">± 0.3 dB for I_{or}/I_{oc} (cell1)</p> <p style="padding-left: 40px;">± 0.3 dB for I_{or}/I_{oc} (cell2)</p> <p style="padding-left: 40px;">± 0.1 dB for CPICH_Ec/I_{or} (cell1)</p> <p style="padding-left: 40px;">± 0.1 dB for CPICH_Ec/I_{or} (cell2)</p> <p style="padding-left: 40px;">$\sum 0.8$dB</p>

Test	Test Parameters in TS 25.133	Test Tolerance (TT)	Test Requirement in TS 34.121
8.7.2.2 Inter frequency measurement accuracy	table 8.7.2.2.2.1 and table 8.7.2.2.2.2	± 1 dB for Ioc ± 0.3 dB for Ioc1/Ioc2 ± 0.3 dB for Ior/Ioc ± 0.1 dB for_Ec/Ior	Any TT applied to the nominal setting shall fulfil: Test 1: Io shall not go above -50 dBm Test 2: Io shall not go below -87 dBm Test 3: Io shall not go below -94 dBm Ior/Ioc + TT TT on top of UE measurement accuracy: Ioc1=Ioc2. ± 0.3 dB for Ior/Ioc (cell1) ± 0.3 dB for Ior/Ioc (cell2) ± 0.1 dB for CPICH_Ec/Ior (cell1) ± 0.1 dB for CPICH_Ec/Ior (cell2) Σ 0.8 dB
8.7.3A UTRA Carrier RSSI	TBD		
8.7.3B Transport channel BLER	TBD		
8.7.3C UE Transmitted power	Accuracy upper limit Accuracy lower limit Depends on PUEMAX see table 8.7.3C.2.1	0.7 dB	Formula: Upper accuracy limit + TT Lower accuracy limit – TT Add and subtract TT to all the values in table 8.7.3C.2.1.

Test	Test Parameters in TS 25.133	Test Tolerance (TT)	Test Requirement in TS 34.121
8.7.4 SFN-CFN observed time difference	TBD Table 8.7.4.1.2 and Table 8.7.4.2.2	± 1.0 dB for loc ± 0.3 dB for lor/loc ± 0.5 chips for the actual SFN-CFN observed time difference	<u>Intra and inter frequency case:</u> <u>Test 1: lo shall not go above -50 dBm</u> <u>Test 2: No restrictions on lo value</u> <u>Test 3: lo shall not go below -94 dBm (Band 1), or below -92 dBm (Band II) or below -91 dBm (Band III)</u> $\hat{lor}/loc + TT$ <u>TT on top of UE measurements accuracy:</u> <u>SFN-CFN observed time difference: 1.0 chips + TT</u>
8.7.5 SFN-SFN observed time difference	TBD		
8.7.6 UE Rx-Tx time difference	$lo - 10.9$ dB = loc, Test 1: lo = -94 dBm Test2 : lo = -72dBm Test3 : lo = -50dBm Timing Accuracy ± 1.5 chip	1 dB for loc 0.3 dB for lor/loc [0.5 chip for timing accuracy]	Test 1: lo = -92.7 dBm, loc = -103.6 dBm Formula: $loc * (1 - TT_{loc} + (lor/loc - TT_{lor/loc})) \geq -94$ Test 2: unchanged (no critical RF parameters) Test 3: lo = -51.3 dBm, loc = -62.2 dBm Formula: $loc * (1 + TT_{loc} + (lor/loc + TT_{lor/loc})) \leq -50$ Timing accuracy [± 2.0] chip Formulas: Upper limit +TT Lower limit -TT
8.7.7 Observed time difference to GSM cell	TBD		
8.7.8 P-CCPCH RSCP	TBD		

CHANGE REQUEST

⌘ **34.121 CR 376** ⌘ rev **-** ⌘ Current version: **5.3.1** ⌘

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 SFN-SFN type 1 measurement test cases
Source:	⌘ Nokia
Work item code:	⌘ TEI Date: ⌘ 12/05/2004
Category:	⌘ F Release: ⌘ Rel-5
<i>Use one of the following categories:</i>	
F (correction)	2 (GSM Phase 2)
A (corresponds to a correction in an earlier release)	R96 (Release 1996)
B (addition of feature),	R97 (Release 1997)
C (functional modification of feature)	R98 (Release 1998)
D (editorial modification)	R99 (Release 1999)
Detailed explanations of the above categories can be found in 3GPP TR 21.900 .	
	Rel-4 (Release 4)
	Rel-5 (Release 5)
	Rel-6 (Release 6)

Reason for change:	⌘ - TS 25.133 specifies Frequency Band (I, II, III) dependent constraints on CPICH RSCP and I _o levels for SFN-SFN observed time difference type 1 measurement. These constraints have not been taken into account in SFN-SFN observed time difference measurement test cases defined in section 8.7.5 of TS 34.121. - Test parameter "Relative delay of path received from cell 2 with respect to cell 1" is ambiguous. - Test tolerances have not been taken into account in test parameters - The test requirements do not take into account test tolerances. Also test requirements are not described with UE reported values - Maximum test system uncertainties, test tolerances and derivation of test requirements have not been defined for SFN-SFN observed time difference type 1 measurement in Annex F. - Table 8.7.5.1.1 does not have title.
Summary of change:	⌘ - Frequency Band constraints for CPICH RSCP and I _o have been added into "Minimum Requirements" and "Test Requirements" section. - For Frequency Band II and III some test parameters have been slightly modified so that I _o levels are within the constraints that have been specified for these frequency bands. - Test parameter "Relative delay of path received from cell 2 with respect to cell 1" has been replaced with "SFN-SFN observed time difference type 1 as specified in TS 25.215 [22]". - A new table has been created (Table 8.7.5.1.4). This table includes test tolerances for test parameters. Also test procedure section are modified according

to this change.

- A new table has been created (Table 8.7.5.1.3). This table includes test tolerances for test requirements.
- Test requirements are described with UE reported values in table 8.7.5.1.5.
- Maximum test system uncertainties have been added into Table F.1.5.
- Test tolerances have been added into table F.2.4.
- Derivation of test requirements have been added into table F.4.4.
- Title has been added for Tables 8.7.5.1.1.

Editor's note has been added that says that UE behavior is not specified for the current MEASUREMENT CONTROL message and therefore it is TBD.

Consequences if not approved:

⌘ SFN-SFN observed time difference type 1 measurement test cases are not compliant with core specification when operating with Frequency Band II or III. Tests contains a lot of errors.

Clauses affected:

⌘ 8.7.5, Annex F.1.5, Annex F.2.4, Annex F.4

Other specs affected:

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

Other comments:

⌘ This CR is applicable for UE's supporting Rel-99 or later.

8.7.5 SFN-SFN observed time difference

8.7.5.1 SFN-SFN observed time difference type 1

8.7.5.1.1 Definition and applicability

This measurement is specified in clause 5.1.9 of TS 25.215 [22]. The reference point for the SFN-SFN observed time difference type 1 shall be the antenna connector of the UE.

The requirements and this test apply to all types of UTRA for the FDD UE.

8.7.5.1.2 Minimum requirements

The accuracy requirement in table 8.7.5.1.1 is valid under the following conditions:

$CPICH_RSCP1,2|_{dBm} \geq -114$ dBm [for Band I](#),

$CPICH_RSCP1,2|_{dBm} \geq -112$ dBm [for Band II](#),

$CPICH_RSCP1,2|_{dBm} \geq -111$ dBm [for Band III](#).

$$\left| CPICH_RSCP1|_{in\ dBm} - CPICH_RSCP2|_{in\ dBm} \right| \leq 20dB$$

$$\left(\frac{I_o}{\hat{I}_{or}} \right)_{in\ dB} - \left(\frac{CPICH_E_c}{I_{or}} \right)_{in\ dB} \leq 20dB$$

$$\left(\frac{I_o}{\hat{I}_{or}} \right)_{in\ dB} - \left(\frac{P - CCPCH_E_c}{I_{or}} \right)_{in\ dB} \text{ is low enough to ensure successful SFN decoding.}$$

Table 8.7.5.1.1 [SFN-SFN observed time difference type 1 measurement accuracy](#)

Parameter	Unit	Accuracy [chip]	Conditions		
			Io [dBm/3.84 MHz]		
			Band I	Band II	Band III
SFN-SFN observed time difference type1	chip	± 1	-94...-50	-92...-50	-91...-50

The normative reference for this requirement is TS 25.133 [2] clause 9.1.8.1.1 and A.9.1.5.1.2.

8.7.5.1.3 Test purpose

The purpose of this test is to verify that the measurement accuracy of SFN-SFN observed time difference type 1 is within the limit specified in clause 8.7.5.1.2. This measurement is for identifying time difference between two cells.

8.7.5.1.4 Method of test

8.7.5.1.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

During the test the timing difference between Cell 1 and 2 can be set to value from 0...9830399 chips.

- 1) Connect SS to the UE antenna connector as shown in figure A.1

- 2) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.3. The RF parameters for Test 1 are set up according to table 8.7.5.1.2.

In this case all cells are in the same frequency. Table 8.7.5.1.2 defines the limits of signal strengths and code powers, where the requirements are applicable.

Table 8.7.5.1.2: SFN-SFN observed time difference type 1 Intra frequency test parameters

Parameter	Unit	Test 1		Test 2		Test 3	
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior	dB	-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15	
S-CCPCH_Ec/Ior	dB	-12		-12		-12	
OCNS_Ec/Ior	dB	-1.29		-1.29		-1.29	
Ior/Ioc	dB	10.5		10.5		10.5	
Ioc	dBm/ 3.84 MHz	<i>I_o -13.7 dB = I_{oc}, Note 1</i>		<i>I_o -13.7 dB = I_{oc}, Note 1</i>		<i>I_o -13.7 dB = I_{oc}, Note 1</i>	
I _o	Band I	-50		-72		-94	
	Band II					-92	
	Band III					-91	
<u>SFN-SFN observed time difference type 1 as specified in TS 25.215 [22]</u> Relative delay of path received from cell 2 with respect to cell 1	chip	x Note 2					
Propagation condition	-	AWGN		AWGN		AWGN	
NOTE 1: <i>I_{oc}</i> level shall be adjusted according the total signal power <i>I_o</i> at receiver input and the geometry factor <i>I_{or/Ioc}</i> .							
NOTE2: For example, x= 491520 or 9830399. <u>This is a calculated value using the parameters "OFF" and "T_m" as specified in TS 25.215 [22].</u>							
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.							

8.7.5.1.4.2 Procedure

- 1) SS shall transmit MEASUREMENT CONTROL message.
- 2) UE shall transmit periodically MEASUREMENT REPORT message.
- 3) SS shall check "SFN-SFN observed time difference type 1" value in MEASUREMENT REPORT message. The reported value shall be compared to actual SFN-SFN observed time difference type 1 value for each MEASUREMENT REPORT message.
- 4) SS shall count the number of MEASUREMENT REPORT messages transmitted by UE. After 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.5.1.4.2 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 3) above is repeated. After further 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.5.1.4.2 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 3) above is repeated.
- 5) After further 1000 MEASUREMENT REPORT messages have been received from UE, the SS shall transmit RRC CONNECTION RELEASE message.
- 6) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

Editor's note: UE behaviour is not specified for the current MEASUREMENT CONTROL message and therefore it is TBD.

MEASUREMENT CONTROL message for Intra frequency measurement (Step 1):

Information Element	Value/Remark
Message Type	
UE information elements -RRC transaction identifier -Integrity check info	0 Not Present
Measurement Information elements -Measurement Identity -Measurement Command -Measurement Reporting Mode - Measurement Report Transfer Mode - Periodical Reporting / Event Trigger Reporting Mode -Additional measurement list-CHOICE Measurement Type -Intra-frequency measurement - Intra-frequency measurement objects list -Intra-frequency measurement quantity -Filter coefficient -CHOICE mode -Measurement quantity -Intra-frequency reporting quantity -Reporting quantities for active set cells -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator -Reporting quantities for monitored set cells -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator -Reporting quantities for detected set cells -Reporting cell status -CHOICE reported cell -Maximum number of reported cells -Measurement validity -CHOICE <i>report criteria</i> -Amount of reporting -Reporting interval	1 Modify Acknowledged mode RLC Periodical reporting Not Present Intra-frequency measurement Not Present 0 FDD CPICH RSCP Type 1 TRUE TRUE FDD TRUE TRUE TRUE Type 1 TRUE TRUE FDD TRUE TRUE TRUE Not Present Report all active set cells + cells within monitored set on used frequency Virtual/active set cells + 2 Not Present Periodical reporting criteria Infinity 250 ms
Physical channel information elements -DPCH compressed mode status info	Not Present

MEASUREMENT REPORT message for Intra frequency test cases

This message is common for all intra frequency test cases in clause 8.7 and is described in Annex I.

8.7.5.1.5 Test requirements

Table 8.7.5.1.3 SFN-SFN observed time difference type 1 measurement accuracy

Parameter	Unit	Accuracy [chip]	Conditions		
			Io [dBm/3.84 MHz]		
			Band I	Band II	Band III
SFN-SFN observed time difference type 1	chip	± 1.5	-94...-50	-92...-50	-91...-50

Table 8.7.5.1.4: SFN-SFN observed time difference type 1 Intra frequency test parameters

Parameter	Unit	Test 1		Test 2		Test 3	
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1		Channel 1		Channel 1	
CPICH Ec/Ior	dB	-10		-10		-10	
PCCPCH Ec/Ior	dB	-12		-12		-12	
SCH Ec/Ior	dB	-12		-12		-12	
PICH Ec/Ior	dB	-15		-15		-15	
S-CCPCH Ec/Ior	dB	-12		-12		-12	
OCNS Ec/Ior	dB	-1.29		-1.29		-1.29	
Ior/Ioc	dB	10.8		10.8		10.8	
Ioc	Band I	dBm/ 3.84 MHz	-65.3 dB	-85.7	-106.7		
	Band II				-104.7		
	Band III				-103.7		
Io, Note 1	Band I	dBm/3.84 MHz	-51.3	-71.7	-92.7		
	Band II				-90.7		
	Band III				-89.7		
SFN-SFN observed time difference type 1 as specified in TS 25.215 [22]	chip	x Note 2					
Propagation condition	-	AWGN		AWGN		AWGN	
NOTE 1: Io level has been calculated from other parameters for information purposes. It is not a settable parameter itself.							
NOTE2: For example, x= 491520 or 9830399. This is a calculated value using the parameters "OFF" and "Tm" as specified in TS 25.215 [22].							
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.							

The reported values for SFN-SFN observed time difference type 1 measurement accuracy shall meet the requirements in table 8.7.5.1.5 ~~clause 8.7.5.1.2.~~

Table 8.7.5.1.5: SFN-SFN observed time difference type 1 measurement accuracy requirements for the reported values

	Test 1	Test 2	Test 3
Lowest reported value	T1_SFN-SFN_TIME (X - 2)	T1_SFN-SFN_TIME (X - 2)	T1_SFN-SFN_TIME (X - 2)
Highest reported value	T1_SFN-SFN_TIME (X + 2)	T1_SFN-SFN_TIME (X + 2)	T1_SFN-SFN_TIME (X + 2)
T1_SFN-SFN_TIME (X) is the reporting value corresponding to SFN-SFN observed time difference type 1 measured by system simulator			

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.7.5.2 SFN-SFN observed time difference type 2

Void.

F.1.5 Requirements for support of RRM

Table F.1.5: Maximum Test System Uncertainty for Radio Resource Management Tests

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
8.2 Idle Mode Tasks		
8.2.2 Cell Re-Selection		
8.2.2.1 Scenario 1: Single carrier case	<p><u>During T1 and T2:</u></p> $\frac{CPICH - E_c}{I_{or}} \quad \pm 0.1 \text{ dB}$ $I_{oc} \quad \pm 1.0 \text{ dB}$ <p><u>During T1:</u></p> $I_{or} (2) \quad \pm 0.7 \text{ dB}$ $I_{or} (1, 3, 4, 5, 6) \text{ relative to } I_{or} (2) \quad \pm 0.3 \text{ dB}$ <p><u>During T2:</u></p> $I_{or} (1) \quad \pm 0.7 \text{ dB}$ $I_{or} (2, 3, 4, 5, 6) \text{ relative to } I_{or} (1) \quad \pm 0.3 \text{ dB}$	
	<p>Assumptions:</p> <p>a) The contributing uncertainties for $I_{or}(n)$, channel power ratio, and I_{oc} are derived according to ETR 273-1-2 [16], with a coverage factor of $k=2$.</p> <p>b) Within each cell, the uncertainty for $I_{or}(n)$, and channel power ratio are uncorrelated to each other.</p> <p>c) The relative uncertainties for $I_{or}(n)$ across different cells may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).</p> <p>d) Across different cells, the channel power ratio uncertainties may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).</p> <p>e) The uncertainty for I_{oc} and $I_{or}(n)$ may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).</p> <p>f) The absolute uncertainty of $I_{or}(2)$ at T1 and the relative uncertainty of $I_{or}(1, 3, 4, 5, 6)$, are uncorrelated to each other. Similarly, the absolute uncertainty of $I_{or}(1)$ at T2 and the relative uncertainty of $I_{or}(2, 3, 4, 5, 6)$, are uncorrelated to each other.</p> <p>An explanation of correlation between uncertainties, and of the rationale behind the assumptions, is recorded in 3GPP TR 34 902 [24].</p>	

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
8.2.2.2 Scenario 2: Multi carrier case	<p><u>Channel 1 during T1 and T2:</u></p> $\frac{CPICH - E_c}{I_{or}} \quad \pm 0.1 \text{ dB}$ $I_{oc}(1) \quad \pm 1.0 \text{ dB}$ <p><u>Channel 1 during T1:</u></p> $I_{or}(1) \quad \pm 0.7 \text{ dB}$ <p>$I_{or}(3, 4)$ relative to $I_{or}(1)$ $\pm 0.3 \text{ dB}$</p> <p><u>Channel 1 during T2:</u></p> $I_{or}(1) \quad \pm 0.7 \text{ dB}$ <p>$I_{or}(3, 4)$ relative to $I_{or}(1)$ $\pm 0.3 \text{ dB}$</p> <p><u>Channel 2 during T1 and T2:</u></p> $\frac{CPICH - E_c}{I_{or}} \quad \pm 0.1 \text{ dB}$ $I_{oc}(2) \quad \pm 1.0 \text{ dB}$ <p><u>Channel 2 during T1:</u></p> $I_{or}(2) \quad \pm 0.7 \text{ dB}$ <p>$I_{or}(5, 6)$ relative to $I_{or}(2)$ $\pm 0.3 \text{ dB}$</p> <p><u>Channel 2 during T2:</u></p> $I_{or}(2) \quad \pm 0.7 \text{ dB}$ <p>$I_{or}(5, 6)$ relative to $I_{or}(2)$ $\pm 0.3 \text{ dB}$</p>	
	<p>Assumptions:</p> <p>a) to e): Same as for the one-frequency test 8.2.2.1.</p> <p>f) The absolute uncertainty of $I_{or}(1)$ and the relative uncertainty of $I_{or}(3, 4)$, are uncorrelated to each other. Similarly, the absolute uncertainty of $I_{or}(2)$ and the relative uncertainty of $I_{or}(5, 6)$, are uncorrelated to each other.</p> <p>g) The absolute uncertainties for $I_{or}(1)$ and $I_{or}(2)$ may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).</p> <p>h) The absolute uncertainties for $I_{oc}(1)$ and $I_{oc}(2)$ may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).</p> <p>An explanation of correlation between uncertainties, and of the rationale behind the assumptions, is recorded in 3GPP TR 34 902 [24].</p>	

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
8.2.2.1 Scenario 1: Single carrier case	$\hat{I}_{or}/I_{oc} \quad \pm 0.3 \text{ dB}$ $I_{oc} \quad \pm 1.0 \text{ dB}$ $\frac{CPICH_E_c}{I_{or}} \quad \pm 0.1 \text{ dB}$	<p>0.1 dB uncertainty in CPICH_Ec ratio</p> <p>0.3 dB uncertainty in \hat{I}_{or}/I_{oc} based on power meter measurement after the combiner</p> <p>The absolute error of the AWGN is specified as 1.0 dB.</p>
8.2.2.2 Scenario 2: Multi carrier case	$\hat{I}_{or}/I_{oc} \quad \pm 0.3 \text{ dB}$ $I_{oc} \quad \pm 1.0 \text{ dB}$ $I_{oc1}/I_{oc2} \quad \pm 0.3 \text{ dB}$ $\frac{CPICH_E_c}{I_{or}} \quad \pm 0.1 \text{ dB}$	<p>0.1 dB uncertainty in CPICH_Ec ratio</p> <p>0.3 dB uncertainty in \hat{I}_{or}/I_{oc} based on power meter measurement after the combiner</p> <p>0.3 dB uncertainty in loc1/loc2 based on power meter measurement after the combiner</p> <p>Overall error for the CPICH_Ec/Io is the sum of the \hat{I}_{or}/I_{oc} ratio error and the CPICH_Ec/Ior ratio.</p> <p>The absolute error of the AWGN is specified as 1.0 dB.</p>
8.2.3 UTRAN to GSM Cell Re-Selection		
8.2.3.1 Scenario 1: Both UTRA and GSM level changed	$\hat{I}_{or}/I_{oc} \quad \pm 0.3 \text{ dB}$ $I_{oc}/RXLEV \quad \pm 0.3 \text{ dB}$ $I_{oc} \quad \pm 1.0 \text{ dB}$ $RXLEV \quad \pm 1.0 \text{ dB}$ $\frac{CPICH_E_c}{I_{or}} \quad \pm 0.1 \text{ dB}$	<p>0.1 dB uncertainty in CPICH_Ec ratio</p> <p>0.3 dB uncertainty in \hat{I}_{or}/I_{oc} based on power meter measurement after the combiner</p> <p>0.3 dB uncertainty in loc/RXLEV based on power meter measurement after the combiner</p> <p>The absolute error of the AWGN is specified as 1.0 dB.</p> <p>The absolute error of the RXLEV is specified as 1.0 dB.</p>

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
8.2.3.2 Scenario 2: Only UTRA level changed	\hat{I}_{or}/I_{oc} ± 0.3 dB $I_{oc}/RXLEV$ ± 0.3 dB I_{oc} ± 1.0 dB RXLEV ± 1.0 dB $\frac{CPICH - E_c}{I_{or}}$ ± 0.1 dB	Same as 8.2.3.1
8.2.4 FDD/TDD cell re-selection	\hat{I}_{or}/I_{oc} ± 0.3 dB I_{oc} ± 1.0 dB I_{oc1}/I_{oc2} ± 0.3 dB $\frac{CPICH - E_c}{I_{or}}$ ± 0.1 dB	Same as 8.2.2.2
8.3 UTRAN Connected Mode Mobility		
8.3.1 FDD/FDD Soft Handover	TBD	
8.3.2 FDD/FDD Hard Handover		
8.3.2.1 Handover to intra-frequency cell	<p><u>During T1 and T2 / T3:</u></p> $\frac{CPICH - E_c}{I_{or}}$ ± 0.1 dB $I_{or}(1)$ ± 0.7 dB I_{oc} ± 1.0 dB	
	<p><u>During T1:</u> Already covered above</p> <p><u>During T2 / T3:</u> $I_{or}(2)$ relative to $I_{or}(1) \pm 0.3$ dB</p> <p>Assumptions:</p> <p>a) The contributing uncertainties for $I_{or}(n)$, channel power ratio, and I_{oc} are derived according to ETR 273-1-2 [16], with a coverage factor of $k=2$.</p> <p>b) Within each cell, the uncertainty for $I_{or}(n)$, and channel power ratio are uncorrelated to each other.</p> <p>c) Across different cells, the channel power ratio uncertainties may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).</p> <p>d) The uncertainty for I_{oc} and $I_{or}(n)$ may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).</p> <p>e) The absolute uncertainty of $I_{or}(1)$ and the relative uncertainty of $I_{or}(2)$, are uncorrelated to each other.</p> <p>An explanation of correlation between uncertainties, and of the rationale behind the assumptions, is recorded in 3GPP TR 34 902 [24].</p>	

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
8.3.2.2 Handover to inter-frequency cell	<p><u>Channel 1 during T1 and T2 / T3:</u></p> $\frac{CPICH - E_c}{I_{or}} \quad \pm 0.1 \text{ dB}$ $I_{or}(1) \quad \pm 0.7 \text{ dB}$ $I_{oc}(1) \quad \pm 1.0 \text{ dB}$ <p><u>Channel 2 during T1 and T2 / T3:</u></p> $I_{oc}(2) \quad \pm 1.0 \text{ dB}$ <p><u>Channel 2 during T1:</u> Already covered above</p> <p><u>Channel 2 during T2 / T3:</u></p> $\frac{CPICH - E_c}{I_{or}} \quad \pm 0.1 \text{ dB}$ $I_{or}(2) \quad \pm 0.7 \text{ dB}$	
8.3.3 FDD/TDD Handover	TBD	
8.3.4 Inter-system Handover from UTRAN FDD to GSM	TBD	
8.3.5 Cell Re-selection in CELL_FACH		

Assumptions:

- a) The contributing uncertainties for $I_{or}(n)$, channel power ratio, and I_{oc} are derived according to ETR 273-1-2 [16], with a coverage factor of $k=2$.
- b) Within each cell, the uncertainty for $I_{or}(n)$, and channel power ratio are uncorrelated to each other.
- c) Across different cells, the channel power ratio uncertainties may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).
- d) The uncertainty for $I_{oc}(n)$ and $I_{or}(n)$ may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).
- e) The absolute uncertainties for $I_{or}(1)$ and $I_{or}(2)$ may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).
- f) The absolute uncertainties for $I_{oc}(1)$ and $I_{oc}(2)$ may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).

An explanation of correlation between uncertainties, and of the rationale behind the assumptions, is recorded in 3GPP TR 34 902 [24].

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
8.3.5.1 One frequency present in the neighbour list	<p><u>During T1 and T2:</u></p> $\frac{CPICH - E_c}{I_{or}} \quad \pm 0.1 \text{ dB}$ $I_{oc} \quad \pm 1.0 \text{ dB}$ <p><u>During T1:</u></p> $I_{or} (2) \quad \pm 0.7 \text{ dB}$ $I_{or} (1, 3, 4, 5, 6) \text{ relative to } I_{or} (2) \quad \pm 0.3 \text{ dB}$ <p><u>During T2:</u></p> $I_{or} (1) \quad \pm 0.7 \text{ dB}$ $I_{or} (2, 3, 4, 5, 6) \text{ relative to } I_{or} (1) \quad \pm 0.3 \text{ dB}$	
	<p>Assumptions:</p> <p>a) The contributing uncertainties for $I_{or}(n)$, channel power ratio, and I_{oc} are derived according to ETR 273-1-2 [16], with a coverage factor of $k=2$.</p> <p>b) Within each cell, the uncertainty for $I_{or}(n)$, and channel power ratio are uncorrelated to each other.</p> <p>c) The relative uncertainties for $I_{or}(n)$ across different cells may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).</p> <p>d) Across different cells, the channel power ratio uncertainties may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).</p> <p>e) The uncertainty for I_{oc} and $I_{or}(n)$ may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).</p> <p>f) The absolute uncertainty of $I_{or}(2)$ at T1 and the relative uncertainty of $I_{or}(1, 3, 4, 5, 6)$, are uncorrelated to each other. Similarly, the absolute uncertainty of $I_{or}(1)$ at T2 and the relative uncertainty of $I_{or}(2, 3, 4, 5, 6)$, are uncorrelated to each other.</p> <p>An explanation of correlation between uncertainties, and of the rationale behind the assumptions, is recorded in 3GPP TR 34 902 [24].</p>	

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
<p>8.3.5.2 Two frequencies present in the neighbour list</p>	<p><u>Channel 1 during T1 and T2:</u></p> $\frac{CPICH - E_c}{I_{or}} \quad \pm 0.1 \text{ dB}$ <p>$I_{oc}(1) \quad \pm 1.0 \text{ dB}$</p> <p><u>Channel 1 during T1:</u></p> $I_{or}(1) \quad \pm 0.7 \text{ dB}$ <p>$I_{or}(3, 4) \text{ relative to } I_{or}(1) \quad \pm 0.3 \text{ dB}$</p> <p><u>Channel 1 during T2:</u></p> $I_{or}(1) \quad \pm 0.7 \text{ dB}$ <p>$I_{or}(3, 4) \text{ relative to } I_{or}(1) \quad \pm 0.3 \text{ dB}$</p> <p><u>Channel 2 during T1 and T2:</u></p> $\frac{CPICH - E_c}{I_{or}} \quad \pm 0.1 \text{ dB}$ <p>$I_{oc}(2) \quad \pm 1.0 \text{ dB}$</p> <p><u>Channel 2 during T1:</u></p> $I_{or}(2) \quad \pm 0.7 \text{ dB}$ <p>$I_{or}(5, 6) \text{ relative to } I_{or}(2) \quad \pm 0.3 \text{ dB}$</p> <p><u>Channel 2 during T2:</u></p> $I_{or}(2) \quad \pm 0.7 \text{ dB}$ <p>$I_{or}(5, 6) \text{ relative to } I_{or}(2) \quad \pm 0.3 \text{ dB}$</p>	
	<p>Assumptions:</p> <p>a) to e): Same as for the one-frequency test 8.3.5.1.</p> <p>f) The absolute uncertainty of $I_{or}(1)$ and the relative uncertainty of $I_{or}(3, 4)$, are uncorrelated to each other. Similarly, the absolute uncertainty of $I_{or}(2)$ and the relative uncertainty of $I_{or}(5, 6)$, are uncorrelated to each other.</p> <p>g) The absolute uncertainties for $I_{or}(1)$ and $I_{or}(2)$ may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).</p> <p>h) The absolute uncertainties for $I_{oc}(1)$ and $I_{oc}(2)$ may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).</p> <p>An explanation of correlation between uncertainties, and of the rationale behind the assumptions is recorded in 3GPP TR 34 902 [24].</p>	
<p>8.3.5.3 Cell Re-selection to GSM</p>	<p>TBD</p>	
<p>8.3.6 Cell Re-selection in CELL_PCH</p>		
<p>8.3.6.1 One frequency present in the neighbour list</p>	<p>Same as 8.2.2.1</p>	<p>Same as 8.2.2.1</p>

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
8.3.6.2 Two frequencies present in the neighbour list	Same as 8.2.2.2	Same as 8.2.2.2
8.3.7 Cell Re-selection in URA_PCH		
8.3.7.1 One frequency present in the neighbour list	Same as 8.2.2.1	Same as 8.2.2.1
8.3.7.2 Two frequencies present in the neighbour list	Same as 8.2.2.2	Same as 8.2.2.2
8.4 RRC Connection Control		
8.4.1 RRC Re-establishment delay	TBD	
8.4.2 Random Access	<p>Settings.</p> $\hat{I}_{or}/I_{oc} \quad \pm 0.3 \text{ dB}$ $I_{oc} \quad \pm 1.0 \text{ dB}$ $\frac{AICH - E_c}{I_{or}} \quad \pm 0.1 \text{ dB}$ <p>Measurements: Power difference. $\pm 1 \text{ dB}$ Maximum Power: same as 5.5.2</p>	<p>0.1 dB uncertainty in AICH_Ec ratio</p> <p>0.3 dB uncertainty in \hat{I}_{or}/I_{oc} based on power meter measurement after the combiner</p> <p>Overall error is the sum of the \hat{I}_{or}/I_{oc} ratio error and the AICH_Ec/Ior ratio.</p> <p>The absolute error of the AWGN is specified as 1.0 dB</p> <p>Power difference: Assume symmetric meas error $\pm 1.0 \text{ dB}$ comprising RSS of: -0.7 dB downlink error plus -0.7 dB meas error.</p> <p>Maximum Power: Assume asymmetric meas error -1.0 dB / 0.7 dB comprising RSS of: -0.7 dB downlink error plus -0.7 dB meas error, and +0.7 dB for upper limit</p>
8.4.3 Transport format combination selection in UE	TBD	
8.5 Timing and Signalling Characteristics		
8.5.1 UE Transmit Timing	$I_{or} \quad \pm 1.0 \text{ dB}$ $I_{or1}/I_{or2} \quad \pm 0.3 \text{ dB}$ $\frac{DPCH - E_c}{I_{or}} \quad \pm 0.1 \text{ dB}$	<p>0.1 dB uncertainty in DPCH_Ec ratio</p> <p>0.3 dB uncertainty in Ior1/Ior2 based on power meter measurement after the combiner</p> <p>The absolute error of the Ior is specified as 1.0 dB.</p>
8.6 UE Measurements Procedures		
8.6.1 FDD intra frequency measurements		
8.6.1.1 Event triggered reporting in AWGN propagation conditions	TBD	
8.6.1.2 Event triggered reporting of multiple neighbours in AWGN propagation condition	TBD	
8.6.1.3 Event triggered reporting of two detectable neighbours in AWGN propagation condition	TBD	

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
8.6.1.4 Correct reporting of neighbours in fading propagation condition	TBD	
8.6.2 FDD inter frequency measurements		
8.6.2.1 Correct reporting of neighbours in AWGN propagation condition	TBD	
8.6.2.2 Correct reporting of neighbours in Fading propagation condition	TBD	
8.6.3 TDD measurements		
8.6.3.1 Correct reporting of TDD neighbours in AWGN propagation condition	TBD	
8.6.4 GSM Measurement	TBD	
8.7 Measurements Performance Requirements		
8.7.1 CPICH RSCP		
8.7.1.1 Intra frequency measurements accuracy	\hat{I}_{or}/I_{oc} ± 0.3 dB I_{oc} ± 1.0 dB $\frac{CPICH - E_c}{I_{or}}$ ± 0.1 dB	Same as 8.2.2.1
8.7.1.2 Inter frequency measurement accuracy	\hat{I}_{or}/I_{oc} ± 0.3 dB I_{oc} ± 1.0 dB I_{oc1}/I_{oc2} ± 0.3 dB $\frac{CPICH - E_c}{I_{or}}$ ± 0.1 dB	Same as 8.2.2.2
8.7.2 CPICH Ec/Io		
8.7.2.1 Intra frequency measurements accuracy	\hat{I}_{or}/I_{oc} ± 0.3 dB I_{oc} ± 1.0 dB $\frac{CPICH - E_c}{I_{or}}$ ± 0.1 dB	Same as 8.2.2.1
8.7.2.2 Inter frequency measurement accuracy	\hat{I}_{or}/I_{oc} ± 0.3 dB I_{oc} ± 1.0 dB I_{oc1}/I_{oc2} ± 0.3 dB $\frac{CPICH - E_c}{I_{or}}$ ± 0.1 dB	Same as 8.2.2.2
8.7.3 UTRA Carrier RSSI	\hat{I}_{or}/I_{oc} ± 0.3 dB I_{oc} ± 1.0 dB I_{oc1}/I_{oc2} ± 0.3 dB	<p>0.3 dB uncertainty in \hat{I}_{or}/I_{oc} based on power meter measurement after the combiner</p> <p>0.3 dB uncertainty in I_{oc1}/I_{oc2} based on power meter measurement after the combiner</p> <p>The absolute error of the AWGN is specified as 1.0 dB</p>
8.7.3A GSM Carrier RSSI	TBD	
8.7.3C UE Transmitted power	Mean power measurement $\pm 0,7$ dB	Downlink parameters are unimportant.
8.7.4 SFN-CFN observed time difference	TBD	

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
8.7.5.1 SFN-SFN observed time difference type 1	TBD \hat{I}_{or}/I_{oc} ± 0.3 dB I_{oc} ± 1.0 dB Actual SFN-SFN observed time difference type 1: ± 0.5 chips	0.3 dB uncertainty in \hat{I}_{or}/I_{oc} based on power meter measurement after the combiner The absolute error of the AWGN is specified as 1.0 dB
8.7.6 UE Rx-Tx time difference	\hat{I}_{or}/I_{oc} ± 0.3 dB I_{oc} ± 1.0 dB Rx-Tx Timing Accuracy [± 0.5 chip]	0.3 dB uncertainty in \hat{I}_{or}/I_{oc} based on power meter measurement after the combiner The absolute error of the AWGN is specified as 1.0 dB.
8.7.8 P-CCPCH RSCP	TBD	

F.1.6 Performance requirement (HSDPA)

Table F.1.6: Maximum Test System Uncertainty for Performance Requirements (HSDPA)

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
9.2.1 Single Link Performance	\hat{I}_{or}/I_{oc} ± 0.3 dB I_{oc} ± 1.0 dB $\frac{E_c}{I_{or}}$ ± 0.1 dB	0.1 dB uncertainty in E_c/I_{or} ratio 0.3 dB uncertainty in \hat{I}_{or}/I_{oc} based on power meter measurement after the combiner The absolute error of the AWGN loc is not important for any tests in clause 9 but is specified as 1.0 dB.
9.3.1 AWGN propagation conditions	No test system uncertainty applied	

F.2 Test Tolerances (This clause is informative)

The Test Tolerances defined in this clause have been used to relax the Minimum Requirements in the present document to derive the Test Requirements.

The Test Tolerances are derived from Test System uncertainties, regulatory requirements and criticality to system performance. As a result, the Test Tolerances may sometimes be set to zero.

The test tolerances should not be modified for any reason e.g. to take account of commonly known test system errors (such as mismatch, cable loss, etc.).

F.2.1 Transmitter

Table F.2.1: Test Tolerances for transmitter tests.

Clause	Test Tolerance
5.2 Maximum Output Power	0.7 dB
5.3 Frequency error	10 Hz
5.4.1 Open loop power control in uplink	1.0 dB
5.4.2 Inner loop power control in the uplink - One step	0.1 dB (1 dB and 0 dB step) 0.15 dB (2 dB step) 0.2 dB (3 dB step)
5.4.2 Inner loop power control in the uplink - seven and ten steps	0.3 dB
5.4.3 Minimum Output Power	1.0 dB
5.4.4 Out-of-synchronisation handling of output power: $\frac{DPCCH_E_c}{I_{or}}$	0.4 dB
5.4.4 Out-of-synchronisation handling of output power: transmit ON/OFF time	0 ms
5.5.1 Transmit OFF power	1.0 dB
5.5.2 Transmit ON/OFF time mask (dynamic case)	On power +0.7 dB / -1.0 dB Off power TT [] dB
5.6 Change of TFC: power control step size	0.3 dB
5.7 Power setting in uplink compressed mode:-UE output power	See subset of 5.4.2
5.8 Occupied Bandwidth	0 kHz
5.9 Spectrum emission mask	1.5 dB (0 dB for additional requirements for Band II)
5.10 ACLR	0.8 dB for ratio 0.0 dB for absolute power
5.11 Spurious emissions	0 dB
5.12 Transmit Intermodulation	0 dB
5.13.1 Transmit modulation: EVM	0%
5.13.2 Transmit modulation: peak code domain error	1.0 dB
5.13.4 PRACH preamble quality (EVM)	0%
5.13.4 PRACH preamble quality (Frequency error)	10 Hz

F.2.2 Receiver

Table F.2.2: Test Tolerances for receiver tests.

Clause	Test Tolerance
6.2 Reference sensitivity level	0.7 dB
6.3 Maximum input level:	0.7 dB for Ior
6.4 Adjacent channel selectivity	0 dB
6.5 Blocking characteristics	0 dB
6.6 Spurious Response	0 dB
6.7 Intermodulation Characteristics	0 dB
6.8 Spurious emissions	0 dB

F.2.3 Performance requirements

Table F.2.3: Test Tolerances for Performance Requirements.

Clause	Test Tolerance
7.2 Demodulation in Static Propagation Condition	0.3 dB for \hat{I}_{or}/I_{oc} 0.1 dB for DPCH_Ec/lor
7.3 Demodulation of DCH in multipath Fading Propagation conditions	0.6 dB for \hat{I}_{or}/I_{oc} 0.1 dB for DPCH_Ec/lor
7.4 Demodulation of DCH in Moving Propagation conditions	0.6 dB for \hat{I}_{or}/I_{oc} 0.1 dB for DPCH_Ec/lor
7.5 Demodulation of DCH in Birth-Death Propagation conditions	0.6 dB for \hat{I}_{or}/I_{oc} 0.1 dB for DPCH_Ec/lor
7.6.1 Demodulation of DCH in open loop Transmit diversity mode	0.8 dB for \hat{I}_{or}/I_{oc} 0.1 dB for DPCH_Ec/lor
7.6.2 Demodulation of DCH in closed loop Transmit diversity mode	0.8 dB for \hat{I}_{or}/I_{oc} 0.1 dB for DPCH_Ec/lor
7.6.3, Demodulation of DCH in site selection diversity Transmission power control mode	0.8 dB for \hat{I}_{or}/I_{oc} 0.1 dB for DPCH_Ec/lor
7.7.1 Demodulation in inter-cell soft Handover conditions	0.8 dB for \hat{I}_{or}/I_{oc} 0.1 dB for DPCH_Ec/lor
7.7.2 Combining of TPC commands Test 1	0 dB for lor1, lor2 0.1 dB for DPCH_Ec/lor
7.7.2 Combining of TPC commands Test 2	0.8 dB for \hat{I}_{or}/I_{oc} 0.1 dB for DPCH_Ec/lor
7.8.1 Power control in downlink constant BLER target	0.6 dB for \hat{I}_{or}/I_{oc} 0.1 dB for DPCH_Ec/lor
7.8.2, Power control in downlink initial convergence	0.6 dB for \hat{I}_{or}/I_{oc} 0.1 dB for DPCH_Ec/lor
7.8.3, Power control in downlink: wind up effects	0.6 dB for \hat{I}_{or}/I_{oc} 0.1 dB for DPCH_Ec/lor
7.9 Downlink compressed mode	0.6 dB for \hat{I}_{or}/I_{oc} 0.1 dB for DPCH_Ec/lor
7.10 Blind transport format detection Tests 1, 2, 3	0.3 dB for \hat{I}_{or}/I_{oc} 0.1 dB for DPCH_Ec/lor
7.10 Blind transport format detection Tests 4, 5, 6	0.6 dB for \hat{I}_{or}/I_{oc} 0.1 dB for DPCH_Ec/lor
7.11 Demodulation of paging channel (PCH)	TBD
7.12 Detection of acquisition indicator (AI)	TBD

F.2.4 Requirements for support of RRM

Table F.2.4: Test Tolerances for Radio Resource Management Tests

Clause	Test Tolerance
8.2 Idle Mode Tasks	
8.2.2 Cell Re-Selection	

Clause	Test Tolerance
8.2.2.1 Scenario 1: Single carrier case	<p><u>During T1 and T2:</u> +0.60 dB for all Cell 1 and 2 Ec/Ior ratios -0.50 dB for all Cell 3, 4, 5, 6 Ec/Ior ratios +0.03 dB for Ior(3, 4, 5, 6)</p> <p><u>During T1:</u> -0.27 dB for Ior(1) +0.13 dB for Ior(2)</p> <p><u>During T2:</u> +0.13 dB for Ior(1) -0.27 dB for Ior(2)</p>
8.2.2.2 Scenario 2: Multi carrier case	<p><u>Channel 1 during T1 and T2:</u> +0.70 dB for all Cell 1 Ec/Ior ratios -0.80 dB for all Cell 3 and 4 Ec/Ior ratios</p> <p><u>Channel 1 during T1:</u> -0.01 dB for Ior(1) -0.01 dB for Ior(3, 4) No change for Ioc(1)</p> <p><u>Channel 1 during T2:</u> +0.75 dB for Ior(1) -0.05 dB for Ior(3, 4) -1.80 dB for Ioc(1)</p> <p><u>Channel 2 during T1 and T2:</u> +0.70 dB for all Cell 2 Ec/Ior ratios -0.80 dB for all Cell 5 and 6 Ec/Ior ratios</p> <p><u>Channel 2 during T1:</u> +0.75 dB for Ior(2) -0.05 dB for Ior(5, 6) -1.80 dB for Ioc(2)</p> <p><u>Channel 2 during T2:</u> -0.01 dB for Ior(2) -0.01 dB for Ior(5, 6) No change for Ioc(2)</p>
8.2.3 UTRAN to GSM Cell Re-Selection	
8.2.3.1 Scenario 1: Both UTRA and GSM level changed	0.3 dB for \hat{I}_{or}/I_{oc} 0.1 dB for CPICH_Ec/Ior 0.3 dB for Ioc/RXLEV
8.2.3.2 Scenario 2: Only UTRA level changed	0.3 dB for \hat{I}_{or}/I_{oc} 0.1 dB for CPICH_Ec/Ior 0.3 dB for Ioc/RXLEV
8.2.4 FDD/TDD cell re-selection	0.3 dB for \hat{I}_{or}/I_{oc} 0.1 dB for CPICH_Ec/Ior 0.3 dB for Ioc1/Ioc2
8.3 UTRAN Connected Mode Mobility	
8.3.1 FDD/FDD Soft Handover	
8.3.2 FDD/FDD Hard Handover	
8.3.2.1 Handover to intra-frequency cell	<p><u>During T1 and T2 / T3:</u> +0.70 dB for all Cell 1 Ec/Ior ratios</p> <p><u>During T1:</u> Already covered above</p> <p><u>During T2 / T3:</u> +0.70 dB for all Cell 2 Ec/Ior ratios</p>

Clause	Test Tolerance
8.3.2.2 Handover to inter-frequency cell	<u>Channel 1 during T1 and T2 / T3:</u> +0.80 dB for all Cell 1 Ec/Ior ratios <u>Channel 2 during T1:</u> Not applicable <u>Channel 2 during T2 / T3:</u> +0.80 dB for all Cell 2 Ec/Ior ratios
8.3.3 FDD/TDD Handover	TBD
8.3.4 Inter-system Handover form UTRAN FDD to GSM	TBD
8.3.5 Cell Re-selection in CELL_FACH	
8.3.5.1 One frequency present in the neighbour list	<u>During T1 and T2:</u> +0.60 dB for all Cell 1 and 2 Ec/Ior ratios -0.50 dB for all Cell 3, 4, 5, 6 Ec/Ior ratios +0.03 dB for Ior(3, 4, 5, 6) <u>During T1:</u> -0.27 dB for Ior(1) +0.13 dB for Ior(2) <u>During T2:</u> +0.13 dB for Ior(1) -0.27 dB for Ior(2)
8.3.5.2 Two frequencies present in the neighbour list	<u>Channel 1 during T1 and T2:</u> +0.60 dB for all Cell 1 Ec/Ior ratios -0.70 dB for all Cell 3 and 4 Ec/Ior ratios <u>Channel 1 during T1:</u> +0.05 dB for Ior(1) +0.05 dB for Ior(3, 4) No change for Ioc(1) <u>Channel 1 during T2:</u> +0.75 dB for Ior(1) -0.05 dB for Ior(3, 4) -1.60 dB for Ioc(1) <u>Channel 2 during T1 and T2:</u> +0.60 dB for all Cell 2 Ec/Ior ratios -0.70 dB for all Cell 5 and 6 Ec/Ior ratios <u>Channel 2 during T1:</u> +0.75 dB for Ior(2) -0.05 dB for Ior(5, 6) -1.60 dB for Ioc(2) <u>Channel 2 during T2:</u> +0.05 dB for Ior(2) +0.05 dB for Ior(5, 6) No change for Ioc(2)
8.3.6 Cell Re-selection in CELL_PCH	
8.3.6.1 One frequency present in the neighbour list	Same as 8.2.2.1
8.3.6.2 Two frequencies present in the neighbour list	Same as 8.2.2.2
8.3.7 Cell Re-selection in URA_PCH	
8.3.7.1 One frequency present in the neighbour list	Same as 8.2.2.1
8.3.7.2 Two frequencies present in the neighbour list	Same as 8.2.2.2
8.4 RRC Connection Control	
8.4.1 RRC Re-establishment delay	TBD

Clause	Test Tolerance
8.4.2 Random Access	Settings: 0.3 dB for \hat{I}_{or}/I_{oc} 0.1 dB for AICH_Ec/lor Measurements: Power difference: ± 1 dB Maximum Power: -1dB / +0.7dB
8.5 Timing and Signalling Characteristics	
8.5.1 UE Transmit Timing	TBD
8.6 UE Measurements Procedures	
8.6.1 FDD intra frequency measurements	
8.6.1.1 Event triggered reporting in AWGN propagation conditions	TBD
8.6.1.2 Event triggered reporting of multiple neighbours in AWGN propagation condition	TBD
8.6.1.3 Event triggered reporting of two detectable neighbours in AWGN propagation condition	TBD
8.6.1.4 Correct reporting of neighbours in fading propagation condition	TBD
8.6.2 FDD inter frequency measurements	
8.6.2.1 Correct reporting of neighbours in AWGN propagation condition	TBD
8.6.2.2 Correct reporting of neighbours in Fading propagation condition	TBD
8.6.3 TDD measurements	
8.6.3.1 Correct reporting of TDD neighbours in AWGN propagation condition	TBD
8.7 Measurements Performance Requirements	TBD
8.7.1 CPICH RSCP	
8.7.2.1 Intra frequency measurements accuracy	0.3 dB for \hat{I}_{or}/I_{oc} 0.1 dB for CPICH_Ec/lor 1.0 dB for loc
8.7.2.2 Inter frequency measurement accuracy	0.3 dB for \hat{I}_{or}/I_{oc} 0.1 dB for CPICH_Ec/lor 0.3 dB for loc1/loc2 1.0 dB for loc
8.7.2 CPICH Ec/Io	
8.7.1.1 Intra frequency measurements accuracy	0.3 dB for \hat{I}_{or}/I_{oc} 0.1 dB for CPICH_Ec/lor
8.7.1.2 Inter frequency measurement accuracy	0.3 dB for \hat{I}_{or}/I_{oc} 0.1 dB for CPICH_Ec/lor
8.7.3A UTRA Carrier RSSI	0.3 dB for \hat{I}_{or}/I_{oc} 1.0 dB for loc
8.7.3B Transport channel BLER	TBD
8.7.3C UE Transmitted power	0.7 dB for mean power measurement by test system
8.7.4 SFN-CFN observed time difference	
8.7.5.1 SFN-SFN observed time difference type 1	0.3 dB for \hat{I}_{or}/I_{oc} 1.0 dB for loc ± 0.5 chips for the actual SFN-SFN observed time difference type 1
8.7.6 UE Rx-Tx time difference	0.3 dB for \hat{I}_{or}/I_{oc} 1.0 dB for loc [0.5 chip] for Rx-Tx Timing Accuracy

Clause	Test Tolerance
8.7.7 Observed time difference to GSM cell	TBD
8.7.8 P-CCPCH RSCP	TBD

F.2.5 Performance requirements (HSDPA)

Table F.2.5: Test Tolerances for Performance Requirements (HSDPA).

Clause	Test Tolerance
9.2.1 Single Link Performance	0.3 dB for \hat{I}_{or}/I_{oc} 0.1 dB for E_c/I_{or}

F.3 Interpretation of measurement results

The measurement results returned by the Test System are compared – without any modification – against the Test Requirements as defined by the shared risk principle.

The Shared Risk principle is defined in ETR 273-1-2 clause 6.5.

The actual measurement uncertainty of the Test System for the measurement of each parameter shall be included in the test report.

The recorded value for the Test System uncertainty shall be, for each measurement, equal to or lower than the appropriate figure in clause F.1 of the present document.

If the Test System for a test is known to have a measurement uncertainty greater than that specified in clause F.1, it is still permitted to use this apparatus provided that an adjustment is made value as follows.

Any additional uncertainty in the Test System over and above that specified in clause F.1 shall be used to tighten the Test Requirement – making the test harder to pass. (For some tests e.g. receiver tests, this may require modification of stimulus signals). This procedure will ensure that a Test System not compliant with clause F.1 does not increase the chance of passing a device under test where that device would otherwise have failed the test if a Test System compliant with clause F.1 had been used.

For some of the more complex tests e.g. RRM, deriving the overall test system uncertainty is not straightforward. In such cases the derivation is given in TR 34.902 [24] rather than in subclause F.1. If it is deemed necessary to apply the additional test system uncertainty rules to these tests, the formula for deriving the new overall uncertainty from any excess fundamental test system uncertainties, shall use the formulas provided in 34.902.

F.4 Derivation of Test Requirements (This clause is informative)

The Test Requirements in the present document have been calculated by relaxing the Minimum Requirements of the core specification using the Test Tolerances defined in clause F.2. When the Test Tolerance is zero, the Test Requirement will be the same as the Minimum Requirement. When the Test Tolerance is non-zero, the Test Requirements will differ from the Minimum Requirements, and the formula used for this relaxation is given in table F.4.

Table F.4.1: Derivation of Test Requirements (Transmitter tests)

Test	Minimum Requirement in TS 25.101	Test Tolerance (TT)	Test Requirement in TS 34.121
5.2 Maximum Output Power	Power class 1 (33 dBm) Tolerance = +1/-3 dB Power class 2 (27 dBm) Tolerance = +1/-3 dB Power class 3 (24 dBm) Tolerance = +1/-3 dB Power class 4 (21 dBm) Tolerance = ± 2 dB	0.7 dB	Formula: Upper Tolerance limit + TT Lower Tolerance limit – TT For power classes 1-3: Upper Tolerance limit = +1.7 dB Lower Tolerance limit = -3.7 dB For power class 4: Upper Tolerance limit = +2.7 dB Lower Tolerance limit = -2.7 dB
5.3 Frequency Error	The UE modulated carrier frequency shall be accurate to within ± 0.1 ppm compared to the carrier frequency received from the Node B.	10 Hz	Formula: modulated carrier frequency error + TT modulated carrier frequency error = $\pm(0.1$ ppm + 10 Hz).
5.4.1 Open loop power control in the uplink	Open loop power control tolerance ± 9 dB (Normal) Open loop power control tolerance ± 12 dB (Normal)	1.0 dB	Formula: Upper Tolerance limit + TT Lower Tolerance limit – TT For Normal conditions: Upper Tolerance limit = +10 dB Lower Tolerance limit = -10 dB For Extreme conditions: Upper Tolerance limit = +13 dB Lower Tolerance limit = -13 dB
5.4.2 Inner loop power control in uplink	See table 5.4.2.1 and 5.4.2.2	0.1dB 0.15 dB 0.2 dB 0.3 dB	Formula: Upper Tolerance limit + TT Lower Tolerance limit – TT
5.4.3 Minimum Output Power	UE minimum transmit power shall be less than -50 dBm	1.0 dB	Formula: UE minimum transmit power + TT UE minimum transmit power = -49 dBm

Test	Minimum Requirement in TS 25.101	Test Tolerance (TT)	Test Requirement in TS 34.121
5.4.4 Out-of-synchronisation handling of output power:	$\frac{DPCCH_{-}E_c}{I_{or}}$ levels AB: -22 dB BD: -28 dB DE: -24 dB EF: -18 dB transmit ON/OFF time 200ms $\frac{DPDCH_{-}E_c}{I_{or}} = -16.6 \text{ dB}$ $I_{oc} - 60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = -1 \text{ dB}$	0.4 dB for $\frac{DPCCH_{-}E_c}{I_{or}}$ 0 ms for timing measurement	Formulas: Ratio between A and B + TT Ratio between B and D – TT Ratio between D and E – TT Ratio between E and F + TT transmit ON/OFF time + TT timing $\frac{DPDCH_{-}E_c}{I_{or}} = -16.6 \text{ dB}$ $I_{oc} - 60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = -1 \text{ dB}$ $\frac{DPCCH_{-}E_c}{I_{or}}$ levels: AB: -21.6 dB BD: -28.4 dB DE: -24.4 dB EF: -17.6 dB transmit ON/OFF time 200ms timing Uncertainty of OFF power measurement is handled by Transmit OFF power test and uncertainty of ON power measurement is handled by Minimum output power test.
5.5.1 Transmit OFF power (static case)	Transmit OFF power shall be less than -56 dBm	1.0 dB	Formula: Transmit OFF power + TT Transmit OFF power = -55dBm.
5.5.2 Transmit ON/OFF time mask (dynamic case)	Transmit ON power shall be the target value as defined in clause 5.5.2.2 Transmit OFF power shall be less than -56 dBm	On power upper TT = 0.7 dB On power lower TT = 1.0 dB Off power TT [] dB	Formula for transmit ON power: Transmit ON power target upper limit + On power upper TT Transmit ON power target lower limit - On power lower TT To calculate Transmit ON power target value range take the nominal TX power range from Table 5.5.2.3 then apply table 5.4.1.1 open limits then apply table 5.7.1 (only if there has been a transmission gap) then cap the upper value using table 5.2.1. Formula for transmit OFF power: Transmit OFF power + Off power TT Transmit OFF power = []dBm
5.6 Change of TFC: power control step size	TFC step size = +5 to +9 dB	0.3 dB	Formula: Upper Tolerance limit + TT Lower Tolerance limit – TT Upper limit = -4.7 dB Lower limit = -9.3 dB
5.7 Power setting in uplink compressed mode	Various	TBD (Subset of 5.4.2)	TBD

Test	Minimum Requirement in TS 25.101	Test Tolerance (TT)	Test Requirement in TS 34.121		
5.8 Occupied Bandwidth	The occupied channel bandwidth shall be less than 5 MHz based on a chip rate of 3.84 Mcps.	0 kHz	Formula: occupied channel bandwidth: + TT occupied channel bandwidth = 5.0 MHz		
5.9 Spectrum emission mask	Minimum requirement defined in TS25.101 Table 6.10. The lower limit shall be -50 dBm / 3.84 MHz or which ever is higher.	1.5 dB	Formula: Minimum requirement + TT Lower limit + TT Add 1.5 to Minimum requirement entries in TS25.101 Table 6.10. Zero test tolerance is applied for Additional requirements for Band II due to FCC regulatory requirements. The lower limit shall be -48.5 dBm / 3.84 MHz or which ever is higher.		
5.10 Adjacent Channel Leakage Power Ratio (ACLR)	If the adjacent channel power is greater than -50 dBm then the ACLR shall be higher than the values specified below.	0.0 dB	Formula: Absolute power threshold + TT		
	Power Classes 3 and 4: UE channel +5 MHz or -5 MHz, ACLR limit: 33 dB UE channel +10 MHz or -10 MHz, ACLR limit: 43 dB	0.8 dB	Formula: ACLR limit - TT Power Classes 3 and 4: UE channel +5 MHz or -5 MHz, ACLR limit: 32.2 dB UE channel +10 MHz or -10 MHz, ACLR limit: 42.2 dB		
5.11 Spurious Emissions			Formula: Minimum Requirement+ TT Add zero to all the values of Minimum Requirements in table 5.11.1a and 5.11.1b.		
	Frequency Band	Minimum Requirement	Frequency Band	Minimum Requirement	
	9 kHz ≤ f < 150 kHz	-36dBm /1kHz	0 dB	9kHz ≤ f < 1GHz	-36dBm /1kHz
	150 kHz ≤ f < 30 MHz	-36dBm /10kHz	0 dB	150 kHz ≤ f < 30 MHz	-36dBm /10kHz
	30 MHz ≤ f < 1000 MHz	-36dBm /100kHz	0 dB	30 MHz ≤ f < 1000 MHz	-36dBm /100kHz
	1 GHz ≤ f < 12.75 GHz	-30dBm /1MHz	0 dB	1 GHz ≤ f < 2.2 GHz	-30dBm /1MHz
			0 dB	2.2 GHz ≤ f < 4 GHz	-30dBm /1MHz
			0 dB	4 GHz ≤ f < 12.75 GHz	-30dBm /1MHz
	1893.5 MHz < f < 1919.6 MHz	-41dBm /300kHz	0 dB	1893.5 MHz < f < 1919.6 MHz	-41dBm /300kHz
	925 MHz ≤ f ≤ 935 MHz	-67dBm /100kHz	0 dB	925 MHz ≤ f ≤ 935 MHz	-67dBm /100kHz
935 MHz < f ≤ 960 MHz	-79dBm /100kHz	0 dB	935 MHz < f ≤ 960 MHz	-79dBm /100kHz	
1805 MHz ≤ f ≤ 1880 MHz	-71dBm /100kHz	0 dB	1805 MHz ≤ f ≤ 1880 MHz	-71dBm /100kHz	
5.12 Transmit Intermodulation	Intermodulation Product 5MHz -31 dBc 10MHz -41 dBc CW Interferer level = -40 dBc	0 dB	Formula: CW interferer level – TT/2 Intermod Products limits remain unchanged. CW interferer level = -40 dBc		
5.13.1 Transmit modulation: EVM	The measured EVM shall not exceed 17.5%.	0%	Formula: EVM limit + TT EVM limit = 17.5 %		
5.13.2 Transmit modulation: peak code domain error	The measured Peak code domain error shall not exceed -15 dB.	1.0 dB	Formula: Peak code domain error + TT Peak code domain error = -14 dB		

Test	Minimum Requirement in TS 25.101	Test Tolerance (TT)	Test Requirement in TS 34.121
5.13.4 PRACH preamble quality (EVM)	The measured EVM shall not exceed 17.5%.	0%	Formula: EVM limit + TT EVM limit = 17.5 %
5.13.4 PRACH preamble quality (Frequency error)	The UE modulated carrier frequency shall be accurate to within ± 0.1 ppm compared to the carrier frequency received from the Node B.	10 Hz	Formula: modulated carrier frequency error + TT modulated carrier frequency error = $\pm(0.1 \text{ ppm} + 10 \text{ Hz})$.

Table F.4.2: Derivation of Test Requirements (Receiver tests)

Test	Minimum Requirement in TS 25.101	Test Tolerance (TT)	Test Requirement in TS 34.121		
6.2 Reference sensitivity level	$\hat{I}_{or} = -106.7 \text{ dBm} / 3.84 \text{ MHz}$ DPCH_Ec = -117 dBm / 3.84 MHz BER limit = 0.001	0.7 dB	Formula: $\hat{I}_{or} + TT$ DPCH_Ec + TT BER limit unchanged $\hat{I}_{or} = -106 \text{ dBm} / 3.84 \text{ MHz}$ DPCH_Ec = -116.3 dBm / 3.84 MHz		
6.3 Maximum input level	-25 dBm Ior -19 dBc DPCH_Ec/Ior	0.7 dB	Formula: Ior-TT Ior = -25.7 dBm		
6.4 Adjacent Channel Selectivity	$\hat{I}_{or} = -92.7 \text{ dBm} / 3.84 \text{ MHz}$ DPCH_Ec = -103 dBm / 3.84 MHz I _{oac} (modulated) = -52 dBm/3.84 MHz BER limit = 0.001	0 dB	Formula: Ior unchanged DPCH_Ec unchanged I _{oac} - TT BER limit unchanged I _{oac} = -52 dBm/3.84 MHz		
6.5 Blocking Characteristics	See Table 6.5.3 and 6.5.4. in TS34.121 BER limit = 0.001	0 dB	Formula: I _{blocking} (modulated) - TT (dBm/3.84MHz) I _{blocking} (CW) - TT (dBm) BER limit unchanged		
6.6 Spurious Response	I _{blocking} (CW) -44 dBm F _{uw} : Spurious response frequencies BER limit = 0.001	0 dB	Formula: I _{blocking} (CW) - TT (dBm) F _{uw} unchanged BER limit unchanged I _{blocking} (CW) = -44 dBm		
6.7 Intermodulation Characteristics	I _{ouw1} (CW) -46 dBm I _{ouw2} (modulated) -46 dBm / 3.84 MHz F _{uw1} (offset) 10 MHz F _{uw2} (offset) 20 MHz I _{or} = -103.7 dBm/3.84 MHz DPCH_Ec = -114 dBm/3.84 BER limit = 0.001	0 dB	Formula: I _{or} + TT DPCH_Ec + TT I _{ouw1} level unchanged I _{ouw2} level unchanged BER limit unchanged. I _{or} = -114 dBm BER limit. = 0.001		
6.8 Spurious Emissions			Formula: Maximum level + TT Add zero to all the values of Maximum Level in table 6.8.1.		
	Frequency Band	Maximum level	Frequency Band	Maximum level	
	9kHz ≤ f < 1GHz	-57dBm /100kHz	9kHz ≤ f < 1GHz	-57dBm /100kHz	
	1GHz ≤ f ≤ 12.75GHz	-47dBm /1MHz	0 dB	1GHz ≤ f ≤ 2.2GHz	-47dBm /1MHz
			0 dB	2.2GHz < f ≤ 4GHz	-47dBm /1MHz
			0 dB	4GHz < f ≤ 12.75GHz	-47dBm /1MHz
	1920MHz ≤ f ≤ 1980MHz	-60dBm /3.84MHz	0 dB	1920MHz ≤ f ≤ 1980MHz	-60dBm /3.84MHz
2110MHz ≤ f ≤ 2170MHz	-60dBm /3.84MHz	0 dB	2110MHz ≤ f ≤ 2170MHz	-60dBm /3.84MHz	

Table F.4.3: Derivation of Test Requirements (Performance tests)

Test	Minimum Requirement in TS 25.101	Test Tolerance (TT)	Test Requirement in TS 34.121
7.2 Demodulation of DPCH in static conditions	$\frac{DPCH_E_c}{I_{or}} \text{ -5.5 to -16.6 dB}$ $I_{OC} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = -1 \text{ dB}$	0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.3 dB for \hat{I}_{or}/I_{oc}	Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ $I_{OC} \text{ unchanged}$ $\hat{I}_{or}/I_{oc} = -0.7 \text{ dB}$ $\frac{DPCH_E_c}{I_{or}} \text{ -5.4 to -16.5 dB:}$
7.3 Demodulation of DPCH in multi-path fading propagation conditions Tests 1-4	$\frac{DPCH_E_c}{I_{or}} \text{ -2.2 to -15.0}$ $I_{OC} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = 9 \text{ dB to -3 dB}$	0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.6 dB for \hat{I}_{or}/I_{oc}	Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} + \text{ratio} + \text{TT}$ $I_{OC} \text{ unchanged}$ $\hat{I}_{or}/I_{oc} = 9.6 \text{ to } -2.4 \text{ dB}$ $\frac{DPCH_E_c}{I_{or}} \text{ -2.1 to -14.9 dB:}$
7.3 Demodulation of DPCH in multi-path fading propagation conditions Tests 5-8	$\frac{DPCH_E_c}{I_{or}} \text{ -3.2 to -7.7 dB}$ $I_{OC} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = 6 \text{ dB to -3 dB}$	0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.6 dB for \hat{I}_{or}/I_{oc}	Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ $I_{OC} \text{ unchanged}$ $\hat{I}_{or}/I_{oc} = 6.6 \text{ to } -2.4 \text{ dB}$ $\frac{DPCH_E_c}{I_{or}} \text{ -3.1 to -7.6 dB:}$
7.3 Demodulation of DPCH in multi-path fading propagation conditions Tests 9-12	$\frac{DPCH_E_c}{I_{or}} \text{ -4.4 to -11.8 dB}$ $I_{OC} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = 6 \text{ dB to -3 dB}$	0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.6 dB for \hat{I}_{or}/I_{oc}	Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ $I_{OC} \text{ unchanged}$ $\hat{I}_{or}/I_{oc} = 6.6 \text{ to } -2.4 \text{ dB}$ $\frac{DPCH_E_c}{I_{or}} \text{ -4.3 to -11.7 dB:}$

Test	Minimum Requirement in TS 25.101	Test Tolerance (TT)	Test Requirement in TS 34.121
7.3 Demodulation of DPCH in multi-path fading propagation conditions Tests 13-16	$\frac{DPCH_E_c}{I_{or}} -2.2 \text{ to } -15.0 \text{ dB}$ $I_{oc} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = 9 \text{ dB}$	0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.6 dB for \hat{I}_{or}/I_{oc}	Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ $I_{oc} \text{ unchanged}$ $\hat{I}_{or}/I_{oc} = 9.6$ $\frac{DPCH_E_c}{I_{or}} -2.1 \text{ to } -14.9 \text{ dB:}$
7.3 Demodulation of DPCH in multi-path fading propagation conditions Tests 17-20	$\frac{DPCH_E_c}{I_{or}} -1.4 \text{ to } -8.8 \text{ dB}$ $I_{oc} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = 6 \text{ to } -3 \text{ dB}$	0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.6 dB for \hat{I}_{or}/I_{oc}	Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ $I_{oc} \text{ unchanged}$ $\hat{I}_{or}/I_{oc} = 6.6 \text{ to } -2.4 \text{ dB}$ $\frac{DPCH_E_c}{I_{or}} -1.3 \text{ to } -8.7 \text{ dB:}$
7.4 Demodulation of DPCH in moving propagation conditions	$\frac{DPCH_E_c}{I_{or}} -10.9 \text{ to } -14.5$ $I_{oc} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = -1 \text{ dB}$	0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.6 dB for \hat{I}_{or}/I_{oc}	Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ $I_{oc} \text{ unchanged}$ $\hat{I}_{or}/I_{oc} = -0.4 \text{ dB}$ $\frac{DPCH_E_c}{I_{or}} -10.8 \text{ to } -14.4 \text{ dB:}$
7.5 Demodulation of DPCH birth-death propagation conditions	$\frac{DPCH_E_c}{I_{or}} -8.7 \text{ to } -12.6 \text{ dB}$ $I_{oc} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = -1 \text{ dB}$	0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.6 dB for \hat{I}_{or}/I_{oc}	Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ $I_{oc} \text{ unchanged}$ $\hat{I}_{or}/I_{oc} = -0.4 \text{ dB}$ $\frac{DPCH_E_c}{I_{or}} -18.6 \text{ to } -12.5 \text{ dB:}$

Test	Minimum Requirement in TS 25.101	Test Tolerance (TT)	Test Requirement in TS 34.121
7.6.1 Demodulation of DPCH in transmit diversity propagation conditions	$\frac{DPCH_E_c}{I_{or}} -16.8 \text{ dB}$ $I_{oc} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = 9 \text{ dB}$	0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.8 dB for \hat{I}_{or}/I_{oc}	Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ $I_{oc} \text{ unchanged}$ $\hat{I}_{or}/I_{oc} = 9.8 \text{ dB}$ $\frac{DPCH_E_c}{I_{or}} -16.7 \text{ dB:}$
7.6.2 Demodulation of DCH in closed loop Transmit diversity mode	$\frac{DPCH_E_c}{I_{or}} -18 \text{ to } -18.3 \text{ dB}$ $I_{oc} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = 9 \text{ dB}$	0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.8 dB for \hat{I}_{or}/I_{oc}	Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ $I_{oc} \text{ unchanged}$ $\hat{I}_{or}/I_{oc} = 9.8 \text{ dB}$ $\frac{DPCH_E_c}{I_{or}} -17.9 \text{ to } -18.2 \text{ dB:}$
7.6.3, Demodulation of DCH in site selection diversity Transmission power control mode	$\frac{DPCH_E_c}{I_{or}} -5.0 \text{ to } -10.5 \text{ dB}$ $I_{oc} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = 0 \text{ to } -3 \text{ dB}$	0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.8 dB for \hat{I}_{or}/I_{oc}	Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ $I_{oc} \text{ unchanged}$ $\hat{I}_{or}/I_{oc} = 0.8 \text{ to } -2.2 \text{ dB}$ $\frac{DPCH_E_c}{I_{or}} -4.9 \text{ to } -10.4 \text{ dB:}$
7.7.1 Demodulation in inter-cell soft Handover	$\frac{DPCH_E_c}{I_{or}} -5.5 \text{ to } -15.2 \text{ dB}$ $I_{oc} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = \text{lor2}/\text{loc} = 6 \text{ to } 0 \text{ dB}$	0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.8 dB for \hat{I}_{or}/I_{oc}	Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ $I_{oc} \text{ unchanged}$ $\hat{I}_{or}/I_{oc} = 6.8 \text{ to } 0.8 \text{ dB}$ $\frac{DPCH_E_c}{I_{or}} -5.4 \text{ to } -15.4 \text{ dB:}$

Test	Minimum Requirement in TS 25.101	Test Tolerance (TT)	Test Requirement in TS 34.121
7.7.2 Combining of TPC commands Test 1	$\frac{DPCH_E_c}{I_{or}} -12 \text{ dB}$ lor1 and lor2 -60dBm	0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0dB for lor1 and lor2	Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\frac{DPCH_E_c}{I_{or}} = -11,9 \text{ dB:}$ lor1 = -60dBm lor2 = -60dBm The absolute levels of lor1 and lor2 are not important to this test.
7.7.2 Combining of TPC commands Test 2	$\frac{DPCH_E_c}{I_{or}} -12 \text{ dB}$ $I_{oc} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = 0 \text{ dB}$	0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.8 dB for \hat{I}_{or}/I_{oc}	Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ I_{oc} unchanged $\hat{I}_{or}/I_{oc} = 0.8 \text{ dB}$ $\frac{DPCH_E_c}{I_{or}} -11,9 \text{ dB:}$
7.8.1 Power control in downlink constant BLER target	$\frac{DPCH_E_c}{I_{or}} -9 \text{ to } -16 \text{ dB}$ $I_{oc} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = 9 \text{ to } -1 \text{ dB}$	0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.6 dB for \hat{I}_{or}/I_{oc}	Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ I_{oc} unchanged $\hat{I}_{or}/I_{oc} = 9.6 \text{ to } -0.4 \text{ dB}$ $\frac{DPCH_E_c}{I_{or}} -8.9 \text{ to } -15.9 \text{ dB:}$
7.8.2, Power control in downlink initial convergence	$\frac{DPCH_E_c}{I_{or}} -8.1 \text{ to } -18.9 \text{ dB}$ $I_{oc} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = -1 \text{ dB}$	0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.6 dB for \hat{I}_{or}/I_{oc}	Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ I_{oc} unchanged $\hat{I}_{or}/I_{oc} = -0.4 \text{ dB}$ $\frac{DPCH_E_c}{I_{or}} -8.0 \text{ to } -18.8 \text{ dB:}$

Test	Minimum Requirement in TS 25.101	Test Tolerance (TT)	Test Requirement in TS 34.121
7.8.3, Power control in downlink: wind up effects	$\frac{DPCH_E_c}{I_{or}} -13.3 \text{ dB}$ $I_{oc} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = 5 \text{ dB}$	0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.6 dB for \hat{I}_{or}/I_{oc}	Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ $I_{oc} \text{ unchanged}$ $\hat{I}_{or}/I_{oc} = 5.6 \text{ dB}$ $\frac{DPCH_E_c}{I_{or}} -13.2 \text{ dB:}$
7.9 Downlink compressed mode	$\frac{DPCH_E_c}{I_{or}}$ Test 1 -14.6 dB Test 3 -15.2 dB $I_{oc} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = 9 \text{ dB}$	0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.6 dB for \hat{I}_{or}/I_{oc}	Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ $I_{oc} \text{ unchanged}$ $\hat{I}_{or}/I_{oc} = 9.6 \text{ dB}$ $\frac{DPCH_E_c}{I_{or}}$ Test 1 -14.5 dB Test 3 -15.1 dB:
7.10 Blind transport format detection Tests 1, 2, 3	$\frac{DPCH_E_c}{I_{or}} -17.7 \text{ to } -18.4 \text{ dB}$ $I_{oc} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = -1 \text{ dB}$	0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.3 dB for \hat{I}_{or}/I_{oc}	Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ $I_{oc} \text{ unchanged}$ $\hat{I}_{or}/I_{oc} = -0.7 \text{ dB}$ $\frac{DPCH_E_c}{I_{or}} -17.6 \text{ to } -18.3 \text{ dB:}$
7.10 Blind transport format detection Tests 4, 5, 6	$\frac{DPCH_E_c}{I_{or}} -13.0 \text{ to } -13.8 \text{ dB}$ $I_{oc} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = -3 \text{ dB}$	0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.6 dB for \hat{I}_{or}/I_{oc}	Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ $I_{oc} \text{ unchanged}$ $\hat{I}_{or}/I_{oc} = -2.4 \text{ dB}$ $\frac{DPCH_E_c}{I_{or}} -12.9 \text{ to } -13.7 \text{ dB:}$
7.11 Demodulation of paging channel (PCH)	TBD		
7.12 Detection of acquisition indicator (AI)	TBD		

Table F.4.4: Derivation of Test Requirements (RRM tests)

Test	Test Parameters in TS 25.133	Test Tolerance (TT)	Test Requirement in TS 34.121
8.2 Idle Mode Tasks			
8.2.2 Cell Re-Selection			
8.2.2.1 Scenario 1: Single carrier case	Because the relationships between the Test system uncertainties and the Test Tolerances are complex, it is not possible to give a simple derivation of the Test Requirement in this document. The analysis is recorded in 3GPP TR 34 902 [24].		
	<u>During T1 and T2:</u> Cells 1 and 2: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB Cells 3, 4, 5, 6: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB lor(3, 4, 5, 6) = -69.73 dBm	<u>During T1 and T2:</u> +0.60 dB +0.60 dB +0.60 dB +0.60 dB -0.50 dB -0.50 dB -0.50 dB -0.50 dB +0.03 dB for lor(3, 4, 5, 6)	<u>During T1 and T2:</u> Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT lor(3, 4, 5, 6) + TT
	<u>During T1:</u> lor(1) = -62.73 dBm lor(2) = -59.73 dBm	<u>During T1:</u> -0.27 dB for lor(1) +0.13 dB for lor(2)	<u>During T1:</u> lor(1) + TT lor(2) + TT
	<u>During T2:</u> lor(1) = -59.73 dBm lor(2) = -62.73 dBm	<u>During T2:</u> +0.13 dB for lor(1) -0.27 dB for lor(2)	<u>During T2:</u> lor(1) + TT lor(2) + TT
	8.2.2.2 Scenario 2: Multi carrier case	Because the relationships between the Test system uncertainties and the Test Tolerances are complex, it is not possible to give a simple derivation of the Test Requirement in this document. The analysis is recorded in 3GPP TR 34 902 [24].	
<u>Channel 1 during T1 and T2:</u> Cell 1: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB Cells 3 and 4: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB		<u>Channel 1 during T1 and T2:</u> +0.70 dB +0.70 dB +0.70 dB +0.70 dB -0.80 dB -0.80 dB -0.80 dB -0.80 dB	<u>Channel 1 during T1 and T2:</u> Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT
<u>Channel 1 during T1:</u> lor(1) = -73.39 dBm lor(3, 4) = -77.39 dBm loc(1) = -70.00 dBm		<u>Channel 1 during T1:</u> -0.01 dB for lor(1) -0.01 dB for lor(3,4) 0.00 dB for loc(1)	<u>Channel 1 during T1:</u> lor(1) + TT lor(3, 4) + TT loc(1) + TT
<u>Channel 1 during T2:</u> lor(1) = -67.75 dBm lor(3, 4) = -74.75 dBm loc(1) = -70.00 dBm		<u>Channel 1 during T2:</u> +0.75 dB for lor(1) -0.05 dB for lor(3, 4) -1.80 dB for loc(1)	<u>Channel 1 during T2:</u> lor(1) + TT lor(3, 4) + TT loc(1) + TT

Test	Test Parameters in TS 25.133	Test Tolerance (TT)	Test Requirement in TS 34.121
	<p><u>Channel 2 during T1 and T2:</u></p> <p>Cell 2: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB</p> <p>Cells 5 and 6: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB</p>	<p><u>Channel 2 during T1 and T2:</u></p> <p>+0.70 dB +0.70 dB +0.70 dB +0.70 dB</p> <p>-0.80 dB -0.80 dB -0.80 dB -0.80 dB</p>	<p><u>Channel 2 during T1 and T2:</u></p> <p>Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT</p> <p>Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT</p>
	<p><u>Channel 2 during T1:</u></p> <p>lor(2) = -67.75 dBm lor(5, 6) = -74.75 dBm loc(2) = -70.00 dBm</p>	<p><u>Channel 2 during T1:</u></p> <p>+0.75 dB for lor(2) -0.05 dB for lor(5, 6) -1.80 dB for loc(2)</p>	<p><u>Channel 2 during T1:</u></p> <p>lor(2) + TT lor(5, 6) + TT loc(2) + TT</p>
	<p><u>Channel 2 during T2:</u></p> <p>lor(2) = -73.39 dBm lor(5, 6) = -77.39 dBm loc(2) = -70.00 dBm</p>	<p><u>Channel 2 during T2:</u></p> <p>-0.01 dB for lor(2) -0.01 dB for lor(5,6) 0.00 dB for loc(2)</p>	<p><u>Channel 2 during T2:</u></p> <p>lor(2) + TT lor(5, 6) + TT loc(2) + TT</p>
8.2.3 UTRAN to GSM Cell Re-Selection	TBD		
8.2.3.1 Scenario 1: Both UTRA and GSM level changed	<p>$\frac{CPICH_E_c}{I_{or}} = -10$ dB</p> <p>lor/loc = 0 dB</p>	<p>0.1 dB for $\frac{CPICH_E_c}{I_{or}}$</p> <p>0.3 dB for lor/loc</p> <p>0.3 dB for loc/RXLEV</p>	<p>Formulas:</p> <p>$\frac{CPICH_E_c}{I_{or}} = \text{ratio} + TT$</p> <p>lor/loc = ratio + TT</p> <p>$(\text{loc/Rxlev})_{\text{test requirement}} = (\text{loc/Rxlev})_{\text{minimum requirement}} + TT$</p> <p>lor/loc = 0.3 dB</p> <p>$\frac{CPICH_E_c}{I_{or}} = -9.9$ dB:</p>
	<p>$\frac{CPICH_E_c}{I_{or}} = -10$ dB</p> <p>lor/loc = -5 dB</p>	<p>0.1 dB for $\frac{CPICH_E_c}{I_{or}}$</p> <p>0.3 dB for lor/loc</p> <p>0.3 dB for loc/RXLEV</p>	<p>Formulas:</p> <p>$\frac{CPICH_E_c}{I_{or}} = \text{ratio} - TT$</p> <p>lor/loc = ratio - TT</p> <p>$(\text{loc/Rxlev})_{\text{test requirement}} = (\text{loc/Rxlev})_{\text{minimum requirement}} - TT$</p> <p>lor/loc = -5.3 dB</p> <p>$\frac{CPICH_E_c}{I_{or}} = -10.1$ dB:</p>

Test	Test Parameters in TS 25.133	Test Tolerance (TT)	Test Requirement in TS 34.121
8.2.3.2 Scenario 2: Only UTRA level changed	$\frac{CPICH_E_c}{I_{or}} = -10 \text{ dB}$ lor/loc = 20 dB	0.1 dB for $\frac{CPICH_E_c}{I_{or}}$ 0.3 dB for lor/loc 0.3 dB for loc/RXLEV	Formulas: $\frac{CPICH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ lor/loc = ratio + TT $(\text{loc/Rxlev})_{\text{test requirement}} = (\text{loc/Rxlev})_{\text{minimum requirement}} + \text{TT}$ lor/loc = 20.3 dB $\frac{CPICH_E_c}{I_{or}} = -9.9 \text{ dB}$
	$\frac{CPICH_E_c}{I_{or}} = -10 \text{ dB}$ lor/loc = 20 dB	0.1 dB for $\frac{CPICH_E_c}{I_{or}}$ 0.3 dB for lor/loc 0.3 dB for loc/RXLEV	Formulas: $\frac{CPICH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ lor/loc = ratio + TT $(\text{loc/Rxlev})_{\text{test requirement}} = (\text{loc/Rxlev})_{\text{minimum requirement}} + \text{TT}$ lor/loc = 20.3 dB $\frac{CPICH_E_c}{I_{or}} = -9.9 \text{ dB}$
8.2.4 FDD/TDD cell re-selection	TBD		
8.3 UTRAN Connected Mode Mobility	TBD		
8.3.1 FDD/FDD Soft Handover	TBD		
8.3.2 FDD/FDD Hard Handover			
8.3.2.1 Handover to intra-frequency cell	Because the relationships between the Test system uncertainties and the Test Tolerances are complex, it is not possible to give a simple derivation of the Test Requirement in this document. The analysis is recorded in 3GPP TR 34 902 [24].		
	<u>During T1 and T2 / T3:</u> Cell 1: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB	<u>During T1 / T2 / T3:</u> +0.70 dB +0.70 dB +0.70 dB +0.70 dB	<u>During T1 and T2 / T3:</u> Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT
	<u>During T1:</u> Already covered above	<u>During T1:</u> Covered above	<u>During T1:</u> Already covered above
	<u>During T2 / T3:</u> Cell 2: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB	<u>During T2 / T3:</u> +0.70 dB +0.70 dB +0.70 dB +0.70 dB	<u>During T2 / T3:</u> Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT
8.3.2.2 Handover to inter-frequency cell	Because the relationships between the Test system uncertainties and the Test Tolerances are complex, it is not possible to give a simple derivation of the Test Requirement in this document. The analysis is recorded in 3GPP TR 34 902 [24].		

