8 Requirements for support of RRM

8.1 General

The cell configuration mapping between cells as defined in TS 34.121-1 and cells as defined in TS 34.108 [3] section 6.1.4 is described in Annex K. E-UTRA cells are defined in TS 36.521-3 [38] and 36.508 [33].

When DCCH has been configured on downlink DCH then DCCH Data shall be continuously transmitted on downlink DCH. When there is no signalling to transmit on downlink DCCH then dummy DCCH transmission as described in Annex C.9 shall be used.

The MAC header transmission on HS-DSCH for all E-DCH test cases shall use a correct MAC-hs header consistent with the actual HSDPA transmission.

For HSDPA test cases without E-DCH, the MAC headers on HS-DSCH shall be according to Annex C.9A.

The DL and UL RLC SDU size for all E-DCH tests in clause 8 shall be set according to Annex C.11.3.

For MBMS test cases which require invalid MAC header to be transmitted during the test, the configuration of invalid MAC header for MTCH transmission shall use the value "1111" for the MBMS-Id field. The UE shall discard PDU's with this invalid MAC header according TS 25.321 [13] section 10.

For the UE which supports both Band I and Band VI operating frequencies, the inter-frequency requirements for Band VI shall apply to the multi-band UE by measuring a Band I frequency while in Band VI to prevent interference. Otherwise, the Band VI inter-frequency requirements cannot be tested.

Parameters given in table 8.1 will be used throughout this section, unless otherwise stated by the test case.

Table 8.1: Test parameters for UTRAN Cell (FDD)

Parameter	Unit	UTRAN Cells
Qrxlevmin	dBm	-115

For testing a UE with multiple UTRA receive diversity antenna connectors, test signals from each cell shall be generated with independent fading and applied to each antenna port. For each carrier frequency specified in the test case, independent noise shall be generated and applied to each antenna port. The received power spectral density at each antenna connector n, denoted as $\hat{I}or_{,n}$ shall be the same as to the received power spectral density $\hat{I}or$ specified for testing a UE with a single antenna connector. The noise spectral density at each antenna connector n, denoted as $Ioc_{,n}$ shall be the same as the noise spectral density Ioc specified for testing a UE with a single antenna connector.

8.1.1 Definition of Additive White Gaussian Noise (AWGN) Interferer

See clause D.1.1.

8.2 Idle Mode Tasks

8.2.1 Cell Selection

Void.

8.2.2 Cell Re-Selection

8.2.2.1 Scenario 1: Single carrier case

8.2.2.1.1 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 RRC CONNECTION REQUEST message to perform a Location Updating procedure (MM) or Routing Area Updating procedure (GMM) on the new cell.

The requirements and this test apply to the FDD UE.

8.2.2.1.2 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: $T_{evaluateFDD} + T_{SI}$, where:

$T_{evaluateFDD}$	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 4.2.2.2 and A.4.2.1.

8.2.2.1.3 Test purpose

To verify that the UE meets the minimum requirement.

8.2.2.1.4 Method of test

8.2.2.1.4.1 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.

This scenario implies the presence of 1 carrier and 6 cells as given in tables 8.2.2.1.1 to 8.2.2.1.3. 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. Cell 1 and cell 2 shall belong to different Location Areas.

Table 8.2.2.1.1: Scenario 1: General test parameters for Cell Re-selection single carrier multi-cell case

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 1 - CN common GSM-MAP NAS system information		-	00 80(H) → Cell 1 00 81(H) → Cell 2	This identity should be set as different value from the neighbour cell so that a Location Updating procedure(MM) or a Routing Area Updating procedure(GMM) is performed when UE selects more suitable cell in idle state.
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
T_{SI}		ms	1280	See Annex I for the SIB repetition period of system information blocks.
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 8.2.2.1.2: Scenario 1: Test parameters for Cell re-selection single carrier multi cell

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		Channel1		Channel1		Channel1		Channel1		Channel1		Channel1	
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	-4.8	-7.4	-4.8	-7.4
Ior (Note 1)	dBm	-62.73	-59.73	-59.73	-62.73	-69.73	-69.73	-69.73	-69.73	-74.75	-77.39	-74.75	-77.39
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 Ec/N0		CPICH Ec/N0		CPICH Ec/N0		CPICH Ec/N0		CPICH Ec/N0		CPICH Ec/N0	
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	
Qoffset2s, 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 Îor values, although not explicitly defined in 25.133 [2] are added here since they are implied and need to be identified so that the test equipment can be configured.

8.2.2.1.4.2   Procedure

1) The SS activates cell 1-6 with T1 defined parameters in table 8.2.2.1.3 and monitors cell 1 and 2 for random access requests from the UE.

2) The UE is switched on.

3) The SS and the UE shall perform a first registration procedure on cell2.

4) 15 s after step 3 has completed, the parameters are changed to that as described for T2 in table 8.2.2.1.3.

5) The SS waits for random access requests from the UE. If the UE responds on cell 1 within 8 s from the beginning of time period T2 then the number of successful tests is increased by one. The SS and the UE shall perform a Location Updating procedure (MM) or a Routing Area Updating procedure (GMM) on cell1.

6) After 15 s from the beginning of time period T2, the parameters are changed to that as described for T1 in table 8.2.2.1.3.

7) The SS waits for random access requests from the UE. If the UE responds on cell 2 within 8 s from the beginning of time period T1 then the number of successful tests is increased by one. The SS and the UE shall perform a Location Updating procedure(MM) or a Routing Area Updating procedure (GMM) on cell2.

8) After 15 s from the beginning of time period T1, the parameters are changed to that as described for T2.

9) Repeat step 5) to 8) until the confidence level according to annex F.6.2 is achieved.

NOTE 1: 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 time to read the relevant system info blocks that needs to be received by the UE to camp on a cell is 1420ms (see note 2) and the maximum RRC procedure delay for reception system information block is 100ms, 1520 ms is assumed in this test case. Therefore this gives a total of 7.92s.(Minimum requirement + 240ms), allow 8s in the test case.

NOTE 2: 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. The Master Information Block (MIB) is repeated every 8 frame and SIB5 (and SIB11) is segmented into 4 segments where the first segment is scheduled adjacent to the MIB at SIB_POS=40 and the other three segments are scheduled after the MIB (SIB_POS=42, 44 and 46). The maximum time for a UE to read SIB5 will occur if the UE start reading the BCH at the SFN after the MIB located prior to the first segment of SIB5 (SIB_POS 32). Then the UE will not be able to read SIB5 until the second occurrence of SIB5, which will happen at SIB_POS 46 + 1280ms. This gives that the maximum time for the UE to read the relevant system info will be 1420ms ((SIB_POS 46 – SIB_POS 32)*10ms +1280ms).

8.2.2.1.5 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 8.2.2.1.3: Scenario 1: Test requirements for Cell re-selection single carrier multi cell

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		Channel1		Channel1		Channel1		Channel1		Channel1		Channel1	
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	
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 8.2.2.1.2 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.

8.2.2.2 Scenario 2: Multi carrier case

8.2.2.2.1 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 RRC CONNECTION REQUEST message to perform a Location Updating procedure(MM) or Routing Area Updating procedure (GMM) on the new cell.

The requirements and this test apply to the FDD UE.

8.2.2.2.2 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: $T_{evaluateFDD} + T_{SI}$, where:

$T_{evaluateFDD}$	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 4.2.2.3 and A.4.2.2.

8.2.2.2.3 Test purpose

To verify that the UE meets the minimum requirement.

8.2.2.2.4 Method of test

8.2.2.2.4.1 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.

This scenario implies the presence of 2 carriers and 6 cells as given in tables 8.2.2.2.1 to 8.2.2.2.3. 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. Cell 1 and cell 2 shall belong to different Location Areas.

Table 8.2.2.2.1: Scenario 2: General test parameters for Cell Re-selection in multi carrier case

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 1 - CN common GSM-MAP NAS system information		-	00 80(H) → Cell 1 00 81(H) → Cell 2	This identity should be set as different value from the neighbour cell so that a Location Updating procedure (MM) or a Routing Area Updating procedure (GMM) is performed when UE selects more suitable cell in idle state.
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
T_{SI}		ms	1280	See Annex I for the SIB repetition period of system information blocks.
DRX cycle length		S	1,28	The value shall be used for all cells in the test.
T1		s	30	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.
NOTE: Monitored cell list size has 6 cells on 2 carriers. See Annex I for the cell information.				

Table 8.2.2.2.2: Scenario 2: Test parameters for Cell re-selection multi carrier multi cell

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
I_{or} (Note 1)	dBm	-73.39	-67.75	-67.75	-73.39	-77.39	-74.75	-77.39	-74.75	-74.75	-77.39	-74.75	-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 Ec/N0		CPICH Ec/N0		CPICH Ec/N0		CPICH Ec/N0		CPICH Ec/N0		CPICH Ec/N0	
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 Îor values, although not explicitly defined in 25.133 [2] are added here since they are implied and need to be identified so that the test equipment can be configured.

8.2.2.2.4.2   Procedures

1) The SS activates cell 1-6 with T1 defined parameters in table 8.2.2.2.3 and monitors cell 1 and 2 for random access requests from the UE.

2) The UE is switched on.

3) The SS and the UE shall perform a first location registration procedure on cell2.

4) 30 s after step3 has completed, the parameters are changed to that as described for T2 in table 8.2.2.2.3.

5) The SS waits for random access request from the UE. If the UE responds on cell 1 within 8 s from the beginning of time period T2 then the number of successful tests is increased by one. The SS and the UE shall perform a Location Updating procedure (MM) or a Routing Area Updating procedure (GMM) on cell1.

6) After another 15 s from the beginning of time period T2, the parameters are changed to that as described for T1 in table 8.2.2.2.3.