Test	Test Parameters in TS 25.133	Test Tolerance (TT)	Test Requirement in TS 34.121
	<u>Channel 1 during T1 and T2 / T3:</u> Cell 1: CPICH_Ec/Ior = -10 dB PCCPCH_Ec/Ior = -12 dB SCH_Ec/Ior = -12 dB PICH_Ec/Ior = -15 dB	<u>Channel 1 during T1 and T2 / T3:</u> +0.80 dB +0.80 dB +0.80 dB +0.80 dB	<u>Channel 1 during T1 and T2 / T3:</u> Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT
	<u>Channel 2 during T1:</u> Not applicable	<u>Channel 2 during T1:</u> Not applicable	<u>Channel 2 during T1:</u> Not applicable
	<u>Channel 2 during T2 / T3:</u> Cell 2: CPICH_Ec/Ior = -10 dB PCCPCH_Ec/Ior = -12 dB SCH_Ec/Ior = -12 dB PICH_Ec/Ior = -15 dB	<u>Channel 2 during T2 / T3:</u> +0.80 dB +0.80 dB +0.80 dB +0.80 dB	<u>Channel 2 during T2 / T3:</u> Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT
8.3.3 FDD/TDD Handover	TBD		
8.3.4 Inter-system Handover form UTRAN FDD to GSM	TBD		
8.3.5 Cell Re-selection in CELL_FACH			
8.3.5.1 One frequency present in the neighbour list	Because the relationships between the Test system uncertainties and the Test Tolerances are complex, it is not possible to give a simple derivation of the Test Requirement in this document. The analysis is recorded in 3GPP TR 34 902 [24].		
	<u>During T1 and T2:</u> Cells 1 and 2: CPICH_Ec/Ior = -10 dB PCCPCH_Ec/Ior = -12 dB SCH_Ec/Ior = -12 dB PICH_Ec/Ior = -15 dB S-CCPCH_Ec/Ior = -12 dB Cells 3, 4, 5, 6: CPICH_Ec/Ior = -10 dB PCCPCH_Ec/Ior = -12 dB SCH_Ec/Ior = -12 dB PICH_Ec/Ior = -15 dB S-CCPCH_Ec/Ior = -12 dB Ior(3, 4, 5, 6) = -69.73 dBm	<u>During T1 and T2:</u> +0.60 dB +0.60 dB +0.60 dB +0.60 dB +0.60 dB -0.50 dB -0.50 dB -0.50 dB -0.50 dB -0.50 dB +0.03 dB for Ior(3, 4, 5, 6)	<u>During T1 and T2:</u> Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ior(3, 4, 5, 6) + TT
	<u>During T1:</u> Ior(1) = -62.73 dBm Ior(2) = -59.73 dBm	<u>During T1:</u> -0.27 dB for Ior(1) +0.13 dB for Ior(2)	<u>During T1:</u> Ior(1) + TT Ior(2) + TT
	<u>During T2:</u> Ior(1) = -59.73 dBm Ior(2) = -62.73 dBm	<u>During T2:</u> +0.13 dB for Ior(1) -0.27 dB for Ior(2)	<u>During T2:</u> Ior(1) + TT Ior(2) + TT
8.3.5.2 Two frequencies present in the neighbour list	Because the relationships between the Test system uncertainties and the Test Tolerances are complex, it is not possible to give a simple derivation of the Test Requirement in this document. The analysis is recorded in 3GPP TR 34 902 [24].		

Test	Test Parameters in TS 25.133	Test Tolerance (TT)	Test Requirement in TS 34.121
	<u>Channel 1 during T1 and T2:</u> Cell 1: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB S-CCPCH_Ec/lor = -12 dB Cells 3 and 4: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB S-CCPCH_Ec/lor = -12 dB	<u>Channel 1 during T1 and T2:</u> +0.60 dB +0.60 dB +0.60 dB +0.60 dB +0.60 dB -0.70 dB -0.70 dB -0.70 dB -0.70 dB -0.70 dB	<u>Channel 1 during T1 and T2:</u> Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT
	<u>Channel 1 during T1:</u> lor(1) = -71.85 dBm lor(3, 4) = -76.85 dBm loc(1) = -70.00 dBm	<u>Channel 1 during T1:</u> +0.05 dB for lor(1) +0.05 dB for lor(3,4) 0.00 dB for loc(1)	<u>Channel 1 during T1:</u> lor(1) + TT lor(3, 4) + TT loc(1) + TT
	<u>Channel 1 during T2:</u> lor(1) = -67.75 dBm lor(3, 4) = -74.75 dBm loc(1) = -70.00 dBm	<u>Channel 1 during T2:</u> +0.75 dB for lor(1) -0.05 dB for lor(3, 4) -1.60 dB for loc(1)	<u>Channel 1 during T2:</u> lor(1) + TT lor(3, 4) + TT loc(1) + TT
	<u>Channel 2 during T1 and T2:</u> Cell 2: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB S-CCPCH_Ec/lor = -12 dB Cells 5 and 6: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB S-CCPCH_Ec/lor = -12 dB	<u>Channel 2 during T1 and T2:</u> +0.60 dB +0.60 dB +0.60 dB +0.60 dB +0.60 dB -0.70 dB -0.70 dB -0.70 dB -0.70 dB -0.70 dB	<u>Channel 2 during T1 and T2:</u> Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT
	<u>Channel 2 during T1:</u> lor(2) = -67.75 dBm lor(5, 6) = -74.75 dBm loc(2) = -70.00 dBm	<u>Channel 2 during T1:</u> +0.75 dB for lor(2) -0.05 dB for lor(5, 6) -1.60 dB for loc(2)	<u>Channel 2 during T1:</u> lor(2) + TT lor(5, 6) + TT loc(2) + TT
	<u>Channel 2 during T2:</u> lor(2) = -71.85 dBm lor(5, 6) = -76.85 dBm loc(2) = -70.00 dBm	<u>Channel 2 during T2:</u> +0.05 dB for lor(2) +0.05 dB for lor(5,6) 0.00 dB for loc(2)	<u>Channel 2 during T2:</u> lor(2) + TT lor(5, 6) + TT loc(2) + TT
8.3.6 Cell Re-selection in CELL_PCH			
8.3.6.1 One frequency present in the	Same as 8.2.2.1	Same as 8.2.2.1	Same as 8.2.2.1

Test	Test Parameters in TS 25.133	Test Tolerance (TT)	Test Requirement in TS 34.121
neighbour list	$\frac{CPICH_E_c}{I_{or}} = -10 \text{ dB}$ $I_{oc} = -70 \text{ dBm}$ <p>lor/loc = 10.27 dB</p> <p>Note: Parameters are valid for cell 1 at time T2 and cell 2 at time T1</p>	0.1 dB for $\frac{CPICH_E_c}{I_{or}}$ 0.3 dB for lor/loc	Formulas: $\frac{CPICH_E_c}{I_{or}} = \text{ratio} + TT$ $\text{lor/loc} = \text{ratio} + TT$ <p>loc unchanged</p> $\text{lor/loc} = 10.57 \text{ dB}$ $\frac{CPICH_E_c}{I_{or}} -9.9 \text{ dB:}$
8.3.6.2 Two frequencies present in the neighbour list	Same as 8.2.2.2	Same as 8.2.2.2	Same as 8.2.2.2
	$\frac{CPICH_E_c}{I_{or}} = -10 \text{ dB}$ $I_{oc} = -70 \text{ dBm}$ <p>lor/loc = 2.2 dB</p> <p>Note: Parameters are valid for cell 1 at time T2 and cell 2 at time T1</p>	0.1 dB for $\frac{CPICH_E_c}{I_{or}}$ 0.3 dB for lor/loc	Formulas: $\frac{CPICH_E_c}{I_{or}} = \text{ratio} + TT$ $\text{lor/loc} = \text{ratio} + TT$ <p>loc unchanged</p> <p>loc ratio unchanged</p> $\text{lor/loc} = 2.5 \text{ dB}$ $\frac{CPICH_E_c}{I_{or}} -9.9 \text{ dB:}$
8.3.7 Cell Re-selection in URA_PCH			
8.3.7.1 One frequency present in the neighbour list	Same as 8.2.2.1	Same as 8.2.2.1	Same as 8.2.2.1
8.3.7.2 Two frequencies present in the neighbour list	Same as 8.2.2.2	Same as 8.2.2.2	Same as 8.2.2.2
8.4 RRC Connection Control	TBD		
8.4.1 RRC Re-establishment delay	TBD		
8.4.2 Random Access	RACH power difference nominal 3dB ± 2dB UE setting uncertainty	Measurement TT: Power difference ± 1dB Maximum Power-1dB / +0.7dB	Test parameter settings unchanged. Power measurement: Upper limit +TT Lower limit -TT
8.5 Timing and Signalling Characteristics	TBD		
8.5.1 UE Transmit Timing	TBD		
8.6 UE Measurements Procedures	TBD		

Test	Test Parameters in TS 25.133	Test Tolerance (TT)	Test Requirement in TS 34.121
8.6.1 FDD intra frequency measurements	TBD		
8.6.1.1 Event triggered reporting in AWGN propagation conditions	TBD		
8.6.1.2 Event triggered reporting of multiple neighbours in AWGN propagation condition	TBD		
8.6.1.3 Event triggered reporting of two detectable neighbours in AWGN propagation condition	TBD		
8.6.1.4 Correct reporting of neighbours in fading propagation condition	TBD		
8.6.2 FDD inter frequency measurements	TBD		
8.6.2.1 Correct reporting of neighbours in AWGN propagation condition	TBD		
8.6.2.2 Correct reporting of neighbours in Fading propagation condition	TBD		
8.6.3 TDD measurements	TBD		
8.6.3.1 Correct reporting of TDD neighbours in AWGN propagation condition	TBD		
8.7 Measurements Performance Requirements	TBD		
8.7.1 CPICH RSCP	TBD		
8.7.1.1 Intra frequency measurements accuracy	TBD		
8.7.1.2 Inter frequency measurement accuracy	TBD		
8.7.2 CPICH Ec/Io			
8.7.1.1 Intra frequency measurements accuracy	see table 8.7.1.1.1.1 and table 8.7.1.1.1.2	± 1 dB for loc ± 0.3 dB for lor/loc ± 0.1 dB for....._Ec/lor	Any TT applied to the nominal setting shall fulfil: Test 1 (absolute and relative): lo shall not go below -69dBm Test 2 (absolute and relative): lo shall not go above -50 dBm Test 3 (absolute and relative): lo shall not go below -94 dBm lor/loc + TTTT on top of UE measurement accuracy: Absolute ± 1.0 dB for loc ± 0.3 dB for lor/loc ± 0.1 dB for CPICH_Ec/lor $\sum 1.4$ dB Relative ± 0.3 dB for lor/loc (cell1) ± 0.3 dB for lor/loc (cell2) ± 0.1 dB for CPICH_Ec/lor (cell1) ± 0.1 dB for CPICH_Ec/lor (cell2) $\sum 0.8$ dB

Test	Test Parameters in TS 25.133	Test Tolerance (TT)	Test Requirement in TS 34.121
8.7.1.2 Inter frequency measurement accuracy	See table 8.7.1.2.1.1 and table 8.7.1.2.1.2	±1 dB for $loc \pm 0.3$ dB for $loc1/loc2 \pm 0.3$ dB for $lor/loc \pm 0.1$ dB for $_Ec/lor$	Any TT applied to the nominal setting shall fulfil: Test 1: lo shall not go above -50 dBm Test 2: lo shall not go below -94 dBm $lor/loc + TTTT$ on top of UE measurement accuracy: ±0.3 dB for $loc1/loc2 \pm 0.3$ dB for lor/loc (cell1) ±0.3 dB for lor/loc (cell2) ±0.1 dB for CPICH_ $_Ec/lor$ (cell1) ±0.1 dB for CPICH_ $_Ec/lor$ (cell2) Σ 1.1 dB
8.7.2 CPICH E_c/lo			

Test	Test Parameters in TS 25.133	Test Tolerance (TT)	Test Requirement in TS 34.121
8.7.2.1 Intra frequency measurements accuracy	table 8.7.2.1.1.1 and table 8.7.2.1.1.2	<p>± 1 dB for Ioc</p> <p>± 0.3 dB for Ior/Ioc</p> <p>± 0.1dB for_Ec/Ior</p>	<p>Any TT applied to the nominal setting shall fulfil:</p> <p>Test 1 (absolute and relative): I_o shall not go above -50 dBm</p> <p>Test 2 (absolute and relative): I_o shall not go below -87dBm</p> <p>Test 3 (absolute and relative): I_o shall not go below -94 dBm</p> <p>CPICH Ec/I_o shall stay in the UE accuracy ranges</p> <p>I_{or}/I_{oc} + TT</p> <p>TT on top of UE measurement accuracy:</p> <p>Absolute</p> <p style="padding-left: 40px;">± 0.3 dB for I_{or}/I_{oc}</p> <p style="padding-left: 40px;">± 0.1dB for CPICH_Ec/I_{or}</p> <p style="padding-left: 40px;">$\sum 0.4$dB</p> <p>Relative</p> <p style="padding-left: 40px;">I_{oc1}=I_{oc2}</p> <p style="padding-left: 40px;">± 0.3 dB for I_{or}/I_{oc} (cell1)</p> <p style="padding-left: 40px;">± 0.3 dB for I_{or}/I_{oc} (cell2)</p> <p style="padding-left: 40px;">± 0.1dB for CPICH_Ec/I_{or} (cell1)</p> <p style="padding-left: 40px;">± 0.1dB for CPICH_Ec/I_{or} (cell2)</p> <p style="padding-left: 40px;">$\sum 0.8$dB</p>

Test	Test Parameters in TS 25.133	Test Tolerance (TT)	Test Requirement in TS 34.121
8.7.2.2 Inter frequency measurement accuracy	table 8.7.2.2.2.1 and table 8.7.2.2.2.2	± 1 dB for Ioc ± 0.3 dB for Ioc1/Ioc2 ± 0.3 dB for Ior/Ioc ± 0.1 dB for_Ec/Ior	Any TT applied to the nominal setting shall fulfil: Test 1: Io shall not go above -50 dBm Test 2: Io shall not go below -87 dBm Test 3: Io shall not go below -94 dBm Ior/Ioc + TT TT on top of UE measurement accuracy: Ioc1=Ioc2. ± 0.3 dB for Ior/Ioc (cell1) ± 0.3 dB for Ior/Ioc (cell2) ± 0.1 dB for CPICH_Ec/Ior (cell1) ± 0.1 dB for CPICH_Ec/Ior (cell2) $\Sigma 0.8$ dB
8.7.3A UTRA Carrier RSSI	TBD		
8.7.3B Transport channel BLER	TBD		
8.7.3C UE Transmitted power	Accuracy upper limit Accuracy lower limit Depends on PUEMAX see table 8.7.3C.2.1	0.7 dB	Formula: Upper accuracy limit + TT Lower accuracy limit – TT Add and subtract TT to all the values in table 8.7.3C.2.1.
8.7.4 SFN-CFN observed time difference	TBD		

Test	Test Parameters in TS 25.133	Test Tolerance (TT)	Test Requirement in TS 34.121
8.7.5.1 SFN-SFN observed time difference <u>type 1</u>	TBD Table 8.7.5.1.2	± 1.0 dB for loc ± 0.3 dB for lor/loc ± 0.5 chips for the actual SFN-SFN observed time difference	<u>Test 1: lo shall not go above -50 dBm</u> <u>Test 2: No restrictions on lo value</u> <u>Test 3: lo shall not go below -94 dBm (Band 1), or below -92 dBm (Band II) or below -91 dBm (Band III)</u> $\hat{lor/loc} + TT$ <u>TT on top of UE measurements accuracy:</u> <u>SFN-SFN observed time difference: 1.0 chips + TT</u>
8.7.6 UE Rx-Tx time difference	$lo - 10.9 \text{ dB} = loc$, Test 1: lo = -94 dBm Test2 : lo = -72dBm Test3 : lo = -50dBm Timing Accuracy ± 1.5 chip	1 dB for loc 0.3 dB for lor/loc [0.5 chip for timing accuracy]	Test 1: lo = -92.7 dBm, loc = -103.6 dBm Formula: $loc * (1 - TT_{loc} + (lor/loc - TT_{lor/loc})) \geq -94$ Test 2: unchanged (no critical RF parameters) Test 3: lo = -51.3 dBm, loc = -62.2 dBm Formula: $loc * (1 + TT_{loc} + (lor/loc + TT_{lor/loc})) \leq -50$ Timing accuracy [± 2.0] chip Formulas: Upper limit +TT Lower limit -TT
8.7.7 Observed time difference to GSM cell	TBD		
8.7.8 P-CCPCH RSCP	TBD		

CHANGE REQUEST

⌘ **34.121 CR 377** ⌘ rev **-** ⌘ Current version: **5.3.1** ⌘

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

Title:	⌘ Correction to URA identity for reselection in Cell URA_PCH		
Source:	⌘ Anritsu		
Work item code:	⌘	Date:	⌘ 13/05/2004
Category:	⌘ F	Release:	⌘ Rel-5
	<i>Use one of the following categories:</i> 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 .		<i>Use one of the following releases:</i> 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:	⌘ URA identity for system information block will not correctly setup.		
Summary of change:	⌘ The value of URA identity is fixed to binary number.		
Consequences if not approved:	⌘ The parameter will not set properly.		

Clauses affected:	⌘ 8.3.7.1,8.3.7.2									
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="text-align: center;">Y</td> <td style="text-align: center;">N</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </table>	Y	N	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Other core specifications ⌘ Test specifications ⌘ O&M Specifications ⌘
Y	N									
<input type="checkbox"/>	<input checked="" type="checkbox"/>									
<input type="checkbox"/>	<input checked="" type="checkbox"/>									
<input type="checkbox"/>	<input checked="" type="checkbox"/>									
Other comments:	⌘ This CR applies for Rel-99 and later releases.									

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

8.3.7.1 One frequency present in the neighbour list

8.3.7.1.1 Definition and applicability

The cell re-selection delay is defined as the time from a change of cell levels to the moment when this change makes the UE camp on a new cell, and starts to send preambles on the PRACH for the URA UPDATE message with cause value "URA reselection" in the new cell.

The requirements and this test apply to the FDD UE.

8.3.7.1.2 Minimum requirement

The cell re-selection delay shall be less than 8 s with a DRX cycle length of 1.28 s.

The rate of correct cell reselections observed during repeated tests shall be at least 90% with a confidence level of 95 %.

NOTE: The cell re-selection delay can be expressed as: $T_{\text{evaluateFDD}} + T_{\text{SI}}$, where:

$T_{\text{evaluateFDD}}$	See table 4.1 in TS 25.133 [2] clause 4.2.2.
T_{SI}	Maximum repetition period of relevant system info blocks that needs to be received by the UE to camp on a cell. 1280 ms is assumed in this test case.

This gives a total of 7.68 s, allow 8s in the test case.

The normative reference for this requirement is TS 25.133 [2] clauses 5.7.2 and A.5.7.1.

8.3.7.1.3 Test purpose

To verify that the UE meets the minimum requirement and is capable of camping on to a new cell, within the required time, when the preferred cell conditions change.

8.3.7.1.4 Method of test

8.3.7.1.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

This scenario implies the presence of 1 carrier and 6 cells as given in tables 8.3.7.1.1 to 8.3.7.1.3. The UE is requested to monitor neighbouring cells on 1 carrier. The maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell shall be 1 280 ms. In System Information Block Type 2 cell1 and cell 2 URA identity is set to a different value.

Table 8.3.7.1.1: General test parameters for Cell Re-selection in URA_PCH, one freq. in neighbour list

Parameter		Unit	Value	Comment
Initial condition	Active cell		Cell2	
	Neighbour cells		Cell1, Cell3, Cell4, Cell5, Cell6	
Final condition	Active cell		Cell1	
SYSTEM INFORMATION BLOCK TYPE 2 - URA identity list - URA identity		-	0000 0000 0000 0001(B) (Cell 1) 0000 0000 0000 001002(B) (Cell 2)	
Access Service Class (ASC#0) - Persistence value		-	1	Selected so that no additional delay is caused by the random access procedure. The value shall be used for all cells in the test.
HCS				Not used
DRX cycle length		s	1,28	The value shall be used for all cells in the test.
T1		s	15	T1 need to be defined so that cell re-selection reaction time is taken into account.
T2		s	15	T2 need to be defined so that cell re-selection reaction time is taken into account.

8.3.7.2 Two frequencies present in the neighbour list

8.3.7.2.1 Definition and applicability

The cell re-selection delay is defined as the time from a change of cell levels to the moment when this change makes the UE camp on a new cell, and starts to send preambles on the PRACH for the URA UPDATE message with cause value "URA reselection" in the new cell.

The requirements and this test apply to the FDD UE.

8.3.7.2.2 Minimum requirement

The cell re-selection delay shall be less than 8 s with a DRX cycle length of 1.28 s.

The rate of correct cell reselections observed during repeated tests shall be at least 90% with a confidence level of 95 %.

NOTE: The cell re-selection delay can be expressed as: $T_{\text{evaluateFDD}} + T_{\text{SI}}$, where:

$T_{\text{evaluateFDD}}$	See table 4.1 in TS 25.133 [2] clause 4.2.2.
T_{SI}	Maximum repetition period of relevant system info blocks that needs to be received by the UE to camp on a cell. 1280 ms is assumed in this test case.

This gives a total of 7.68 s, allow 8s in the test case.

The normative reference for this requirement is TS 25.133 [2] clauses 5.7.2 and A.5.7.2.

8.3.7.2.3 Test purpose

To verify that the UE meets the minimum requirement and is capable of camping on to a new cell, within the required time, when the preferred cell conditions change.

8.3.7.2.4 Method of test

8.3.7.2.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

This scenario implies the presence of 2 carriers and 6 cells as given in tables 8.3.7.2.1 to 8.3.7.2.3. The UE is requested to monitor neighbouring cells on 2 carriers. The maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell shall be 1 280 ms. In System Information Block Type 2 in cell 1 and cell 2 URA identity is set to different value.

Table 8.3.7.2.1: General test parameters for Cell Re-selection in URA_PCH, two freqs. in neighbour list

Parameter		Unit	Value	Comment
Initial condition	Active cell		Cell2	
	Neighbour cells		Cell1, Cell3, Cell4, Cell5, Cell6	
Initial condition	Active cell Cell2		Cell1	
SYSTEM INFORMATION BLOCK TYPE 2 - URA identity list - URA identity		-	0000 0000 0000 0001(B) (Cell 1) 0000 0000 0000 001002(B) (Cell 2)	
Access Service Class (ASC#0) - Persistence value		-	1	Selected so that no additional delay is caused by the random access procedure. The value shall be used for all cells in the test.
HCS				Not used
DRX cycle length		s	1,28	The value shall be used for all cells in the test.
T1		s	15	T1 need to be defined so that cell re-selection reaction time is taken into account.
T2		s	15	T2 need to be defined so that cell re-selection reaction time is taken into account.

3GPP TSG-T1 Meeting #23
Beijing, China, 10th - 14th May 2004

Tdoc # T1-040838

CR-Form-v7	<h2 style="margin: 0;">CHANGE REQUEST</h2>
⌘ 34.121 CR 378 ⌘ rev - ⌘ Current version: 5.3.1 ⌘	

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

Title:	⌘	Proposed addition of downlink code allocation table to 34.121 Annex			
Source:	⌘	NEC			
Work item code:	⌘	TEI	Date: ⌘ 13/05/2004		
Category:	⌘	F	Release: ⌘ Rel-5		
		Use <u>one</u> of the following categories: <table style="width: 100%; margin-top: 5px;"> <tr> <td style="width: 50%; vertical-align: top;"> F (correction) A (corresponds to a correction in an earlier release) B (addition of feature), C (functional modification of feature) D (editorial modification) </td> <td style="width: 50%; vertical-align: top;"> 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) </td> </tr> </table> Detailed explanations of the above categories can be found in 3GPP TR 21.900 .		F (correction) A (corresponds to a correction in an earlier release) B (addition of feature), C (functional modification of feature) D (editorial modification)	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)
F (correction) A (corresponds to a correction in an earlier release) B (addition of feature), C (functional modification of feature) D (editorial modification)	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:	⌘	Adding a table showing the downlink code allocation will avoid code collision problems in the future.
Summary of change:	⌘	A new informative annex showing the downlink code allocation is added. The current code collision between S-CCPCH and OCNS DPCH is highlighted.
Consequences if not approved:	⌘	Potential downlink code collision problems.

Clauses affected:	⌘	Annex E								
Other specs affected:	⌘	<table border="1" style="display: inline-table; border-collapse: collapse; text-align: center;"> <tr> <td style="padding: 2px 5px;">Y</td> <td style="padding: 2px 5px;">N</td> </tr> <tr> <td style="padding: 2px 5px;"> </td> <td style="padding: 2px 5px;">X</td> </tr> <tr> <td style="padding: 2px 5px;"> </td> <td style="padding: 2px 5px;">X</td> </tr> <tr> <td style="padding: 2px 5px;"> </td> <td style="padding: 2px 5px;">X</td> </tr> </table> Other core specifications ⌘ Test specifications ⌘ O&M Specifications ⌘ 	Y	N		X		X		X
Y	N									
	X									
	X									
	X									
Other comments:	⌘	This CR is applicable for UE's supporting Rel-99 or later.								

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- 1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
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3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

Annex E (normative): Downlink Physical Channels

E.x Downlink Physical Channels Code Allocation (This clause is informative)

Table E.x.1 shows the downlink code allocation. The numbers in the code columns indicate the code number with the respective spreading factor (SF). The Note column refers to specifications where the code allocation is defined.

Note: There is a code collision between S-CCPCH on SF=64 using code 1 and OCNS DPCH on SF=128 using code 2 which needs to be resolved.

Table E.x.1: Downlink Physical Channels Code Allocation

<u>Code with SF=256</u>	<u>Code with SF=128</u>	<u>Code with SF=64</u>	<u>Note</u>
0: P-CPICH	0: -	0: -	TS 25.213; 34.108: 6.1.4; 34.121: E.4.2
1: P-CCPCH			TS 25.213; 34.121: E.4.2
2: PICH	1: -	1: S-CCPCH	TS 34.108: 6.1.0b, 6.1.1, 6.1.2, 6.1.3 (SIB5)
3: AICH			TS 34.108: 6.1.0b, 6.1.1, 6.1.2, 6.1.3 (SIB5)
4: -			OCNS: TS34.121: E.3.6
5: -	2: OCNS DPCH		S-CCPCH: TS 34.108: 6.1.0b, 6.1.1, 6.1.2, 6.1.3
6: -	3: -	2: S-CCPCH	
7: -			
8: -	4: S-CCPCH	3: -	4: TS 34.108: 6.1.1, 6.1.2 (PCH)
9: -	5: S-CCPCH		2: TS 34.108: 6.1.3 (FACH)
10: -	6: S-CCPCH		5: TS 34.108: 6.1.2 (CTCH)
11: -	7: -	4: -	TS 34.108: 6.1.3 (PCH)
12: -			
13: -	8: -	5: -	
14: -			
15: -	9: -	6-7: -	WCDMA interferer: TS 34.121: E.4.2
16: PICH interf.			
17: -	10: -	8: -	
18: -			
19: -	11: OCNS DPCH	9-10: -	OCNS: TS 34.121: E.3.6
20: -			
21: -	12-15: -	11: -	
22: -			
23: -	16: -	12-14: -	OCNS: TS 34.121: E.3.6
24-31: -			
32: -	17: OCNS DPCH	15: -	
33: -			
34: -	18-21: -	16-18: -	OCNS: TS 34.121: E.3.6
35: -			
36-43: -	22: -	19: -	
44: -			
45: -	23: OCNS DPCH	15: -	OCNS: TS 34.121: E.3.6
46: -			
47: -	24-29: -	15: -	
48-59: -			
60: -	30: -	15: -	
61: -			
62: -	31: OCNS DPCH	16-18: -	OCNS: TS 34.121: E.3.6
63: -			
64-75: -	32-37: -	19: -	
76: -			
77: -	38: OCNS DPCH		OCNS: TS 34.121: E.3.6

<u>Code with SF=256</u>	<u>Code with SF=128</u>	<u>Code with SF=64</u>	<u>Note</u>
<u>78: -</u>	<u>39: -</u>		
<u>79: -</u>			
<u>80-91: -</u>	<u>40-45: -</u>	<u>20-22: -</u>	
<u>92: -</u>	<u>46: -</u> <u>47: OCNS DPCH</u>	<u>23: -</u>	
<u>93: -</u>			
<u>94: -</u>			OCNS: TS 34.121: E.3.6
<u>95: -</u>			
<u>96-107: -</u>	<u>48-53: -</u>	<u>24-26: -</u>	
<u>108: -</u>	<u>54: -</u> <u>55: OCNS DPCH</u>	<u>27: -</u>	
<u>109: -</u>			
<u>110: -</u>			OCNS: TS 34.121: E.3.6
<u>111: -</u>			
<u>112-123: -</u>	<u>56-61: -</u>	<u>28-30: -</u>	
<u>124: -</u>	<u>62: OCNS DPCH</u> <u>63: -</u>	<u>31: -</u>	
<u>125: -</u>			OCNS: TS 34.121: E.3.6
<u>126: -</u>			
<u>127: -</u>			
<u>128-135: -</u>	<u>64-67: -</u>	<u>32-33: -</u>	
<u>136: -</u>	<u>68: -</u> <u>69: OCNS DPCH</u>	<u>34: -</u>	
<u>137: -</u>			
<u>138: -</u>			OCNS: TS 34.121: E.3.6
<u>139: -</u>			
<u>140-155: -</u>	<u>70-77: -</u>	<u>35-38: -</u>	
<u>156: -</u>	<u>78: OCNS DPCH</u> <u>79: -</u>	<u>39: -</u>	
<u>157: -</u>			OCNS: TS 34.121: E.3.6
<u>158: -</u>			
<u>159: -</u>			
<u>160-167: -</u>	<u>80-83: -</u>	<u>40-41: -</u>	
<u>168: -</u>	<u>84: -</u> <u>85: OCNS DPCH</u>	<u>42: -</u>	
<u>169: -</u>			OCNS: TS 34.121: E.3.6
<u>170: -</u>			
<u>171: -</u>			
<u>172-187: -</u>	<u>86-93: -</u>	<u>43-46: -</u>	
<u>188: -</u>	<u>94: OCNS DPCH</u> <u>95: -</u>	<u>47: -</u>	
<u>189: -</u>			OCNS: TS 34.121: E.3.6
<u>190: -</u>			
<u>191: -</u>			
<u>192: DCH SRB</u>	<u>96: DCH 12.2</u>	<u>48: -</u>	TS 34.108: 9.2.1 (DCH SRB and 12.2); DCH 64: SF32-Code24, DCH 144: SF16-Code12, DCH 384: SF8-Code6
<u>193: -</u>	<u>97: -</u>		
<u>194: -</u>			
<u>195: -</u>			
<u>196-223: -</u>	<u>98-111: -</u>	<u>49-55: -</u>	
<u>224: -</u>	<u>112: -</u> <u>113: OCNS DPCH</u>	<u>56: -</u>	
<u>225: -</u>			OCNS: TS 34.121: E.3.6
<u>226: -</u>			
<u>227: -</u>			
<u>228-235: -</u>	<u>114-117: -</u>	<u>57-58: -</u>	
<u>236: -</u>	<u>118: -</u> <u>119: OCNS DPCH</u>	<u>59: -</u>	
<u>237: -</u>			OCNS: TS 34.121: E.3.6
<u>238: -</u>			
<u>239: -</u>			
<u>240-59: -</u>	<u>120-123: -</u>	<u>60-61: -</u>	
<u>248: -</u>	<u>124: -</u> <u>125: OCNS DPCH</u>	<u>62: -</u>	
<u>249: -</u>			OCNS: TS 34.121: E.3.6
<u>250: -</u>			
<u>251: -</u>			
<u>252-255: -</u>	<u>126-127: -</u>	<u>63: -</u>	

CHANGE REQUEST

⌘ **34.121 CR 379** ⌘ rev **-** ⌘ Current version: **5.3.1** ⌘

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 channel number for UMTS800(band VI)		
Source:	⌘ NTT DoCoMo Inc.		
Work item code:	⌘	Date:	⌘ 11/05/2004
Category:	⌘ F	Release:	⌘ Rel-5
	<i>Use <u>one</u> of the following categories:</i> 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 .		<i>Use <u>one</u> of the following releases:</i> 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:	⌘ Band VI is a release independent frequency band. Band VI is not described in TS25.101 release 5. Unnecessary additional channel numbers are deleted for band VI in core specification TS25.101.		
Summary of change:	⌘ New reference is added in section 2 to clarify. Note is added in clause 4.2. Unnecessary additional channel numbers is deleted for Band VI.		
Consequences if not approved:	⌘ Test specification is not consistent with the core specification.		

Clauses affected:	⌘ 2, 4.2, 4.4.3, 4.4.4						
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </table> Other core specifications	Y	N	<input type="checkbox"/>	<input checked="" type="checkbox"/>	⌘	
Y	N						
<input type="checkbox"/>	<input checked="" type="checkbox"/>						
	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </table> Test specifications	Y	N	<input type="checkbox"/>	<input checked="" type="checkbox"/>	⌘	
Y	N						
<input type="checkbox"/>	<input checked="" type="checkbox"/>						
	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </table> O&M Specifications	Y	N	<input type="checkbox"/>	<input checked="" type="checkbox"/>	⌘	
Y	N						
<input type="checkbox"/>	<input checked="" type="checkbox"/>						
Other comments:	⌘						

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

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

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

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
 - For a specific reference, subsequent revisions do not apply.
 - For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document.
- For a Release 1999 UE, references to 3GPP documents are to version 3.x.y.
 - For a Release 4 UE, references to 3GPP documents are to version 4.x.y.
 - For a Release 5 UE, references to 3GPP documents are to version 5.x.y.
- [1] 3GPP TS 25.101 "UE Radio transmission and reception (FDD)".
 - [2] 3GPP TS 25.133 "Requirements for Support of Radio Resource Management (FDD)".
 - [3] 3GPP TS 34.108 "Common Test Environments for User Equipment (UE) Conformance Testing".
 - [4] 3GPP TS 34.109 "Terminal logical test interface; Special conformance testing functions".
 - [5] 3GPP TS 25.214 "Physical layer procedures (FDD)".
 - [6] 3GPP TR 21.905 "Vocabulary for 3GPP Specifications".
 - [7] 3GPP TR 25.990 "Vocabulary".
 - [8] 3GPP TS 25.331: "Radio Resource Control (RRC); Protocol Specification".
 - [9] 3GPP TS 25.433 "UTRAN Iub Interface NBAP Signalling".
 - [10] ITU-R Recommendation SM.329: "Spurious emissions".
 - [11] 3GPP TS 25.304: "UE Procedures in Idle Mode and Procedures for Cell Reselection in Connected Mode".
 - [12] 3GPP TS 25.303: "Interlayer Procedures in Connected Mode".
 - [13] 3GPP TS 25.321: "Medium Access Control (MAC) protocol specification".
 - [14] 3GPP TS 25.213: "Spreading and modulation (FDD)".
 - [15] 3GPP TS 25.223: "Spreading and modulation (TDD)".
 - [16] ETSI ETR 273-1-2: "Improvement of radiated methods of measurement (using test sites) and evaluation of the corresponding measurement uncertainties; Part 1: Uncertainties in the measurement of mobile radio equipment characteristics; Sub-part 2: Examples and annexes".
 - [17] 3GPP TR 25.926: "UE Radio Access Capabilities".
 - [18] 3GPP TR 21.904: "UE capability requirements".

- [19] 3GPP TS 25.211: "Physical channels and mapping of transport channels onto physical channels (FDD)".
 - [20] 3GPP TS 05.08: "Digital cellular telecommunications system (Phase 2+); Radio subsystem link control".
 - [21] 3GPP TS 34.123-1: "User Equipment (UE) Conformance Specification; Part 1: Protocol Conformance Specification".
 - [22] 3GPP TS 25.215: "Physical Layer – Measurements (FDD)".
 - [23] 3GPP TS 25.101 "UE Radio transmission and reception (FDD), Release 5".
 - [24] 3GPP TR 34.902 " Derivation of test tolerances for multi-cell Radio Resource Management (RRM) conformance tests ".
 - [\[25\] 3GPP TS 25.307 "Requirements on UEs supporting a release independent frequency band".](#)
-

{Unchanged Sections are snipped here}

4 Frequency bands and channel arrangement

4.1 General

The information presented in this clause is based on a chip rate of 3,84 Mcps.

NOTE: Other chip rates may be considered in future releases.

4.2 Frequency bands

a) UTRA/FDD is designed to operate in either of the following paired bands:

Operating Band	UL Frequencies UE transmit, Node B receive	DL frequencies UE receive, Node B transmit
I	1920 – 1980 MHz	2110 –2170 MHz
II	1850 –1910 MHz	1930 –1990 MHz
III	1710-1785 MHz	1805-1880 MHz
IV	1710-1770MHz	2110- 2170MHz
V	824 - 849MHz	869-894MHz
VI	830- 840 MHz	875-885 MHz

Note: [See TS25.307 \[25\] for Band IV, V and VI.](#) Band VI specifications are developed for use in Japan. ~~The Band VI frequency ranges in the table are subject to coming regulatory decisions.~~

b) Deployment in other frequency bands is not precluded.

4.3 TX–RX frequency separation

- a) UTRA/FDD is designed to operate with the following TX-RX frequency separation.

Operating Band	TX-RX frequency separation
I	190 MHz
II	80 MHz
III	95 MHz
VI	45 MHz

- b) UTRA/FDD can support both fixed and variable transmit to receive frequency separation.
- c) The use of other transmit to receive frequency separations in existing or other frequency bands shall not be precluded.

4.4 Channel arrangement

4.4.1 Channel spacing

The nominal channel spacing is 5 MHz, but this can be adjusted to optimise performance in a particular deployment scenario.

4.4.2 Channel raster

The channel raster is 200 kHz, which for all bands except Band II and Band VI means that the centre frequency must be an integer multiple of 200 kHz. In Band II, 12 additional centre frequencies are specified according to the table in 4.1a and the centre frequencies for these channels are shifted 100 kHz relative to the normal raster. In Band VI, additional centre frequencies are specified according to Table 4.1b and the centre frequencies for these channels are shifted 100 kHz relative to the normal raster.

4.4.3 Channel number

The carrier frequency is designated by the UTRA Absolute Radio Frequency Channel Number (UARFCN). The values of the UARFCN are as follows.

Table 4.1: UARFCN definition

Uplink	$N_u = 5 * F_{\text{uplink}}$	$0,0 \text{ MHz} \leq F_{\text{uplink}} \leq 3\,276,6 \text{ MHz}$ where F_{uplink} is the uplink frequency in MHz
Downlink	$N_d N_d = 5 * F_{\text{downlink}}$	$0,0 \text{ MHz} \leq F_{\text{downlink}} \leq 3\,276,6 \text{ MHz}$ where F_{downlink} is the downlink frequency in MHz

Table 4.1a: UARFCN definition (Band II additional channels)

	UARFCN	Carrier frequency [MHz]
Uplink	$N_d = 5 * (F_{\text{uplink}} - 1850.1 \text{ MHz})$	$F_{\text{uplink}} = 1852.5, 1857.5, 1862.5, 1867.5, 1872.5, 1877.5, 1882.5, 1887.5, 1892.5, 1897.5, 1902.5, 1907.5$
Downlink	$N_u = 5 * (F_{\text{downlink}} - 1850.1 \text{ MHz})$	$F_{\text{downlink}} = 1932.5, 1937.5, 1942.5, 1947.5, 1952.5, 1957.5, 1962.5, 1967.5, 1972.5, 1977.5, 1982.5, 1987.5$

Table 4.1b: UARFCN definition (Band VI additional channels)

	UARFCN	Carrier frequency [MHz]
Uplink	$N_u = 5 * (F_{\text{uplink}} - 670.1 \text{ MHz})$	$F_{\text{uplink}} = 832.5 \text{ MHz} \leq F_{\text{uplink}} \leq 837.5 \text{ MHz}$
Downlink	$N_d = 5 * (F_{\text{downlink}} - 670.1 \text{ MHz})$	$F_{\text{downlink}} = 877.5 \text{ MHz} \leq F_{\text{downlink}} \leq 882.5 \text{ MHz}$

4.4.4 UARFCN

The following UARFCN range shall be supported for each paired band.

Table 4.2: UTRA Absolute Radio Frequency Channel Number

Operating Band	Uplink UE transmit, Node B receive	Downlink UE receive, Node B transmit
I	9 612 to 9 888	10 562 to 10 838
II	9 262 to 9 538 and 12, 37, 62, 87, 112, 137, 162, 187, 212, 237, 262, 287	9 662 to 9 938 and 412, 437, 462, 487, 512, 537, 562, 587, 612, 637, 662, 687
III	8562 to 8913	9037 to 9388
VI	4162 to 4188 and 812 ₁ to 837	4387 to 4413 and 1037 ₁ to 1062

CR-Form-v7	
CHANGE REQUEST	
# 34.121 CR 382 # rev - #	Current version: 5.3.1 #

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Proposed change affects: UICC apps# ME Radio Access Network Core Network

Title:	#	HSDPA test 9.3.2	
Source:	#	Nokia	
Work item code:	#		Date: # 10/05/2004
Category:	#	F	Release: # R5
		Use <u>one</u> of the following categories:	Use <u>one</u> of the following releases:
		F (correction)	2 (GSM Phase 2)
		A (corresponds to a correction in an earlier release)	R96 (Release 1996)
		B (addition of feature),	R97 (Release 1997)
		C (functional modification of feature)	R98 (Release 1998)
		D (editorial modification)	R99 (Release 1999)
		Detailed explanations of the above categories can be found in 3GPP TR 21.900 .	Rel-4 (Release 4)
			Rel-5 (Release 5)
			Rel-6 (Release 6)

Reason for change:	#	No test method and no test requirements available.
Summary of change:	#	Test method and test requirements provided
Consequences if not approved:	#	No test possible

Clauses affected:	#	9.3.2								
Other specs Affected:	#	<table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td style="text-align: center;">Y</td> <td style="text-align: center;">N</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </table> Other core specifications # Test specifications # O&M Specifications # 	Y	N	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Y	N									
<input type="checkbox"/>	<input checked="" type="checkbox"/>									
<input type="checkbox"/>	<input checked="" type="checkbox"/>									
<input type="checkbox"/>	<input checked="" type="checkbox"/>									
Other comments:	#	This CR applies to release 5 and later releases.								

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

9.3.2 Fading propagation conditions

9.3.2.1 Definition and applicability

The reporting accuracy of the channel quality indicator (CQI) under fading environments is determined by the BLER performance using the transport format indicated by the reported CQI median.

In calculating BLER, for an HARQ process, if an odd number of consecutive DTXs are reported, the corresponding packets and one subsequent packet shall be discarded from BLER calculation. If an even number of consecutive DTXs are reported, the corresponding packets shall be discarded from BLER calculation.

The requirements and the test case apply to all types of UTRA for the FDD UE that supports HSDPA.

9.3.2.2 Minimum requirements

For the parameters specified in Table 9.3.2.1, the requirements are specified in terms of maximum BLERs at particular reported CQIs when transmitting a fixed transport format given by the CQI median as shown in Table 9.3.2.2.. The BLER at a particular reported CQI is obtained by associating a particular CQI reference measurement period with HS-PDSCH subframe overlapping with the end of this CQI reference measurement period and calculating the fraction of erroneous HS-PDSCH subframes.

Table 9.3.2.1: Test Parameters for CQI test in fading: categories 1-6

Parameter	Unit	Test 1	Test 2
HS-PDSCH E_c / I_{or} (*)	dB	-8	-4
\hat{I}_{or} / I_{oc}	dB	0	5
I_{oc}	dBm/3.84 MHz	-60	
Phase reference	-	P-CPICH	
HS-SCCH 1 E_c / I_{or}	dB	-8.5	
DPCH E_c / I_{or}	dB	-6	
Maximum number of H-ARQ transmission	-	1	
Number of HS-SCCH set to be monitored	-	1	
CQI feedback cycle	ms	2	
CQI repetition factor	-	1	
HS-DSCH transmission pattern	-	“...XOOXOOX...” to incorporate inter-TTI=3 UEs, where “X” indicates TTI in which HS-PDSCH is allocated to the UE, and “O” indicates TTI in which HS-PDSCH is not allocated to the UE.	
Propagation Channel		Case 8	
Note1:	Measurement power offset “T” is configured by RRC accordingly and as defined in [7]		
Note2:	TF for HS-PDSCH is configured according to the reported CQI statistics. TF based on median CQI is used. Other physical channel parameters are configured according to the CQI mapping table described in TS25.214		

Table 9.3.2.2: Minimum requirement for CQI test in fading for categories 1-6

Reported CQI	Maximum BLER	
	Test 1	Test2
CQI median	60%	60%
CQI median + 3	15%	15%

For the parameters specified in Table 9.3.2.3, the requirements are specified in terms of BLERs at particular reported CQIs when a fixed transport format given by CQI median as shown in Table 9.3.2.4. The BLER at a particular reported CQI is obtained by associating a particular CQI reference measurement period with HS-PDSCH subframe overlapping with the end of this CQI reference measurement period and calculating the fraction of erroneous HS-PDSCH subframes.

Table 9.3.2.3: Test Parameters for CQI test in fading: categories 11-12

<u>Parameter</u>	<u>Unit</u>	<u>Test 1</u>	<u>Test 2</u>
<u>HS-PDSCH E_c / I_{or} (*)</u>	<u>dB</u>	<u>-8</u>	<u>-4</u>
<u>\hat{I}_{or} / I_{oc}</u>	<u>dB</u>	<u>0</u>	<u>5</u>
<u>I_{oc}</u>	<u>dBm/3.84 MHz</u>	<u>-60</u>	
<u>Phase reference</u>	<u>-</u>	<u>P-CPICH</u>	
<u>HS-SCCH 1 E_c / I_{or}</u>	<u>dB</u>	<u>-8.5</u>	
<u>DPCH E_c / I_{or}</u>	<u>dB</u>	<u>-6</u>	
<u>Maximum number of H-ARQ transmission</u>	<u>-</u>	<u>1</u>	
<u>Number of HS-SCCH set to be monitored</u>	<u>-</u>	<u>1</u>	
<u>CQI feedback cycle</u>	<u>ms</u>	<u>2</u>	
<u>CQI repetition factor</u>	<u>-</u>	<u>1</u>	
<u>HS-DSCH transmission pattern</u>	<u>-</u>	<u>“...XOOXOOX...” to incorporate inter-TTI=3 UEs, where “X” indicates TTI in which HS-PDSCH is allocated to the UE, and “O” indicates DTX</u>	
<u>Propagation Channel</u>		<u>Case 8</u>	
<u>Note1: Measurement power offset “I” is configured by RRC accordingly and as defined in [7]</u>			
<u>Note2: TF for HS-PDSCH is configured according to the reported CQI statistics. TF based on median CQI is used. Other physical channel parameters are configured according to the CQI mapping table described in TS25.214</u>			

Table 9.3.2.4: Minimum requirement for CQI test in fading for categories 11-12

<u>Reported CQI</u>	<u>Maximum BLER</u>	
	<u>Test 1</u>	<u>Test 2</u>
<u>CQI median</u>	<u>60%</u>	<u>60%</u>
<u>CQI median + 3</u>	<u>15%</u>	<u>15%</u>

The reference for this requirement is TS 25.101 [1] clauses 9.3.2.1 and 9.3.2.2.

9.3.2.3 Test purpose

To verify that the UE receiver is capable of reporting the channel quality indicator (CQI) under fading propagation conditions. When using the transport format indicated by the reported CQI median BLER shall meet the test requirements specified in tables 9.3.2.2 and 9.3.2.4.

9.3.2.4 Method of test

9.3.2.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

- 1) Connect SS, multipath fading simulator and an AWGN noise source to the UE antenna connector as shown in figure A.10.
- 2) Set Ack/Nack handling at the SS such that regardless of the response from the UE (Ack, Nack or DTX) new data is sent each time, this is because HARQ transmissions are set to one, i.e. no re-transmission of failed blocks.

9.3.2.4.2 Procedure

- 1) Set up an HSDPA call according to TS 34.108 [3] clause 7.3.6.3. Set test conditions according to test 1 according table 9.3.2.1 (Category 1-6) or 9.3.2.3 (Category 11,12).
- 2) For an HSDPA block, transmitted by the SS, record the equivalent CQI value. SS shall not react on UE's reported CQI value, only record the reported CQI value.
- 3) Repeat step 2 up to [2000] times.
- 4) Set up a relative frequency distribution for the CQI-values, reported. Calculate the median value (Median CQI is the CQI that is at or crosses 50% distribution). This CQI-value is declared as Median CQI value.
- 5) The SS shall transmit the TF according to the median-CQI value and shall not react on the UE's reported CQI value.
- 6) Measure BLER as described below. Continue measuring BLER until [1000] events (ACK or NACK discarded DTXs not included) has occurred for each R1 and R2.

In the test there are two BLER requirements to be tested:

R1: HSDPA block with corresponding reported CQI = Median CQI BLER < 60%

R2: HSDPA block with corresponding reported CQI = Median CQI + 3 BLER < 15%

For any HSDPA block, transmitted by the SS, record ACK/NACK value (ACK, NACK or DTX) and the corresponding CQI report. These values are combined to obtain the BLER (Figure 9.3.2.1).

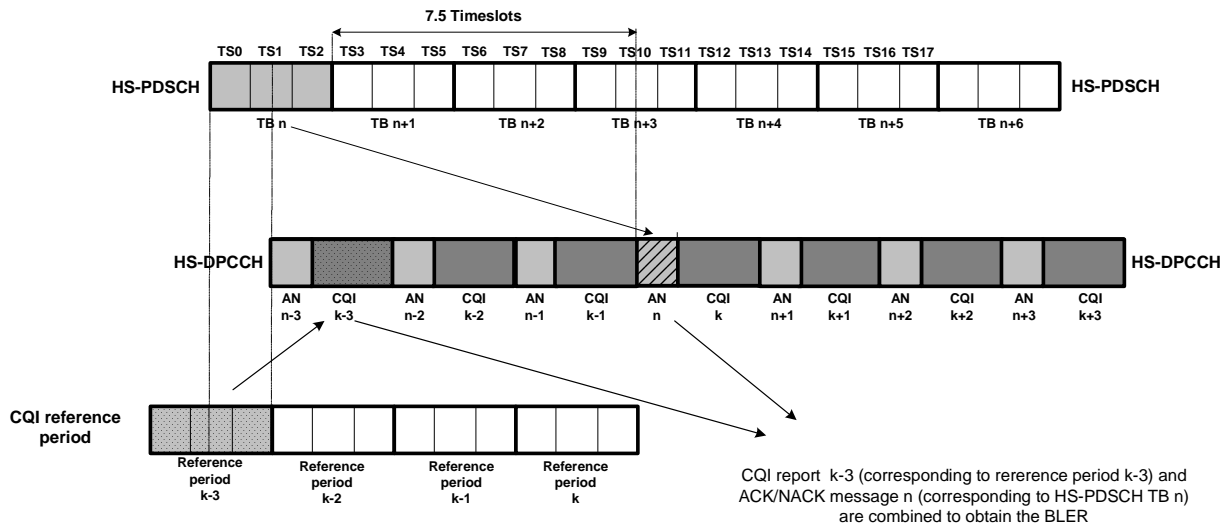


Figure 9.3.2.1 Combination of ACK/NACK message and the CQI report for BLER calculation

Upon a transmission:

CQI with ACK received → record a success.

CQI with NACK received → record a fail

In calculating BLER, for an HARQ process, if an odd number of consecutive DTXs are reported, the corresponding packets and one subsequent packet shall be discarded from BLER calculation. If an even number of consecutive DTXs are reported, the corresponding packets shall be discarded from BLER calculation

Repeat the same procedure with test conditions according to the table 9.3.2.1 and table 9.3.2.3 for the other tests:

Category 1-6: Test 2 of table 9.3.2.1

Category 11,12: Test 2 of table 9.3.2.3

9.3.2.5 Test Requirements

The measured BLER shall not exceed values specified in tables 9.3.2.2 and 9.3.2.4.

No setting test tolerance is applied to the test parameters.

CHANGE REQUEST

⌘ **34.121 CR 383** ⌘ rev **-** ⌘ Current version: **5.3.1** ⌘

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:	⌘	New test case for 9.2.2 Open Loop Diversity Performance
Source:	⌘	Motorola
Work item code:	⌘	
		Date: ⌘ 10/05/2004
Category:	⌘	F
		<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p><i>Use <u>one</u> of the following categories:</i></p> <p>F (correction)</p> <p>A (corresponds to a correction in an earlier release)</p> <p>B (addition of feature),</p> <p>C (functional modification of feature)</p> <p>D (editorial modification)</p> <p>Detailed explanations of the above categories can be found in 3GPP TR 21.900.</p> </div> <div style="width: 45%;"> <p><i>Use <u>one</u> of the following releases:</i></p> <p>2 (GSM Phase 2)</p> <p>R96 (Release 1996)</p> <p>R97 (Release 1997)</p> <p>R98 (Release 1998)</p> <p>R99 (Release 1999)</p> <p>Rel-4 (Release 4)</p> <p>Rel-5 (Release 5)</p> <p>Rel-6 (Release 6)</p> </div> </div>

Reason for change:	⌘	The test case in 25.101 for Open Loop Diversity performance is not implemented in 34.121.
Summary of change:	⌘	This change will add the Open Loop Diversity performance test case 9.2.2 to 34.121.
Consequences if not approved:	⌘	There will be no possibility to test Open Loop Diversity performance

Clauses affected:	⌘	9.2.2								
Other specs affected:	⌘	<table border="1" style="display: inline-table; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 20px;">Y</td> <td style="width: 20px;">N</td> </tr> <tr> <td style="width: 20px;"> </td> <td style="width: 20px;">X</td> </tr> <tr> <td style="width: 20px;"> </td> <td style="width: 20px;">X</td> </tr> <tr> <td style="width: 20px;"> </td> <td style="width: 20px;">X</td> </tr> </table>	Y	N		X		X		X
		Y	N							
			X							
	X									
	X									
Other core specifications	⌘									
Test specifications										
O&M Specifications										
Other comments:	⌘	Test cases introduced in this CR are applicable for Rel-5 and later releases.								

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document.

- For a Release 1999 UE, references to 3GPP documents are to version 3.x.y.
- For a Release 4 UE, references to 3GPP documents are to version 4.x.y.
- For a Release 5 UE, references to 3GPP documents are to version 5.x.y.
- [1] 3GPP TS 25.101 "UE Radio transmission and reception (FDD)".
- [2] 3GPP TS 25.133 "Requirements for Support of Radio Resource Management (FDD)".
- [3] 3GPP TS 34.108 "Common Test Environments for User Equipment (UE) Conformance Testing".
- [4] 3GPP TS 34.109 "Terminal logical test interface; Special conformance testing functions".
- [5] 3GPP TS 25.214 "Physical layer procedures (FDD)".
- [6] 3GPP TR 21.905 "Vocabulary for 3GPP Specifications".
- [7] 3GPP TR 25.990 "Vocabulary".
- [8] 3GPP TS 25.331: "Radio Resource Control (RRC); Protocol Specification".
- [9] 3GPP TS 25.433 "UTRAN Iub Interface NBAP Signalling".
- [10] ITU-R Recommendation SM.329: "Spurious emissions".
- [11] 3GPP TS 25.304: "UE Procedures in Idle Mode and Procedures for Cell Reselection in Connected Mode".
- [12] 3GPP TS 25.303: "Interlayer Procedures in Connected Mode".
- [13] 3GPP TS 25.321: "Medium Access Control (MAC) protocol specification".
- [14] 3GPP TS 25.213: "Spreading and modulation (FDD)".
- [15] 3GPP TS 25.223: "Spreading and modulation (TDD)".
- [16] ETSI ETR 273-1-2: "Improvement of radiated methods of measurement (using test sites) and evaluation of the corresponding measurement uncertainties; Part 1: Uncertainties in the measurement of mobile radio equipment characteristics; Sub-part 2: Examples and annexes".
- [17] 3GPP TR 25.926: "UE Radio Access Capabilities".

- [18] 3GPP TR 21.904: "UE capability requirements".
- [19] 3GPP TS 25.211: "Physical channels and mapping of transport channels onto physical channels (FDD)".
- [20] 3GPP TS 05.08: "Digital cellular telecommunications system (Phase 2+); Radio subsystem link control".
- [21] 3GPP TS 34.123-1: "User Equipment (UE) Conformance Specification; Part 1: Protocol Conformance Specification".
- [22] 3GPP TS 25.215: "Physical Layer – Measurements (FDD)".
- [23] 3GPP TS 25.101 "UE Radio transmission and reception (FDD), Release 5".
- [24] 3GPP TR 34.902 " Derivation of test tolerances for multi-cell Radio Resource Management (RRM) conformance tests ".
- [26] [ITU-T recommendation O.153: "Basic parameters for the measurement of error performance at bit rates below the primary rate".](#)

3.3 Abbreviations

For the purposes of the present document, the following abbreviations apply:

ACLR	Adjacent Channel Leakage power Ratio
ACS	Adjacent Channel Selectivity
BER	Bit Error Ratio
BLER	Block Error Ratio
BS	Base Station
CW	Continuous Wave (unmodulated signal)
DCH	Dedicated Channel, which is mapped into Dedicated Physical Channel. DCH contains the data
DL	Down Link (forward link)
DPCH	Dedicated Physical Channel
E_b	Average energy per information bit for the PCCPCH, SCCPCH and DPCH, at the antenna connector
E_c	Average energy per PN chip
EVM	Error Vector Magnitude
FDD	Frequency Division Duplexing
F_{uw}	Frequency of unwanted signal
MS	Mobile Station
PCCPCH	Primary Common Control Physical Channel
PCDE	Peak Code Domain Error
PCH	Paging Channel
PPM	Parts Per Million
PRBS	Pseudo Random Bit Sequence
SCCPCH	Secondary Common Control Physical Channel
TDD	Time Division Duplexing
TPC	Transmit Power Control
UE	User Equipment
UL	Up Link (reverse link)
UTRA	UMTS Terrestrial Radio Access

9.2.2 Open Loop Diversity Performance

9.2.2.1 Definition and applicability

The receiver single open loop transmit diversity performance of the High Speed Physical Downlink Shared Channel (HS-DSCH) in multi-path fading environments are determined by the information bit throughput R.

The UE shall be tested only according to the data rate, supported. The data-rate corresponding requirements shall apply to the UE.

The requirements and this test apply to all types of UTRA for FDD UE that support HSDPA.

9.2.2.2 Minimum requirements

Requirements for a particular UE belonging to certain HS-DSCH category are determined according to Table 9.2.2.1. During the Fixed Reference Channel (FRC) tests the behaviour of the Node-B emulator in response to the ACK/NACK signalling field of the HS-DPCCH is specified in Table 9.2.2.2.

Table 9.2.2.1: Mapping between HS-DSCH category and FRC

<u>HS-DSCH category</u>	<u>Corresponding requirement</u>
<u>Category 1</u>	<u>H-Set 1</u>
<u>Category 2</u>	<u>H-Set 1</u>
<u>Category 3</u>	<u>H-Set 2</u>
<u>Category 4</u>	<u>H-Set 2</u>
<u>Category 5</u>	<u>H-Set 3</u>
<u>Category 6</u>	<u>H-Set 3</u>
<u>Category 11</u>	<u>H-Set 4</u>
<u>Category 12</u>	<u>H-Set 5</u>

Table 9.2.2.2: Node-B Emulator Behaviour in response to ACK/NACK/DTX

<u>HS-DPCCH ACK/NACK Field State</u>	<u>Node-B Emulator Behaviour</u>
<u>ACK</u>	<u>ACK: new transmission using 1st redundancy version (RV)</u>
<u>NACK</u>	<u>NACK: retransmission using the next RV (up to the maximum permitted number or RV's)</u>
<u>DTX</u>	<u>DTX: retransmission using the RV previously transmitted to the same H-ARQ process</u>

For the parameters specified in Table 9.2.2.3, 9.2.2.5, 9.2.2.7 the requirements are specified in terms of minimum information bit throughput R as shown in Table 9.2.2.4, 9.2.2.6, 9.2.2.8, and 9.2.2.9 for QPSK and 16QAM and for the DL reference channels specified in Annex C.8.1.

Table 9.2.2.3: Test Parameters for Testing QPSK FRCs H-Set 1/H-Set 2/H-Set 3

<u>Parameter</u>	<u>Unit</u>	<u>Test 1</u>	<u>Test 2</u>	<u>Test 3</u>	<u>Test 4</u>
<u>Phase reference</u>		<u>P-CPICH</u>			
<u>I_{oc}</u>	<u>dBm/3.84 MHz</u>	<u>-60</u>			
<u>Redundancy and constellation version coding sequence</u>		<u>{0,2,5,6}</u>			
<u>Maximum number of HARQ transmission</u>		<u>4</u>			

Table 9.2.2.4: Minimum requirement QPSK, Fixed Reference Channel (FRC) H-Set 1/2/3

<u>Test Number</u>	<u>Propagation Conditions</u>	<u>Reference value</u>		
		<u>HS-PDSCH</u> <u>E_c / I_{or} (dB)</u>	<u>T-put R (kbps) *</u> <u>$\hat{I}_{or} / I_{oc} = 0$ dB</u>	<u>T-put R (kbps) *</u> <u>$\hat{I}_{or} / I_{oc} = 10$ dB</u>
<u>1</u>	<u>PA3</u>	<u>-6</u>	<u>77</u>	<u>375</u>
		<u>-3</u>	<u>180</u>	<u>475</u>
<u>2</u>	<u>PB3</u>	<u>-6</u>	<u>20</u>	<u>183</u>
		<u>-3</u>	<u>154</u>	<u>274</u>
<u>3</u>	<u>VA30</u>	<u>-6</u>	<u>15</u>	<u>187</u>
		<u>-3</u>	<u>162</u>	<u>284</u>

* Notes: 1) The reference value R is for the Fixed Reference Channel (FRC) H-Set 1
2) For Fixed Reference Channel (FRC) H-Set 2 the reference values for R should be scaled (multiplied by 1.5 and rounding to the nearest integer t-put in kbps, where values of i+1/2 are rounded up to i+1, i integer)
3) For Fixed Reference Channel (FRC) H-Set 3 the reference values for R should be scaled (multiplied by 3 and rounding to the nearest integer t-put in kbps, where values of i+1/2 are rounded up to i+1, i integer)

Table 9.2.2.5: Test Parameters for Testing 16-QAM FRCs H-Set 1/H-Set 2/H-Set 3

<u>Parameter</u>	<u>Unit</u>	<u>Test 1</u>	<u>Test 2</u>	<u>Test 3</u>	<u>Test 4</u>
<u>Phase reference</u>		<u>P-CPICH</u>			
<u>I_{oc}</u>	<u>dBm/3.84 MHz</u>	<u>-60</u>			
<u>Redundancy and constellation version coding sequence</u>		<u>{6,2,1,5}</u>			
<u>Maximum number of HARQ transmission</u>		<u>4</u>			

Table 9.2.2.6: Minimum requirement 16QAM, Fixed Reference Channel (FRC) H-Set 1/2/3

<u>Test Number</u>	<u>Propagation Conditions</u>	<u>Reference value</u>	
		<u>HS-PDSCH</u> <u>E_c / I_{or} (dB)</u>	<u>T-put R (kbps) *</u> <u>$\hat{I}_{or} / I_{oc} = 10$ dB</u>
<u>1</u>	<u>PA3</u>	-6	<u>295</u>
		-3	<u>463</u>
<u>2</u>	<u>PB3</u>	-6	<u>24</u>
		-3	<u>243</u>
<u>3</u>	<u>VA30</u>	-6	<u>35</u>
		-3	<u>251</u>

* Notes: 1) The reference value R is for the Fixed Reference Channel (FRC) H-Set 1
2) For Fixed Reference Channel (FRC) H-Set 2 the reference values for R should be scaled (multiplied by 1.5 and rounding to the nearest integer t-put in kbps, where values of i+1/2 are rounded up to i+1, i integer)
3) For Fixed Reference Channel (FRC) H-Set 3 the reference values for R should be scaled (multiplied by 3 and rounding to the nearest integer t-put in kbps, where values of i+1/2 are rounded up to i+1, i integer)

Table 9.2.2.7: Test Parameters for Testing QPSK FRCs H-Set 4/H-Set 5

<u>Parameter</u>	<u>Unit</u>	<u>Test 1</u>	<u>Test 2</u>	<u>Test 3</u>	<u>Test 4</u>
<u>Phase reference</u>				<u>P-CPICH</u>	
<u>I_{oc}</u>	<u>DBm/3.84 MHz</u>			<u>-60</u>	
<u>Redundancy and constellation version coding sequence</u>				<u>{0,2,5,6}</u>	
<u>Maximum number of HARQ transmission</u>				<u>4</u>	

Table 9.2.2.8: Minimum requirement QPSK, Fixed Reference Channel (FRC) H-Set 4

<u>Test Number</u>	<u>Propagation Conditions</u>	<u>Reference value</u>		
		<u>HS-PDSCH</u> <u>E_c / I_{or} (dB)</u>	<u>T-put R (kbps) *</u> <u>$\hat{I}_{or} / I_{oc} = 0$ dB</u>	<u>T-put R (kbps) *</u> <u>$\hat{I}_{or} / I_{oc} = 10$ dB</u>
<u>1</u>	<u>PA3</u>	-6	<u>70</u>	<u>369</u>
		-3	<u>171</u>	<u>471</u>
<u>2</u>	<u>PB3</u>	-6	<u>14</u>	<u>180</u>
		-3	<u>150</u>	<u>276</u>
<u>3</u>	<u>VA30</u>	-6	<u>11</u>	<u>184</u>
		-3	<u>156</u>	<u>285</u>

* Notes: 1) The reference value R is for the Fixed Reference Channel (FRC) H-Set 4

Table 9.2.2.9: Minimum requirement QPSK, Fixed Reference Channel (FRC) H-Set 5

Test Number	Propagation Conditions	Reference value		
		HS-PDSCH E_c / I_{or} (dB)	T-put R (kbps) * $\hat{I}_{or} / I_{oc} = 0$ dB	T-put R (kbps) * $\hat{I}_{or} / I_{oc} = 10$ dB
1	PA3	-6	116	563
		-3	270	713
2	PB3	-6	30	275
		-3	231	411
3	VA30	-6	23	281
		-3	243	426

* Notes: 1) The reference value R is for the Fixed Reference Channel (FRC) H-Set 5

The reference for this requirement is TS 25.101 [1] clauses 9.2.2.1, 9.2.2.2 and 9.2.2.3.

9.2.2.3 Test purpose

To verify the ability of the receiver to receive a predefined test signal, representing a multi-path fading channel with information bit throughput R not exceeding a specified value. The test stresses the multi-code reception and channel decoding with incremental redundancy.

9.2.2.4 Method of test

9.2.2.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

1. Connect the SS (Note: This is the Node B Emulator) and fader and AWGN noise source to the UE antenna connector as shown in figure A.16.
2. Set the test parameters for test as specified in table's 9.2.2.11, 9.2.2.13 and 9.2.2.15 and levels as specified in tables 9.2.2.12, 9.2.2.14, 9.2.2.16 and 9.2.2.17. Setup fading simulators as fading condition, which are described in table D.2.2.1A. Power of downlink channels is defined in table E.5.2.

Table 9.2.2.10: Specific Message Contents for open-loop transmit diversity mode

SYSTEM INFORMATION BLOCK TYPE5

Information Element	Value/remark
PRACH system information list - AICH info - STTD Indicator	TRUE
Secondary CCPCH system information - PICH info - STTD Indicator - Secondary CCPCH info - STTD Indicator	TRUE TRUE TRUE
Primary CCPCH info - CHOICE mode - TX Diversity indicator	FDD TRUE

RRC CONNECTION SETUP

<u>Information Element</u>	<u>Value/remark</u>
<u>Downlink information common for all radio links</u> - CHOICE mode - TX Diversity Mode	FDD STTD
<u>Downlink DPCH info for each RL</u> - CHOICE mode - Downlink DPCH info for each RL - Closed loop timing adjustment mode	FDD 1

RADIO BEARER SETUP

<u>Information Element</u>	<u>Value/remark</u>
<u>Downlink information common for all radio links</u> - CHOICE mode - TX Diversity Mode	FDD STTD
<u>Downlink DPCH info for each RL</u> - CHOICE mode - Downlink DPCH info for each RL - Closed loop timing adjustment mode	FDD 1

9.2.2.4.2 Procedure

1. Set up a HSDPA connection according to the generic HSDPA set-up procedure specified in TS 34.108 [3].
2. Start transmitting HSDPA Data.
3. The information bit data shall be pseudo random and not repeated before 10 different information bit payload blocks are processed. (e.g. Fixed reference Channel Definition H-set 1 (16 QAM): The information bit payload block is 4664 bits long. Hence the PRBS must be at least 4664 * 10 bits long [26]).
4. Count the number of NACK, ACK and DTX on the UL HS-DPCCH during the test interval and decide pass or fail according to Annex F.6.3. ACK is counted as a pass. NACK and DTX are counted as a failure.

9.2.2.4.3 Test Requirements

The parameters and requirements are specified in table's 9.2.2.11 to 9.2.2.17. The pass / fail decision for throughput is done according to Annex F.6.3.

Table 9.2.2.11: Test Parameters for Testing QPSK FRCs H-Set 1/H-Set 2/H-Set 3

<u>Parameter</u>	<u>Unit</u>	<u>Test 1</u>	<u>Test 2</u>	<u>Test 3</u>	<u>Test 4</u>
<u>Phase reference</u>				P-CPICH	
I_{oc}	DBm/3.84 MHz			-60	
<u>Redundancy and constellation version coding sequence</u>				{0,2,5,6}	
<u>Maximum number of HARQ transmission</u>				4	

Table 9.2.2.12: Minimum requirement QPSK, Fixed Reference Channel (FRC) H-Set 1/2/3

Test Number	Propagation Conditions	Reference value		
		HS-PDSCH E_c / I_{or} (dB)	T-put R (kbps) * $\hat{I}_{or} / I_{oc} = 0$ dB	T-put R (kbps) * $\hat{I}_{or} / I_{oc} = 10$ dB
1	PA3	-6	77	375
		-3	180	475
2	PB3	-6	20	183
		-3	154	274
3	VA30	-6	15	187
		-3	162	284

* Notes: 1) The reference value R is for the Fixed Reference Channel (FRC) H-Set 1
2) For Fixed Reference Channel (FRC) H-Set 2 the reference values for R should be scaled (multiplied by 1.5 and rounding to the nearest integer t-put in kbps, where values of $i+1/2$ are rounded up to $i+1$, i integer)
3) For Fixed Reference Channel (FRC) H-Set 3 the reference values for R should be scaled (multiplied by 3 and rounding to the nearest integer t-put in kbps, where values of $i+1/2$ are rounded up to $i+1$, i integer)

Table 9.2.2.13: Test Parameters for Testing 16-QAM FRCs H-Set 1/H-Set 2/H-Set 3

Parameter	Unit	Test 1	Test 2	Test 3	Test 4
Phase reference			P-CPICH		
I_{oc}	dBm/3.84 MHz		-60		
Redundancy and constellation version coding sequence			{6,2,1,5}		
Maximum number of HARQ transmission			4		

Table 9.2.2.14: Minimum requirement 16QAM, Fixed Reference Channel (FRC) H-Set 1/2/3

Test Number	Propagation Conditions	Reference value	
		HS-PDSCH E_c / I_{or} (dB)	T-put R (kbps) * $\hat{I}_{or} / I_{oc} = 10$ dB
1	PA3	-6	295
		-3	463
2	PB3	-6	24
		-3	243
3	VA30	-6	35
		-3	251

* Notes: 1) The reference value R is for the Fixed Reference Channel (FRC) H-Set 1
2) For Fixed Reference Channel (FRC) H-Set 2 the reference values for R should be scaled (multiplied by 1.5 and rounding to the nearest integer t-put in kbps, where values of $i+1/2$ are rounded up to $i+1$, i integer)
3) For Fixed Reference Channel (FRC) H-Set 3 the reference values for R should be scaled (multiplied by 3 and rounding to the nearest integer t-put in kbps, where values of $i+1/2$ are rounded up to $i+1$, i integer)

Table 9.2.2.15: Test Parameters for Testing QPSK FRCs H-Set 4/H-Set 5

<u>Parameter</u>	<u>Unit</u>	<u>Test 1</u>	<u>Test 2</u>	<u>Test 3</u>	<u>Test 4</u>
<u>Phase reference</u>		<u>P-CPICH</u>			
<u>I_{oc}</u>	<u>DBm/3.84 MHz</u>	<u>-60</u>			
<u>Redundancy and constellation version coding sequence</u>		<u>{0,2,5,6}</u>			
<u>Maximum number of HARQ transmission</u>		<u>4</u>			

Table 9.2.2.16: Minimum requirement QPSK, Fixed Reference Channel (FRC) H-Set 4

<u>Test Number</u>	<u>Propagation Conditions</u>	<u>Reference value</u>		
		<u>HS-PDSCH E_c/I_{or} (dB)</u>	<u>T-put R (kbps) *</u> <u>$\hat{I}_{or}/I_{oc} = 0$ dB</u>	<u>T-put R (kbps) *</u> <u>$\hat{I}_{or}/I_{oc} = 10$ dB</u>
<u>1</u>	<u>PA3</u>	<u>-6</u>	<u>70</u>	<u>369</u>
		<u>-3</u>	<u>171</u>	<u>471</u>
<u>2</u>	<u>PB3</u>	<u>-6</u>	<u>14</u>	<u>180</u>
		<u>-3</u>	<u>150</u>	<u>276</u>
<u>3</u>	<u>VA30</u>	<u>-6</u>	<u>11</u>	<u>184</u>
		<u>-3</u>	<u>156</u>	<u>285</u>

* Notes: 1) The reference value R is for the Fixed Reference Channel (FRC) H-Set 4

Table 9.2.2.17: Minimum requirement QPSK, Fixed Reference Channel (FRC) H-Set 5

<u>Test Number</u>	<u>Propagation Conditions</u>	<u>Reference value</u>		
		<u>HS-PDSCH E_c/I_{or} (dB)</u>	<u>T-put R (kbps) *</u> <u>$\hat{I}_{or}/I_{oc} = 0$ dB</u>	<u>T-put R (kbps) *</u> <u>$\hat{I}_{or}/I_{oc} = 10$ dB</u>
<u>1</u>	<u>PA3</u>	<u>-6</u>	<u>116</u>	<u>563</u>
		<u>-3</u>	<u>270</u>	<u>713</u>
<u>2</u>	<u>PB3</u>	<u>-6</u>	<u>30</u>	<u>275</u>
		<u>-3</u>	<u>231</u>	<u>411</u>
<u>3</u>	<u>VA30</u>	<u>-6</u>	<u>23</u>	<u>281</u>
		<u>-3</u>	<u>243</u>	<u>426</u>

* Notes: 1) The reference value R is for the Fixed Reference Channel (FRC) H-Set 5

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

CR-Form-v7	
CHANGE REQUEST	
# 34.121 CR 355 # rev - #	Current version: 5.3.1 #

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:	#	Introduction of Test Tolerances to Event triggered reporting in AWGN propagation conditions, test 8.6.1.1	
Source:	#	Racal Instruments Wireless Solutions	
Work item code:	#		Date: # 21/04/2004
Category:	#	F	Release: # Rel-5
		Use <u>one</u> of the following categories:	
		<p>F (correction)</p> <p>A (corresponds to a correction in an earlier release)</p> <p>B (addition of feature),</p> <p>C (functional modification of feature)</p> <p>D (editorial modification)</p> <p>Detailed explanations of the above categories can be found in 3GPP TR 21.900.</p>	<p>Use <u>one</u> of the following releases:</p> <p>2 (GSM Phase 2)</p> <p>R96 (Release 1996)</p> <p>R97 (Release 1997)</p> <p>R98 (Release 1998)</p> <p>R99 (Release 1999)</p> <p>Rel-4 (Release 4)</p> <p>Rel-5 (Release 5)</p> <p>Rel-6 (Release 6)</p>

Reason for change:	#	The Test requirements do not allow for the effects of test system uncertainties
Summary of change:	#	<p>a) Introduction of table 8.6.1.1.3 giving correct RF conditions for test</p> <p>b) Revision of table 8.6.1.1.2 giving correct RF conditions for test</p> <p>c) Revision of Annex F.1.5 table F.1.5 to define Test System Uncertainty</p> <p>d) Revision of Annex F.2 table F2.4 to define Test Tolerances</p> <p>e) Revision of Annex F.4 table F4.4 to refer to derivation of test requirements</p>
Consequences if not approved:	#	A Test system may incorrectly fail a good UE.