7) The SS waits for random access requests from the UE. If the UE responds on cell 2 within 8 s from the beginning of time period T1 then the number of successful tests is increased by one. The SS and the UE shall perform a Location Updating procedure (MM) or a Routing Area Updating procedure (GMM) on cell2.

8) After 15 s from the beginning of time period T1, the parameters are changed as described for T2.

9) Repeat step 5) to 8) until the confidence level according to annex F.6.2 is achieved.

NOTE 1:   T1 is initially 30 s to allow enough time for the UE to search for cells as it has no prior knowledge of these.

NOTE 2:   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 time to read the relevant system info blocks that needs to be received by the UE to camp on a cell is 1420ms (see note 3) and the maximum RRC procedure delay for reception system information block is 100ms, 1520 ms is assumed in this test case. Therefore this gives a total of 7.92s (Minimum requirement + 240ms), allow 8s in the test case.

NOTE 3:   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. The Master Information Block (MIB) is repeated every 8 frame and SIB5 (and SIB11) is segmented into 4 segments where the first segment is scheduled adjacent to the MIB at SIB_POS=40 and the other three segments are scheduled after the MIB (SIB_POS=42, 44 and 46). The maximum time for a UE to read SIB5 will occur if the UE start reading the BCH at the SFN after the MIB located prior to the first segment of SIB5 (SIB_POS 32). Then the UE will not be able to read SIB5 until the second occurrence of SIB5, which will happen at SIB_POS 46 + 1280ms. This gives that the maximum time for the UE to read the relevant system info will be 1420ms ((SIB_POS 46 − SIB_POS 32)*10ms +1280ms).

8.2.2.2.5   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 8.2.2.2.3: Scenario 2: Test parameters for Cell re-selection multi carrier multi cell

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
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/3.84 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 8.2.2.2.2 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.

8.2.3 UTRAN to GSM Cell Re-Selection

8.2.3.1 Scenario 1: Both UTRA and GSM level changed

8.2.3.1.1 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 the RR Channel Request message for location update to the new cell.

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

8.2.3.1.2 Minimum requirement

The cell re-selection delay shall be less than 26 s + T_{BCCH}, where TBCCH is the maximum time allowed to read BCCH data from GSM cell, see TS 05.08 [20] for R99 and TS 45.008 [30] for Rel-4 and later releases.

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: $4* T_{measureGSM} + T_{BCCH}$, where:

$T_{measureGSM}$	See table 4.1 in TS 25.133 [2] clause 4.2.2.
T_{BCCH}	Maximum time allowed to read BCCH data from GSM cell, see TS 05.08 [20] for R99 and TS 45.008 [30] for Rel-4 or later releases. According to [20] and [30], the maximum time allowed to read the BCCH data, when being synchronized to a BCCH carrier, is 1.9 s.

This gives a total of 25.6 s + T_{BCCH}, allow 26 s + T_{BCCH} in the test case.

The normative reference for this requirement is TS 25.133 [2] clauses 4.2.2 and A.4.3.1.

8.2.3.1.3 Test purpose

To verify that the UE meets the minimum requirement.

8.2.3.1.4 Method of test

8.2.3.1.4.1 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.

This scenario implies the presence of 1 UTRAN serving cell, and 1 GSM cell to be re-selected, as given in tables 8.2.3.1.1 to 8.2.3.1.5. The UE is requested to monitor neighbouring cells on 1 UMTS carrier and 12 GSM cells. Cell 1 and cell 2 shall belong to different Location Areas.

Table 8.2.3.1.1: Scenario 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
DRX cycle length		s	1.28	
Monitored cell list size			12 GSM neighbours including the ARFCN of cell 2	NOTE: See Annex I for cell information
T1		s	45	
T2		s	35	

Table 8.2.3.1.2: Scenario 1: Test parameters for 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	
OCNS_Ec/Ior	dB	-0.941	
$\hat{I}_{or}/I_{oc}$	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/N0	
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	

Table 8.2.3.1.3: Scenario 1: Test parameters for 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	
FDD_Qmin	dB	-14	
Qsearch_I	-	always	

Specific 2 quarter Message Contents

All messages indicated shall use the same content as described in the default message content in TS 05.08 [20] clause 9 for R99 and in TS 45.008 [30] clause 9 for Rel-4 and later releases, with the above exceptions.

8.2.3.1.4.2 Procedure

1) The SS activates cell 1 and 2 with T1 defined parameters in tables 8.2.3.1.4 and 8.2.3.1.5 and monitors cell 1 and 2 for random access requests from the UE.

2) The UE is switched on.

3) The SS and the UE shall perform a location registration procedure on cell 1.

4) After 45 s from the end of step 3, the parameters are changed as described for T2 in tables 8.2.3.1.4 and 8.2.3.1.5.

5) The SS waits for a location registration procedure from the UE. If the UE begins transmitting on cell 2 within 27.9 s then the number of successful tests is increased by one.

6) After 35 s from the beginning of T2, the parameters are changed as described for T1 in tables 8.2.3.1.4 and 8.2.3.1.5.

7) The SS and the UE shall perform a location registration procedure on cell 1.

8) After 45 s from the end of step 6, the parameters are changed as described for T2 in tables 8.2.3.1.4 and 8.2.3.1.5.

9) Repeat step 5) to 8) until the confidence level according to annex F.6.2 is achieved.

8.2.3.1.5 Test requirements

Table 8.2.3.1.4: Scenario 1: Cell re-selection UTRAN to GSM cell case (cell 1), test requirements

Parameter	Unit	Cell 1 (UTRA)	
		T1	T2
UTRA RF Channel Number		Channel 1	
CPICH_Ec/Ior	dB	-9.9	-10.1
PCCPCH_Ec/Ior	dB	-12	
SCH_Ec/Ior	dB	-12	
PICH_Ec/Ior	dB	-15	
OCNS_Ec/Ior	dB	-0.953	-0,928
$\hat{I}_{or}/I_{oc}$	dB	0.3	-5.3
I_{oc}	dBm/3.84 MHz	-70	
CPICH_Ec/Io (Note 1)	dB	-12.8	-16.5
CPICH_RSCP (Note1)	dBm	-79.6	-85.4
Propagation Condition		AWGN	
Cell_selection_and_reselection_quality_measure		CPICH E_c/N_0	
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	

Table 8.2.3.1.5: Scenario 1: Cell re-selection UTRAN to GSM cell case (cell 2), test requirements

Parameter	Unit	Cell 2 (GSM)	
		T1	T2
Absolute RF Channel Number		BCCH ARFCN of cell A as defined in the initial conditions in clause 26.6.5.1 of TS 51.010-1 [25] for the GSM band under test. BCCH ARFCN is 744 for FDD Band II and PCS1900 under test. BCCH ARFCN is 241 for FDD Band V, VI or XIX and GSM850 under test. BCCH ARFCN is 114 for FDD Band VIII and GSM900 under test.	
RXLEV	dBm	-91	-74
RXLEV_ACCESS_MIN	dBm	-104	
MS_TXPWR_MAX_CCH	dBm	33	
FDD_Qmin	dB	-14	
Qsearch_I	-	always	

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

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 %.

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.

8.2.3.2 Scenario 2: Only UTRA level changed

8.2.3.2.1 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 the RR Channel Request message for location update to the new cell.

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

8.2.3.2.2 Minimum requirement

The cell re-selection delay shall be less than 7.7 s + T_{BCCH}, where TBCCH is the maximum time allowed to read BCCH data from GSM cell, see TS 05.08 [20] for R99 and TS 45.008 [30] for Rel-4 and later releases.

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: Max (3* $T_{measureFDD}$, $T_{measureGSM}$+DRX cycle length) + T_{BCCH}, where:

$T_{measureFDD}$	See table 4.1 in TS 25.133 [2] clause 4.2.2.
$T_{measureGSM}$	See table 4.1 in TS 25.133 [2] clause 4.2.2.
DRX cycle length	1.28s see Table A.4.7.A in TS 25.133 [2] clause A.4.3.2.
T_{BCCH}	Maximum time allowed to read BCCH data from GSM cell, see TS 05.08 [20] for R99 and TS 45.008 [30] for Rel-4 and later releases. According to [20] and [30], the maximum time allowed to read the BCCH data, when being synchronized to a BCCH carrier, is 1.9 s.

This gives a total of 7.68 s + T_{BCCH}, allow 7.7 s + T_{BCCH} in the test case.

The normative reference for this requirement is TS 25.133 [2] clauses 4.2.2 and A.4.3.2.

8.2.3.2.3 Test purpose

To verify that the UE meets the minimum requirement.

8.2.3.2.4 Method of test

8.2.3.2.4.1 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.

This scenario implies the presence of 1 UTRAN serving cell, and 1 GSM cell to be re-selected, as given in tables 8.2.3.2.1 to 8.2.3.2.5. The UE is requested to monitor neighbouring cells on 1 UMTS carrier and 12 GSM cells. Cell 1 and cell 2 shall belong to different Location Areas.

Table 8.2.3.2.1: Scenario 2: 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
DRX cycle length		s	1.28	
Monitored cell list size			12 GSM neighbours including the ARFCN of cell 2	NOTE: See Annex I for cell information
T1		s	45	
T2		s	12	

Table 8.2.3.2.2: Scenario 2: Test parameters for 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	
OCNS_Ec/Ior	dB	-0.941	
$\hat{I}_{or}/I_{oc}$	dB	20	-9
I_{oc}	dBm/3.84 MHz	-81	
CPICH_Ec/Io	dB	-10.0	-19.5
CPICH_RSCP	dBm	-70	-100
Propagation Condition		AWGN	
Cell_selection_and_ reselection_quality_measure		CPICH E_c/N_0	
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	

Table 8.2.3.2.3: Scenario 2: Test parameters for 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	-80	-80
RXLEV_ACCESS_MIN	dBm	-104	
MS_TXPWR_MAX_CCH	dBm	33	
Qsearch_I	-	always	

Specific 2 quarter Message Contents

All messages indicated shall use the same content as described in the default message content in TS 05.08 [20] clause 9 for R99 and in TS 45.008 [30] clause 9 for Rel-4 and later releases, with the above exceptions.