Clauses affected:	#	8.6.1.1 and Annex F								
Other specs affected:	#	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 30px; text-align: center;">Y</td> <td style="width: 30px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </table>	Y	N	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		Y	N							
		<input type="checkbox"/>	<input checked="" type="checkbox"/>							
<input type="checkbox"/>	<input checked="" type="checkbox"/>									
<input type="checkbox"/>	<input checked="" type="checkbox"/>									
<p>Other core specifications #</p> <p>Test specifications #</p> <p>O&M Specifications #</p>	#									
Other comments:	#	New section in TR 34.902 to cover this test								

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.

8.6 UE Measurements Procedures

8.6.1 FDD intra frequency measurements

8.6.1.1 Event triggered reporting in AWGN propagation conditions

8.6.1.1.1 Definition and applicability

In the event triggered reporting period the measurement reporting delay is defined as the time between any event that will trigger a measurement report until the UE starts to transmit over the Uu interface. This requirement assumes that the measurement report is not delayed by other RRC signalling on the DCCH. This measurement reporting delay excludes a delay uncertainty resulted when inserting the measurement report to the TTI of the uplink DCCH. The delay uncertainty is twice the TTI of the uplink DCCH.

The requirements and this test apply to the FDD UE.

8.6.1.1.2 Minimum requirements

The UE shall be able to identify and decode the SFN of a new detectable cell belonging to the monitored set within

$$T_{\text{identify intra}} = \text{Max} \left\{ 800, T_{\text{basic identify FDD, intra}} \cdot \frac{T_{\text{Measurement Period, Intra}}}{T_{\text{Intra}}} \right\} \text{ms}$$

A cell shall be considered detectable when CPICH Ec/Io \geq -20 dB, SCH_Ec/Io \geq -20 dB for at least one channel tap and SCH_Ec/Io is equally divided between primary synchronisation code and secondary synchronisation code. When L3 filtering is used an additional delay can be expected.

In the CELL_DCH state the measurement period for intra frequency measurements is 200 ms. When no transmission gap pattern sequence is activated, the UE shall be capable of performing CPICH measurements for 8 identified intra-frequency cells of the monitored set and/or the active set, and the UE physical layer shall be capable of reporting measurements to higher layers with the measurement period of 200 ms. When one or more transmission gap pattern sequences are activated, the UE shall be capable of performing CPICH measurements for at least $Y_{\text{measurement intra}}$ cells, where $Y_{\text{measurement intra}}$ is defined in the following equation. The measurement accuracy for all measured cells shall be as specified in the sub-clause 9.1.1 and 9.1.2 of TS 25.133 [2]. If the UE has identified more than $Y_{\text{measurement intra}}$ cells, the UE shall perform measurements of all identified cells but the reporting rate of CPICH measurements of cells from UE physical layer to higher layers may be decreased.

$$Y_{\text{measurement intra}} = \text{Floor} \left\{ X_{\text{basic measurement FDD}} \cdot \frac{T_{\text{Intra}}}{T_{\text{Measurement Period, Intra}}} \right\} \text{ cells}$$

where

$$X_{\text{basic measurement FDD}} = 8 \text{ (cells)}$$

$$T_{\text{Measurement_Period Intra}} = 200 \text{ ms. The measurement period for Intra frequency CPICH measurements.}$$

T_{Intra} : This is the minimum time that is available for intra frequency measurements, during the measurement period with an arbitrarily chosen timing.

$T_{\text{basic_identify_FDD, intra}} = 800$ ms. This is the time period used in the intra frequency equation where the maximum allowed time for the UE to identify a new FDD cell is defined.

The event triggered measurement reporting delay, on cells belonging to monitored set, measured without L3 filtering, shall be less than the above defined $T_{\text{identify intra}}$ defined above.

If a cell, belonging to monitored set, which the UE has identified and measured at least once over the measurement period, becomes undetectable for a period < 5 seconds and then the cell becomes detectable again and triggers an event, the measurement reporting delay shall be less than $T_{\text{Measurement_Period Intra}}$ ms provided the timing to that cell has not

changed more than +/-32 chips, the UE CPICH measurement capabilities defined above are valid and L3 filtering has not been used. When L3 filtering is used an additional delay can be expected.

If a cell belonging to monitored set has been detectable at least for the time period $T_{\text{identify_intra}}$ and then enters or leaves the reporting range, the event triggered measurement reporting delay shall be less than $T_{\text{Measurement_Period Intra}}$ when the L3 filter has not been used and the UE CPICH measurement capabilities defined above are valid.

The normative reference for these requirements is TS 25.133 [2] clauses 8.1.2.2 and A.8.1.1.

8.6.1.1.3 Test purpose

To verify that the UE meets the minimum requirements.

8.6.1.1.4 Method of test

8.6.1.1.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

The test parameters are given in tables 8.6.1.1.1 ~~to and~~ 8.6.1.1.3~~2~~ below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 1A and 1B shall be used. The test consists of three successive time periods, with a time duration of T1, T2 and T3 respectively. During time duration T1, the UE shall not have any timing information of cell 2.

Table 8.6.1.1.1: General test parameters for Event triggered reporting in AWGN propagation conditions

Parameter	Unit	Value	Comment
DCH parameters		DL and UL Reference Measurement Channel 12.2 kbps	As specified in C.3.1 and C.2.1
Power Control		On	
Active cell		Cell 1	
Reporting range	dB	3	Applicable for event 1A and 1B
Hysteresis	dB	0	
W		1	Applicable for event 1A and 1B
Reporting deactivation threshold		0	Applicable for event 1A
Time to Trigger	ms	0	
Filter coefficient		0	
Monitored cell list size		24	
T1	s	5	
T2	s	5	
T3	s	5	

Table 8.6.1.1.2: Cell specific test parameters for Event triggered reporting in AWGN propagation conditions

Parameter	Unit	Cell 1			Cell 2		
		T1	T2	T3	T1	T2	T3
CPICH_Ec/Ior	dB		-10			-10	
PCCPCH_Ec/Ior	dB		-12			-12	
SCH_Ec/Ior	dB		-12			-12	
PICH_Ec/Ior	dB		-15			-15	
DPCH_Ec/Ior	dB		-17			N/A	
OCNS			-1.049			-0.941	
\hat{I}_{or}/I_{oc}	dB	0	6.97	0	-Infinity	5.97	-Infinity
\hat{I}_{or} (Note 1)	<u>dBm</u>	<u>-70</u>	<u>-63.03</u>	<u>-70</u>	<u>-Infinity</u>	<u>-64.03</u>	<u>-Infinity</u>
I_{oc}	dBm/3.84 MHz	-70					
CPICH_Ec/Io	dB	-13	-13	-13	-Infinity	-14	-Infinity
Propagation Condition		AWGN					

Note 1: The nominal Ior values, although not explicitly defined in 25.133 are added here since they are implied and need to be identified so that the test equipment can be configured.

8.6.1.1.4.2 Procedure

1. The RF parameters are set up according to T1 [in table 8.6.1.1.3](#).
2. The UE is switched on.
3. A call is set up according to the test procedure specified in TS 34.108 [3] sub clause 7.3.2.3.
4. SS shall transmit a MEASUREMENT CONTROL message.
5. After 5 seconds from the beginning of T1, the SS shall switch the power settings from T1 to T2 [in table 8.6.1.1.3](#).
6. UE shall transmit a MEASUREMENT REPORT message triggered by event 1A. The measurement reporting delay from the beginning of T2 shall be less than 880 ms. If the UE fails to report the event within the required delay, then a failure is recorded. If the reporting delay for this event is within the required limit, the number of successful tests is increased by one.
7. After 5 seconds from the beginning of T2, the SS shall switch the power settings from T2 to T3 [in table 8.6.1.1.3](#).
8. UE shall transmit a MEASUREMENT REPORT message triggered by event 1B. The measurement reporting delay from the beginning of T3 shall be less than 280 ms. If the reporting delay for this event is within the required limit, the number of successful tests is increased by one.
9. After 5 seconds from the beginning of T3, the UE is switched off. Any timing information of cell 2 is deleted in the UE.
10. Repeat steps 1-9 according to Annex F.6.2 Table 6.2.8.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message:

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements -RRC transaction identifier -Integrity check info	0 Not Present
Measurement Information elements -Measurement Identity -Measurement Command (10.3.7.46) -Measurement Reporting Mode (10.3.7.49) -Measurement Report Transfer Mode -Periodical Reporting / Event Trigger Reporting Mode -Additional measurements list (10.3.7.1)	1 Modify AM RLC Event trigger Not Present
-CHOICE <i>Measurement type</i> -Intra-frequency measurement (10.3.7.36) -Intra-frequency measurement objects list (10.3.7.33) -Intra-frequency measurement quantity (10.3.7.38) -Filter coefficient (10.3.7.9) -CHOICE mode -Measurement quantity -Intra-frequency reporting quantity (10.3.7.41)	Intra-frequency measurement Not Present 0 FDD CPICH_Ec/N0
-Reporting quantities for active set cells (10.3.7.5) -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator	No report TRUE (Note 1) TRUE FDD TRUE TRUE TRUE
-Reporting quantities for monitored set cells (10.3.7.5) -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator	No report TRUE (Note 1) TRUE FDD TRUE TRUE TRUE
-Reporting quantities for detected set cells (10.3.7.5)	Not Present
-Reporting cell status (10.3.7.61) -Measurement validity (10.3.7.51) -CHOICE report criteria -Intra-frequency measurement reporting criteria (10.3.7.39) -Parameters required for each event	Not Present Not Present Intra-frequency measurement reporting criteria 2
-Intra-frequency event identity -Triggering condition 2 -Reporting Range Constant -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W -Hysteresis -Threshold used frequency -Reporting deactivation threshold -Replacement activation threshold -Time to trigger -Amount of reporting -Reporting interval -Reporting cell status	Event 1A Monitored set cells 3 dB Not Present FDD 1.0 0 dB Not Present 0 Not Present 0 ms Not present 0 ms (Note 2) Not Present
-Intra-frequency event identity -Triggering condition 1 -Reporting Range Constant -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W -Hysteresis	Event 1B Active set cells and monitored set cells 3 dB Not Present FDD 1.0 0 dB

Information Element/Group name	Value/Remark
-Threshold used frequency	Not Present
-Reporting deactivation threshold	Not Present
-Replacement activation threshold	Not Present
-Time to trigger	0 ms
-Amount of reporting	Not Present
-Reporting interval	0 ms (note 2)
-Reporting cell status	Not Present
Physical channel information elements	
-DPCH compressed mode status info (10.3.6.34)	Not Present
Note 1: The SFN-CFN observed time difference is calculated from the OFF and Tm parameters contained in the IE "Cell synchronisation information", TS 25.331, clause 10.3.7.6. According to TS 25.331, 8.6.7.7, this IE is included in MEASUREMENT REPORT if IE "Cell synchronisation information reporting indicator" in IE "Cell reporting quantities" TS 25.331, clause 10.3.7.5 is set to TRUE in MEASUREMENT CONTROL.	
Note 2: Reporting interval = 0 ms means no periodical reporting	

MEASUREMENT REPORT message for Intra frequency test cases

This message is common for all intra frequency test cases is described in Annex I.

8.6.1.1.5 Test requirements

For the test to pass, the total number of successful tests shall be at least 90%, of the cases with a confidence level of $\geq 95\%$. The number of successful tests shall be on an event level, i.e. the SS shall check how many events are reported successfully out of the total number of events checked.

Table 8.6.1.1.3: Test requirements for Event triggered reporting in AWGN propagation conditions

Parameter	Unit	Cell 1			Cell 2		
		T1	T2	T3	T1	T2	T3
CPICH Ec/lor	dB		-9.3			-9.3	
PCCPCH Ec/lor	dB		-11.3			-11.3	
SCH Ec/lor	dB		-11.3			-11.3	
PICH Ec/lor	dB		-14.3			-14.3	
DPCH Ec/lor	dB		-16.3			N/A	
OCNS			-1.26			-1.13	
I_{or}/I_{oc} (Note 1)	dB	0	7.0	0	-Infinity	6.0	-Infinity
I_{or}	dBm	-70	-63.0	-70	-Infinity	-64.0	-Infinity
I_{oc}	dBm/3.84 MHz	-70					
CPICH Ec/lo (Note 1)	dB	-12.3	-12.3	-12.3	-Infinity	-13.3	-Infinity
Propagation Condition		AWGN					
Note 1: These parameters are not directly settable, but are derived by calculation from the settable parameters..							

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

Annex F (normative): General test conditions and declarations

The requirements of this clause apply to all applicable tests in the present document.

Many of the tests in the present document measure a parameter relative to a value that is not fully specified in the UE specifications. For these tests, the Minimum Requirement is determined relative to a nominal value specified by the manufacturer.

When specified in a test, the manufacturer shall declare the nominal value of a parameter, or whether an option is supported.

In all the relevant clauses in this clause all Bit Error Ratio (BER), Block Error Ratio (BLER), False transmit format Detection Ratio (FDR) measurements shall be carried out according to the general rules for statistical testing in clause F.6.

F.1 Acceptable uncertainty of Test System

The maximum acceptable uncertainty of the Test System is specified below for each test, where appropriate. The Test System shall enable the stimulus signals in the test case to be adjusted to within the specified range, and the equipment under test to be measured with an uncertainty not exceeding the specified values. All ranges and uncertainties are absolute values, and are valid for a confidence level of 95 %, unless otherwise stated.

A confidence level of 95 % is the measurement uncertainty tolerance interval for a specific measurement that contains 95 % of the performance of a population of test equipment.

For RF tests it should be noted that the uncertainties in clause F.1 apply to the Test System operating into a nominal 50 ohm load and do not include system effects due to mismatch between the DUT and the Test System.

F.1.5 Requirements for support of RRM

Table F.1.5: Maximum Test System Uncertainty for Radio Resource Management Tests

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
8.6 UE Measurements Procedures		
8.6.1 FDD intra frequency measurements		
8.6.1.1 Event triggered reporting in AWGN propagation conditions	<p><u>During T1/T3 and T2:</u></p> $\frac{CPICH - E_c}{I_{or}} \pm 0.1 \text{ dB}$ $I_{or} (1) \pm 0.7 \text{ dB}$ $I_{oc} \pm 1.0 \text{ dB}$ <p><u>During T1/T3 only:</u> <u>Already covered above</u></p> <p><u>During T2 only:</u> <u>$I_{or} (2)$ relative to $I_{or} (1) \pm 0.3 \text{ dB}$ TBD</u></p> <p><u>Assumptions:</u></p> <p>a) <u>The contributing uncertainties for $I_{or}(n)$, channel power ratio, and I_{oc} are derived according to ETR 273-1-2 [16], with a coverage factor of $k=2$.</u></p> <p>b) <u>Within each cell, the uncertainty for $I_{or}(n)$, and channel power ratio are uncorrelated to each other.</u></p> <p>c) <u>Across different cells, the channel power ratio uncertainties may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).</u></p> <p>d) <u>The uncertainty for I_{oc} and $I_{or}(n)$ may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).</u></p> <p>e) <u>The absolute uncertainty of $I_{or}(1)$ and the relative uncertainty of $I_{or}(2)$, are uncorrelated to each other.</u></p> <p><u>An explanation of correlation between uncertainties, and of the rationale behind the assumptions, is recorded in 3GPP TR 34 902 [24].</u></p>	

F.2 Test Tolerances (This clause is informative)

The Test Tolerances defined in this clause have been used to relax the Minimum Requirements in the present document to derive the Test Requirements.

The Test Tolerances are derived from Test System uncertainties, regulatory requirements and criticality to system performance. As a result, the Test Tolerances may sometimes be set to zero.

The test tolerances should not be modified for any reason e.g. to take account of commonly known test system errors (such as mismatch, cable loss, etc.).

F.2.4 Requirements for support of RRM

Table F.2.4: Test Tolerances for Radio Resource Management Tests

Clause	Test Tolerance
8.6 UE Measurements Procedures	
8.6.1 FDD intra frequency measurements	
8.6.1.1 Event triggered reporting in AWGN propagation conditions	<p>TBD During T1/T3 and T2: +0.70 dB for all Cell 1 Ec/Ior ratios</p> <p>During T1/T3 only: Already covered above</p> <p>During T2 only: +0.70 dB for all Cell 2 Ec/Ior ratios</p>

F.4 Derivation of Test Requirements (This clause is informative)

The Test Requirements in the present document have been calculated by relaxing the Minimum Requirements of the core specification using the Test Tolerances defined in clause F.2. When the Test Tolerance is zero, the Test Requirement will be the same as the Minimum Requirement. When the Test Tolerance is non-zero, the Test Requirements will differ from the Minimum Requirements, and the formula used for this relaxation is given in table F.4.

Table F.4.4: Derivation of Test Requirements (RRM tests)

Test	Test Parameters in TS 25.133	Test Tolerance (TT)	Test Requirement in TS 34.121
8.6 UE Measurements Procedures	TBD		
8.6.1 FDD intra frequency measurements	TBD		
8.6.1.1 Event triggered reporting in AWGN propagation conditions	TBD Because the relationships between the Test system uncertainties and the Test Tolerances are complex, it is not possible to give a simple derivation of the Test Requirement in this document. The analysis is recorded in 3GPP TR 34 902 [24].		
	During T1 / T2 / T3: Cell 1: CPICH Ec/Ior = -10 dB PCCPCH Ec/Ior = -12 dB SCH Ec/Ior = -12 dB PICH Ec/Ior = -15 dB	During T1 / T2 / T3: +0.70 dB +0.70 dB +0.70 dB +0.70 dB	During T1 / T2 / T3: Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT
	During T1/T3 only : Already covered above	During T1/T3 only: Covered above	During T1/T3 only: Already covered above
	During T2 only: Cell 2: CPICH Ec/Ior = -10 dB PCCPCH Ec/Ior = -12 dB SCH Ec/Ior = -12 dB PICH Ec/Ior = -15 dB	During T2 only: +0.70 dB +0.70 dB +0.70 dB +0.70 dB	During T2 only: Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT Ec/Ior ratio + TT

CHANGE REQUEST

⌘ **34.121 CR 361** ⌘ rev **-** ⌘ Current version: **5.3.1** ⌘

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 to default messages in Annex I of 34.121		
Source:	⌘ Ericsson		
Work item code:	⌘ TEI	Date:	⌘ 2004-04-29
Category:	⌘ F	Release:	⌘ REL-5
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	F (correction)		2 (GSM Phase 2)
	A (corresponds to a correction in an earlier release)		R96 (Release 1996)
	B (addition of feature),		R97 (Release 1997)
	C (functional modification of feature)		R98 (Release 1998)
	D (editorial modification)		R99 (Release 1999)
	Detailed explanations of the above categories can be found in 3GPP TR 21.900 .		Rel-4 (Release 4)
			Rel-5 (Release 5)
			Rel-6 (Release 6)

Reason for change:	⌘ Correction to default message for MEASUREMENT REPORT message needed.		
Summary of change:	⌘ General changes: <ol style="list-style-type: none"> 1. Changed remark for IEs representing measurement parameters from "Checked that this IE is present" to "If reporting of <parameter> measurement is configured then check that this IE is present". Changes to content of "MEASUREMENT REPORT message for intra-frequency and inter-frequency test cases": <ol style="list-style-type: none"> 1. Removed IE "SFN-SFN observed time difference" as RAN2 removed this IE as reporting quantity for Intra and Inter frequency measurements [CR 1573r1 in RP-0200558 from RAN#17] Changes to content of "MEASUREMENT REPORT message for inter – RAT test cases": <ol style="list-style-type: none"> 2. Removed pathloss IE 3. Added "Choice BSIC" IEs 		
Consequences if not approved:	⌘ Messages not aligned to core specification. Test cases will fail compliant UE.		

Clauses affected:	⌘ Annex I						
Other specs Affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="text-align: center;">Y</td> <td style="text-align: center;">N</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </table> Other core specifications	Y	N	<input type="checkbox"/>	<input checked="" type="checkbox"/>	⌘	
Y	N						
<input type="checkbox"/>	<input checked="" type="checkbox"/>						
	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> </table> Test specifications	<input checked="" type="checkbox"/>	<input type="checkbox"/>	⌘			
<input checked="" type="checkbox"/>	<input type="checkbox"/>						

O&M Specifications

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

How to create CRs using this form:

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

- 1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under <ftp://ftp.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

Annex I (normative): Default Message Contents

This Annex contains the default values of common messages, other than those described in TS 34.108. The messages are primarily concerning the RRM test cases in clause 8 and unless indicated otherwise in specific test cases, shall be transmitted and checked by the system simulator. The necessary messages are listed in alphabetical order.

In this Annex, decimal values are normally used. However, sometimes, a hexadecimal value, indicated by an "H", or a binary value, indicated by a "B" is used.

Contents of MEASUREMENT REPORT message for Intra frequency test cases

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	Not present
SFN-SFN observed time difference	Checked that this IE is present
- Cell synchronisation information	
- Tm	Checked that this IE is present
- OFF	Checked that this IE is present
- CHOICE mode	FDD
- Primary CPICH info	Checked that this IE is present
- Primary scrambling code	150
- CPICH Ec/N0	If reporting of "CPICH Ec/N0" measurement is configured then check Checked that this IE is present
- CPICH RSCP	If reporting of "CPICH RSCP" measurement is configured then check Checked that this IE is present
- Pathloss	If reporting of "Pathloss" measurement is configured then check Checked that this IE is present
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

Contents of MEASUREMENT REPORT message for Inter frequency test cases

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	
- Inter-frequency measured results list	
- UTRA Carrier RSSI	If reporting of "UTRA Carrier RSSI" measurement is configured then check Checked that this IE is present
- Inter-frequency cell measurement results	
- Cell measured results	
- Cell Identity	Not present
SFN-SFN observed time difference	Checked that this IE is present
- Cell synchronisation information	
- Tm	Checked that this IE is present
- OFF	Checked that this IE is present
- CHOICE mode	FDD
- Primary CPICH info	Checked that this IE is present
- Primary scrambling code	150
- CPICH Ec/N0	If reporting of "CPICH Ec/N0" measurement is configured then check Checked that this IE is present
- CPICH RSCP	If reporting of "CPICH RSCP" measurement is configured then check Checked that this IE is present
- Pathloss	If reporting of "Pathloss" measurement is configured then check Checked that this IE is present
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

Contents of MEASUREMENT REPORT message for inter – RAT test cases

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	
- Inter-RAT measured results list	
- CHOICE system	GSM
<u>- GSM</u>	Checked that this IE is present
- Measured GSM cells	<u>If reporting of "GSM carrier RSSI" measurement is configured then check</u>
- GSM carrier RSSI	Checked that this IE is present
<u>- CHOICE BSIC</u>	<u>Non verified BSIC</u> Checked that this IE is present
<u>- Non verified BSIC</u>	
<u>- BCCH ARFCN</u>	Checked that this IE is present
- Observed time difference to GSM cell	<u>If reporting of "Observed time difference to GSM cell" measurement configured then check</u> Checked that this IE is present
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

CR-Form-v7

CHANGE REQUEST

⌘ **34.121 CR 366** ⌘ rev **-** ⌘ Current version: **5.3.1** ⌘

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:	⌘ Inter system handover		
Source:	⌘ Rohde & Schwarz		
Work item code:	⌘	Date:	⌘ 06/05/2004
Category:	⌘ F	Release:	⌘ Rel-5
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	F (correction)	2 (GSM Phase 2)	
	A (corresponds to a correction in an earlier release)	R96 (Release 1996)	
	B (addition of feature),	R97 (Release 1997)	
	C (functional modification of feature)	R98 (Release 1998)	
	D (editorial modification)	R99 (Release 1999)	
	Detailed explanations of the above categories can be found in 3GPP TR 21.900 .		Rel-4 (Release 4)
			Rel-5 (Release 5)
			Rel-6 (Release 6)

Reason for change:	⌘ RAN 4 clarified the minimum requirements in 25.133
Summary of change:	⌘ The testcase is clarified according to RAN4's instructions
Consequences if not approved:	⌘ The test is unclear

Clauses affected:	⌘ 8.3.4								
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="padding: 2px;">Y</td> <td style="padding: 2px;">N</td> </tr> <tr> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> </tr> <tr> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> </tr> </table>	Y	N					Other core specifications	⌘
	Y	N							
Test specifications									
O&M Specifications									
Other comments:	⌘ RAN4 source: R4-040156								

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Below is a brief summary:

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

8.3.4 Inter-system Handover from UTRAN FDD to GSM

8.3.4.1 Definition and applicability

The UTRAN to GSM cell handover delay is defined as the time from the end of the last TTI containing an RRC message implying hard handover to the transmission on the channel of the new RAT.

The requirements and this test apply to the combined FDD and GSM UE.

8.3.4.2 Minimum requirement

The hard handover delay shall be less than [indicated in Table 8.3.4.1](#) ~~40 ms~~. The rate of correct handovers observed during repeated tests shall be at least 90% with a confidence level of 95 %.

The hard handover delay as listed in table 8.3.4.1 equals the RRC procedure delay plus the interruption time listed in table 8.3.4.2. ~~The UE shall process the RRC procedures for the RRC HANDOVER FROM UTRAN COMMAND within 50 ms.~~

Table 8.3.4.1: FDD/GSM handover - handover delay

UE synchronisation status	handover delay [ms]
The UE has synchronised to the GSM cell before the HANDOVER FROM UTRAN COMMAND is received	90
The UE has not synchronised to the GSM cell before the HANDOVER FROM UTRAN COMMAND is received	190

Table 8.3.4.2: FDD/GSM handover - interruption time

Synchronisation status	Interruption time [ms]
The UE has synchronised to the GSM cell before the HANDOVER FROM UTRAN COMMAND is received	40
The UE has not synchronised to the GSM cell before the HANDOVER FROM UTRAN COMMAND is received	140

The normative reference for this requirement is TS 25.133 [2] clauses 5.4.2 and A.5.4.

8.3.4.3 Test purpose

To verify that the UE meets the minimum requirement.

8.3.4.4 Method of test

8.3.4.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

[Editor's Note: Annex G.2 must be specified also for GSM; for instance as a reference to TS 51.010-1 clause A1.2]

The test parameters are given in table 8.3.4.3, 8.3.4.4 and 8.3.4.5 below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 3C shall be used.. The test consists of three successive time periods, with a time duration of T1, T2 and T3 respectively. At the start of time duration T1, the UE may not have any timing information of cell 2.

The UTRAN shall send a HANOVER FROM UTRAN COMMAND ~~in advance to T3~~ with activation time "now". In the GSM Handover command contained in that message, the IE starting time shall not be included. The RRC HANOVER FROM UTRAN COMMAND message shall be sent to the UE, ~~so that the whole message is available at the UE the RRC procedure delay prior to the beginning of T3. The RRC procedure delay is defined in TS 25.331 [8].~~ The start of T3 is defined as the end of the last TTI containing the HO command.

The requirements are also applicable for a UE not requiring compressed mode, in which case no compressed mode pattern should be sent for the parameters specified in table 8.3.4.3.

Table 8.3.4.3: General test parameters for Correct reporting of GSM neighbours in AWGN propagation condition

Parameter	Unit	Value	Comment
DCH parameters		DL Reference Measurement Channel 12.2 kbps	As specified in TS 34.121 clause C.3.1
Power Control		On	
Target quality value on DTCH	BLER	0.01	
Compressed mode patterns			Only applicable for UE requiring compressed mode patterns
- GSM carrier RSSI measurement		DL Compressed mode reference pattern 2 in Set 2	As specified in TS 34.121 [1] clause C.5, table C.5.2
- GSM Initial BSIC identification		Pattern 2	As specified in clause TS 25.133 [2] 8.1.2.5.2.1 table 8.7.
- GSM BSIC re-confirmation		Pattern 2	As specified in clause TS 25.133 [2] 8.1.2.5.2.2 table 8.8.
Active cell		Cell 1	
Inter-RAT measurement quantity		GSM Carrier RSSI	
BSIC verification required		Required	
Threshold other system	dBm	-80	Absolute GSM carrier RSSI threshold for event 3B and 3C.
Hysteresis	dB	0	
Time to Trigger	ms	0	
Filter coefficient		0	
Monitored cell list size		24 FDD neighbours on Channel 1 6 GSM neighbours including ARFCN 1	Measurement control information is sent before the compressed mode patterns starts.
N Identify abort		66	Taken from TS 25.133 [2] 8.1.2.5.2.1 table 8.7.
T Reconfirm abort		5.5	Taken from TS 25.133 [2] 8.1.2.5.2.2 table 8.8.
T1	s	20	
T2	s	5	
T3	s	5	

Table 8.3.4.4: Cell Specific Parameters for Handover UTRAN to GSM cell case (cell 1)

Parameter	Unit	Cell 1 (UTRA)
		T1, T2, T3
CPICH_Ec/lor	dB	-10
PCCPCH_Ec/lor	dB	-12
SCH_Ec/lor	dB	-12
PICH_Ec/lor	dB	-15
DCH_Ec/lor	dB	Note 1
OCNS_Ec/lor	dB	Note 2
\hat{I}_{or}/I_{oc}	dB	0
I_{oc}	dBm/3. 84 MHz	-70
CPICH_Ec/lo	dB	-13
Propagation Condition		AWGN
Note 1: The DPCH level is controlled by the power control loop		
Note 2: The power of the OCNS channel that is added shall make the total power from the cell to be equal to I_{or} .		

Table 8.3.4.5: Cell Specific Parameters for Handover UTRAN to GSM cell case (cell 2)

Parameter	Unit	Cell 2 (GSM)	
		T1	T2, T3
Absolute RF Channel Number		ARFCN 1	
RXLEV	dBm	-85	-75

8.3.4.4.2 Procedure

- 1) The RF parameters for cell 1 are set up according to T1.
 - 2) The UE is switched on
 - 3) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.4 and compressed mode parameters are configured as in the table 8.3.4.3. The compressed mode shall remain inactive.
 - 4) The RF parameters for cell 2 are set up according to T1 and the SS configures a traffic channel
 - 5) The start of T1 is TTI aligned
 - 6) The SS shall transmit a MEASUREMENT CONTROL message to cell 1
 - 7) ~~After 20 seconds~~ At the T1-T2 transition, the SS shall switch the power of cell 2 settings from T1 to T2
 - 8) The UE shall transmit a MEASUREMENT REPORT message triggered by event 3C
 - 9) The SS shall transmit a HANDOVER FROM UTRAN COMMAND message with activation time "now" and indicating the traffic channel of the target GSM cell to the UE through DCCH of the serving UTRAN cell. The start of T3 is defined as the end of the last TTI, containing the HO command.
 - 10) ~~After 5 seconds, the time period T3 starts~~
 - 10) UE shall transmit a burst on the traffic channel of cell 2 implying that it has switched to the GSM cell. The UE sends a HANDOVER ACCESS message. If the UE transmits access bursts on the new DCCH of the target cell less than ~~90~~40 ms from the beginning of time period T3, then the number of successful tests is increased by one.
- [Editor's note: TS 34.108, 7.3.4 shall specify the messages HANDOVER ACCESS, PHYSICAL INFORMATION, SABM, UA and HANDOVER COMPLETE]
- 11) ~~After 5 seconds, the~~ At the end of T3 the UE is switched off. Any timing information of cell 2 is deleted in the UE.

12) Repeat step 1-11 until the confidence level according to annex F.6.2 is achieved.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message (step 5):

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements -RRC transaction identifier -Integrity check info	0 Not Present
Measurement Information elements -Measurement Identity -Measurement Command (10.3.7.46) -Measurement Reporting Mode (10.3.7.49) -Measurement Report Transfer Mode -Periodical Reporting / Event Trigger Reporting Mode -Additional measurements list (10.3.7.1)	2 Setup AM RLC Event trigger Not Present
-CHOICE <i>Measurement type</i> -Inter-RAT measurement (10.3.7.27) -Inter-RAT measurement objects list (10.3.7.23) -Inter-RAT measurement quantity (10.3.7.29) -Measurement quantity for UTRAN quality estimate (10.3.7.38) -Filter coefficient -CHOICE mode -Measurement quantity -CHOICE system -Measurement quantity -Filter coefficient -BSIC verification required -Inter-RAT reporting quantity (10.3.7.32) -Reporting cell status (10.3.7.61) -CHOICE reported cell -Maximum number of reported cells -CHOICE report criteria -Inter-RAT measurement reporting criteria (10.3.7.30) -Parameters required for each event -Inter-RAT event identity (10.3.7.24) -Threshold own system -W -Threshold other system -Hysteresis -Time to trigger -Reporting cell status (10.3.7.61) -CHOICE reported cell -Maximum number of reported cells	Inter-RAT measurement Not Present 0 FDD CPICH Ec/NO GSM GSM Carrier RSSI 0 Required Report cells within active set or within virtual active set or of the other RAT 2 Inter-RAT measurement reporting criteria 1 Event 3C Not Present Not Present -80 dBm 0 dB 0 ms Report cells within active set or within virtual active set or of the other RAT 2
Physical channel information elements -DPCH compressed mode status info (10.3.6.34)	Active (for all three patterns specified in table 8.3.4.3)

HANDOVER FROM UTRAN COMMAND message (step 8):

Information Element	Value/remark
Message Type	
UE information elements -RRC transaction identifier -Integrity check info -Activation time	0 Not Present "now"
RB information elements -RAB information list -RAB Info	1 Not present
Other information elements -CHOICE System type -Frequency Band -GSM message -Single GSM message -GSM message List	GSM GSM/DCS 1800 Band [TBD] 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 TS 51.010, except that the CHANNEL MODE IE is included with value = speech full rate or half rate version 3

MEASUREMENT REPORT message for Inter-RAT test cases

This message is common for all inter RAT_ frequency test cases in clause 8.7 and is described in Annex I.

8.3.4.5 Test requirements

For the test to pass, the total number of successful tests shall be more than 90% of the cases with a confidence level of 95 %.

Note: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

CHANGE REQUEST

34.121 CR 368 # rev **-** # Current version: **5.3.1**

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:	# Addition of details for RRM test case for GSM carrier RSSI		
Source:	# Ericsson		
Work item code:	# TEI	Date:	# 2004-04-29
Category:	# F	Release:	# REL-5
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	F (correction)	2	(GSM Phase 2)
	A (corresponds to a correction in an earlier release)	R96	(Release 1996)
	B (addition of feature),	R97	(Release 1997)
	C (functional modification of feature)	R98	(Release 1998)
	D (editorial modification)	R99	(Release 1999)
	Detailed explanations of the above categories can be found in 3GPP TR 21.900 .	Rel-4	(Release 4)
		Rel-5	(Release 5)
		Rel-6	(Release 6)

Reason for change:	# No details exist for RRM test case 8.7.3A		
Summary of change:	# Addition of details for RRM test case 8.3.7A (GSM carrier RSSI). The test method to verify the accuracy of the GSM signal has been inherited from test case 21.1 in TS 51.010-1.		
Consequences if not approved:	# No RRM test coverage for GSM carrier RSSI measurements.		

Clauses affected:	# 2, 8.3.7A										
Other specs Affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;">#</td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;">#</td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;">#</td> <td style="text-align: center;">X</td> </tr> </table>	Y	N	#	X	#	X	#	X	Other core specifications	#
Y	N										
#	X										
#	X										
#	X										
		Test specifications	#								
		O&M Specifications	#								
Other comments:	# Affects REL-5, REL-4 and R99.										

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

<Start of first modified section>

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
 - For a specific reference, subsequent revisions do not apply.
 - For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document.
- For a Release 1999 UE, references to 3GPP documents are to version 3.x.y.
- For a Release 4 UE, references to 3GPP documents are to version 4.x.y.
- For a Release 5 UE, references to 3GPP documents are to version 5.x.y.
- [1] 3GPP TS 25.101 "UE Radio transmission and reception (FDD)".
- [2] 3GPP TS 25.133 "Requirements for Support of Radio Resource Management (FDD)".
- [3] 3GPP TS 34.108 "Common Test Environments for User Equipment (UE) Conformance Testing".
- [4] 3GPP TS 34.109 "Terminal logical test interface; Special conformance testing functions".
- [5] 3GPP TS 25.214 "Physical layer procedures (FDD)".
- [6] 3GPP TR 21.905 "Vocabulary for 3GPP Specifications".
- [7] 3GPP TR 25.990 "Vocabulary".
- [8] 3GPP TS 25.331: "Radio Resource Control (RRC); Protocol Specification".
- [9] 3GPP TS 25.433 "UTRAN Iub Interface NBAP Signalling".
- [10] ITU-R Recommendation SM.329: "Spurious emissions".
- [11] 3GPP TS 25.304: "UE Procedures in Idle Mode and Procedures for Cell Reselection in Connected Mode".
- [12] 3GPP TS 25.303: "Interlayer Procedures in Connected Mode".
- [13] 3GPP TS 25.321: "Medium Access Control (MAC) protocol specification".
- [14] 3GPP TS 25.213: "Spreading and modulation (FDD)".
- [15] 3GPP TS 25.223: "Spreading and modulation (TDD)".
- [16] ETSI ETR 273-1-2: "Improvement of radiated methods of measurement (using test sites) and evaluation of the corresponding measurement uncertainties; Part 1: Uncertainties in the measurement of mobile radio equipment characteristics; Sub-part 2: Examples and annexes".
- [17] 3GPP TR 25.926: "UE Radio Access Capabilities".
- [18] 3GPP TR 21.904: "UE capability requirements".
- [19] 3GPP TS 25.211: "Physical channels and mapping of transport channels onto physical channels (FDD)".
- [20] 3GPP TS 05.08: "Digital cellular telecommunications system (~~Phase 2+~~); Radio subsystem link control".

- [21] 3GPP TS 34.123-1: "User Equipment (UE) Conformance Specification; Part 1: Protocol Conformance Specification".
- [22] 3GPP TS 25.215: "Physical Layer – Measurements (FDD)".
- [23] 3GPP TS 25.101 "UE Radio transmission and reception (FDD), Release 5".
- [24] 3GPP TR 34.902 " Derivation of test tolerances for multi-cell Radio Resource Management (RRM) conformance tests ".
- [25] [3GPP TS 51.010-1: "Mobile Station \(MS\) conformance specification; Part 1: Conformance specification "](#).

<End of modified section>

<Start of next modified section>

8.7.3A GSM Carrier RSSI

~~Void.~~

8.7.3A.1 Definition and applicability

The GSM carrier RSSI measurement is used for handover between UTRAN and GSM.

The requirements and this test apply to the combined FDD and GSM UE.

8.7.3A.2 Minimum Requirements

The UE shall meet the measurement accuracy requirements stated for RXLEV below, when the given measurement time allows the UE to take at least 3 GSM carrier RSSI samples per GSM carrier in the monitored set during the measurement period.

The R.M.S received signal level at the receiver input shall be measured by the UE and the BSS over the full range of -110 dBm to -48 dBm with an absolute accuracy of ± 4 dB from -110 dBm to -70 dBm under normal conditions and ± 6 dB over the full range under both normal and extreme conditions. The R.M.S received signal level at the receiver input shall be measured by the UE above -48 dBm up to -38 dBm with an absolute accuracy of ± 9 dB under both normal and extreme conditions.

If the received signal level falls below the reference sensitivity level for the type of UE or BSS, then the measured level shall be within the range allowing for the absolute accuracy specified above. In case the upper limit of this range is below the reference sensitivity level for the type of UE or BSS, then the upper limit shall be considered as equal to the reference sensitivity level.

The reporting range and mapping specified for RXLEV in TS 05.08 shall apply.

The normative reference for this requirement is TS 25.133 [2] clause 8.1.2.5 and 9.1.4 and TS 05.08 [20] clause 8.1.2.

8.7.3A.3 Test purpose

The purpose of this test is to verify that the GSM Carrier RSSI measurement accuracy in CELL_DCH state, for UE that needs compressed mode to perform GSM measurements, is within the specified limits. This measurement is for UTRAN to GSM handover evaluation.

8.7.3A.4 Method of test

8.7.3A.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

In the test in Cell_DCH state compressed mode with purpose "GSM Carrier RSSI Measurement" is applied to measure on GSM. The gap length is 7, detailed definition is in clause C.5, Set 2 of table C.5.2 except for TGPRC and TGCFN. TGPRC and TGCFN shall set to "Infinity" and "(Current CFN + (256 - TTI/10msec))mod 256". Table 8.7.3A.1 defines the limits of signal strengths and code powers on the UMTS FDD cell, where the requirement is applicable. In the measurement control information it is indicated to the UE that periodic reporting of the GSM RSSI measurement.

Table 8.7.3A.1: General GSM Carrier RSSI test parameters

<u>Parameter</u>	<u>Unit</u>	<u>Value</u>	<u>Comment</u>
<u>DCH parameters</u>		<u>DL Reference Measurement Channel</u> <u>12.2 kbps</u>	<u>As specified in section C.3.1</u>
<u>Power Control</u>		<u>On</u>	
<u>Target quality value on DTCH</u>	<u>BLER</u>	<u>0.01</u>	
<u>Compressed mode patterns - GSM carrier RSSI measurement</u>		<u>Compressed mode reference pattern 2 Set 2</u>	<u>As specified in table C.5.2 section C.5</u>
<u>Inter-RAT measurement quantity</u>		<u>GSM Carrier RSSI</u>	
<u>BSIC verification required</u>		<u>Not required</u>	
<u>Monitored cell list size</u>		<u>6 GSM neighbours including ARFCN 1</u>	<u>Measurement control information is sent before the compressed mode patterns starts.</u>

Table 8.7.3A.2: Cell specific GSM Carrier RSSI test parameters

<u>Parameter</u>	<u>Unit</u>	<u>Cell 1</u>
<u>UTRA RF Channel number</u>	<u>-</u>	<u>Channel 1</u>
<u>Ior/loc</u>	<u>DB</u>	<u>-1</u>
<u>loc</u>	<u>dBm/ 3.84 MHz</u>	<u>-70</u>
<u>Propagation condition</u>	<u>-</u>	<u>AWGN</u>

- 1) The SS is set to produce the BCCHs of 6 surrounding cells at 28 dBμVemf(). The fading profile for the BCCHs of the serving and surrounding cells will be set to static, see 51.010-1 [25]. The limits of the GSM test parameters are defined in TS 05.08 [20].
- 2) After 30 seconds a call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2.3. The RF parameters for Cell 1 is set up according to table 8.7.3A.1 and 8.7.3A.2.

8.7.3A.4.2 Procedure

- 1) SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message.
- 2) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.
- 3) SS shall transmit MEASUREMENT CONTROL message.
- 4) UE shall transmit periodically MEASUREMENT REPORT messages.
- 5) SS shall check GSM carrier RSSI value of the GSM cells in MEASUREMENT REPORT messages. The measurement is done in 105 steps. The initial signal levels of the BCCHs of the surrounding cells are adjusted according to table 8.3.7A.3. At each step the SS keeps the signal levels stable for one reporting period, except at steps $21 + m \times 21$ where the level is held stable for 1.75 reporting periods. The GSM CARRIER RSSI value for the period in which the change occurs (reported in the following period) is discarded. The SS records the GSM CARRIER RSSI values reported for the surrounding cell BCCHs in steps $1 + m \times 21$ and $21 + m \times 21$. The GSM CARRIER RSSI values for BCCH 1 are recorded by the SS for all 105 steps.

NOTE: This extension at steps $21 + m \times 21$ is to allow an extra quarter reporting period for the UE to stabilize for steps $1 + m \times 21$.

Table 8.3.7A.3: Signal levels at receiver input in dB μ Vemf()

	<u>ARFCN</u>	<u>BCCH1</u>	<u>BCCH2</u>	<u>BCCH3</u>	<u>BCCH4</u>	<u>BCCH5</u>	<u>BCCH6</u>
<u>Step</u>	<u>GSM 450</u>	<u>276</u>	<u>293</u>	<u>264</u>	<u>269</u>	<u>281</u>	<u>288</u>
	<u>GSM 480</u>	<u>323</u>	<u>340</u>	<u>311</u>	<u>316</u>	<u>328</u>	<u>335</u>
	<u>GSM 900:</u>	<u>62</u>	<u>124</u>	<u>20</u>	<u>40</u>	<u>80</u>	<u>100</u>
	<u>DCS 1 800</u>	<u>700</u>	<u>885</u>	<u>585</u>	<u>660</u>	<u>790</u>	<u>835</u>
	<u>PCS 1 900</u>	<u>700</u>	<u>805</u>	<u>585</u>	<u>660</u>	<u>790</u>	<u>550</u>
	<u>450/900</u>	<u>124</u>	<u>276</u>	<u>293</u>	<u>269</u>	<u>288</u>	<u>1</u>
	<u>480/900</u>	<u>124</u>	<u>323</u>	<u>340</u>	<u>316</u>	<u>335</u>	<u>1</u>
	<u>450/1 800</u>	<u>885</u>	<u>276</u>	<u>293</u>	<u>269</u>	<u>288</u>	<u>512</u>
	<u>480/1 800</u>	<u>885</u>	<u>323</u>	<u>340</u>	<u>316</u>	<u>335</u>	<u>512</u>
	<u>900/1 800</u>	<u>885</u>	<u>62</u>	<u>124</u>	<u>40</u>	<u>100</u>	<u>512</u>
	<u>450/900/1 800</u>	<u>124</u>	<u>276</u>	<u>885</u>	<u>293</u>	<u>1</u>	<u>512</u>
	<u>480/900/1 800</u>	<u>124</u>	<u>323</u>	<u>885</u>	<u>340</u>	<u>1</u>	<u>512</u>
	<u>GSM 850</u>	<u>189</u>	<u>251</u>	<u>150</u>	<u>170</u>	<u>210</u>	<u>230</u>
	<u>GSM 750</u>	<u>475</u>	<u>511</u>	<u>440</u>	<u>455</u>	<u>485</u>	<u>500</u>
	<u>750/850</u>	<u>251</u>	<u>475</u>	<u>511</u>	<u>455</u>	<u>485</u>	<u>128</u>
<u>1 + m × 21</u>		<u>64,5 - m × 10</u>	<u>64,5 - m × 10</u>	<u>64,5 - m × 10</u>	<u>64,5 - m × 10</u>	<u>64,5 - m × 10</u>	<u>64,5 - m × 10</u>
<u>2 + m × 21</u>		<u>63,5 - m × 10</u>	<u>54,5 - m × 10</u>	<u>54,5 - m × 10</u>	<u>54,5 - m × 10</u>	<u>54,5 - m × 10</u>	<u>54,5 - m × 10</u>
<u>3 + m × 21</u>		<u>62,5 - m × 10</u>	<u>44,5 - m × 10</u>	<u>44,5 - m × 10</u>	<u>44,5 - m × 10</u>	<u>44,5 - m × 10</u>	<u>44,5 - m × 10</u>
<u>⋮</u>		<u>⋮</u>	<u>⋮</u>	<u>⋮</u>	<u>⋮</u>	<u>44,5 - m × 10</u>	<u>44,5 - m × 10</u>
<u>17 + m × 21</u>		<u>⋮</u>	<u>⋮</u>	<u>⋮</u>	<u>⋮</u>	<u>44,5 - m × 10</u>	<u>44,5 - m × 10</u>
<u>18 + m × 21</u>		<u>⋮</u>	<u>⋮</u>	<u>⋮</u>	<u>⋮</u>	<u>44,5 - m × 10</u>	<u>44,5 - m × 10</u>
<u>⋮</u>		<u>⋮</u>	<u>⋮</u>	<u>⋮</u>	<u>⋮</u>	<u>44,5 - m × 10</u>	<u>44,5 - m × 10</u>
<u>21 + m × 21</u>		<u>44,5 - m × 10</u>	<u>44,5 - m × 10</u>	<u>44,5 - m × 10</u>	<u>44,5 - m × 10</u>	<u>44,5 - m × 10</u>	<u>44,5 - m × 10</u>

m = 0, 1, 2, 3, 4.

Specific Message Contents

All messages indicated above shall use the same content as described in default message content in clause 9 of 34.108 [3], with the following exceptions:

PHYSICAL CHANNEL RECONFIGURATION message for Inter frequency measurement (step 1):

<u>Information Element</u>	<u>Value/Remark</u>
<u>Message Type</u>	
<u>UE Information Elements</u>	
-RRC transaction identifier	0
-Integrity check info	Not Present
-Integrity protection mode info	Not Present
-Ciphering mode info	Not Present
-Activation time	Not Present
-New U-RNTI	Not Present
-New C-RNTI	Not Present
-RRC State Indicator	CELL_DCH
-UTRAN DRX cycle length coefficient	Not Present
<u>CN Information Elements</u>	
-CN information info	Not Present
<u>UTRAN mobility information elements</u>	
-URA identity	Not Present
<u>RB information elements</u>	
-Downlink counter synchronisation info	Not Present
<u>PhyCH information elements</u>	
-Frequency info	Not Present
<u>Uplink radio resources</u>	
-Maximum allowed UL TX power	Not Present
-CHOICE channel requirement	Not Present
<u>Downlink radio resources</u>	
-CHOICE mode	FDD
-Downlink PDSCH information	Not Present
-Downlink information common for all radio links	
-Downlink DPCH info common for all RL	Not Present
-CHOICE mode	FDD
-DPCH compressed mode info	
-Transmission gap pattern sequence	
-TGPSI	1
-TGPS Status Flag	Activate
-TGCFN	(Current CFN + (256 - TTI/10msec))mod 256
-Transmission gap pattern sequence configuration parameters	
-TGMP	GSM carrier RSSI measurement
-TGPRC	Infinity
-TGSN	4
-TGL1	7
-TGL2	Not Present
-TGD	0
-TGPL1	12
-TGPL2	Not Present
-RPP	Mode 0
-ITP	Mode 0
-CHOICE UL/DL mode	UL and DL
-Downlink compressed mode method	SF/2
-Uplink compressed mode method	SF/2
-Downlink frame type	B
-DeltaSIR1	3.0
-DeltaSIRafter1	3.0
-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 per radio link list	
-Downlink information for each radio link	
-Choice mode	FDD
-Primary CPICH info	
-Primary scrambling code	100

-PDSCH with SHO DCH Info	Not Present
-PDSCH code mapping	Not Present
-Downlink DPCH info for each RL	
-CHOICE mode	FDD
-Primary CPICH usage for channel estimation	Primary CPICH may be used
-DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400
-Secondary CPICH info	Not Present
-DL channelisation code	
-Secondary scrambling code	Not Present
-Spreading factor	128
-Code number	96
-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

MEASUREMENT CONTROL message for Inter frequency measurement (step 3):

<u>Information Element</u>	<u>Value/Remark</u>
<u>Message Type</u>	
<u>UE information elements</u>	
-RRC transaction identifier	<u>0</u>
-Integrity check info	<u>Not Present</u>
<u>Measurement Information elements</u>	
-Measurement Identity	<u>2</u>
-Measurement Command	<u>Setup</u>
-Measurement Reporting Mode	
- Measurement Report Transfer Mode	<u>Acknowledged mode RLC</u>
- Periodical Reporting / Event Trigger Reporting Mode	<u>Periodical reporting</u>
-Additional measurement list	<u>Not Present</u>
-CHOICE Measurement Type	<u>Inter-RAT measurement</u>
-Inter-RAT measurement	
-Inter-RAT measurement objects list	
-CHOICE <i>Inter-RAT cell removal</i>	<u>Not Present</u>
-New inter-RAT cells	
-Inter-RAT cell id	<u>9</u>
-CHOICE Radio Access Technology	<u>GSM</u>
-GSM	
-Cell individual offset	<u>0</u>
-Cell selection and re-selection info	<u>Not Present</u>
-BSIC	
-Base transceiver Station Identity Code (BSIC)	<u>Reference to TS 34.108 table 6.1.10 for Cell 9</u>
-Band indicator	<u>According to PICS/PIXIT</u>
-BCCH ARFCN	<u>1</u>
-Cell for measurement	<u>Not Present</u>
-Inter-RAT measurement quantity	
-Measurement quantity for UTRAN quality estimate	<u>Not Present</u>
-CHOICE system	<u>GSM</u>
-GSM	
-Measurement quantity	<u>GSM Carrier RSSI</u>
-Filter coefficient	<u>0</u>
-BSIC verification required	<u>not required</u>
-Inter-RAT reporting quantity	
-UTRAN estimated quality	<u>FALSE</u>
-CHOICE system	<u>GSM</u>
-GSM	
-Observed time difference to GSM cell Reporting indicator	<u>FALSE</u>
-GSM carrier RSSI reporting indicator	<u>TRUE</u>
-Reporting cell status	
-CHOICE reported cell	<u>Report cells within active set or within virtual active set or of the other RAT</u>
-Maximum number of reported cells	<u>6</u>
-CHOICE report criteria	<u>Periodical reporting criteria</u>
-Amount of reporting	<u>Infinity</u>
-Reporting interval	<u>500 ms</u>
<u>Physical channel information elements</u>	
-DPCH compressed mode status info	<u>Not Present</u>

MEASUREMENT REPORT message for inter – RAT test cases

This message is common for all inter-RAT test cases in clause 8.7 and is described in Annex I.

8.7.3A.5 Test requirements

- a) For each of the steps 1, 21, 22, 42, 43 and 64, of the 6 reported GSM CARRIER RSSI values checked, the difference between the minimum reported GSM CARRIER RSSI value and the maximum reported GSM CARRIER RSSI value shall be no more than 4 if the measurements are on the same or on different RF channel.

within the same frequency band and no more than 8 (12 for extreme temperature conditions) if the measurements are on different frequency bands.

- b) For each of the steps 63 and 85, of the 6 reported GSM CARRIER RSSI values checked, the difference between the minimum reported GSM CARRIER RSSI value and the maximum reported GSM CARRIER RSSI value shall be no more than 5 for small UE, DCS 1 800 and PCS 1 900 (Class 1 and 2) UE or 4 for other UE if the measurements are on the same or on different RF channel within the same frequency band and no more than 9 for small UE, DCS 1 800 and PCS 1 900 (Class 1 and 2) UE or 8 for other UE and other PCS 1 900 UE (13 and 12 for extreme temperature conditions) if the measurements are on different frequency bands.
- c) For step 84, of the 6 reported GSM CARRIER RSSI values checked, the difference between the minimum reported GSM CARRIER RSSI value and the maximum reported GSM CARRIER RSSI value shall be no more than 5 if the measurements are on the same or on different RF channel within the same frequency band and no more than 9 (13 for extreme temperature conditions) if the measurements are on different frequency bands.
- d) For step 105, of the reported GSM CARRIER RSSI values checked, the difference between the minimum reported GSM CARRIER RSSI value and the maximum reported GSM CARRIER RSSI value shall be no more than 6 if the measurements are on the same or on different RF channel within the same frequency band and no more than 10 (14 for extreme temperature conditions) if the measurements are on different frequency bands.

The normative reference for this requirement is TS 25.133 [2] clause A.9.1.3A.2.

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

<End of modified section>

CR-Form-v7

CHANGE REQUEST

⌘ **34.121 CR 369** ⌘ rev **-** ⌘ Current version: **5.3.1** ⌘

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 FDD intra frequency measurements , wrong IEs		
Source:	⌘ Rohde & Schwarz		
Work item code:	⌘	Date:	⌘ 11/05/2004
Category:	⌘ F	Release:	⌘ Rel-5
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	F (correction)	2 (GSM Phase 2)	
	A (corresponds to a correction in an earlier release)	R96 (Release 1996)	
	B (addition of feature),	R97 (Release 1997)	
	C (functional modification of feature)	R98 (Release 1998)	
	D (editorial modification)	R99 (Release 1999)	
	Detailed explanations of the above categories can be found in 3GPP TR 21.900 .	Rel-4 (Release 4)	
		Rel-5 (Release 5)	
		Rel-6 (Release 6)	

Reason for change:	⌘ If an Information Group is set to NOT PRESENT, the subsequent Information Elements cannot be set to specific values.
Summary of change:	⌘ The subsequent information elements are deleted
Consequences if not approved:	⌘ The test can not be coded

Clauses affected:	⌘ 8.6.1.1, 8.6.1.3, 8.6.1.4								
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="padding: 2px;">Y</td> <td style="padding: 2px;">N</td> </tr> <tr> <td style="width: 20px; height: 15px;"></td> <td style="width: 20px; height: 15px;"></td> </tr> <tr> <td style="width: 20px; height: 15px;"></td> <td style="width: 20px; height: 15px;"></td> </tr> </table>	Y	N					Other core specifications	⌘
	Y	N							
		Test specifications							
		O&M Specifications							
Other comments:	⌘								

How to create CRs using this form:

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

- 1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under <ftp://ftp.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

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

8.6.1.1 Event triggered reporting in AWGN propagation conditions

....

8.6.1.1.4.2 Procedure

1. The RF parameters are set up according to T1.
2. The UE is switched on.
3. A call is set up according to the test procedure specified in TS 34.108 [3] sub clause 7.3.2.3.
4. SS shall transmit a MEASUREMENT CONTROL message.
5. After 5 seconds from the beginning of T1, the SS shall switch the power settings from T1 to T2.
6. UE shall transmit a MEASUREMENT REPORT message triggered by event 1A. The measurement reporting delay from the beginning of T2 shall be less than 880 ms. If the UE fails to report the event within the required delay, then a failure is recorded. If the reporting delay for this event is within the required limit, the number of successful tests is increased by one.
7. After 5 seconds from the beginning of T2, the SS shall switch the power settings from T2 to T3.
8. UE shall transmit a MEASUREMENT REPORT message triggered by event 1B. The measurement reporting delay from the beginning of T3 shall be less than 280 ms. If the reporting delay for this event is within the required limit, the number of successful tests is increased by one.
9. After 5 seconds from the beginning of T3, the UE is switched off. Any timing information of cell 2 is deleted in the UE.
10. Repeat steps 1-9 according to Annex F.6.2 Table 6.2.8.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message:

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements -RRC transaction identifier -Integrity check info	0 Not Present
Measurement Information elements -Measurement Identity -Measurement Command (10.3.7.46) -Measurement Reporting Mode (10.3.7.49) -Measurement Report Transfer Mode -Periodical Reporting / Event Trigger Reporting Mode -Additional measurements list (10.3.7.1)	1 Modify AM RLC Event trigger Not Present
-CHOICE <i>Measurement type</i> -Intra-frequency measurement (10.3.7.36) -Intra-frequency measurement objects list (10.3.7.33) -Intra-frequency measurement quantity (10.3.7.38) -Filter coefficient (10.3.7.9) -CHOICE mode -Measurement quantity -Intra-frequency reporting quantity (10.3.7.41)	Intra-frequency measurement Not Present 0 FDD CPICH_Ec/N0
-Reporting quantities for active set cells (10.3.7.5) -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator	No report TRUE (Note 1) TRUE FDD TRUE TRUE TRUE
-Reporting quantities for monitored set cells (10.3.7.5) -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator	No report TRUE (Note 1) TRUE FDD TRUE TRUE TRUE
-Reporting quantities for detected set cells (10.3.7.5)	Not Present
-Reporting cell status (10.3.7.61) -Measurement validity (10.3.7.51) -CHOICE report criteria -Intra-frequency measurement reporting criteria (10.3.7.39) -Parameters required for each event	Not Present Not Present Intra-frequency measurement reporting criteria 2
-Intra-frequency event identity -Triggering condition 2 -Reporting Range Constant -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W -Hysteresis -Threshold used frequency -Reporting deactivation threshold -Replacement activation threshold -Time to trigger -Amount of reporting -Reporting interval -Reporting cell status	Event 1A Monitored set cells 3 dB Not Present FDD 1.0 0 dB Not Present 0 Not Present 0 ms Not present 0 ms (Note 2) Not Present
-Intra-frequency event identity -Triggering condition 1 -Reporting Range Constant -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W -Hysteresis	Event 1B Active set cells and monitored set cells 3 dB Not Present FDD 1.0 0 dB

Information Element/Group name	Value/Remark
-Threshold used frequency -Reporting deactivation threshold -Replacement activation threshold -Time to trigger -Amount of reporting -Reporting interval -Reporting cell status	Not Present Not Present Not Present 0 ms Not Present 0 ms (note 2) Not Present
Physical channel information elements -DPCH compressed mode status info (10.3.6.34)	Not Present
Note 1: The SFN-CFN observed time difference is calculated from the OFF and Tm parameters contained in the IE "Cell synchronisation information", TS 25.331, clause 10.3.7.6. According to TS 25.331, 8.6.7.7, this IE is included in MEASUREMENT REPORT if IE "Cell synchronisation information reporting indicator" in IE "Cell reporting quantities" TS 25.331, clause 10.3.7.5 is set to TRUE in MEASUREMENT CONTROL.	
Note 2: Reporting interval = 0 ms means no periodical reporting	

.....

8.6.1.3 Event triggered reporting of two detectable neighbours in AWGN propagation condition

....

8.6.1.3.4.2 Procedure

- 1) The RF parameters are set up according to T1.
- 2) The UE is switched on.
- 3) A call is set up according to the test procedure specified in TS 34.108 [3] sub clause 7.3.2.3.
- 4) SS shall transmit a MEASUREMENT CONTROL message.
- 5) After 10 seconds from the beginning T1, the SS shall switch the power settings from T1 to T2.
- 6) UE shall transmit a MEASUREMENT REPORT message for Cell 2 triggered by event 1A. The measurement reporting delay from the beginning of T2 shall be less than 880 ms. If the UE fails to report the event within the required delay, then a failure is recorded. If the reporting delay for this event is within the required limit, the number of successful tests is increased by one.
- 7) After 10 seconds from the beginning T2, the SS shall switch the power settings from T2 to T3.
- 8) UE shall transmit a MEASUREMENT REPORT message for Cell 3 triggered by event 1A. The measurement reporting delay from the beginning of T3 shall be less than 280 ms. If the UE fails to report the event within the required delay, then a failure is recorded. If the reporting delay for this event is within the required limit, the number of successful tests is increased by one.
- 9) After 10 seconds from the beginning T3, the SS shall switch the power settings from T3 to T4.
- 10) UE shall transmit a MEASUREMENT REPORT message for Cell 2 triggered by event 1B. The measurement reporting delay from the beginning of T4 shall be less than 280 ms. If the reporting delay for this event is within the required limit, the number of successful tests is increased by one.
- 11) After 10 seconds, the UE is switched off.
- 12) Repeat steps 1-11 until the confidence level according to annex F.6.2 is achieved.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message:

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements -RRC transaction identifier -Integrity check info	0 Not Present
Measurement Information elements -Measurement Identity -Measurement Command (10.3.7.46) -Measurement Reporting Mode (10.3.7.49) -Measurement Report Transfer Mode -Periodical Reporting / Event Trigger Reporting Mode -Additional measurements list (10.3.7.1)	1 Modify AM RLC Event trigger Not Present
-CHOICE <i>Measurement type</i> -Intra-frequency measurement (10.3.7.36) -Intra-frequency measurement objects list (10.3.7.33) -Intra-frequency measurement quantity (10.3.7.38) -Filter coefficient (10.3.7.9) -CHOICE mode -Measurement quantity -Intra-frequency reporting quantity (10.3.7.41)	Intra-frequency measurement Not Present 0 FDD CPICH_Ec/N0
-Reporting quantities for active set cells (10.3.7.5) -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator	No report TRUE (Note 1) TRUE FDD TRUE TRUE TRUE
-Reporting quantities for monitored set cells (10.3.7.5) -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator	No report TRUE (Note 1) TRUE FDD TRUE TRUE TRUE
-Reporting quantities for detected set cells (10.3.7.5)	Not Present
-Reporting cell status (10.3.7.61) -Measurement validity (10.3.7.51) -CHOICE report criteria -Intra-frequency measurement reporting criteria (10.3.7.39) -Parameters required for each event	Not Present Not Present Intra-frequency measurement reporting criteria 2
-Intra-frequency event identity -Triggering condition 2 -Reporting Range Constant -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W -Hysteresis -Threshold used frequency -Reporting deactivation threshold -Replacement activation threshold -Time to trigger -Amount of reporting -Reporting interval -Reporting cell status	Event 1A Monitored set cells 3 dB Not Present FDD 1.0 0 dB Not Present 0 Not Present 0 ms Not present 0 ms (Note 2) Not Present
-Intra-frequency event identity -Triggering condition 1 -Reporting Range Constant -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W -Hysteresis	Event 1B Active set cells and monitored set cells 3 dB Not Present FDD 1.0 0 dB

Information Element/Group name	Value/Remark
-Threshold used frequency	Not Present
-Reporting deactivation threshold	Not Present
-Replacement activation threshold	Not Present
-Time to trigger	0 ms
-Amount of reporting	Not Present
-Reporting interval	0 ms (Note 2)
-Reporting cell status	Not Present
Physical channel information elements	
-DPCH compressed mode status info (10.3.6.34)	Not Present
NOTE 1: The SFN-CFN observed time difference is calculated from the OFF and Tm parameters contained in the IE "Cell synchronisation information", TS 25.331, clause 10.3.7.6. According to TS 25.331, 8.6.7.7, this IE is included in MEASUREMENT REPORT if IE "Cell synchronisation information reporting indicator" in IE "Cell reporting quantities" TS 25.331, clause 10.3.7.5 is set to TRUE in MEASUREMENT CONTROL.	
NOTE 2: Reporting interval = 0 ms means no periodical reporting.	

.....

8.6.1.4 Correct reporting of neighbours in fading propagation condition

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8.6.1.4.4.2 Procedure

- 1) The RF parameters are set up according to T1.
- 2) The UE is switched on.
- 3) A call is set up in AWGN conditions, according to the test procedure specified in TS 34.108 [3] sub clause 7.3.2.3.
- 4) SS shall transmit a MEASUREMENT CONTROL message.
- 5) 5 seconds after step4 has completed, the fading simulator is switched on, configured with the settings described in the tables above at the beginning of T1.
- 6) UE shall start transmitting MEASUREMENT REPORT messages triggered by event 1A.
- 7) SS shall count the reports. The number of received event 1A reports shall be less than 60. If the SS fails to receive less than 60 event 1A reports, then then a failure is recorded. If the SS receives number of event 1A reports within the required limit, the number of succesfull tests is increased by one.
- 8) After 200 seconds from the beginning of T1, the SS shall switch the power settings from T1 to T2.
- 9) UE shall start transmitting MEASUREMENT REPORT messages triggered by event 1B.
- 10) During the first 1s of time period T2 no event reports shall be counted.
- 11) After the first 1s SS shall start counting the reports. The number of received event 1B reports shall be less than 60. If the SS receives number of event 1B reports within the required limit, the number of succesfull tests is increased by one.
- 12) After 201 seconds from the beginning of T2, the UE is switched off.
- 13) Repeat steps 1-12 until the confidence level according to annex F.6.2 is achieved.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message:

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements -RRC transaction identifier -Integrity check info	0 Not Present
Measurement Information elements -Measurement Identity -Measurement Command (10.3.7.46) -Measurement Reporting Mode (10.3.7.49) -Measurement Report Transfer Mode -Periodical Reporting / Event Trigger Reporting Mode -Additional measurements list (10.3.7.1)	1 Modify AM RLC Event trigger Not Present
-CHOICE <i>Measurement type</i> -Intra-frequency measurement (10.3.7.36) -Intra-frequency measurement objects list (10.3.7.33) -Intra-frequency measurement quantity (10.3.7.38) -Filter coefficient (10.3.7.9) -CHOICE mode -Measurement quantity -Intra-frequency reporting quantity (10.3.7.41)	Intra-frequency measurement Not Present 0 FDD CPICH_Ec/N0
-Reporting quantities for active set cells (10.3.7.5) -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator	No report TRUE (Note 1) TRUE FDD TRUE TRUE TRUE
-Reporting quantities for monitored set cells (10.3.7.5) -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator	No report TRUE (Note 1) TRUE FDD TRUE TRUE TRUE
-Reporting quantities for detected set cells (10.3.7.5)	Not Present
-Reporting cell status (10.3.7.61) -Measurement validity (10.3.7.51) -CHOICE report criteria -Intra-frequency measurement reporting criteria (10.3.7.39) -Parameters required for each event	Not Present Not Present Intra-frequency measurement reporting criteria 2
-Intra-frequency event identity -Triggering condition 2 -Reporting Range Constant -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W -Hysteresis -Threshold used frequency -Reporting deactivation threshold -Replacement activation threshold -Time to trigger -Amount of reporting -Reporting interval -Reporting cell status	Event 1A Active set cells and monitored set cells 0 dB Not Present FDD 1.0 0 dB Not Present 0 Not Present 120 ms Not present 0 ms (Note 2) Not Present
-Intra-frequency event identity -Triggering condition 1 -Reporting Range Constant -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W -Hysteresis	Event 1B Active set cells and monitored set cells 0 dB Not Present FDD 1.0 0 dB

Information Element/Group name	Value/Remark
-Threshold used frequency -Reporting deactivation threshold -Replacement activation threshold -Time to trigger -Amount of reporting -Reporting interval -Reporting cell status	Not Present Not Present Not Present 120 ms Not Present 0 ms (Note 2) Not Present
Physical channel information elements -DPCH compressed mode status info (10.3.6.34)	Not Present
<p>Note 1: The SFN-CFN observed time difference is calculated from the OFF and Tm parameters contained in the IE "Cell synchronisation information", TS 25.331, clause 10.3.7.6. According to TS 25.331, 8.6.7.7, this IE is included in MEASUREMENT REPORT if IE "Cell synchronisation information reporting indicator" in IE "Cell reporting quantities" TS 25.331, clause 10.3.7.5 is set to TRUE in MEASUREMENT CONTROL.</p> <p>Note 2: Reporting interval = 0 ms means no periodical reporting</p>	

CHANGE REQUEST

34.121 CR 370 # rev **-** # Current version: **5.3.1**

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 FDD inter frequency measurements, wrong IEs	
Source:	#	Rohde & Schwarz	
Work item code:	#		Date: # 11/05/2004
Category:	#	F	Release: # Rel-5
		Use <u>one</u> of the following categories:	Use <u>one</u> of the following releases:
		F (correction)	2 (GSM Phase 2)
		A (corresponds to a correction in an earlier release)	R96 (Release 1996)
		B (addition of feature),	R97 (Release 1997)
		C (functional modification of feature)	R98 (Release 1998)
		D (editorial modification)	R99 (Release 1999)
		Detailed explanations of the above categories can be found in 3GPP TR 21.900 .	Rel-4 (Release 4)
			Rel-5 (Release 5)
			Rel-6 (Release 6)

Reason for change:	#	If the condition for this Information Element is not given, it cannot be set to a specific value.
Summary of change:	#	The Information Element is deleted
Consequences if not approved:	#	The test can not be coded

Clauses affected:	#	8.3.2.2, 8.6.2.1						
Other specs affected:	#	<table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="width: 20px; text-align: center;"> </td> <td style="width: 20px; text-align: center;"> </td> </tr> <tr> <td style="width: 20px; text-align: center;"> </td> <td style="width: 20px; text-align: center;"> </td> </tr> </table> Other core specifications #	Y	N				
	Y	N						
	#	Test specifications #						
	#	O&M Specifications #						
Other comments:	#							

How to create CRs using this form:

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

- 1) Fill out the above form. The symbols above marked # contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under <ftp://ftp.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

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

8.3.2.2 FDD/FDD Hard Handover to inter-frequency cell

....

8.3.2.2.4.2 Procedure

- 1) The RF parameters are set up according to T1 in table 8.3.2.2.3.
- 2) The UE is switched on.
- 3) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.4 with Compressed mode parameters as in Table 8.3.2.2.1.
- 4) SS shall transmit a MEASUREMENT CONTROL messages.
- 5) 5 seconds after step 4 has completed, the SS shall switch the power settings from T1 to T2 in table 8.3.2.2.3.
- 6) UE shall transmit a MEASUREMENT REPORT message triggered by event 2C
- 7) SS shall transmit a PHYSICAL CHANNEL RECONFIGURATION message with activation time "now". SS shall transmit the whole message such that will be is available at the UE no later than a period equals to the RRC procedure delay (= 80 ms) prior to the beginning of T3.
- 8) After 10 seconds from the beginning of time period T2, the SS shall switch the power settings from T2 to T3 in table 8.3.2.2.3.
- 9) UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the UL DCCH of cell 2. If the UE transmits the UL DPCCH to cell 2 less than 140 ms from the beginning of time period T3 then the number of successful tests is increased by one.
- 10) After 5 seconds from the beginning of time period T3, the UE is switched off. Any timing information of cell 2 is deleted in the UE.
- 11) Repeat step 1-10 until the confidence level according to annex F.6.2 is achieved

Specific Message Contents

All messages indicated below shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message, event 2C (step 4):

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements -RRC transaction identifier -Integrity check info	0 Not Present
Measurement Information elements -Measurement Identity -Measurement Command (10.3.7.46) -Measurement Reporting Mode (10.3.7.49) -Measurement Report Transfer Mode -Periodical Reporting / Event Trigger Reporting Mode -Additional measurements list (10.3.7.1)	2 Setup AM RLC Event trigger Not Present
-CHOICE <i>Measurement type</i> -Inter-frequency measurement (10.3.7.16) -Inter-frequency measurement objects list (10.3.7.13) - CHOICE Inter-frequency cell removal - New Inter frequency cells - Inter frequency cell id - Frequency info - CHOICE mode - UARFCN uplink(Nu) - UARFCN downlink(Nd) - Cell info - Cell individual offset - Reference time difference to cell - Read SFN indicator - CHOICE mode - Primary CPICH info - Primary scrambling code - Primary CPICH Tx Power - Tx Diversity Indicator Cell Selection and Re-selection info - Cell for measurement -Inter-frequency measurement quantity (10.3.7.18) -CHOICE reporting criteria -Inter-frequency reporting criteria -Filter coefficient -CHOICE mode -Measurement quantity for frequency quality estimate	Inter-frequency measurement Not Present 0 FDD Not Present Same frequency as "Channel2" in Table 8.3.2.2.2 Not Present Not Present TRUE FDD Set to Primary scrambling code of Cell2 Set to Primary CPICH Tx Power of Cell2 described in Table 8.3.2.2.2 FALSE Set to Cell Selection and Re-selection info of Cell2 Not Present Inter-frequency reporting criteria 0 FDD CPICH Ec/N0
-Inter-frequency reporting quantity (10.3.7.21) -UTRA Carrier RSSI -Frequency quality estimate -Non frequency related cell reporting quantities (10.3.7.5) -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator	FALSE FALSE Type 1 TRUE TRUE FDD TRUE TRUE TRUE
-Reporting cell status (10.3.7.61) -CHOICE reported cell -Maximum number of reported cells per reported non-used frequency -Measurement validity (10.3.7.51) -Inter-frequency set update (10.3.7.22) -CHOICE report criteria	Report cells within monitored set on non-used frequency 1 Not Present Not Present Inter-frequency measurement reporting criteria
-Inter-frequency measurement reporting criteria (10.3.7.19) -Parameters required for each event -Inter-frequency event identity (10.3.7.14) -Threshold used frequency	1 Event 2C Not Present

Information Element/Group name	Value/Remark
-W used frequency -Hysteresis -Time to trigger -Reporting cell status (10.3.7.61) -CHOICE reported cell -Maximum number of reported cells per reported non-used frequency -Parameters required for each non-used frequency -Threshold non-used frequency -W non-used frequency	Not Present 0 dB 0 ms Report cells within monitored set on non-used frequency 1 1 -18 dB 1
Physical channel information elements -DPCH compressed mode status info (10.3.6.34)	Not Present

.....

8.6.2.1 Correct reporting of neighbours in AWGN propagation condition

....

8.6.2.1.4.2 Procedure

- 1) The RF parameters are set up according to T0.
- 2) The UE is switched on.
- 3) A call is set up according to the test procedure specified in TS 34.108 [3] sub clause 7.3.2.3.
- 4) SS shall transmit a MEASUREMENT CONTROL message (inter frequency).
- 5) SS shall transmit a MEASUREMENT CONTROL message (intra frequency).
- 6) SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message.
- 7) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.
- 8) 5 seconds after step7 has completed, the SS shall switch the power settings from T0 to T1.
- 9) UE shall transmit a MEASUREMENT REPORT message (inter frequency) triggered by event 2C. The measurement reporting delay from the beginning of T1 shall be less than 9.08 seconds. If the UE fails to report the event within the required delay, then a failure is recorded. If the reporting delay for this event is within the required limit, the number of successful tests is increased by one.
- 10) After 10 seconds from the beginning of T1, the SS shall switch the power settings from T1 to T2.
- 11) UE shall transmit a MEASUREMENT REPORT message (intra frequency) triggered by event 1A. The measurement reporting delay from the beginning of T2 shall be less than 1040 ms. If the reporting delay for this event is within the required limit, the number of successful tests is increased by one.
- 12) After 5 seconds from the beginning of T2, the UE is switched off.
- 13) Repeat steps 1-12 until the confidence level according to annex F.6.2 is achieved.

NOTE: The measurement reporting delay is 956.2 ms plus 80 ms delay uncertainty (twice the TTI). This gives a total of 1036.2 ms and rounded off to 1040 ms.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

PHYSICAL CHANNEL RECONFIGURATION message for Inter frequency measurement:

Information Element	Value/Remark
Message Type	
UE Information Elements -RRC transaction identifier -Integrity check info -Integrity protection mode info -Ciphering mode info -Activation time -New U-RNTI -New C-RNTI -RRC State Indicator -UTRAN DRX cycle length coefficient	0 Not Present Not Present Not Present Not Present Not Present Not Present CELL_DCH Not Present
CN Information Elements -CN Information info	Not Present
UTRAN mobility information elements -URA identity	Not Present
RB information elements -Downlink counter synchronisation info	Not Present
PhyCH information elements -Frequency info	Not Present
Uplink radio resources -Maximum allowed UL TX power	Not Present
Downlink radio resources -CHOICE mode -Downlink PDSCH information -Downlink information common for all radio links -Downlink DPCH info common for all RL -CHOICE mode -DPCH compressed mode info -Transmission gap pattern sequence -TGPSI -TGPS Status Flag -TGCFN -Transmission gap pattern sequence configuration parameters -TGMP -TGPRC -TGSN -TGL1 -TGL2 -TGD -TGPL1 -TGPL2 -RPP -ITP -CHOICE UL/DL mode -Downlink compressed mode method -Uplink compressed mode method -Downlink frame type -DeltaSIR1 -DeltaSIRafter1 -DeltaSIR2 -DeltaSIRafter2 -N Identify abort -T Reconfirm abort -TX Diversity Mode -SSDT information -Default DPCH Offset Value -Downlink information per radio link list - Downlink information for each radio link -Choice mode -Primary CPICH info -Primary scrambling code -PDSCH with SHO DCH Info	FDD Not Present Not Present FDD 1 Activate (Current CFN + (256 – TTI/10msec))mod 256 FDD measurement Not present 4 7 Not Present UNDEFINED 3 Not Present Mode 0 Mode 0 UL and DL SF/2 SF/2 B 3.0 3.0 Not Present Not Present Not Present Not Present Not Present Not Present Not Present Not Present FDD 100 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	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400
-Secondary CPICH info	Not Present
-DL channelisation code	
-Secondary scrambling code	Not Present
-Spreading factor	128
-Code number	96
-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

MEASUREMENT CONTROL message (inter frequency):

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements -RRC transaction identifier -Integrity check info	0 Not Present
Measurement Information elements -Measurement Identity -Measurement Command (10.3.7.46) -Measurement Reporting Mode (10.3.7.49) -Measurement Report Transfer Mode -Periodical Reporting / Event Trigger Reporting Mode -Additional measurements list (10.3.7.1)	2 Setup AM RLC Event trigger Not Present
-CHOICE <i>Measurement type</i> -Inter-frequency measurement (10.3.7.16) -Inter-frequency measurement objects list (10.3.7.13) - CHOICE Inter-frequency cell removal - New Inter frequency cells - Inter frequency cell id - Frequency info - CHOICE mode - UARFCN uplink(Nu) - UARFCN downlink(Nd) - Cell info - Cell individual offset - Reference time difference to cell - Read SFN indicator - CHOICE mode - Primary CPICH info - Primary scrambling code - Primary CPICH Tx Power - Tx Diversity Indicator Cell Selection and Re-selection info - Cell for measurement -Inter-frequency measurement quantity (10.3.7.18) -Intra-frequency reporting criteria -Intra-frequency measurement quantity (10.3.7.38) -Filter coefficient (10.3.7.9) -CHOICE mode -Measurement quantity -Inter-frequency reporting criteria -Filter coefficient (10.3.7.9) -CHOICE mode -Measurement quantity for frequency quality estimate -Inter-frequency reporting quantity (10.3.7.21) -UTRA Carrier RSSI -Frequency quality estimate -Non frequency related cell reporting quantities (10.3.7.5) -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator	Inter-frequency measurement Not Present 0 FDD Not Present Same frequency as "Channel2" in Table 8.6.2.1.3 Not Present Not Present TRUE FDD Set to Primary scrambling code of Cell3 Set to Primary CPICH Tx Power of Cell3 described in Table 8.6.2.1.3 FALSE Set to Cell Selection and Re-selection info of Cell3 Not Present 0 FDD CPICH_Ec/N0 0 FDD CPICH_Ec/N0 FALSE FALSE No report TRUE (Note 1) TRUE FDD TRUE TRUE TRUE
-Reporting cell status (10.3.7.61) -Measurement validity (10.3.7.51) -CHOICE report criteria -Inter-frequency measurement reporting criteria (10.3.7.19) -Parameters required for each event	Not Present Not Present Inter-frequency measurement reporting criteria 1
-Inter-frequency event identity -Threshold used frequency -W used frequency	Event 2C Not present Not present

Information Element/Group name	Value/Remark
<ul style="list-style-type: none"> -Hysteresis -Time to trigger -Reporting cell status -CHOICE reported cell -Maximum number of reported cells -Parameters required for each non-used frequency -Threshold non used frequency -W non-used frequency 	<ul style="list-style-type: none"> 0 dB 0 ms Report cells within monitored set on non-used frequency 3 -18 dB 1
Physical channel information elements -DPCH compressed mode status info (10.3.6.34)	Not Present
NOTE 1: The SFN-CFN observed time difference is calculated from the OFF and Tm parameters contained in the IE "Cell synchronisation information", TS 25.331, clause 10.3.7.6. According to TS 25.331, 8.6.7.7, this IE is included in MEASUREMENT REPORT if IE "Cell synchronisation information reporting indicator" in IE "Cell reporting quantities" TS 25.331, clause 10.3.7.5 is set to TRUE in MEASUREMENT CONTROL.	

CR-Form-v7	
CHANGE REQUEST	
# 34.121 CR 380 # rev - #	Current version: 5.3.1 #

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 to the pathloss indicator in measurement control messages	
Source:	#	Rohde & Schwarz	
Work item code:	#		Date: # 11/05/2004
Category:	#	F	Release: # R5
		Use <u>one</u> of the following categories:	Use <u>one</u> of the following releases:
		F (correction)	2 (GSM Phase 2)
		A (corresponds to a correction in an earlier release)	R96 (Release 1996)
		B (addition of feature),	R97 (Release 1997)
		C (functional modification of feature)	R98 (Release 1998)
		D (editorial modification)	R99 (Release 1999)
		Detailed explanations of the above categories can be found in 3GPP TR 21.900 .	Rel-4 (Release 4)
			Rel-5 (Release 5)
			Rel-6 (Release 6)

Reason for change:	#	Measurement reports need not to be transmitted by the UE because the information about the CPICH power is not included for the neighbour cells for the default RF test setup. Further the pathloss is not needed to test the minimum requirements of the concerned chapters.
Summary of change:	#	The pathloss reporting indicator in the measurement control message is changed to false.
Consequences if not approved:	#	The measurement reports are not sent by the UE due to the missing information. The UE could fail the test as the measurement is not set up properly.

Clauses affected:	#	8.7.1, 8.7.2, 8.7.3, 8.7.4, 8.7.5								
Other specs affected:	#	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="text-align: center; width: 20px;">Y</td> <td style="text-align: center; width: 20px;">N</td> </tr> <tr> <td style="text-align: center;"> </td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;"> </td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;"> </td> <td style="text-align: center;">X</td> </tr> </table>	Y	N		X		X		X
		Y	N							
			X							
	X									
	X									
Other core specifications	#									
		Test specifications	#							
		O&M Specifications	#							
Other comments:	#	Same content as T1-040154. It was T1 approved but, by mistake, not in T								

8.7.1 CPICH RSCP

8.7.1.1 Intra frequency measurements accuracy

8.7.1.1.1 Absolute accuracy requirement

8.7.1.1.1.1 Definition and applicability

The absolute accuracy of CPICH RSCP is defined as the CPICH RSCP measured from one cell compared to the actual CPICH RSCP power from same cell.

The requirements and this test apply to all types of UTRA for the FDD UE.

8.7.1.1.1.2 Minimum Requirements

The accuracy requirements in table 8.7.1.1.1.1 are valid under the following conditions:

- CPICH_RSCP1_{dBm} ≥ -114 dBm.

$$- \left(\frac{I_o}{\hat{I}_{or}} \right)_{in \text{ dB}} - \left(\frac{CPICH - E_c}{I_{or}} \right)_{in \text{ dB}} \leq 20dB$$

Table 8.7.1.1.1.1: CPICH_RSCP Intra frequency absolute accuracy

Parameter	Unit	Accuracy [dB]		Conditions
		Normal condition	Extreme condition	Io [dBm/3.84 MHz]
CPICH_RSCP	dBm	±6	±9	-94...-70
	dBm	±8	±11	-70...-50

The normative reference for this requirement is TS 25.133 [2] clauses 9.1.1.1.1 and A.9.1.1.2.

8.7.1.1.1.3 Test purpose

The purpose of this test is to verify that the CPICH RSCP absolute measurement accuracy is within the specified limits in clause 8.7.1.1.2. This measurement is for handover evaluation, DL open loop power control, UL open loop control and for the calculation of pathloss.

8.7.1.1.1.4 Method of test

8.7.1.1.1.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

In this case all cells are on the same frequency. CPICH RSCP intra frequency absolute accuracy requirements are tested by using test parameters in table 8.7.1.1.2.

Table 8.7.1.1.1.2: CPICH RSCP Intra frequency parameters

Parameter	Unit	Test 1		Test 2		Test 3	
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior	dB	-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15	
DPCH_Ec/Ior	dB	-15	-	-15	-	-15	-
OCNS_Ec/Ior	dB	-1.11	-0.94	-1.11	-0.94	-1.11	-0.94
Ioc	dBm/ 3.84 MHz	-75.54		-59.98		-97.47	
Ior/Ioc	dB	4	0	9	0	0	-6.53
CPICH RSCP, Note 1	dBm	-81.5	-85.5	-60.98	-69.88	-107.47	-114.0
Io, Note 1	dBm/3.84 MHz	-69		-50		-94	
Propagation condition	-	AWGN		AWGN		AWGN	
NOTE 1: CPICH RSCP and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.							
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.							

8.7.1.1.1.4.2 Procedure

- 1) A call is set up according to the test procedure specified in TS 34.108 [3] clause 7.3.2.3. The RF parameters for Test 1 are set up according to table 8.7.1.1.1.4.
- 2) SS shall transmit MEASUREMENT CONTROL message.
- 3) UE shall transmit periodically MEASUREMENT REPORT messages.
- 4) SS shall check CPICH_RSCP value in MEASUREMENT REPORT messages. CPICH RSCP power of Cell 1 reported by UE is compared to actual CPICH RSCP power for each MEASUREMENT REPORT message.
- 5) SS shall count number of MEASUREMENT REPORT messages transmitted by UE. After 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.1.1.1.4 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 4) above is repeated. After further 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.1.1.1.4 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 4) above is repeated.
- 6) After further 1000 MEASUREMENT REPORT messages have been received from UE, the SS shall transmit RRC CONNECTION RELEASE message.
- 7) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message for Intra frequency measurement (Step 1):

Information Element	Value/Remark
Message Type	
UE information elements -RRC transaction identifier -Integrity check info	0 Not Present
Measurement Information elements -Measurement Identity -Measurement Command -Measurement Reporting Mode - Measurement Report Transfer Mode - Periodical Reporting / Event Trigger Reporting Mode -Additional measurement list -CHOICE Measurement Type -Intra-frequency measurement - Intra-frequency measurement objects list -Intra-frequency measurement quantity -Filter coefficient -CHOICE mode -Measurement quantity -Intra-frequency reporting quantity -Reporting quantities for active set cells -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator -Reporting quantities for monitored set cells -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator -Reporting quantities for detected set cells -Reporting cell status -CHOICE reported cell -Maximum number of reported cells -Measurement validity -CHOICE <i>report criteria</i> -Amount of reporting -Reporting interval	5 SETUP Acknowledged mode RLC Periodical reporting Not Present Intra-frequency measurement Not Present 0 FDD CPICH RSCP No report TRUE TRUE FDD TRUE TRUE FALSE TRUE No report FALSE TRUE FDD TRUE TRUE FALSE TRUE Not Present Report all active set cells + cells within monitored set on used frequency Virtual/active set cells + 2 Not Present Periodical reporting criteria Infinity 250 ms
Physical channel information elements -DPCH compressed mode status info	Not Present

MEASUREMENT REPORT message for Intra frequency test cases

This message is common for all intra frequency test cases in clause 8.7 and is described in Annex I.

8.7.1.1.1.5 Test requirements

Table 8.7.1.1.1.3: CPICH_RSCP Intra frequency absolute accuracy, test requirement

Parameter	Unit	Accuracy [dB]		Conditions
		Normal condition	Extreme condition	Io [dBm]
CPICH_RSCP	dBm	±7.4	±10.4	-94...-70
	dBm	±9.4	±12.4	-70...-50

Table 8.7.1.1.1.4: CPICH RSCP Intra frequency test parameters

Parameter	Unit	Test 1		Test 2		Test 3	
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior	dB	-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15	
DPCH_Ec/Ior	dB	-15	-	-15	-	-15	-
OCNS_Ec/Ior	dB	-1.11	-0.94	-1.11	-0.94	-1.11	-0.94
Ioc	dBm/ 3.84 MHz	-74.54		-61,6		-96.47	
Ior/Ioc	dB	4.3	0.3	9.3	0.3	0.3	-6.23
CPICH RSCP, Note 1	dBm	-80.2	-84.2	-62.3	-71.3	-106.17	-112.7
Io, Note 1	dBm	-67.8		-51,4		-92,8	
Propagation condition	-	AWGN		AWGN		AWGN	
NOTE 1: CPICH RSCP and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.							
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.							

The reported values for the absolut intra frequency CPICH RSCP measurement shall meet the requirements in table 8.7.1.1.1.5.

Table 8.7.1.1.1.5: CPICH_RSCP Intra frequency absolute accuracy requirements for the reported values

	Test 1	Test 2	Test 3
Normal Conditions			
Lowest reported value	CPICH_RSCP_26	CPICH_RSCP_44	CPICH_RSCP_2
Highest reported value	CPICH_RSCP_45	CPICH_RSCP_63	CPICH_RSCP_17
Extreme Conditions			
Lowest reported value	CPICH_RSCP_23	CPICH_RSCP_41	CPICH_RSCP_0
Highest reported value	CPICH_RSCP_48	CPICH_RSCP_66	CPICH_RSCP_20

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.7.1.1.2 Relative accuracy requirement

8.7.1.1.2.1 Definition and applicability

The relative accuracy of CPICH RSCP is defined as the CPICH RSCP measured from one cell compared to the CPICH RSCP measured from another cell on the same frequency.

The requirements and this test apply to all types of UTRA for the FDD UE.

8.7.1.1.2.2 Minimum Requirements

The accuracy requirements in table 8.7.1.1.2.1 are valid under the following conditions:

- $CPICH_RSCP_{1,2}|_{dBm} \geq -114 \text{ dBm}$.
- $\left| CPICH_RSCP1|_{in \text{ dBm}} - CPICH_RSCP2|_{in \text{ dBm}} \right| \leq 20 \text{ dB}$
- $\left. \frac{I_o}{(\hat{I}_{or})} \right|_{in \text{ dB}} - \left(\frac{CPICH - E_c}{I_{or}} \right) \Big|_{in \text{ dB}} \leq 20 \text{ dB}$

Table 8.7.1.1.2.1: CPICH_RSCP Intra frequency relative accuracy

Parameter	Unit	Accuracy [dB]		Conditions
		Normal condition	Extreme condition	Io [dBm/3.84 MHz]
CPICH_RSCP	dBm	±3	±3	-94...-50

The normative reference for this requirement is TS 25.133 [2] clauses 9.1.1.1.2 and A.9.1.1.2.

8.7.1.1.2.3 Test purpose

The purpose of this test is to verify that the CPICH RSCP relative measurement accuracy is within the specified limits in clause 8.7.1.1.2.2. This measurement is for handover evaluation, DL open loop power control, UL open loop control and for the calculation of pathloss.

8.7.1.1.2.4 Method of test

8.7.1.1.2.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

In this case all cells are on the same frequency. CPICH RSCP intra frequency relative accuracy requirements are tested by using test parameters in table 8.7.1.1.1.2.

8.7.1.1.2.4.2 Procedure

- 1) A call is set up according to the test procedure specified in TS 34.108 [3] clause 7.3.2.3. The RF parameters for Test 1 are set up according to table 8.7.1.1.1.2.
- 2) SS shall transmit MEASUREMENT CONTROL message.
- 3) UE shall transmit periodically MEASUREMENT REPORT messages.
- 4) SS shall check CPICH_RSCP value of Cell 1 and Cell 2 in MEASUREMENT REPORT messages. CPICH RSCP power value measured from Cell 1 is compared to CPICH RSCP power value measured from Cell 2 for each MEASUREMENT REPORT message.
- 5) The result of step 3) is compared to actual power level difference of CPICH RSCP of Cell 1 and Cell 2.
- 6) SS shall count number of MEASUREMENT REPORT messages transmitted by UE. After 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.1.1.2.3 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 4) and 5) above are repeated. After further 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.1.1.2.3 for Test 3. While RF parameters are being set

up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 4) and 5) above are repeated.

- 7) After further 1000 MEASUREMENT REPORT messages have been received from UE, the SS shall transmit RRC CONNECTION RELEASE message.
- 8) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:
MEASUREMENT CONTROL message for Intra frequency measurement in clause 8.7.1.1.4.2 is used.

MEASUREMENT REPORT message for Intra frequency test cases

This message is common for all intra frequency test cases in clause 8.7 and is described in Annex I.

8.7.1.1.2.5 Test requirements

Table 8.7.1.1.2.2: CPICH_RSCP Intra frequency relative accuracy, test requirements

Parameter	Unit	Accuracy [dB]		Conditions
		Normal condition	Extreme condition	Io [dBm]
CPICH_RSCP	dBm	±3.8	±3.8	-94...-50

Table 8.7.1.1.2.3: CPICH RSCP Intra frequency test parameters

Parameter	Unit	Test 1		Test 2		Test 3	
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior	dB	-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15	
DPCH_Ec/Ior	dB	-15	-	-15	-	-15	-
OCNS_Ec/Ior	dB	-1.11	-0.94	-1.11	-0.94	-1.11	-0.94
Ioc	dBm/ 3.84 MHz	-74.54		-61,6		-96.47	
Ior/Ioc	dB	4.3	0.3	9.3	0.3	0.3	-6.23
CPICH RSCP, Note 1	dBm	-80.2	-84.2	-62.3	-71.3	-106.17	-112.7
Io, Note 1	dBm	-67.8		-51,4		-92,8	
Propagation condition	-	AWGN		AWGN		AWGN	
NOTE 1: CPICH RSCP and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.							
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.							

The reported values for the relative intra frequency CPICH RSCP measurement shall meet the requirements in table 8.7.1.1.2.4.

Table 8.7.1.1.2.4: CPICH_RSCP Intra frequency relative accuracy requirements for the reported values

	Test 1	Test 2	Test 3
Normal Conditions			
Lowest reported value cell 2	CPICH_RSCP_(x - 8)	CPICH_RSCP_(x - 13)	CPICH_RSCP_(x - 11)
Highest reported value cell 2	CPICH_Ec/No_x	CPICH_Ec/No_(x - 5)	CPICH_Ec/No_(x - 3)
Extreme Conditions			
Lowest reported value cell2	CPICH_RSCP_(x - 8)	CPICH_RSCP_(x - 13)	CPICH_RSCP_(x - 11)
Highest reported value cell2	CPICH_Ec/No_x	CPICH_Ec/No_(x - 5)	CPICH_Ec/No_(x - 3)
CPICH_RSCP_x is the reported value of cell 1			

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.7.1.2 Inter frequency measurement accuracy

8.7.1.2.1 Relative accuracy requirement

8.7.1.2.1.1 Definition and applicability

The relative accuracy of CPICH RSCP in inter frequency case is defined as the CPICH RSCP measured from one cell compared to the CPICH RSCP measured from another cell on a different frequency. The requirements and this test apply to all types of UTRA for the FDD UE.

8.7.1.2.1.2 Minimum Requirements

The accuracy requirements in table 8.7.1.2.1.1 are valid under the following conditions:

- $CPICH_RSCP_{1,2|dBm} \geq -114$ dBm.
- $\left| CPICH_RSCP1 \Big|_{in\ dBm} - CPICH_RSCP2 \Big|_{in\ dBm} \right| \leq 20dB$.
- $| Channel\ 1_Io|_{dBm/3.84\ MHz} - Channel\ 2_Io|_{dBm/3.84\ MHz} | \leq 20$ dB.
- $\left(\frac{I_o}{\hat{I}_{or}} \right) \Big|_{in\ dB} - \left(\frac{CPICH_E_c}{I_{or}} \right) \Big|_{in\ dB} \leq 20dB$.

Table 8.7.1.2.1.1: CPICH_RSCP Inter frequency relative accuracy

Parameter	Unit	Accuracy [dB]		Conditions
		Normal condition	Extreme condition	Io [dBm/3.84 MHz]
CPICH_RSCP	dBm	±6	±6	-94...-50

The normative reference for this requirement is TS 25.133 [2] clauses 9.1.1.2.1 and A.9.1.1.2.

8.7.1.2.1.3 Test purpose

The purpose of this test is to verify that the CPICH RSCP relative measurement accuracy is within the specified limits in clause 8.7.1.2.1.2. This measurement is for handover evaluation, DL open loop power control, UL open loop control and for the calculation of pathloss.

8.7.1.2.1.4 Method of test

8.7.1.2.1.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

In this case both cells are on different frequencies and compressed mode is applied. The gap length is 7, detailed definition is in clause C.5, set 1 of table C.5.2 except for TGRR and TGCFN. TGPRC and TGCFN shall set to "Infinity" and "(Current CFN + (256 – TTI/10msec))mod 256". CPICH RSCP inter frequency relative accuracy requirements are tested by using test parameters in table 8.7.1.2.1.2.

Table 8.7.1.2.1.2: CPICH RSCP Inter frequency parameters

Parameter	Unit	Test 1		Test 2	
		Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1	Channel 2	Channel 1	Channel 2
CPICH_Ec/Ior	dB	-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12	
SCH_Ec/Ior	dB	-12		-12	
PICH_Ec/Ior	dB	-15		-15	
DPCH_Ec/Ior	dB	-15	-	-15	-
OCNS_Ec/Ior	dB	-1.11	-0.94	-1.11	-0.94
Ioc	dBm/ 3.84 MHz	-60.00	-60.00	-84.00	-94.46
Ior/Ioc	dB	9.54	9.54	0	-9.54
CPICH RSCP, Note 1	dBm	-60.46	-60.46	-94.0	-114.0
Io, Note 1	dBm/3.84 MHz	-50.00	-50.00	-81.0	-94.0
Propagation condition	-	AWGN		AWGN	
NOTE 1: CPICH RSCP and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.					
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for test 2 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.					

8.7.1.2.1.4.2 Procedure

- 1) A call is set up according to the test procedure specified in TS 34.108 [3] clause 7.3.2.3. The RF parameters for Test 1 are set up according to table 8.7.1.2.1.4.
- 2) SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message.
- 3) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.
- 4) SS shall transmit MEASUREMENT CONTROL message for intra frequency measurement and transmit MEASUREMENT CONTROL message for inter frequency measurement.
- 5) UE shall transmit periodically MEASUREMENT REPORT messages.
- 6) SS shall check CPICH_RSCP value of Cell 1 and Cell 2 in MEASUREMENT REPORT messages. CPICH RSCP power value measured from Cell 1 is compared to CPICH RSCP power value measured from Cell 2 for each MEASUREMENT REPORT message.
- 7) The result of step 5) is compared to actual power level difference of CPICH RSCP of Cell 1 and Cell 2.
- 8) SS shall count number of MEASUREMENT REPORT messages transmitted by UE. After 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.1.2.1.4 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 6) and 7) above are repeated.

9) After further 1000 MEASUREMENT REPORT messages have been received from UE, the SS shall transmit RRC CONNECTION RELEASE message.

10) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

-Default DPCH Offset Value	Not Present
-Downlink information per radio link list	
-Downlink information for each radio link	
-Choice mode	FDD
-Primary CPICH info	
-Primary scrambling code	100
-PDSCH with SHO DCH Info	Not Present
-PDSCH code mapping	Not Present
-Downlink DPCH info for each RL	
-CHOICE mode	FDD
-Primary CPICH usage for channel estimation	Primary CPICH may be used
-DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400
-Secondary CPICH info	Not Present
-DL channelisation code	
-Secondary scrambling code	Not Present
-Spreading factor	128
-Code number	96
-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

First MEASUREMENT CONTROL message for Intra frequency measurement (Step 3):

Information Element	Value/Remark
Message Type	
UE information elements -RRC transaction identifier -Integrity check info	0 Not Present
Measurement Information elements -Measurement Identity -Measurement Command -Measurement Reporting Mode - Measurement Report Transfer Mode - Periodical Reporting / Event Trigger Reporting Mode -Additional measurement list -CHOICE Measurement Type -Intra-frequency measurement - Intra-frequency measurement objects list -Intra-frequency cell info list -Intra-frequency measurement quantity -Filter coefficient -CHOICE mode -Measurement quantity -Intra-frequency reporting quantity -Reporting quantities for active set cells -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator -Reporting quantities for monitored set cells -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator -Reporting quantities for detected set cells -Reporting cell status -CHOICE reported cell -Maximum number of reported cells -Measurement validity -CHOICE <i>report criteria</i> -Amount of reporting -Reporting interval	1 Modify Acknowledged mode RLC Periodical reporting Not Present Intra-frequency measurement Not Present 0 FDD CPICH RSCP No report TRUE TRUE FDD TRUE TRUE FALSE TRUE No report FALSE TRUE FDD TRUE TRUE FALSE TRUE Not Present Report all active set cells + cells within monitored set on used frequency Virtual/active set cells + 2 Not Present Periodical reporting criteria Infinity 250 ms
Physical channel information elements -DPCH compressed mode status info	Not Present

Second MEASUREMENT CONTROL message for Inter frequency measurement (step 3):

Information Element	Value/Remark
Message Type	
UE information elements -RRC transaction identifier -Integrity check info	0 Not Present
Measurement Information elements -Measurement Identity -Measurement Command -Measurement Reporting Mode - Measurement Report Transfer Mode - Periodical Reporting / Event Trigger Reporting Mode -Additional measurement list -CHOICE Measurement Type -Inter-frequency measurement object list -CHOICE Inter-frequency cell removal -New inter-frequency cells -Cell for measurement -Inter-frequency measurement quantity -CHOICE reporting criteria -Filter coefficient -CHOICE mode -Measurement quantity for frequency quality estimate -Inter-frequency reporting quantity -UTRA Carrier RSSI -Frequency quality estimate -Non frequency related cell reporting quantities -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator -Reporting cell status -CHOICE reported cell -Maximum number of reported cells -Measurement validity -Inter-frequency set update -CHOICE report criteria -Amount of reporting -Reporting interval	2 Setup Acknowledged mode RLC Periodical reporting Not Present Inter-frequency measurement Not Present Cell 2 information is included Not Present Inter-frequency reporting criteria 0 FDD CPICH RSCP TRUE TRUE No report TRUE TRUE FDD TRUE TRUE <u>FALSE</u> TRUE Report cells within monitored set on non-used frequency 2 Not Present Not Present Periodical reporting criteria Infinity 500 ms
Physical channel information elements -DPCH compressed mode status info	Not Present

MEASUREMENT REPORT message for Inter frequency test cases

This message is common for all inter frequency test cases in clause 8.7 and is described in Annex I.

8.7.1.2.1.5 Test requirements

Table 8.7.1.2.1.3: CPICH_RSCP Inter frequency relative accuracy, test requirements

Parameter	Unit	Accuracy [dB]		Conditions
		Normal condition	Extreme condition	Io [dBm]
CPICH_RSCP	dBm	±7.1	±7.1	-94...-50

Table 8.7.1.2.1.4: CPICH RSCP Inter frequency tests parameters

Parameter	Unit	Test 1		Test 2	
		Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1	Channel 2	Channel 1	Channel 2
CPICH_Ec/Ior	dB	-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12	
SCH_Ec/Ior	dB	-12		-12	
PICH_Ec/Ior	dB	-15		-15	
DPCH_Ec/Ior	dB	-15	-	-15	-
OCNS_Ec/Ior	dB	-1.11	-0.94	-1.11	-0.94
Ior	dBm/ 3.84 MHz	-61.6	-61.6	-83.00	-93.46
Ior/Ior	dB	9.84	9.84	0.3	-9.24
CPICH RSCP, Note 1	dBm	-61.8	-61.8	-92.7	-112.7
Io, Note 1	dBm	-51.3	-51.3	-79.8	-93.0
Propagation condition	-	AWGN		AWGN	
NOTE 1: CPICH RSCP and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.					
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for test 2 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.					

The reported values for the relative inter frequency CPICH RSCP measurement shall meet the requirements in table 8.7.1.2.1.5.

Table 8.7.1.2.1.5: CPICH_RSCP Inter frequency relative accuracy requirements for the reported values

	Test 1	Test 2
Normal Conditions		
Lowest reported value cell 2	CPICH_RSCP_(x - 8)	CPICH_RSCP_(x - 28)
Highest reported value cell 2	CPICH_Ec/No_(x + 8)	CPICH_Ec/No_(x - 12)
Extreme Conditions		
Lowest reported value cell2	CPICH_RSCP_(x - 8)	CPICH_RSCP_(x - 28)
Highest reported value cell2	CPICH_Ec/No_(x + 8)	CPICH_Ec/No_(x - 12)
CPICH_RSCP_x is the reported value of cell 1		

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.7.2 CPICH Ec/Io

8.7.2.1 Intra frequency measurements accuracy

8.7.2.1.1 Absolute accuracy requirement

8.7.2.1.1.1 Definition and applicability

The absolute accuracy of CPICH Ec/Io is defined as the CPICH Ec/Io measured from one cell compared to the actual CPICH_Ec/Io power ratio from same cell.

The requirements and this test apply to all types of UTRA for the FDD UE.

8.7.2.1.1.2 Minimum Requirements

The accuracy requirements in table 8.7.2.1.1.1 are valid under the following conditions:

- CPICH_RSCP1_{dBm} ≥ -114 dBm.

$$- \left. \frac{I_o}{\hat{I}_{or}} \right|_{in \text{ dB}} - \left(\frac{CPICH - E_c}{I_{or}} \right) \Big|_{in \text{ dB}} \leq 20dB .$$

Table 8.7.2.1.1.1: CPICH_Ec/Io Intra frequency absolute accuracy, minimum requirements

Parameter	Unit	Accuracy [dB]		Conditions
		Normal condition	Extreme condition	Io [dBm/3.84 MHz]
CPICH_Ec/Io	dB	±1,5 for -14 ≤ CPICH Ec/Io ±2 for -16 ≤ CPICH Ec/Io < -14 ±3 for -20 ≤ CPICH Ec/Io < -16	±3	-94...-50

The normative reference for this requirement is TS 25.133 [2] clause 9.1.2.1.1.

8.7.2.1.1.3 Test purpose

The purpose of this test is to verify that the CPICH Ec/Io absolute measurement accuracy is within the specified limits in clause 8.7.2.1.1.2. This measurement is for Cell selection/re-selection and for handover evaluation.

8.7.2.1.1.4 Method of test

8.7.2.1.1.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

In this case all cells are on the same frequency. CPICH Ec/Io intra frequency absolute accuracy requirements are tested by using the test parameters in table 8.7.2.1.1.2.

Table 8.7.2.1.1.2: CPICH_Ec/Io Intra frequency parameters

Parameter	Unit	Test 1		Test 2		Test 3	
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior	dB	-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15	
DPCH_Ec/Ior	dB	-15	-	-15	-	-6	-
OCNS_Ec/Ior	dB	-1.11	-0.94	-1.11	-0.94	-2.56	-0.94
Ior	dBm/ 3.84 MHz	-56.98		-89.07		-94.98	
Ior/Ioc	dB	3.0	3.0	-2.9	-2.9	-9.0	-9.0
CPICH Ec/Io, Note 1	dBm	-14.0	-14.0	-16.0	-16.0	-20.0	-20.0
Ioc, Note 1	dBm/3.84 MHz	-50		-86		-94	
Propagation condition	-	AWGN		AWGN		AWGN	
NOTE 1: CPICH Ec/Io and Ioc levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.							
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.							

8.7.2.1.1.4.2 Procedure

- 1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2.3. The RF parameters for Test 1 are set up according to table 8.7.2.1.1.5.
- 2) SS shall transmit MEASUREMENT CONTROL message.
- 3) UE shall transmit periodically MEASUREMENT REPORT messages.
- 4) SS shall check CPICH_Ec/Io value in MEASUREMENT REPORT messages. According to table 8.7.2.1.1.3 the SS calculates CPICH_Ec/Io power ratio of Cell 1, which is compared to the actual CPICH Ec/Io power ratio from the same cell for each MEASUREMENT REPORT message.
- 5) SS shall count number of MEASUREMENT REPORT messages transmitted by UE. After 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.2.1.1.5 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 4) above is repeated. After further 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.2.1.1.5 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 4) above is repeated.
- 6) After further 1000 MEASUREMENT REPORT messages have been received from UE, the SS shall transmit RRC CONNECTION RELEASE message.
- 7) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Table 8.7.2.1.1.3: CPICH Ec/Io measurement report mapping

Reported value	Measured quantity value	Unit
CPICH_Ec/No_00	$\text{CPICH Ec/Io} < -24$	dB
CPICH_Ec/No_01	$-24 \leq \text{CPICH Ec/Io} < -23.5$	dB
CPICH_Ec/No_02	$-23.5 \leq \text{CPICH Ec/Io} < -23$	dB
...
CPICH_Ec/No_47	$-1 \leq \text{CPICH Ec/Io} < -0.5$	dB
CPICH_Ec/No_48	$-0.5 \leq \text{CPICH Ec/Io} < 0$	dB
CPICH_Ec/No_49	$0 \leq \text{CPICH Ec/Io}$	dB

Specific Message Contents

All messages indicated above shall use the same content as described in default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message for Intra frequency measurement (Step 1):

Information Element	Value/Remark
Message Type	
UE information elements -RRC transaction identifier -Integrity check info	0 Not Present
Measurement Information elements -Measurement Identity -Measurement Command -Measurement Reporting Mode - Measurement Report Transfer Mode - Periodical Reporting / Event Trigger Reporting Mode -Additional measurement list -CHOICE Measurement Type -Intra-frequency measurement - Intra-frequency measurement objects list -Intra-frequency measurement quantity -Filter coefficient -CHOICE mode -Measurement quantity -Intra-frequency reporting quantity -Reporting quantities for active set cells -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator -Reporting quantities for monitored set cells -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator -Reporting quantities for detected set cells -Reporting cell status -CHOICE reported cell -Maximum number of reported cells -Measurement validity -CHOICE <i>report criteria</i> -Amount of reporting -Reporting interval	1 Modify Acknowledged mode RLC Periodical reporting Not Present Intra-frequency measurement Not Present 0 FDD CPICH RSCP No report TRUE TRUE FDD TRUE TRUE FALSE TRUE No report FALSE FALSE FDD TRUE TRUE FALSE Not Present Report all active set cells + cells within monitored set on used frequency Virtual/active set cells + 2 Not Present Periodical reporting criteria Infinity 250 ms
Physical channel information elements -DPCH compressed mode status info	Not Present

MEASUREMENT REPORT message for Intra frequency test cases

This message is common for all intra frequency test cases in clause 8.7 and is described in Annex I.

8.7.2.1.1.5 Test requirements

The CPICH Ec/Io measurement accuracy shall meet the requirements in clause 8.7.2.1.1.2. The effect of assumed thermal noise and noise generated in the receiver (-99 dBm) shall be added into the required accuracy defined in subclause 8.7.2.1.1.2 as shown in table 8.7.2.1.1.4.

Table 8.7.2.1.1.4: CPICH_Ec/Io Intra frequency absolute accuracy, test requirements

Parameter	Unit	Accuracy [dB]		Conditions
		Normal condition	Extreme condition	Io [dBm/3.84 MHz]
CPICH_Ec/Io	dB	-3.1...1.9 for $-14 \leq \text{CPICH Ec/Io}$ -3.6...2.4 for $-16 \leq \text{CPICH Ec/Io} < -14$ -4.6...3.4 for $-20 \leq \text{CPICH Ec/Io} < -16$	-4.6...3.4	-94...-87
		± 1.95 for $-14 \leq \text{CPICH Ec/Io}$ ± 2.4 for $-16 \leq \text{CPICH Ec/Io} < -14$ ± 3.4 for $-20 \leq \text{CPICH Ec/Io} < -16$	± 3.4	-87...-50

The normative reference for this requirement is TS 25.133 [2] clause A.9.1.2.2.

Table 8.7.2.1.1.5: CPICH_Ec/Io Intra frequency tests parameters

Parameter	Unit	Test 1		Test 2		Test 3	
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior	dB	-9.7		-9.8		-9.9	
PCCPCH_Ec/Ior	dB	-11.7		-11.8		-11.9	
SCH_Ec/Ior	dB	-11.7		-11.8		-11.9	
PICH_Ec/Ior	dB	-14.7		-14.8		-14.9	
DPCH_Ec/Ior	dB	-14.7	-	-14.8	-	-5.9	-
OCNS_Ec/Ior	dB	-1.2	-1.02	-1.17	-0.99	-2.64	-0.97
Ioc	dBm/ 3.84 MHz	-58.5		-89.07		-93.98	
Ior/Ioc	dB	3.3	3.3	-2.6	-2.6	-8.7	-8.7
CPICH Ec/Io, Note 1	dBm	-13.6	-13.6	-15.6	-15.6	-19.6	-19.6
Io, Note 1	dBm	-51.3		-85.85		-92.9	
Propagation condition	-	AWGN		AWGN		AWGN	
NOTE 1: CPICH Ec/Io and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.							
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.							

The reported values for the absolute intra frequency CPICH Ec/Io measurement shall meet the requirements in table 8.7.2.1.1.6.

Table 8.7.2.1.1.6: CPICH_Ec/Io Intra frequency absolute accuracy requirements for the reported values

	Test 1	Test 2	Test 3
Normal Conditions			
Lowest reported value	CPICH_Ec/No_17	CPICH_Ec/No_12	CPICH_Ec/No_0
Highest reported value	CPICH_Ec/No_25	CPICH_Ec/No_22	CPICH_Ec/No_16
Extreme Conditions			
Lowest reported value	CPICH_Ec/No_14	CPICH_Ec/No_10	CPICH_Ec/No_0
Highest reported value	CPICH_Ec/No_28	CPICH_Ec/No_24	CPICH_Ec/No_16

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.7.2.1.2 Relative accuracy requirement

8.7.2.1.2.1 Definition and applicability

The relative accuracy of CPICH Ec/Io is defined as the CPICH Ec/Io measured from one cell compared to the CPICH Ec/Io measured from another cell on the same frequency.

The requirements and this test apply to all types of UTRA for the FDD UE.

8.7.2.1.2.2 Minimum Requirements

The accuracy requirements in table 8.7.2.1.2.1 are valid under the following conditions:

- CPICH_RSCP1,2|dBm ≥ -114 dBm.

$$- \left| CPICH_RSCP1 \Big|_{in\ dBm} - CPICH_RSCP2 \Big|_{in\ dBm} \right| \leq 20dB .$$

$$- \left(\frac{I_o}{\hat{I}_{or}} \right) \Big|_{in\ dB} - \left(\frac{CPICH_E_c}{I_{or}} \right) \Big|_{in\ dB} \leq 20dB .$$

Table 8.7.2.1.2.1: CPICH_Ec/Io Intra frequency relative accuracy

Parameter	Unit	Accuracy [dB]		Conditions
		Normal condition	Extreme condition	Io [dBm/3.84 MHz]
CPICH_Ec/Io	dB	±1,5 for -14 ≤ CPICH Ec/Io ±2 for -16 ≤ CPICH Ec/Io < -14 ±3 for -20 ≤ CPICH Ec/Io < -16	±3	-94...-50

The normative reference for this requirement is TS 25.133 [2] clauses 9.1.2.1.2 and A.9.1.2.2.

8.7.2.1.2.3 Test purpose

The purpose of this test is to verify that the CPICH Ec/Io relative measurement accuracy is within the specified limits in clause 8.7.2.1.2.2. This measurement is for Cell selection/re-selection and for handover evaluation.

8.7.2.1.2.4 Method of test

8.7.2.1.2.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

In this case all cells are in the same frequency. CPICH Ec/Io intra frequency relative accuracy requirements are tested by using test parameters in table 8.7.2.1.1.2.

8.7.2.1.2.4.2 Procedure

- 1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2.3. The RF parameters for Test 1 are set up according to table 8.7.2.1.1.3.
- 2) SS shall transmit MEASUREMENT CONTROL message.
- 3) UE shall transmit periodically MEASUREMENT REPORT messages.
- 4) SS shall check CPICH_Ec/Io value of Cell 1 and Cell 2 in MEASUREMENT REPORT messages. According to table 8.7.2.1.1.3 the SS calculates CPICH_Ec/Io power ratio of Cell 1 and Cell 2. CPICH_Ec/Io power ratio value measured from Cell 1 is compared to CPICH_Ec/Io power ratio value measured from Cell 2 for each MEASUREMENT REPORT message.

- 5) The result of step 3) is compared to actual power level difference of CPICH_Ec/Io of Cell 1 and Cell 2.
- 6) SS shall count number of MEASUREMENT REPORT messages transmitted by UE. After 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.2.1.1.3 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 4) and 5) above are repeated. After further 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.2.1.1.3 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 4) and 5) above are repeated.
- 7) After further 1000 MEASUREMENT REPORT messages have been received from UE, the SS shall transmit RRC CONNECTION RELEASE message.
- 8) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:
 MEASUREMENT CONTROL message for Intra frequency measurement in clause 8.7.2.1.1.4.2 is used.

MEASUREMENT REPORT message for Intra frequency test cases

This message is common for all intra frequency test cases in clause 8.7 and is described in Annex I.

8.7.2.1.2.5 Test requirements

Table 8.7.2.1.2.2: CPICH_Ec/Io Intra frequency relative accuracy

Parameter	Unit	Accuracy [dB]		Conditions
		Normal condition	Extreme condition	Io [dBm]
CPICH_Ec/Io	dB	±2.3 for $-14 \leq \text{CPICH Ec/Io}$ ±2.8 for $-16 \leq \text{CPICH Ec/Io} < -14$ ±3.8 for $-20 \leq \text{CPICH Ec/Io} < -16$	±3.8	-94...-50

Table 8.7.2.1.2.3: CPICH_Ec/Io Intra frequency tests parameters

Parameter	Unit	Test 1		Test 2		Test 3	
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior	dB	-9.7		-9.8		-9.9	
PCCPCH_Ec/Ior	dB	-11.7		-11.8		-11.9	
SCH_Ec/Ior	dB	-11.7		-11.8		-11.9	
PICH_Ec/Ior	dB	-14.7		-14.8		-14.9	
DPCH_Ec/Ior	dB	-14.7	-	-14.8	-	-5.9	-
OCNS_Ec/Ior	dB	-1.2	- 1.02	-1.17	-0.99	-2.64	-0.97
Ioc	dBm/ 3.84 MHz	-58.5		-89.07		-93.98	
Ior/Ioc	dB	3.3	3.3	-2.6	-2.6	-8.7	-8.7
CPICH Ec/Io, Note 1	dBm	-13.6	-13.6	-15.6	-15.6	-19.6	-19.6
Io, Note 1	dBm	-51.3		-85.85		-92.9	
Propagation condition	-	AWGN		AWGN		AWGN	
NOTE 1: CPICH Ec/Io and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.							
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.							

The reported values for the relative intra frequency CPICH Ec/Io measurement shall meet the requirements in table 8.7.2.1.2.4.

Table 8.7.2.1.2.4: CPICH_Ec/Io Intra frequency relative accuracy requirements for the reported values

	Test 1	Test 2	Test 3
Normal Conditions			
Lowest reported value cell 2	CPICH_Ec/No_(x - 5)	CPICH_Ec/No_(x - 6)	CPICH_Ec/No_(x - 8)
Highest reported value cell 2	CPICH_Ec/No_(x+ 5)	CPICH_Ec/No_(x - 6)	CPICH_Ec/No_(x+ 8)
Extreme Conditions			
Lowest reported value cell2	CPICH_Ec/No_(x - 8)	CPICH_Ec/No_(x - 8)	CPICH_Ec/No_(x - 8)
Highest reported value cell2	CPICH_Ec/No_(x + 8)	CPICH_Ec/No_(x+ 8)	CPICH_Ec/No_(x+ 8)
CPICH_Ec/No_x is the reported value of cell 1			

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.7.2.2 Inter frequency measurement accuracy

8.7.2.2.1 Void

8.7.2.2.2 Relative accuracy requirement

8.7.2.2.2.1 Definition and applicability

The relative accuracy of CPICH Ec/Io in the inter frequency case is defined as the CPICH Ec/Io measured from one cell compared to the CPICH Ec/Io measured from another cell on a different frequency. The requirements and this test apply to all types of UTRA for the FDD UE.

8.7.2.2.2.2 Minimum Requirements

The accuracy requirements in table 8.7.2.2.2.1 are valid under the following conditions:

- CPICH_RSCP1,2|_{dBm} ≥ -114 dBm.

$$- \left| CPICH_RSCP1 \Big|_{in\ dBm} - CPICH_RSCP2 \Big|_{in\ dBm} \right| \leq 20dB .$$

$$- \left| Channel\ 1_Io \Big|_{dBm/3.84\ MHz} - Channel\ 2_Io \Big|_{dBm/3.84\ MHz} \right| \leq 20\ dB.$$

$$- \left(\frac{I_o}{\hat{I}_{or}} \right) \Big|_{in\ dB} - \left(\frac{CPICH_E_c}{I_{or}} \right) \Big|_{in\ dB} \leq 20dB .$$

Table 8.7.2.2.1: CPICH_Ec/Io Inter frequency relative accuracy, minimum requirements

Parameter	Unit	Accuracy [dB]		Conditions
		Normal condition	Extreme condition	Io [dBm/3.84 MHz]
CPICH_Ec/Io	dB	±1.5 for -14 ≤ CPICH Ec/Io ±2 for -16 ≤ CPICH Ec/Io < -14 ±3 for -20 ≤ CPICH Ec/Io < -16	±3	-94...-50

The normative reference for this requirement is TS 25.133 [2] clauses 9.1.2.2.2 and A.9.1.2.2.

8.7.2.2.3 Test purpose

The purpose of this test is to verify that the CPICH Ec/Io relative measurement accuracy is within the specified limits in clause 8.7.2.2.2. This measurement is for Cell selection/re-selection and for handover evaluation.

8.7.2.2.4 Method of test

8.7.2.2.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

In this case both cells are in different frequency and compressed mode is applied. The gap length is 7, detailed definition is in clause C.5, set 1 of table C.5.2 except for TGRRC and TGCFN. TGPRC and TGCFN shall set to "Infinity" and "(Current CFN + (256 – TTI/10msec))mod 256". CPICH Ec/Io inter frequency relative accuracy requirements are tested by using test parameters in table 8.7.2.2.2.

Table 8.7.2.2.2.2: CPICH Ec/Io Inter frequency parameters

Parameter	Unit	Test 1		Test 2		Test 3	
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1	Channel 2	Channel 1	Channel 2	Channel 1	Channel 2
CPICH_Ec/Ior	dB	-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15	
DPCH_Ec/Ior	dB	-15	-	-6	-	-6	-
OCNS_Ec/Ior	dB	-1.11	-0.94	-2.56	-0.94	-2.56	-0.94
Ioc	dBm/ 3.84 MHz	-52.22	-52.22	-87.27	-87.27	-94.46	-94.46
Ior/Ioc	dB	-1.75	-1.75	-4.7	-4.7	-9.54	-9.54
CPICH Ec/Io, Note 1	dBm	-14.0	-14.0	-16.0	-16.0	-20.0	-20.0
Io, Note 1	dBm/3.84 MHz	-50	-50	-86	-86	-94	-94
Propagation condition	-	AWGN		AWGN		AWGN	
NOTE 1: CPICH Ec/Io and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.							
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.							

8.7.2.2.2.4.2 Procedure

- 1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2.3. The RF parameters for Test 1 are set up according to table 8.7.2.2.2.4.
- 2) SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message.
- 3) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.
- 4) SS shall transmit a MEASUREMENT CONTROL message for intra frequency measurement and transmit another MEASUREMENT CONTROL message for inter frequency measurement.
- 5) UE shall transmit periodically MEASUREMENT REPORT messages.
- 6) SS shall check CPICH_Ec/No value of Cell 1 and Cell 2 in MEASUREMENT REPORT messages. According to table 8.7.2.1.1.3 the SS calculates CPICH_Ec/Io power ratio of Cell 1 and Cell 2. CPICH_Ec/Io power ratio measured from Cell 1 is compared to CPICH_Ec/Io power value measured from Cell 2 for each MEASUREMENT REPORT message.
- 7) The result of step 6) is compared to actual power level difference of CPICH_Ec/Io of Cell 1 and Cell 2.
- 8) SS shall count number of MEASUREMENT REPORT messages transmitted by UE. After 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.2.2.2.4 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 6) and 7) above are repeated. After further 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.2.2.2.4 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 6) and 7) above are repeated.
- 9) After 1000 MEASUREMENT REPORT messages have been received from UE, the SS shall transmit RRC CONNECTION RELEASE message.

10) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

All messages indicated above shall use the same content as described in default message content in clause 9 of 34.108 [3], with the following exceptions:

-Default DPCH Offset Value	Not Present
-Downlink information per radio link list	
-Downlink information for each radio link	
-Choice mode	FDD
-Primary CPICH info	
-Primary scrambling code	100
-PDSCH with SHO DCH Info	Not Present
-PDSCH code mapping	Not Present
-Downlink DPCH info for each RL	
-CHOICE mode	FDD
-Primary CPICH usage for channel estimation	Primary CPICH may be used
-DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400
-Secondary CPICH info	Not Present
-DL channelisation code	
-Secondary scrambling code	Not Present
-Spreading factor	128
-Code number	96
-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

First MEASUREMENT CONTROL message for Intra frequency measurement (Step 3):

Information Element	Value/Remark
Message Type	
UE information elements -RRC transaction identifier -Integrity check info	0 Not Present
Measurement Information elements -Measurement Identity -Measurement Command -Measurement Reporting Mode - Measurement Report Transfer Mode - Periodical Reporting / Event Trigger Reporting Mode -Additional measurement list -CHOICE Measurement Type -Intra-frequency measurement - Intra-frequency measurement objects list - Intra-frequency cell info list -Intra-frequency measurement quantity -Filter coefficient -CHOICE mode -Measurement quantity -Intra-frequency reporting quantity -Reporting quantities for active set cells -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator -Reporting quantities for monitored set cells -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator -Reporting quantities for detected set cells -Reporting cell status -CHOICE reported cell -Maximum number of reported cells -Measurement validity -CHOICE <i>report criteria</i> -Amount of reporting -Reporting interval	1 Modify Acknowledged mode RLC Periodical reporting Not Present Intra-frequency measurement Not Present 0 FDD CPICH RSCP No report TRUE TRUE FDD TRUE TRUE FALSE TRUE No report FALSE TRUE FDD TRUE TRUE TRUE FALSE TRUE Not Present Report all active set cells + cells within monitored set on used frequency Virtual/active set cells + 2 Not Present Periodical reporting criteria Infinity 250 ms
Physical channel information elements -DPCH compressed mode status info	Not Present

Second MEASUREMENT CONTROL message for Inter frequency measurement (step 3):

Information Element	Value/Remark
Message Type	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
Measurement Information elements	
-Measurement Identity	2
-Measurement Command	Setup
-Measurement Reporting Mode	
- Measurement Report Transfer Mode	Acknowledged mode RLC
- Periodical Reporting / Event Trigger Reporting Mode	Periodical reporting
-Additional measurement list	Not Present
-CHOICE Measurement Type	Inter-frequency measurement
-Inter-frequency measurement	
-Inter-frequency cell info list	
-CHOICE Inter-frequency cell removal	Not Present
-New inter-frequency cells	Cell 2 information is included
-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	TRUE
-Frequency quality estimate	TRUE
-Non frequency related cell reporting quantities	
-SFN-SFN observed time difference reporting indicator	No report
-Cell synchronisation information reporting indicator	TRUE
-Cell Identity reporting indicator	TRUE
-CHOICE mode	FDD
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	FALSE TRUE
-Reporting cell status	
-CHOICE reported cell	Report cells within 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	Periodical reporting criteria
-Amount of reporting	Infinity
-Reporting interval	500 ms
Physical channel information elements	
-DPCH compressed mode status info	Not Present

MEASUREMENT REPORT message for Intra frequency test cases

This message is common for all inter frequency test cases in clause 8.7 and is described in Annex I.

8.7.2.2.2.5 Test requirements

The effect of assumed thermal noise and noise generated in the receiver (-99 dBm) shall be added into the required accuracy defined in clause 8.7.2.2.2.2 as shown in table 8.7.2.2.2.3.

Table 8.7.2.2.2.3: CPICH_Ec/Io Inter frequency relative accuracy, test requirements

Parameter	Unit	Normal condition	Extreme condition	Io [dBm/3.84 MHz]
CPICH_Ec/Io	dB	±3.5 for $-14 \leq \text{CPICH Ec/Io}$ ±4 for $-16 \leq \text{CPICH Ec/Io} < -14$ ±5 for $-20 \leq \text{CPICH Ec/Io} < -16$	± 5	-94...-87
		±2.3 for $-14 \leq \text{CPICH Ec/Io}$ ± 2.8 for $-16 \leq \text{CPICH Ec/Io} < -14$ ± 3.8 for $-20 \leq \text{CPICH Ec/Io} < -16$	± 3.8	-87...-50

The normative reference for this requirement is TS 25.133 [2] clause A.9.1.2.2.

Table 8.7.2.2.2.4: CPICH Ec/Io Inter frequency tests parameters

Parameter	Unit	Test 1		Test 2		Test 3	
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1	Channel 2	Channel 1	Channel 2	Channel 1	Channel 2
CPICH_Ec/Io	dB	-10		-10		-10	
PCCPCH_Ec/Io	dB	-12		-12		-12	
SCH_Ec/Io	dB	-12		-12		-12	
PICH_Ec/Io	dB	-15		-15		-15	
DPCH_Ec/Io	dB	-15	-	-6	-	-6	-
OCNS_Ec/Io	dB	-1.12	-0.95	-2.55	-0.94	-2.55	-0.94
loc	dBm/ 3.84 MHz	-53.5	-53.5	-86.27	-86.27	-93.46	-93.46
Ior/Ioc	dB	-1.45	-1.45	-4.4	-4.4	-9.24	-9.24
CPICH Ec/Io, Note 1	dBm	-13.8	-13.8	-15.7	-15.7	-19.7	-19.7
Io, Note 1	dBm	-51.15	-51.15	-84.9	-84.9	-93	-93
Propagation condition	-	AWGN		AWGN		AWGN	
NOTE 1: CPICH Ec/Io and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.							
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.							

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

The reported values for the relative inter frequency CPICH Ec/Io measurement shall meet the requirements in table 8.7.2.2.2.5.

Table 8.7.2.2.2.5: CPICH_Ec/Io Inter frequency relative accuracy requirements for the reported values

	Test 1	Test 2	Test 3
Normal Conditions			
Lowest reported value cell 2	CPICH_Ec/No_(x - 5)	CPICH_Ec/No_(x - 6)	CPICH_Ec/No_(x - 10)
Highest reported value cell 2	CPICH_Ec/No_(x+5)	CPICH_Ec/No_(x + 6)	CPICH_Ec/No_(x + 10)
Extreme Conditions			
Lowest reported value cell2	CPICH_Ec/No_(x - 8)	CPICH_Ec/No_(x - 8)	CPICH_Ec/No_(x - 10)
Highest reported value cell2	CPICH_Ec/No_(x + 8)	CPICH_Ec/No_(x + 8)	CPICH_Ec/No_(x + 10)
CPICH_Ec/No_x is the reported value of cell 1			

8.7.3 UTRA Carrier RSSI

NOTE: This measurement is for Inter-frequency handover evaluation.

8.7.3.1 Absolute measurement accuracy requirement

8.7.3.1.1 Definition and applicability

The absolute accuracy of UTRA Carrier RSSI is defined as the UTRA Carrier RSSI measured from one frequency compared to the actual UTRA Carrier RSSI power of that same frequency. The requirements and this test apply to all types of UTRA for the FDD UE.

8.7.3.1.2 Minimum Requirements

Table 8.7.3.1.1: UTRA Carrier RSSI Inter frequency absolute accuracy

Parameter	Unit	Accuracy [dB]		Conditions
		Normal condition	Extreme condition	Io [dBm/3.84 MHz]
UTRA Carrier RSSI	dBm	± 4	± 7	-94...-70
	dBm	± 6	± 9	-70...-50

The normative reference for this requirement is TS 25.133 [2] clause 9.1.3.1.

8.7.3.1.3 Test purpose

The purpose of this test is to verify that the UTRA Carrier RSSI measurement is within the specified limits. This measurement is for inter-frequency handover evaluation.

8.7.3.1.4 Method of test

8.7.3.1.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

In this case both cells are on different frequencies and compressed mode is applied. The gap length is 7, detailed definition is in clause C.5, Set 1 of table C.5.2 except for TGRRC and TGCFN. TGPRC and TGCFN shall set to "Infinity" and "(Current CFN + (256 – TTI/10msec))mod 256". UTRA Carrier RSSI absolute accuracy requirements are tested by using test parameters in table 8.7.3.1.2.

Table 8.7.3.1.2: UTRA Carrier RSSI Inter frequency test parameters

Parameter	Unit	Test 1		Test 2		Test 3	
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1	Channel 2	Channel 1	Channel 2	Channel 1	Channel 2
CPICH_Ec/lor	dB	-10		-10		-10	
PCCPCH_Ec/lor	dB	-12		-12		-12	
SCH_Ec/lor	dB	-12		-12		-12	
PICH_Ec/lor	dB	-15		-15		-15	
DPCH_Ec/lor	dB	-15	-	-6	-	-6	-
OCNS_Ec/lor	dB	-1.11	-0.94	-2.56	-0.94	-2.56	-0.94
loc	dBm/ 3.84 MHz	-52.22	-52.22	-70.27	-70.27	-94.46	-94.46
lor/loc	dB	-1.75	-1.75	-4.7	-4.7	-9.54	-9.54
CPICH Ec/lo, Note 1	dBm	-14.0	-14.0	-16.0	-16.0	-20.0	-20.0
lo, Note 1	dBm/3.84 MHz	-50	-50	-69	-69	-94	-94
Propagation condition	-	AWGN		AWGN		AWGN	
NOTE 1: CPICH Ec/lo and lo levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.							
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.							

- 1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2.3. The RF parameters for Test 1 are set up according to table 8.7.3.1.2.

8.7.3.1.4.2 Procedure

- 1) SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message.
- 2) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.
- 3) SS shall transmit MEASUREMENT CONTROL message.
- 4) UE shall transmit periodically MEASUREMENT REPORT messages.
- 5) SS shall check UTRA carrier RSSI value of Channel 2 in MEASUREMENT REPORT messages. UTRA carrier RSSI power of Channel 2 reported by UE is compared to actual UTRA Carrier RSSI value of Channel 2 for each MEASUREMENT REPORT message.
- 6) SS shall count number of MEASUREMENT REPORT messages transmitted by UE. After 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.3.1.2 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 5) above is repeated. After further 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.3.1.2 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 5) above is repeated.
- 7) After further 1000 MEASUREMENT REPORT messages have been received from UE, the SS shall transmit RRC CONNECTION RELEASE message.
- 8) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

All messages indicated above shall use the same content as described in default message content in clause 9 of 34.108 [3], with the following exceptions:

-Default DPCH Offset Value	Not Present
-Downlink information per radio link list	
-Downlink information for each radio link	
-Choice mode	FDD
-Primary CPICH info	
-Primary scrambling code	100
-PDSCH with SHO DCH Info	Not Present
-PDSCH code mapping	Not Present
-Downlink DPCH info for each RL	
-CHOICE mode	FDD
-Primary CPICH usage for channel estimation	Primary CPICH may be used
-DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400
-Secondary CPICH info	Not Present
-DL channelisation code	
-Secondary scrambling code	Not Present
-Spreading factor	128
-Code number	96
-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

MEASUREMENT CONTROL message for Inter frequency measurement (step 3):

Information Element	Value/Remark
Message Type	
UE information elements -RRC transaction identifier -Integrity check info	0 Not Present
Measurement Information elements -Measurement Identity -Measurement Command -Measurement Reporting Mode - Measurement Report Transfer Mode - Periodical Reporting / Event Trigger Reporting Mode -Additional measurement list -CHOICE Measurement Type -Inter-frequency measurement -Inter-frequency cell info list -CHOICE Inter-frequency cell removal -New inter-frequency cells -Cell for measurement -Inter-frequency measurement quantity -CHOICE reporting criteria -Filter coefficient -CHOICE mode -Measurement quantity for frequency quality estimate -Inter-frequency reporting quantity -UTRA Carrier RSSI -Frequency quality estimate -Non frequency related cell reporting quantities -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator -Reporting cell status -CHOICE reported cell -Maximum number of reported cells -Measurement validity -Inter-frequency set update -CHOICE report criteria -Amount of reporting -Reporting interval	2 Setup Acknowledged mode RLC Periodical reporting Not Present Inter-frequency measurement Not Present Cell 2 information is included. Not Present Inter-frequency reporting criteria 0 FDD CPICH RSCP TRUE TRUE Type 1 TRUE TRUE FDD TRUE TRUE FALSE TRUE Report cells within monitored set on non-used frequency 2 Not Present Not Present Periodical reporting criteria Infinity 500 ms
Physical channel information elements -DPCH compressed mode status info	Not Present

MEASUREMENT REPORT message for Inter frequency test cases

This message is common for all inter frequency test cases in clause 8.7 and is described in Annex I.

8.7.3.1.5 Test requirements

The UTRA Carrier RSSI absolute measurement accuracy shall meet the requirements in clause 8.7.3.1.2. The effect of assumed thermal noise and noise generated in the receiver (−99 dBm) shall be added into the required accuracy defined in subclause 8.7.3.1.2 as shown in table 8.7.3.1.3.

Table 8.7.3.1.3: UTRA Carrier RSSI absolute accuracy

Parameter	Unit	Accuracy [dB]		Conditions
		Normal condition	Extreme condition	Io [dBm/3.84 MHz]
UTRA Carrier RSSI	dBm	-4...5.2	-7...8.2	-94...-87
	dBm	± 4	± 7	-87...-70
	dBm	± 6	± 9	-70...-50

The normative reference for this requirement is TS 25.133 [2] clause A.9.1.3.2.

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.7.3.2 Relative measurement accuracy requirement

8.7.3.2.1 Definition and applicability

The relative accuracy requirement is defined as the UTRA Carrier RSSI measured from one frequency compared to the UTRA Carrier RSSI measured from another frequency. The requirements and this test apply to all types of UTRA for the FDD UE.

8.7.3.2.2 Minimum Requirements

The accuracy requirements in table 8.7.3.2.1 are valid under the following condition:

$$| \text{Channel 1}_{Io} |_{\text{dBm}/3.84 \text{ MHz}} - \text{Channel 2}_{Io} |_{\text{dBm}/3.84 \text{ MHz}} | < 20 \text{ dB.}$$

Table 8.7.3.2.1: UTRA Carrier RSSI Inter frequency relative accuracy

Parameter	Unit	Accuracy [dB]		Conditions
		Normal condition	Extreme condition	Io [dBm/3.84 MHz]
UTRA Carrier RSSI	dBm	± 7	± 11	-94...-50

The normative reference for this requirement is TS 25.133 [2] clause 9.1.3.2.

8.7.3.2.3 Test purpose

The purpose of this test is to verify that the UTRA Carrier RSSI measurement is within the specified limits. This measurement is for inter-frequency handover evaluation.

8.7.3.2.4 Method of test

8.7.3.2.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

In this case both cells are on different frequencies and compressed mode is applied. The gap length is 7, detailed definition is in clause C.5, Set 1 of table C.5.2 except for TGRR and TGCFN. TGPRC and

TGCFN shall set to "Infinity" and " $(\text{Current CFN} + (256 - \text{TTI}/10\text{msec})) \bmod 256$ ". UTRA Carrier RSSI relative accuracy requirements are tested by using test parameters in table 8.7.3.1.2.

- 1) A call is set up according to the test procedure specified in TS 34.108 [3] clause 7.3.2.3. The RF parameters for Test 1 are set up according to table 8.7.3.1.2.

8.7.3.2.4.2 Procedure

- 1) SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message.
- 2) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.
- 3) SS shall transmit MEASUREMENT CONTROL message.
- 4) UE shall transmit periodically MEASUREMENT REPORT messages.
- 5) SS shall check UTRA carrier RSSI value of Channel 1 and Channel 2 in MEASUREMENT REPORT messages. UTRA carrier RSSI power value measured from Channel 1 is compared to UTRA carrier RSSI power value measured from Channel 2 for each MEASUREMENT REPORT message.
- 6) The result of step 5) is compared to actual power level difference of UTRA Carrier RSSI of Channel 1 and Channel 2.
- 7) SS shall count number of MEASUREMENT REPORT messages transmitted by UE. After 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.3.1.2 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 5) and 6) above are repeated. After further 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.3.1.2 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 5) and 6) above are repeated.
- 8) After further 1000 MEASUREMENT REPORT messages have been received from UE, the SS shall transmit RRC CONNECTION RELEASE message.
- 9) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

All messages indicated above shall use the same content as described in default message content in clause 9 of 34.108 [3], with the following exceptions:

PHYSICAL CHANNEL RECONFIGURATION message and MEASUREMENT CONTROL message for Inter frequency measurement in clause 8.7.3.1.4.2 is used.

MEASUREMENT REPORT message for inter – frequency test cases

This message is common for all inter frequency test cases in clause 8.7 and is described in Annex I.

8.7.3.2.5 Test requirements

The UTRA Carrier RSSI relative measurement accuracy shall meet the requirements in clause 8.7.3.2.2. The effect of assumed thermal noise and noise generated in the receiver (–99 dBm) shall be added into the required accuracy defined in clause 8.7.3.2.2 as shown in table 8.7.3.2.2.

Table 8.7.3.2.2: UTRA Carrier RSSI relative accuracy

Parameter	Unit	Accuracy [dB]		Conditions Io [dBm/3.84 MHz]
		Normal condition	Extreme condition	
UTRA Carrier RSSI	dBm	-4...5.2	-7...8.2	-94...-87
	dBm	± 4	± 7	-87...-70
	dBm	± 6	± 9	-70...-50

The normative reference for this requirement is TS 25.133 [2] clause A.9.1.3.2.

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.7.3A GSM Carrier RSSI

Void.

8.7.3B Transport channel BLER

Void.

8.7.3C UE transmitted power

8.7.3C.1 Definition and applicability

The UE transmitted power absolute accuracy is defined as difference between the UE reported value and the UE transmitted power measured by test system. The reference point for the UE transmitted power shall be the antenna connector of the UE.

The requirements and this test apply to all types of UTRA for the FDD UE.

8.7.3C.2 Minimum requirements

The measurement period in CELL_DCH state is 1 slot.

Table 8.7.3C.2.1 UE transmitted power absolute accuracy

Parameter	Unit	Accuracy [dB]	
		PUEMAX 24dBm	PUEMAX 21dBm
UE transmitted power=PUEMAX	dBm	+1/-3	±2
UE transmitted power=PUEMAX-1	dBm	+1.5/-3.5	±2.5
UE transmitted power=PUEMAX-2	dBm	+2/-4	±3
UE transmitted power=PUEMAX-3	dBm	+2.5/-4.5	±3.5
PUEMAX-10≤UE transmitted power<PUEMAX-3	dBm	+3/-5	±4

NOTE 1: User equipment maximum output power, PUEMAX, is the maximum output power level without tolerance defined for the power class of the UE in TS 25.101 [1] section 6.2.1.

NOTE 2: UE transmitted power is the reported value.

For each empty slot created by compressed mode, no value shall be reported by the UE L1 for those slots. The normative reference for this requirement is TS 25.133 [2] clause 9.1.6.

8.7.3C.3 Test purpose

The purpose of this test is to verify that for any reported value of UE Transmitted Power in the range PUEMAX to PUEMAX-10 that the actual UE mean power lies within the range specified in clause 8.7.3C.2.

8.7.3C.4 Method of test

8.7.3C.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.
Frequencies to be tested: mid range; see clause G.2.4.

- 1) Connect SS to the UE antenna connector as shown in figure A.1.

The test parameters are given in Table 8.7.3C.4.1 and 8.7.3C.4.2 below. In the measurement control information it shall be indicated to the UE that periodic reporting of the UE transmitted power measurement shall be used.

Table 8.7.3C.4.1: General test parameters for UE transmitted power

Parameter	Unit	Value	Comment
DCH parameters		DL Reference Measurement Channel 12.2 kbps	As specified in clause C.3.1
Power Control		On	
Target quality value on DTCH	BLER	0.01	

Table 8.7.3C.4.2: Cell Specific parameters for UE transmitted power

Parameter	Unit	Cell 1
CPICH_Ec/lor	dB	-10
PCCPCH_Ec/lor	dB	-12
SCH_Ec/lor	dB	-12
PICH_Ec/lor	dB	-15
DPCH_Ec/lor	dB	Note1
OCNS		Note 2
\hat{I}_{or}/I_{oc}	dB	0
I_{oc}	dBm/3.84 MHz	-70
CPICH_Ec/lo	dB	-13
Propagation Condition		AWGN
Note 1: The DPCH level is controlled by the power control loop		
Note 2: The power of the OCNS channel that is added shall make the total power from the cell to be equal to I_{or} .		

8.7.3C.4.2 Procedure

- 1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2.3. The RF parameters are set up according to table 8.7.3C.4.1 and 8.7.3C.4.2. Set the UE power and Maximum allowed UL TX power to the maximum power for the UE power class.
- 2) SS shall send continuously during the entire test Up power control commands to the UE.
- 3) SS shall transmit the MEASUREMENT CONTROL message as defined in the specific message contents below.
- 4) Decode the UE Transmitted power reported by the UE in the next available MEASUREMENT REPORT message.
- 5) Measure the mean power of the UE over a period of one timeslot.

- 6) Steps 4 and 5 shall be repeated [100] times.
- 7) Decrease the Maximum allowed UL TX power by 1 dB. The SS shall transmit the PHYSICAL CHANNEL RECONFIGURATION message, as defined in the specific message contents below.
- 8) SS shall wait for the PHYSICAL CHANNEL RECONFIGURATION COMPLETE message from the UE.
- 9) Repeat from step 4) until the Maximum allowed UL TX Power reaches PUEMAX-10.

Specific Message Contents

All messages indicated above shall use the same content as described in default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message:

Information Element	Value/Remark
Message Type	
UE information elements -RRC transaction identifier -Integrity check info	0 Not Present
Measurement Information elements -Measurement Identity -Measurement Command -CHOICE Measurement type -UE Internal measurement quantity -Measurement quantity -Filter coefficient -UE Internal reporting quantity -UE Transmitted power -CHOICE mode -UE Rx-Tx time difference -CHOICE report criteria -Amount of reporting -Reporting interval -Measurement Reporting Mode -Measurement Report Transfer Mode -Periodical Reporting / Event Trigger Reporting Mode -AdditionalMeasurementList	5 SETUP UE Internal measurement UE Transmitted power 0 TRUE FDD FALSE Periodical reporting criteria Infinity 250 AM RLC Periodical reporting Not Present
Physical channel information elements -DPCH compressed mode status info	Not Present

MEASUREMENT REPORT message:

Information Element	Value/remark
Message Type Integrity check info - Message authentication code - RRC Message sequence number Measurement identity Measured Results - CHOICE Measurement - Choice mode - UE Transmitted power - UE Rx-Tx report entries Measured results on RACH Additional measured results Event results	The presence of this IE is dependent on PIXIT 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. This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value. 5 UE Internal measured results FDD Checked that this IE is present Checked that this IE is absent Checked that this IE is absent Checked that this IE is absent Checked that this IE is absent

PHYSICAL CHANNEL RECONFIGURATION message:

Information Element	Value/Remark
Message Type	
UE Information Elements -RRC transaction identifier -Integrity check info -Integrity protection mode info -Ciphering mode info -Activation time -New U-RNTI -New C-RNTI -RRC State Indicator -UTRAN DRX cycle length coefficient	0 Not Present Not Present Not Present Not Present Not Present Not Present CELL_DCH Not Present
CN Information Elements -CN Information info	Not Present
UTRAN mobility information elements -URA identity	Not Present
RB information elements -Downlink counter synchronisation info	Not Present
PhyCH information elements -Frequency info	Not Present
Uplink radio resources -Maximum allowed UL TX power	At the first time this value is set to PUEMAX-1. After the second time this value is decreased with 1 dB from previous value.
Downlink radio resources -CHOICE mode -Downlink PDSCH information -Downlink information common for all radio links -Downlink information per radio link list	FDD Not Present Not Present Not Present

8.7.3C.5 Test requirements

Compare each of the UE transmitted power reports against the following mean power measurement. At least 90% of the mean power measurements for any one value of reported UE transmitted power shall be within the range specified in table 8.7.3C.5.

NOTE It is not expected or required that the distribution of UE transmitted power reports is even for the 11 possible reported values.

Table 8.7.3C.5 UE transmitted power test requirements

Parameter	Unit	Mean Power range [dB]	
		PUEMAX 24dBm	PUEMAX 21dBm
UE transmitted power=PUEMAX	dBm	+1.7/-3.7	±2.7
UE transmitted power=PUEMAX-1	dBm	+2.2/-4.2	±3.2
UE transmitted power=PUEMAX-2	dBm	+2.7/-4.7	±3.7
UE transmitted power=PUEMAX-3	dBm	+3.2/-5.2	±4.2
UE transmitted power=PUEMAX-4	dBm	+3.7/-5.7	±4.7
UE transmitted power=PUEMAX-5	dBm	+3.7/-5.7	±4.7
UE transmitted power=PUEMAX-6	dBm	+3.7/-5.7	±4.7
UE transmitted power=PUEMAX-7	dBm	+3.7/-5.7	±4.7
UE transmitted power=PUEMAX-8	dBm	+3.7/-5.7	±4.7
UE transmitted power=PUEMAX-9	dBm	+3.7/-5.7	±4.7
UE transmitted power=PUEMAX-10	dBm	+3.7/-5.7	±4.7

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.7.4 SFN-CFN observed time difference

8.7.4.1 Intra frequency measurement requirement

8.7.4.1.1 Definition and applicability

The intra frequency SFN-CFN observed time difference is defined as the SFN-CFN observed time difference from the active cell to a neighbour cell that is in the same frequency. This measurement is specified in clause 5.1.8 of TS 25.215 [22].

The reference point for the SFN-CFN observed time difference shall be the antenna connector of the UE. The requirements and this test apply to all types of UTRA for the FDD UE.

8.7.4.1.2 Minimum requirements

The accuracy requirement in table 8.7.4.1.1 is valid under the following conditions:

$CPICH_RSCP_{1,2}|_{dBm} \geq -114$ dBm.

$$\left| CPICH_RSCP1|_{in\ dBm} - CPICH_RSCP2|_{in\ dBm} \right| \leq 20dB$$

$$\left(\frac{I_o}{\hat{I}_{or}} \right) |_{in\ dB} - \left(\frac{CPICH_E_c}{I_{or}} \right) |_{in\ dB} \leq 20dB$$

$$\left. \frac{I_o}{\hat{I}_{or}} \right|_{in \text{ dB}} - \left(\frac{P - CCPCH_Ec}{I_{or}} \right) \Big|_{in \text{ dB}}$$

is low enough to ensure successful SFN decoding.

Table 8.7.4.1.1

Parameter	Unit	Accuracy [chip]	Conditions
			Io [dBm/3.84 MHz]
SFN-CFN observed time difference	chip	± 1	-94...-50

The normative reference for this requirement is TS 25.133 [2] clauses 9.1.7.1 and A.9.1.4.2.

8.7.4.1.3 Test Purpose

The purpose of this test is to verify that the SFN-CFN observed time difference measurement accuracy is within the specified limits in the clause 8.7.4.1.2. This measurement is for handover timing purposes to identify active cell and neighbour cell time difference.

8.7.4.1.4 Method of test

8.7.4.1.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

During the test the timing difference between Cell 1 and 2 can be set to value from 0...9830399 chips.

In this case all cells are in the same frequency. Table 8.7.4.1.2 defines the limits of signal strengths and code powers, where the requirements are applicable.

Table 8.7.4.1.2: SFN-CFN observed time difference Intra frequency test parameters

Parameter	Unit	Test 1		Test 2		Test 3	
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior	dB	-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15	
DPCH_Ec/Ior	dB	-15		-15		-15	
OCNS_Ec/Ior	dB	-1.11		-1.11		-1.11	
\hat{I}_{or}/I_{oc}	dB	10.5		10.5		10.5	
Ioc	dBm/ 3.84 MHz	<i>I_o - 13.7 dB = I_{oc}, Note 1</i>		<i>I_o - 13.7 dB = I_{oc}, Note 1</i>		<i>I_o - 13.7 dB = I_{oc}, Note 1</i>	
Io	dBm/3.84 MHz	-50		-72		-94	
Relative delay of path received from cell 2 with respect to cell 1	chip	x Note 2					
Propagation condition	-	AWGN		AWGN		AWGN	
NOTE 1: <i>I_{oc}</i> level shall be adjusted according the total signal power <i>I_o</i> at receiver input and the geometry factor \hat{I}_{or}/I_{oc} .							
NOTE2: For example, x= 491520 or 9830399							
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not lose the Cell 2 in between the tests.							

- 1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2.3. The RF parameters for Test 1 are set up according to table 8.7.4.1.2.

8.7.4.1.4.2 Procedure

- 1) SS shall transmit MEASUREMENT CONTROL message.
- 2) UE shall transmit periodically MEASUREMENT REPORT message.
- 3) SS shall check "OFF" and "Tm" values in MEASUREMENT REPORT message and calculate SFN-CFN observed time difference value according to the definition in clause 5.1.8 of TS 25.215 [22]. This value shall be compared to the actual SFN-CFN observed time difference value for each MEASUREMENT REPORT message.
- 4) SS shall count the number of MEASUREMENT REPORT messages transmitted by UE. After 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.4.1.2 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 3) above is repeated. After further 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.4.1.2 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 3) above is repeated.
- 5) After further 1000 MEASUREMENT REPORT messages have been received from UE, the SS shall transmit RRC CONNECTION RELEASE message.
- 6) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message for intra frequency measurement

Information Element	Value/Remark
Message Type	
UE information elements -RRC transaction identifier -Integrity check info	0 Not Present
Measurement Information elements -Measurement Identity -Measurement Command -Measurement Reporting Mode - Measurement Report Transfer Mode - Periodical Reporting / Event Trigger Reporting Mode -Additional measurement list -CHOICE Measurement Type -Intra-frequency measurement - Intra-frequency measurement objects list -Intra-frequency measurement quantity -Filter coefficient -CHOICE mode -Measurement quantity -Intra-frequency reporting quantity -Reporting quantities for active set cells -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator -Reporting quantities for monitored set cells -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator -Reporting quantities for detected set cells -Reporting cell status -CHOICE reported cell -Maximum number of reported cells -Measurement validity -CHOICE <i>report criteria</i> -Amount of reporting -Reporting interval	1 Modify Acknowledged mode RLC Periodical reporting Not Present Intra-frequency measurement Not Present 0 FDD CPICH RSCP No report TRUE TRUE FDD TRUE TRUE FALSE TRUE No report TRUE TRUE FDD TRUE TRUE FLASE TRUE Not Present Report all active set cells + cells within monitored set on used frequency Virtual/active set cells + 2 Not Present Periodical reporting criteria Infinity 250 ms
Physical channel information elements -DPCH compressed mode status info	Not Present

MEASUREMENT REPORT message for Intra frequency test cases

This message is common for all intra frequency test cases in clause 8.7 and is described in Annex I.

8.7.4.1.5 Test requirements

The SFN-CFN observed time difference measurement accuracy shall meet the requirements in clause 8.7.4.1.2.

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.7.4.2 Inter frequency measurement requirement

8.7.4.2.1 Definition and applicability

The inter frequency SFN-CFN observed time difference is defined as the SFN-CFN time difference from the active cell to a neighbour cell that is in a different frequency. This measurement is specified in clause 5.1.8 of TS 25.215 [22].

The reference point for the SFN-CFN observed time difference shall be the antenna connector of the UE. The requirements and this test apply to all types of UTRA for the FDD UE.

8.7.4.2.2 Minimum requirements

The accuracy requirement in table 8.7.4.2.1 is valid under the following conditions:

$$CPICH_RSCP1,2|_{dBm} \geq -114 \text{ dBm.}$$

$$\left| CPICH_RSCP1|_{in \text{ dBm}} - CPICH_RSCP2|_{in \text{ dBm}} \right| \leq 20 \text{ dB}$$

$$| \text{Channel 1_Io}|_{dBm/3.84 \text{ MHz}} - \text{Channel 2_Io}|_{dBm/3.84 \text{ MHz}} | \leq 20 \text{ dB.}$$

$$\left(\frac{I_o}{\hat{I}_{or}} \right) |_{in \text{ dB}} - \left(\frac{CPICH_E_c}{I_{or}} \right) |_{in \text{ dB}} \leq 20 \text{ dB}$$

Table 8.7.4.2.1

Parameter	Unit	Accuracy [chip]	Conditions
			Io [dBm/3.84 MHz]
SFN-CFN observed time difference	chip	± 1	-94...-50

The normative reference for this requirement is TS 25.133 [2] clauses 9.1.7.2 and A.9.1.4.2.

8.7.4.2.3 Test purpose

The purpose of this test is to verify that the SFN-CFN observed time difference measurement accuracy is within the specified limits in the clause 8.7.4.2.2. This measurement is for handover timing purposes to identify active cell and neighbour cell time difference.

8.7.4.2.4 Method of test

8.7.4.2.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

During the test the timing difference between Cell 1 and 2 can be set to value from 0...9830399 chips.

In this test case both cells are in different frequency and compressed mode is applied. The gap length is 7, detailed definition is in clause C.5, set 1 of table C.5.2 except for TGRR and TGCFN. TGPRC and

TGCFN shall set to "Infinity" and " $(\text{Current CFN} + (256 - \text{TTI}/10\text{msec})) \bmod 256$ ". Table 8.7.4.2.2 defines the limits of signal strengths and code powers, where the requirement is applicable.

Table 8.7.4.2.2: SFN-CFN observed time difference Inter frequency tests parameters

Parameter	Unit	Test 1		Test 2		Test 3	
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1	Channel 2	Channel 1	Channel 2	Channel 1	Channel 2
CPICH_Ec/Ior	dB	-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15	
DPCH_Ec/Ior	dB	-15		-15		-15	
OCNS_Ec/Ior	dB	-1.11		-1.11		-1.11	
Ior/Ioc	dB	10.1		10.1		10.1	
Ioc	dBm/ 3.84 MHz	$I_o - 10.6 \text{ dB} = I_{oc}$, Note 1		$I_o - 10.6 \text{ dB} = I_{oc}$, Note 1		$I_o - 10.6 \text{ dB} = I_{oc}$, Note 1	
Io	dBm/3.84 MHz	-50		-72		-94	
Relative delay of path received from cell 2 with respect to cell 1	chip	x Note 2					
Propagation condition	-	AWGN		AWGN		AWGN	
NOTE 1: <i>Ioc</i> level shall be adjusted in each carrier frequency according the total signal power <i>Io</i> at receiver input and the geometry factor <i>Ior/Ioc</i> .							
NOTE2: For example, x= 491520 or 9830399							
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.							

- 1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2.3. The RF parameters for Test 1 are set up according to table 8.7.4.2.2.

8.7.4.2.4.2 Procedure

- 1) SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message.
- 2) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.
- 3) SS shall transmit MEASUREMENT CONTROL message.
- 4) UE shall transmit periodically MEASUREMENT REPORT messages.
- 5) SS shall check "OFF" and "Tm" values in MEASUREMENT REPORT message and calculate SFN-CFN observed time difference value according to the definition in clause 5.1.8 of TS 25.215 [22]. This value shall be compared to the actual SFN-CFN observed time difference value for each MEASUREMENT REPORT message.
- 6) SS shall count number of MEASUREMENT REPORT messages transmitted by UE. After 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.4.2.2 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 3) and 4) above are repeated. After further 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.4.2.2 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 4) and 5) above are repeated.
- 7) After further 1000 MEASUREMENT REPORT messages have been received from UE, the SS shall transmit RRC CONNECTION RELEASE message.

8) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

PHYSICAL CHANNEL RECONFIGURATION message for inter frequency measurement

Information Element	Value/Remark
Message Type	
UE Information Elements -RRC transaction identifier -Integrity check info -Integrity protection mode info -Ciphering mode info -Activation time -New U-RNTI -New C-RNTI -RRC State Indicator -UTRAN DRX cycle length coefficient	0 Not Present Not Present Not Present Not Present Not Present Not Present CELL_DCH Not Present
CN Information Elements -CN Information info	Not Present
UTRAN mobility information elements -URA identity	Not Present
RB information elements -Downlink counter synchronisation info	Not Present
PhyCH information elements -Frequency info	Not Present
Uplink radio resources -Maximum allowed UL TX power - CHOICE <i>channel requirement</i>	Not Present Not Present
Downlink radio resources -CHOICE mode -Downlink PDSCH information -Downlink information common for all radio links -Downlink DPCH info common for all RL -CHOICE mode -DPCH compressed mode info -Transmission gap pattern sequence -TGPSI -TGPS Status Flag -TGCFN -Transmission gap pattern sequence configuration parameters -TGMP -TGPRC -TGSN -TGL1 -TGL2 -TGD -TGPL1 -TGPL2 -RPP -ITP -CHOICE UL/DL mode -Downlink compressed mode method -Uplink compressed mode method -Downlink frame type -DeltaSIR1 -DeltaSIRafter1 -DeltaSIR2 -DeltaSIRafter2 -N Identify abort -T Reconfirm abort -TX Diversity Mode -SSDT information	FDD Not Present Not Present FDD 1 Activate (Current CFN + (256 – TTI/10msec))mod 256 FDD measurement Infinity 4 7 Not Present 0 3 Not Present Mode 0 Mode 0 UL and DL SF/2 SF/2 B 3.0 3.0 Not Present Not Present Not Present Not Present Not Present Not Present

-Default DPCH Offset Value	Not Present
-Downlink information per radio link list	
-Downlink information for each radio link	
-Choice mode	FDD
-Primary CPICH info	
-Primary scrambling code	100
-PDSCH with SHO DCH Info	Not Present
-PDSCH code mapping	Not Present
-Downlink DPCH info for each RL	
-CHOICE mode	FDD
-Primary CPICH usage for channel estimation	Primary CPICH may be used
-DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400
-Secondary CPICH info	Not Present
-DL channelisation code	
-Secondary scrambling code	Not Present
-Spreading factor	128
-Code number	96
-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

MEASUREMENT CONTROL message for Inter frequency measurement

Information Element	Value/Remark
Message Type	
UE information elements -RRC transaction identifier -Integrity check info	0 Not Present
Measurement Information elements -Measurement Identity -Measurement Command -Measurement Reporting Mode - Measurement Report Transfer Mode - Periodical Reporting / Event Trigger Reporting Mode -Additional measurement list -CHOICE Measurement Type -Inter-frequency measurement -Inter-frequency cell info list -CHOICE Inter-frequency cell removal -New inter-frequency cells -Cell for measurement -Inter-frequency measurement quantity -CHOICE reporting criteria -Filter coefficient -CHOICE mode -Measurement quantity for frequency quality estimate -Inter-frequency reporting quantity -UTRA Carrier RSSI -Frequency quality estimate -Non frequency related cell reporting quantities -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator -Reporting cell status -CHOICE reported cell -Maximum number of reported cells -Measurement validity -Inter-frequency set update -CHOICE report criteria -Amount of reporting -Reporting interval	2 Setup Acknowledged mode RLC Periodical reporting Not Present Inter-frequency measurement Not Present Cell 2 information is included Inter-frequency reporting criteria 0 FDD CPICH RSCP TRUE TRUE No report TRUE TRUE FDD TRUE TRUE FALSE TRUE Report cells within monitored set on non-used frequency 2 Not Present Not Present Periodical reporting criteria Infinity 500 ms
Physical channel information elements -DPCH compressed mode status info	Not Present

MEASUREMENT REPORT message for Inter frequency test cases

This message is common for all inter frequency test cases in clause 8.7 and is described in Annex I.

8.7.4.2.5 Test requirements

The SFN-CFN observed time difference measurement accuracy shall meet the requirements in clause 8.7.4.2.2.

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.7.5 SFN-SFN observed time difference

8.7.5.1 SFN-SFN observed time difference type 1

8.7.5.1.1 Definition and applicability

This measurement is specified in clause 5.1.9 of TS 25.215 [22]. The reference point for the SFN-SFN observed time difference type 1 shall be the antenna connector of the UE. The requirements and this test apply to all types of UTRA for the FDD UE.

8.7.5.1.2 Minimum requirements

The accuracy requirement in table 8.7.5.1.1 is valid under the following conditions:

$$CPICH_RSCP1,2|_{dBm} \geq -114 \text{ dBm.}$$

$$\left| CPICH_RSCP1|_{in \text{ dBm}} - CPICH_RSCP2|_{in \text{ dBm}} \right| \leq 20 \text{ dB}$$

$$\left. \frac{I_o}{\left(\hat{I}_{or} \right)} \right|_{in \text{ dB}} - \left(\frac{CPICH_E_c}{I_{or}} \right) \Big|_{in \text{ dB}} \leq 20 \text{ dB}$$

$$\left. \frac{I_o}{\left(\hat{I}_{or} \right)} \right|_{in \text{ dB}} - \left(\frac{P - CCPCH_E_c}{I_{or}} \right) \Big|_{in \text{ dB}} \text{ is low enough to ensure successful SFN decoding.}$$

Table 8.7.5.1.1

Parameter	Unit	Accuracy [chip]	Conditions
			Io [dBm/3.84 MHz]
SFN-SFN observed time difference type1	chip	± 1	-94...-50

The normative reference for this requirement is TS 25.133 [2] clause 9.1.8.1.1 and A.9.1.5.1.2.

8.7.5.1.3 Test purpose

The purpose of this test is to verify that the measurement accuracy of SFN-SFN observed time difference type 1 is within the limit specified in clause 8.7.5.1.2. This measurement is for identifying time difference between two cells.

8.7.5.1.4 Method of test

8.7.5.1.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

During the test the timing difference between Cell 1 and 2 can be set to value from 0...9830399 chips.

- 1) Connect SS to the UE antenna connector as shown in figure A.1

- 2) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.3. The RF parameters for Test 1 are set up according to table 8.7.5.1.2.

In this case all cells are in the same frequency. Table 8.7.5.1.2 defines the limits of signal strengths and code powers, where the requirements are applicable.

Table 8.7.5.1.2: SFN-SFN observed time difference type 1 Intra frequency test parameters

Parameter	Unit	Test 1		Test 2		Test 3	
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior	dB	-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15	
S-CCPCH_Ec/Ior	dB	-12		-12		-12	
OCNS_Ec/Ior	Db	-1.29		-1.29		-1.29	
Ior/Ioc	dB	10.5		10.5		10.5	
Ioc	dBm/ 3.84 MHz	<i>I_o -13.7 dB = I_{oc}</i> , Note 1		<i>I_o -13.7 dB = I_{oc}</i> , Note 1		<i>I_o -13.7 dB = I_{oc}</i> , Note 1	
I _o	dBm/3.84 MHz	-50		-72		-94	
Relative delay of path received from cell 2 with respect to cell 1	chip	x Note 2					
Propagation condition	-	AWGN		AWGN		AWGN	
NOTE 1: <i>I_{oc}</i> level shall be adjusted according the total signal power <i>I_o</i> at receiver input and the geometry factor <i>I_o/I_{oc}</i> .							
NOTE2: For example, x= 491520 or 9830399							
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.							

8.7.5.1.4.2 Procedure

- 1) SS shall transmit MEASUREMENT CONTROL message.
- 2) UE shall transmit periodically MEASUREMENT REPORT message.
- 3) SS shall check "SFN-SFN observed time difference type 1" value in MEASUREMENT REPORT message. The reported value shall be compared to actual SFN-SFN observed time difference type 1 value for each MEASUREMENT REPORT message.
- 4) SS shall count the number of MEASUREMENT REPORT messages transmitted by UE. After 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.5.1.2 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 3) above is repeated. After further 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.5.1.2 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 3) above is repeated.
- 5) After further 1000 MEASUREMENT REPORT messages have been received from UE, the SS shall transmit RRC CONNECTION RELEASE message.
- 6) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message for Intra frequency measurement (Step 1):

Information Element	Value/Remark
Message Type	
UE information elements -RRC transaction identifier -Integrity check info	0 Not Present
Measurement Information elements -Measurement Identity -Measurement Command -Measurement Reporting Mode - Measurement Report Transfer Mode - Periodical Reporting / Event Trigger Reporting Mode -Additional measurement list-CHOICE Measurement Type -Intra-frequency measurement - Intra-frequency measurement objects list -Intra-frequency measurement quantity -Filter coefficient -CHOICE mode -Measurement quantity -Intra-frequency reporting quantity -Reporting quantities for active set cells -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator -Reporting quantities for monitored set cells -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator -Reporting quantities for detected set cells -Reporting cell status -CHOICE reported cell -Maximum number of reported cells -Measurement validity -CHOICE <i>report criteria</i> -Amount of reporting -Reporting interval	1 Modify Acknowledged mode RLC Periodical reporting Not Present Intra-frequency measurement Not Present 0 FDD CPICH RSCP Type 1 TRUE TRUE FDD TRUE TRUE FALSE TRUE Type 1 TRUE TRUE FDD TRUE TRUE FALSE TRUE Not Present Report all active set cells + cells within monitored set on used frequency Virtual/active set cells + 2 Not Present Periodical reporting criteria Infinity 250 ms
Physical channel information elements -DPCH compressed mode status info	Not Present

MEASUREMENT REPORT message for Intra frequency test cases

This message is common for all intra frequency test cases in clause 8.7 and is described in Annex I.

8.7.5.1.5 Test requirements

The SFN-SFN observed time difference type 1 accuracy shall meet the requirements in clause 8.7.5.1.2.

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

CR-Form-v7	
CHANGE REQUEST	
⌘ 34.121 CR 381 ⌘ rev - ⌘	Current version: 5.3.1 ⌘

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:	⌘ HSDPA test 9.3.1	
Source:	⌘ Rohde & Schwarz	
Work item code:	⌘	Date: ⌘ 06/05/2004
Category:	⌘ F 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 .	Release: ⌘ Rel-5 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:	⌘ No test method and no test requirements available
Summary of change:	⌘ Test method and test requirements provided
Consequences if not approved:	⌘ No test possible

Clauses affected:	⌘ 9.3.1						
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 20px;">Y</td> <td style="width: 20px;">N</td> </tr> <tr> <td style="width: 20px;"> </td> <td style="width: 20px;"> </td> </tr> <tr> <td style="width: 20px;"> </td> <td style="width: 20px;"> </td> </tr> </table> Other core specifications ⌘ Test specifications ⌘ O&M Specifications ⌘	Y	N				
Y	N						
Other comments:	⌘						

How to create CRs using this form:

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

- 1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under <ftp://ftp.3gpp.org/specs/>. For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

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

9.3 Reporting of Channel Quality Indicator

9.3.1 AWGN Propagation Conditions

9.3.1.1 Definition and applicability

The reporting accuracy of channel quality indicator (CQI) under AWGN environments is determined by the reporting variance and the BLER performance using the transport format indicated by the reported CQI median.

The UE shall be tested only according to the data rate, supported. The data-rate-corresponding requirements shall apply to the UE.

The requirements and this test apply to all types of UTRA for the FDD UE for Release 5 and later releases that support HSDPA.

9.3.1.2 Minimum requirements

For the parameters specified in Table 9.3.1.1 and 9.3.1.2, the the reported CQI value shall be in the range of +/-2 of the reported median more than 90% of the time. If the HS-PDSCH BLER using transport format indicated by median CQI is less than 0.1, BLER using transport format indicated by (median CQI +2) shall be larger than 0.1. If the HS-PDSCH BLER using transport format indicated by median CQI is larger than 0.1, BLER using transport format indicated by (median CQI -1) shall be less than 0.1.

Table 9.3.1.1: Test Parameter for CQI: categories 1-6

Parameter	Unit	Test 1	Test 2	Test 3
\hat{I}_{or} / I_{oc}	dB	0	5	10
I_{oc}	dBm/3.84 MHz	-60		
Phase reference	-	P-CPICH		
HS-PDSCH E_c / I_{or} (*)	dB	-3		
HS-SCCH_1 E_c / I_{or}	dB	-10		
DPCH E_c / I_{or}	dB	-10		
Maximum number of H-ARQ transmission	-	1		
Number of HS-SCCH set to be monitored	-	1		
CQI feedback cycle	ms	2		
CQI repetition factor	-	1		
HS-DSCH transmission pattern	-	"XOOXOOX" to incorporate inter-TTI=3 UEs, where "X" indicates TTI in which HS-PDSCH is allocated to the UE, and "O" indicates TTI, in which HS-PDSCH is not allocated to the UE. DTX		
Note1:	Measurement power offset "I" is configured by RRC accordingly and as defined in [8].			
Note2:	TF for HS-PDSCH is configured according to the reported CQI statistics. TF based on median CQI, median CQI -1, median CQI+2 are used. Other physical channel parameters are configured according to the CQI mapping table described in TS25.214			

Table 9.3.1.2: Test Parameter for CQI: categories 11,12

Parameter	Unit	Test 1	Test 2	Test 3
\hat{I}_{or}/I_{oc}	dB	0	5	10
I_{oc}	dBm/3.84 MHz	-60		
Phase reference	-	P-CPICH		
HS-PDSCH E_c/I_{or} (*)	dB	-3		
HS-SCCH_1 E_c/I_{or}	dB	-10		
DPCH E_c/I_{or}	dB	-10		
Maximum number of H-ARQ transmission	-	1		
Number of HS-SCCH set to be monitored	-	1		
CQI feedback cycle	ms	2		
CQI repetition factor	-	1		
HS-DSCH transmission pattern	-	"XOOXOOX", where "X" indicates TTI in which HS-PDSCH is allocated to the UE, and "O" indicates TTI, in which HS-PDSCH is not allocated to the UE. DTX		
Note1:	Measurement power offset "I" is configured by RRC accordingly and as defined in [8].			
Note2:	TF for HS-PDSCH is configured according to the reported CQI statistics. TF based on median CQI, median CQI -1, median CQI+2 are used. Other physical channel parameters are configured according to the CQI mapping table described in TS25.214			

The reference for this requirement is TS 25.101 [1] clauses 9.3.1.1 and 9.3.1.2.

9.3.1.3 Test purpose

To verify the UE receiver is capable of reporting the channel quality indicator (CQI) under AWGN by the reporting variance and the BLER performance using the transport format indicated by the reported CQI median such that CQI reported by the UE falls within the acceptable range.

9.3.1.4 Method of test

9.3.1.4.1 Initial conditions

~~FFS~~

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

1. Connect SS and an AWGN noise source to the UE antenna connector as shown in figure A.10.
2. Set Ack/Nack handling at the SS such that regardless of the response from the UE (Ack, Nack or DTX) new data is sent each time, this is because HARQ transmissions are set to one, i.e. no re-transmission of failed blocks.

9.3.1.4.2 Procedure

~~FFS~~

- 1). Set up an HSDPA call according to TS 34.108 [3] clause 7.3.6.3. Set test conditions according to test 1 according table 9.3.2.1 (Category 1-6) or 9.3.2.3 (Category 11,12).

2) Set test conditions according to test 1 according table 9.3.1.1

Note: the following part of the procedure will test, if the UE reports a limited range of CQI values under the predefined channel conditions.

3) The SS shall send TF according to CQI value [16] and keep it regardless of the CQI value, sent by the UE. For any HSDPA block, transmitted by the SS, record the received CQI value. Continue transmission and CQI collection up to [2000]

4) Set up a relative frequency distribution for the CQI-values, reported. Calculate the median value (Median CQI is the CQI that is at or crosses 50% distribution). This CQI-value is declared as Median CQI value.

5) If [1800] or more of the CQI values are in the range $(\text{Median CQI} - 2) \leq \text{Median CQI} \leq (\text{Median CQI} + 2)$ then continue with step(7), otherwise fail the UE.

Note: the following part of the procedure will test, if BLER versus CQI has the correct sense.

6) The SS shall transmit the TF according to the median-CQI value and shall not react on the UE's CQI value. For any HSDPA block, transmitted by the SS, record ACK, NACK or DTX

Upon a transmission:

ACK received → record a success,

NACK received → record a fail

DTX received → record a fail

Continue transmission and ACK, NACK and DTX collection up to [1000] times

If the ratio $(\text{No of fails} / \text{No of fails} + \text{successes}) < 0.1$ then goto (7), otherwise goto (8)

7) The SS shall transmit the TF according to the median-CQI+2 value and shall not react on the UE's CQI value.

For any HSDPA block, transmitted by the SS, record ACK, NACK or DTX

Upon a transmission:

ACK received → record a success,

NACK received → record a fail

DTX received → record a fail

Continue transmission and ACK, NACK and DTX collection up to [1000] times

If the ratio $(\text{No of fails} / \text{No of fails} + \text{successes}) > 0.1$ then pass the UE, otherwise fail the UE

8) The SS shall transmit the TF according to the median-CQI-1 value and shall not react on the UE's CQI value.

For any HSDPA block, transmitted by the SS, record ACK, NACK or DTX

Upon a transmission:

ACK received → record a success,

NACK received → record a fail

DTX received → record a fail

Continue transmission and ACK, NACK and DTX collection up to [1000] times

If the ratio $(\text{No of fails} / \text{No of fails} + \text{successes}) < 0.1$ then pass the UE, otherwise fail the UE.

Note: The statistical selectivity based on [1000] samples is not sufficient to distinguish between BLER < 0.1 and > 0.1. However, it is assumed that the following differences [true BLER on Median CQI - true BLER on (Median CQI + 2)] and [true BLER on Median CQI - true BLER on (Median CQI - 1)] are large enough to exceed the statistical uncertainty and hence the measurement can indicate the correct sense of BLER.

9) Repeat the same procedure (3 to 8) with test conditions according to the table 9.3.1.1 and table 9.3.1.2 for the other tests:

Category 1-6: Test 2 and Test 3

Category 11,12: Test 1 and Test 2

9.3.1.5 Test Requirements

~~FFS~~

The pass fail decision is already described in the test procedure 9.3.1.4.2.

No setting test tolerances are applied to the test parameters.

CHANGE REQUEST

34.121 CR 385 # rev - # Current version: 5.3.1

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:	#	Statistical approach for HSDPA tests	
Source:	#	Rohde & Schwarz	
Work item code:	#		Date: # 12/05/2004
Category:	#	F	Release: # R5
		Use <u>one</u> of the following categories:	Use <u>one</u> of the following releases:
		F (correction)	2 (GSM Phase 2)
		A (corresponds to a correction in an earlier release)	R96 (Release 1996)
		B (addition of feature),	R97 (Release 1997)
		C (functional modification of feature)	R98 (Release 1998)
		D (editorial modification)	R99 (Release 1999)
		Detailed explanations of the above categories can be found in 3GPP TR 21.900 .	Rel-4 (Release 4)
			Rel-5 (Release 5)
			Rel-6 (Release 6)

Reason for change:	#	No statistical approach for HSDPA tests available
Summary of change:	#	Provides a statistical approach for HSDPA tests.
Consequences if not approved:	#	Testing ambiguous

Clauses affected:	#	F. 6.3 (new)								
Other specs affected:	#	<table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;">#</td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;">#</td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;">#</td> <td style="text-align: center;">X</td> </tr> </table> Other core specifications # Test specifications # O&M Specifications #	Y	N	#	X	#	X	#	X
Y	N									
#	X									
#	X									
#	X									
Other comments:	#									

[Annex F.6.3 Statistical Testing of HSDPA Receiver Performance](#)

[F.6.3.1 Definition](#)

[Information Bit Throughput R:](#)

[The measured information bit throughput R is defined as the sum \(in kilobits\) of the information bit payloads \(excluding the 24-bit HS-DSCH CRC\) successfully received during the test interval, divided by the duration of the test interval \(in seconds\).](#)

F.6.3.2 Mapping throughput to block error ratio

a) In measurement practice the UE indicates successfully received information bit payload by signalling an ACK to the SS.

If payload is received, but damaged and cannot be decoded, the UE signals a NACK.

b) Only the ACK and NACK signals, not the data bits received, are accessible to the SS.

The number of bits is known in the SS from knowledge of what payload was sent.

c) For fixed reference channel the number of bits in a TTI is fixed during one test.

d) The time in the measurement interval is composed of successful TTIs (ACK), unsuccessful TTIs (NACK) and DTX-TTIs.

e) DTX-TTIs occur regularly according to the H-set. (regDTX).

In real live this is the time when other UEs are served.

regDTX vary from test to test but are fixed within the test.

f) Additional DTX-TTIs occur statistically when the UE is not responding

ACK or NACK where it should. (statDTX)

This may happen when the UE was not expecting data or decided that the data were not intended for it.

The pass fail decision is done by observing the number of NACKs

number of ACKs and

number of statDTXs

(regDTX is implicitly known to the SS)

The ratio: $(\text{NACK} + \text{statDTX}) / (\text{NACK} + \text{statDTX} + \text{ACK})$ is the Block Error Ratio BLER.

Taking into account the time, consumed by the ACK-, NACK-, and DTX-TTIs (regular and statistical), BLER can be mapped unambiguously to throughput for any single FRC test.

F.6.3.3 Bad DUT factor

Note:

Data throughput in a communication system is of statistical nature and must be measured and decided pass or fail. The specified limit of throughput related to the ideal throughput in different throughput tests is in the range of a few % to near 100%. To make it comparable with BER, we define the complement of the relative throughput: BLER as defined above. Complementary this is in the range of near 100% down to a few %. For e.g. BLER = 1%, the currently in BER BLER used Bad DUT factor $M=1.5$ is highly meaningful. For e.g. BLER = 99%, the currently used $M=1.5$ obviously meaningless.

An appropriate definition of the bad DUT factor is illustrated in figure F.6.3.3: constant and variable Bad DUT factor.

It illustrates how to find the Bad BLER when the nominal BLER is given.

1) In the range $0\% < \text{nominal BLER} > 10\%$ the Bad DUT factor is constant 1.5

2) In the range $90\% < \text{bad BLER} > 100\%$ it decreases to 1. (symmetrical to (1))

3) The range in between is interpolated by an arc section.

The example shows: nominal BLER=35,6% \rightarrow bad BLER=47.67.5% \rightarrow $M=1.34$ (blue mapping)

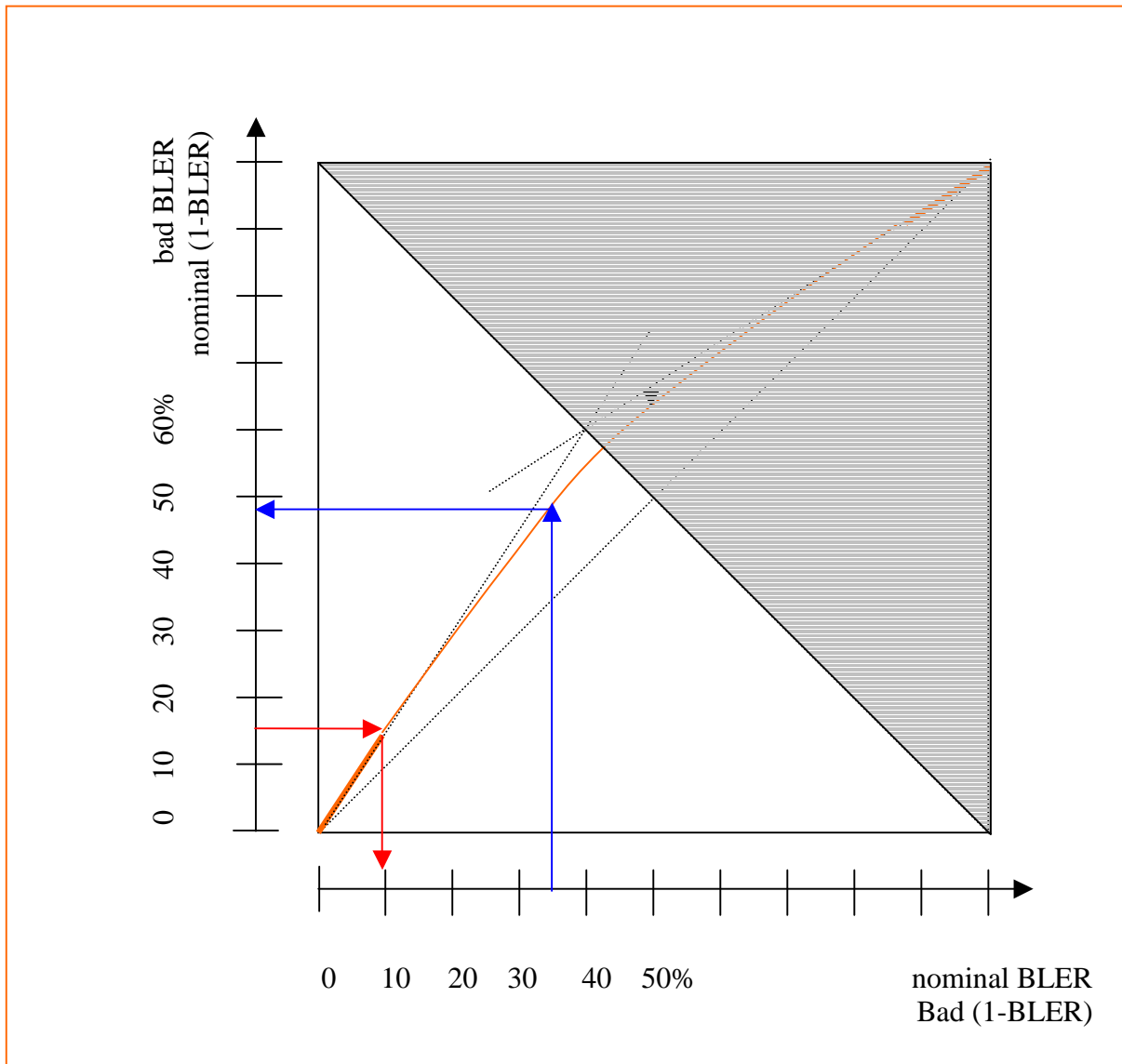


Figure F.6.3.3: constant and variable Bad DUT factor

Formula: For $0 < \text{BLER} \leq 0.1$: $M = 1.5$

For $0.1 < \text{BLER} < 0.9$:

$$M(\text{BLER}) := \frac{\sqrt{r^2 - (\text{BLER} - 2.35)^2}}{\text{BLER}} - \frac{1.35}{\text{BLER}}$$

For $0.9 \leq \text{BLER} < 1$: $M(\text{BLER}) = \frac{2}{3}\text{BLER} + \frac{1}{3}$

With BLER: nominal Block Error Ratio ($0 < \text{BLER} < 1$)

With $r = 2.70415$ (Radius of the arc)

F.6.3.3.1 Bad DUT factor, range of applicability

There is one practical reason to avoid the grey shaded area of figure F.6.3.3: constant and variable Bad DUT factor, which is inaccuracy. For BLER near 1 the Bad DUT factor M is near 1. For $M=1$, exactly, the pass and fail criteria do not intersect. The test never is finalised.

For M near 1 the pass and fail criteria exhibit a very smooth intersection. In addition the binomial distribution and its inverse are of discrete nature. Therefore the test limit and the number of samples is calculable only very ambiguous.

It is proposed to apply the bad DUT factor only in the not shaded area of figure F.6.3.3. This is done by the following:

Standard test mode:

Use BLER as defined above in the range of 0 to 50%, use $M > 1$ as defined above. The Test Limit will be $>$ the Test Requirement in the table F.6.3.5. below.

Complementary test mode:

If BLER is in the range 50 to 100%, use 1-BLER instead. Use $m < 1$ instead of M. As a consequence, the Test Limit $<$ Test Requirement

Formula for m: For $0 < (1-BLER) \leq 0.15$: $m = 1/1.5$

$$\text{For } 0.15 < (1-BLER) < .85: \quad m := \frac{2.35 - \sqrt{r^2 - [(1 - BLER) + 1.35]^2}}{(1 - BLER)}$$

In the figure F.6.3.3: this is represented by the red mapping. The Measurement table F.6.3.5. below distinguishes between m and M.

F.6.3.4 Minimum Test time

Same as with BER BLER there is a minimum test time is necessary for multipath fading profiles with the same justification:

<u>profile</u>	<u>Minimum Test time</u>
<u>PA3, PB3</u>	<u>164s</u>
<u>VA30</u>	<u>16.4s</u>
<u>VA 120</u>	<u>4.1s</u>

F.6.3.5 Applicability and characteristics of the Measurement Table F.6.3.5.1.

The purpose of tables F.6.3.5.1 to F.6.3.5.4 is to decide throughput pass or fail. (the Ior/Ioc levels are only for reference)

Meaning of a decision:

A passed DUT is not worse than a Bad DUT with 95% confidence level.

A failed DUT is not better than a Limit DUT with 95% confidence level.

The minimum Test Time is

1) the minimum test time due to statistical reasons

(To ensure the confidence level, the test must be continued until a certain number of samples (NACK+ statDTX +ACK) is reached.)

2) the minimum test time due to multipath fading.

The longer test time applies. It is marked in table F.6.3.5. which one applies.

Statistical independence:

If a process works within an incremental redundancy sequence, the samples are not independent. The incremental redundancy sequence for every process must be finalised, successfully or unsuccessfully, on or beyond the minimum test time.

Then the BLER (or 1-BLER) is compared with the Test Limit to decide pass or fail.

Note: It is FFS, if correlation within groups of retransmissions may influence the confidence level of the test.

Formula:

The theory, to derive the minimum number of samples and the Test Limit, takes into consideration that BLER is in the range of near 0% to near 100%. Hence it is based on the binomial distribution and its inverse cumulative function: qbinom:

For the standard test mode:

$$\underline{n_{e_{low}} = qbinom(D, ns, M * BLER_{limit})} \quad (1)$$

$$\underline{n_{e_{high}} = qbinom(1-D, ns, BLER_{limit})} \quad (2)$$

given: 1-D: confidence level= 95%

BLER_{limit}=Block error ratio at the limit

M: Bad DUT factor >1

Input: ns: number of samples (NACK+ statDTX + ACK)

Output ne: number of events (NACK+ statDTX)

The intersection of (1) and (2) is the Test Limit with the coordinates: ns and ne

For the complementary test mode:

$$\underline{n_{e_{low}} = qbinom(D, ns, 1-BLER_{limit})} \quad (3)$$

$$\underline{n_{e_{high}} = qbinom(1-D, ns, m*(1-BLER_{limit}))} \quad (4)$$

given: 1-D: confidence level= 95%

1-BLER_{limit}= Success ratio at the limit

m: Bad DUT factor <1

Input: ns: number of samples (NACK+ statDTX + ACK)

Output ne: number of events (ACK)

The intersection of (3) and (4) is the Test Limit with the coordinates: ns and ne

Note:

In contrast to BER BLER test, this approach does not contain any test time optimisation. (early pass, early fail)

Nomenclature used in the measurement tables F.6.3.5... below:

NACK+ statDTX + ACK is summarised as No of samples

NACK+ statDTX is summarised as No of errors

ACK is summarised as No of successes

In the standard test mode (BLER) the ratio: No of errors/ No of samples is recorded.

In the complementary test mode (1-BLER) the ratio: No of successes/ No of samples is recorded.

The test mode, used, is indicated in the rightmost column with s or c

The transition from the standard to the complementary test mode can also be seen in the column relative test requirement: BLER% → (1-BLER%)

The generic term for No of errors (s mode) or No of successes (c mode) is No of events. This is used in the table column Test Limit.

Measurement Table F.6.3.5.1

<u>Single link performance</u>							
<u>QPSK H-Set 1,2,3</u>							
	<u>Absolute Test requirement (kbps)</u>		<u>Relative Test requirement (normalized to ideal=534kbps)</u> <u>No of events / No of samples in %</u>	<u>Test limit expressed as No of events / min No of samples</u> <u>(Bad DUT factor)</u>	<u>Min No of samples</u> <u>(number of events to pass)</u> <u>Mandatory, if applicable</u>	<u>Test time in s</u> <u>Mandatory if fading,</u> <u>Informative and approx. if statistical</u>	
<u>Test1 (Ior/Ioc=0dB)</u>	<u>PA3</u>	<u>65</u>	<u>87,82% → (12.18%)</u>	<u>60/595 (m = 1 / 1.5)</u>	<u>N.A.</u>	<u>164s (fading)</u>	<u>c</u>
							<u>c</u>
	<u>PB3</u>	<u>23</u>	<u>95.69% → (4.31%)</u>	<u>64/1796 (m = 1/1.5)</u>	<u>N.A.</u>	<u>164s (fading)</u>	<u>c</u>
		<u>138</u>	<u>74.14% → (25.86%)</u>	<u>58/268 (m = 0.682)</u>	<u>N.A.</u>	<u>164s(fading)</u>	<u>c</u>
	<u>VA30</u>	<u>22</u>	<u>95.9% → (4.1%)</u>	<u>64/1888 (1/1.5)</u>	<u>N.A.</u>	<u>16.4s(fading)</u>	<u>c</u>
		<u>142</u>	<u>73.4% → (26.6%)</u>	<u>59/264 (m = 0.684)</u>	<u>N.A.</u>	<u>16.4s(fading)</u>	<u>c</u>
	<u>VA120</u>	<u>13</u>	<u>97.564% → (2.436%)</u>	<u>63/3224 (m = 1/1.5)</u>	<u>3224 (≥63)</u>	<u>H-set 1: 19.5s(stat) H-set 2: 13s (stat) H-set 3: 6.5s (stat)</u>	<u>c</u>
		<u>140</u>	<u>(73.77)→ 26.23%</u>	<u>59/268 (m = 0.683)</u>	<u>N.A.</u>	<u>4.1s(fading)</u>	<u>c</u>
	<u>Absolute Test requirement (kbps)</u>		<u>Relative Test requirement (normalized to ideal=534kbps)</u> <u>No of events / No of samples in %</u>	<u>Test limit expressed as No of events / min No of samples</u> <u>(Bad DUT factor)</u>	<u>Min No of samples</u> <u>(number of events to pass)</u> <u>Mandatory, if applicable</u>	<u>Test time in s</u> <u>Mandatory if fading,</u> <u>Informative and approx. if statistical</u>	
<u>Test1 (Ior/Ioc=10dB)</u>	<u>PA3</u>	<u>309</u>	<u>42.1%</u>	<u>83/171 (M = 1.295)</u>	<u>N.A.</u>	<u>164s (fading)</u>	<u>s</u>
		<u>423</u>	<u>20.74%</u>	<u>60/237 (M = 1.445)</u>	<u>N.A.</u>	<u>164s (fading)</u>	<u>s</u>

	<u>PB3</u>	<u>181</u>	<u>66.1%→</u> <u>(33.9%)</u>	<u>62/215</u> <u>(m = 0.703)</u>	<u>N.A</u>	<u>164s (fading)</u>	<u>c</u>
		<u>287</u>	<u>46.22%→</u> <u>(53.78%)</u>	<u>84/176</u> <u>(m = 0.77)</u>	<u>N.A.</u>	<u>164s(fading)</u>	<u>c</u>
	<u>VA30</u>	<u>190</u>	<u>64.4%→</u> <u>(35.6%)</u>	<u>64/211</u> <u>(m = 0.708)</u>	<u>N.A.</u>	<u>16.4s(fading)</u>	<u>c</u>
		<u>295</u>	<u>44.72% →</u> <u>55.28%</u>	<u>85/173</u> <u>(m = 0.775)</u>	<u>N.A.</u>	<u>16.4s(fading)</u>	<u>c</u>
	<u>VA120</u>	<u>181</u>	<u>(66.1%)→</u> <u>33.9%</u>	<u>62/215</u> <u>(m = 0.703)</u>	<u>N.A.</u>	<u>4.1s(fading)</u>	<u>c</u>
		<u>275</u>	<u>(48.5%)→</u> <u>51.5%</u>	<u>79/174</u> <u>(m = 0.761)</u>	<u>N.A.</u>	<u>4.1s(fading)</u>	<u>c</u>

Measurement Table **F.6.3.5 .2**

<u>Single link performance</u>							
<u>16 QAM H-Set 1,2,3</u>							
	<u>Absolute Test requirement (kbps)</u>	<u>Relative Test requirement (normalized to ideal=777 kbps)</u> <u>No of events / No of samples in %</u>	<u>Test limit expressed as No of events / min No of samples</u> <u>(Bad DUT factor)</u>	<u>Min No of samples</u> <u>(number of events to pass)</u> <u>Mandatory, if applicable</u>	<u>Test time in s</u> <u>Mandatory if fading,</u> <u>Informative and approx. if statistical</u>		
<u>Test1 (Ior/Ioc=10dB)</u>	<u>PA3</u>	<u>198</u>	<u>74.53%→</u> <u>(25.47%)</u>	<u>FFS</u>	<u>FFS</u>	<u>FFS</u>	
		<u>368</u>	<u>52.66%→</u> <u>(47.34%)</u>	<u>74/179</u> <u>m=0.746</u>	<u>N.A.</u>	<u>164s(fading)</u>	<u>c</u>
	<u>PB3</u>	<u>34</u>	<u>95.626%</u> <u>→(4.374%)</u>	<u>FFS</u>	<u>FFS</u>	<u>FFS</u>	
		<u>219</u>	<u>71.83%</u> <u>→(28,17%)</u>	<u>FFS</u>	<u>FFS</u>	<u>FFS</u>	
	<u>VA30</u>	<u>47</u>	<u>93.95%</u> <u>→(6.05%)</u>	<u>FFS</u>	<u>FFS</u>	<u>FFS</u>	
		<u>214</u>	<u>72.47%</u> <u>→(27.53%)</u>	<u>FFS</u>	<u>FFS</u>	<u>FFS</u>	
	<u>VA120</u>	<u>28</u>	<u>96.4% →(3.6%)</u>	<u>FFS</u>	<u>FFS</u>	<u>FFS</u>	
		<u>267</u>	<u>64.5%</u> <u>→(35.5%)</u>	<u>FFS</u>	<u>FFS</u>	<u>FFS</u>	

Measurement Table F.6.3.5 .3

<u>Single link performance</u>						
<u>QPSK H-Set 4</u>						
	<u>Absolute Test requirement (kbps)</u>		<u>Relative Test requirement (normalized to ideal=534 kbps)</u> <u>No of events / No of samples in %</u>	<u>Test limit expressed as No of events / min No of samples</u> <u>(Bad DUT factor)</u>	<u>Min No of samples</u> <u>(number of events to pass)</u> <u>Mandatory, if applicable</u>	<u>Test time in s</u> <u>Mandatory if fading,</u> <u>Informative and approx. if statistical</u>
<u>Test1 (Ior/Ioc=0dB)</u>	<u>PA3</u>	<u>72</u>	<u>86.5% →(13.5%)</u>	<u>FFS</u>	<u>FFS</u>	<u>FFS</u>
	<u>PB3</u>	<u>24</u>	<u>95.5% →(4.5%)</u>	<u>FFS</u>	<u>FFS</u>	<u>FFS</u>
		<u>142</u>	<u>73.4% →(26.6%)</u>	<u>FFS</u>	<u>FFS</u>	<u>FFS</u>
	<u>VA30</u>	<u>19</u>	<u>96.44% →(3.56%)</u>	<u>FFS</u>	<u>FFS</u>	<u>FFS</u>
		<u>148</u>	<u>72.27% →(27.73%)</u>	<u>FFS</u>	<u>FFS</u>	<u>FFS</u>
<u>VA120</u>	<u>11</u>	<u>98% →(2%)</u>	<u>FFS</u>	<u>FFS</u>	<u>FFS</u>	
	<u>144</u>	<u>73% →(27%)</u>	<u>FFS</u>	<u>FFS</u>	<u>FFS</u>	
<u>Single link performance</u>						
<u>QPSK H-Set 4</u>						
	<u>Absolute Test requirement (kbps)</u>		<u>Relative Test requirement (normalized to ideal=534 kbps)</u> <u>No of events / No of samples in %</u>	<u>Test limit expressed as No of events / min No of samples</u> <u>(Bad DUT factor)</u>	<u>Min No of samples</u> <u>(number of events to pass)</u> <u>Mandatory, if applicable</u>	<u>Test time in s</u> <u>Mandatory if fading,</u> <u>Informative and approx. if statistical</u>
<u>Test1 (Ior/Ioc=10dB)</u>	<u>PA3</u>	<u>340</u>	<u>36.29%</u>	<u>75/177 (M=1,334)</u>	<u>N.A.</u>	<u>164s (fading) s</u>
		<u>439</u>	<u>17.74%</u>	<u>58/266 (M=1,468)</u>	<u>N.A.</u>	<u>164s (fading) s</u>
	<u>PB3</u>	<u>186</u>	<u>65.15% →(34.85%)</u>	<u>FFS</u>	<u>FFS</u>	<u>FFS</u>
		<u>299</u>	<u>44%</u>	<u>87/173 (M = 1.282)</u>	<u>N.A.</u>	<u>164s(fading) s</u>

	VA30	183	65.7% →(34.3%)	FFS	FFS	FFS	
		306	42.66%				s
	VA120	170	68,14% →(31.86%)	FFS	FFS	FFS	
		284	46.78% →(53.22%)	81/172 (m = 0.767)	N.A.	4.1s (fading)	c

Measurement Table **F.6.3.5 .4**

<u>Single link performance</u>						
<u>QPSK</u> <u>H-Set 5</u>						
	<u>Absolute Test requirement (kbps)</u>	<u>Relative Test requirement (normalized to ideal=801 kbps)</u> <u>No of events / No of samples in %</u>	<u>Test limit expressed as No of events / min No of samples</u> <u>(Bad DUT factor)</u>	<u>Min No of samples</u> <u>(number of events to pass)</u> <u>Mandatory, if applicable</u>	<u>Test time in s</u> <u>Mandatory if fading,</u> <u>Informative and approx. if statistical</u>	
<u>Test1</u> <u>(Ior/Ioc=0dB)</u>	<u>PA3</u>	<u>98</u>		<u>FFS</u>	<u>FFS</u>	<u>FFS</u>
		<u>221</u>		<u>FFS</u>	<u>FFS</u>	<u>FFS</u>
	<u>PB3</u>	<u>35</u>		<u>FFS</u>	<u>FFS</u>	<u>FFS</u>
		<u>207</u>		<u>FFS</u>	<u>FFS</u>	<u>FFS</u>
	<u>VA30</u>	<u>33</u>		<u>FFS</u>	<u>FFS</u>	<u>FFS</u>
		<u>213</u>		<u>FFS</u>	<u>FFS</u>	<u>FFS</u>
	<u>VA120</u>	<u>20</u>		<u>FFS</u>	<u>FFS</u>	<u>FFS</u>
		<u>210</u>		<u>FFS</u>	<u>FFS</u>	<u>FFS</u>

<u>Single link performance</u>						
<u>QPSK</u> <u>H-Set 5</u>						
	<u>Absolute Test requirement (kbps)</u>	<u>Relative Test requirement (normalized to ideal=801 kbps)</u> <u>No of events / No of samples in %</u>	<u>Test limit expressed as No of events / min No of samples</u> <u>(Bad DUT factor)</u>	<u>Min No of samples</u> <u>(number of events to pass)</u> <u>Mandatory, if applicable</u>	<u>Test time in s</u> <u>Mandatory if fading,</u> <u>Informative and approx. if statistical</u>	
<u>Test1</u> <u>(Ior/Ioc=10dB)</u>	<u>PA3</u>	<u>464</u>	<u>42%</u>	<u>84/174</u> <u>(M=1.295)</u>	<u>N.A.</u>	<u>164s (fading)</u> <u>s</u>
		<u>635</u>	<u>20.67%</u>	<u>59/234</u> <u>(M=1.446)</u>	<u>N.A.</u>	<u>164s(fading)</u> <u>s</u>
	<u>PB3</u>	<u>272</u>	<u>66.02%</u> <u>→(33.98%)</u>	<u>FFS</u>	<u>FFS</u>	<u>FFS</u>
		<u>431</u>	<u>46.16%</u> <u>→(53.84)</u>	<u>84/176</u> <u>(m=0.77)</u>	<u>N.A.</u>	<u>164s(fading)</u> <u>c</u>
	<u>VA30</u>	<u>285</u>	<u>64.4%</u> <u>→(35.6%)</u>	<u>FFS</u>	<u>FFS</u>	<u>FFS</u>
		<u>443</u>	<u>44.7%</u> <u>→(55.3%)</u>	<u>85/173</u> <u>(m=0.775)</u>	<u>N.A.</u>	<u>16.4s(fading)</u> <u>c</u>
	<u>VA120</u>	<u>272</u>	<u>66.02%</u> <u>→(33.98%)</u>	<u>FFS</u>	<u>FFS</u>	<u>FFS</u>

		<u>413</u>	<u>48.4%</u> <u>→(51.6%)</u>	<u>81/176</u> <u>(m=0.761)</u>	<u>N.A.</u>	<u>4.1s(fading)</u>	<u>c</u>
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Note:

The minimum test time due to fading dominates all test.—

CHANGE REQUEST

⌘ **34.121 CR 386** ⌘ rev **-** ⌘ Current version: **5.3.1** ⌘

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 to GSM neighbour reporting in 8.6.4.1		
Source:	⌘ Rohde & Schwarz		
Work item code:	⌘	Date:	⌘ 02/05/2004
Category:	⌘ F	Release:	⌘ R5
	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:	⌘ The measurement control does not contain the set up for event 3B as it is needed from the minimum requirements. Further the compressed mode settings have not been copied correctly from TS 25.133 and the activation of the patterns is not described according to the measurement requirements. The Modify command can not be used as the measurement was not setup before. One occurrence of the reporting cell status is not needed as the measurement "report criteria" is not equal to "periodical reporting criteria" or "No reporting". Further this element is not existing in ASN.1 definition in TS 25.331.
Summary of change:	⌘ The set up for event 3B is included in the measurement control. The compressed mode setting and the activation is corrected. Measurement Command "Modify" is changed to "setup" Reporting cell status is removed.
Consequences if not approved:	⌘ The UE could fail the test because the UE measurement is not set up correctly.

Clauses affected:	⌘ 8.6.4.1										
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;">⌘</td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;">⌘</td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;">⌘</td> <td style="text-align: center;">X</td> </tr> </table>	Y	N	⌘	X	⌘	X	⌘	X	Other core specifications Test specifications O&M Specifications	⌘
Y	N										
⌘	X										
⌘	X										
⌘	X										
Other comments:	⌘										

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at <http://www.3gpp.org/specs/CR.htm>.

Below is a brief summary:

- 1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under <ftp://ftp.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

8.6.4.1 Correct reporting of GSM neighbours in AWGN propagation condition

8.6.4.1.1 Definition and applicability

In the event triggered reporting period the measurement reporting delay is defined as the time between any event that will trigger a measurement report until the UE starts to transmit the measurement report over the Uu interface. This requirement assumes that the measurement report is not delayed by other RRC signalling on the DCCH. This measurement reporting delay excludes a delay uncertainty resulted when inserting the measurement report to the TTI of the uplink DCCH . The delay uncertainty is twice the TTI of the uplink DCCH.

The requirements in this section apply only to UE supporting FDD and GSM for Release 99, Release 4, Release 5 and later releases.

8.6.4.1.2 Minimum requirements

Measurements on GSM cells can be requested with BSIC verified or BSIC non-verified.

- 1) In CELL_DCH state when a transmission gap pattern sequence is provided by the UTRAN the UE shall continuously measure GSM cells and search for new GSM cells given in the monitored set.
- 2) If the UE does not need compressed mode to perform GSM measurements:
 - the UE shall measure all GSM cells present in the monitored set
 - the relevant requirements for GSM dedicated mode when a TCH channel is assigned in TS 45.008 shall apply.

The normative reference for these requirements is TS 25.133 [2] clauses 8.1.2.5 and A.8.4.1.

8.6.4.1.3 Test purpose

To verify that the UE meets the minimum requirements.

8.6.4.1.4 Method of test

8.6.4.1.4.1 Test 1 initial conditions

Test 1 with BSIC verification required case:

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

The test parameters are given in table 8.6.4.1, 8.6.4.2 and 8.6.4.3 below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 3B and 3C shall be used. The test consists of three successive time periods, with a time duration of T1, T2 and T3 respectively.

Table 8.6.4.1: General test parameters for Correct reporting of GSM neighbours in AWGN propagation condition, Test 1

Parameter	Unit	Value	Comment
DCH parameters		DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.101 section A.3.1
Power Control		On	
Target quality value on DTCH	BLER	0.01	
Compressed mode patterns - GSM carrier RSSI measurement - GSM Initial BSIC identification		DL Compressed mode reference pattern 2 in Set 2 Pattern 2	Only applicable for UE requiring compressed mode patterns As specified in table A.22 TS 25.101 section A.5 As specified in section 8.1.2.5.2.1 TS 25.133 table 8.7.
Active cell		Cell 1	
Inter-RAT measurement quantity		GSM Carrier RSSI	
BSIC verification required		Required	
Threshold other system	dBm	-80	Absolute GSM carrier RSSI threshold for event 3B and 3C.
Hysteresis	dB	0	
Time to Trigger	ms	0	
Filter coefficient		0	
Monitored cell list size		24 FDD neighbours on Channel 1 6 GSM neighbours including ARFCN 1	Measurement control information is sent before the compressed mode patterns starts.
N Identify abort		66	Taken from table 8.7.
T1	s	5	
T2	s	7	
T3	s	5	

Table 8.6.4.2: Cell specific test parameters for Correct reporting of GSM neighbours in AWGN propagation condition (cell 1)

Parameter	Unit	Cell 1
		T1, T2, T3
UTRA RF Channel Number		Channel 1
CPICH_Ec/Ior	dB	-10
PCCPCH_Ec/Ior	dB	-12
SCH_Ec/Ior	dB	-12
PICH_Ec/Ior	dB	-15
DPCH_Ec/Ior	dB	Note 1
OCNS		Note 2
\hat{I}_{or}/I_{oc}	dB	0
I_{oc}	dBm/ 3.84 MHz	-85
CPICH_Ec/Io	dB	-13
Propagation Condition		AWGN
Note 1: The DPCH level is controlled by the power control loop. Note 2: The power of the OCNS channel that is added shall make the total power from the cell to be equal to I_{or} .		

Table 8.6.4.3: Cell specific test parameters for Correct reporting of GSM neighbours in AWGN propagation condition (cell 2)

Parameter	Unit	Cell 2		
		T1	T2	T3
Absolute RF Channel Number		ARFCN 1		
RXLEV	dBm	-Infinity	-75	-85

8.6.4.1.4.2 Test 1 Procedure

- 1) The RF parameters are set up according to T1.
- 2) The UE is switched on.
- 3) A call is set up according to the test procedure specified in TS 34.108 [3] sub clause 7.3.2.3.
- 4) SS shall transmit a MEASUREMENT CONTROL message.
- 5) After 5 seconds from the beginning of T1, the SS shall switch the power settings from T1 to T2.
- 6) UE shall transmit a MEASUREMENT REPORT message triggered by event 3C. The measurement reporting delay from the beginning of T2 shall be less than 6.24s. If the UE fails to report the event within the required delay, then a failure is recorded. If the reporting delay for this event is within the required limit, the number of successful tests is increased by one.
- 7) After 7 seconds from the beginning of T2, the SS shall switch the power settings from T2 to T3.
- 8) UE shall transmit a MEASUREMENT REPORT message triggered by event 3B. The measurement reporting delay from the beginning of T3 shall be less than 960 ms. If the reporting delay for this event is within the required limit, the number of successful tests is increased by one.
- 9) After 5 seconds from the beginning of T3, the UE is switched off.
- 10) Repeat steps 1-9 according to Annex F.6.2 Table F.6.2.8.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message:

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
Measurement Information elements	
-Measurement Identity	2
-Measurement Command (10.3.7.46)	Modify Setup
-Measurement Reporting Mode (10.3.7.49)	
-Measurement Report Transfer Mode	AM RLC
-Periodical Reporting / Event Trigger Reporting Mode	Event trigger
-Additional measurements list (10.3.7.1)	Not Present
-CHOICE <i>Measurement type</i>	Inter-RAT measurement
-Inter-RAT measurement (10.3.7.27)	
-Inter-RAT measurement objects list (10.3.7.23)	Not Present
-Inter-RAT measurement quantity (10.3.7.29)	
-Measurement quantity for UTRAN quality estimate (10.3.7.38)	
-Filter coefficient	0
-CHOICE mode	FDD
-Measurement quantity	CPICH Ec/N0
-CHOICE system	GSM
-Measurement quantity	GSM Carrier RSSI
-Filter coefficient	0
-BSIC verification required	Required
-Inter-RAT reporting quantity (10.3.7.32)	
-Reporting cell status (10.3.7.61)	Not Present
-CHOICE reported cell	Report cells within active set or within virtual active set or of the other RAT
-Maximum number of reported cells	2
-CHOICE report criteria	Inter-RAT measurement reporting criteria
-Inter-RAT measurement reporting criteria (10.3.7.30)	
-Parameters required for each event	4 2
-Inter-RAT event identity (10.3.7.24)	Event 3B
-Threshold own system	Not Present
-W	Not Present
-Threshold other system	-80 dBm
-Hysteresis	0 dB
-Time to trigger	0 ms
-Reporting cell status (10.3.7.61)	
-CHOICE reported cell	Report cells within active set or within virtual active set or of the other RAT
-Maximum number of reported cells	2
-Inter-RAT event identity (10.3.7.24)	Event 3C
-Threshold own system	Not Present
-W	Not Present
-Threshold other system	-80 dBm
-Hysteresis	0 dB
-Time to trigger	0 ms
-Reporting cell status (10.3.7.61)	
-CHOICE reported cell	Report cells within active set or within virtual active set or of the other RAT
-Maximum number of reported cells	2
Physical channel information elements	
-DPCH compressed mode status info (10.3.6.34)	Active (for all three patterns specified in table 8.6.4.1)

8.6.4.1.4.3 Test 2 initial conditions

Test 2 without BSIC verification required case:

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

The test parameters are given in table 8.6.4.4, 8.6.4.5 and 8.6.4.6 below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 3B and 3C shall be used. The test consists of three successive time periods, with a time duration of T1, T2 and T3 respectively.

Table 8.6.4.4: General test parameters for Correct reporting of GSM neighbours in AWGN propagation condition, Test 2

Parameter	Unit	Value	Comment
DCH parameters		DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.101 section A.3.1
Power Control		On	
Target quality value on DTCH	BLER	0.01	
Compressed mode patterns - GSM carrier RSSI measurement		DL Compressed mode reference pattern 2 in Set 2	Only applicable for UE requiring compressed mode patterns As specified in table A.22 TS 25.101 section A.5
Active cell		Cell 1	
Inter-RAT measurement quantity		GSM Carrier RSSI	
BSIC verification required		not required	
Threshold other system	dBm	-80	Absolute GSM carrier RSSI threshold for event 3B and 3C.
Hysteresis	dB	0	
Time to Trigger	Ms	0	
Filter coefficient		0	
Monitored cell list size		24 FDD neighbours on Channel 1 6 GSM neighbours including ARFCN 1	Measurement control information is sent before the compressed mode patterns starts.
T1	s	5	
T2	s	2	
T3	s	5	

Table 8.6.4.5: Cell specific test parameters for Correct reporting of GSM neighbours in AWGN propagation condition (cell 1)

Parameter	Unit	Cell 1
		T1, T2, T3
UTRA RF Channel Number		Channel 1
CPICH_Ec/lor	dB	-10
PCCPCH_Ec/lor	dB	-12
SCH_Ec/lor	dB	-12
PICH_Ec/lor	dB	-15
DPCH_Ec/lor	dB	Note 1
OCNS		Note 2
\hat{I}_{or}/I_{oc}	dB	0
I_{oc}	dBm/ 3.84 MHz	-85
CPICH_Ec/lo	dB	-13
Propagation Condition		AWGN
Note 1: The DPCH level is controlled by the power control loop.		
Note 2: The power of the OCNS channel that is added shall make the total power from the cell to be equal to I_{or} .		

Table 8.6.4.6: Cell specific test parameters for Correct reporting of GSM neighbours in AWGN propagation condition (cell 2)

Parameter	Unit	Cell 2		
		T1	T2	T3
Absolute RF Channel Number		ARFCN 1		
RXLEV	dBm	-Infinity	-75	-85

8.6.4.1.4.4 Test 2 Procedure

- 1) The RF parameters are set up according to T1.
- 2) The UE is switched on.
- 3) A call is set up according to the test procedure specified in TS 34.108 [3] sub clause 7.3.2.3.
- 4) SS shall transmit a MEASUREMENT CONTROL message.
- 5) After 5 seconds from the beginning of T1, the SS shall switch the power settings from T1 to T2.
- 6) UE shall transmit a MEASUREMENT REPORT message triggered by event 3C. The measurement reporting delay from the beginning of T2 shall be less than 960 ms. If the UE fails to report the event within the required delay, then a failure is recorded. If the reporting delay for this event is within the required limit, the number of successful tests is increased by one.
- 7) After 7 seconds from the beginning of T2, the SS shall switch the power settings from T2 to T3.
- 8) UE shall transmit a MEASUREMENT REPORT message triggered by event 3B. The measurement reporting delay from the beginning of T3 shall be less than 960 ms. If the reporting delay for this event is within the required limit, the number of successful tests is increased by one.
- 9) After 5 seconds from the beginning of T3, the UE is switched off.
- 10) Repeat steps 1-9 according to Annex F.6.2 Table F.6.2.8.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message:

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
Measurement Information elements	
-Measurement Identity	2
-Measurement Command (10.3.7.46)	Modify Setup
-Measurement Reporting Mode (10.3.7.49)	AM RLC
-Measurement Report Transfer Mode	Event trigger
-Periodical Reporting / Event Trigger Reporting Mode	Not Present
-Additional measurements list (10.3.7.1)	
-CHOICE <i>Measurement type</i>	Inter-RAT measurement
-Inter-RAT measurement (10.3.7.27)	Not Present
-Inter-RAT measurement objects list (10.3.7.23)	
-Inter-RAT measurement quantity (10.3.7.29)	
-Measurement quantity for UTRAN quality estimate (10.3.7.38)	
-Filter coefficient	0
-CHOICE mode	FDD
-Measurement quantity	CPICH Ec/N0
-CHOICE system	GSM
-Measurement quantity	GSM Carrier RSSI
-Filter coefficient	0
-BSIC verification required	Not Required
-Inter-RAT reporting quantity (10.3.7.32)	
-Reporting cell status (10.3.7.61)	Not Present
-CHOICE reported cell	Report cells within active set or within virtual active set or of the other RAT
-Maximum number of reported cells	2
-CHOICE report criteria	Inter-RAT measurement reporting criteria
-Inter-RAT measurement reporting criteria (10.3.7.30)	
-Parameters required for each event	42
-Inter-RAT event identity (10.3.7.24)	Event 3B
-Threshold own system	Not Present
-W	Not Present
-Threshold other system	-80 dBm
-Hysteresis	0 dB
-Time to trigger	0 ms
-Reporting cell status (10.3.7.61)	
-CHOICE reported cell	Report cells within active set or within virtual active set or of the other RAT
-Maximum number of reported cells	2
-Inter-RAT event identity (10.3.7.24)	Event 3C
-Threshold own system	Not Present
-W	Not Present
-Threshold other system	-80 dBm
-Hysteresis	0 dB
-Time to trigger	0 ms
-Reporting cell status (10.3.7.61)	
-CHOICE reported cell	Report cells within active set or within virtual active set or of the other RAT
-Maximum number of reported cells	2
Physical channel information elements	
-DPCH compressed mode status info (10.3.6.34)	Active (for all three the patterns specified in table 8.6.4.4)

MEASUREMENT REPORT message for inter – RAT test cases

These messages are common for all inter-RAT test cases and are described in Annex I.

8.6.4.1.5 Test requirements

8.6.4.1.5.1 TEST 1 With BSIC verification required

For the test to pass, the total number of successful tests shall be at least 90% of the cases, with a confidence level of 95%. The number of successful tests shall be on an event level, i.e. the SS shall check how many events are reported successfully out of the total number of events checked.

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.6.4.1.5.2 TEST 2 Without BSIC verification required

For the test to pass, the total number of successful tests shall be at least 90% of the cases, with a confidence level of 95%. The number of successful tests shall be on an event level, i.e. the SS shall check how many events are reported successfully out of the total number of events checked.

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

CHANGE REQUEST

⌘ **34.121 CR 387** ⌘ rev **-** ⌘ Current version: **5.3.1** ⌘

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 to measurement report in 8.3.2		
Source:	⌘ Rohde & Schwarz		
Work item code:	⌘	Date:	⌘ 02/05/2004
Category:	⌘ F	Release:	⌘ R5
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	F (correction)	2 (GSM Phase 2)	
	A (corresponds to a correction in an earlier release)	R96 (Release 1996)	
	B (addition of feature),	R97 (Release 1997)	
	C (functional modification of feature)	R98 (Release 1998)	
	D (editorial modification)	R99 (Release 1999)	
	Detailed explanations of the above categories can be found in 3GPP TR 21.900 .	Rel-4 (Release 4)	
		Rel-5 (Release 5)	
		Rel-6 (Release 6)	

Reason for change:	⌘ The measurement reports described in 8.3.2 are not reflecting the expected report according to the measurement control message. Intra-frequency: Reporting cell status is has to be included within "Event criteria list" to get measured results. (see 25.331, 8.6.7.9) Inter-frequency: One occurrence of the reporting cell status is not needed as the measurement "report criteria" is not equal to "periodical reporting criteria" or "No reporting". Further this element is not existing in ASN.1 definition in TS 25.331.
Summary of change:	⌘ The expected measurement report is corrected. Intra-frequency: Reporting cell status included within "Event criteria list" Inter-frequency: Reporting cell status is removed.
Consequences if not approved:	⌘ The UE could fail the test.

Clauses affected:	⌘ 8.3.2.1, 8.3.2.2										
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </table>	Y	N	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Other core specifications	⌘
Y	N										
<input type="checkbox"/>	<input checked="" type="checkbox"/>										
<input type="checkbox"/>	<input checked="" type="checkbox"/>										
<input type="checkbox"/>	<input checked="" type="checkbox"/>										
		Test specifications									
		O&M Specifications									
Other comments:	⌘										

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at <http://www.3gpp.org/specs/CR.htm>.

Below is a brief summary:

- 1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under <ftp://ftp.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

8.3.2 FDD/FDD Hard Handover

8.3.2.1 FDD/FDD Hard Handover to intra-frequency cell

8.3.2.1.1 Definition and applicability

The hard handover delay of the UE is defined as the time from the end of the last TTI containing an RRC message implying hard handover to the transmission of the new uplink DPCH.

The requirements and this test apply to the FDD UE.

8.3.2.1.2 Minimum requirement

The interruption time shall be less than 110 ms in CELL_DCH state in the single carrier case. The rate of correct handovers observed during repeated tests shall be at least 90% with a confidence level of 95 %.

The hard handover delay D_{handover} equals the RRC procedure delay defined in TS 25.331 clause 13.5.2 plus the interruption time stated in TS 25.133 clause 5.2.2.2 as follows:

The interruption time, i.e. the time between the last TTI containing a transport block on the old DPCH and the time the UE starts transmission of the new uplink DPCH, is depending on whether the target cell is known for the UE or not.

If intra-frequency hard handover is commanded or inter-frequency hard handover is commanded when the UE does not need compressed mode to perform inter-frequency measurements, the interruption time shall be less than $T_{\text{interrupt1}}$

$$T_{\text{interrupt1}} = T_{\text{IU}} + 40 + 20 * \text{KC} + 150 * \text{OC} + 10 * F_{\text{max}} \text{ ms}$$

where

T_{IU} is the interruption uncertainty when changing the timing from the old to the new cell. T_{IU} can be up to one frame (10 ms).

KC is the number of known target cells in the message, and

OC is the number of target cells that are not known in the message.

F_{max} denotes the maximum number of radio frames within the transmission time intervals of all transport channels that are multiplexed into the same CCTrCH.

Note: The figure 40 ms is the time required for measuring the downlink DPCH channel as stated in TS 25.214 clause 4.3.1.2.

In the interruption requirement $T_{\text{interrupt1}}$ a cell is known if either or both of the following conditions are true:

- the UE has had radio links connected to the cell in the previous (old) active set
- the cell has been measured by the UE during the last 5 seconds and the SFN of the cell has been decoded by the UE.

The normative reference for this requirement is TS 25.133 [2] clauses 5.2.2 and A.5.2.1.

8.3.2.1.3 Test purpose

To verify that the UE meets the minimum requirement.

8.3.2.1.4 Method of test

8.3.2.1.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

The test parameters are given in tables 8.3.2.1.1 to 8.3.2.1.3 below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 1A and 1B shall be used, and that CPICH Ec/Io and SFN-CFN observed timed difference shall be reported together with Event 1A. The test consists of three successive time periods, with a time duration of T1, T2 and T3 respectively. At the start of time duration T1, the UE may not have any timing information of cell 2.

UTRAN shall send a PHYSICAL CHANNEL RECONFIGURATION with activation time "now" with one active cell, cell 2. The Physical Channel reconfiguration message shall be sent to the UE so that the whole message is available at the UE the RRC procedure delay prior to the beginning of T3. The RRC procedure delay is defined in TS 25.331 [8].

N312 shall have the smallest possible value i.e. only one insync is required.

Table 8.3.2.1.1: General test parameters for Handover to intra-frequency cell

Parameter		Unit	Value	Comment
DCH parameters			DL and UL Reference Measurement Channel 12.2 kbps	As specified in clause C.3.1 and C.2.1
Power Control			On	
Target quality value on DTCH		BLER	0.01	
Initial conditions	Active cell		Cell 1	
	Neighbouring cell		Cell 2	
Final condition	Active cell		Cell 2	
Reporting range		dB	3	Applicable for event 1A and 1B
Hysteresis		dB	0	
W			1	Applicable for event 1A and 1B
Reporting deactivation threshold			0	Applicable for event 1A
Time to Trigger		ms	0	
Filter coefficient			0	
T1		s	5	
T2		s	5	
T3		s	5	

Table 8.3.2.1.2: Cell specific test parameters for Handover to intra-frequency cell

Parameter	Unit	Cell 1			Cell 2		
		T1	T2	T3	T1	T2	T3
CPICH_Ec/Ior	dB		-10			-10	
PCCPCH_Ec/Ior	dB		-12			-12	
SCH_Ec/Ior	dB		-12			-12	
PICH_Ec/Ior	dB		-15			-15	
DPCH_Ec/Ior	dB	Note1	Note1	Note3	N/A	N/A	Note1
OCNS		Note2	Note2	Note2	-0.941	-0.941	Note2
\hat{I}_{or}/I_{oc}	dB	0	6.97		-Infinity	5.97	
\hat{I}_{or} (Note 4)	dBm	-70.00	-63.03		-Infinity	-64.03	
I_{oc}	dBm/ 3.84 MHz	-70					
CPICH_Ec/Io	dB	-13			-Infinity	-14	
Propagation Condition		AWGN					
Note 1: The DPCH level is controlled by the power control loop Note 2: The power of the OCNS channel that is added shall make the total power from the cell to be equal to I_{or} . Note 3: The DPCH may not be power controlled by the power control loop. Note 4: The nominal I_{or} values, although not explicitly defined in 25.133 are added here since they are implied and need to be identified so that the test equipment can be configured.							

8.3.2.1.4.2 Procedure

- 1) The RF parameters are set up according to T1 in table 8.3.2.1.3.
- 2) The UE is switched on.
- 3) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.4.
- 4) SS shall transmit a MEASUREMENT CONTROL message.
- 5) 5 seconds after step 4 has completed, the SS shall switch the power settings from T1 to T2 in table 8.3.2.1.3.
- 6) UE shall transmit a MEASUREMENT REPORT message triggered by event 1A
- 7) SS shall transmit a PHYSICAL CHANNEL RECONFIGURATION message with activation time set to "now". SS shall transmit the whole message such that it will be available at the UE no later than a period equals to the RRC procedure delay (= 80 ms) prior to the beginning of T3.
- 8) After 5 seconds from the beginning of time period T2, the SS shall switch the power settings from T2 to T3 in table 8.3.2.1.3.
- 9) UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the UL DCCH of cell 2. If the UE transmits the UL DPCCH to cell 2 less than 110 ms from the beginning of time period T3 then the number of successful tests is increased by one.
- 10) After 5 seconds from the beginning of time period T3, the UE is switched off. Any timing information of cell 2 is deleted in the UE.
- 11) Repeat step 1-10 until the confidence level according to annex F.6.2 is achieved

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message (step 4):

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
Measurement Information elements	
-Measurement Identity	1
-Measurement Command (10.3.7.46)	Modify
-Measurement Reporting Mode (10.3.7.49)	AM RLC
-Measurement Report Transfer Mode	Event trigger
-Periodical Reporting / Event Trigger Reporting Mode	Not Present
-Additional measurements list (10.3.7.1)	
-CHOICE <i>Measurement type</i>	Intra-frequency measurement
-Intra-frequency measurement (10.3.7.36)	Not Present
-Intra-frequency measurement objects list (10.3.7.33)	
-Intra-frequency measurement quantity (10.3.7.38)	
-Filter coefficient (10.3.7.9)	0
-CHOICE mode	FDD
-Measurement quantity	CPICH_Ec/N0
-Intra-frequency reporting quantity (10.3.7.41)	
-Reporting quantities for active set cells (10.3.7.5)	
-SFN-SFN observed time difference reporting indicator	No report
-Cell synchronisation information reporting indicator	TRUE (Note 1)
-Cell Identity reporting indicator	TRUE
-CHOICE mode	FDD
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	TRUE
-Reporting quantities for monitored set cells (10.3.7.5)	
-SFN-SFN observed time difference reporting indicator	No report
-Cell synchronisation information reporting indicator	TRUE (Note 1)
-Cell Identity reporting indicator	TRUE
-CHOICE mode	FDD
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	TRUE
-Reporting quantities for detected set cells (10.3.7.5)	Not Present
-Reporting cell status (10.3.7.61)	Not Present
-Measurement validity (10.3.7.51)	Not Present
-CHOICE report criteria	Intra-frequency measurement reporting criteria
-Intra-frequency measurement reporting criteria (10.3.7.39)	
-Parameters required for each event	2
-Intra-frequency event identity	Event 1A
-Triggering condition 2	Active set cells and monitored set cells
-Reporting Range Constant	3 dB
-Cells forbidden to affect Reporting Range	Not Present
-W	1.0
-Hysteresis	0 dB
-Threshold used frequency	Not Present
-Reporting deactivation threshold	0
-Replacement activation threshold	Not Present
-Time to trigger	0 ms
-Amount of reporting	Infinity
-Reporting interval	0 ms (Note 2)
-Reporting cell status	Not Present
	-Report cells within active set and/or monitored set cells on used frequency
-Maximum number of reported cells	2
-Intra-frequency event identity	Event 1B
-Triggering condition 1	Active set cells and monitored set cells
-Reporting Range Constant	3 dB
-Cells forbidden to affect Reporting Range	Not Present
-W	1.0
-Hysteresis	0 dB

Information Element/Group name	Value/Remark
-Threshold used frequency -Reporting deactivation threshold -Replacement activation threshold -Time to trigger -Amount of reporting -Reporting interval -Reporting cell status <u>-Report cells within active set and/or monitored set cells on used frequency</u> <u>-Maximum number of reported cells</u>	Not Present Not Present Not Present 0 ms Not Present Not Present Not Present 2
Physical channel information elements -DPCH compressed mode status info (10.3.6.34)	Not Present
Note 1: The SFN-CFN observed time difference is calculated from the OFF and Tm parameters contained in the IE "Cell synchronisation information", TS 25.331, clause 10.3.7.6. According to TS 25.331, 8.6.7.7, this IE is included in MEASUREMENT REPORT if IE "Cell synchronisation information reporting indicator" in IE "Cell reporting quantities" TS 25.331, clause 10.3.7.5 is set to TRUE in MEASUREMENT CONTROL. Note 2: Reporting interval = 0 ms means no periodical reporting	

PHYSICAL CHANNEL RECONFIGURATION message (step 7):

Information Element	Value/Remark
Message Type	
UE Information Elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
-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_DCH
-UTRAN DRX cycle length coefficient	Not Present
CN Information Elements	
-CN Information info	Not Present
UTRAN mobility information elements	
-URA identity	Not Present
RB information elements	
-Downlink counter synchronisation info	Not Present
PhyCH information elements	
-Frequency info (10.3.6.36)	
-CHOICE mode	FDD
-UARFCN uplink(Nu)	Same uplink UARFCN as used for cell 2
-UARFCN downlink(Nd)	Same downlink UARFCN as used for cell 2
Uplink radio resources	
-Maximum allowed UL TX power	33 dBm
-CHOICE <i>channel requirement</i>	Uplink DPCH info
-Uplink DPCH info (10.3.6.88)	
-Uplink DPCH power control info (10.3.6.91)	
-CHOICE mode	FDD
-DPCCH power offset	-6dB
- PC Preamble	1 frame
- SRB delay	7 frames
- Power Control Algorithm	Algorithm1
- TPC step size	1dB
-CHOICE mode	FDD
-Scrambling code type	Long
-Scrambling code number	0 (0 to 16777215)
-Number of DPDCH	Not Present(1)
-Spreading factor	64
-TFCI existence	TRUE
-Number of FBI bit	Not Present(0)
-Puncturing Limit	1
Downlink radio resources	
-CHOICE <i>mode</i>	FDD
-Downlink PDSCH information	Not Present
-Downlink information common for all radio links (10.3.6.24)	
-Downlink DPCH info common for all RL (10.3.6.18)	
-Timing indicator	Initialise
-CFN-targetSFN frame offset	Not Present
-Downlink DPCH power control information (10.3.6.23)	
-DPC mode	0 (single)
-CHOICE mode	FDD
-Power offset $P_{\text{Pilot-DPDCH}}$	0
-DL rate matching restriction information	Not Present
-Spreading factor	128
-Fixed or Flexible Position	Fixed
-TFCI existence	TRUE
-CHOICE SF	128
-Number of bits for Pilot bits(SF=128,256)	8
-CHOICE mode	FDD
-DPCH compressed mode info (10.3.6.33)	Not Present
-TX Diversity mode (10.3.6.86)	None
-SSDT information (10.3.6.77)	Not Present
-Default DPCH Offset Value (10.3.6.16)	0
-Downlink information per radio link list	1
-Downlink information for each radio link (10.3.6.27)	

Information Element	Value/Remark
-CHOICE mode	FDD
-Primary CPICH info (10.3.6.60)	
-Primary scrambling code	350
-PDSCH with SHO DCH info (10.3.6.47)	Not Present
-PDSCH code mapping (10.3.6.43)	Not Present
-Downlink DPCH info for each RL (10.3.6.21)	
-CHOICE mode	FDD
-Primary CPICH usage for channel estimation	Primary CPICH may be used
-DPCH frame offset	0 chips
-Secondary CPICH info	Not Present
-DL channelisation code	
-Secondary scrambling code	Not Present
-Spreading factor	128
-Code number	96
-Scrambling code change	No change
-TPC combination index	0
-SSDT Cell Identity	Not Present
-Closed loop timing adjustment mode	Not Present
-SCCPCH information for FACH (10.3.6.70)	Not Present

MEASUREMENT REPORT message for Intra frequency test cases

Information Element	Value/remark
<u>Message Type</u>	
<u>Integrity check info</u>	<u>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.</u>
<u>- Message authentication code</u>	<u>This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS.</u>
<u>- RRC Message sequence number</u>	<u>This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.</u>
<u>Measurement identity</u>	<u>1</u>
<u>Measured Results</u>	
<u>- Intra-frequency measured results list</u>	
<u>- Cell measured results</u>	
<u>- Cell Identity</u>	<u>Not present</u>
<u>- SFN-SFN observed time difference</u>	<u>Checked that this IE is present</u>
<u>- Cell synchronisation information</u>	
<u>- Tm</u>	<u>Checked that this IE is present</u>
<u>- OFF</u>	<u>Checked that this IE is present</u>
<u>- CHOICE mode</u>	<u>FDD</u>
<u>- Primary CPICH info</u>	<u>Checked that this IE is present</u>
<u>- Primary scrambling code</u>	<u>100</u>
<u>- CPICH Ec/N0</u>	<u>Checked that this IE is present</u>
<u>- CPICH RSCP</u>	<u>Checked that this IE is present</u>
<u>- Cell measured results</u>	
<u>- Cell Identity</u>	<u>Not present</u>
<u>- Cell synchronisation information</u>	
<u>- Tm</u>	<u>Checked that this IE is present</u>
<u>- OFF</u>	<u>Checked that this IE is present</u>
<u>- CHOICE mode</u>	<u>FDD</u>
<u>- Primary CPICH info</u>	<u>Checked that this IE is present</u>
<u>- Primary scrambling code</u>	<u>150</u>
<u>- CPICH Ec/N0</u>	<u>Checked that this IE is present</u>
<u>- CPICH RSCP</u>	<u>Checked that this IE is present</u>
<u>- Pathloss</u>	<u>Checked that this IE is present</u>
<u>Measured results on RACH</u>	<u>Checked that this IE is absent</u>
<u>Additional measured results</u>	<u>Checked that this IE is absent</u>
<u>Event results</u>	<u>Checked that this IE is present</u>

This message is common for all intra frequency test cases in clause 8.7 and is described in Annex I.

8.3.2.1.5 Test requirements

For the test to pass, the total number of successful tests shall be more than 90% of the cases with a confidence level of 95 %.

Table 8.3.2.1.3: Test requirements for Handover to intra-frequency cell

Parameter	Unit	Cell 1			Cell 2		
		T1	T2	T3	T1	T2	T3
CPICH_Ec/lor	dB	-9.3			-9.3		
PCCPCH_Ec/lor	dB	-11.3			-11.3		
SCH_Ec/lor	dB	-11.3			-11.3		
PICH_Ec/lor	dB	-14.3			-14.3		
DPCH_Ec/lor	dB	Note1	Note1	Note3	N/A	N/A	Note1
OCNS		Note2	Note2	Note2	-1.13	-1.13	Note2
\hat{I}_{or}/I_{oc} (Note 4)	dB	0	7.0		-Infinity	6.0	
\hat{I}_{or}	dBm	-70.0	-63.0		-Infinity	-64.0	
I_{oc}	dBm/ 3.84 MHz	-70					
CPICH_Ec/lo (Note 4)	dB	-12.3			-Infinity	-13.3	
Propagation Condition		AWGN					
Note 1: The DPCH level is controlled by the power control loop							
Note 2: The power of the OCNS channel that is added shall make the total power from the cell to be equal to I_{or} .							
Note 3: The DPCH may not be power controlled by the power control loop.							
Note 4: These parameters are not directly settable, but are derived by calculation from the settable parameters.							

Note: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.3.2.2 FDD/FDD Hard Handover to inter-frequency cell

8.3.2.2.1 Definition and applicability

The hard handover delay is defined as the time from the end of the last TTI containing an RRC message implying hard handover to the transmission of the new uplink DPCH.

The requirements and this test apply to the FDD UE.

8.3.2.2.2 Minimum requirement

The interruption time shall be less than 140 ms in CELL_DCH state in the dual carrier case. The rate of correct handovers observed during repeated tests shall be at least 90% with a confidence level of 95 %.

The hard handover delay $D_{handover}$ equals the RRC procedure delay defined in TS 25.331 clause 13.5.2 plus the interruption time stated in TS 25.133 clause 5.2.2.2 as follows:

If inter-frequency hard handover is commanded and the UE needs compressed mode to perform inter-frequency measurements, the interruption time shall be less than $T_{interrupt2}$

$$T_{interrupt2} = T_{IU} + 40 + 50 * KC + 150 * OC + 10 * F_{max} \text{ ms}$$

In the interruption requirement $T_{interrupt2}$ a cell is known if:

- the cell has been measured by the UE during the last 5 seconds.

The phase reference is the primary CPICH.

The normative reference for this requirement is TS 25.133 [2] clauses 5.2.2 and A.5.2.2.

8.3.2.2.3 Test purpose

To verify that the UE meets the minimum requirement.

8.3.2.2.4 Method of test

8.3.2.2.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

The test parameters are given in tables 8.3.2.2.1 to 8.3.2.2.3 below. The test consists of three successive time periods, with a time duration of T1, T2 and T3 respectively. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 2C shall be used. The CPICH E_c/I_0 of the best cell on the unused frequency shall be reported together with Event 2C reporting. At the start of time duration T1, the UE may not have any timing information of cell 2.