8.2.3.2.4.2   Procedure

1) The SS activates cell 1 and 2 with T1 defined parameters in tables 8.2.3.2.4 and 8.2.3.2.5 and monitors cell 1 and 2 for random access requests from the UE.

2) The UE is switched on.

3) The SS and the UE shall perform a location registration procedure on cell 1.

4) After 45 s from the end of step 3, the parameters are changed as described for T2 in tables 8.2.3.2.4 and 8.2.3.2.5.

5) The SS waits for a location registration procedure from the UE. If the UE begins transmitting on cell 2 within 9.6 s then the number of successful tests is increased by one.

6) After 12 s from the beginning of T2, the parameters are changed as described for T1 in tables 8.2.3.2.4 and 8.2.3.2.5.

7) The SS and the UE shall perform a location registration procedure on cell 1.

8) After 45 s from the end of step 6, the parameters are changed as described for T2 in tables 8.2.3.2.4 and 8.2.3.2.5.

9) Repeat step 5) to 8) until the confidence level according to annex F.6.2 is achieved.

8.2.3.2.5 Test requirements

Table 8.2.3.2.4: Scenario 2: Cell re-selection UTRAN to GSM cell case (cell 1), test requirements

Parameter	Unit	Cell 1 (UTRA)	
		T1	T2
UTRA RF Channel Number		Channel 1	
CPICH_Ec/Ior	dB	-9.9	-10.1
PCCPCH_Ec/Ior	dB	-12	
SCH_Ec/Ior	dB	-12	
PICH_Ec/Ior	dB	-15	
OCNS_Ec/Ior	dB	-0.953	-0.941
$\hat{I}_{or}/I_{oc}$	dB	20.3	-9.3
I_{oc}	dBm/3.84 MHz	-81	
CPICH_Ec/Io (Note1)	dB	-9.9	-19.9
CPICH_RSCP (Note1)	dBm	-70.6	-100.4
Propagation Condition		AWGN	
Cell_selection_and_reselection_quality_measure		CPICH E_c/N_0	
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	

Table 8.2.3.2.5: Scenario 2: Cell re-selection UTRAN to GSM cell case (cell 2), test requirements

Parameter	Unit	Cell 2 (GSM)	
		T1	T2
Absolute RF Channel Number		BCCH ARFCN of cell A as defined in the initial conditions in clause 26.6.5.1 of TS 51.010-1 [25] for the GSM band under test. BCCH ARFCN is 744 for FDD Band II and PCS1900 under test. BCCH ARFCN is 241 for FDD Band V, VI or XIX and GSM850 under test. BCCH ARFCN is 114 for FDD Band VIII and GSM900 under test.	
RXLEV	dBm	-81	-79
RXLEV_ACCESS_MIN	dBm	-104	
MS_TXPWR_MAX_CCH	dBm	33	
Qsearch_I	-	always	

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

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 %.

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.

8.2.3.3 Scenario 3: HCS with only UTRA level changed

8.2.3.3.1 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 the RR Channel Request message for location update to the new cell.

The requirements and this test apply to Release 6 and later releases for the combined FDD and GSM UE.

8.2.3.3.2 Minimum requirement

The cell re-selection delay shall be less than $37.7 s + T_{BCCH}$, where TBCCH is the maximum time allowed to read BCCH data from GSM cell, see TS 45.008 [30].

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: $30 s + T_{measureGSM} + DRX$ cycle length $+ T_{BCCH}$, where:

$T_{measureFDD}$	See Table 4.1 in TS 25.133 [2] clause 4.2.2.
$T_{measureGSM}$	See Table 4.1 in TS 25.133 [2] clause 4.2.2.
DRX cycle length	1.28s see Table A.4.7.D in TS 25.133 [2] clause A.4.3.3.
T_{BCCH}	Maximum time allowed to read BCCH data from GSM cell, see TS 45.008 [30]. According to [20] and [30], the maximum time allowed to read the BCCH data, when being synchronized to a BCCH carrier, is 1.9 s.

This gives a total of $37.68 s + T_{BCCH}$, allow $37.7 s + T_{BCCH}$ in the test case.

The normative reference for this requirement is TS 25.133 [2] clauses 4.2.2 and A.4.3.3.

8.2.3.3.3 Test purpose

To verify that the UE meets the minimum requirement.

8.2.3.3.4 Method of test

8.2.3.3.4.1 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.

This scenario implies the presence of 1 UTRAN serving cell, and 1 GSM cell to be re-selected, as given in tables 8.2.3.3.1 to 8.2.3.3.5. The UE is requested to monitor neighbouring cells on 1 UMTS carrier and 12 GSM cells. Cell 1 and cell 2 shall belong to different Location Areas.

Table 8.2.3.3.1: Scenario 3: 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				Used
DRX cycle length		s	1.28	
Monitored cell list size			12 GSM neighbours including the ARFCN of cell 2	NOTE: See Annex I for cell information
T1		s	45	
T2		s	45	

Table 8.2.3.3.2: Scenario 3: Test parameters for 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	
OCNS_Ec/Ior	dB	-0.941	
$\hat{I}_{or}/I_{oc}$	dB	40	10
I_{oc}	dBm/3.84 MHz	-100	
CPICH_Ec/Io	dB	-10.0	-10.4
CPICH_RSCP	dBm	-70	-100
Propagation Condition		AWGN	
Cell_selection_and_ reselection_quality_measure		CPICH E_c/N_0	
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	0	
SHCS,RATm	dB	25	
S$_{limit,SearchRAT}$	dB	0	
Penalty_time	s	0 (default value)	
HCS_PRIO		0 (default value)	
Qhcs		0 (default value)	
T$_{Crmax}$	s	not used (default value)	

Table 8.2.3.3.3: Scenario 3: Test parameters for 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	-80	-80
RXLEV_ACCESS_MIN	dBm	-104	
MS_TXPWR_MAX_CCH	dBm	33	
Qsearch_I	-	always	

Specific 2 quarter Message Contents

All messages indicated shall use the same content as described in the default message content in TS45.008 [30] clause 9, with the above exceptions.

8.2.3.3.4.2 Procedure

1) The SS activates cell 1 and 2 with T1 defined parameters in tables 8.2.3.3.4 and 8.2.3.3.5 and monitors cell 1 and 2 for random access requests from the UE.

2) The UE is switched on.

3) The SS and the UE shall perform a location registration procedure on cell 1.

4) After 45 s from the end of step 3, the parameters are changed as described for T2 in tables 8.2.3.3.4 and 8.2.3.3.5.

5) The SS waits for a location registration procedure from the UE. If the UE begins transmitting on cell 2 within 39.6 s then the number of successful tests is increased by one.

6) After 45 s from the beginning of T2, the parameters are changed as described for T1 in tables 8.2.3.3.4 and 8.2.3.3.5.

7) The SS and the UE shall perform a location registration procedure on cell 1.

8) After 45 s from the end of step 6, the parameters are changed as described for T2 in tables 8.2.3.3.4 and 8.2.3.3.5.

9) Repeat step 5) to 8) 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 6.1.0b of 34.108 [3], with the above and the following exceptions:

SYSTEM INFORMATION BLOCK TYPE3

Information Element	Value
HCS Serving Cell Information	
-HCS PRIO	0
-Qhcs	0
-T_{CRmax}	not used

SYSTEM INFORMATION BLOCK TYPE11

Information Element	Value
HCS neighbouring Cell Information	
-HCS PRIO	0
-Qhcs	0
-HCS Cell RE-selection Information	
-Penalty_time	0

8.2.3.3.5 Test requirements

Table 8.2.3.3.4: Scenario 3: Cell re-selection UTRAN to GSM cell case (cell 1), test requirements

Parameter	Unit	Cell 1 (UTRA)	
		T1	T2
UTRA RF Channel Number		Channel 1	
CPICH_Ec/Ior	dB	-9.9	-10.1
PCCPCH_Ec/Ior	dB	-12	
SCH_Ec/Ior	dB	-12	
PICH_Ec/Ior	dB	-15	
OCNS_Ec/Ior	dB	-0.953	-0.928
$\hat{I}_{or}/I_{oc}$	dB	40.3	9.7
I_{oc}	dBm/3.84 MHz	-100	
CPICH_Ec/Io (Note1)	dB	-9.9	-10.5
CPICH_RSCP (Note1)	dBm	-69.6	-100.4
Propagation Condition		AWGN	
Cell_selection_and_reselection_quality_measure		CPICH E_c/N_0	
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	0	
SHCS,RATm	dB	25	
S$_{limit,SearchRAT}$	dB	0	
Penalty_time	s	0 (default value)	
HCS_PRIO		0 (default value)	
Qhcs		0 (default value)	
T$_{Crmax}$	s	not used (default value)	

Table 8.2.3.3.5: Scenario 3: Cell re-selection UTRAN to GSM cell case (cell 2), test requirements

Parameter	Unit	Cell 2 (GSM)	
		T1	T2
Absolute RF Channel Number		BCCH ARFCN of cell A as defined in the initial conditions in clause 26.6.5.1 of TS 51.010-1 [25] for the GSM band under test. BCCH ARFCN is 744 for FDD Band II and PCS1900 under test. BCCH ARFCN is 241 for FDD Band V, VI or XIX and GSM850 under test. BCCH ARFCN is 114 for FDD Band VIII and GSM900 under test.	
RXLEV	dBm	-81	-79
RXLEV_ACCESS_MIN	dBm	-104	
MS_TXPWR_MAX_CCH	dBm	33	
Qsearch_I	-	always	

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

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 %.

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.