UTRAN shall send a PHYSICAL CHANNEL RECONFIGURATION with activation time "now" with one active cell, cell 2. The Physical Channel reconfiguration message shall be sent to the UE so that the whole message is available at the UE the RRC procedure delay prior to the beginning of T3. The RRC procedure delay is defined in TS 25.331 [8].

N312 shall have the smallest possible value i.e. only one insync is required.

Table 8.3.2.2.1: General test parameters for Handover to inter-frequency cell

Parameter		Unit	Value	Comment
DCH parameters			DL and UL Reference Measurement Channel 12.2 kbps	As specified in clause C.3.1 and C.2.1
Power Control			On	
Target quality value on DTCH		BLER	0.01	
Compressed mode			A.22 set 1	As specified in TS 34.121 clause C.5.
Initial conditions	Active cell		Cell 1	
	Neighbour cell		Cell 2	
Final conditions	Active cell		Cell 2	
Threshold non used frequency		dB	-18	Absolute E_c/I_0 threshold for event 2C
Hysteresis		dB	0	
W non-used frequency			1	Applicable for event 2C
Time to Trigger		ms	0	
Filter coefficient			0	
T1		s	5	
T2		s	10	
T3		s	5	

Table 8.3.2.2.2: Cell Specific parameters for Handover to inter-frequency cell

Parameter	Unit	Cell 1			Cell 2		
		T1	T2	T3	T1	T2	T3
UTRA RF Channel Number		Channel 1			Channel 2		
CPICH_Ec/I _{or}	dB	-10			-10		
PCCPCH_Ec/I _{or}	dB	-12			-12		
SCH_Ec/I _{or}	dB	-12			-12		
PICH_Ec/I _{or}	dB	-15			-15		
DPCH_Ec/I _{or}	dB	Note1	Note1	Note3	N/A	N/A	Note1
OCNS		Note2	Note2	Note2	-0.941	-0.941	Note2
\hat{I}_{or}/I_{oc}	dB	0			-Infinity	-1.8	-1.8
\hat{I}_{or} (Note 4)	dBm	-70.0			-Infinity	-71.8	-71.8
I_{oc}	dBm/ 3.84 MHz	-70					
CPICH_Ec/I _o	dB	-13			-Infinity	-14	
Propagation Condition		AWGN					
Note 1: The DPCH level is controlled by the power control loop Note 2: The power of the OCNS channel that is added shall make the total power from the cell to be equal to I_{or} . Note 3: The DPCH may not be power controlled by the power control loop. Note 4: The nominal \hat{I}_{or} values, although not explicitly defined in 25.133 are added here since they are implied and need to be identified so that the test equipment can be configured.							

8.3.2.2.4.2 Procedure

- 1) The RF parameters are set up according to T1 in table 8.3.2.2.3.
- 2) The UE is switched on.
- 3) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.4 with Compressed mode parameters as in Table 8.3.2.2.1.
- 4) SS shall transmit a MEASUREMENT CONTROL messages.
- 5) 5 seconds after step 4 has completed, the SS shall switch the power settings from T1 to T2 in table 8.3.2.2.3.
- 6) UE shall transmit a MEASUREMENT REPORT message triggered by event 2C
- 7) SS shall transmit a PHYSICAL CHANNEL RECONFIGURATION message with activation time "now". SS shall transmit the whole message such that will be is available at the UE no later than a period equals to the RRC procedure delay (= 80 ms) prior to the beginning of T3.
- 8) After 10 seconds from the beginning of time period T2, the SS shall switch the power settings from T2 to T3 in table 8.3.2.2.3.
- 9) UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the UL DCCH of cell 2. If the UE transmits the UL DPCCH to cell 2 less than 140 ms from the beginning of time period T3 then the number of successful tests is increased by one.
- 10) After 5 seconds from the beginning of time period T3, the UE is switched off. Any timing information of cell 2 is deleted in the UE.
- 11) Repeat step 1-10 until the confidence level according to annex F.6.2 is achieved

Specific Message Contents

All messages indicated belowabove shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message, event 2C (step 4):

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
Measurement Information elements	
-Measurement Identity	2
-Measurement Command (10.3.7.46)	Setup
-Measurement Reporting Mode (10.3.7.49)	AM RLC
-Periodical Reporting / Event Trigger Reporting Mode	Event trigger
-Additional measurements list (10.3.7.1)	Not Present
-CHOICE <i>Measurement type</i>	Inter-frequency measurement
-Inter-frequency measurement (10.3.7.16)	
-Inter-frequency measurement objects list (10.3.7.13)	Not Present
- CHOICE Inter-frequency cell removal	
- New Inter frequency cells	
- Inter frequency cell id	0
- Frequency info	
- CHOICE mode	FDD
- UARFCN uplink(Nu)	Not Present
- UARFCN downlink(Nd)	Same frequency as "Channel2" in Table 8.3.2.2.2
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Set to Primary scrambling code of Cell2
- Primary CPICH Tx Power	Set to Primary CPICH Tx Power of Cell2 described in Table 8.3.2.2.2
- Tx Diversity Indicator	FALSE
- Cell Selection and Re-selection info	Set to Cell Selection and Re-selection info of Cell2
- Cell for measurement	Not Present
-Inter-frequency measurement quantity (10.3.7.18)	
-CHOICE reporting criteria	Inter-frequency reporting criteria
-Inter-frequency reporting criteria	
-Filter coefficient	0
-CHOICE mode	FDD
-Measurement quantity for frequency quality estimate	CPICH Ec/N0
-Inter-frequency reporting quantity (10.3.7.21)	
-UTRA Carrier RSSI	FALSE
-Frequency quality estimate	FALSE
-Non frequency related cell reporting quantities (10.3.7.5)	
-SFN-SFN observed time difference reporting indicator	Type 1
-Cell synchronisation information reporting indicator	TRUE
-Cell Identity reporting indicator	TRUE
-CHOICE mode	FDD
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	TRUE
-Reporting cell status (10.3.7.61)	Not Present
—CHOICE reported cell	Report cells within monitored set on non-used frequency
—Maximum number of reported cells per reported non-used frequency	4
-Measurement validity (10.3.7.51)	Not Present
-Inter-frequency set update (10.3.7.22)	Not Present
-CHOICE report criteria	Inter-frequency measurement reporting criteria
-Inter-frequency measurement reporting criteria (10.3.7.19)	
-Parameters required for each event	1
-Inter-frequency event identity (10.3.7.14)	Event 2C
-Threshold used frequency	Not Present

Information Element/Group name	Value/Remark
-W used frequency -Hysteresis -Time to trigger -Reporting cell status (10.3.7.61) -CHOICE reported cell -Maximum number of reported cells per reported non-used frequency -Parameters required for each non-used frequency -Threshold non-used frequency -W non-used frequency	Not Present 0 dB 0 ms Report cells within monitored set on non-used frequency 1 1 -18 dB 1
Physical channel information elements -DPCH compressed mode status info (10.3.6.34)	Not Present

PHYSICAL CHANNEL RECONFIGURATION message (step 7):

Information Element	Value/Remark
Message Type	
UE Information Elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
-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_DCH
-UTRAN DRX cycle length coefficient	Not Present
CN Information Elements	
-CN Information info	Not Present
UTRAN mobility information elements	
-URA identity	Not Present
RB information elements	
-Downlink counter synchronisation info	Not Present
>RB with PDCP information list	Not Present
>>RB with PDCP information	Not Present
PhyCH information elements	
-Frequency info (10.3.6.36)	
-CHOICE mode	FDD
-UARFCN uplink(Nu)	Same uplink UARFCN as used for cell 2
-UARFCN downlink(Nd)	Same downlink UARFCN as used for cell 2
Uplink radio resources	
-Maximum allowed UL TX power	33 dBm
-CHOICE <i>channel requirement</i>	Uplink DPCH info
-Uplink DPCH info (10.3.6.88)	
-Uplink DPCH power control info (10.3.6.91)	
-CHOICE mode	FDD
-DPCCH power offset	-6dB
- PC Preamble	1 frame
- SRB delay	7 frames
- Power Control Algorithm	Algorithm1
- TPC step size	1dB
-CHOICE mode	FDD
-Scrambling code type	Long
-Scrambling code number	0 (0 to 16777215)
-Number of DPDCH	Not Present(1)
-Spreading factor	64
-TFCI existence	TRUE
-Number of FBI bit	Not Present(0)
-Puncturing Limit	1
Downlink radio resources	
-CHOICE <i>mode</i>	FDD
-Downlink PDSCH information	Not Present
-Downlink information common for all radio links (10.3.6.24)	
-Downlink DPCH info common for all RL (10.3.6.18)	
-Timing indicator	Initialise
-CFN-targetSFN frame offset	Not Present
-Downlink DPCH power control information (10.3.6.23)	
-DPC mode	0 (single)
-CHOICE mode	FDD
-Power offset $P_{\text{Pilot-DPDCH}}$	0
-DL rate matching restriction information	Not Present
-Spreading factor	128
-Fixed or Flexible Position	Fixed
-TFCI existence	TRUE
-CHOICE SF	128
-Number of bits for Pilot bits(SF=128,256)	8
-CHOICE mode	FDD
-DPCH compressed mode info (10.3.6.33)	
- Transmission gap pattern sequence	1
- TGPSI	1
- TGPS Status Flag	deactivate

Information Element	Value/Remark
- TGCFN	Not Present
- Transmission gap pattern sequence configuration parameters	Not Present
-TX Diversity mode (10.3.6.86)	None
-SSDT information (10.3.6.77)	Not Present
-Default DPCH Offset Value (10.3.6.16)	0
-Downlink information per radio link list	1
-Downlink information for each radio link (10.3.6.27)	
-CHOICE mode	FDD
-Primary CPICH info (10.3.6.60)	
-Primary scrambling code	350
-PDSCH with SHO DCH info (10.3.6.47)	Not Present
-PDSCH code mapping (10.3.6.43)	Not Present
-Downlink DPCH info for each RL (10.3.6.21)	
-CHOICE mode	FDD
-Primary CPICH usage for channel estimation	Primary CPICH may be used
-DPCH frame offset	0 chips
-Secondary CPICH info	Not Present
-DL channelisation code	
-Secondary scrambling code	Not Present
-Spreading factor	128
-Code number	96
-Scrambling code change	No change
-TPC combination index	0
- SSDT Cell Identity	Not Present
- Closed loop timing adjustment mode	Not Present
- SCCPCH information for FACH (10.3.6.70)	Not Present

MEASUREMENT REPORT message for Inter frequency test cases

Information Element	Value/remark
<u>Message Type</u>	
<u>Integrity check info</u>	<u>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.</u>
<u>- Message authentication code</u>	<u>This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS.</u>
<u>- RRC Message sequence number</u>	<u>This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.</u>
<u>Measurement identity</u>	<u>1</u>
<u>Measured Results</u>	
<u>- Inter-frequency measured results</u>	
<u>- Frequency Info</u>	<u>Checked that this IE is present</u>
<u>- Inter-freqcell measured results list</u>	
<u>- Cell measured results</u>	
<u>- Cell Identity</u>	<u>Not present</u>
<u>- Cell synchronisation information</u>	
<u>- Tm</u>	<u>Checked that this IE is present</u>
<u>- OFF</u>	<u>Checked that this IE is present</u>
<u>- CHOICE mode</u>	<u>FDD</u>
<u>- Primary CPICH info</u>	<u>Checked that this IE is present</u>
<u>- Primary scrambling code</u>	<u>150</u>
<u>- CPICH Ec/N0</u>	<u>Checked that this IE is present</u>
<u>- CPICH RSCP</u>	<u>Checked that this IE is present</u>
<u>- Pathloss</u>	<u>Checked that this IE is present</u>
<u>Measured results on RACH</u>	<u>Checked that this IE is absent</u>
<u>Additional measured results</u>	<u>Checked that this IE is absent</u>
<u>Event results</u>	<u>Checked that this IE is present</u>

~~This message is common for all inter frequency test cases in clause 8.7 and is described in Annex I.~~

8.3.2.2.5 Test requirements

For the test to pass, the total number of successful tests shall be more than 90% of the cases with a confidence level of 95 %.

Table 8.3.2.2.3: Test requirements for Handover to inter-frequency cell

Parameter	Unit	Cell 1			Cell 2		
		T1	T2	T3	T1	T2	T3
UTRA RF Channel Number		Channel 1			Channel 2		
CPICH_Ec/lor	dB	-9.2			-9.2		
PCCPCH_Ec/lor	dB	-11.2			-11.2		
SCH_Ec/lor	dB	-11.2			-11.2		
PICH_Ec/lor	dB	-14.2			-14.2		
DPCH_Ec/lor	dB	Note1	Note1	Note3	N/A	N/A	Note1
OCNS		Note2	Note2	Note2	-1.16	-1.16	Note2
\hat{I}_{or}/I_{oc} (Note 4)	dB	0			-Infinity	-1.8	-1.8
\hat{I}_{or}	dBm	-70.0			-Infinity	-71.8	-71.8
I_{oc}	dBm/ 3.84 MHz	-70					
CPICH_Ec/lo (Note 4)	dB	-12.2			-Infinity	-13.2	
Propagation Condition		AWGN					
Note 1: The DPCH level is controlled by the power control loop							
Note 2: The power of the OCNS channel that is added shall make the total power from the cell to be equal to I_{or} .							
Note 3: The DPCH may not be power controlled by the power control loop.							
Note 4: These parameters are not directly settable, but are derived by calculation from the settable parameters.							

Note: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

CR-Form-v7	
CHANGE REQUEST	
# 34.121 CR 390 # rev - #	Current version: 5.3.1 #

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:	# HSDPA test: 9.2.1	
Source:	# Rohde & Schwarz	
Work item code:	#	Date: # 12/05/2004
Category:	# F	Release: # R5
	Use <u>one</u> of the following categories:	Use <u>one</u> of the following releases:
	F (correction)	2 (GSM Phase 2)
	A (corresponds to a correction in an earlier release)	R96 (Release 1996)
	B (addition of feature),	R97 (Release 1997)
	C (functional modification of feature)	R98 (Release 1998)
	D (editorial modification)	R99 (Release 1999)
	Detailed explanations of the above categories can be found in 3GPP TR 21.900 .	Rel-4 (Release 4)
		Rel-5 (Release 5)
		Rel-6 (Release 6)

Reason for change:	# No test method and no test requirements available
Summary of change:	# Test method and test requirements provided.
Consequences if not approved:	# No test possible

Clauses affected:	# 9.2.1.3, 9.2.1.4, 9.2.1.5									
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;">#</td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;">#</td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;">#</td> <td style="text-align: center;">X</td> </tr> </table>	Y	N	#	X	#	X	#	X	Other core specifications #
	Y	N								
	#	X								
#	X									
#	X									
		Test specifications #								
		O&M Specifications #								
Other comments:	#									

9 Performance requirements for HSDPA

9.1 General

The performance requirements for the UE in this clause are specified for the measurement channels specified in Annex C, the propagation conditions specified in Annex D and the Down link Physical channels specified in Annex E.

9.2 Demodulation of HS-DSCH (Fixed Reference Channel)

9.2.1 Single Link Performance

9.2.1.1 Definition and applicability

The receiver single link performance of the High Speed Physical Downlink Shared Channel (HS-DSCH) in different multi-path fading environments are determined by the information bit throughput R. The UE shall be tested only according to the data rate, supported. The data-rate corresponding requirements shall apply to the UE.

The requirements and this test apply to all types of UTRA for the FDD UE ~~for Release 5 and later releases~~ that support HSDPA.

9.2.1.2 Minimum requirements

Requirements for a particular UE belonging to certain HS-DSCH category are determined according to Table 9.2.1.1. During the Fixed Reference Channel (FRC) tests the behaviour of the Node-B emulator in response to the ACK/NACK signalling field of the HS-DPCCH is specified in Table 9.2.1.2.

Table 9.2.1.1: Mapping between HS-DSCH category and FRC

HS-DSCH category	Corresponding requirement
Category 1	H-Set 1
Category 2	H-Set 1
Category 3	H-Set 2
Category 4	H-Set 2
Category 5	H-Set 3
Category 6	H-Set 3
Category 11	H-Set 4
Category 12	H-Set 5

Table 9.2.1.2: Node-B Emulator Behaviour in response to ACK/NACK/DTX

HS-DPCCH ACK/NACK Field State	Node-B Emulator Behaviour
ACK	ACK: new transmission using 1 st redundancy version (RV)
NACK	NACK: retransmission using the next RV (up to the maximum permitted number or RV's)
DTX	DTX: retransmission using the RV previously transmitted to the same H-ARQ process

For the parameters specified in Table 9.2.1.3, 9.2.1.5, 9.2.1.7 the requirements are specified in terms of minimum information bit throughput R as shown in Table 9.2.1.4, 9.2.1.6, 9.2.1.8, and 9.2.1.9 for QPSK and 16QAM and for the DL reference channels specified in Annex C.8.1.

Table 9.2.1.3: Test Parameters for Testing QPSK FRCs H-Set 1/H-Set 2/H-Set 3

Parameter	Unit	Test 1	Test 2	Test 3	Test 4
Phase reference	dBm/3.84 MHz	P-CPICH			
I_{oc}		-60			
Redundancy and constellation version coding sequence		{0,2,5,6}			
Maximum number of HARQ transmission		4			

Table 9.2.1.4: Minimum requirement QPSK, Fixed Reference Channel (FRC) H-Set 1/2/3

Test Number	Propagation Conditions	Reference value		
		HS-PDSCH E_c / I_{or} (dB)	T-put R (kbps) * $\hat{I}_{or} / I_{oc} = 0$ dB	T-put R (kbps) * $\hat{I}_{or} / I_{oc} = 10$ dB
1	PA3	-6	65	309
		-3	N/A	423
2	PB3	-6	23	181
		-3	138	287
3	VA30	-6	22	190
		-3	142	295
4	VA120	-6	13	181
		-3	140	275

* Notes: 1) The reference value R is for the Fixed Reference Channel (FRC) H-Set 1
 2) For Fixed Reference Channel (FRC) H-Set 2 the reference values for R should be scaled (multiplied by 1.5 and rounding to the nearest integer t-put in kbps, where values of $i+1/2$ are rounded up to $i+1$, i integer)
 3) For Fixed Reference Channel (FRC) H-Set 3 the reference values for R should be scaled (multiplied by 3 and rounding to the nearest integer t-put in kbps, where values of $i+1/2$ are rounded up to $i+1$, i integer)

Table 9.2.1.5: Test Parameters for Testing 16-QAM FRCs H-Set 1/H-Set 2/H-Set 3

Parameter	Unit	Test 1	Test 2	Test 3	Test 4
Phase reference	dBm/3.84 MHz	P-CPICH			
I_{oc}		-60			
Redundancy and constellation version coding sequence		{6,2,1,5}			
Maximum number of HARQ transmission		4			

Table 9.2.1.6: Minimum requirement 16QAM, Fixed Reference Channel (FRC) H-Set 1/2/3

Test Number	Propagation Conditions	Reference value	
		HS-PDSCH E_c / I_{or} (dB)	T-put R (kbps) * $\hat{I}_{or} / I_{oc} = 10$ dB
1	PA3	-6	198
		-3	368
2	PB3	-6	34
		-3	219
3	VA30	-6	47
		-3	214
4	VA120	-6	28
		-3	167

* Notes: 1)The reference value R is for the Fixed Reference Channel (FRC) H-Set 1
2) For Fixed Reference Channel (FRC) H-Set 2 the reference values for R should be scaled (multiplied by 1.5 and rounding to the nearest integer t-put in kbps, where values of i+1/2 are rounded up to i+1, i integer)
3) For Fixed Reference Channel (FRC) H-Set 3 the reference values for R should be scaled (multiplied by 3 and rounding to the nearest integer t-put in kbps, where values of i+1/2 are rounded up to i+1, i integer)

Table 9.2.1.7: Test Parameters for Testing QPSK FRCs H-Set 4/H-Set 5

Parameter	Unit	Test 1	Test 2	Test 3	Test 4
Phase reference		P-CPICH			
I_{oc}	dBm/3.84 MHz	-60			
Redundancy and constellation version coding sequence		{0,2,5,6}			
Maximum number of HARQ transmission		4			

Table 9.2.1.8: Minimum requirement QPSK, Fixed Reference Channel (FRC) H-Set 4

Test Number	Propagation Conditions	Reference value		
		HS-PDSCH E_c / I_{or} (dB)	T-put R (kbps) * $\hat{I}_{or} / I_{oc} = 0$ Db	T-put R (kbps) * $\hat{I}_{or} / I_{oc} = 10$ dB
1	PA3	-6	72	340
		-3	N/A	439
2	PB3	-6	24	186
		-3	142	299
3	VA30	-6	19	183
		-3	148	306
4	VA120	-6	11	170
		-3	144	284

* Notes: 1) The reference value R is for the Fixed Reference Channel (FRC) H-Set 4

Table 9.2.1.9: Minimum requirement QPSK, Fixed Reference Channel (FRC) H-Set 5

Test Number	Propagation Conditions	Reference value		
		HS-PDSCH E_c / I_{or} (dB)	T-put R (kbps) * $\hat{I}_{or} / I_{oc} = 0$ dB	T-put R (kbps) * $\hat{I}_{or} / I_{oc} = 10$ dB
1	PA3	-6	98	464
		-3	N/A 224	635
2	PB3	-6	35	272
		-3	207	431
3	VA30	-6	33	285
		-3	213	443
4	VA120	-6	20	272
		-3	210	413

* Notes: 1) The reference value R is for the Fixed Reference Channel (FRC) H-Set 5

The reference for this requirement is TS 25.101 [1] clauses 9.2.1.1, 9.2.1.2 and 9.2.1.3.

9.2.1.3 Test purpose

To verify the ability of the receiver to receive a predefined test signal, representing a multi-path fading channel with information bit throughput R not falling below exceeding a specified value. [The test stresses the multicode reception and channel decoding with incremental redundancy.](#)

9.2.1.4 Method of test

9.2.1.4.1 Initial conditions

~~FPS~~

[Test environment: normal; see clauses G.2.1 and G.2.2.](#)

[Frequencies to be tested: mid range; see clause G.2.4.](#)

1. [Connect the SS \(node B emulator\) and fader and AWGN noise source to the UE antenna connector as shown in annex A figure 16.](#)
2. [Set up an HSDPA call according to TS 34.108 \[3\] clause 7.3.6.3. Set test conditions according to test 1 according table 9.2.1.3 \(Category 1-6\) or 9.2.1.7 \(Category 11,12\).](#)
3. [Set the test parameters according to tables 9.2.1.2, 9.2.1.5, 9.2.1.7 and levels according to tables 9.2.1.12 to 9.2.1.18](#)
- 4) [The information bit data shall be pseudo random and not repeated not before 10 different information bit payload blocks are processed. \(e.g. Fixed reference Channel Definition H-set 1 \(16 QAM\): The](#)

information bit payload block is 4664 bits long. Hence the PRBSequence must be at least $4664 * 10$ bits long.) Use a PRBS from ITU-R O.153 Ref [25]

5) The SS shall not time the transmission freely. It shall time the transmission strictly according to the reference measurement channels: i.e. Process number i is continued exactly after 6 TTIs.

6) Setup fading simulators as fading conditions, which are described in table D.2.2.1.A

9.2.1.4.2 Procedure

FFS

1) Start transmitting HSDPA Data.

2) For all relevant propagation conditions, for all relevant I_{oc} levels, for all relevant E_c/I_{or} , for all relevant \hat{I}_{or}/I_{oc} , for all relevant H-sets in tables 9.2.1.12 to 9.2.1.18 count the number of NACK, ACK and DTX on the UL HS-DPCCH during the test interval and decide pass or fail according to Annex F.6.3.

9.2.1.5 Test Requirements

FFS

Tables 9.2.1.12 to 9.2.1.18 define the level settings including test tolerance for all relevant throughput tests. The pass / fail decision for throughput is done according to Annex F.6.3.

Table 9.2.1.12: Test Parameters for Testing QPSK FRCs H-Set 1/H-Set 2/H-Set 3

Parameter	Unit	Test 1	Test 2	Test 3	Test 4
Phase reference		P-CPICH			
I_{oc}	dBm/3.84 MHz	-60 (no test tolerance applied)			

Table 9.2.1.13: Test requirement QPSK, Fixed Reference Channel (FRC) H-Set 1/2/3

Test Number	Propagation Conditions	Reference value		
		HS-PDSCH E_c/I_{or} (dB)	T-put R (kbps) * $\hat{I}_{or}/I_{oc} = 0.3$ dB	T-put R (kbps) * $\hat{I}_{or}/I_{oc} = 10.3$ dB
1	PA3	-5.9	65	309
		-2.9	N/A	423
2	PB3	-5.9	23	181
		-2.9	138	287
3	VA30	-5.9	22	190
		-2.9	142	295
4	VA120	-5.9	13	181
		-2.9	140	275

* Notes: 1) The reference value R is for the Fixed Reference Channel (FRC) H-Set 1
 2) For Fixed Reference Channel (FRC) H-Set 2 the reference values for R should be scaled (multiplied by 1.5 and rounding to the nearest integer t-put in kbps, where values of $i+1/2$ are rounded up to $i+1$, i integer)
 3) For Fixed Reference Channel (FRC) H-Set 3 the reference values for R should be scaled (multiplied by 3 and rounding to the nearest integer t-put in kbps, where values of $i+1/2$ are rounded up to $i+1$, i integer)

Table 9.2.1.14: Test Parameters for Testing 16-QAM FRCs H-Set 1/H-Set 2/H-Set 3

<u>Parameter</u>	<u>Unit</u>	<u>Test 1</u>	<u>Test 2</u>	<u>Test 3</u>	<u>Test 4</u>
Phase reference		P-CPICH			
I_{oc}	dBm/3.84 MHz	-60 (no test tolerance applied)			

Table 9.2.1.15: Test requirement 16QAM, Fixed Reference Channel (FRC) H-Set 1/2/3

<u>Test Number</u>	<u>Propagation Conditions</u>	<u>Reference value</u>	
		<u>HS-PDSCH</u> E_c / I_{or} (dB)	<u>T-put R (kbps) *</u> $\hat{I}_{or} / I_{oc} = 10.3$ dB
<u>1</u>	<u>PA3</u>	-5.9	<u>198</u>
		-2.9	<u>368</u>
<u>2</u>	<u>PB3</u>	-5.9	<u>34</u>
		-2.9	<u>219</u>
<u>3</u>	<u>VA30</u>	-5.9	<u>47</u>
		-2.9	<u>214</u>
<u>4</u>	<u>VA120</u>	-5.9	<u>28</u>
		-2.9	<u>167</u>

* Notes: 1) The reference value R is for the Fixed Reference Channel (FRC) H-Set 1
2) For Fixed Reference Channel (FRC) H-Set 2 the reference values for R should be scaled (multiplied by 1.5 and rounding to the nearest integer t-put in kbps, where values of i+1/2 are rounded up to i+1, i integer)
3) For Fixed Reference Channel (FRC) H-Set 3 the reference values for R should be scaled (multiplied by 3 and rounding to the nearest integer t-put in kbps, where values of i+1/2 are rounded up to i+1, i integer)

Table 9.2.1.16: Test Parameters for Testing QPSK FRCs H-Set 4/H-Set 5

<u>Parameter</u>	<u>Unit</u>	<u>Test 1</u>	<u>Test 2</u>	<u>Test 3</u>	<u>Test 4</u>
Phase reference		P-CPICH			
I_{oc}	dBm/3.84 MHz	-60(no test tolerance applied)			
Redundancy and constellation version coding sequence		{0,2,5,6}			
Maximum number of HARQ transmission		4			

Table 9.2.1.17: Test requirement QPSK, Fixed Reference Channel (FRC) H-Set 4

<u>Test Number</u>	<u>Propagation Conditions</u>	<u>Reference value</u>		
		<u>HS-PDSCH</u> E_c / I_{or} (dB)	<u>T-put R (kbps) *</u> $\hat{I}_{or} / I_{oc} = 0.3$ dB	<u>T-put R (kbps) *</u> $\hat{I}_{or} / I_{oc} = 10.3$ dB
<u>1</u>	<u>PA3</u>	-5.9	<u>72</u>	<u>340</u>
		-2.9	<u>N/A</u>	<u>439</u>
<u>2</u>	<u>PB3</u>	-5.9	<u>24</u>	<u>186</u>
		-2.9	<u>142</u>	<u>299</u>
<u>3</u>	<u>VA30</u>	-5.9	<u>19</u>	<u>183</u>
		-2.9	<u>148</u>	<u>306</u>
<u>4</u>	<u>VA120</u>	-5.9	<u>11</u>	<u>170</u>
		-2.9	<u>144</u>	<u>284</u>

* Notes: 1) The reference value R is for the Fixed Reference Channel (FRC) H-Set 4

Table 9.2.1.18: Test requirement QPSK, Fixed Reference Channel (FRC) H-Set 5

<u>Test Number</u>	<u>Propagation Conditions</u>	<u>Reference value</u>		
		<u>HS-PDSCH</u> <u>E_c / I_{or} (dB)</u>	<u>T-put R (kbps) *</u> <u>$\hat{I}_{or} / I_{oc} = 0.3$ dB</u>	<u>T-put R (kbps) *</u> <u>$\hat{I}_{or} / I_{oc} = 10.3$ dB</u>
<u>1</u>	<u>PA3</u>	<u>-5.9</u>	<u>98</u>	<u>464</u>
		<u>-2.9</u>	<u>N/A</u>	<u>635</u>
<u>2</u>	<u>PB3</u>	<u>-5.9</u>	<u>35</u>	<u>272</u>
		<u>-2.9</u>	<u>207</u>	<u>431</u>
<u>3</u>	<u>VA30</u>	<u>-5.9</u>	<u>33</u>	<u>285</u>
		<u>-2.9</u>	<u>213</u>	<u>443</u>
<u>4</u>	<u>VA120</u>	<u>-5.9</u>	<u>20</u>	<u>272</u>
		<u>-2.9</u>	<u>210</u>	<u>413</u>

* Notes: 1) The reference value R is for the Fixed Reference Channel (FRC) H-Set 5

CR-Form-v7	
CHANGE REQUEST	
# 34.121 CR 391 # rev - #	Current version: 5.3.1 #

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:	#	HSDPA test: 9.2.1	
Source:	#	Rohde & Schwarz	
Work item code:	#		Date: # 12/05/2004
Category:	#	F	Release: # R5
		Use <u>one</u> of the following categories:	Use <u>one</u> of the following releases:
		F (correction)	2 (GSM Phase 2)
		A (corresponds to a correction in an earlier release)	R96 (Release 1996)
		B (addition of feature),	R97 (Release 1997)
		C (functional modification of feature)	R98 (Release 1998)
		D (editorial modification)	R99 (Release 1999)
		Detailed explanations of the above categories can be found in 3GPP TR 21.900 .	Rel-4 (Release 4)
			Rel-5 (Release 5)
			Rel-6 (Release 6)

Reason for change:	#	No test method and no test requirements available
Summary of change:	#	Test method and test requirements provided.
Consequences if not approved:	#	No test possible

Clauses affected:	#	9.2.1.3, 9.2.1.4, 9.2.1.5			
Other specs affected:		Y	N		
		#	X	Other core specifications	#
		#	X	Test specifications	
	#	X	O&M Specifications		
Other comments:	#				

9 Performance requirements for HSDPA

9.1 General

The performance requirements for the UE in this clause are specified for the measurement channels specified in Annex C, the propagation conditions specified in Annex D and the Down link Physical channels specified in Annex E.

9.2 Demodulation of HS-DSCH (Fixed Reference Channel)

9.2.1 Single Link Performance

9.2.1.1 Definition and applicability

The receiver single link performance of the High Speed Physical Downlink Shared Channel (HS-DSCH) in different multi-path fading environments are determined by the information bit throughput R. The UE shall be tested only according to the data rate, supported. The data-rate corresponding requirements shall apply to the UE.

The requirements and this test apply to all types of UTRA for the FDD UE ~~for Release 5 and later releases~~ that support HSDPA.

9.2.1.2 Minimum requirements

Requirements for a particular UE belonging to certain HS-DSCH category are determined according to Table 9.2.1.1. During the Fixed Reference Channel (FRC) tests the behaviour of the Node-B emulator in response to the ACK/NACK signalling field of the HS-DPCCH is specified in Table 9.2.1.2.

Table 9.2.1.1: Mapping between HS-DSCH category and FRC

HS-DSCH category	Corresponding requirement
Category 1	H-Set 1
Category 2	H-Set 1
Category 3	H-Set 2
Category 4	H-Set 2
Category 5	H-Set 3
Category 6	H-Set 3
Category 11	H-Set 4
Category 12	H-Set 5

Table 9.2.1.2: Node-B Emulator Behaviour in response to ACK/NACK/DTX

HS-DPCCH ACK/NACK Field State	Node-B Emulator Behaviour
ACK	ACK: new transmission using 1 st redundancy version (RV)
NACK	NACK: retransmission using the next RV (up to the maximum permitted number or RV's)
DTX	DTX: retransmission using the RV previously transmitted to the same H-ARQ process

For the parameters specified in Table 9.2.1.3, 9.2.1.5, 9.2.1.7 the requirements are specified in terms of minimum information bit throughput R as shown in Table 9.2.1.4, 9.2.1.6,9.2.1.8, and 9.2.1.9 for QPSK and 16QAM and for the DL reference channels specified in Annex C.8.1.

Table 9.2.1.3: Test Parameters for Testing QPSK FRCs H-Set 1/H-Set 2/H-Set 3

Parameter	Unit	Test 1	Test 2	Test 3	Test 4
Phase reference	dBm/3.84 MHz	P-CPICH			
I_{oc}		-60			
Redundancy and constellation version coding sequence		{0,2,5,6}			
Maximum number of HARQ transmission		4			

Table 9.2.1.4: Minimum requirement QPSK, Fixed Reference Channel (FRC) H-Set 1/2/3

Test Number	Propagation Conditions	Reference value		
		HS-PDSCH E_c / I_{or} (dB)	T-put R (kbps) * $\hat{I}_{or} / I_{oc} = 0$ dB	T-put R (kbps) * $\hat{I}_{or} / I_{oc} = 10$ dB
1	PA3	-6	65	309
		-3	N/A	423
2	PB3	-6	23	181
		-3	138	287
3	VA30	-6	22	190
		-3	142	295
4	VA120	-6	13	181
		-3	140	275

* Notes: 1) The reference value R is for the Fixed Reference Channel (FRC) H-Set 1
2) For Fixed Reference Channel (FRC) H-Set 2 the reference values for R should be scaled (multiplied by 1.5 and rounding to the nearest integer t-put in kbps, where values of $i+1/2$ are rounded up to $i+1$, i integer)
3) For Fixed Reference Channel (FRC) H-Set 3 the reference values for R should be scaled (multiplied by 3 and rounding to the nearest integer t-put in kbps, where values of $i+1/2$ are rounded up to $i+1$, i integer)

Table 9.2.1.5: Test Parameters for Testing 16-QAM FRCs H-Set 1/H-Set 2/H-Set 3

Parameter	Unit	Test 1	Test 2	Test 3	Test 4
Phase reference	dBm/3.84 MHz	P-CPICH			
I_{oc}		-60			
Redundancy and constellation version coding sequence		{6,2,1,5}			
Maximum number of HARQ transmission		4			

Table 9.2.1.6: Minimum requirement 16QAM, Fixed Reference Channel (FRC) H-Set 1/2/3

Test Number	Propagation Conditions	Reference value	
		HS-PDSCH E_c/I_{or} (dB)	T-put R (kbps) * $\hat{I}_{or}/I_{oc} = 10$ dB
1	PA3	-6	198
		-3	368
2	PB3	-6	34
		-3	219
3	VA30	-6	47
		-3	214
4	VA120	-6	28
		-3	167

* Notes: 1)The reference value R is for the Fixed Reference Channel (FRC) H-Set 1
2) For Fixed Reference Channel (FRC) H-Set 2 the reference values for R should be scaled (multiplied by 1.5 and rounding to the nearest integer t-put in kbps, where values of i+1/2 are rounded up to i+1, i integer)
3) For Fixed Reference Channel (FRC) H-Set 3 the reference values for R should be scaled (multiplied by 3 and rounding to the nearest integer t-put in kbps, where values of i+1/2 are rounded up to i+1, i integer)

Table 9.2.1.7: Test Parameters for Testing QPSK FRCs H-Set 4/H-Set 5

Parameter	Unit	Test 1	Test 2	Test 3	Test 4
Phase reference		P-CPICH			
I_{oc}	dBm/3.84 MHz	-60			
Redundancy and constellation version coding sequence		{0,2,5,6}			
Maximum number of HARQ transmission		4			

Table 9.2.1.8: Minimum requirement QPSK, Fixed Reference Channel (FRC) H-Set 4

Test Number	Propagation Conditions	Reference value		
		HS-PDSCH E_c / I_{or} (dB)	T-put R (kbps) * $\hat{I}_{or} / I_{oc} = 0$ Db	T-put R (kbps) * $\hat{I}_{or} / I_{oc} = 10$ dB
1	PA3	-6	72	340
		-3	N/A	439
2	PB3	-6	24	186
		-3	142	299
3	VA30	-6	19	183
		-3	148	306
4	VA120	-6	11	170
		-3	144	284

* Notes: 1) The reference value R is for the Fixed Reference Channel (FRC) H-Set 4

Table 9.2.1.9: Minimum requirement QPSK, Fixed Reference Channel (FRC) H-Set 5

Test Number	Propagation Conditions	Reference value		
		HS-PDSCH E_c / I_{or} (dB)	T-put R (kbps) * $\hat{I}_{or} / I_{oc} = 0$ dB	T-put R (kbps) * $\hat{I}_{or} / I_{oc} = 10$ dB
1	PA3	-6	98	464
		-3	N/A 224	635
2	PB3	-6	35	272
		-3	207	431
3	VA30	-6	33	285
		-3	213	443
4	VA120	-6	20	272
		-3	210	413

* Notes: 1) The reference value R is for the Fixed Reference Channel (FRC) H-Set 5

The reference for this requirement is TS 25.101 [1] clauses 9.2.1.1, 9.2.1.2 and 9.2.1.3.

9.2.1.3 Test purpose

To verify the ability of the receiver to receive a predefined test signal, representing a multi-path fading channel with information bit throughput R not falling below exceeding a specified value. [The test stresses the multicode reception and channel decoding with incremental redundancy.](#)

9.2.1.4 Method of test

9.2.1.4.1 Initial conditions

~~FPS~~

[Test environment: normal; see clauses G.2.1 and G.2.2.](#)

[Frequencies to be tested: mid range; see clause G.2.4.](#)

1. [Connect the SS \(node B emulator\) and fader and AWGN noise source to the UE antenna connector as shown in annex A figure 16.](#)
2. [Set up an HSDPA call according to TS 34.108 \[3\] clause 7.3.6.3. Set test conditions according to test 1 according table 9.2.1.3 \(Category 1-6\) or 9.2.1.7 \(Category 11,12\).](#)
3. [Set the test parameters according to tables 9.2.1.2, 9.2.1.5, 9.2.1.7 and levels according to tables 9.2.1.12 to 9.2.1.18](#)
- 4) [The information bit data shall be pseudo random and not repeated not before 10 different information bit payload blocks are processed. \(e.g. Fixed reference Channel Definition H-set 1 \(16 QAM\): The](#)

information bit payload block is 4664 bits long. Hence the PRBSequence must be at least $4664 * 10$ bits long.) Use a PRBS from ITU-R O.153 Ref [26]

5) The SS shall not time the transmission freely. It shall time the transmission strictly according to the reference measurement channels: i.e. Process number i is continued exactly after 6 TTIs.

6) Setup fading simulators as fading conditions, which are described in table D.2.2.1.A

9.2.1.4.2 Procedure

FFS

1) Start transmitting HSDPA Data.

2) For all relevant propagation conditions, for all relevant I_{oc} levels, for all relevant E_c/I_{or} , for all relevant \hat{I}_{or}/I_{oc} , for all relevant H-sets in tables 9.2.1.12 to 9.2.1.18 count the number of NACK, ACK and DTX on the UL HS-DPCCH during the test interval and decide pass or fail according to Annex F.6.3.

9.2.1.5 Test Requirements

FFS

Tables 9.2.1.12 to 9.2.1.18 define the level settings including test tolerance for all relevant throughput tests. The pass / fail decision for throughput is done according to Annex F.6.3.

Table 9.2.1.12: Test Parameters for Testing QPSK FRCs H-Set 1/H-Set 2/H-Set 3

Parameter	Unit	Test 1	Test 2	Test 3	Test 4
Phase reference		P-CPICH			
I_{oc}	dBm/3.84 MHz	-60 (no test tolerance applied)			

Table 9.2.1.13: Test requirement QPSK, Fixed Reference Channel (FRC) H-Set 1/2/3

Test Number	Propagation Conditions	Reference value		
		HS-PDSCH E_c/I_{or} (dB)	T-put R (kbps) * $\hat{I}_{or}/I_{oc} = 0.3$ dB	T-put R (kbps) * $\hat{I}_{or}/I_{oc} = 10.3$ dB
1	PA3	-5.9	65	309
		-2.9	N/A	423
2	PB3	-5.9	23	181
		-2.9	138	287
3	VA30	-5.9	22	190
		-2.9	142	295
4	VA120	-5.9	13	181
		-2.9	140	275

* Notes: 1) The reference value R is for the Fixed Reference Channel (FRC) H-Set 1
 2) For Fixed Reference Channel (FRC) H-Set 2 the reference values for R should be scaled (multiplied by 1.5 and rounding to the nearest integer t-put in kbps, where values of $i+1/2$ are rounded up to $i+1$, i integer)
 3) For Fixed Reference Channel (FRC) H-Set 3 the reference values for R should be scaled (multiplied by 3 and rounding to the nearest integer t-put in kbps, where values of $i+1/2$ are rounded up to $i+1$, i integer)

Table 9.2.1.14: Test Parameters for Testing 16-QAM FRCs H-Set 1/H-Set 2/H-Set 3

Parameter	Unit	Test 1	Test 2	Test 3	Test 4
Phase reference		P-CPICH			
I_{oc}	dBm/3.84 MHz	-60 (no test tolerance applied)			

Table 9.2.1.15: Test requirement 16QAM, Fixed Reference Channel (FRC) H-Set 1/2/3

Test Number	Propagation Conditions	Reference value	
		HS-PDSCH E_c / I_{or} (dB)	T-put R (kbps) * $\hat{I}_{or} / I_{oc} = 10.3$ dB
1	PA3	-5.9	198
		-2.9	368
2	PB3	-5.9	34
		-2.9	219
3	VA30	-5.9	47
		-2.9	214
4	VA120	-5.9	28
		-2.9	167

* Notes: 1) The reference value R is for the Fixed Reference Channel (FRC) H-Set 1
2) For Fixed Reference Channel (FRC) H-Set 2 the reference values for R should be scaled (multiplied by 1.5 and rounding to the nearest integer t-put in kbps, where values of i+1/2 are rounded up to i+1, i integer)
3) For Fixed Reference Channel (FRC) H-Set 3 the reference values for R should be scaled (multiplied by 3 and rounding to the nearest integer t-put in kbps, where values of i+1/2 are rounded up to i+1, i integer)

Table 9.2.1.16: Test Parameters for Testing QPSK FRCs H-Set 4/H-Set 5

Parameter	Unit	Test 1	Test 2	Test 3	Test 4
Phase reference		P-CPICH			
I_{oc}	dBm/3.84 MHz	-60(no test tolerance applied)			
Redundancy and constellation version coding sequence		{0,2,5,6}			
Maximum number of HARQ transmission		4			

Table 9.2.1.17: Test requirement QPSK, Fixed Reference Channel (FRC) H-Set 4

Test Number	Propagation Conditions	Reference value		
		HS-PDSCH E_c / I_{or} (dB)	T-put R (kbps) * $\hat{I}_{or} / I_{oc} = 0.3$ dB	T-put R (kbps) * $\hat{I}_{or} / I_{oc} = 10.3$ dB
1	PA3	-5.9	72	340
		-2.9	N/A	439
2	PB3	-5.9	24	186
		-2.9	142	299
3	VA30	-5.9	19	183
		-2.9	148	306
4	VA120	-5.9	11	170
		-2.9	144	284

* Notes: 1) The reference value R is for the Fixed Reference Channel (FRC) H-Set 4

Table 9.2.1.18: Test requirement QPSK, Fixed Reference Channel (FRC) H-Set 5

<u>Test Number</u>	<u>Propagation Conditions</u>	<u>Reference value</u>		
		<u>HS-PDSCH</u> <u>E_c / I_{or} (dB)</u>	<u>T-put R (kbps) *</u> <u>$\hat{I}_{or} / I_{oc} = 0.3$ dB</u>	<u>T-put R (kbps) *</u> <u>$\hat{I}_{or} / I_{oc} = 10.3$ dB</u>
<u>1</u>	<u>PA3</u>	<u>-5.9</u>	<u>98</u>	<u>464</u>
		<u>-2.9</u>	<u>N/A</u>	<u>635</u>
<u>2</u>	<u>PB3</u>	<u>-5.9</u>	<u>35</u>	<u>272</u>
		<u>-2.9</u>	<u>207</u>	<u>431</u>
<u>3</u>	<u>VA30</u>	<u>-5.9</u>	<u>33</u>	<u>285</u>
		<u>-2.9</u>	<u>213</u>	<u>443</u>
<u>4</u>	<u>VA120</u>	<u>-5.9</u>	<u>20</u>	<u>272</u>
		<u>-2.9</u>	<u>210</u>	<u>413</u>

* Notes: 1) The reference value R is for the Fixed Reference Channel (FRC) H-Set 5

CHANGE REQUEST

⌘ **34.121 CR 384** ⌘ rev **-** ⌘ Current version: **5.3.1** ⌘

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:	⌘	New test case for 9.2.3 Closed Loop Diversity Performance
Source:	⌘	Motorola
Work item code:	⌘	
		Date: ⌘ 10/05/2004
Category:	⌘	F
		<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p><i>Use <u>one</u> of the following categories:</i></p> <p>F (correction)</p> <p>A (corresponds to a correction in an earlier release)</p> <p>B (addition of feature),</p> <p>C (functional modification of feature)</p> <p>D (editorial modification)</p> <p>Detailed explanations of the above categories can be found in 3GPP TR 21.900.</p> </div> <div style="width: 45%;"> <p><i>Use <u>one</u> of the following releases:</i></p> <p>2 (GSM Phase 2)</p> <p>R96 (Release 1996)</p> <p>R97 (Release 1997)</p> <p>R98 (Release 1998)</p> <p>R99 (Release 1999)</p> <p>Rel-4 (Release 4)</p> <p>Rel-5 (Release 5)</p> <p>Rel-6 (Release 6)</p> </div> </div>

Reason for change:	⌘	The test case in 25.101 for Closed Loop Diversity performance is not implemented in 34.121.
Summary of change:	⌘	This change will add the Closed Loop Diversity performance test case 9.2.3 to 34.121.
Consequences if not approved:	⌘	There will be no possibility to test Closed Loop Diversity performance

Clauses affected:	⌘	9.2.3								
Other specs affected:	⌘	<table border="1" style="display: inline-table; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 20px;">Y</td> <td style="width: 20px;">N</td> </tr> <tr> <td style="width: 20px;"> </td> <td style="width: 20px;">X</td> </tr> <tr> <td style="width: 20px;"> </td> <td style="width: 20px;">X</td> </tr> <tr> <td style="width: 20px;"> </td> <td style="width: 20px;">X</td> </tr> </table>	Y	N		X		X		X
		Y	N							
			X							
	X									
	X									
Other core specifications	⌘									
Test specifications	⌘									
O&M Specifications	⌘									
Other comments:	⌘	Test cases introduced in this CR are applicable for Rel-5 and later releases.								

9.2.3 Closed Loop Diversity Performance

9.2.3.1 Definition and applicability

The receiver single closed loop transmit diversity performance of the High Speed Physical Downlink Shared Channel (HS-DSCH) in multi-path fading environments are determined by the information bit throughput R.

The UE shall be tested only according to the data rate, supported. The data-rate corresponding requirements shall apply to the UE.

The requirements and this test apply to all types of UTRA for FDD UE that support HSDPA.

9.2.3.2 Minimum requirements

Requirements for a particular UE belonging to certain HS-DSCH category are determined according to Table 9.2.3.1. During the Fixed Reference Channel (FRC) tests the behaviour of the Node-B emulator in response to the ACK/NACK signalling field of the HS-DPCCH is specified in Table 9.2.3.2.

Table 9.2.3.1: Mapping between HS-DSCH category and FRC

<u>HS-DSCH category</u>	<u>Corresponding requirement</u>
<u>Category 1</u>	<u>H-Set 1</u>
<u>Category 2</u>	<u>H-Set 1</u>
<u>Category 3</u>	<u>H-Set 2</u>
<u>Category 4</u>	<u>H-Set 2</u>
<u>Category 5</u>	<u>H-Set 3</u>
<u>Category 6</u>	<u>H-Set 3</u>
<u>Category 11</u>	<u>H-Set 4</u>
<u>Category 12</u>	<u>H-Set 5</u>

Table 9.2.3.2: Node-B Emulator Behaviour in response to ACK/NACK/DTX

<u>HS-DPCCH ACK/NACK Field State</u>	<u>Node-B Emulator Behaviour</u>
<u>ACK</u>	<u>ACK: new transmission using 1st redundancy version (RV)</u>
<u>NACK</u>	<u>NACK: retransmission using the next RV (up to the maximum permitted number of RV's)</u>
<u>DTX</u>	<u>DTX: retransmission using the RV previously transmitted to the same H-ARQ process</u>

For the parameters specified in Table 9.2.3.3, 9.2.3.5, 9.2.3.7 the requirements are specified in terms of minimum information bit throughput R as shown in Table 9.2.3.4, 9.2.3.6, 9.2.3.8, and 9.2.3.9 for QPSK and 16QAM and for the DL reference channels specified in Annex C.8.1.

Table 9.2.3.3: Test Parameters for Testing QPSK FRCs H-Set 1/H-Set 2/H-Set 3

<u>Parameter</u>	<u>Unit</u>	<u>Test 1</u>	<u>Test 2</u>	<u>Test 3</u>
Phase reference			P-CPICH	
I_{oc}	<u>dBm/3.84 MHz</u>		-60	
DPCH frame offset ($T_{DPCH,n}$)	<u>Chip</u>		0	
Redundancy and constellation version coding sequence			{0,2,5,6}	
Maximum number of HARQ transmission			4	
Feedback Error Rate	<u>%</u>		4	
Closed loop timing adjustment mode			1	

Table 9.2.3.4: Minimum requirement QPSK, Fixed Reference Channel (FRC) H-Set 1/2/3

<u>Test Number</u>	<u>Propagation Conditions</u>	<u>Reference value</u>		
		<u>HS-PDSCH</u> E_c/I_{or} <u>(dB)</u>	<u>T-put R (kbps) *</u> $\hat{I}_{or}/I_{oc} = 0$ <u>dB</u>	<u>T-put R (kbps) *</u> $\hat{I}_{or}/I_{oc} = 10$ <u>dB</u>
1	PA3	-6	118	399
		-3	225	458
2	PB3	-6	50	199
		-3	173	301
3	VA30	-6	47	204
		-3	172	305

* Notes: 1) The reference value R is for the Fixed Reference Channel (FRC) H-Set 1
2) For Fixed Reference Channel (FRC) H-Set 2 the reference values for R should be scaled (multiplied by 1.5 and rounding to the nearest integer t-put in kbps, where values of i+1/2 are rounded up to i+1, i integers)
3) For Fixed Reference Channel (FRC) H-Set 3 the reference values for R should be scaled (multiplied by 3 and rounding to the nearest integer t-put in kbps, where values of i+1/2 are rounded up to i+1, i integer)

Table 9.2.3.5: Test Parameters for Testing 16-QAM FRCs H-Set 1/H-Set 2/H-Set 3

<u>Parameter</u>	<u>Unit</u>	<u>Test 1</u>	<u>Test 2</u>	<u>Test 3</u>
Phase reference			P-CPICH	
I_{oc}	<u>dBm/3.84 MHz</u>		-60	
DPCH frame offset ($T_{DPCH,n}$)	<u>Chip</u>		0	
Redundancy and constellation version coding sequence			{6,2,1,5}	
Maximum number of HARQ transmission			4	
Feedback Error Rate	<u>%</u>		4	
Closed loop timing adjustment mode			1	

Table 9.2.3.6 Minimum requirement 16QAM, Fixed Reference Channel (FRC) H-Set 1/2/3

Test Number	Propagation Conditions	Reference value	
		HS-PDSCH E_c/I_{or} (dB)	T-put R (kbps) * $\hat{I}_{or}/I_{oc} = 10$ dB
1	PA3	-6	361
		-3	500
2	PB3	-6	74
		-3	255
3	VA30	-6	84
		-3	254

* Notes: 1) The reference value R is for the Fixed Reference Channel (FRC) H-Set 1
2) For Fixed Reference Channel (FRC) H-Set 2 the reference values for R should be scaled (multiplied by 1.5 and rounding to the nearest integer t-put in kbps, where values of i+1/2 are rounded up to i+1, i integer)
3) For Fixed Reference Channel (FRC) H-Set 3 the reference values for R should be scaled (multiplied by 3 and rounding to the nearest integer t-put in kbps, where values of i+1/2 are rounded up to i+1, i integer)

Table 9.2.3.7: Test Parameters for Testing QPSK FRCs H-Set 4/H-Set 5

Parameter	Unit	Test 1	Test 2	Test 3
Phase reference			P-CPICH	
I_{oc}	dBm/3.84 MHz		-60	
DPCH frame offset ($T_{DPCH,0}$)	Chip		0	
Redundancy and constellation version coding sequence			{0,2,5,6}	
Maximum number of HARQ transmission			4	
Feedback Error Rate	%		4	
Closed loop timing adjustment mode			1	

Table 9.2.3.8: Minimum requirement QPSK, Fixed Reference Channel (FRC) H-Set 4

Test Number	Propagation Conditions	Reference value		
		HS-PDSCH E_c/I_{or} (dB)	T-put R (kbps) * $\hat{I}_{or}/I_{oc} = 0$ dB	T-put R (kbps) * $\hat{I}_{or}/I_{oc} = 10$ dB
1	PA3	-6	114	398
		-3	223	457
2	PB3	-6	43	196
		-3	167	292
3	VA30	-6	40	199
		-3	170	305

* Notes: 1) The reference value R is for the Fixed Reference Channel (FRC) H-Set 4

Table 9.2.3.9: Minimum requirement QPSK, Fixed Reference Channel (FRC) H-Set 5

Test Number	Propagation Conditions	Reference value		
		HS-PDSCH E_c / I_{or} (dB)	T-put R (kbps) * $\hat{I}_{or} / I_{oc} = 0$ dB	T-put R (kbps) * $\hat{I}_{or} / I_{oc} = 10$ dB
1	PA3	-6	177	599
		-3	338	687
2	PB3	-6	75	299
		-3	260	452
3	VA30	-6	71	306
		-3	258	458

* Notes: 1) The reference value R is for the Fixed Reference Channel (FRC) H-Set 5

The reference for this requirement is TS 25.101 [1] clauses 9.2.3.1, 9.2.3.2 and 9.2.3.3.

9.2.3.3 Test purpose

To verify the ability of the receiver to receive a predefined test signal, representing a multi-path fading channel with information bit throughput R not exceeding a specified value. The test stresses the multi-code reception and channel decoding with incremental redundancy.

9.2.3.4 Method of test

9.2.3.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

1. Connect the SS (Note: This is the Node B Emulator) and fader and AWGN noise source to the UE antenna connector as shown in figure A.16.
2. Set the test parameters for tests as specified in table's 9.2.3.11, 9.2.3.13 and 9.2.3.15 and levels as specified in table's 9.2.3.12, 9.2.3.14, 9.2.3.16 and 9.2.3.17. Setup fading simulators as fading condition, which are described in table D.2.2.1A. Power of downlink channels is defined in table E.5.3.

Table 9.2.3.10: Specific Message Contents for closed loop transmit diversity mode

SYSTEM INFORMATION BLOCK TYPE5

Information Element	Value/remark
PRACH system information list - AICH info - STTD Indicator	TRUE
Secondary CCPCH system information - PICH info - STTD Indicator - Secondary CCPCH info - STTD Indicator	TRUE TRUE TRUE
Primary CCPCH info - CHOICE mode - TX Diversity indicator	FDD TRUE

RRC CONNECTION SETUP for Closed loop mode1

<u>Information Element</u>	<u>Value/remark</u>
<u>Downlink information common for all radio links</u> <u>- CHOICE mode</u> <u>- TX Diversity Mode</u>	<u>FDD</u> <u>Closed loop mode1</u>
<u>Downlink DPCH info for each RL</u> <u>- CHOICE mode</u> <u>- Downlink DPCH info for each RL</u> <u>- Closed loop timing adjustment mode</u>	<u>FDD</u> <u>1</u>

RADIO BEARER SETUP for Closed loop mode1

<u>Information Element</u>	<u>Value/remark</u>
<u>Downlink information common for all radio links</u> <u>- CHOICE mode</u> <u>- TX Diversity Mode</u>	<u>FDD</u> <u>Closed loop mode1</u>
<u>Downlink DPCH info for each RL</u> <u>- CHOICE mode</u> <u>- Downlink DPCH info for each RL</u> <u>- Closed loop timing adjustment mode</u>	<u>FDD</u> <u>1</u>

9.2.3.4.2 Procedure

1. Set up a HSDPA connection according to the generic HSDPA set-up procedure specified in TS 34.108 [3].
2. Start transmitting HSDPA Data.
3. The information bit data shall be pseudo random and not repeated before 10 different information bit payload blocks are processed. (e.g. Fixed reference Channel Definition H-set 1 (16 QAM): The information bit payload block is 4664 bits long. Hence the PRBS must be at least $4664 * 10$ bits long [26].)
4. Count the number of NACK, ACK and DTX on the UL HS-DPCCH during the test interval and decide pass or fail according to Annex F.6.3. ACK is counted as a pass. NACK and DTX are counted as a failure.

9.2.3.4.3 Test Requirements

The parameters and requirements are specified in table's 9.2.3.11 to 9.2.3.17. The pass / fail decision for throughput is done according to Annex F.6.3.

Table 9.2.3.11: Test Parameters for Testing QPSK FRCs H-Set 1/H-Set 2/H-Set 3

<u>Parameter</u>	<u>Unit</u>	<u>Test 1</u>	<u>Test 2</u>	<u>Test 3</u>
Phase reference			P-CPICH	
I_{oc}	<u>dBm/3.84 MHz</u>		-60	
DPCH frame offset ($T_{DPCH,n}$)	<u>Chip</u>		0	
Redundancy and constellation version coding sequence			{0,2,5,6}	
Maximum number of HARQ transmission			4	
Feedback Error Rate	<u>%</u>		4	
Closed loop timing adjustment mode			1	

Table 9.2.3.12: Minimum requirement QPSK, Fixed Reference Channel (FRC) H-Set 1/2/3

<u>Test Number</u>	<u>Propagation Conditions</u>	<u>Reference value</u>		
		<u>HS-PDSCH</u> E_c/I_{or} (dB)	<u>T-put R (kbps) *</u> $\hat{I}_{or}/I_{oc} = 0$ dB	<u>T-put R (kbps) *</u> $\hat{I}_{or}/I_{oc} = 10$ dB
1	PA3	-6	118	399
		-3	225	458
2	PB3	-6	50	199
		-3	173	301
3	VA30	-6	47	204
		-3	172	305

* Notes: 1) The reference value R is for the Fixed Reference Channel (FRC) H-Set 1
2) For Fixed Reference Channel (FRC) H-Set 2 the reference values for R should be scaled (multiplied by 1.5 and rounding to the nearest integer t-put in kbps, where values of $i+1/2$ are rounded up to $i+1$, i integers)
3) For Fixed Reference Channel (FRC) H-Set 3 the reference values for R should be scaled (multiplied by 3 and rounding to the nearest integer t-put in kbps, where values of $i+1/2$ are rounded up to $i+1$, i integer)

Table 9.2.3.13: Test Parameters for Testing 16-QAM FRCs H-Set 1/H-Set 2/H-Set 3

<u>Parameter</u>	<u>Unit</u>	<u>Test 1</u>	<u>Test 2</u>	<u>Test 3</u>
Phase reference			P-CPICH	
I_{oc}	<u>dBm/3.84 MHz</u>		-60	
DPCH frame offset ($T_{DPCH,n}$)	<u>Chip</u>		0	
Redundancy and constellation version coding sequence			{6,2,1,5}	
Maximum number of HARQ transmission			4	
Feedback Error Rate	<u>%</u>		4	
Closed loop timing adjustment mode			1	

Table 9.2.3.14 Minimum requirement 16QAM, Fixed Reference Channel (FRC) H-Set 1/2/3

<u>Test Number</u>	<u>Propagation Conditions</u>	<u>Reference value</u>	
		<u>HS-PDSCH</u> <u>E_c/I_{or} (dB)</u>	<u>T-put R (kbps) *</u> <u>$\hat{I}_{or}/I_{oc} = 10$ dB</u>
<u>1</u>	<u>PA3</u>	<u>-6</u>	<u>361</u>
		<u>-3</u>	<u>500</u>
<u>2</u>	<u>PB3</u>	<u>-6</u>	<u>74</u>
		<u>-3</u>	<u>255</u>
<u>3</u>	<u>VA30</u>	<u>-6</u>	<u>84</u>
		<u>-3</u>	<u>254</u>

* Notes: 1) The reference value R is for the Fixed Reference Channel (FRC) H-Set 1
2) For Fixed Reference Channel (FRC) H-Set 2 the reference values for R should be scaled (multiplied by 1.5 and rounding to the nearest integer t-put in kbps, where values of i+1/2 are rounded up to i+1, i integer)
3) For Fixed Reference Channel (FRC) H-Set 3 the reference values for R should be scaled (multiplied by 3 and rounding to the nearest integer t-put in kbps, where values of i+1/2 are rounded up to i+1, i integer)

Table 9.2.3.15: Test Parameters for Testing QPSK FRCs H-Set 4/H-Set 5

<u>Parameter</u>	<u>Unit</u>	<u>Test 1</u>	<u>Test 2</u>	<u>Test 3</u>
<u>Phase reference</u>			<u>P-CPICH</u>	
<u>I_{oc}</u>	<u>dBm/3.84 MHz</u>		<u>-60</u>	
<u>DPCH frame offset</u> <u>($T_{DPCH,0}$)</u>	<u>Chip</u>		<u>0</u>	
<u>Redundancy and constellation version coding sequence</u>			<u>{0,2,5,6}</u>	
<u>Maximum number of HARQ transmission</u>			<u>4</u>	
<u>Feedback Error Rate</u>	<u>%</u>		<u>4</u>	
<u>Closed loop timing adjustment mode</u>			<u>1</u>	

Table 9.2.3.16: Minimum requirement QPSK, Fixed Reference Channel (FRC) H-Set 4

<u>Test Number</u>	<u>Propagation Conditions</u>	<u>Reference value</u>		
		<u>HS-PDSCH</u> <u>E_c/I_{or} (dB)</u>	<u>T-put R (kbps) *</u> <u>$\hat{I}_{or}/I_{oc} = 0$ dB</u>	<u>T-put R (kbps) *</u> <u>$\hat{I}_{or}/I_{oc} = 10$ dB</u>
<u>1</u>	<u>PA3</u>	<u>-6</u>	<u>114</u>	<u>398</u>
		<u>-3</u>	<u>223</u>	<u>457</u>
<u>2</u>	<u>PB3</u>	<u>-6</u>	<u>43</u>	<u>196</u>
		<u>-3</u>	<u>167</u>	<u>292</u>
<u>3</u>	<u>VA30</u>	<u>-6</u>	<u>40</u>	<u>199</u>
		<u>-3</u>	<u>170</u>	<u>305</u>

* Notes: 1) The reference value R is for the Fixed Reference Channel (FRC) H-Set 4

Table 9.2.3.17: Minimum requirement QPSK, Fixed Reference Channel (FRC) H-Set 5

<u>Test Number</u>	<u>Propagation Conditions</u>	<u>Reference value</u>		
		<u>HS-PDSCH</u> <u>E_c/I_{or} (dB)</u>	<u>T-put R (kbps) *</u> <u>$\hat{I}_{or}/I_{oc} = 0$ dB</u>	<u>T-put R (kbps) *</u> <u>$\hat{I}_{or}/I_{oc} = 10$ dB</u>
<u>1</u>	<u>PA3</u>	<u>-6</u>	<u>177</u>	<u>599</u>
		<u>-3</u>	<u>338</u>	<u>687</u>
<u>2</u>	<u>PB3</u>	<u>-6</u>	<u>75</u>	<u>299</u>
		<u>-3</u>	<u>260</u>	<u>452</u>
<u>3</u>	<u>VA30</u>	<u>-6</u>	<u>71</u>	<u>306</u>
		<u>-3</u>	<u>258</u>	<u>458</u>

* Notes: 1) The reference value R is for the Fixed Reference Channel (FRC) H-Set 5

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

CHANGE REQUEST

⌘ **34.121 CR 388** ⌘ rev **-** ⌘ Current version: **5.3.1** ⌘

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 UE Rx-Tx time difference type 1 test cases
Source:	⌘ Nokia
Work item code:	⌘ TEI Date: ⌘ 13/05/2004
Category:	⌘ F Release: ⌘ Rel-5
Use <u>one</u> of the following categories:	
Use <u>one</u> of the following releases:	
F (correction)	2 (GSM Phase 2)
A (corresponds to a correction in an earlier release)	R96 (Release 1996)
B (addition of feature),	R97 (Release 1997)
C (functional modification of feature)	R98 (Release 1998)
D (editorial modification)	R99 (Release 1999)
Detailed explanations of the above categories can be found in 3GPP TR 21.900 .	Rel-4 (Release 4)
	Rel-5 (Release 5)
	Rel-6 (Release 6)

Reason for change:	⌘ - TS 25.133 specifies Frequency Band (I,II,III) dependent constraints on Io levels for UE Rx-Tx time difference type 1 measurement. These constraints have not been taken into account in UE Rx-Tx time difference test cases defined in Section 8.7.6.1 of TS 34.121. - Tables 8.7.6.1.1 and 8.7.6.1.3 are missing titles - Io has wrong unit in tables 8.7.6.1.1 and 8.7.6.1.3 - Test requirements are not described as UE reported values - Test procedure Section 8.7.6.1.4.2 has false references to other steps. - Accuracy of SS for UE-RX-Tx timing has been agreed to be ± 0.5 chips so no need to have brackets anymore.
Summary of change:	⌘ - Frequency Band constraints for Io have been added into "Minimum Requirements" and "Test Requirements" section of all UE Rx-Tx time difference type 1 tests. - For Frequency Band II and III some test parameters have been slightly modified so that Io levels are within the constraints that have been specified for these frequency bands. - Titles have been added into tables 8.7.6.1.1 and 8.7.6.1.3 - Io unit has been corrected to [dBm/3.84 MHz] in 8.7.6.1.1 and 8.7.6.1.3 - Test requirements are described as UE reported values in table 8.7.6.1.5 - Step numbers have been corrected in Test procedure section 8.7.6.1.4.2 - Brackets removed from accuracy requirement from Table 8.7.6.1.3

Consequences if not approved: ⌘ UE Rx-Tx time difference type 1 test cases are not compliant with core specification when operating with Frequency Band II or III. UE Rx-Tx time difference type measurement test cases are incomplete

Clauses affected: ⌘ 8.7.6.1

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

Other comments: ⌘ This CR is applicable for UE's supporting Rel-99 or later.

8.7.6 UE Rx-Tx time difference

8.7.6.1 UE Rx-Tx time difference type 1

8.7.6.1.1 Definition and applicability

The UE Rx-Tx time difference is defined as the time difference between the UE uplink DPCH/DPDCH frame transmission and the first detected path (in time) of the downlink DPCH frame from the measured radio link. The reference point of the UE Rx-Tx time difference shall be the antenna connector of the UE. This measurement is specified in clause 5.1.10 of TS 25.215.

The requirements and this test apply to all types of UTRA for the FDD UE.

8.7.6.1.2 Minimum requirements

Table 8.7.6.1.1 UE Rx-Tx time difference type 1 measurement accuracy

Parameter	Unit	Accuracy [chip]	Conditions		
			I _o [dBm/3.84MHz]		
			Band I	Band II	Band III
UE RX-TX time difference	chip	± 1.5	-94...-50	-92...-50	-91...-50

The normative reference for this requirement is TS 25.133 [2] clause 9.1.9.1.1 and A.9.1.6.1.2.

8.7.6.1.3 Test purpose

The purpose of this test is to verify that the measurement accuracy of Rx-Tx time difference is within the limit specified in clause 8.7.6.1.2. This measurement is used for call setup purposes to compensate propagation delay of DL and UL.

8.7.6.1.4 Method of test

8.7.6.1.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

- 1) Connect SS to the UE antenna connector as shown in figure A.1

Table 8.7.6.1.2: UE Rx-Tx time difference type 1 intra frequency test parameters

Parameter	Unit	Test 1	Test 2	Test 3
		Cell 1	Cell 1	Cell 1
UTRA RF Channel number		Channel 1	Channel 1	Channel 1
CPICH_Ec/I _{or}	dB	-10	-10	-10
PCCPCH_Ec/I _{or}	dB	-12	-12	-12
SCH_Ec/I _{or}	dB	-12	-12	-12
PICH_Ec/I _{or}	dB	-15	-15	-15
DPCH_Ec/I _{or}	dB	-15	-15	-15
OCNS	dB	-1.11	-1.11	-1.11
I _{or} /I _{oc}	dB	10.5	10.5	10.5
I _{oc}	dBm/ 3.84 MHz	$I_o - 10.9 \text{ dB} = I_{oc}$, Note 1	$I_o - 10.9 \text{ dB} = I_{oc}$, Note 1	$I_o - 10.9 \text{ dB} = I_{oc}$, Note 1
I _o	Band I	-94	-72	-50
	Band II	-92		
	Band III	-91		
Propagation condition	-	AWGN	AWGN	AWGN

NOTE 1: I_{oc} level shall be adjusted according the total signal power spectral density I_o at receiver input and the geometry factor I_{or}/I_{oc}.

8.7.6.1.4.2 Procedure

- 1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2.3. The RF parameters are set up according to table 8.7.6.1.4 for Test 1.
- 2) SS shall transmit MEASUREMENT CONTROL message.
- 3) UE shall transmit periodically MEASUREMENT REPORT message.
- 4) SS shall check "UE Rx-Tx time difference type 1" value in MEASUREMENT REPORT message. The reported value shall be compared to actual UE Rx-Tx time difference value for each MEASUREMENT REPORT message. The comparison should be repeated 1000 times.
- 5) The RF parameters are set up according table 8.7.6.1.4 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period.
- 6) ~~Step 3) above shall be repeated.~~ SS shall check "UE Rx-Tx time difference type 1" value in MEASUREMENT REPORT message. The reported value shall be compared to actual UE Rx-Tx time difference value for each MEASUREMENT REPORT message. The comparison should be repeated 1000 times.
- 7) The RF parameters are set up according table 8.7.6.1.4 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period.
- 8) ~~Step 3) above shall be repeated.~~ SS shall check "UE Rx-Tx time difference type 1" value in MEASUREMENT REPORT message. The reported value shall be compared to actual UE Rx-Tx time difference value for each MEASUREMENT REPORT message. The comparison should be repeated 1000 times.
- 9) SS shall transmit RRC CONNECTION RELEASE message.

Specific Message Contents

All messages indicated above shall use the same content as described in default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message for Intra frequency measurement (Step 24):

Information Element	Value/Remark
Message Type	
UE information elements -RRC transaction identifier -Integrity check info	0 Not Present
Measurement Information elements -Measurement Identity -Measurement Command - Additional measurements list -Measurement Reporting Mode -Measurement Report Transfer Mode -Periodical Reporting / Event Trigger Reporting Mode -CHOICE Measurement type -UE Internal measurement quantity -CHOICE mode -Measurement quantity -Filter coefficient -UE Internal reporting quantity -UE Transmitted power -CHOICE mode -UE Rx-Tx time difference -CHOICE report criteria -Amount of reporting -Reporting interval -Measurement Reporting Mode -Measurement Report Transfer Mode -Periodical Reporting / Event Trigger Reporting Mode	1 Modify Not Present AM RLC Periodical reporting UE Internal measurement FDD UE Rx-Tx time difference 0 FALSE FDD TRUE Periodical reporting criteria Infinity 250 AM RLC Periodical reporting
Physical channel information elements -DPCH compressed mode status info	Not Present

MEASUREMENT REPORT message

Information Element	Value/remark
Message Type Integrity check info - Message authentication code - RRC Message sequence number Measurement identity Measured Results - CHOICE Measurement - Choice mode - UE Transmitted power - UE Rx-Tx report entries - Primary CPICH info - UE Rx-Tx time difference type 1 - Intra-frequency measured results - Cell measured results - Cell Identity - SFN-SFN observed time difference - Cell synchronisation information - Primary CPICH info - Primary scrambling code - CPICH Ec/N0 - CPICH RSCP - Pathloss Measured results on RACH Additional measured results Event results	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. This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value. 1 UE Internal measured results FDD Checked that this IE is absent Checked that this IE is present Checked that this IE is present Not present Checked that this IE is absent Checked that this IE is absent 100 Checked that this IE is absent Checked that this IE is present Checked that this IE is absent Checked that this IE is absent Checked that this IE is absent Checked that this IE is absent

8.7.6.1.5 Test requirements

Table 8.7.6.1.3 [UE Rx-Tx time difference type 1 measurement accuracy](#)

Parameter	Unit	Accuracy [chip]	Conditions		
			Io [dBm/3.84 MHz]		
			Band I	Band II	Band III
UE RX-TX time difference	chip	{± 2.0}	-94...-50	-92...-50	-91...-50

Table 8.7.6.1.4: UE Rx-Tx time difference type 1 intra frequency test parameters

Parameter	Unit	Test 1	Test 2	Test 3	
		Cell 1	Cell 1	Cell 1	
UTRA RF Channel number		Channel 1	Channel 1	Channel 1	
CPICH_Ec/lor	dB	-10	-10	-10	
PCCPCH_Ec/lor	dB	-12	-12	-12	
SCH_Ec/lor	dB	-12	-12	-12	
PICH_Ec/lor	dB	-15	-15	-15	
DPCH_Ec/lor	dB	-15	-15	-15	
OCNS	dB	-1.11	-1.11	-1.11	
$\hat{I}_{or/loc}$	dB	10.5	10.5	10.5	
loc	dBm/ 3.84 MHz	Band I	-103.6	-82.9	-62.2
		Band II	-101.6		
		Band III	-100.6		
lo	dBm/3.84 MHz	Band I	-92.7	-72	-51.3
		Band II	-90.7		
		Band III	-89.7		
Propagation condition	-	AWGN	AWGN	AWGN	

NOTE 1: *loc* level shall be adjusted according the total signal power spectral density *lo* at receiver input and the geometry factor *Ior/loc*.

The [reported values](#) for UE Rx-Tx time difference accuracy shall meet the requirements in table 8.7.6.1.5.

[Table 8.7.6.1.5: UE Tx-Rx time difference type 1 measurement accuracy requirements for the reported values](#)

	Test 1	Test 2	Test 3
Lowest reported value	RX-TX_TIME (X - 2)	RX-TX_TIME (X - 2)	RX-TX_TIME (X - 2)
Highest reported value	RX-TX_TIME (X + 2)	RX-TX_TIME (X + 2)	RX-TX_TIME (X + 2)
RX-TX_TIME (X) is the reporting value corresponding to UE Rx-Tx time difference measured by system simulator			

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.7.6.2 UE Rx-Tx time difference type 2

Void

CHANGE REQUEST

⌘ **34.121 CR 389** ⌘ rev **-** ⌘ Current version: **5.3.1** ⌘

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

Title:	⌘ Addition of MEASUREMENT CONTROL message and ACTIVESET UPDATE message in 8.5.1		
Source:	⌘ Anritsu		
Work item code:	⌘	Date:	⌘ 12/05/2004
Category:	⌘ F	Release:	⌘ Rel-5
	<i>Use one of the following categories:</i> 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 .		<i>Use one of the following releases:</i> 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:	⌘ From the current test procedure, SS can not verify UE in the active set.
Summary of change:	⌘ MEASUREMENT CONTROL message and ACTIVESET UPDATE meessages are added.
Consequences if not approved:	⌘ SS can neither verify UE in the active set nor proceed the test.

Clauses affected:	⌘ 8.5.1						
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </table> Other core specifications	Y	N	<input type="checkbox"/>	<input checked="" type="checkbox"/>	⌘	
Y	N						
<input type="checkbox"/>	<input checked="" type="checkbox"/>						
	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </table> Test specifications	Y	N	<input type="checkbox"/>	<input checked="" type="checkbox"/>	⌘	
Y	N						
<input type="checkbox"/>	<input checked="" type="checkbox"/>						
	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </table> O&M Specifications	Y	N	<input type="checkbox"/>	<input checked="" type="checkbox"/>	⌘	
Y	N						
<input type="checkbox"/>	<input checked="" type="checkbox"/>						
Other comments:	⌘ This CR applies for Rel-99 and later releases.						

How to create CRs using this form:

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

8.5 Timing and Signalling Characteristics

8.5.1 UE Transmit Timing

8.5.1.1 Definition and applicability

The UE transmit timing is defined as the timing of the uplink DPCCH/DPDCH frame relative to the first detected path (in time) of the corresponding downlink DPCCH/DPDCH frame from the reference cell. The reference point is the antenna connector of the UE.

The requirements and this test apply to all types of UTRA of the FDD UE.

8.5.1.2 Minimum requirements

The UE transmission timing error shall be less than or equal to ± 1.5 chips. The reference point for the UE initial transmit timing control requirement shall be the time when the first detected path (in time) of the corresponding downlink DPCCH/DPDCH frame is received from the reference cell plus T_0 chips. T_0 is defined in TS25.211 [19].

When the UE is not in soft handover, the reference cell shall be the one the UE has in the active set. The cell, which is selected as a reference cell, shall remain as a reference cell even if other cells are added to the active set. In case that the reference cell is removed from the active set the UE shall start adjusting its transmit timing no later than the time when the whole active set update message is available at the UE taking the RRC procedure delay into account.

The UE shall be capable of changing the transmission timing according the received downlink DPCCH/DPDCH frame. The maximum amount of the timing change in one adjustment shall be $\frac{1}{4}$ chip.

The minimum adjustment rate shall be 233ns per second. The maximum adjustment rate shall be $\frac{1}{4}$ chip per 200 ms. In particular, within any given $800 \cdot d$ ms period, the UE transmit timing shall not change in excess of $\pm d$ chip from the timing at the beginning of this $800 \cdot d$ ms period, where $0 \leq d \leq 1/4$.

The normative reference for this requirement is TS 25.133 [2] clause 7.1.2.

8.5.1.3 Test purpose

The purpose of this test is to verify that the UE initial transmit timing accuracy, maximum amount of timing change in one adjustment, minimum and maximum adjustment rate are within the limits specified in 8.5.1.2.

8.5.1.4 Method of test

8.5.1.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

For this test, two cells on the same frequency are used.

- 1) Connect the test system to the UE antenna connector as shown in figure A.1.
- 2) A call is set up with Cell 1 according to the Generic call setup procedure. The test parameters are set up according to table 8.5.1.1.