8.2.4 FDD/TDD Cell Re-selection

8.2.4.1 Definition and applicability

The cell re-selection delay is defined as the time from the cell quality levels change to the moment when this change makes the UE reselect a better ranked cell, and starts to send the RRC CONNECTION REQUEST message to perform a Location Registration on the new cell.

This test is for the case where the UE camps on an FDD cell and reselects to a TDD cell.

The requirements and this test apply to UEs supporting both FDD and TDD.

8.2.4.1.1 3.84 Mcps TDD Option

The cell re-selection delay is defined as the time from the cell quality levels change to the moment when this change makes the UE reselect a better ranked cell, and starts to send the RRC CONNECTION REQUEST message to perform a Location Registration on the new cell.

This test is for the case where the UE camps on an FDD cell and reselects to a 3.84Mcps TDD cell.

The requirements and this test apply to UEs supporting both FDD and 3.84Mcps TDD.

8.2.4.1.2 1.28 Mcps TDD Option

The cell re-selection delay is defined as the time from the cell quality levels change to the moment when this change makes the UE reselect a better ranked cell, and starts to send SYNCH-UL sequence in the UpPTS for sending RRC CONNECTION REQUEST message to perform a Location Registration on the new cell.

This test is for the case where the UE camps on a FDD cell and reselects to a 1.28Mcps TDD cell.

The requirements and this test apply to UEs supporting both FDD and 1.28Mcps TDD.

8.2.4.2 Minimum requirement

The cell re-selection delay shall be less than 8 s with a DRX cycle length of 1,28 s. This shall be verified in more than 90 % of the cases with a confidence level of 95 %.

The normative reference for this requirement is TS 25.133 [2] clauses 4.2.2.4 and A.4.4.

8.2.4.3 Test purpose

To verify that the UE meets the minimum requirement for the case where the UE camps on an FDD cell and reselects to a TDD cell.

8.2.4.4 Method of test

8.2.4.4.1 Initial conditions

8.2.4.4.1.1 3.84 Mcps TDD Option

This scenario implies the presence of UTRA FDD and 1 3.84Mcps TDD cell as given in tables 8.2.4.1, 8.2.4.2 and 8.2.4.3. The maximum repetition period of the relevant system information blocks that need to be received by the UE to camp on a cell shall be 1280 ms.

Cell 1 and cell 2 shall belong to different Location Areas.

Table 8.2.4.1: General test parameters for FDD/TDD Cell Re-selection

Parameter		Unit	Value	Comment
Initial condition	Active cell		Cell1	FDD cell
	Neighbour cells		Cell2	TDD cell
Final condition	Active cell		Cell2	TDD cell
UE_TXPWR_MAX_RACH		dBm	21	The value shall be used for all cells in the test.
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	
T2		S	15	

Table 8.2.4.2: Cell 1 specific test parameters for FDD/TDD Cell Re-selection

Parameter	Unit	Cell 1	
		T1	T2
UTRA RF Channel Number		Channel 1	
CPICH_Ec/Ior	dB	-10	
P-CCPCH_Ec/Ior	dB	-12	
SCH_Ec/Ior	dB	-12	
PICH_Ec/Ior	dB	-15	
OCNS_Ec/Ior	dB	-0.941	
$\hat{I}_{or}/I_{oc}$	dB	9	3
I_{oc}	dBm / 3.84 MHz	-70	
CPICH_RSCP	dBm	-71	-77
Propagation Condition		AWGN	
Cell_selection_and_reselection_quality_measure		CPICH_Ec/No	
Qrxlevmin	dBm	-115	
Qoffset1$_{s,n}$	dB	0	
Qhyst1	dB	0	
Treselection	s	0	
Sintrasearch	dB	not sent	
Sintersearch	dB	not sent	

Table 8.2.4.3: Cell 2 specific test parameters for FDD/TDD Cell Re-selection

Parameter	Unit	Cell 2			
DL timeslot number		0		8	
		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_t_{offset}	dB	10			
OCNS_Ec/Ior	dB	-3.12			
$\hat{I}_{or}/I_{oc}$	dB	-4	2	-4	2
P-CCPCH RSCP	dBm	-77	-71	n.a.	n.a.
I_{oc}	dBm/ 3,84 MHz	-70			
Propagation Condition		AWGN			
Qrxlevmin	dBm	-103			
Qoffset2$_{s,n}$	dB	0			
Qhyst2	dB	0			
Treselection	s	0			
Sintrasearch	dB	not sent			
Sintersearch	dB	not sent			
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.					

8.2.4.4.1.2 1.28Mcps TDD Option

This scenario implies the presence of UTRA FDD and 1 1.28Mcps TDD cell as given in tables 8.2.4.1A, 8.2.4.2A and 8.2.4.3A. The maximum repetition period of the relevant system information blocks that need to be received by the UE to camp on a cell shall be 1280 ms.

Cell 1 and cell 2 shall belong to different Location Areas.

Table 8.2.4.1A: General test parameters for FDD/TDD cell re-selection

Parameter		Unit	Value	Comment
Initial condition	Active cell		Cell1	FDD cell
	Neighbour cells		Cell2	TDD cell
Final condition	Active cell		Cell2	TDD cell
UE_TXPWR_MAX_RACH		dBm	21	The value shall be used for all cells in the test.
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	
T2		s	15	

Table 8.2.4.2A: FDD/TDD cell re-selection

Parameter	Unit	Cell 1	
		T1	T2
UTRA RF Channel Number		Channel 1	
CPICH_Ec/Ior	dB	-10	
P-CCPCH_Ec/Ior	dB	-12	
SCH_Ec/Ior	dB	-12	
PICH_Ec/Ior	dB	-15	
OCNS_Ec/Ior	dB	-0.941	
$\hat{I}_{or}/I_{oc}$	dB	9	3

Parameter	Unit	Cell 1	
		T1	**T2**
I_{oc}	dBm / 3.84 MHz	-70	
CPICH_RSCP	dBm	-71	-77
Propagation Condition		AWGN	
Cell_selection_and_reselection_quality_measure		CPICH_Ec/No	
Qrxlevmin	dBm	-115	
Qoffset1$_{s,n}$	dB	0	
Qhyst1	dB	0	
Treselection	s	0	
Sintrasearch	dB	not sent	
Sintersearch	dB	not sent	

Table 8.2.4.3A: Cell 2 specific test parameters for FDD/TDD Cell Re-selection

Parameter	Unit	Cell 2			
DL timeslot number		**0**		**DwPTs**	
		T1	**T2**	**T1**	**T2**
UTRA RF Channel Number		Channel 2			
P-CCPCH_Ec/Ior	dB	-3			
DwPCH_Ec/Ior	dB			0	
OCNS_Ec/Ior	dB	-3			
$\hat{I}_{or}/I_{oc}$	dB	-4	2	-4	2
P-CCPCH RSCP	dBm	-77	-71		
I_{oc}	dBm/ 1.28 MHz	-70			
Propagation Condition		AWGN			
Qrxlevmin	dBm	-103			
Qoffset1$_{s,n}$	dB	0			
Qhyst1	dB	0			
Treselection	s	0			
Sintrasearch	dB	not sent			
Sintersearch	dB	not sent			

8.2.4.4.2 Procedures

a) The SS activates cell 1 and cell 2 with T1 defined parameters and monitors them for random access requests from the UE.

b) The UE is switched on.

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

d) After 15 s, the parameters are changed as described for T2.

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

f) After another 15 s, the parameters are changed as described for T1.

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

h) Repeat step d) to g) until the confidence level according to annex F.6.2 is achieved.

8.2.4.5 Test requirements

1) In step c), after the UE has responded on cell 1, it shall not respond on any other cell (cell selection).

2) In step e), the UE shall respond on cell 2 within 8 s in more than 90 % of the cases.

3) In step g), the UE shall respond on 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.

8.2.5 UTRAN to E-UTRA Cell Re-Selection

8.2.5.1 E-UTRA is of higher priority

Editor's note: This Test case is incomplete for frequencies above 3GHz

- The Test system uncertainties applicable above 3GHz are undefined

- The Test Tolerances and Test Requirements applicable above 3GHz are undefined

8.2.5.1.1 Definition and applicability

The cell re-selection delay is defined as the time from a change of cell levels, to the moment when the UE camps on a new cell, and starts to send preambles on the PRACH for sending the RRC CONNECTION REQUEST message to perform a Tracking Area Update procedure on the new cell.

The requirements and this test apply to **Release 8 and later releases UTRA FDD UE that support E-UTRA FDD.**

8.2.5.1.2 Minimum requirement

The cell re-selection delay shall be less than 81 s.

The rate of correct cell reselections observed during repeated tests shall be at least 90%.

NOTE: The cell re-selection delay can be expressed as: $T_{higher\_priority\_search} + T_{evaluateEUTRA} + T_{SI}$, where:

$T_{higher\_priority\_search}$ See section 4.2.2 of TS 25.133 [2]

$T_{evaluateEUTRA}$ See Table 4.2 in section 4.2.2.5a of TS 25.133 [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 80.48 s, within the allowance of 81 s for the test case.

The normative reference for this requirement is TS 25.133 [2] clauses 4.2.2 and A.4.5.1.

8.2.5.1.3 Test purpose

To verify that the UE meets the minimum requirement.

8.2.5.1.4 Method of test

8.2.5.1.4.1 Initial conditions

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

Frequencies to be tested: see table K.2 in Annex K.

The test scenario comprises two different cells, with cell 1 being the UTRA serving cell and cell 2 being the E-UTRA cell to be re-selected to. Test parameters are given in Table 8.2.5.1.1. The test consists of three successive time periods, with time duration of T1, T2, and T3 respectively. UTRA cell 1 is already identified by the UE prior to the start of the test. Cell 2 is of higher priority than cell 1.

Cell 1 and cell 2 shall belong to different tracking areas. Furthermore, UE has not registered with network for the tracking area containing cell 2.