Table 8.5.1.1: Test parameters for UE Transmit Timing requirements

Parameter	Unit	Level
DPCH_Ec/ Ior, Cell 1 and Cell 2	dB	-17
CPICH_Ec/ Ior, Cell 1 and Cell 2	dB	-10
PCCPH_Ec/ Ior, Cell 1 and Cell 2	dB	-12
SCH_Ec/ Ior, Cell 1 and Cell 2	dB	-12
PICH_Ec/ Ior, Cell 1 and Cell 2	dB	-15
OCNS_Ec/ Ior, Cell 1 and Cell 2	dB	-1.05
\hat{I}_{or} , Cell 1	dBm/3.84 MHz	-96
\hat{I}_{or} , Cell 2	dBm/3.84 MHz	-99
Information data rate	kbps	12.2
Relative delay of path received from cell 2 with respect to cell 1	μ s	+/-2
Propagation condition	AWGN	

8.5.1.4.2 Procedure

- a) After a connection is set up with cell 1, the test system shall verify that the UE transmit timing offset is within $T_0 \pm 1.5$ chips with respect to the first detected path (in time) of the downlink DPCCCH/DPDCH of cell 1.
- b) Test system introduces cell 2 into the test system at delay $+2 \mu$ s from cell 1. [UE transmits Measurement report message, and Test system transmits ACTIVESET UPDATE message \(Radio link addition information\).](#)
- c) [Test system transmits Measurement Control message, and ~~Test system~~ it](#) verifies that cell 2 is added to the active set.
- d) Test system shall verify that the UE transmit timing offset is still within $T_0 \pm 1.5$ chips with respect to the first detected path (in time) of the downlink DPCCCH/DPDCH of cell 1.
- e) Test system switches Tx timing of cell 2 to a delay of -2μ s with respect to cell 1.
- f) Test system verifies cell 2 remains in the active set.
- g) Test system shall verify that the UE transmit timing offset is still within $T_0 \pm 1.5$ chips with respect to the first detected path (in time) of the downlink DPCCCH/DPDCH of cell 1.
- h) Test system stops sending cell 1 signals.
- i) Void
- j) [UE transmits Measurement report message, and Test system transmits ACTIVESET UPDATE message \(Radio link removal information\).](#) Test system verifies that UE transmit timing adjustment starts no later than the time when the whole active set update message is available at the UE taking the RRC procedure delay into account. The adjustment step size and the adjustment rate shall be according to the requirements in clause 8.5.1.2 until the UE transmit timing offset is within $T_0 \pm 1.5$ chips with respect to the first detected path (in time) of the downlink DPCCCH/DPDCH of cell 2.
- k) Test system shall verify that the UE transmit timing offset stays within $T_0 \pm 1.5$ chips with respect to the first detected path (in time) of the downlink DPCCCH/DPDCH of cell 2.
- l) Test system starts sending cell 1 signal again with its original timing. [UE transmits Measurement report message, and Test system transmits ACTIVESET UPDATE message \(Radio link addition information\).](#)
- m) [Test system transmits Measurement Control message, and ~~Test system~~ it](#) verifies that cell 1 is added to the active set.
- n) Test system verifies that the UE transmit timing is still within $T_0 \pm 1.5$ chips with respect to the first detected path (in time) of the downlink DPCCCH/DPDCH of cell 2.
- o) Test system stops sending cell 2 signals.
- p) Void.

- q) Test system verifies that UE transmit timing adjustment starts no later than the time when the whole active set update message is available at the UE taking the RRC procedure delay into account. The adjustment step size and the adjustment rate shall be according to the requirements in clause 8.5.1.2 until the UE transmit timing offset is within $T_0 \pm 1.5$ chips with respect to the first detected path (in time) of the downlink DPCCH/DPDCH of cell 1.
- r) Test system shall verify that the UE transmit timing offset stays within $T_0 \pm 1.5$ chips with respect to the first detected path (in time) of the downlink DPCCH/DPDCH of cell 1.

MEASUREMENT CONTROL message

<u>Information Element</u>	<u>Value/Remark</u>
<u>Message Type</u>	
<u>UE information elements</u>	
-RRC transaction identifier	<u>0</u>
-Integrity check info	<u>Not Present</u>
<u>Measurement Information elements</u>	
-Measurement Identity	<u>1</u>
-Measurement Command	<u>Modify</u>
-Measurement Reporting Mode	
- Measurement Report Transfer Mode	<u>Acknowledged mode RLC</u>
- Periodical Reporting / Event Trigger Reporting Mode	<u>Periodical reporting</u>
-Additional measurement list	<u>Not Present</u>
-CHOICE Measurement Type	<u>Intra-frequency measurement</u>
-Intra-frequency measurement	
- Intra-frequency measurement objects list	
-Intra-frequency cell info list	<u>Not Present</u>
-Intra-frequency measurement quantity	<u>0</u>
-Filter coefficient	<u>FDD</u>
-CHOICE mode	<u>CPICH RSCP</u>
-Measurement quantity	
-Intra-frequency reporting quantity	
-Reporting quantities for active set cells	
-Cell synchronisation information reporting indicator	<u>TRUE</u>
-Cell Identity reporting indicator	<u>TRUE</u>
-CHOICE mode	<u>FDD</u>
-CPICH Ec/N0 reporting indicator	<u>TRUE</u>
-CPICH RSCP reporting indicator	<u>TRUE</u>
-Pathloss reporting indicator	<u>FALSE</u>
-Reporting quantities for monitored set cells	
-Cell synchronisation information reporting indicator	<u>FALSE</u>
-Cell Identity reporting indicator	<u>FALSE</u>
-CHOICE mode	<u>FDD</u>
-CPICH Ec/N0 reporting indicator	<u>FALSE</u>
-CPICH RSCP reporting indicator	<u>FALSE</u>
-Pathloss reporting indicator	<u>FALSE</u>
-Reporting quantities for detected set cells	<u>Not Present</u>
-Reporting cell status	
-CHOICE reported cell	<u>Report all active set cells + cells within monitored set on used frequency</u>
-Maximum number of reported cells	<u>Virtual/active set cells + 2</u>
-Measurement validity	<u>Not Present</u>
-CHOICE report criteria	<u>Periodical reporting criteria</u>
-Amount of reporting	<u>Infinity</u>
-Reporting interval	<u>250 ms</u>
<u>Physical channel information elements</u>	
-DPCH compressed mode status info	<u>Not Present</u>

ACTIVESET UPDATE message (Radio link addition information)

<u>Information Element/Group name</u>	<u>Value/Remark</u>
Message Type (10.2.17)	
<u>UE information elements</u> - RRC transaction identifier - Integrity check info - Activation time - New U-RNTI	0 Not Present "now". Not Present
<u>CN information elements</u> - CN Information info	Not Present
<u>Phy CH information elements</u> <u>Uplink radio resources</u> - Maximum allowed UL TX power	33 dBm
<u>Downlink radio resources</u> - Radio link addition information - Radio link addition information - Primary CPICH info - Downlink DPCH info for each RL	1 Adding Cell
- CHOICE mode - Primary CPICH usage for channel estimation - DPCH frame offset - Secondary CPICH info	FDD Primary CPICH may be used This should be reflected by the IE" Cell synchronisation information" in received MEASUREMENT REPORT message Not Present
- DL channelisation code - Secondary scrambling code - Spreading factor - Code number - Scrambling code change - TPC combination index - SSDT Cell Identity - Closed loop timing adjustment mode - TFCI combining indicator - SCCPCH Information for FACH - Radio link removal information - TX Diversity Mode - SSDT information	Not Present 128 96 No code change 0 Not Present Not Present FALSE Not Present Not Present Not Present Not Present

ACTIVESET UPDATE message (Radio link removal information)

<u>Information Element/Group name</u>	<u>Value/Remark</u>
Message Type (10.2.17)	
<u>UE information elements</u> - RRC transaction identifier - Integrity check info - Activation time - New U-RNTI	0 Not Present "now". Not Present
<u>CN information elements</u> - CN Information info	Not Present
<u>Phy CH information elements</u> <u>Uplink radio resources</u> - Maximum allowed UL TX power	33 dBm
<u>Downlink radio resources</u> - Radio link addition information - Radio link removal information - Primary CPICH info - TX Diversity Mode - SSDT information	Not Present 1 Removing Cell Not Present Not Present

8.5.1.5 Test requirements

- 1) In step a), d) and g), UE transmit timing offset shall be within $T_0 \pm 1.5$ chips with respect to the first detected path (in time) of the downlink DPCCH/DPDCH of cell 1.
- 2) In step j), the adjustment step size and the adjustment rate shall meet the requirements specified in 8.5.1.2 until the UE transmit timing offset is within $T_0 \pm 1.5$ chips with respect to the first detected path (in time) of the downlink DPCCH/DPDCH of cell 2.
- 3) In step k) and n), UE transmit timing offset shall be within $T_0 \pm 1.5$ chips with respect to the first detected path (in time) of the downlink DPCCH/DPDCH of cell 2.
- 4) In step q), the adjustment step size and the adjustment rate shall meet the requirements specified in 8.5.1.2 until the UE transmit timing offset is within $T_0 \pm 1.5$ chips with respect to the first detected path (in time) of the downlink DPCCH/DPDCH of cell 1.
- 5) In step r), UE transmit timing offset shall be within $T_0 \pm 1.5$ chips with respect to the first detected path (in time) of the downlink DPCCH/DPDCH of cell 1.

NOTE 1: The above Test Requirement differs from the Test Requirement of TS 25.133 [2] clause A7.1.2, from which the requirements for the test system are subtracted to give the above Test Requirement.

NOTE 2: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

CHANGE REQUEST

⌘ **34.121 CR 358** ⌘ rev **-** ⌘ Current version: **5.3.1** ⌘

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 to 8.4.1.1 RRC cnnnection control test 1		
Source:	⌘ Anritsu		
Work item code:	⌘	Date:	⌘ 12/05/2004
Category:	⌘ F	Release:	⌘ Rel-5
	<i>Use <u>one</u> of the following categories:</i> 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 .		<i>Use <u>one</u> of the following releases:</i> 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:	⌘ Because CPICH_Ec/Io of Cell 2 is larger than Cell1 for period of T1, UE can not select and reselect to Cell1.		
Summary of change:	⌘ 1) Initial test parameter of T0 is added. ⌘ 2) T0 set up procedure is added.		
Consequences if not approved:	⌘ UE will not be tested properly.		

Clauses affected:	⌘ 8.4.1.1										
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;"> </td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;"> </td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;"> </td> <td style="text-align: center;">X</td> </tr> </table>	Y	N		X		X		X	Other core specifications ⌘ Test specifications ⌘ O&M Specifications ⌘	⌘
Y	N										
	X										
	X										
	X										
Other comments:	⌘ This CR applies for Rel-99 and later releases.										

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

8.4 RRC Connection Control

8.4.1 RRC Re-establishment delay

8.4.1.1 Test 1

8.4.1.1.1 Definition and applicability

The UE Re-establishment delay requirement ($T_{UE-RE-ESTABLISH-REQ}$) is defined as the time between the moment when radio link failure is considered by the UE, to when the UE starts to send preambles on the PRACH.

$T_{UE-RE-ESTABLISH-REQ}$ is depending on whether the target cell is known by the UE or not. A cell is known if either or both of the following conditions are true:

- the UE has had radio links connected to the cell in the previous (old) active set.
- the cell has been measured by the UE during the last 5 seconds.

The phase reference is the primary CPICH.

The requirements of this test apply to the FDD UE.

8.4.1.1.2 Minimum requirement

The Re-establishment delay $T_{RE-ESTABLISH}$ to a known cell shall be less than 1.9 s.

The rate of correct RRC re-establishments observed during repeated tests shall be at least 90%.

NOTE: The Re-establishment delay in this case can be expressed as

$$T_{RE-ESTABLISH} = T_{RRC-RE-ESTABLISH} + T_{UE-RE-ESTABLISH-REQ-KNOWN}$$

where

$$T_{RRC-RE-ESTABLISH} = 160\text{ms} + (N_{313} - 1) * 10\text{ms} + T_{313}$$

$$T_{UE-RE-ESTABLISH-REQ-KNOWN} = 50\text{ms} + T_{\text{search}} + T_{SI} + T_{RA}$$

$$N_{313} = 20$$

$$T_{313} = 0\text{s}$$

$$T_{\text{search}} = 100\text{ms}$$

$$T_{RA} = \text{The additional delay caused by the random access procedure. 40 ms is assumed in this test case.}$$

$$T_{SI} = \text{is the time required for receiving all the relevant system information data according to the reception procedure and the RRC procedure delay of system information blocks defined in 25.331 for a UTRAN cell (ms). 1280 ms is assumed in this test case.}$$

This gives a total of 1820ms, allow 1.9s in the test case.

8.4.1.1.3 Test purpose

To verify that the UE meets the minimum requirement.

8.4.1.1.4 Method of test

8.4.1.1.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

The test parameters are given in table 8.4.1.1, ~~and~~ table 8.4.1.2, and table 8.4.1.3 below. The maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell shall be 1280 ms. And DRX cycle length shall be 1280ms. In the measurement control information it is indicated to the UE that periodic reporting shall be used. The test consist of 2 successive time periods, with a time duration of T1 and T2 respectively. At the start of time period T2, the dedicated channel is removed.

Table 8.4.1.1 General test parameters for RRC re-establishment delay, Test 1

Parameter	Unit	Value	Comment
DCH Parameters		DL and UL Reference measurement channel 12.2 kbps	As specified in clause C.3.1 and C.2.1
Power Control		On	
Active cell, Initial condition		Cell 1	
Active cell, Final condition		Cell 2	
N313		20	
N315		1	
T313	Seconds	0	
Monitored cell list size		24	Monitored set shall only include intra frequency neighbours.
Cell 2			Included in the monitored set
Reporting frequency	Seconds	4	
T1	s	10	
T2	s	6	

Table 8.4.1.2 Cell specific parameters for RRC re-establishment delay test, Test 1

Parameter	Unit	Cell 1	Cell 2
		T0	T0
Cell Frequency	ChNr	1	1
CPICH E_c/I_o	dB	-10	-10
PCCPCH E_c/I_o	dB	-12	-12
SCH E_c/I_o	dB	-12	-12
PICH E_c/I_o	dB	-15	-15
DCH E_c/I_o	dB	-17	-infinity
OCNS E_c/I_o	dB	-1.049	-0.941
\hat{I}_{or}/I_{oc}	dB	2.39	-infinity
I_{oc}	dBm/ 3.84 MHz		-70
CPICH E_c/I_o	dB	-12	-infinity
Propagation Condition			AWGN

Table 8.4.1.23 Cell specific parameters for RRC re-establishment delay test, Test 1

Parameter	Unit	Cell 1		Cell 2	
		T1	T2	T1	T2
Cell Frequency	ChNr	1		1	
CPICH_Ec/Ior	dB	-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12	
SCH_Ec/Ior	dB	-12		-12	
PICH_Ec/Ior	dB	-15		-15	
DCH_Ec/Ior	dB	-17	-Infinity	Not applicable	
OCNS_Ec/Ior	dB	-1.049	-0.941	-0.941	
\hat{I}_{or}/I_{oc}	dB	2,39	-Infinity	4,39	0,02
I_{oc}	dBm/ 3.84 MHz	-70			
CPICH_Ec/Io	dB	-15	-Infinity	-13	
Propagation Condition		AWGN			

8.4.1.1.4.2 Procedure

- 1) The RF parameters are set up according to ~~T1~~T0.
- 2) The UE is switched on.
- 3) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.4 without Compressed mode parameters.
- 4) ~~The RF parameters are setup according to T1. The SS waits for random access requests from the UE on cell 2.~~
- 5) 10 s after ~~step3-step4~~ has completed, the parameters are changed to that as described for T2.
- 6) If the UE responds on cell 2 within 2.0 s from the beginning of time period T2 with a CELL_UPDATE command then the number of successful tests is increased by one.
- 7) SS shall transmit a RRC CONNECTION RELEASE message to make the UE transit to idle mode.
- 8) After 6 seconds from the beginning of time period T2, the RF parameters are set up according to ~~T1~~T0.
- 9) The SS shall wait for 30s to make the UE complete cell reselection to cell1.
- 10) Repeat step 3-9 until the confidence level according to annex F.6.2 is achieved.

NOTE: The time required for receiving all the relevant system information data according to the reception procedure and the RRC procedure delay of system information blocks defined in 25.331 for a UTRAN cell. Since the maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell is 1280ms and the maximum RRC procedure delay for reception system information block is 100ms, 1380 ms is assumed in this test case. Therefore this gives a total of 1920ms (Minimum requirement + 100ms), allow 2s in the test case.

8.4.1.1.5 Test requirements

For the test to pass, the total number of successful tests shall be more than 90% of the cases with a confidence level of 95%.

Note: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

CHANGE REQUEST

⌘ **34.121 CR 395** ⌘ rev **-** ⌘ Current version: **5.3.1** ⌘

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:	⌘ Addition of CELL_UPDATE CONFIRM Message and URA_UPDATE CONFIRM Message.		
Source:	⌘ Anritsu		
Work item code:	⌘	Date:	⌘ 12/05/2004
Category:	⌘ F	Release:	⌘ Rel-5
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	F (correction)	2	(GSM Phase 2)
	A (corresponds to a correction in an earlier release)	R96	(Release 1996)
	B (addition of feature),	R97	(Release 1997)
	C (functional modification of feature)	R98	(Release 1998)
	D (editorial modification)	R99	(Release 1999)
	Detailed explanations of the above categories can be found in 3GPP TR 21.900 .		Rel-4 (Release 4)
			Rel-5 (Release 5)
			Rel-6 (Release 6)

Reason for change:	⌘ CELL_UPDATE CONFIRM Messages and URA_UPDATE CONFIRM Messages are missing, and SS could not trasmit the specific messages.		
Summary of change:	⌘ CELL_UPDATE CONFIRM Messages and URA_UPDATE CONFIRM Messages are added in the test case.		
Consequences if not approved:	⌘ Test will not be performed properly.		

Clauses affected:	⌘ 8.3.5.1,8.3.5.2,8.3.6.1,8.3.6.2,8.3.7.1,8.3.7.2										
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </table>	Y	N	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Other core specifications	⌘
Y	N										
<input type="checkbox"/>	<input checked="" type="checkbox"/>										
<input type="checkbox"/>	<input checked="" type="checkbox"/>										
<input type="checkbox"/>	<input checked="" type="checkbox"/>										
		Test specifications									
		O&M Specifications									
Other comments:	⌘ This CR applies for Rel-99 and later releases.										

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- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under <ftp://ftp.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

8.3.5 Cell Re-selection in CELL_FACH

8.3.5.1 One frequency present in neighbour list

8.3.5.1.1 Definition and applicability

The cell re-selection delay is defined as the time between the occurrence of an event which will trigger Cell Reselection process and the moment in time when the UE starts sending the preambles on the PRACH for sending RRC CELL UPDATE message to the UTRAN.

The requirements and this test apply to the FDD UE.

8.3.5.1.2 Minimum requirements

The cell re-selection delay shall be less than 1.6 s.

The rate of correct cell reselections observed during repeated tests shall be at least 90%.

If a cell has been detectable at least $T_{\text{identify,intra}}$, the cell reselection delay in CELL_FACH state to a cell in the same frequency shall be less than

$$T_{\text{reselection,intra}} = T_{\text{Measurement_Period Intra}} + T_{\text{IU}} + 20 + T_{\text{SI}} + T_{\text{RA}} \text{ ms}$$

where

$$T_{\text{Measurement_Period Intra}} = 200 \text{ ms.}$$

T_{IU} is the interruption uncertainty when changing the timing from the old to the new cell. T_{IU} can be up to one frame (10 ms).

T_{SI} = The time required for receiving all the relevant system information data according to the reception procedure and the RRC procedure delay of system information blocks defined in 25.331 for a UTRAN cell. 1280 ms is assumed in this test case.

T_{RA} = The additional delay caused by the random access procedure. T_{RA} is a delay is caused by the physical random access procedure described in TS 25.214 clause 6.1. A persistence value is assumed to be 1 in this test case and therefore T_{RA} in this test case is 40 ms.

These requirements assume radio conditions to be sufficient, so reading of system information can be done without errors.

The normative reference for this requirement is TS 25.133 [2] clauses 5.5.2.1.1 and A.5.5.1.

8.3.5.1.3 Test purpose

The purpose of this test is to verify the requirement for the cell re-selection delay in CELL_FACH state in the single carrier case

8.3.5.1.4 Method of test

8.3.5.1.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

The test parameters are given in table 8.3.5.1.1 to 8.3.5.1.5. The UE is requested to monitor neighbouring cells on 1 carrier. The maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell shall be 1280 ms.

Table 8.3.5.1.1: General test parameters for Cell Re-selection in CELL_FACH, one freq. in neighbour list

Parameter		Unit	Value	Comment
Initial condition	Active cell		Cell2	
	Neighbour cells		Cell1, Cell3, Cell4, Cell5, Cell6	
Final condition	Active cell		Cell1	
Access Service Class (ASC#0) – Persistence value		-	1	Selected so that no additional delay is caused by the random access procedure. The value shall be used for all cells in the test.
HCS				Not used
T1		s	15	
T2		s	15	

The transport and physical parameters of the S-CCPCH carrying the FACH are defined in table 8.3.5.1.2 and table 8.3.5.1.3.

Table 8.3.5.1.2: Physical channel parameters for S-CCPCH, one freq. in neighbour list

Parameter	Unit	Level
Channel bit rate	kbps	60
Channel symbol rate	ksps	30
Slot Format #1	-	4
TFCI	-	OFF
Power offsets of TFCI and Pilot fields relative to data field	dB	0

Table 8.3.5.1.3: Transport channel parameters for S-CCPCH, one freq. in neighbour list

Parameter	FACH
Transport Channel Number	1
Transport Block Size	240
Transport Block Set Size	240
Transmission Time Interval	10 ms
Type of Error Protection	Convolution Coding
Coding Rate	$\frac{1}{2}$
Rate Matching attribute	256
Size of CRC	16
Position of TrCH in radio frame	Fixed

Table 8.3.5.1.4: Cell specific conditions for Cell Re-selection in CELL_FACH, one freq. in neighbour list

Parameter	Unit	Cell 1		Cell 2		Cell 3		Cell 4		Cell 5		Cell 6	
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number		Channel 1		Channel 1		Channel 1		Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior	dB	-10		-10		-10		-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12		-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12		-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15		-15		-15		-15	
S-CCPCH_Ec/Ior	dB	-12		-12		-12		-12		-12		-12	
OCNS_Ec/Ior	dB	-1.295		-1.295		-1.295		-1.295		-1.295		-1.295	
\hat{I}_{or}/I_{oc}	dB	7.3	10.27	10.27	7.3	0.27		0.27		0.27		0.27	
\hat{I}_{or} (Note 1)	dBm	-62.73	-59.73	-59.73	-62.73	-69.73		-69.73		-69.73		-69.73	
I_{oc}	dBm/3.84 MHz	-70											
CPICH_Ec/Io	dB	-16	-13	-13	-16	-23		-23		-23		-23	
Propagation Condition		AWGN											
Cell_selection_and_reselection_quality_measure		CPICH E _c /N ₀		CPICH E _c /N ₀		CPICH E _c /N ₀		CPICH E _c /N ₀		CPICH E _c /N ₀		CPICH E _c /N ₀	
Qqualmin	dB	-20		-20		-20		-20		-20		-20	
Qrxlevmin	dBm	-115		-115		-115		-115		-115		-115	
UE_TXPWR_MAX_RACH	dBm	21		21		21		21		21		21	
Qoffset 2 _{s,n}	dB	C1, C2: 0 C1, C3: 0 C1, C4: 0 C1, C5: 0 C1, C6: 0		C2, C1: 0 C2, C3: 0 C2, C4: 0 C2, C5: 0 C2, C6: 0		C3, C1: 0 C3, C2: 0 C3, C4: 0 C3, C5: 0 C3, C6: 0		C4, C1: 0 C4, C2: 0 C4, C3: 0 C4, C5: 0 C4, C6: 0		C5, C1: 0 C5, C2: 0 C5, C3: 0 C5, C4: 0 C5, C6: 0		C6, C1: 0 C6, C2: 0 C6, C3: 0 C6, C4: 0 C6, C5: 0	
Qhyst	dB	0		0		0		0		0		0	
Treselection	s	0		0		0		0		0		0	
Sintrasearch	dB	not sent		not sent		not sent		not sent		not sent		not sent	
IE "FACH Measurement occasion info"		not sent		not sent		not sent		not sent		not sent		not sent	

Note 1 The nominal \hat{I}_{or} values, although not explicitly defined in 25.133 are added here since they are implied and need to be identified so that the test equipment can be configured.

8.3.5.1.4.2 Procedure

- 1) The SS activates cell 1-6 with RF parameters set up according to T1 in table 8.3.5.1.5.
- 2) The UE is switched on.
- 3) An RRC connection is set up according to the signalling sequence in the generic set-up procedure specified in TS 34.108 [3] subclause 7.3.3 to place the UE in the CELL_FACH state on Cell 2 and the SS waits for this process to complete.
- 4) After 15 seconds from completion of step 3 or the beginning of T1, the parameters are changed to those defined for T2 in table 8.3.5.1.5.
- 5) If the UE responds on Cell 1 with a PRACH (CELL UPDATE message cause "cell reselection") within 1.7 s, then the success is recorded, the SS shall transmit a CELL UPDATE CONFIRM message and then the procedure moves to step 7.
- 6) Since the UE has failed to respond with the correct message within the allowed time, a failure is recorded. The SS shall then wait for a total of 15 s from the beginning of T2 and if no response is received, the UE shall be switched off and the procedure returns to step 1. Otherwise the SS shall transmit a CELL UPDATE CONFIRM message and then the procedure continues with step 7.
- 7) After total of 15 s from the beginning of T2, the parameters are changed to those defined for T1 in table 8.3.5.1.5.

- 8) If the UE responds on Cell 2 with a PRACH (CELL UPDATE message cause "cell reselection") within 1.7 s, then a success is recorded and the procedure moves to step 10.
- 9) Since the UE has failed to respond with the correct message within the allowed time, a failure is recorded. The SS shall then wait for a total of 15 s from the beginning of T1 and if no response is received the UE shall be switched off and the procedure returns to step 1. Otherwise the SS shall transmit a CELL UPDATE CONFIRM message and then the procedure continues with step 10.
- 10) Steps 4 to 10 are repeated until the confidence level according to annex F.6.2 is achieved .

NOTE: The time required for receiving all the relevant system information data according to the reception procedure and the RRC procedure delay of system information blocks defined in 25.331 for a UTRAN cell. Since the maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell is 1280ms and the maximum RRC procedure delay for reception system information block is 100ms, 1380 ms is assumed in this test case. Therefore the cell re-selection delay shall be less than 1.7 s.(Minimum requirement + 100ms).

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

Contents of CELL UPDATE CONFIRM message for CELL_FACH

<u>Information Element</u>	<u>Value/remark</u>
<u>RRC transaction identifier</u>	<u>0</u>
<u>Activation time</u>	<u>Not Present</u>
<u>New C-RNTI</u>	<u>0101010101010 B</u>
<u>RRC State indicator</u>	<u>CELL_FACH</u>

8.3.5.1.5 Test requirements

For the test to pass, the total number of successful attempts shall be more than 90% of the cases with a confidence level of 95 %.

Table 8.3.5.1.5: Cell specific test requirements for Cell Re-selection in CELL_FACH, one freq. in neighbour list

Parameter	Unit	Cell 1		Cell 2		Cell 3		Cell 4		Cell 5		Cell 6	
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number		Channel 1		Channel 1		Channel 1		Channel 1		Channel 1		Channel 1	
CPICH_Ec/lor	dB	-9.4		-9.4		-10.5		-10.5		-10.5		-10.5	
PCCPCH_Ec/lor	dB	-11.4		-11.4		-12.5		-12.5		-12.5		-12.5	
SCH_Ec/lor	dB	-11.4		-11.4		-12.5		-12.5		-12.5		-12.5	
PICH_Ec/lor	dB	-14.4		-14.4		-15.5		-15.5		-15.5		-15.5	
S-CCPCH_Ec/lor	dB	-11.4		-11.4		-12.5		-12.5		-12.5		-12.5	
OCNS_Ec/lor	dB	-1.52		-1.52		-1.13		-1.13		-1.13		-1.13	
\hat{I}_{or}/I_{oc} Note 1	dB	7.0	10.4	10.4	7.0	0.3	0.3	0.3	0.3	0.3	0.3	0.3	
\hat{I}_{or}	dBm	-63.0	-59.6	-59.6	-63.0	-69.7	-69.7	-69.7	-69.7	-69.7	-69.7	-69.7	
I_{oc}	dBm/3.84 MHz	-70											
CPICH_Ec/lo Note 1	dB	-15.7	-12.3	-12.3	-15.7	-23.5	-23.5	-23.5	-23.5	-23.5	-23.5	-23.5	

All other parameters and conditions specified in table 8.3.5.1.4 are unchanged.

Note 1: These parameters are not directly settable, but are derived by calculation from the settable parameters.

Note 2: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.3.5.2 Two frequencies present in the neighbour list

8.3.5.2.1 Definition and applicability

The cell re-selection delay is defined as the time between the occurrence of an event which will trigger Cell Reselection process and the moment in time when the UE starts sending the the preambles on the PRACH for sending RRC CELL UPDATE message to the UTRAN.

The requirements and this test apply to the FDD UE.

8.3.5.2.2 Minimum requirements

The cell re-selection delay shall be less than 1.9 s.

The rate of correct cell reselections observed during repeated tests shall be at least 90%.

If a cell has been detectable at least $T_{\text{identify,inter}}$, the cell reselection delay in CELL_FACH state to a FDD cell on a different frequency shall be less than

$$T_{\text{reselection, inter}} = T_{\text{Measurement inter}} + T_{\text{IU}} + 20 + T_{\text{SI}} + T_{\text{RA}} \text{ ms}$$

where

$T_{\text{Measurement inter}}$ is 480 ms in this case

T_{IU} is the interruption uncertainty when changing the timing from the old to the new cell. T_{IU} can be up to one frame (10 ms).

T_{SI} = The time required for receiving all the relevant system information data according to the reception procedure and the RRC procedure delay of system information blocks defined in 25.331 for a UTRAN cell. 1280 ms is assumed in this test case.

T_{RA} = The additional delay caused by the random access procedure. T_{RA} is a delay is caused by the physical random access procedure described in TS 25.214 clause 6.1. A persistence value is assumed to be 1 in this test case and therefore T_{RA} in this test case is 40 ms.

These requirements assume radio conditions to be sufficient, so that reading of system information can be done without errors.

The normative reference for this requirement is TS 25.133 [2] clauses 5.5.2.1.2 and A.5.5.2.

8.3.5.2.3 Test purpose

The purpose of this test is to verify the requirement for the cell re-selection delay in CELL_FACH state in the single carrier case

8.3.5.2.4 Method of test

8.3.5.2.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

The test parameters are given in table 8.3.5.2.1 to 8.3.5.2.5. The UE is requested to monitor neighbouring cells on 2 carriers. The maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell shall be 1280 ms

Table 8.3.5.2.1: General test parameters for Cell Re-selection in CELL_FACH, two freqs. in neighbour list

Parameter		Unit	Value	Comment
Initial condition	Active cell		Cell2	
	Neighbour cells		Cell1, Cell3, Cell4, Cell5, Cell6	
Final condition	Active cell		Cell1	
Access Service Class (ASC#0) – Persistence value		-	1	Selected so that no additional delay is caused by the random access procedure. The value shall be used for all cells in the test.
HCS				Not used
T1		s	15	
T2		s	15	

The transport and physical parameters of the S-CCPCH carrying the FACH are defined in table 8.3.5.2.2 and table 8.3.5.2.3.

Table 8.3.5.2.2: Physical channel parameters for S-CCPCH, two freqs. in neighbour list

Parameter	Unit	Level
Channel bit rate	kbps	60
Channel symbol rate	ksps	30
Slot Format #1	-	4
TFCI	-	OFF
Power offsets of TFCI and Pilot fields relative to data field	dB	0

Table 8.3.5.2.3: Transport channel parameters for S-CCPCH, two freqs. in neighbour list

Parameter	FACH
Transport Channel Number	1
Transport Block Size	240
Transport Block Set Size	240
Transmission Time Interval	10 ms
Type of Error Protection	Convolution Coding
Coding Rate	$\frac{1}{2}$
Rate Matching attribute	256
Size of CRC	16
Position of TrCH in radio frame	Fixed

Table 8.3.5.2.4: Cell specific conditions for Cell re-selection in CELL_FACH state, two freqs. in neighbour list

Parameter	Unit	Cell 1		Cell 2		Cell 3		Cell 4		Cell 5		Cell 6	
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number		Channel 1		Channel 2		Channel 1		Channel 1		Channel 2		Channel 2	
CPICH_Ec/Ior	dB	-10		-10		-10		-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12		-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12		-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15		-15		-15		-15	
S-CCPCH_Ec/Ior	dB	-12		-12		-12		-12		-12		-12	
OCNS_Ec/Ior	dB	-1.295		-1.295		-1.295		-1.295		-1.295		-1.295	
\hat{I}_{or}/I_{oc}	dB	-1.8	2.2	2.2	-1.8	-6.8	-4.8	-6.8	-4.8	-4.8	-6.8	-4.8	-6.8
\hat{I}_{or} (Note 1)	dBm	-71.85	-67.75	-67.75	-71.85	-76.85	-74.75	-76.85	-74.75	-74.75	-76.85	-74.75	-76.85
I_{oc}	dBm/3.84 MHz	-70											
CPICH_Ec/Io	dB	-15	-13	-13	-15	-20		-20		-20		-20	
Propagation Condition		AWGN											
Cell_selection_and_reselection_quality_measure		CPICH E _c /N ₀		CPICH E _c /N ₀		CPICH E _c /N ₀		CPICH E _c /N ₀		CPICH E _c /N ₀		CPICH E _c /N ₀	
Qqualmin	dB	-20		-20		-20		-20		-20		-20	
Qrxlevmin	dBm	-115		-115		-115		-115		-115		-115	
UE_TXPWR_MAX_RACH	dBm	21		21		21		21		21		21	
Qoffset2 _{s, n}	dB	C1, C2: 0 C1, C3: 0 C1, C4: 0 C1, C5: 0 C1, C6: 0	C2, C1: 0 C2, C3: 0 C2, C4: 0 C2, C5: 0 C2, C6: 0	C3, C1: 0 C3, C2: 0 C3, C4: 0 C3, C5: 0 C3, C6: 0	C4, C1: 0 C4, C2: 0 C4, C3: 0 C4, C5: 0 C4, C6: 0	C5, C1: 0 C5, C2: 0 C5, C3: 0 C5, C4: 0 C5, C6: 0	C6, C1: 0 C6, C2: 0 C6, C3: 0 C6, C4: 0 C6, C5: 0						
Qhyst2	dB	0		0		0		0		0		0	
Treselection	s	0		0		0		0		0		0	
Sintrasearch	dB	not sent		not sent		not sent		not sent		not sent		not sent	
Sintersearch	dB	not sent		not sent		not sent		not sent		not sent		not sent	
IE "FACH Measurement occasion info"		sent		sent		sent		sent		Sent		sent	
FACH Measurement occasion cycle length coefficient		3		3		3		3		3		3	
Inter-frequency FDD measurement indicator		TRUE		TRUE		TRUE		TRUE		TRUE		TRUE	
Inter-frequency TDD measurement indicator		FALSE		FALSE		FALSE		FALSE		FALSE		FALSE	

Note 1 The nominal \hat{I}_{or} values, although not explicitly defined in 25.133 are added here since they are implied and need to be identified so that the test equipment can be configured.

8.3.5.2.4.2 Procedure

- 1) The RF parameters for cell 1 are set up according to T1 in table 8.3.5.2.5.
- 2) The UE is switched on.
- 3) An RRC connection is set up according to the signalling sequence in the generic set-up procedure specified in TS 34.108 [3] subclause 7.3.3 to place the UE in the CELL_FACH state on Cell 2 and the SS waits for this process to complete.

- 4) After 15 seconds from completion of step3 or the beginning of T1, the parameters are changed to those defined for T2 in table 8.3.5.2.5.
- 5) If the UE responds on Cell 1 with a PRACH (CELL UPDATE message cause "cell reselection") within 2.0 s, then the success is recorded, the SS shall transmit a CELL UPDATE CONFIRM message and then the procedure moves to step 7.
- 6) Since the UE has failed to respond with the correct message within the allowed time, a failure is recorded. The SS shall then wait for a total of 15 s from the beginning of T2 and if no response is received, the UE shall be switched off and the procedure returns to step 1. Otherwise the SS shall transmit a CELL UPDATE CONFIRM message and then the procedure continues with step 7.
- 7) After total of 15 s from the beginning of T2, the parameters are changed to those defined for T1 in table 8.3.5.2.5.
- 8) If the UE responds on Cell 2 with a PRACH (CELL UPDATE message cause "cell reselection") within 2.0 s, then a success is recorded and the procedure moves to step 10.
- 9) Since the UE has failed to respond with the correct message within the allowed time, a failure is recorded. The SS shall then wait for a total of 15 s from the beginning of T1 and if no response is received the UE shall be switched off and the procedure returns to step 1. Otherwise the SS shall transmit a CELL UPDATE CONFIRM message and then the procedure continues with step 10.
- 10) Steps 4 to 10 are repeated until the confidence level according to annex F.6.2 is achieved.

NOTE: The time required for receiving all the relevant system information data according to the reception procedure and the RRC procedure delay of system information blocks defined in 25.331 for a UTRAN cell. Since the maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell is 1280ms and the maximum RRC procedure delay for reception system information block is 100ms, 1380 ms is assumed in this test case. Therefore the cell re-selection delay shall be less than 2.0 s.(Minimum requirement + 100ms).

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

Contents of CELL UPDATE CONFIRM message for CELL_FACH

<u>Information Element</u>	<u>Value/remark</u>
<u>RRC transaction identifier</u>	<u>0</u>
<u>Activation time</u>	<u>Not Present</u>
<u>New C-RNTI</u>	<u>0101010101010 B</u>
<u>RRC State indicator</u>	<u>CELL_FACH</u>

8.3.5.2.5 Test requirements

For the test to pass, the total number of successful attempts shall be more than 90% of the cases with a confidence level of 95 %.

Table 8.3.5.2.5: Cell specific test requirements for Cell re-selection in CELL_FACH state, two freqs. in neighbour list

Parameter	Unit	Cell 1		Cell 2		Cell 3		Cell 4		Cell 5		Cell 6	
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number		Channel 1		Channel 2		Channel 1		Channel 1		Channel 2		Channel 2	
CPICH_Ec/lor	dB	-9.4		-9.4		-10.7		-10.7		-10.7		-10.7	
PCCPCH_Ec/lor	dB	-11.4		-11.4		-12.7		-12.7		-12.7		-12.7	
SCH_Ec/lor	dB	-11.4		-11.4		-12.7		-12.7		-12.7		-12.7	
PICH_Ec/lor	dB	-14.4		-14.4		-15.7		-15.7		-15.7		-15.7	
S-CCPCH_Ec/lor	dB	-11.4		-11.4		-12.7		-12.7		-12.7		-12.7	
OCNS_Ec/lor	dB	-1.52		-1.52		-1.08		-1.08		-1.08		-1.08	
\hat{I}_{or}/I_{oc} Note 1	dB	-1.80	+4.64	+4.64	-1.80	-6.80	-3.16	-6.80	-3.16	-3.16	-6.80	-3.16	-6.80
\hat{I}_{or}	dBm	-71.8	-67.0	-67.0	-71.8	-76.8	-74.8	-76.8	-74.8	-74.8	-76.8	-74.8	-76.8
I_{oc}	dBm/3.8 4 MHz	-70.0	-71.6	-71.6	-70.0	-70.0	-71.6	-70.0	-71.6	-71.6	-70.0	-71.6	-70.0
CPICH_Ec/lor Note 1	dB	-14.4	-11.6	-11.6	-14.4	-20.7	-20.7	-20.7	-20.7	-20.7	-20.7	-20.7	-20.7

All other parameters and conditions specified in table 8.3.5.2.4 are unchanged.

Note 1: These parameters are not directly settable, but are derived by calculation from the settable parameters.

Note 2: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.3.5.3 Cell Reselection to GSM

8.3.5.3.1 Definition and applicability

The cell re-reselection delay is defined as the time from the beginning of time period T2, to the moment when the UE starts to transmit the random access in Cell 2 (the GSM cell).

This requirements and this test apply to UE supporting FDD PS and GSM GPRS.

8.3.5.3.2 Minimum requirements

The cell re-selection delay shall be less than $5.5 + T_{RA}$ s.

The rate of correct reselections observed during repeated tests shall be at least 90%.

NOTE: The cell re-selection delay can be expressed

$$T_{\text{reselection, GSM}} = T_{\text{identify, GSM}} + T_{\text{measurement, GSM}} + 40 + T_{\text{BCCH}} + T_{\text{RA}} \text{ ms}$$

where:

$T_{\text{identify, GSM}}$ Specified in TS 25.133 [2] clause 8.4.2.5.2.1, here it is 2880 ms

$T_{\text{measurement, GSM}}$ Specified in TS 25.133 [2] clause 5.5.2.1.4, here it is 640 ms

T_{BCCH} According to TS 05.08 [xx], the maximum time allowed to read the BCCH data, when being synchronized to a BCCH carrier, is 1.9 s.

T_{RA} The additional delay caused by the random access procedure in the GSM cell, is 10 ms (2 GSM radio frames).

These requirements assume radio conditions to be sufficient, so reading of system information can be done without errors.

The normative reference for this requirement is TS 25.133 [2] clauses 5.5.2.1.4 and A.5.5.3.

8.3.5.3.3 Test purpose

The purpose of this test is to verify the requirement for the cell re-selection delay in CELL_FACH state.

8.3.5.3.4 Method of test

8.3.5.3.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

The test parameters are given in table 8.3.5.3.1 to 8.3.5.3.5. This scenario implies the presence of 1 UTRAN serving cell, and 1 GSM cell to be re-selected. The UTRAN cell and the GSM cell are set to belong to different location areas. The GSM cell shall be set up to allow UE to transmit radio access burst in every GSM radio frame. The UE is requested to monitor neighbouring cells on 1 UMTS carrier and 6 GSM cells.

Table 8.3.5.3.1: General test parameters for UTRAN to GSM Cell Re-selection

Parameter		Unit	Value	Comment
Initial condition	Active cell		Cell1	
	Neighbour cell		Cell2	
Final condition	Active cell		Cell2	
HCS				Not used
Neighbour cell list size			24 FDD neighbours on Channel 1 6 GSM neighbours including ARFCN 1	
T1		s	5	
T2		s	10	

The transport and physical parameters of the S-CCPCH carrying the FACH are defined in Table 8.3.5.3.2 and Table 8.3.5.3.3.

Table 8.3.5.3.2: Physical channel parameters for S-CCPCH.

Parameter	Unit	Level
Channel bit rate	kbps	60
Channel symbol rate	ksps	30
Slot Format #1	-	4
TFCI	-	OFF
Power offsets of TFCI and Pilot fields relative to data field	dB	0

Table 8.3.5.3.3: Transport channel parameters for S-CCPCH

Parameter	FACH
Transport Channel Number	1
Transport Block Size	240
Transport Block Set Size	240
Transmission Time Interval	10 ms
Type of Error Protection	Convolution Coding
Coding Rate	$\frac{1}{2}$
Rate Matching attribute	256
Size of CRC	16
Position of TrCH in radio frame	Fixed

Table 8.3.5.3.4: Cell re-selection UTRAN to GSM cell case (cell 1)

Parameter	Unit	Cell 1 (UTRA)	
		T1	T2
UTRA RF Channel Number		Channel 1	
CPICH_Ec/lor	dB	-10	
PCCPCH_Ec/lor	dB	-12	
SCH_Ec/lor	dB	-12	
PICH_Ec/lor	dB	-15	
S-CCPCH_Ec/lor	dB	-12	
OCNS_Ec/lor	dB	-1.295	
\hat{I}_{or}/I_{oc}	dB	0	-5
I_{oc}	dBm/3.84 MHz	-70	
CPICH_Ec/lo	dB	-13	-16.2
CPICH_RSCP	dBm	-80	-85
Propagation Condition		AWGN	
Cell_selection_and_reselection_quality_measure		CPICH Ec/lo	
Qqualmin	dB	-20	
Qrxlevmin	dBm	-115	
UE_TXPWR_MAX_RACH	dBm	21	
Qoffset1 _{s,n}	dB	C1, C2: 0	
Qhyst1	dB	0	
Treselection	s	0	
Ssearch _{RAT}	dB	Not sent	
IE "FACH Measurement occasion info"		Sent	
FACH Measurement occasion cycle length coefficient		3	
Inter-frequency FDD measurement indicator		FALSE	
Inter-frequency TDD measurement indicator		FALSE	
Inter-RAT measurement indicators		Included	
>RAT type		GSM	

Table 8.3.5.3.5: Cell re-selection UTRAN to GSM cell case (cell 2)

Parameter	Unit	Cell 2 (GSM)	
		T1	T2
Absolute RF Channel Number		ARFCN 1	
RXLEV	dBm	-90	-75
RXLEV_ACCESS_MIN	dBm	-104	
MS_TXPWR_MAX_CCH	dBm	33	

8.3.5.3.4.2 Procedure

- 1) The SS activates cell 1-2 with RF parameters set up according to T1 in tables 8.3.5.3.4 and 8.3.5.3.5.
- 2) The UE is switched on.
- 3) An RRC connection is set up according to the signalling sequence in the generic set-up procedure specified in TS 34.108 [3] subclause 7.3.3 to place the UE in CELL_FACH and the SS waits for this process to complete.
- 4) After 5 seconds from completion of step3 or the beginning of T1, the parameters are changed to those defined for T2 in tables 8.3.5.1.4 and 8.3.5.1.5.

- 5) The SS waits for random access requests from the UE. If the UE responds on cell 2 within 5.51 s ($=5.5 \text{ s} + T_{\text{RAS}}$) from the beginning of time period T2 then a success is recorded and the SS completes the location update procedure in GSM and the procedure continues with step 7.
- 6) Since the UE has failed to respond with the correct message within the allowed time, a failure is recorded. The SS shall then wait for a total of 10s from the beginning of T2 and if no response is received, the UE shall be switched off and the procedure returns to step 1. Otherwise the SS completes the location update procedure in GSM and the procedure continues with step 7.
- 7) After 10 s from the beginning of time period T2, the parameters are changed to those defined for T1 in tables 8.3.5.1.4 and 8.3.5.1.5.
- 8) The SS waits for random access requests from the UE on cell 1. The SS completes the location update procedure in UTRA
- 9) Repeat step 3) to 8) until the confidence level according to annex F.6.2 is achieved.

8.3.5.3.5 Test requirements

For the test to pass, the total number of successful attempts shall be more than 90% of the cases with a confidence level of 95 %.

Note: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.3.6 Cell Re-selection in CELL_PCH

8.3.6.1 One frequency present in the neighbour list

8.3.6.1.1 Definition and applicability

The cell re-selection delay is defined as the time from a change of cell levels to the moment when this change makes the UE camp on a new cell, and starts to send preambles on the PRACH for the CELL UPDATE message with cause value "cell reselection" in the new cell.

The requirements and this test apply to the FDD UE.

8.3.6.1.2 Minimum requirements

The cell re-selection delay shall be less than 8 s with a DRX cycle length of 1.28 s.

The rate of correct cell reselections observed during repeated tests shall be at least 90% with a confidence level of 95 %.

NOTE: The cell re-selection delay can be expressed as: $T_{\text{evaluateFDD}} + T_{\text{SI}}$, where:

$T_{\text{evaluateFDD}}$	See table 4.1 in TS 25.133 [2] clause 4.2.2.
T_{SI}	Maximum repetition period of relevant system info blocks that needs to be received by the UE to camp on a cell. 1280 ms is assumed in this test case.

This gives a total of 7.68 s, allow 8s in the test case.

The normative reference for this requirement is TS 25.133 [2] clauses 5.6.2 and A.5.6.1.

8.3.6.1.3 Test purpose

To verify that the UE meets the minimum requirements and is capable of camping on to a new cell, within the required time, when the preferred cell conditions change.

8.3.6.1.4 Method of test

8.3.6.1.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

This scenario implies the presence of 1 carrier and 6 cells as given in tables 8.3.6.1.1 to 8.3.6.1.3. The UE is requested to monitor neighbouring cells on 1 carrier. The maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell shall be 1280 ms.

Table 8.3.6.1.1: General test parameters for Cell Re-selection in CELL_PCH, one freq. in neighbour list

Parameter		Unit	Value	Comment
initial condition	Active cell		Cell2	
	Neighbour cells		Cell1, Cell3, Cell4, Cell5, Cell6	
final condition	Active cell		Cell1	
Access Service Class (ASC#0) - Persistence value		-	1	Selected so that no additional delay is caused by the random access procedure. The value shall be used for all cells in the test.
HCS				Not used
DRX cycle length		s	1.28	The value shall be used for all cells in the test.
T1		s	15	T1 need to be defined so that cell re-selection reaction time is taken into account.
T2		s	15	T2 need to be defined so that cell re-selection reaction time is taken into account.

Table 8.3.6.1.2: Cell specific test parameters for Cell re-selection in CELL_PCH state, one freq. in neighbour list

Parameter	Unit	Cell 1		Cell 2		Cell 3		Cell 4		Cell 5		Cell 6	
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number		Channel 1		Channel 1		Channel 1		Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior	dB	-10		-10		-10		-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12		-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12		-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15		-15		-15		-15	
OCNS_Ec/Ior	dB	-0.941		-0.941		-0.941		-0.941		-0.941		-0.941	
\hat{I}_{or}/I_{oc}	dB	7.3	10.27	10.27	7.3	0.27		0.27		0.27		0.27	
\hat{I}_{or} (Note 1)	dBm	-62.73	-59.73	-59.73	-62.73	-69.73		-69.73		-69.73		-69.73	
I_{oc}	dBm/ 3.84MHz	-70											
CPICH_Ec/Io	dB	-16	-13	-13	-16	-23		-23		-23		-23	
Propagation Condition		AWGN											
Cell_selection_and_reselection_quality_measure		CPICH E _c /N ₀		CPICH E _c /N ₀		CPICH E _c /N ₀		CPICH E _c /N ₀		CPICH E _c /N ₀		CPICH E _c /N ₀	
Qqualmin	dB	-20		-20		-20		-20		-20		-20	
Qrxlevmin	dBm	-115		-115		-115		-115		-115		-115	
UE_TXPWR_MAX_RACH	dBm	21		21		21		21		21		21	
Qoffset2 _{s,n}	dB	C1, C2: 0 C1, C3: 0 C1, C4: 0 C1, C5: 0 C1, C6: 0	C2, C1: 0 C2, C3: 0 C2, C4: 0 C2, C5: 0 C2, C6: 0	C3, C1: 0 C3, C2: 0 C3, C4: 0 C3, C5: 0 C3, C6: 0	C4, C1: 0 C4, C2: 0 C4, C3: 0 C4, C5: 0 C4, C6: 0	C5, C1: 0 C5, C2: 0 C5, C3: 0 C5, C4: 0 C5, C6: 0	C6, C1: 0 C6, C2: 0 C6, C3: 0 C6, C4: 0 C6, C5: 0						
Qhyst2	dB	0		0		0		0		0		0	
Treselection	s	0		0		0		0		0		0	
Sintrasearch	dB	not sent		not sent		not sent		not sent		not sent		not sent	

Note 1 The nominal \hat{I}_{or} values, although not explicitly defined in 25.133 are added here since they are implied and need to be identified so that the test equipment can be configured.

8.3.6.1.4.2 Procedure

- 1) The SS activates cell 1-6 with T1 defined parameters in table 8.3.6.1.3 and monitors cell 1 and 2 for random access requests from the UE.
- 2) The UE is switched on.
- 3) An RRC connection is set up according to the generic set-up procedure specified in TS 34.108 [3] subclause 7.3.3 to place the UE in the CELL_PCH state on Cell 2 and then the SS waits for this process to complete.
- 4) After 15 s from the completion of step 3 or the beginning of T1, the parameters are changed to those defined for T2 in table 8.3.6.1.3.
- 5) If the UE responds on Cell 1 with a PRACH (CELL UPDATE message cause "cell reselection") within 8s, then a success is recorded, the SS shall transmit a CELL UPDATE CONFIRM message and then the procedure moves to step 7.
- 6) Since the UE has failed to respond with the correct message within the allowed time, a failure is recorded. The SS shall then wait for a total of 15s from the beginning of T2 and if no response is received, the UE shall be switched off and the procedure returns to step 1. Otherwise the SS shall transmit a CELL UPDATE CONFIRM message and then the procedure continues with step 7.
- 7) After a total of 15 s from the beginning of T2, the parameters are changed to those defined for T1 in table 8.3.6.1.3.

- 8) If the UE responds on Cell 2 with a PRACH (CELL UPDATE message cause "cell reselection") within 8s, then a success is recorded and the procedure moves to step 10.
- 9) Since the UE has failed to respond with the correct message within the allowed time, a failure is recorded. The SS shall then wait for a total of 15s from the beginning of T1 and if no response is received the UE shall be switched off and the procedure returns to step 1. Otherwise the SS shall transmit a CELL UPDATE CONFIRM message and then the procedure continues with step 10.
- 10) Steps 4 to 10 are repeated until the confidence level according to annex F.6.2 is achieved.

NOTE: The time required for receiving all the relevant system information data according to the reception procedure and the RRC procedure delay of system information blocks defined in 25.331 for a UTRAN cell. Since the maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell is 1280ms and the maximum RRC procedure delay for reception system information block is 100ms, 1380 ms is assumed in this test case. Therefore this gives a total of 7.78s (Minimum requirement + 100ms), allow 8s in the test case.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

RADIO BEARER SETUP (Step 3)

Information Element	Value/remark
RRC State Indicator	CELL_PCH
UTRAN DRX cycle length coefficient	7
Downlink information for each radio link - Primary CPICH info - Primary scrambling code	100

[Contents of CELL_UPDATE_CONFIRM message for CELL_PCH](#)

Information Element	Value/remark
RRC transaction identifier	0
Activation time	Not Present
RRC State indicator	CELL_PCH
UTRAN DRX cycle length coefficient	7

8.3.6.1.5 Test requirements

For the test to pass, the total number of successful attempts shall be more than 90% of the cases with a confidence level of 95 %.

Table 8.3.6.1.3: Cell specific test requirements for Cell re-selection in CELL_PCH state, one freq. in neighbour list

Parameter	Unit	Cell 1		Cell 2		Cell 3		Cell 4		Cell 5		Cell 6	
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number		Channel 1		Channel 1		Channel 1		Channel 1		Channel 1		Channel 1	
CPICH_Ec/I _{or}	dB	-9.4		-9.4		-10.5		-10.5		-10.5		-10.5	
PCCPCH_Ec/I _{or}	dB	-11.4		-11.4		-12.5		-12.5		-12.5		-12.5	
SCH_Ec/I _{or}	dB	-11.4		-11.4		-12.5		-12.5		-12.5		-12.5	
PICH_Ec/I _{or}	dB	-14.4		-14.4		-15.5		-15.5		-15.5		-15.5	
OCNS_Ec/I _{or}	dB	-1.10		-1.10		-0.83		-0.83		-0.83		-0.83	
\hat{I}_{or}/I_{oc} Note 1	dB	7.00	10.40	10.40	7.00	0.30		0.30		0.30		0.30	
\hat{I}_{or}	dBm	-63.0	-59.6	-59.6	-63.0	-69.7		-69.7		-69.7		-69.7	
I_{oc}	dBm / 3,84 MHz	-70											
CPICH_Ec/I _o Note 1	dB	-15.7	-12.3	-12.3	-15.7	-23.5		-23.5		-23.5		-23.5	

All other parameters and conditions specified in table 8.3.6.1.2 are unchanged.

NOTE 1: These parameters are not directly settable, but are derived by calculation from the settable parameters.

NOTE 2: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.3.6.2 Two frequencies present in the neighbour list

8.3.6.2.1 Definition and applicability

The cell re-selection delay is defined as the time from a change of cell levels to the moment when this change makes the UE camp on a new cell, and starts to send preambles on the PRACH for the CELL UPDATE message with cause value "cell reselection" in the new cell.

The requirements and this test apply to the FDD UE.

8.3.6.2.2 Minimum requirement

The cell re-selection delay shall be less than 8 s with a DRX cycle length of 1.28 s.

The rate of correct cell reselections observed during repeated tests shall be at least 90% with a confidence level of 95 %.

NOTE: The cell re-selection delay can be expressed as: $T_{\text{evaluateFDD}} + T_{\text{SI}}$, where:

$T_{\text{evaluateFDD}}$	See table 4.1 in TS 25.133 [2] clause 4.2.2.
T_{SI}	Maximum repetition period of relevant system info blocks that needs to be received by the UE to camp on a cell. 1280 ms is assumed in this test case.

This gives a total of 7.68 s, allow 8s in the test case.

The normative reference for this requirement is TS 25.133 [2] clauses 5.6.2 and A.5.6.2.

8.3.6.2.3 Test purpose

To verify that the UE meets the minimum requirement and is capable of camping on to a new cell, within the required time, when the preferred cell conditions change.

8.3.6.2.4 Method of test

8.3.6.2.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

This scenario implies the presence of 2 carriers and 6 cells as given in tables 8.3.6.2.1 to 8.3.6.2.3. The UE is requested to monitor neighbouring cells on 2 carriers. The maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell shall be 1 280 ms.

Table 8.3.6.2.1: General test parameters for Cell Re-selection in CELL_PCH, two freqs. in neighbour list

Parameter		Unit	Value	Comment
initial condition	Active cell		Cell2	
	Neighbour cells		Cell1, Cell3, Cell4, Cell5, Cell6	
final condition	Active cell		Cell1	
Access Service Class (ASC#0) - Persistence value		-	1	Selected so that no additional delay is caused by the random access procedure. The value shall be used for all cells in the test.
HCS				Not used
DRX cycle length		s	1.28	The value shall be used for all cells in the test.
T1		s	15	T1 need to be defined so that cell re-selection reaction time is taken into account.
T2		s	15	T2 need to be defined so that cell re-selection reaction time is taken into account.

Table 8.3.6.2.2: Cell specific test parameters for Cell re-selection in CELL_PCH state, two freqs. in neighbour list

Parameter	Unit	Cell 1		Cell 2		Cell 3		Cell 4		Cell 5		Cell 6	
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number		Channel 1		Channel 2		Channel 1		Channel 1		Channel 2		Channel 2	
CPICH_Ec/lor	dB	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10
PCCPCH_Ec/lor	dB	-12	-12	-12	-12	-12	-12	-12	-12	-12	-12	-12	-12
SCH_Ec/lor	dB	-12	-12	-12	-12	-12	-12	-12	-12	-12	-12	-12	-12
PICH_Ec/lor	dB	-15	-15	-15	-15	-15	-15	-15	-15	-15	-15	-15	-15
OCNS_Ec/lor	dB	-0.941	-0.941	-0.941	-0.941	-0.941	-0.941	-0.941	-0.941	-0.941	-0.941	-0.941	-0.941
\hat{I}_{or}/I_{oc}	dB	-3.4	2.2	2.2	-3.4	-7.4	-4.8	-7.4	-4.8	-4.8	-7.4	-4.8	-7.4
\hat{I}_{or} (Note 1)	dBm	-73.3 9	-67.75	-67.7 5	-73.39	-77.39	-74. 75	-77.39	-74.75	-74.75	-77.39	-74.7 5	-77.39
I_{oc}	dBm/3. 84 MHz	-70											
CPICH_Ec/lo	dB	-16	-13	-13	-16	-20	-20	-20	-20	-20	-20	-20	-20
Propagation Condition		AWGN											
Cell_selection_and_reselection_quality_measure		CPICH E _c /N ₀		CPICH E _c /N ₀		CPICH E _c /N ₀		CPICH E _c /N ₀		CPICH E _c /N ₀		CPICH E _c /N ₀	
Qqualmin	dB	-20		-20		-20		-20		-20		-20	
Qrxlevmin	dBm	-115		-115		-115		-115		-115		-115	
UE_TXPWR_MAX_RACH	dBm	21		21		21		21		21		21	
Qoffset2 _{s, n}	dB	C1, C2: 0 C1, C3: 0 C1, C4: 0 C1, C5: 0 C1, C6: 0		C2, C1: 0 C2, C3: 0 C2, C4: 0 C2, C5: 0 C2, C6: 0		C3, C1: 0 C3, C2: 0 C3, C4: 0 C3, C5: 0 C3, C6: 0		C4, C1: 0 C4, C2: 0 C4, C3: 0 C4, C5: 0 C4, C6: 0		C5, C1: 0 C5, C2: 0 C5, C3: 0 C5, C4: 0 C5, C6: 0		C6, C1: 0 C6, C2: 0 C6, C3: 0 C6, C4: 0 C6, C5: 0	
Qhyst2	dB	0		0		0		0		0		0	
Treselection	s	0		0		0		0		0		0	
Sintrasearch	dB	not sent		not sent		not sent		not sent		not sent		not sent	
Sintersearch	dB	not sent		not sent		not sent		not sent		not sent		not sent	

Note 1 The nominal \hat{I}_{or} values, although not explicitly defined in 25.133 are added here since they are implied and need to be identified so that the test equipment can be configured.

8.3.6.2.4.2 Procedure

- 1) The SS activates cell 1-6 with T1 defined parameters in table 8.3.6.2.3 and monitors cell 1 and 2 for random access requests from the UE.
- 2) The UE is switched on.
- 3) A RRC connection is set up according the generic set-up procedure specified in TS 34.108 [3] subclause 7.3.3 to place the UE in CELL_PCH state on cell 2. The SS waits for this process to complete.
- 4) After 15 s from the completion of step 3 or the beginning of T1, the parameters are changed to those defined for T2 in table 8.3.6.2.3.
- 5) If the UE responds on Cell 1 with a PRACH (CELL UPDATE message cause "cell reselection") within 8s, then a success is recorded, the SS shall transmit a CELL UPDATE CONFIRM message and then the procedure moves to step 7.
- 6) Since the UE has failed to respond with the correct message within the allowed time, a failure is recorded. The SS shall then wait for a total of 15s from the beginning of T2 and if no response is received the UE shall be switched off and the procedure returns to step 1. Otherwise the SS shall transmit a CELL UPDATE CONFIRM message and then the procedure continues with step 7.
- 7) After a total of 15 s from the beginning of T2, the parameters are changed to those defined for T1 in table 8.3.6.2.3.
- 8) If the UE responds on Cell 2 with a PRACH (CELL UPDATE message cause "cell reselection") within 8s, then a success is recorded and the procedure moves to step 10.
- 9) Since the UE has failed to respond with the correct message within the allowed time, a failure is recorded. The SS shall then wait for a total of 15s from the beginning of T1 and if no response is received the UE shall be switched off and the procedure returns to step 1. Otherwise the SS shall transmit a CELL UPDATE CONFIRM message and then the procedure continues with step 10.
- 10) Steps 4 to 10 are repeated until the confidence level according to annex F.6.2 is achieved.

NOTE: The time required for receiving all the relevant system information data according to the reception procedure and the RRC procedure delay of system information blocks defined in 25.331 for a UTRAN cell. Since the maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell is 1280ms and the maximum RRC procedure delay for reception system information block is 100ms, 1380 ms is assumed in this test case. Therefore this gives a total of 7.78s (Minimum requirement + 100ms), allow 8s in the test case.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

RADIO BEARER SETUP (Step 3)

Information Element	Value/remark
RRC State Indicator	CELL_PCH
UTRAN DRX cycle length coefficient	7
Downlink information for each radio link - Primary CPICH info - Primary scrambling code	100

[Contents of CELL_UPDATE_CONFIRM message for CELL_PCH](#)

Information Element	Value/remark
RRC transaction identifier	0
Activation time	Not Present
RRC State indicator	CELL_PCH
UTRAN DRX cycle length coefficient	7

8.3.6.2.5 Test requirements

For the test to pass, the total number of successful tests shall be more than 90% of the cases with a confidence level of 95 %.

Table 8.3.6.2.3: Cell specific test requirements for Cell re-selection in CELL_PCH state, two freqs. in neighbour list

Parameter	Unit	Cell 1		Cell 2		Cell 3		Cell 4		Cell 5		Cell 6	
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number		Channel 1		Channel 2		Channel 1		Channel 1		Channel 2		Channel 2	
CPICH_Ec/Ior	dB	-9.3		-9.3		-10.8		-10.8		-10.8		-10.8	
PCCPCH_Ec/Ior	dB	-11.3		-11.3		-12.8		-12.8		-12.8		-12.8	
SCH_Ec/Ior	dB	-11.3		-11.3		-12.8		-12.8		-12.8		-12.8	
PICH_Ec/Ior	dB	-14.3		-14.3		-15.8		-15.8		-15.8		-15.8	
OCNS_Ec/Ior	dB	-1.13		-1.13		-0.77		-0.77		-0.77		-0.77	
\hat{I}_{or}/I_{oc} Note 1	dB	-3.40	+4.80	+4.80	-3.40	-7.40	-3.00	-7.40	-3.00	-3.00	-7.40	-3.00	-7.40
\hat{I}_{or}	dBm	-73.4	-67.0	-67.0	-73.4	-77.4	-74.8	-77.4	-74.8	-74.8	-77.4	-74.8	-77.4
I_{oc}	dBm/3.8 4 MHz	-70.0	-71.8	-71.8	-70.0	-70.0	-71.8	-70.0	-71.8	-71.8	-70.0	-71.8	-70.0
CPICH_Ec/Io Note 1	dB	-15.3	-11.5	-11.5	-15.3	-20.8	-20.8	-20.8	-20.8	-20.8	-20.8	-20.8	-20.8

All other parameters and conditions specified in table 8.3.6.2.2 are unchanged.

NOTE 1: These parameters are not directly settable, but are derived by calculation from the settable parameters.

NOTE 2: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.3.7 Cell Re-selection in URA_PCH

8.3.7.1 One frequency present in the neighbour list

8.3.7.1.1 Definition and applicability

The cell re-selection delay is defined as the time from a change of cell levels to the moment when this change makes the UE camp on a new cell, and starts to send preambles on the PRACH for the URA UPDATE message with cause value "URA reselection" in the new cell.

The requirements and this test apply to the FDD UE.

8.3.7.1.2 Minimum requirement

The cell re-selection delay shall be less than 8 s with a DRX cycle length of 1.28 s.

The rate of correct cell reselections observed during repeated tests shall be at least 90% with a confidence level of 95 %.

NOTE: The cell re-selection delay can be expressed as: $T_{\text{evaluateFDD}} + T_{\text{SI}}$, where:

$T_{\text{evaluateFDD}}$	See table 4.1 in TS 25.133 [2] clause 4.2.2.
T_{SI}	Maximum repetition period of relevant system info blocks that needs to be received by the UE to camp on a cell. 1280 ms is assumed in this test case.

This gives a total of 7.68 s, allow 8s in the test case.

The normative reference for this requirement is TS 25.133 [2] clauses 5.7.2 and A.5.7.1.

8.3.7.1.3 Test purpose

To verify that the UE meets the minimum requirement and is capable of camping on to a new cell, within the required time, when the preferred cell conditions change.

8.3.7.1.4 Method of test

8.3.7.1.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

This scenario implies the presence of 1 carrier and 6 cells as given in tables 8.3.7.1.1 to 8.3.7.1.3. The UE is requested to monitor neighbouring cells on 1 carrier. The maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell shall be 1 280 ms. In System Information Block Type 2 cell1 and cell 2 URA identity is set to a different value.

Table 8.3.7.1.1: General test parameters for Cell Re-selection in URA_PCH, one freq. in neighbour list

Parameter		Unit	Value	Comment
Initial condition	Active cell		Cell2	
	Neighbour cells		Cell1, Cell3, Cell4, Cell5, Cell6	
Final condition	Active cell		Cell1	
SYSTEM INFORMATION BLOCK TYPE 2 - URA identity list - URA identity		-	0000 0000 0000 0001(B) (Cell 1) 0000 0000 0000 0002(B) (Cell 2)	
Access Service Class (ASC#0) - Persistence value		-	1	Selected so that no additional delay is caused by the random access procedure. The value shall be used for all cells in the test.
HCS				Not used
DRX cycle length		s	1,28	The value shall be used for all cells in the test.
T1		s	15	T1 need to be defined so that cell re-selection reaction time is taken into account.
T2		s	15	T2 need to be defined so that cell re-selection reaction time is taken into account.

Table 8.3.7.1.2: Cell specific test parameters for Cell re-selection in URA_PCH state, one freq. in neighbour list

Parameter	Unit	Cell 1		Cell 2		Cell 3		Cell 4		Cell 5		Cell 6	
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number		Channel 1		Channel 1		Channel 1		Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior	dB	-10		-10		-10		-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12		-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12		-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15		-15		-15		-15	
OCNS_Ec/Ior	dB	-0,941		-0,941		-0,941		-0,941		-0,941		-0,941	
\hat{I}_{or}/I_{oc}	dB	7,3	10,27	10,27	7,3	0,27		0,27		0,27		0,27	
\hat{I}_{or} (Note 1)	dBm	-62.73	-59.73	-59.73	-62.73	-69.73		-69.73		-69.73		-69.73	
I_{oc}	dBm / 3,84 MHz	-70											
CPICH_Ec/Io	dB	-16	-13	-13	-16	-23		-23		-23		-23	
Propagation Condition		AWGN											
Cell_selection_and_reselection_quality_measure		CPICH E _c /N ₀		CPICH E _c /N ₀		CPICH E _c /N ₀		CPICH E _c /N ₀		CPICH E _c /N ₀		CPICH E _c /N ₀	
Qqualmin	dB	-20		-20		-20		-20		-20		-20	
Qrxlevmin	dBm	-115		-115		-115		-115		-115		-115	
UE_TXPWR_MAX_RACH	dB	21		21		21		21		21		21	
Qoffset2 _{s, n}	dB	C1, C2: 0 C1, C3: 0 C1, C4: 0 C1, C5: 0 C1, C6: 0	C2, C1: 0 C2, C3: 0 C2, C4: 0 C2, C5: 0 C2, C6: 0	C3, C1: 0 C3, C2: 0 C3, C4: 0 C3, C5: 0 C3, C6: 0	C4, C1: 0 C4, C2: 0 C4, C3: 0 C4, C5: 0 C4, C6: 0	C5, C1: 0 C5, C2: 0 C5, C3: 0 C5, C4: 0 C5, C6: 0	C6, C1: 0 C6, C2: 0 C6, C3: 0 C6, C4: 0 C6, C5: 0						
Qhyst2	dB	0		0		0		0		0		0	
Treselection	S	0		0		0		0		0		0	
Sintrasearch	dB	not sent		not sent		not sent		not sent		not sent		not sent	

Note 1 The nominal \hat{I}_{or} values, although not explicitly defined in 25.133 are added here since they are implied and need to be identified so that the test equipment can be configured.

8.3.7.1.4.2 Procedure

- 1) The SS activates cell 1-6 with T1 defined parameters in table 8.3.7.1.3 and monitors cell 1 and 2 for random access requests from the UE.
- 2) The UE is switched on.
- 3) An RRC connection is set up according to the generic set-up procedure specified in TS 34.108 [3] subclause 7.3.3 to place the UE in the URA_PCH state on Cell 2 and then the SS waits for this process to complete.
- 4) After 15 s from the completion of step 3 or the beginning of T1, the parameters are changed to those defined for T2 in table 8.3.7.1.3.
- 5) If the UE responds on Cell 1 with a PRACH (URA UPDATE message cause "URA reselection") within 8s, then a success is recorded, the SS shall transmit a URA UPDATE CONFIRM message and then the procedure moves to step 7.
- 6) Since the UE has failed to respond with the correct message within the allowed time, a failure is recorded. The SS shall then wait for a total of 15s from the beginning of T2 and if no response is received, the UE shall be switched off and the procedure returns to step 1. Otherwise the SS shall transmit a URA UPDATE CONFIRM message and then the procedure continues with step 7.
- 7) After a total of another 15 s from the beginning of T2, the parameters are changed to those defined for T1 in table 8.3.7.1.3.
- 8) If the UE responds on Cell 2 with a PRACH (URA UPDATE message cause "URA reselection") within 8s, then a success is recorded and the procedure moves to step 10.
- 9) Since the UE has failed to respond with the correct message within the allowed time, a failure is recorded. The SS shall then wait for a total of 15s from the beginning of T1 and if no response is received the UE shall be switched off and the procedure returns to step 1. Otherwise the SS shall transmit a URA UPDATE CONFIRM message and then the procedure continues with step 10.
- 10) Steps 4 to 10 are repeated until the confidence level according to annex F.6.2 is achieved.

NOTE: The time required for receiving all the relevant system information data according to the reception procedure and the RRC procedure delay of system information blocks defined in 25.331 for a UTRAN cell. Since the maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell is 1280ms and the maximum RRC procedure delay for reception system information block is 100ms, 1380 ms is assumed in this test case. Therefore this gives a total of 7.78s (Minimum requirement + 100ms), allow 8s in the test case.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

RADIO BEARER SETUP (Step 3)

Information Element	Value/remark
RRC State Indicator	URA PCH
UTRAN DRX cycle length coefficient	7
Downlink information for each radio link - Primary CPICH info - Primary scrambling code	100

[Contents of URA UPDATE CONFIRM message for URA_PCH](#)

Information Element	Value/remark
RRC transaction identifier	0
RRC state indicator	URA_PCH
UTRAN DRX cycle length coefficient	7
URA identity	0000000000000010_B

8.3.7.1.5 Test requirements

For the test to pass, the total number of successful attempts shall be more than 90% with a confidence level of 95 % of the cases.

Table 8.3.7.1.3: Cell specific test requirements for Cell re-selection in URA_PCH state, one freq. in neighbour list

Parameter	Unit	Cell 1		Cell 2		Cell 3		Cell 4		Cell 5		Cell 6	
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number		Channel 1		Channel 1		Channel 1		Channel 1		Channel 1		Channel 1	
CPICH_Ec/lor	dB	-9.4		-9.4		-10.5		-10.5		-10.5		-10.5	
PCCPCH_Ec/lor	dB	-11.4		-11.4		-12.5		-12.5		-12.5		-12.5	
SCH_Ec/lor	dB	-11.4		-11.4		-12.5		-12.5		-12.5		-12.5	
PICH_Ec/lor	dB	-14.4		-14.4		-15.5		-15.5		-15.5		-15.5	
OCNS_Ec/lor	dB	-1.10		-1.10		-0.83		-0.83		-0.83		-0.83	
\hat{I}_{or}/I_{oc} Note 1	dB	7.00	10.40	10.40	7.00	0.30		0.30		0.30		0.30	
\hat{I}_{or}	dBm	-63.0	-59.6	-59.6	-63.0	-69.7		-69.7		-69.7		-69.7	
I_{oc}	dBm / 3,84 MHz	-70											
CPICH_Ec/lor Note 1	dB	-15.7	-12.3	-12.3	-15.7	-23.5		-23.5		-23.5		-23.5	

All other parameters and conditions specified in table 8.3.7.1.2 are unchanged.

NOTE 1: These parameters are not directly settable, but are derived by calculation from the settable parameters.

NOTE 2: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.3.7.2 Two frequencies present in the neighbour list

8.3.7.2.1 Definition and applicability

The cell re-selection delay is defined as the time from a change of cell levels to the moment when this change makes the UE camp on a new cell, and starts to send preambles on the PRACH for the URA UPDATE message with cause value "URA reselection" in the new cell.

The requirements and this test apply to the FDD UE.

8.3.7.2.2 Minimum requirement

The cell re-selection delay shall be less than 8 s with a DRX cycle length of 1.28 s.

The rate of correct cell reselections observed during repeated tests shall be at least 90% with a confidence level of 95 %.

NOTE: The cell re-selection delay can be expressed as: $T_{\text{evaluateFDD}} + T_{\text{SI}}$, where:

$T_{\text{evaluateFDD}}$	See table 4.1 in TS 25.133 [2] clause 4.2.2.
T_{SI}	Maximum repetition period of relevant system info blocks that needs to be received by the UE to camp on a cell. 1280 ms is assumed in this test case.

This gives a total of 7.68 s, allow 8s in the test case.

The normative reference for this requirement is TS 25.133 [2] clauses 5.7.2 and A.5.7.2.

8.3.7.2.3 Test purpose

To verify that the UE meets the minimum requirement and is capable of camping on to a new cell, within the required time, when the preferred cell conditions change.

8.3.7.2.4 Method of test

8.3.7.2.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

This scenario implies the presence of 2 carriers and 6 cells as given in tables 8.3.7.2.1 to 8.3.7.2.3. The UE is requested to monitor neighbouring cells on 2 carriers. The maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell shall be 1 280 ms. In System Information Block Type 2 in cell 1 and cell 2 URA identity is set to different value.

Table 8.3.7.2.1: General test parameters for Cell Re-selection in URA_PCH, two freqs. in neighbour list

Parameter		Unit	Value	Comment
Initial condition	Active cell		Cell2	
	Neighbour cells		Cell1, Cell3, Cell4, Cell5, Cell6	
Initial condition	Active cell Cell2		Cell1	
SYSTEM INFORMATION BLOCK TYPE 2 - URA identity list - URA identity		-	0000 0000 0000 0001(B) (Cell 1) 0000 0000 0000 0002(B) (Cell 2)	
Access Service Class (ASC#0) - Persistence value		-	1	Selected so that no additional delay is caused by the random access procedure. The value shall be used for all cells in the test.
HCS				Not used
DRX cycle length		s	1,28	The value shall be used for all cells in the test.
T1		s	15	T1 need to be defined so that cell re-selection reaction time is taken into account.
T2		s	15	T2 need to be defined so that cell re-selection reaction time is taken into account.

Table 8.3.7.2.2: Cell specific test parameters for Cell Re-selection in URA_PCH state, two freqs. in neighbour list

Parameter	Unit	Cell 1		Cell 2		Cell 3		Cell 4		Cell 5		Cell 6	
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number		Channel 1		Channel 2		Channel 1		Channel 1		Channel 2		Channel 2	
CPICH_Ec/Ior	dB	-10		-10		-10		-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12		-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12		-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15		-15		-15		-15	
OCNS_Ec/Ior	dB	-0.941		-0.941		-0.941		-0.941		-0.941		-0.941	
\hat{I}_{or}/I_{oc}	dB	-3.4	2.2	2.2	-3.4	-7.4	-4.8	-7.4	-4.8	-4.8	-7.4	-4.8	-7.4
\hat{I}_{or} (Note 1)	dBm	-73.39	-67.7 5	-67.7 5	-73.3 9	-77.3 9	-74.7 5	-77.3 9	-74.7 5	-74.75	-77.3 9	-74.7 5	-77.39
I_{oc}	dBm / 3.84 MHz	-70											
CPICH_Ec/Io	dB	-16	-13	-13	-16	-20		-20		-20		-20	
Propagation Condition		AWGN											
Cell_selection_and_reselection_quality_measure		CPICH E _c /N ₀		CPICH E _c /N ₀		CPICH E _c /N ₀		CPICH E _c /N ₀		CPICH E _c /N ₀		CPICH E _c /N ₀	
Qqualmin	dB	-20		-20		-20		-20		-20		-20	
Qrxlevmin	dBm	-115		-115		-115		-115		-115		-115	
UE_TXPWR_MAX_RACH	dB	21		21		21		21		21		21	
Qoffset2 _{s, n}	dB	C1, C2: 0 C1, C3: 0 C1, C4: 0 C1, C5: 0 C1, C6: 0		C2, C1: 0 C2, C3: 0 C2, C4: 0 C2, C5: 0 C2, C6: 0		C3, C1: 0 C3, C2: 0 C3, C4: 0 C3, C5: 0 C3, C6: 0		C4, C1: 0 C4, C2: 0 C4, C3: 0 C4, C5: 0 C4, C6: 0		C5, C1: 0 C5, C2: 0 C5, C3: 0 C5, C4: 0 C5, C6: 0		C6, C1: 0 C6, C2: 0 C6, C3: 0 C6, C4: 0 C6, C5: 0	
Qhyst2	dB	0		0		0		0		0		0	
Treselection	s	0		0		0		0		0		0	
Sintrasearch	dB	not sent		not sent		not sent		not sent		not sent		not sent	
Sintersearch	dB	not sent		not sent		not sent		not sent		not sent		not sent	

Note 1 The nominal \hat{I}_{or} values, although not explicitly defined in 25.133 are added here since they are implied and need to be identified so that the test equipment can be configured.

8.3.7.2.4.2 Procedures

- 1) The SS activates cell 1-6 with T1 defined parameters in table 8.3.7.2.3 and monitors cell 1 and 2 for random access requests from the UE.
- 2) The UE is switched on.
- 3) An RRC connection is set up according the generic set-up procedure specified in TS 34.108 [3] subclause 7.3.3 to place the UE in URA_PCH state on cell 2. The SS waits for this process to complete.
- 4) After 15 s from the completion of step 3 or the beginning of T1, the parameters are changed to those defined for T2 in table 8.3.7.2.3.
- 5) If the UE responds on Cell 1 with a PRACH (URA UPDATE message cause "URA reselection") within 8s, then a success is recorded, the SS shall transmit a URA UPDATE CONFIRM message and then the procedure moves to step 7.
- 6) Since the UE has failed to respond with the correct message within the allowed time, a failure is recorded. The SS shall then wait for a total of 15s from the beginning of T2 and if no response is received the UE shall be switched off and the procedure returns to step 1. Otherwise the SS shall transmit a URA UPDATE CONFIRM message and then the procedure continues with step 7.
- 7) After a total of 15 s from the beginning of T2, the parameters are changed to those defined for T1 in table 8.3.7.2.3.

- 8) If the UE responds on Cell 2 with a PRACH (URA UPDATE message cause "URA reselection") within 8s, then a success is recorded and the procedure moves to step 10.
- 9) Since the UE has failed to respond with the correct message within the allowed time, a failure is recorded. The SS shall then wait for a total of 15s from the beginning of T1 and if no response is received the UE shall be switched off and the procedure returns to step 1. Otherwise the SS shall transmit a URA UPDATE CONFIRM message and then the procedure continues with step 10.
- 10) Steps 4 to 10 are repeated until the confidence level according to annex F.6.2 is achieved.

NOTE: The time required for receiving all the relevant system information data according to the reception procedure and the RRC procedure delay of system information blocks defined in 25.331 for a UTRAN cell. Since the maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell is 1280ms and the maximum RRC procedure delay for reception system information block is 100ms, 1380 ms is assumed in this test case. Therefore this gives a total of 7.78s (Minimum requirement + 100ms), allow 8s in the test case.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

RADIO BEARER SETUP (Step 3)

Information Element	Value/remark
RRC State Indicator	URA PCH
UTRAN DRX cycle length coefficient	7
Downlink information for each radio link - Primary CPICH info - Primary scrambling code	100

[Contents of URA UPDATE CONFIRM message for URA_PCH](#)

<u>Information Element</u>	<u>Value/remark</u>
RRC transaction identifier	0
RRC state indicator	URA_PCH
UTRAN DRX cycle length coefficient	7
URA identity	0000000000000010_B

8.3.7.2.5 Test requirements

For the test to pass, the total number of successful tests shall be more than 90% of the cases with a confidence level of 95%.

Table 8.3.7.2.3: Cell specific test requirements for Cell re-selection in URA_PCH state, two freqs. in neighbour list

Parameter	Unit	Cell 1		Cell 2		Cell 3		Cell 4		Cell 5		Cell 6	
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number		Channel 1		Channel 2		Channel 1		Channel 1		Channel 2		Channel 2	
CPICH_Ec/lor	dB	-9.3		-9.3		-10.8		-10.8		-10.8		-10.8	
PCCPCH_Ec/lor	dB	-11.3		-11.3		-12.8		-12.8		-12.8		-12.8	
SCH_Ec/lor	dB	-11.3		-11.3		-12.8		-12.8		-12.8		-12.8	
PICH_Ec/lor	dB	-14.3		-14.3		-15.8		-15.8		-15.8		-15.8	
OCNS_Ec/lor	dB	-1.13		-1.13		-0.77		-0.77		-0.77		-0.77	
\hat{I}_{or}/I_{oc} Note 1	dB	-3.40	+4.80	+4.80	-3.40	-7.40	-3.00	-7.40	-3.00	-3.00	-7.40	-3.00	-7.40
\hat{I}_{or}	dBm	-73.4	-67.0	-67.0	-73.4	-77.4	-74.8	-77.4	-74.8	-74.8	-77.4	-74.8	-77.4
I_{oc}	dBm/3.8 4 MHz	-70.0	-71.8	-71.8	-70.0	-70.0	-71.8	-70.0	-71.8	-71.8	-70.0	-71.8	-70.0
CPICH_Ec/lo Note 1	dB	-15.3	-11.5	-11.5	-15.3	-20.8	-20.8	-20.8	-20.8	-20.8	-20.8	-20.8	-20.8

All other parameters and conditions specified in table 8.3.7.2.2 are unchanged.

NOTE 1: These parameters are not directly settable, but are derived by calculation from the settable parameters.

NOTE 2: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

CHANGE REQUEST

⌘ **34.121 CR 392** ⌘ rev **-** ⌘ Current version: **5.3.1** ⌘

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:	⌘	New test case for 9.4 HS-SCCH Detection Performance
Source:	⌘	Motorola
Work item code:	⌘	
		Date: ⌘ 10/05/2004
Category:	⌘	F
		<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p><i>Use <u>one</u> of the following categories:</i></p> <p>F (correction)</p> <p>A (corresponds to a correction in an earlier release)</p> <p>B (addition of feature),</p> <p>C (functional modification of feature)</p> <p>D (editorial modification)</p> <p>Detailed explanations of the above categories can be found in 3GPP TR 21.900.</p> </div> <div style="width: 45%;"> <p><i>Use <u>one</u> of the following releases:</i></p> <p>2 (GSM Phase 2)</p> <p>R96 (Release 1996)</p> <p>R97 (Release 1997)</p> <p>R98 (Release 1998)</p> <p>R99 (Release 1999)</p> <p>Rel-4 (Release 4)</p> <p>Rel-5 (Release 5)</p> <p>Rel-6 (Release 6)</p> </div> </div>

Reason for change:	⌘	The test case in 25.101 for HS-SCCH Detection Performance is not implemented in 34.121.
Summary of change:	⌘	This change will add the HS-SCCH Detection Performance test case 9.4 to 34.121.
Consequences if not approved:	⌘	There will be no possibility to test HS-SCCH Detection Performance

Clauses affected:	⌘	9.4, F.2, F.6								
Other specs affected:	⌘	<table border="1" style="display: inline-table; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 20px;">Y</td> <td style="width: 20px;">N</td> </tr> <tr> <td style="width: 20px;"> </td> <td style="width: 20px;">X</td> </tr> <tr> <td style="width: 20px;"> </td> <td style="width: 20px;">X</td> </tr> <tr> <td style="width: 20px;"> </td> <td style="width: 20px;">X</td> </tr> </table>	Y	N		X		X		X
		Y	N							
			X							
	X									
	X									
Other core specifications	⌘									
Test specifications	⌘									
O&M Specifications	⌘									
Other comments:	⌘	Test cases introduced in this CR are applicable for Rel-5 and later releases.								

9.4 HS-SCCH Detection Performance

9.4.1 Definition and applicability

The detection performance of the HS-SCCH is determined by the probability of event E_m , which is declared when the UE is signalled on HS-SCCH-1, but DTX is observed in the corresponding HS-DPCCH ACK/NACK field. The probability of event E_m is denoted $P(E_m)$.

The requirements and this test apply to all types of UTRA for FDD UE that support HSDPA.

9.4.2 Minimum requirements

For the parameters specified in Table 9.4.2, for each value of HS-SCCH-1 E_c/I_{or} specified in Table 9.4.3 the measured $P(E_m)$ shall be less than or equal to the corresponding specified value of $P(E_m)$.

Table 9.4.2: Test parameters for HS-SCCH detection

Parameter	Unit	Test 1	Test 2	Test 3
I_{oc}	<u>dBm/3.84 MHz</u>	<u>-60</u>		
Phase reference	<u>-</u>	<u>P-CPICH</u>		
<u>P-CPICH E_c/I_{or} (*)</u>	<u>dB</u>	<u>-10</u>		
<u>HS-SCCH UE Identity</u> (<u>$x_{ue,1}, x_{ue,2}, \dots, x_{ue,16}$</u>)		<u>HS-SCCH-1: 1010101010101010</u> <u>(UE under test addressed solely via HS-SCCH-1)</u> <u>HS-SCCH-2: 0001001010101010</u> <u>HS-SCCH-3: 0001101010101010</u> <u>HS-SCCH-4: 0001111110101010</u>		
<u>HS-DSCH TF of UE1</u>		<u>TF corresponding to CQI1</u>		
<u>HS-SCCH-1 TTI Transmission Pattern</u>	<u>-</u>	<u>"...XOOXOOX..."</u> , where "X" indicates TTI in which HS-SCCH-1 signals the UE, and "O" indicates no signalling		

Table 9.4.3: Test requirement for HS-SCCH detection

Test Number	Propagation Conditions	Reference value		
		<u>HS-SCCH-1 E_c/I_{or} (dB)</u>	<u>\hat{I}_{or}/I_{oc} (dB)</u>	<u>$P(E_m)$</u>
<u>1</u>	<u>PA3</u>	<u>-9</u>	<u>0</u>	<u>0.05</u>
<u>2</u>	<u>PA3</u>	<u>-9.9</u>	<u>5</u>	<u>0.01</u>
<u>3</u>	<u>VA30</u>	<u>-10</u>	<u>0</u>	<u>0.01</u>

The reference for this requirement is TS 25.101 [1] clause 9.4.1.

9.4.2.1 Test purpose

To verify that $P(E_m)$ does not exceed a specified limit.

9.4.2.2 Method of test

9.4.2.2.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

1. Connect SS, multipath fading simulator and an AWGN noise source to the UE antenna connector as shown in figure A.16.
2. Set the test parameters for test 1-3 as specified in table 9.4.4 and 9.4.5. Setup fading simulators as fading condition, which are described in table D.2.2.1A. Power of downlink channels is defined in table E.5.4.

9.4.2.2.2 Procedure

1. The UE is switched on.
2. An RRC connection is set-up according to the generic HSDPA set-up procedure specified in TS 34.108 [3].
3. Count the number of NACK, ACK and DTX on the UL HS-DPCCH during the test interval and decide pass or fail according to Annex F.6.1. NACK and ACK are counted as a pass and DTX is counted as a failure.

9.4.2.3 Test Requirements

The parameters and requirements are specified in table's 9.4.2 and 9.4.3. The probability of event E_m denoted as $P(E_m)$ (test procedure step 3) shall not exceed a specified value.

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

F.2.5 Performance requirements (HSDPA)

Table F.2.5: Test Tolerances for Performance Requirements (HSDPA).

Clause	Test Tolerance
9.2.1 Single Link Performance	0.3 dB for \hat{I}_{or}/I_{oc} 0.1 dB for E_c/I_{or}
9.4 HS-SCCH Detection Performance	0.3 dB for \hat{I}_{or}/I_{oc} 0.1 dB for P-CPICH E_c/I_{or} and HS-SCCH E_c/I_{or}

Table F.6.1.8: Test conditions for a single BER/BLER tests

Type of test (BER)	Test requirement (BER/BLER)	Test limit (BER/BLER) = Test requirement (BER/BLER) x TL TL	Target number of error events (time)	Minimum number of samples	Prob that good unit will fail = Prob that bad unit will pass [%]	Bad unit BER/BLER factor M
Reference Sensitivity Level	0.001	1.234	345 (22.9s)	Note 1	0.2	1.5
Maximum Input Level	0.001	1.234	345 (22.9s)	Note 1	0.2	1.5
Adjacent Channel Selectivity	0.001	1.234	345 (22.9s)	Note 1	0.2	1.5
Blocking Characteristics Pass condition Note 2	0.001	1.251	403 (26.4s)	Note 1	0.2	1.5
Blocking Characteristics Fail condition Note 2	0.001	1.251	403 (26.4s)	Note 1	0.02	1.5
Spurious Response	0.001	1.234	345 (22.9s)	Note 1	0.2	1.5
Intermodulation Characteristics	0.001	1.234	345 (22.9s)	Note 1	0.2	1.5
HS-SCCH Detection Performance	0.05	FFS	FFS (FFS)	Note 1	0.2	1.5
	0.01	FFS	FFS (FFS)	Note 1	0.2	1.5

CHANGE REQUEST

34.121 CR 393 # rev - # Current version: 5.3.1

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:	# New TPC combining in SHO		
Source:	# Motorola, Ericsson, Vodafone		
Work item code:	#	Date:	# 10/05/2004
Category:	# F	Release:	# R99
	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:	# This is a new test case because the existing test case does not consider the combining of 'reliable' TPC commands in soft handover as defined in TS 25.214. This is an alignment with the new requirements in TS 25.101.
Summary of change:	# Two new test cases are added that address the issue of combining the TPC commands from the reliable radio links in soft handover.
Consequences if not approved:	# The functionality of using reliability metric in TPC command combining as defined in 25.214 is not tested. This may lead to undesired UE behaviour.

Clauses affected:	# 7.7.3		
Other specs affected:	#	#	Other core specifications #
	#	#	
	#	#	
Other comments:	#		

7.7.2 Combining of TPC commands from radio links of different radio link sets

7.7.2.1 Definition and applicability

When a UE is in soft handover, multiple TPC commands may be received in each slot from different cells in the active set. In general, the TPC commands transmitted in the same slot in the different cells may be different and need to be combined to give TPC_cmd as specified in TS 25.214 [5], in order to determine the required uplink power step.

The requirements and this test apply to all types of UTRA for the FDD UE.

7.7.2.2 Minimum requirements

Test parameters are specified in table 7.7.2.1. The delay profiles of the signals received from the different cells are the same but time-shifted by 10 chips.

For Test 1, the sequence of uplink power changes between adjacent slots shall be as shown in table 7.7.2.2 over the 4 consecutive slots more than 99% of the time. Note that this case is without an additional noise source I_{oc} .

For Test 2, the Cell1 and Cell2 TPC patterns are repeated a number of times. If the transmitted power of a given slot is increased compared to the previous slot, then a variable "Transmitted power UP" is increased by one, otherwise a variable "Transmitted power DOWN" is increased by one. The requirements for "Transmitted power UP" and "Transmitted power DOWN" are shown in table 7.7.2.3.

Table 7.7.2.1: Parameters for TPC command combining

Parameter	Test 1	Test 2	Unit
Phase reference	P-CPICH		-
DPCH_Ec/I _{or}	-12		dB
\hat{I}_{or1} and \hat{I}_{or2}	-60		dBm / 3,84 MHz
I_{oc}	-	-60	dBm / 3,84 MHz
Power-Control-Algorithm	Algorithm 1		-
Cell 1 TPC commands over 4 slots	{0,0,1,1}		-
Cell 2 TPC commands over 4 slots	{0,1,0,1}		-
Information Data Rate	12,2		Kbps
Propagation condition	Static without AWGN source I_{oc}	Multi-path fading case 3	-

Table 7.7.2.2: Requirements for Test 1

Test Number	Required power changes over the 4 consecutive slots
1	Down, Down, Down, Up

Table 7.7.2.3: Requirements for Test 2

Test Number	Ratio (Transmitted power UP) / (Total number of slots)	Ratio (Transmitted power DOWN) / (Total number of slots)
2	≥0,25	≥0,5

The reference for this requirement is TS 25.101 [1] clause 8.7.2.1.

7.7.2.3 Test purpose

To verify that the combining of TPC commands received in soft handover results in TPC_cmd being derived so as to meet the requirements stated in tables 7.7.2.2 and 7.7.2.3.

7.7.2.4 Method of test

7.7.2.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

- 1) Connect two SS's to the UE antenna connector as shown in figure A.13.
- 2) Set the test parameters as specified in table 7.7.2.4 for Test 1.
- 3) Set up a call according to the Generic Call Setup procedure.
- 4) Signal the uplink DPCH power control parameters to use Algorithm 1 and a step size of 1dB.
- 5) Enter the UE into loopback test mode and start the loopback test.

See TS 34.108 [3] and TS 34.109 [4] for details regarding the generic call setup procedure and loopback test.

7.7.2.4.2 Procedures

- 1) Before proceeding with paragraph (2), set the output power of the UE, measured at the UE antenna connector, to be in the range -10 ± 9 dBm. This may be achieved by setting the downlink signal (\hat{I}_{or}) to yield an appropriate open loop output power and/or by generating suitable downlink TPC commands from the SSs.
- 2) Send the following sequences of TPC commands in the downlink from each SS over a period of 5 timeslots:

	Downlink TPC commands				
	Slot #0	Slot #1	Slot #2	Slot #3	Slot #4
SS1	0	0	0	1	1
SS2	0	0	1	0	1

- 3) Measure the mean power at the UE antenna connector in timeslots # 0, 1, 2, 3 and 4, not including the 25 μ s transient periods at the start and end of each slot.
- 4) Repeat step 3) according to Annex F.6.2 Table F.6.2.8.
- 5) End test 1 and disconnect UE.
- 6) Connect two SS's and an AWGN source to the UE antenna connector as shown in figure A.11.
- 7) Initialise variables "Transmitted power UP" and "Transmitted power DOWN" to zero.
- 8) Set the test parameters as specified in table 7.7.2.4 for Test 2.
- 9) Set up a call according to the Generic Call Setup procedure.
- 10) Signal the uplink DPCH power control parameters to use Algorithm 1 and a step size of 1 dB.
- 11) Enter the UE into loopback test mode and start the loopback test.
- 12) Perform the following steps a) to d) [15] times:
 - a) Before proceeding with step b), set the output power of the UE, measured at the UE antenna connector, to be in the range -10 ± 9 dBm. This may be achieved by generating suitable downlink TPC commands from the SSs.

- b) Send the following sequences of TPC commands in the downlink from each SS over a period of 33 timeslots:

Downlink TPC commands	
SS1	1 0 0 1 1 0 0 1 1 0 0 1 1 0 0 1 1 0 0 1 1 0 0 1 1 0 0 1 1 0 0 1 1
SS2	1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1

- c) Measure the mean power at the UE antenna connector in each timeslot, not including the 25 μ s transient periods at the start and end of each slot.
- d) For each timeslot from the 2nd timeslot to the 33rd timeslot inclusive:
- if the mean power in that timeslot is greater than or equal to the mean power in the previous timeslot plus 0,5 dB, increment "Transmitted power UP" by 1;
 - if the mean power in that timeslot is less than or equal to the mean power in the previous timeslot minus 0,5 dB, increment "Transmitted power DOWN" by 1.

7.7.2.5 Test requirements

Test parameters are specified in table 7.7.2.4. The delay profiles of the signals received from the different cells are the same but time-shifted by 10 chips.

Table 7.7.2.4: Parameters for TPC command combining

Parameter	Test 1	Test 2	Unit
Phase reference	P-CPICH		-
DPCH_Ec/Ior	-11,9		dB
\hat{I}_{or1} and \hat{I}_{or2}	-60	-59.2	dBm / 3,84 MHz
I_{oc}	-	-60	dBm / 3,84 MHz
Power-Control-Algorithm	Algorithm 1		-
Cell 1 TPC commands over 4 slots	{0,0,1,1}		-
Cell 2 TPC commands over 4 slots	{0,1,0,1}		-
Information Data Rate	12,2		Kbps
Propagation condition	Static without AWGN source I_{oc}	Multi-path fading case 3	-

- 1) In Step 3) of clause 7.7.2.4.2, the mean power in slot #1 shall be less than or equal to the mean power in slot #0 minus 0,5 dB.
- 2) In Step 3) of clause 7.7.2.4.2, the mean power in slot #2 shall be less than or equal to the mean power in slot #1 minus 0,5 dB.
- 3) In Step 3) of clause 7.7.2.4.2, the mean power in slot #3 shall be less than or equal to the mean power in slot #2 minus 0,5 dB.
- 4) In Step 3) of clause 7.7.2.4.2, the mean power in slot #4 shall be greater than or equal to the mean power in slot #3 plus 0,5 dB.
- 5) The sequence of test requirements 1-4 shall be fulfilled more than 99% of the time.
- 6) At the end of the test, "Transmitted power UP" shall be greater than or equal to [95] and "Transmitted power DOWN" shall be greater than or equal to [210].

NOTE 1: The test limits in requirement (6) have been computed to give a confidence level of [99,7] % that a UE which follows the core requirements will pass. The number of timeslots has been chosen to get a good compromise between the test time and the risk of passing a bad UE.

NOTE 2: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

7.7.3 Combining of reliable TPC commands from radio links of different radio link sets

7.7.3.1 Definition and applicability

When a UE is in soft handover, reliable TPC commands may be received in each slot from different cells in the active set. In general, the TPC commands transmitted in the same slot in the different cells may be different and need to be combined to give TPC cmd as specified in TS 25.214 [5], in order to determine the required uplink power step.

The requirements and this test apply to all types of UTRA for the FDD UE.

7.7.3.2 Minimum requirements

Test parameters are specified in Table 7.7.3.1. Before the start of the tests, the UE transmit power shall be initialised to -15 dBm. An actual UE transmit power may vary from the target level of -15 dBm due to inaccurate UE output power step.

Test 1 verifies that the UE follows only the reliable TPC commands in soft handover. Test 2 verifies that the UE follows all the reliable TPC commands in soft handover.

During tests 1 and 2 the UE transmit power samples, which are defined as the mean power over one timeslot, shall stay 90% of the time within the range defined in Table 7.7.3.2.

Table 7.7.3.1: Parameters for reliable TPC command combining

<u>Parameter</u>	<u>Unit</u>	<u>Test 1</u>	<u>Test 2</u>
Phase reference	-	P-CPICH	
DPCH Ec/lor1	dB	Note 1	Note 1 & Note 3
DPCH Ec/lor2	dB	DPCH Ec/lor1 - 10	DPCH Ec/lor1 + 6
DPCH Ec/lor3	dB	DPCH Ec/lor1 - 10	-
\hat{I}_{lor1}/I_{oc}	dB	-1	-1
\hat{I}_{lor2}/I_{oc}	dB	-1	-1
\hat{I}_{lor3}/I_{oc}	dB	-1	-
I_{oc}	dBm/3.84 MHz	-60	
Power-Control-Algorithm	-	Algorithm 1	
Cell 1 TPC commands	-	Note 2	Note 2
Cell 2 TPC commands	-	"1"	"1"
Cell 3 TPC commands	-	"1"	-
Information data Rate	Kbps	12.2	
Propagation condition	-	Static	
Note 1: The DPCH Ec/lor1 is set at the level corresponding to 5% TPC error rate. Note 2: The uplink power control from cell1 shall be such that the UE transmit power would stay at -15 dBm. Note 3: The maximum DPCH Ec/lor1 level in cell1 is -9 dB.			

Table 7.7.3.2: Test requirements for reliable TPC command combining

<u>Parameter</u>	<u>Unit</u>	<u>Test 1</u>	<u>Test 2</u>
UE output power	dBm	-15 ± 5 dB	-15 ± 3 dB

The reference for this requirement is TS 25.101 [1] clause 8.7.3.1.

7.7.3.3 Test purpose

To verify that the combining of reliable TPC commands received in soft handover results in TPC cmd being derived so as to meet the requirements stated in tables 7.7.3.2 and 7.7.3.3.

7.7.3.4 Method of test

7.7.3.4.1 Test 1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

- 1) Connect three SS's to the UE antenna connector as shown in figure A.16.
- 2) Activate one of three cells (Cell 1).

7.7.3.4.2 Test 1 Procedures

- 1) Set up a call according to the Generic Call Setup procedure.
- 2) Activate the other two cells (Cell 2 and Cell 3) on the other SS's.
- 3) Set the test parameters as specified in table 7.7.3.3 for Test 1.
- 4) Signal the uplink DPCH power control parameters to use Algorithm 1 and a step size of 1dB.
- 5) Enter the UE into loopback test mode and start the loopback test.
- 6) The downlink DPCH Ec/Ior1 level is adjusted so that 5%+TBD downlink TPC error is maintained from Ec/Ior1. Cell 1 transmits a known pattern of TPC commands and for each slot detect the power step. Thereby the TPC error rate can be measured. The downlink DPCH Ec/Ior1 is adjusted so that the TPC error rate is equal to 5%+TBD.
- 7) Send power control commands to the UE until the UE output power measured by Test System is adjusted to the specified power level with ± 1.5 dB tolerance due to power control step size.
- 8) Set up the UE in soft handover between Cell 1, Cell 2 and Cell 3. The downlink TPC commands from Cell 2 and Cell 3 shall continuously have the value "1" during the test while Cell 1 use the UE Output power = -15 dBm as the power control target.
- 9) The DPCH Ec/Ior2 and DPCH Ec/Ior3 are adjusted to be 10 dB lower than DPCH Ec/Ior1.
- 10) Measure the mean power at the UE antenna connector, not including the 25 μ s transient periods at the start and end of each slot.
- 11) Repeat step 10) [1000] times according to Annex F.6.2 Table F.6.2.8.
- 12) End test 1 and disconnect UE.

See TS 34.108 [3] and TS 34.109 [4] for details regarding the generic call setup procedure and loopback test.

7.7.3.4.3 Test 2 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

- 1) Connect two SS's to the UE antenna connector as shown in figure A.13.
- 2) Activate one of three cells (Cell 1).

7.7.3.4.4 Test 2 Procedures

- 1) Set up a call according to the Generic Call Setup procedure.
- 2) Activate the other cell (Cell 2) on the other SS

- 3) Set the test parameters as specified in table 7.7.3.3 for Test 2.
- 4) Signal the uplink DPCH power control parameters to use Algorithm 1 and a step size of 1dB.
- 5) Enter the UE into loopback test mode and start the loopback test.
- 6) The downlink DPCH Ec/Ior1 level is adjusted so that 5%+TBD downlink TPC error is maintained from Ec/Ior1. Cell 1 transmits a known pattern of TPC commands and for each slot detect the power step. Thereby the TPC error rate can be measured. The downlink DPCH Ec/Ior1 is adjusted so that the TPC error rate is equal to 5%+TBD.
- 7) Send power control commands to the UE until the UE output power measured by Test System is adjusted to the specified power level with ±5 dB tolerance.
- 8) Set up the UE in soft handover between Cell 1 and Cell 2. The downlink TPC commands from Cell 2 shall continuously have the value “1” during the test while Cell 1 use the UE Output power = -15 dBm as the power control target.
- 9) The DPCH Ec/Ior2 is adjusted to be 6 dB higher than DPCH Ec/Ior1.
- 10) Measure the mean power at the UE antenna connector, not including the 25 µs transient periods at the start and end of each slot.
- 11) Repeat step 10) [1000] times according to Annex F.6.2 Table F.6.2.8.
- 12) End test 2 and disconnect UE.

See TS 34.108 [3] and TS 34.109 [4] for details regarding the generic call setup procedure and loopback test.

7.7.3.5 Test requirements

Test parameters are specified in Table 7.7.3.3. Before the start of the tests, the UE transmit power shall be initialised to -15 dBm. An actual UE transmit power may vary from the target level of -15 dBm due to inaccurate UE output power step.

Table 7.7.3.3: Parameters for reliable TPC command combining

<u>Parameter</u>	<u>Unit</u>	<u>Test 1</u>	<u>Test 2</u>
<u>Phase reference</u>	-	<u>P-CPICH</u>	
<u>DPCH Ec/Ior1</u>	<u>DB</u>	<u>Note 1</u>	<u>Note 1 & Note 3</u>
<u>DPCH Ec/Ior2</u>	<u>DB</u>	<u>DPCH Ec/Ior1 - 10</u>	<u>DPCH Ec/Ior1 + 6</u>
<u>DPCH Ec/Ior3</u>	<u>DB</u>	<u>DPCH Ec/Ior1 - 10</u>	-
<u>$\hat{I}_{or1}I_{oc}$</u>	<u>DB</u>	<u>-1</u>	<u>-1</u>
<u>$\hat{I}_{or2}I_{oc}$</u>	<u>DB</u>	<u>-1</u>	<u>-1</u>
<u>$\hat{I}_{or3}I_{oc}$</u>	<u>DB</u>	<u>-1</u>	-
<u>I_{oc}</u>	<u>dBm/3.84 MHz</u>	<u>-60</u>	
<u>Power-Control-Algorithm</u>	-	<u>Algorithm 1</u>	
<u>Cell 1 TPC commands</u>	-	<u>Note 2</u>	<u>Note 2</u>
<u>Cell 2 TPC commands</u>	-	<u>“1”</u>	<u>“1”</u>
<u>Cell 3 TPC commands</u>	-	<u>“1”</u>	-
<u>Information data Rate</u>	<u>Kbps</u>	<u>12.2</u>	
<u>Propagation condition</u>	-	<u>Static</u>	
<u>Note 1: The DPCH Ec/Ior1 is set at the level corresponding to 5% TPC error rate.</u>			
<u>Note 2: The uplink power control from cell1 shall be such that the UE transmit power would stay at -15 dBm.</u>			
<u>Note 3: The maximum DPCH Ec/Ior1 level in cell1 is -9 dB.</u>			

NOTE 1: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

Annex A (informative):

Connection Diagrams

Definition of Terms

System Simulator or SS – A device or system, that is capable of generating simulated Node B signalling and analysing UE signalling responses on one or more RF channels, in order to create the required test environment for the UE under test. It will also include the following capabilities:

1. Measurement and control of the UE Tx output power through TPC commands
2. Measurement of Rx BLER and BER
3. Measurement of signalling timing and delays
4. Ability to simulate UTRAN and/or GERAN signalling

Test System – A combination of devices brought together into a system for the purpose of making one or more measurements on a UE in accordance with the test case requirements. A test system may include one or more System Simulators if additional signalling is required for the test case. The following diagrams are all examples of Test Systems.

Note: The above terms are logical definitions to be used to describe the test methods used in this document (TS34.121), in practice, real devices called 'System Simulators' may also include additional measurement capabilities or may only support those features required for the test cases they are designed to perform.

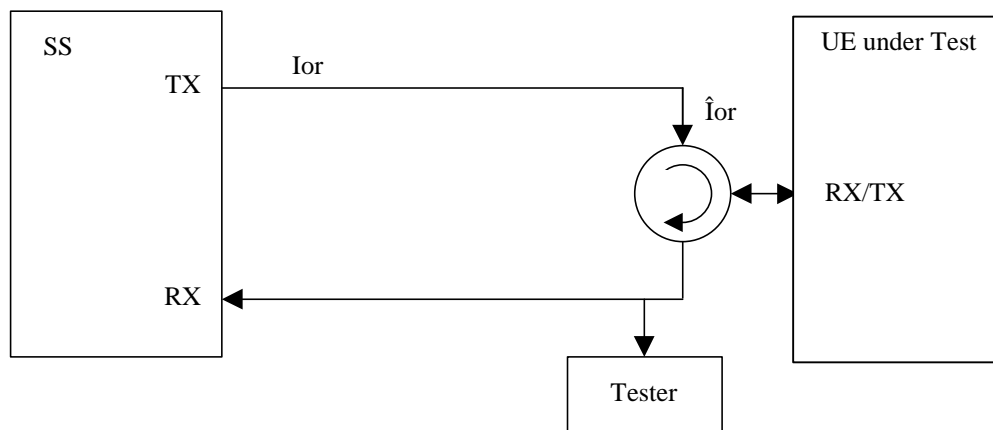


Figure A.1: Connection for Basic TX Test

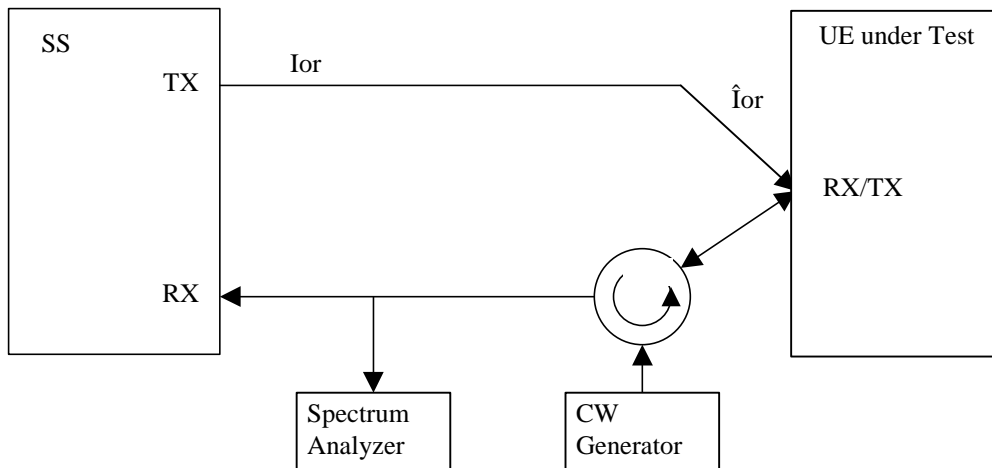


Figure A.2: Connection for TX Intermodulation Test

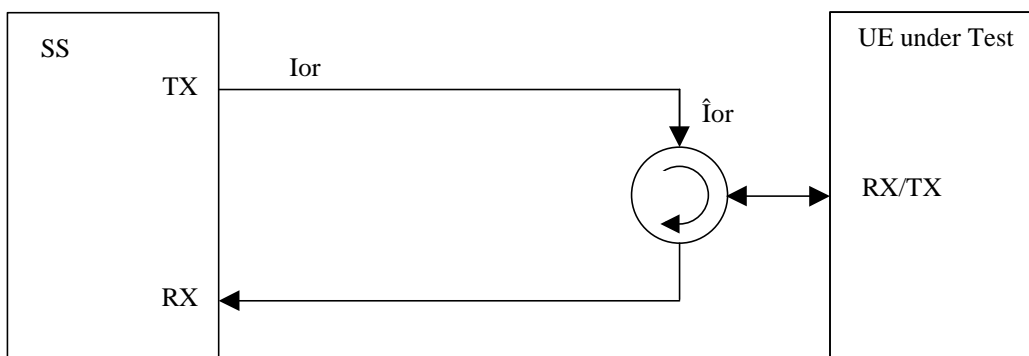


Figure A.3: Connection for Basic RX Test

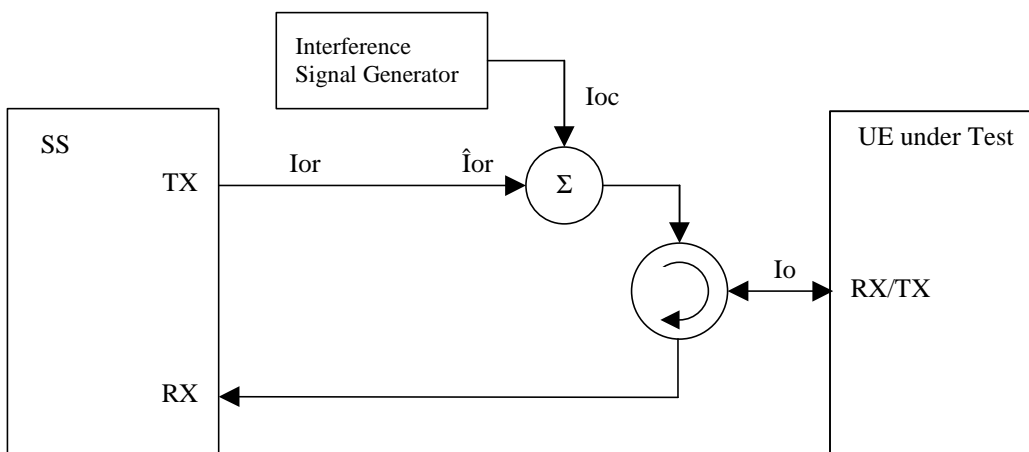


Figure A.4: Connection for RX Test with Interference

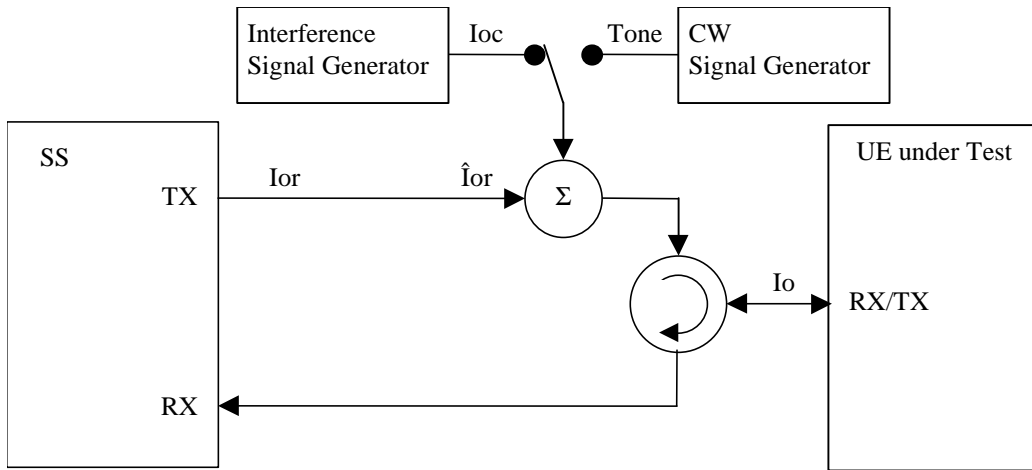


Figure A.5: Connection for RX Test with Interference or additional CW

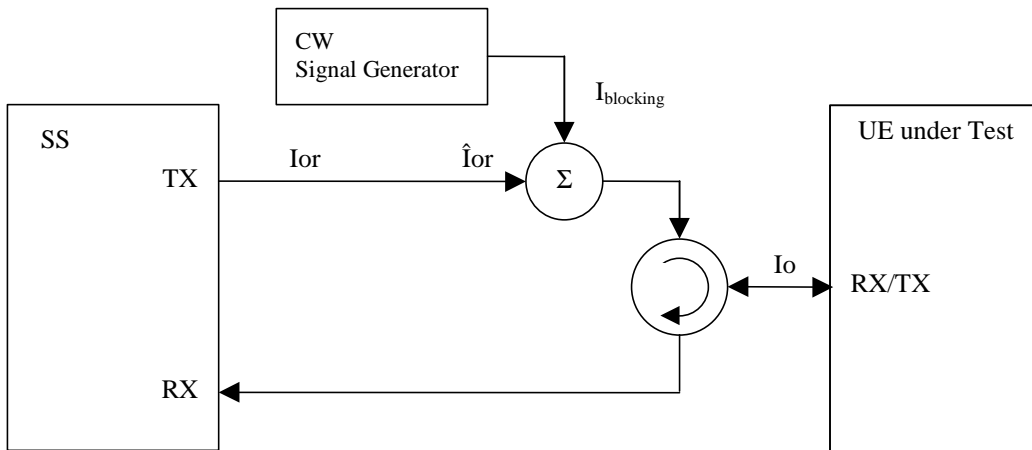


Figure A.6: Connection for RX Test with additional CW

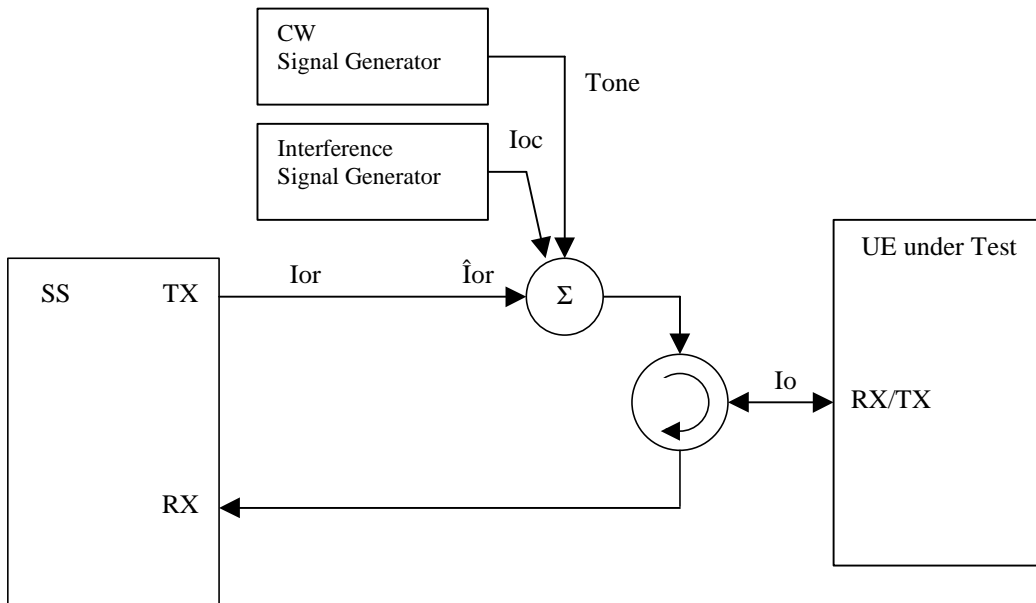


Figure A.7: Connection for RX Test with both Interference and additional CW

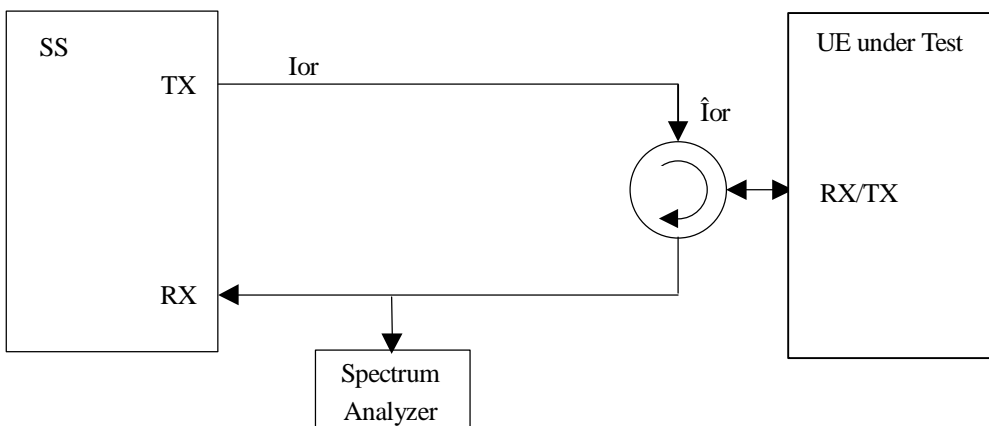


Figure A.8: Connection for Spurious Emission Test

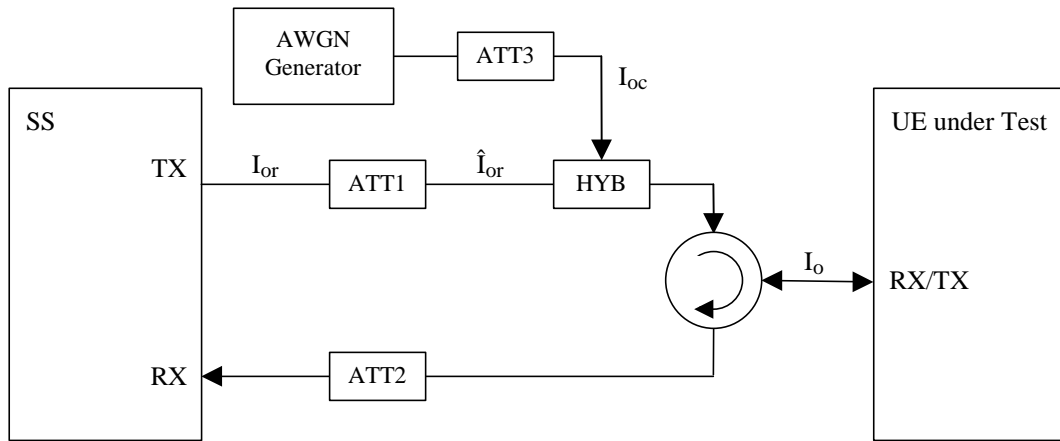


Figure A.9: Connection for Static Propagation Test

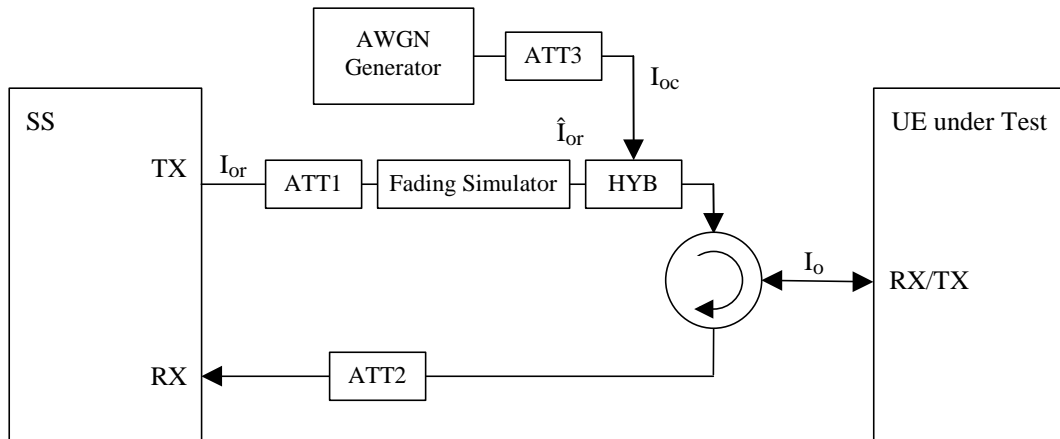


Figure A.10: Connection for Multi-path Fading Propagation Test

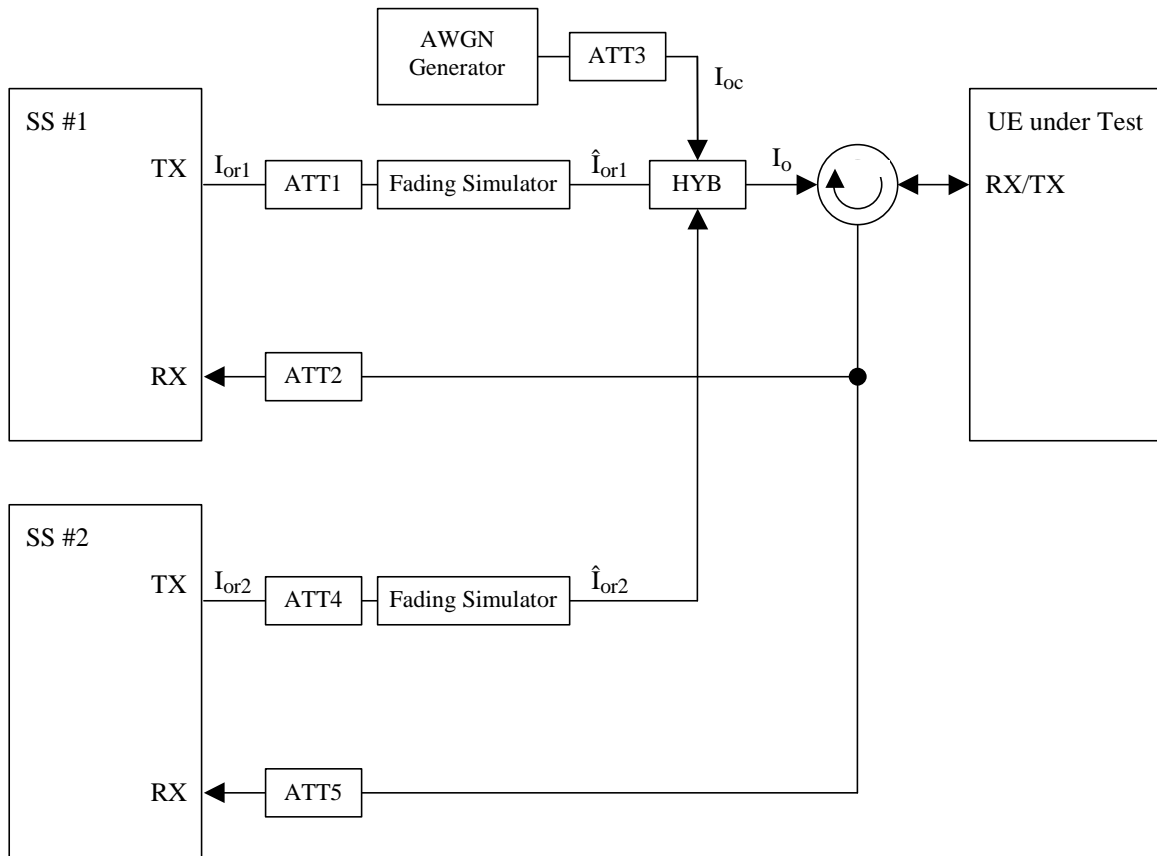


Figure A.11: Connection for Inter-Cell Soft Handover Test

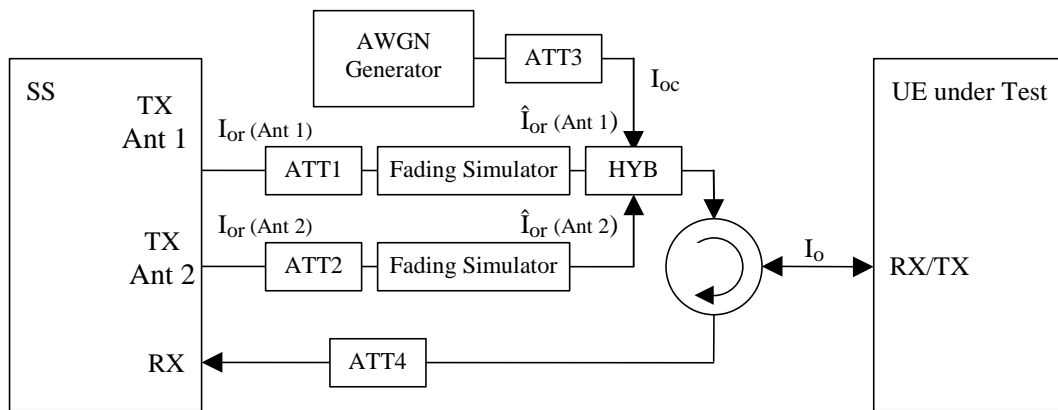


Figure A.12: Connection for Demodulation of DCH in open and closed loop transmit diversity modes

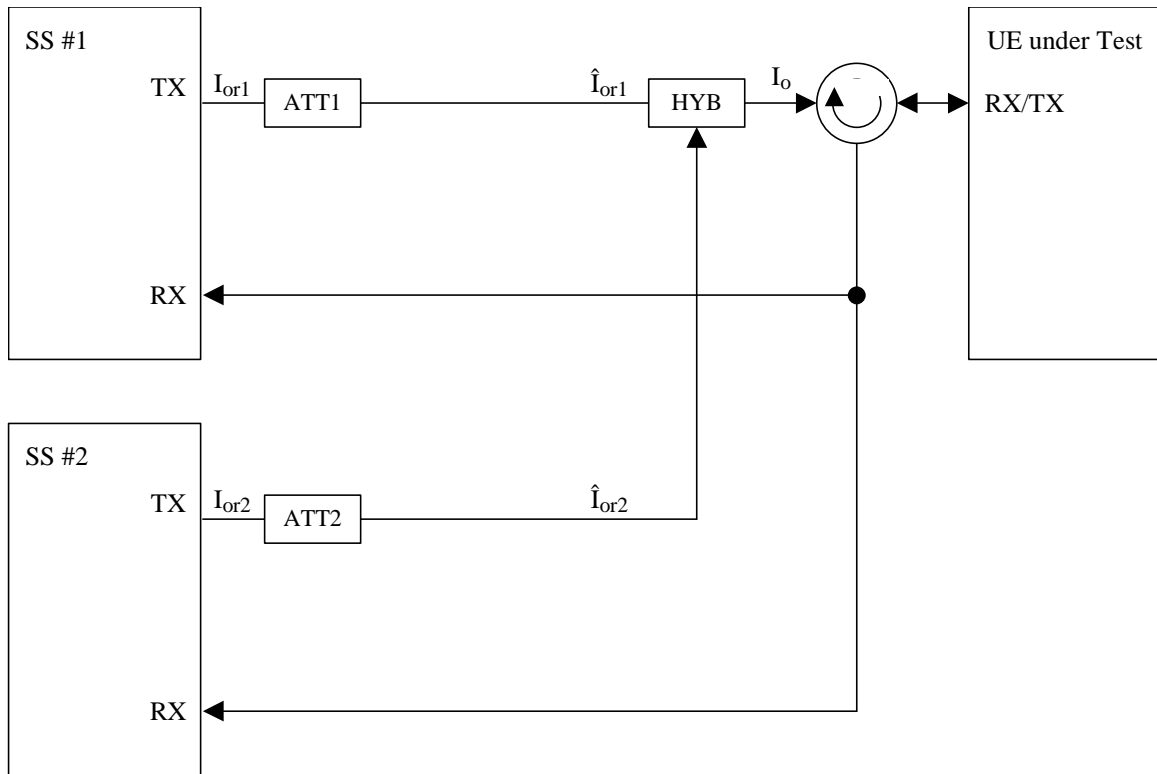


Figure A.13: Connection for Combining of TPC commands in Soft Handover Test 1

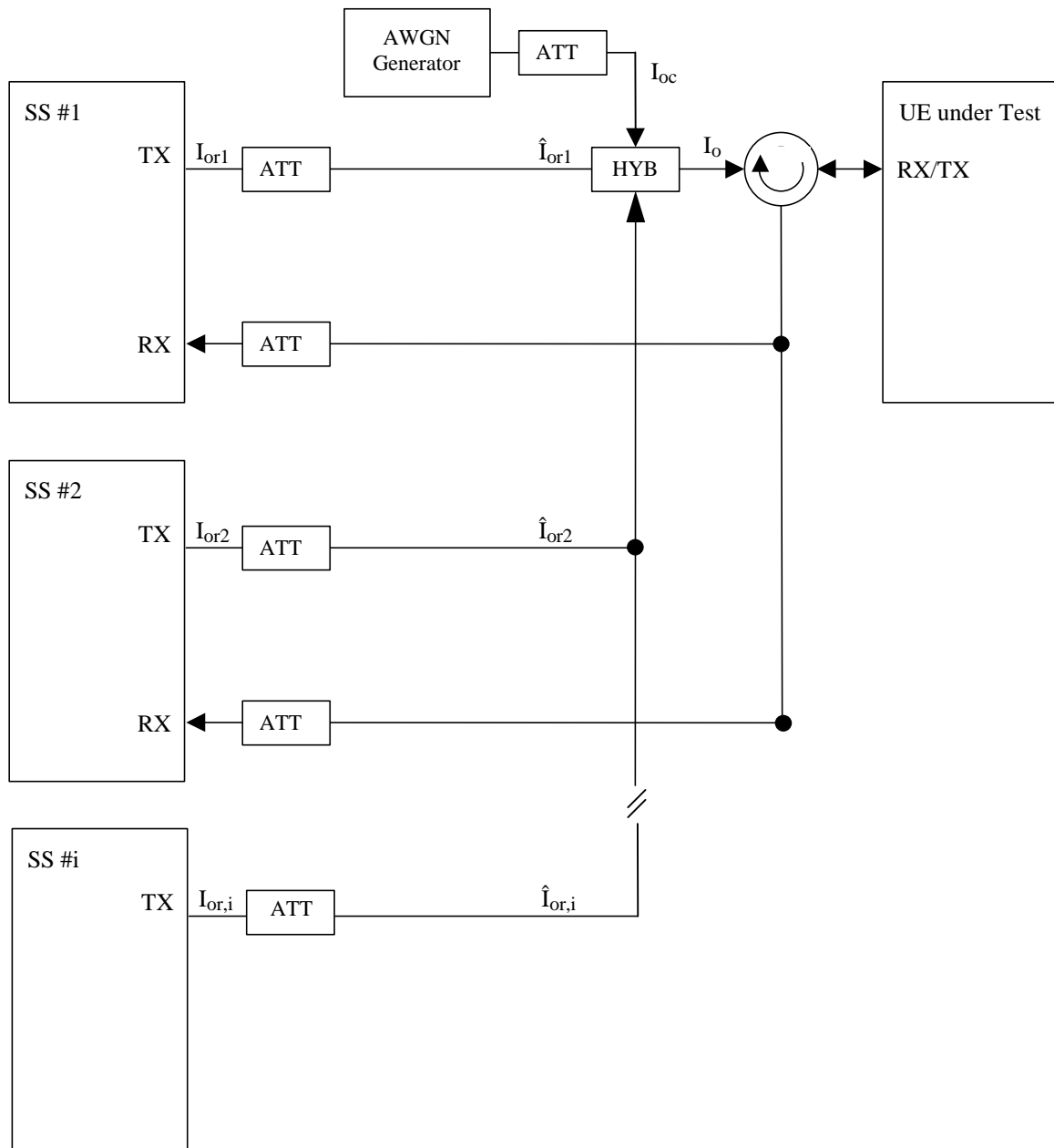


Figure A.14: Connection for cell reselection single carrier multi cell

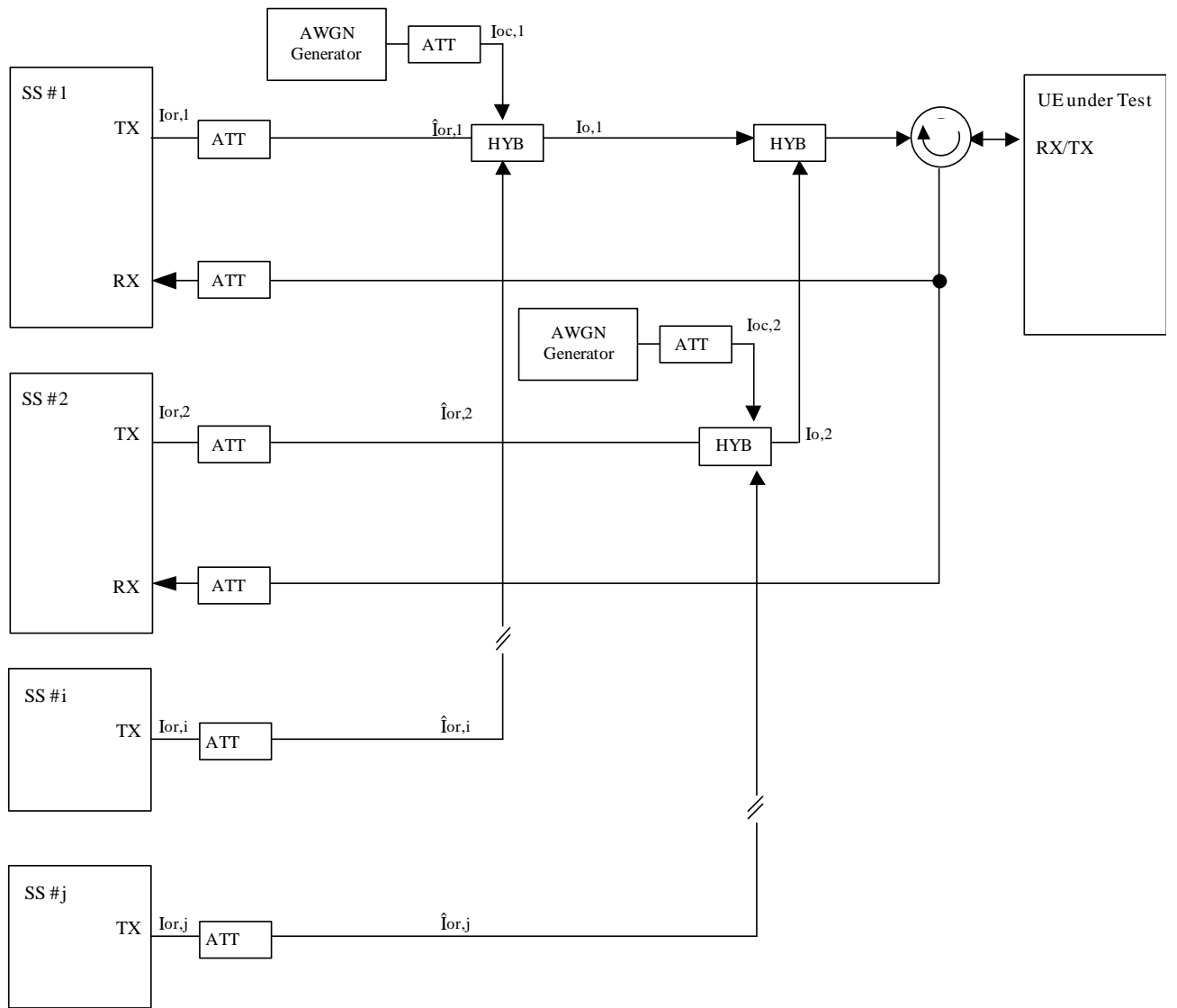


Figure A.15: Connection for cell reselection multi carrier multi cell

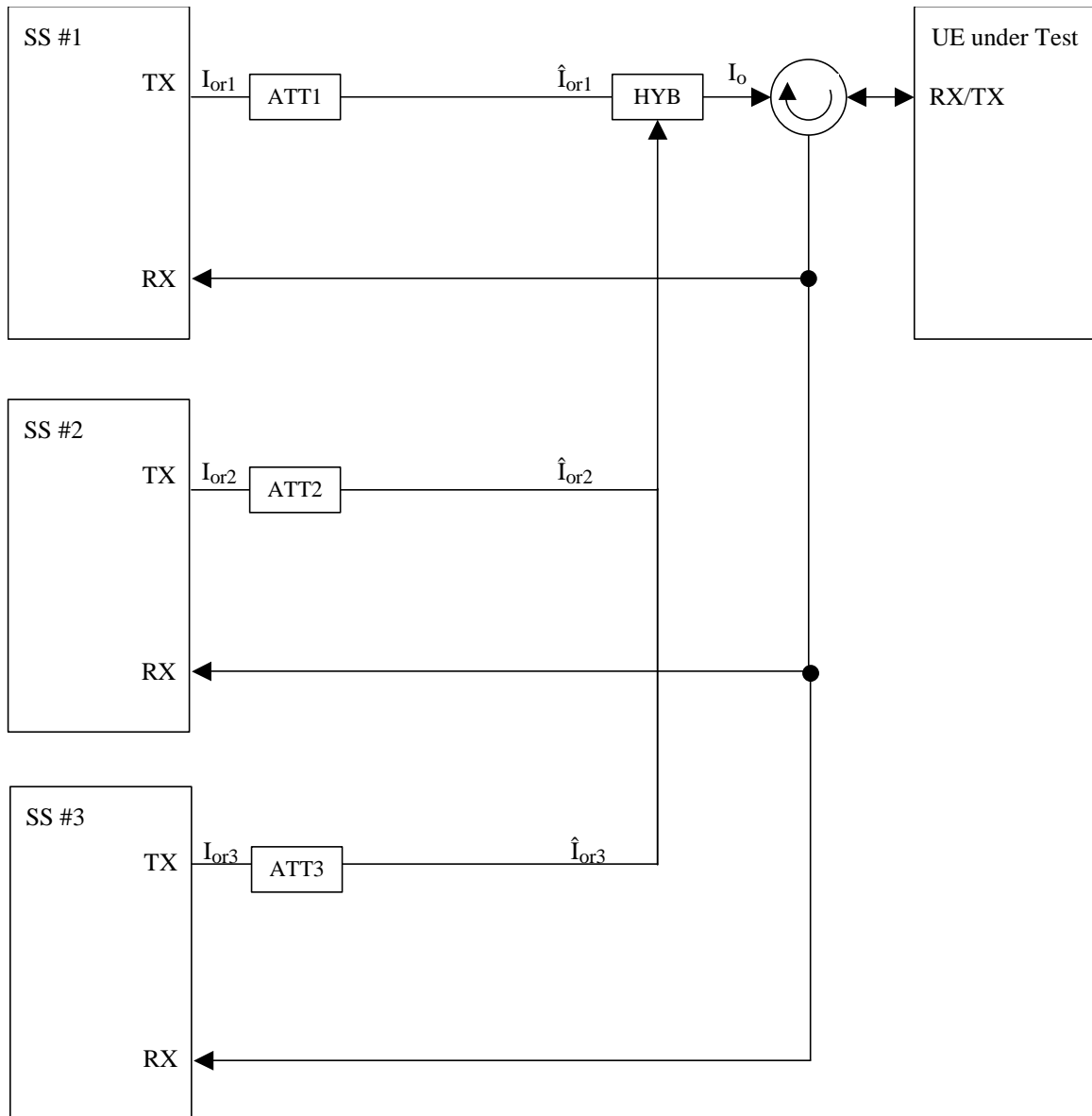


Figure A.16: Connection for Combining of reliable TPC commands in Soft Handover Test 1

CHANGE REQUEST

⌘ **34.121 CR 394** ⌘ rev **-** ⌘ Current version: **5.3.1** ⌘

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:	⌘	New test case for 9.2.3 Closed Loop Diversity Performance
Source:	⌘	Motorola
Work item code:	⌘	
		Date: ⌘ 10/05/2004
Category:	⌘	F
		<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p><i>Use <u>one</u> of the following categories:</i></p> <p>F (correction)</p> <p>A (corresponds to a correction in an earlier release)</p> <p>B (addition of feature),</p> <p>C (functional modification of feature)</p> <p>D (editorial modification)</p> <p>Detailed explanations of the above categories can be found in 3GPP TR 21.900.</p> </div> <div style="width: 45%;"> <p><i>Use <u>one</u> of the following releases:</i></p> <p>2 (GSM Phase 2)</p> <p>R96 (Release 1996)</p> <p>R97 (Release 1997)</p> <p>R98 (Release 1998)</p> <p>R99 (Release 1999)</p> <p>Rel-4 (Release 4)</p> <p>Rel-5 (Release 5)</p> <p>Rel-6 (Release 6)</p> </div> </div>

Reason for change:	⌘	The test case in 25.101 for Closed Loop Diversity performance is not implemented in 34.121.
Summary of change:	⌘	This change will add the Closed Loop Diversity performance test case 9.2.3 to 34.121.
Consequences if not approved:	⌘	There will be no possibility to test Closed Loop Diversity performance

Clauses affected:	⌘	9.2.3								
Other specs affected:	⌘	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;"> </td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;"> </td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;"> </td> <td style="text-align: center;">X</td> </tr> </table>	Y	N		X		X		X
		Y	N							
			X							
	X									
	X									
Other core specifications	⌘									
Test specifications	⌘									
O&M Specifications	⌘									
Other comments:	⌘	Test cases introduced in this CR are applicable for Rel-5 and later releases.								

9.2.3 Closed Loop Diversity Performance

9.2.3.1 Definition and applicability

The receiver single closed loop transmit diversity performance of the High Speed Physical Downlink Shared Channel (HS-DSCH) in multi-path fading environments are determined by the information bit throughput R.

The UE shall be tested only according to the data rate, supported. The data-rate corresponding requirements shall apply to the UE.

The requirements and this test apply to all types of UTRA for FDD UE that support HSDPA.

9.2.3.2 Minimum requirements

Requirements for a particular UE belonging to certain HS-DSCH category are determined according to Table 9.2.3.1. During the Fixed Reference Channel (FRC) tests the behaviour of the Node-B emulator in response to the ACK/NACK signalling field of the HS-DPCCH is specified in Table 9.2.3.2.

Table 9.2.3.1: Mapping between HS-DSCH category and FRC

<u>HS-DSCH category</u>	<u>Corresponding requirement</u>
<u>Category 1</u>	<u>H-Set 1</u>
<u>Category 2</u>	<u>H-Set 1</u>
<u>Category 3</u>	<u>H-Set 2</u>
<u>Category 4</u>	<u>H-Set 2</u>
<u>Category 5</u>	<u>H-Set 3</u>
<u>Category 6</u>	<u>H-Set 3</u>
<u>Category 11</u>	<u>H-Set 4</u>
<u>Category 12</u>	<u>H-Set 5</u>

Table 9.2.3.2: Node-B Emulator Behaviour in response to ACK/NACK/DTX

<u>HS-DPCCH ACK/NACK Field State</u>	<u>Node-B Emulator Behaviour</u>
<u>ACK</u>	<u>ACK: new transmission using 1st redundancy version (RV)</u>
<u>NACK</u>	<u>NACK: retransmission using the next RV (up to the maximum permitted number of RV's)</u>
<u>DTX</u>	<u>DTX: retransmission using the RV previously transmitted to the same H-ARQ process</u>

For the parameters specified in Table 9.2.3.3, 9.2.3.5, 9.2.3.7 the requirements are specified in terms of minimum information bit throughput R as shown in Table 9.2.3.4, 9.2.3.6, 9.2.3.8, and 9.2.3.9 for QPSK and 16QAM and for the DL reference channels specified in Annex C.8.1.

Table 9.2.3.3: Test Parameters for Testing QPSK FRCs H-Set 1/H-Set 2/H-Set 3

<u>Parameter</u>	<u>Unit</u>	<u>Test 1</u>	<u>Test 2</u>	<u>Test 3</u>
Phase reference			P-CPICH	
I_{oc}	dBm/3.84 MHz		-60	
DPCH frame offset ($T_{DPCH,n}$)	Chip		0	
Redundancy and constellation version coding sequence			{0,2,5,6}	
Maximum number of HARQ transmission			4	
Feedback Error Rate	%		4	
Closed loop timing adjustment mode			1	

Table 9.2.3.4: Minimum requirement QPSK, Fixed Reference Channel (FRC) H-Set 1/2/3

<u>Test Number</u>	<u>Propagation Conditions</u>	<u>Reference value</u>		
		<u>HS-PDSCH</u> E_c/I_{or} (dB)	<u>T-put R (kbps) *</u> $\hat{I}_{or}/I_{oc} = 0$ dB	<u>T-put R (kbps) *</u> $\hat{I}_{or}/I_{oc} = 10$ dB
1	PA3	-6	118	399
		-3	225	458
2	PB3	-6	50	199
		-3	173	301
3	VA30	-6	47	204
		-3	172	305

* Notes: 1) The reference value R is for the Fixed Reference Channel (FRC) H-Set 1
2) For Fixed Reference Channel (FRC) H-Set 2 the reference values for R should be scaled (multiplied by 1.5 and rounding to the nearest integer t-put in kbps, where values of i+1/2 are rounded up to i+1, i integers)
3) For Fixed Reference Channel (FRC) H-Set 3 the reference values for R should be scaled (multiplied by 3 and rounding to the nearest integer t-put in kbps, where values of i+1/2 are rounded up to i+1, i integer)

Table 9.2.3.5: Test Parameters for Testing 16-QAM FRCs H-Set 1/H-Set 2/H-Set 3

<u>Parameter</u>	<u>Unit</u>	<u>Test 1</u>	<u>Test 2</u>	<u>Test 3</u>
Phase reference			P-CPICH	
I_{oc}	dBm/3.84 MHz		-60	
DPCH frame offset ($T_{DPCH,n}$)	Chip		0	
Redundancy and constellation version coding sequence			{6,2,1,5}	
Maximum number of HARQ transmission			4	
Feedback Error Rate	%		4	
Closed loop timing adjustment mode			1	

Table 9.2.3.6 Minimum requirement 16QAM, Fixed Reference Channel (FRC) H-Set 1/2/3

Test Number	Propagation Conditions	Reference value	
		HS-PDSCH E_c/I_{or} (dB)	T-put R (kbps) * $\hat{I}_{or}/I_{oc} = 10$ dB
1	PA3	-6	361
		-3	500
2	PB3	-6	74
		-3	255
3	VA30	-6	84
		-3	254

* Notes: 1) The reference value R is for the Fixed Reference Channel (FRC) H-Set 1
2) For Fixed Reference Channel (FRC) H-Set 2 the reference values for R should be scaled (multiplied by 1.5 and rounding to the nearest integer t-put in kbps, where values of i+1/2 are rounded up to i+1, i integer)
3) For Fixed Reference Channel (FRC) H-Set 3 the reference values for R should be scaled (multiplied by 3 and rounding to the nearest integer t-put in kbps, where values of i+1/2 are rounded up to i+1, i integer)

Table 9.2.3.7: Test Parameters for Testing QPSK FRCs H-Set 4/H-Set 5

Parameter	Unit	Test 1	Test 2	Test 3
Phase reference			P-CPICH	
I_{oc}	dBm/3.84 MHz		-60	
DPCH frame offset ($T_{DPCH,0}$)	Chip		0	
Redundancy and constellation version coding sequence			{0,2,5,6}	
Maximum number of HARQ transmission			4	
Feedback Error Rate	%		4	
Closed loop timing adjustment mode			1	

Table 9.2.3.8: Minimum requirement QPSK, Fixed Reference Channel (FRC) H-Set 4

Test Number	Propagation Conditions	Reference value		
		HS-PDSCH E_c/I_{or} (dB)	T-put R (kbps) * $\hat{I}_{or}/I_{oc} = 0$ dB	T-put R (kbps) * $\hat{I}_{or}/I_{oc} = 10$ dB
1	PA3	-6	114	398
		-3	223	457
2	PB3	-6	43	196
		-3	167	292
3	VA30	-6	40	199
		-3	170	305

* Notes: 1) The reference value R is for the Fixed Reference Channel (FRC) H-Set 4

Table 9.2.3.9: Minimum requirement QPSK, Fixed Reference Channel (FRC) H-Set 5

Test Number	Propagation Conditions	Reference value		
		HS-PDSCH E_c/I_{or} (dB)	T-put R (kbps) * $\hat{I}_{or}/I_{oc} = 0$ dB	T-put R (kbps) * $\hat{I}_{or}/I_{oc} = 10$ dB
1	PA3	-6	177	599
		-3	338	687
2	PB3	-6	75	299
		-3	260	452
3	VA30	-6	71	306
		-3	258	458

* Notes: 1) The reference value R is for the Fixed Reference Channel (FRC) H-Set 5

The reference for this requirement is TS 25.101 [1] clauses 9.2.3.1, 9.2.3.2 and 9.2.3.3.

9.2.3.3 Test purpose

To verify the ability of the receiver to receive a predefined test signal, representing a multi-path fading channel with information bit throughput R not exceeding a specified value. The test stresses the multi-code reception and channel decoding with incremental redundancy.

9.2.3.4 Method of test

9.2.3.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

1. Connect the SS (Note: This is the Node B Emulator) and fader and AWGN noise source to the UE antenna connector as shown in figure A.16.
2. Set the test parameters for tests as specified in table's 9.2.3.11, 9.2.3.13 and 9.2.3.15 and levels as specified in table's 9.2.3.12, 9.2.3.14, 9.2.3.16 and 9.2.3.17. Setup fading simulators as fading condition, which are described in table D.2.2.1A. Power of downlink channels is defined in table E.5.3.

Table 9.2.3.10: Specific Message Contents for closed loop transmit diversity mode

SYSTEM INFORMATION BLOCK TYPE5

Information Element	Value/remark
PRACH system information list - AICH info - STTD Indicator	TRUE
Secondary CCPCH system information - PICH info - STTD Indicator - Secondary CCPCH info - STTD Indicator	TRUE TRUE
Primary CCPCH info - CHOICE mode - TX Diversity indicator	FDD TRUE

RRC CONNECTION SETUP for Closed loop mode1

<u>Information Element</u>	<u>Value/remark</u>
<u>Downlink information common for all radio links</u> <u>- CHOICE mode</u> <u>- TX Diversity Mode</u>	<u>FDD</u> <u>Closed loop mode1</u>
<u>Downlink DPCH info for each RL</u> <u>- CHOICE mode</u> <u>- Downlink DPCH info for each RL</u> <u>- Closed loop timing adjustment mode</u>	<u>FDD</u> <u>1</u>

RADIO BEARER SETUP for Closed loop mode1

<u>Information Element</u>	<u>Value/remark</u>
<u>Downlink information common for all radio links</u> <u>- CHOICE mode</u> <u>- TX Diversity Mode</u>	<u>FDD</u> <u>Closed loop mode1</u>
<u>Downlink DPCH info for each RL</u> <u>- CHOICE mode</u> <u>- Downlink DPCH info for each RL</u> <u>- Closed loop timing adjustment mode</u>	<u>FDD</u> <u>1</u>

9.2.3.4.2 Procedure

1. Set up a HSDPA connection according to the generic HSDPA set-up procedure specified in TS 34.108 [3].
2. Start transmitting HSDPA Data.
3. The information bit data shall be pseudo random and not repeated before 10 different information bit payload blocks are processed. (e.g. Fixed reference Channel Definition H-set 1 (16 QAM): The information bit payload block is 4664 bits long. Hence the PRBS must be at least $4664 * 10$ bits long [26].)
4. Count the number of NACK, ACK and DTX on the UL HS-DPCCH during the test interval and decide pass or fail according to Annex F.6.3. ACK is counted as a pass. NACK and DTX are counted as a failure.

9.2.3.4.3 Test Requirements

The parameters and requirements are specified in table's 9.2.3.11 to 9.2.3.17. The pass / fail decision for throughput is done according to Annex F.6.3.

Table 9.2.3.11: Test Parameters for Testing QPSK FRCs H-Set 1/H-Set 2/H-Set 3

<u>Parameter</u>	<u>Unit</u>	<u>Test 1</u>	<u>Test 2</u>	<u>Test 3</u>
Phase reference			P-CPICH	
I_{oc}	<u>dBm/3.84 MHz</u>		-60	
DPCH frame offset ($T_{DPCH,n}$)	<u>Chip</u>		0	
Redundancy and constellation version coding sequence			{0,2,5,6}	
Maximum number of HARQ transmission			4	
Feedback Error Rate	<u>%</u>		4	
Closed loop timing adjustment mode			1	

Table 9.2.3.12: Minimum requirement QPSK, Fixed Reference Channel (FRC) H-Set 1/2/3

<u>Test Number</u>	<u>Propagation Conditions</u>	<u>Reference value</u>		
		<u>HS-PDSCH</u> E_c/I_{or} (dB)	<u>T-put R (kbps) *</u> $\hat{I}_{or}/I_{oc} = 0$ dB	<u>T-put R (kbps) *</u> $\hat{I}_{or}/I_{oc} = 10$ dB
1	PA3	-6	118	399
		-3	225	458
2	PB3	-6	50	199
		-3	173	301
3	VA30	-6	47	204
		-3	172	305

* Notes: 1) The reference value R is for the Fixed Reference Channel (FRC) H-Set 1
2) For Fixed Reference Channel (FRC) H-Set 2 the reference values for R should be scaled (multiplied by 1.5 and rounding to the nearest integer t-put in kbps, where values of i+1/2 are rounded up to i+1, i integers)
3) For Fixed Reference Channel (FRC) H-Set 3 the reference values for R should be scaled (multiplied by 3 and rounding to the nearest integer t-put in kbps, where values of i+1/2 are rounded up to i+1, i integer)

Table 9.2.3.13: Test Parameters for Testing 16-QAM FRCs H-Set 1/H-Set 2/H-Set 3

<u>Parameter</u>	<u>Unit</u>	<u>Test 1</u>	<u>Test 2</u>	<u>Test 3</u>
Phase reference			P-CPICH	
I_{oc}	<u>dBm/3.84 MHz</u>		-60	
DPCH frame offset ($T_{DPCH,n}$)	<u>Chip</u>		0	
Redundancy and constellation version coding sequence			{6,2,1,5}	
Maximum number of HARQ transmission			4	
Feedback Error Rate	<u>%</u>		4	
Closed loop timing adjustment mode			1	

Table 9.2.3.14 Minimum requirement 16QAM, Fixed Reference Channel (FRC) H-Set 1/2/3

Test Number	Propagation Conditions	Reference value	
		HS-PDSCH E_c/I_{or} (dB)	T-put R (kbps) * $\hat{I}_{or}/I_{oc} = 10$ dB
1	PA3	-6	361
		-3	500
2	PB3	-6	74
		-3	255
3	VA30	-6	84
		-3	254

* Notes: 1) The reference value R is for the Fixed Reference Channel (FRC) H-Set 1
2) For Fixed Reference Channel (FRC) H-Set 2 the reference values for R should be scaled (multiplied by 1.5 and rounding to the nearest integer t-put in kbps, where values of i+1/2 are rounded up to i+1, i integer)
3) For Fixed Reference Channel (FRC) H-Set 3 the reference values for R should be scaled (multiplied by 3 and rounding to the nearest integer t-put in kbps, where values of i+1/2 are rounded up to i+1, i integer)

Table 9.2.3.15: Test Parameters for Testing QPSK FRCs H-Set 4/H-Set 5

Parameter	Unit	Test 1	Test 2	Test 3
Phase reference			P-CPICH	
I_{oc}	dBm/3.84 MHz		-60	
DPCH frame offset ($T_{DPCH,0}$)	Chip		0	
Redundancy and constellation version coding sequence			{0,2,5,6}	
Maximum number of HARQ transmission			4	
Feedback Error Rate	%		4	
Closed loop timing adjustment mode			1	

Table 9.2.3.16: Minimum requirement QPSK, Fixed Reference Channel (FRC) H-Set 4

Test Number	Propagation Conditions	Reference value		
		HS-PDSCH E_c/I_{or} (dB)	T-put R (kbps) * $\hat{I}_{or}/I_{oc} = 0$ dB	T-put R (kbps) * $\hat{I}_{or}/I_{oc} = 10$ dB
1	PA3	-6	114	398
		-3	223	457
2	PB3	-6	43	196
		-3	167	292
3	VA30	-6	40	199
		-3	170	305

* Notes: 1) The reference value R is for the Fixed Reference Channel (FRC) H-Set 4

Table 9.2.3.17: Minimum requirement QPSK, Fixed Reference Channel (FRC) H-Set 5

<u>Test Number</u>	<u>Propagation Conditions</u>	<u>Reference value</u>		
		<u>HS-PDSCH</u> <u>E_c/I_{or} (dB)</u>	<u>T-put R (kbps) *</u> <u>$\hat{I}_{or}/I_{oc} = 0$ dB</u>	<u>T-put R (kbps) *</u> <u>$\hat{I}_{or}/I_{oc} = 10$ dB</u>
<u>1</u>	<u>PA3</u>	<u>-6</u>	<u>177</u>	<u>599</u>
		<u>-3</u>	<u>338</u>	<u>687</u>
<u>2</u>	<u>PB3</u>	<u>-6</u>	<u>75</u>	<u>299</u>
		<u>-3</u>	<u>260</u>	<u>452</u>
<u>3</u>	<u>VA30</u>	<u>-6</u>	<u>71</u>	<u>306</u>
		<u>-3</u>	<u>258</u>	<u>458</u>

* Notes: 1) The reference value R is for the Fixed Reference Channel (FRC) H-Set 5

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.