Table 8.2.5.1.1: General test parameters for UTRAN to E-UTRA Cell Reselection

Parameter		Unit	Value	Comment
Initial condition	Active cell		Cell1	
T2 end condition	Active cell		Cell2	UE shall perform reselection to cell 2 during T2

Parameter		Unit	Value	Comment
	Neighbour cell		Cell1	
T3 end condition	Active cell		Cell1	UE shall perform reselection to cell 1 during T3
	Neighbour cell		Cell2	
DRX cycle length		s	1.28	
HCS				Not used
E-UTRA PRACH configuration			4	As specified in table 5.7.1-2 in TS 36.211
E-UTRA access barring information			Not sent	No additional delays in random access procedure
T1		s	>20	During T1, cell 2 shall be powered off, and during the off time its physical cell identity shall be changed. The intention is to ensure that cell 2 has not been detected by the UE prior to the start of period T2.
T2		s	85	T2 needs to be defined so that cell re-selection reaction time is taken into account.
T3		s	25	T3 needs to be defined so that cell re-selection reaction time is taken into account.

Table 8.2.5.1.2: Cell specific test parameters for UTRAN to E-UTRA cell reselection (cell 1)

Parameter	Unit	Cell 1 (UTRA)		
		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		
OCNS_Ec/Ior	dB	-0.941		
$\hat{I}_{or}/I_{oc}$	dB	13	13	13
I_{oc}	dBm/3,84 MHz	-70		
CPICH_Ec/Io	dB	-10.21	-10.21	-10.21
CPICH_RSCP	dBm	-67	-67	-67
Qqualmin	dB	-20		
Qrxlevmin	dBm	-115		
UE_TXPWR_MAX_RACH	dBm	21		
Treselection	s	0		
$S_{prioritysearch1}$	dB	42		
$S_{prioritysearch2}$	dB	0		
$S_{searchE-UTRA}$	dB	Not sent		
$Thresh_{x, high}$ (Note 1)	dB	48		
Propagation Condition		AWGN		
NOTE 1: This refers to the value of $Thresh_{x, high}$ which is included in UTRA system information, and is a threshold for the E-UTRA target cell.				

Table 8.2.5.1.3: Cell specific test parameters for UTRAN to E-UTRA cell reselection (cell 2)

Parameter	Unit	Cell 2		
		T1	T2	T3
E-UTRA RF Channel number		2		
$BW_{channel}$	MHz	10		
OCNG Patterns defined in TS 36.133 A.3.2.1.2 (OP.2 FDD) [24]		OP.2 FDD		
PBCH_RA	dB			
PBCH_RB	dB	0		
PSS_RA	dB			

Parameter	Unit	Cell 2		
		T1	**T2**	**T3**
SSS_RA	dB			
PCFICH_RB	dB			
PHICH_RA	dB			
PHICH_RB	dB			
PDCCH_RA	dB			
PDCCH_RB	dB			
PDSCH_RA	dB			
PDSCH_RB	dB			
OCNG_RA^Note 1	dB			
OCNG_RB^Note 1	dB			
Qrxlevmin	dBm	-140		
N_{oc}	dBm/15 kHz	-98		
$\hat{E}_s/N_{oc}$	dB	-infinity	12	-4
RSRP	dBm/15 KHz	-infinity	-86	-102
$\hat{E}_s/I_{ot}$	dB	-infinity	12	-4
Treselection_EUTRAN	s	0		
Snonintrasearch	dB	Not sent		
Thresh_serving, low	dB	44		
Thresh_x, low (Note 2)	dB	42		
Propagation Condition		AWGN		
NOTE 1: OCNG shall be used such that cell 2 is fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols.				
NOTE 2: This refers to the value of Thresh_x, low which is included in E-UTRA system information, and is a threshold for the UTRA target cell.				

8.2.5.1.4.2 Procedure

1) The SS activates cell 1 and 2 with T1 defined parameters in tables 8.2.5.1.4 and 8.2.5.1.5 and monitors cell 1 and 2 for random access requests from the UE.

2) The UE is switched on.

3) The SS and the UE shall perform a location / routing area update procedure on cell 1.

4) After T1 from the end of step 3, the parameters are changed as described for T2 in tables 8.2.5.1.4 and 8.2.5.1.5.

5) The SS waits for random access request information from the UE to perform cell re-selection procedure on cell 2.

6) If the UE camps on cell 2, and starts to send preambles on the PRACH for sending the RRC CONNECTION REQUEST message to perform a Tracking Area Update procedure or an Attach Procedure for Rel-10 and higher UEs on cell 2 within 81 s then the number of successful tests is increased by one. Otherwise, the number of failure tests is increased by one.

7) After the re-selection or when T2 expires, the parameters are changed as described for T3 as specified in tables 8.2.5.1.4 and 8.2.5.1.5.

8) The SS and the UE shall perform a location / routing area update procedure on cell 1.

9) After the re-selection or when T3 expires, the parameters are changed as described for T1 in tables 8.2.5.1.4 and 8.2.5.1.5. During T1, Cell 2 shall be powered off and the SS shall set Cell 2 physical cell identity = ((current cell 2 physical cell identity + 1) mod 14 + 2).

10) If UE failed to complete the location / routing area update on cell 1 in step 8) then switch OFF the UE and go to step 2).

11) When T1 expires, the parameters are changed as described for T2 in tables 8.2.5.1.4 and 8.2.5.1.5.

12) Repeat step 5) to 11) until the confidence level according to Table G.2.3-1 in TS36.521-3 [38] is achieved.

8.2.5.1.4.3   Message contents

All messages indicated above shall use the same content as described in the default message content in TS 36.508 [33] clause 4.4 and 4.6 with the following exceptions:

SystemInformationBlockType19: for inter-RAT UTRA FDD - EUTRAN FDD is of higher priority cell re-selection

Derivation Path: TS 36.508 [33] clause 4.4.4.1, Table 4.4.4.1-1 SystemInformationBlockType19			
Information Element	**Value/remark**	**Comment**	**Condition**
SysInfoType19 ::= SEQUENCE {			
utran-FDD-FrequencyList SEQUENCE (SIZE(1..maxNumFDDFreqs)) OF SEQUENCE {			
priority	3	E-UTRA is of high priority	
s-PrioritySearch1	42		
s-PrioritySearch2	0		
}			
eutra-FrequencyAndPriorityInfoList SEQUENCE (SIZE (1..maxNumEUTRAFreqs)) OF SEQUENCE {		*n* denotes the index of the entry	
Priority	5	E-UTRA is of high priority	
qRxLevMinEUTRA	-70 (-140 dBm)		
Thresh$_{x, high}$	48 dB		
}			
}			

PRACH-ConfCommonDEFAULT: (FDD) for Inter-RAT cell re-selection

Derivation Path: TS 36.508 [33] clause 4.6.3, Table 4.6.3-7 PRACH-ConfCommonDEFAULT			
Information Element	**Value/remark**	**Comment**	**Condition**
PRACH-ConfigInfo SEQUENCE {			
prach-ConfigIndex	4		
}			

8.2.5.1.5   Test requirements

Table 8.2.5.1.4: Cell specific test parameters for UTRAN to E-UTRA cell reselection (cell 1)

Parameter	Unit	Cell 1 (UTRA)		
		T1	T2	T3
UTRA RF Channel Number		Channel 1		
CPICH_Ec/Ior	dB	-10		
PCCP-infinity CH_Ec/Ior	dB	-12		
SCH_Ec/Ior	dB	-12		
PICH_Ec/Ior	dB	-15		
OCNS_Ec/Ior	dB	-0.941		
$\hat{I}_{or}/I_{oc}$	dB	13.80	13.80	13.80
I_{oc}	dBm/3,84 MHz	-70		
CPICH_Ec/Io	dB	-10. 18	-10. 18	-10. 18
CPICH_RSCP	dBm	-66.20	-66.20	-66.20
Qqualmin	dB	-20		
Qrxlevmin	dBm	-115		
UE_TXPWR_MAX_RACH	dBm	21		
Treselection	s	0		
S$_{prioritysearch1}$	dB	42		
S$_{prioritysearch2}$	dB	0		
S$_{searchE-UTRA}$	dB	Not sent		
Thresh$_{x, high}$ (Note 1)	dB	48		
Propagation Condition		AWGN		
NOTE 1: This refers to the value of Thresh$_{x, high}$ which is included in UTRA system information, and is a threshold for the E-UTRA target cell.				

Table 8.2.5.1.5: Cell specific test parameters for UTRAN to E-UTRA cell reselection (cell 2)

Parameter	Unit	Cell 2		
		T1	T2	T3
E-UTRA RF Channel number			2	
BW$_{channel}$	MHz		10	
OCNG Patterns defined in TS 36.133 A.3.2.1.2 (OP.2 FDD) [24]			OP.2 FDD	
PBCH_RA	dB			
PBCH_RB	dB			
PSS_RA	dB			
SSS_RA	dB			
PCFICH_RB	dB			
PHICH_RA	dB			
PHICH_RB	dB		0	
PDCCH_RA	dB			
PDCCH_RB	dB			
PDSCH_RA	dB			
PDSCH_RB	dB			
OCNG_RA$^{Note 1}$	dB			
OCNG_RB$^{Note 1}$	dB			
Qrxlevmin	dBm		-140	
N_{oc}	dBm/15 kHz		-99.10	
$\hat{E}_s/N_{oc}$	dB	-infinity	13.90	-3.70
RSRP $^{Note 3}$	dBm/15 KHz		-85.20	-102.80
$\hat{E}_s/I_{ot}$	dB	-infinity	13.90	-3.70
Treselection$_{EUTRAN}$	s		0	
Snonintrasearch	dB		Not sent	
Thresh$_{serving, low}$	dB		44	
Thresh$_{x, low}$ (Note 2)	dB		42	
Propagation Condition			AWGN	
NOTE 1: OCNG shall be used such that cell 2 is fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols. NOTE 2: This refers to the value of Thresh$_{x, low}$ which is included in E-UTRA system information, and is a threshold for the UTRA target cell. NOTE 3: RSRP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.				

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 %.

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.

8.2.5.2 E-UTRA is of lower priority

Editor's note: This Test case is incomplete for frequencies above 3GHz

- The Test system uncertainties applicable above 3GHz are undefined

- The Test Tolerances and Test Requirements applicable above 3GHz are undefined

8.2.5.2.1 Definition and applicability

The cell re-selection delay is defined as the time from a change of cell levels, to the moment when the UE camps on a new cell, and starts to send preambles on the PRACH for sending the RRC CONNECTION REQUEST message to perform a Tracking Area Update procedure on the new cell.

The requirements and this test apply to Release 8 and later releases UTRA FDD UE that support E-UTRA FDD.

8.2.5.2.2 Minimum requirement

The cell re-selection delay shall be less than 21 s.

The rate of correct cell reselections observed during repeated tests shall be at least 90%.

NOTE: The cell re-selection delay can be expressed as: $T_{evaluateEUTRA} + T_{SI-EUTRA}$, where:

$T_{evaluateEUTRA}$ See Table 4.2 in section 4.2.2 of TS 25.133 [2].

$T_{SI-EUTRA}$ 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 20.48 s, within the allowance of 21 s in the test case.

The normative reference for this requirement is TS 25.133 [2] clauses 4.2.2 and A.4.5.2.

8.2.5.2.3 Test purpose

To verify that the UE meets the minimum requirement.

8.2.5.2.4 Method of test

8.2.5.2.4.1 Initial conditions

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

Frequencies to be tested: see table K.2 in Annex K.

This scenario implies the presence of 1 UTRAN serving cell, and 1 E-UTRAN cell to be re-selected. The UE is requested to monitor neighbouring cells on 1 UTRAN carrier and 1 E-UTRAN carrier. Test parameters are given in Table 8.2.5.2.1 to 8.2.5.2.5. The test consists of two successive time periods, with time duration of T1 and T2, respectively. Both UTRA cell 1 and E-UTRA cell 2 are already identified by the UE prior to the start of the test. Cell 2 is of lower priority than cell 1. Cell 1 and cell 2 shall belong to different tracking areas.

Table 8.2.5.2.1: General test parameters for UTRAN to E-UTRAN Cell Re-selection

Parameter		Unit	Value	Comment
Initial condition	Active cell		Cell 1	UTRAN cell
	Neighbour cell		Cell 2	E-UTRAN cell
Final condition	Active cell		Cell 2	UE shall perform reselection to cell 2 during T2
DRX cycle length		s	1.28	
HCS				Not used
E-UTRA PRACH configuration			4	As specified in table 5.7.1-2 in TS 36.211
E-UTRA access barring information			Not sent	No additional delays in random access procedure
T1		s	85	T1 need to be defined so that cell re-selection reaction time is taken into account.
T2		s	25	T2 need to be defined so that cell re-selection reaction time is taken into account.

Table 8.2.5.2.2: Cell specific test parameters for UTRAN to E-UTRA cell reselection (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	
OCNS_Ec/Ior	dB	-0.941	

Parameter	Unit	Cell 1 (UTRA)	
		T1	T2
$\hat{I}_{or}/I_{oc}$	dB	11	-5
I_{oc}	dBm/3,84 MHz	-70	
CPICH_Ec/Io	dB	-10.33	-16.19
CPICH_RSCP	dBm	-69	-85
Propagation Condition		AWGN	
Cell_selection_and_ reselection_quality_measure		CPICH E_c/N_0	
Qqualmin	dB	-20	
Qrxlevmin	dBm	-115	
UE_TXPWR_MAX_RACH	dBm	21	
Qhyst1	dB	0	
Treselection	s	0	
Ssearch$_{RAT}$	dB	not sent	
S$_{priority search 1}$	dB	62	
S$_{priority search 2}$	dB	0	
Thresh$_{serving, low}$	dB	36	
Thresh$_{x, low}$ (Note 1)	dB	50	
NOTE 1: This refers to the value of Thresh$_{x, low}$ which is included in UTRA system information, and is a threshold for the E-UTRA target cell			

Table 8.2.5.2.3: Cell specific test parameters for UTRAN to E-UTRA cell reselection (cell 2)

Parameter	Unit	Cell 2 (E-UTRA)	
		T1	T2
E-UTRA RF Channel number		1	
BW$_{channel}$	MHz	10	
OCNG Patterns defined in A.3.2.1.1 (OP.2 FDD)		OP.2 FDD	
PBCH_RA	dB	0	
PBCH_RB	dB		
PSS_RA	dB		
SSS_RA	dB		
PCFICH_RB	dB		
PHICH_RA	dB		
PHICH_RB	dB		
PDCCH_RA	dB		
PDCCH_RB	dB		
PDSCH_RA	dB		
PDSCH_RB	dB		
OCNG_RA$^{Note 1}$	dB		
OCNG_RB$^{Note 1}$	dB		
Qrxlevmin	dBm	-140	
N_{oc}	dBm/15 kHz	-98	
RSRP	dBm/15 KHz	-84	-84
$\hat{E}_s/I_{ot}$	dB	14	14
Treselection$_{EUTRAN}$	s	0	
Snonintrasearch	dB	50	
Thresh$_{x, high}$	dB	40	
Propagation Condition		AWGN	
NOTE 1: OCNG shall be used such that cell 2 is fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols.			
NOTE 2: This refers to the value of Thresh$_{x, high}$ which is included in E-UTRA system information, and is a threshold for the UTRA target cell			

8.2.5.2.4.2 Procedure

1) The SS activates cell 1 with T1 parameters defined in tables 8.2.5.2.4 and monitors cell 1 for random access requests from the UE.

2) The UE is switched on.

3) The SS and the UE shall perform a location / routing area update procedure on cell 1 and apply the cell 2 parameters with T1 defined in table 8.2.5.2.5. T1 starts.

4) After the re-selection or when T1 expires, the parameters are changed as described for T2 in tables 8.2.5.2.4 and 8.2.5.2.5.

5) The SS waits for random access request information from the UE to perform cell re-selection procedure on cell 2.

6) If the UE camps on cell 2 and starts to send preambles on the PRACH for sending the RRC CONNECTION REQUEST message to perform a Tracking Area Update procedure or an Attach Procedure for Rel-10 and higher UEs on cell 2 within 21 s, then the number of successful tests is increased by one. Otherwise, the number of failure tests is increased by one.

7) After the re-selection or when T2 expires, the parameters are changed as defined for T1 in tables 8.2.5.2.4 and 8.2.5.2.5.

8) The SS and the UE shall perform a location / routing area update procedure on cell 1.

9) If UE failed to complete the location / routing area update on cell 1 in step 8) then switch OFF the UE and go to step 1).

10) Repeat step 4) to 9) until the confidence level according to Table G.2.3-1 in TS 36.521-3 [38] is achieved.

8.2.5.2.4.3 Message contents

All messages indicated above shall use the same content as described in the default message content in TS 36.508 [33] clause 4.4 and 4.6 with the following exceptions:

SystemInformationBlockType19: for inter-RAT UTRA FDD - EUTRAN FDD is of lower priority cell re-selection

Derivation Path: TS 36.508 [33] clause 4.4.4.1, Table 4.4.4.1-1 SystemInformationBlockType19

Information Element	Value/remark	Comment	Condition
SysInfoType19 ::= SEQUENCE {			
utra-PriorityInfoList SEQUENCE {			
utra-ServingCell SEQUENCE {			
priority	5	E-UTRA is of lower priority	
s-PrioritySearch1	62		
s-PrioritySearch2	0		
threshServingLow	36 dB		
}			
eutra-FrequencyAndPriorityInfoList SEQUENCE (SIZE (1..maxNumEUTRAFreqs)) OF SEQUENCE			
priority	3	E-UTRA is of lower priority	
qRxLevMinEUTRA	-70 (-140 dBm)		
Thresh$_{x,\,low}$	50 dB		
}			
}			

PRACH-ConfCommonDEFAULT: (FDD) for Inter-RAT cell re-selection

Derivation Path: TS 36.508 [33] clause 4.6.3, Table 4.6.3-7 PRACH-ConfCommonDEFAULT

Information Element	Value/remark	Comment	Condition
PRACH-ConfigInfo SEQUENCE {			
prach-ConfigIndex	4		
}			

8.2.5.2.5 Test requirements

Table 8.2.5.2.4: Cell specific test parameters for UTRAN to E-UTRA cell reselection (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	
OCNS_Ec/Ior	dB	-0.941	
$\hat{I}_{or}/I_{oc}$	dB	11.90	-5.70
I_{oc}	dBm/3,84 MHz	-70.10	
CPICH_Ec/Io	dB	-10.27	-16.74
CPICH_RSCP	dBm	-68.20	-85.80
Propagation Condition		AWGN	
Cell_selection_and_ reselection_quality_measure		CPICH E_c/N_0	
Qqualmin	dB	-20	
Qrxlevmin	dBm	-115	
UE_TXPWR_MAX_RACH	dBm	21	
Qhyst1	dB	0	
$S_{prioritysearch1}$	dB	62	
$S_{prioritysearch2}$	dB	0	
Treselection	s	0	
$Ssearch_{RAT}$	dB	not sent	
$Thresh_{serving, low}$	dB	37	
$Thresh_{x, low}$ (Note 1)	dB	50	
NOTE 1: This refers to the value of $Thresh_{x, low}$ which is included in UTRA system information, and is a threshold for the E-UTRA target cell			

Table 8.2.5.2.5: Cell specific test parameters for UTRAN to E-UTRA cell reselection (cell 2)

Parameter	Unit	Cell 2 (E-UTRA)	
		T1	T2
E-UTRA RF Channel number		1	
$BW_{channel}$	MHz	10	
OCNG Patterns defined in A.3.2.1.1 (OP.2 FDD)		OP.2 FDD	
PBCH_RA	dB		
PBCH_RB	dB		
PSS_RA	dB		
SSS_RA	dB		
PCFICH_RB	dB		
PHICH_RA	dB		
PHICH_RB	dB	0	
PDCCH_RA	dB		
PDCCH_RB	dB		
PDSCH_RA	dB		
PDSCH_RB	dB		
OCNG_RA^Note 1	dB		
OCNG_RB^Note 1	dB		
Qrxlevmin	dBm	-140	
N_{oc}	dBm/15 kHz	-98	
RSRP	dBm/15 KHz	-83.20	-83.20
$\hat{E}_s/I_{ot}$	dB	14.80	14.80
$Treselection_{EUTRAN}$	s	0	
Snonintrasearch	dB	50	
$Thresh_{x, high}$	dB	40	
Propagation Condition		AWGN	

NOTE 1:	OCNG shall be used such that cell 2 is fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols.
NOTE 2:	This refers to the value of $\text{Thresh}_{x, high}$ which is included in E-UTRA system information, and is a threshold for the UTRA target cell

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 %.

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.

8.2.5.3   RSRQ based reselection when E-UTRA FDD is of higher priority

Editor's notes: The following items are missing or incomplete:

- Message contents are undefined.

- The Test system uncertainties are undefined

8.2.5.3.1   Definition and applicability

The cell re-selection delay is defined as the time from a change of cell levels, to the moment when the UE camps on a new cell, and starts to send preambles on the PRACH for sending the RRC CONNECTION REQUEST message to perform a Tracking Area Update procedure on the new cell.

The requirements and this test apply to Release 11 and later releases UTRA FDD UE that support E-UTRA FDD.

8.2.5.3.2   Minimum requirement

The cell re-selection delay shall be less than 21 s. The rate of correct cell reselections observed during repeated tests shall be at least 90%.

NOTE: The cell re-selection delay can be expressed as: $T_{higher\_priority\_search} + T_{evaluateEUTRA} + T_{SI}$, where:

$T_{higher\_priority\_search}$ See section 4.2.2 of TS 25.133 [2], where, this value should be 0s, since the cell2 shall be already indentified at the beginning of T3

$T_{evaluateEUTRA}$ See Table 4.2 in section 4.2.2.5a of TS 25.133 [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 20.48 s, allow 21 s in the test case.

The normative reference for this requirement is TS 25.133 [2] clauses 4.2.2 and A.4.5.3.

8.2.5.3.3   Test purpose

To verify that the UE meets the minimum requirement.

8.2.5.3.4   Method of test

8.2.5.3.4.1   Initial conditions

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

Frequencies to be tested: see table K.2 in Annex K.

The test scenario comprises two different cells, with cell 1 being the UTRA serving cell, cell 2 being the E-UTRA cell to be re-selected to. Test parameters are given in Tables 8.2.5.3.1, 8.2.5.3.2, 8.2.5.3.3. The test consists of four successive time periods, with time duration of T1, T2, T3 and T4, respectively. UTRA cell 1 is already identified by the UE prior to the start of the test. Cell 2 is of higher priority than cell 1.

Cell 1 and cell 2 shall belong to different tracking areas. Furthermore, UE has not registered with network for the tracking area containing cell 2.

Table 8.2.5.3.1: General test parameters for UTRAN to E-UTRA Cell Reselection

Parameter		Unit	Value	Comment
Initial condition	Active cell		Cell1	
T2 end condition	Active cell		Cell1	UE shall not perform reselection to cell 2 during T2
	Neighbour cell		Cell2	
T3 end condition	Active cell		Cell2	UE shall perform reselection to cell 2 during T3
	Neighbour cell		Cell1	
T4 end condition	Active cell		Cell1	UE shall perform reselection to cell 1 during T4
	Neighbour cell		Cell2	
DRX cycle length		s	1.28	
HCS				Not used
E-UTRA PRACH configuration			4	As specified in table 5.7.1-2 in TS 36.211
E-UTRA access barring information			Not sent	No additional delays in random access procedure
T1		s	>20	During T1, cell 2 shall be powered off, and during the off time its physical cell identity shall be changed. The intention is to ensure that cell 2 has not been detected by the UE prior to the start of period T2.
T2		s	85	T2 needs to be defined, in order to ensure UE do not conduct cell reselect to Cell2
T3		s	25	T3 needs to be defined so that cell re-selection reaction time is taken into account.
T4		s	25	T4 needs to be defined, in order to ensure UE conducting cell reselection to Cell 1 by end of the T4.

Table 8.2.5.3.2: Cell specific test parameters for UTRAN to E-UTRA cell reselection (cell 1)

Parameter	Unit	Cell 1 (UTRA)			
		T1	T2	T3	T4
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			
OCNS_Ec/Ior	dB	-0.941			
$\hat{I}_{or}/I_{oc}$	dB	13	13	13	13
I_{oc}	dBm/3,84 MHz	-70			
CPICH_Ec/Io	dB	-10.21	-10.21	-10.21	-10.21
CPICH_RSCP	dBm	-67	-67	-67	-67
Qqualmin	dB	-20			
Qrxlevmin	dBm	-115			
UE_TXPWR_MAX_RACH	dBm	21			
Treselection	s	0			
$S_{prioritysearch1}$	dB	42			
$S_{prioritysearch2}$	dB	0			
$S_{searchE-UTRA}$	dB	Not sent			
Thresh$_{x, highQ}$ (Note 1)	dB	5			
Propagation Condition		AWGN			
Note 1: This refers to the value of Thresh$_{x, highQ \ which}$ is included in UTRA system information, and is a threshold for the E-UTRA target cell.					

Table 8.2.5.3.3: Cell specific test parameters for UTRAN to E-UTRA cell reselection (cell 2)

Parameter	Unit	Cell 2			
		T1	**T2**	**T3**	**T4**
E-UTRA RF Channel Number		2			
BW_channel	MHz	10			
OCNG Patterns defined in TS 36.133 A.3.2.1.2 (OP.2 FDD) [24]		OP.2 FDD			
PBCH_RA	dB	0			
PBCH_RB	dB				
PSS_RA	dB				
SSS_RA	dB				
PCFICH_RB	dB				
PHICH_RA	dB				
PHICH_RB	dB				
PDCCH_RA	dB				
PDCCH_RB	dB				
PDSCH_RA	dB				
PDSCH_RB	dB				
OCNG_RA[Note 1]	dB				
OCNG_RB[Note 1]	dB				
Qrxlevmin	dBm	-140			
Qqualmin	dB	-20			
N_{oc}	dBm/15 kHz	-98			
RSRP	dBm/15 kHz	-inf	[-105.5]	[-84.91]	[-105.5]
RSRQ	dB	-inf	[-19]	[-11]	[-19]
$\hat{E}_s/I_{ot}$	dB	-inf	[-7.50]	[13.09]	[-7.50]
$\hat{E}_s/N_{oc}$	dB	-inf	[-7.50]	[13.09]	[-7.50]
Treselection	S	0			
Snonintrasearch	dB	Not sent			
Thresh_serving, lowQ		5			
Thresh_x, lowQ (Note 2)		5			
Propagation Condition		AWGN			
Note 1: OCNG shall be used such that cell 2 is fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols.					
Note 2: This refers to the value of Thresh_x, lowQ which is included in E-UTRA system information, and is a threshold for the UTRA target cell.					

8.2.5.3.4.2   Procedure

1) The SS activates cell 1 with T1 parameters defined in tables 8.2.5.3.4 and monitors cell 1 for random access requests from the UE.

2) The UE is switched on.

3) The SS and the UE shall perform a location / routing area update procedure on cell 1. T1 starts.

4) After T1 from the end of step 3, the parameters are changed as described for T2 in tables 8.2.5.3.4 and 8.2.5.3.5.

5) The SS waits for no uplink from the UE during T2. If the UE camps on cell 2 and starts to send preambles on the PRACH for sending the RRC CONNECTION REQUEST message to perform a Tracking Area Update procedure or an Attach Procedure for Rel-10 and higher UEs on cell 2 during T2, then the number of failure tests is increased by one.

6) When T2 expires, the parameters are changed as described for T3 in tables 8.2.5.3.4 and 8.2.5.3.5.

7) The SS waits for random access request information from the UE to perform cell re-selection procedure on cell 2.

8) If the UE camps on cell 2, and starts to send preambles on the PRACH for sending the RRC CONNECTION REQUEST message to perform a Tracking Area Update procedure or an Attach Procedure for Rel-10 and higher UEs on cell 2 within 21 s then the number of successful tests is increased by one. Otherwise, the number of failure tests is increased by one.

9) After the re-selection or when T3 expires, the parameters are changed as defined for T4 in tables 8.2.5.3.4 and 8.2.5.3.5.

10) The SS and the UE shall perform a location / routing area update procedure on cell 1.

11) If UE failed to complete the location / routing area update on cell 1 in step 10) then switch OFF the UE and go to step 1).

12) Repeat step 5) to 11) until the confidence level according to Table G.2.3-1 in TS 36.521-3 [38] is achieved.

8.2.5.3.4.3 Message contents

All messages indicated above shall use the same content as described in the default message content in TS 36.508 [33] clause 4.4 and 4.6 with the following exceptions:

FFS

8.2.5.3.5 Test requirements

Table 8.2.5.3.4: Cell specific test parameters for UTRAN to E-UTRA cell reselection (cell 1)

Parameter	Unit	Cell 1 (UTRA)			
		T1	T2	T3	T4
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			
OCNS_Ec/Ior	dB	-0.941			
$\hat{I}_{or}/I_{oc}$	dB	13+TT	13+TT	13+TT	13+TT
I_{oc}	dBm/3,84 MHz	-70+TT			
CPICH_Ec/Io	dB	-10.21+TT	-10.21+TT	-10.21+TT	-10.21+TT
CPICH_RSCP	dBm	-67+TT	-67+TT	-67+TT	-67+TT
Qqualmin	dB	-20			
Qrxlevmin	dBm	-115			
UE_TXPWR_MAX_RACH	dBm	21			
Treselection	s	0			
$S_{prioritysearch1}$	dB	42			
$S_{prioritysearch2}$	dB	0			
$S_{searchE-UTRA}$	dB	Not sent			
Thresh$_{x, highQ}$ (Note 1)	dB	5			
Propagation Condition		AWGN			
Note 1: This refers to the value of Thresh$_{x, highQ \ which}$ is included in UTRA system information, and is a threshold for the E-UTRA target cell.					

Table 8.2.5.3.5: Cell specific test parameters for UTRAN to E-UTRA cell reselection (cell 2)

Parameter	Unit	Cell 2			
		T1	T2	T3	T4
E-UTRA RF Channel Number		2			
BW$_{channel}$	MHz	10			
OCNG Patterns defined in TS 36.133 A.3.2.1.2 (OP.2 FDD) [24]		OP.2 FDD			
PBCH_RA	dB	0			
PBCH_RB	dB				
PSS_RA	dB				
SSS_RA	dB				
PCFICH_RB	dB				
PHICH_RA	dB				
PHICH_RB	dB				
PDCCH_RA	dB				
PDCCH_RB	dB				
PDSCH_RA	dB				
PDSCH_RB	dB				
OCNG_RA$^{Note 1}$	dB				
OCNG_RB$^{Note 1}$	dB				
Qrxlevmin	dBm	-140			
Qqualmin	dB	-20			
N_{oc}	dBm/15 kHz	-98			
RSRP	dBm/15 kHz	-inf	[-105.5+TT]	[-84.91+TT]	[-105.5+TT]
RSRQ	dB	-inf	[-19+TT]	[-11+TT]	[-19+TT]
$\hat{E}_s/I_{ot}$	dB	-inf	[-7.50+TT]	[13.09+TT]	[-7.50+TT]
$\hat{E}_s/N_{oc}$	dB	-inf	[-7.50+TT]	[13.09+TT]	[-7.50+TT]
Treselection	S	0			
Snonintrasearch	dB	Not sent			
Thresh$_{serving, lowQ}$		5			
Thresh$_{x, lowQ}$ (Note 2)		5			
Propagation Condition		AWGN			
Note 1: OCNG shall be used such that cell 2 is fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols. Note 2: This refers to the value of Thresh$_{x, lowQ which}$ is included in E-UTRA system information, and is a threshold for the UTRA target cell.					

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 %.

   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 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 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 it 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.

Table 8.3.1.1.1: General test parameters for Soft handover

Parameter		Unit	Value	Comment
DCH parameters			DL Reference Measurement Channel 12.2 kbps and UL Auxiliary Measurement Channel 12.2 kbps	DL Measurement Channel as specified in clause C.3.1 UL Auxiliary Measurement Channel as specified in clause C.6.3
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	
T0	s	10	
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, where KC=1 and OC=0.
T5	ms	20	
T6	s	2	

Table 8.3.1.1.1A: Cell specific test parameters for Soft handover (T0)

Parameter	Unit	Cell 1	Cell 2
		T0	T0
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	N/A
OCNS_Ec/Ior	dB	Note2	-0.94
$\hat{I}_{or}/I_{oc}$	dB	0	-Inf
I_{oc}	dBm/3.84 MHz	-70	
CPICH_Ec/Io	dB	-13	-Inf
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 8.3.1.1.2: 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		-0.94	-0.94	-0.94	-0.94	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	
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 T0 in table 8.3.1.1.2A.

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 and test loop mode 2 is used. See TS 34.109 [4] for details regarding loopback test. 10 seconds after call setup is completed, the power settings will be set according to T1.

4) SS shall transmit a MEASUREMENT CONTROL message.

5) 5 seconds after power settings have been changed to T1, 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 start of T4 is defined as the end of the last TTI containing the ACTIVE SET UPDATE message.

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) If the UE sends a Cell Update message with the cell update cause as radio link failure, the SS shall re-establish the radio link on the first cell and shall continue the test. The BLER values measured for this loop will be discarded while maintaining the BLER values measured for the previous loops,

NOTE: The Radio link could be setup either by switching off the UE and restarting the test or by re-establishing the Radio Link directly using additional signalling procedures. However this decision is left up to the SS manufacturer

12) After step10 has completed, the DPCH from cell 1 shall be switched on. The SS shall send ACTIVE SET UPDATE message with activation time "now" to remove cell 2 from the active set. The RF parameters will be set according to T1.

13) BLER is measured during concatenated time periods T6.Repeat step 4-12 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:

Contents of RRC CONNECTION SETUP message: UM (step 3):

Information Element	Value/remark	Version
Added or Reconfigured DL TrCH information list	1	
- Added or Reconfigured DL TrCH information		
- Downlink transport channel type	DCH	
- DL Transport channel identity	10	
- CHOICE DL parameters	Same as UL	
- Uplink transport channel type	DCH	
- UL TrCH Identity	5	
- DCH quality target	Not Present	

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	
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
-RRC message sequence number	SS provides the value of this IE, from its internal counter.
Measurement Information elements	

Information Element/Group name	Value/Remark
-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 Measurement type	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)	
-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	FALSE
-Reporting quantities for monitored set cells (10.3.7.5)	
-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	FALSE
-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
-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	
- CHOICE reported cell	Report cell within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	3
-Intra-frequency event identity	Event 1B
-Triggering condition 1	Active 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
-Amount of reporting	Not Present
-Reporting interval	Not Present
-Reporting cell status	
- CHOICE reported cell	Report cell within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	3

Information Element/Group name	Value/Remark
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	Version
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		
-message authentication code		SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.	
-RRC message sequence number		SS provides the value of this IE, from its internal counter.	
-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 10.3.6.68	Radio link addition information required for each RL to add	
-Primary CPICH info	Primary CPICH info 10.3.6.60	Same as defined in cell2	
-D7ownlink DPCH info for each RL	Downlink DPCH info for each RL 10.3.6.21		
-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 -	96	

Information Element/Group name	Type and reference	Value/Remark	Version
-Scrambling code change	1) 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	R99 and Rel-4 only
-Closed loop timing adjustment mode	Integer(1, 2)	Not Present	
-TFCI combining indicator	TFCI combining indicator 10.3.6.81	FALSE	R99 and Rel-4 only
-SCCPCH Information for FACH	SCCPCH Information for FACH 10.3.6.70	Not Present	
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	R99 and Rel-4 only

ACTIVESET UPDATE message (Radio link removal information)

Information Element/Group name	Value/Remark	Version
Message Type (10.2.17)		
UE information elements		
- RRC transaction identifier	0	
- Integrity check info		
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.	
-RRC message sequence number	SS provides the value of this IE, from its internal counter.	
- Activation time	"now".	
- New U-RNTI	Not Present	
CN information elements		
- CN Information info	Not Present	
Phy CH information elements Uplink radio resources		
- Maximum allowed UL TX power	33 dBm	
Downlink radio resources		
- Radio link addition information	Not Present	
- Radio link removal information	1	
- Primary CPICH info		
- Primary scrambling code	Same as defined in cell2	
- TX Diversity Mode	Not Present	
- SSDT information	Not Present	R99 and Rel-4 only

8.3.1.5   Test requirements

Table 8.3.1.1.2A: Cell specific test parameters for Soft handover (T0)

Parameter	Unit	Cell 1	Cell 2
		T0	T0
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	N/A
OCNS_Ec/Ior	dB	Note2	-1.13
$\hat{I}_{or}/I_{oc}$	dB	0	-Inf

I_{oc}	dBm/3.84 MHz	-70		
CPICH_Ec/Io	dB	-12.3		-Inf
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 8.3.1.1.3: 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	
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	
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.

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 DPCCH.

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 [2] 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 $T_{interrupt1}$

For Release 99, Release 4 and Release 5 $T_{interrupt1}$ is the following equation:

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

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.

For Release 6 and later releases $T_{interrupt1}$ is the following equation:

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

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.

T_{sync} is the time required for measuring the downlink DPCCH channel as stated in TS 25.214 section 4.3.1.2. In case higher layers indicate the usage of a post-verification period $T_{sync} = 0$ ms. Otherwise $T_{sync} = 40$ ms.

In the interruption requirement $T_{interrupt1}$ a cell is known if it 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 during period T2, after the UE has reported event 1A. The start of T3 is defined as the end of the last TTI containing the Physical Channel reconfiguration message.

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	0.001	
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	1	

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	
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 Îor values, although not explicitly defined in 25.133 [2] 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. Data shall be sent on the DTCH throughout the call.

4) SS shall transmit a MEASUREMENT CONTROL message on cell 1.

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". The start of T3 is defined as the end of the last TTI containing the physical channel reconfiguration message.

8) The SS shall switch the power settings from T2 to T3 in table 8.3.2.1.3.

9) If the UE transmits the UL DPCCH to cell 2 less than 190 ms from the beginning of time period T3 then the number of successful tests is increased by one. The UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the UL DCCH of cell 2.

10) After 1 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	
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
-RRC message sequence number	SS provides the value of this IE, from its internal counter.
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 Measurement type	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)	
-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	FALSE
-Reporting quantities for monitored set cells (10.3.7.5)	
-Cell synchronisation information reporting indicator	TRUE (Note 1)
-Cell Identity reporting indicator	TRUE
-CHOICE mode	FDD
-CPICH Ec/N0 reporting indicator	TRUE

Information Element/Group name	Value/Remark
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	FALSE
-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
-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 (10.3.7.61)	
-CHOICE reported cell	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
-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
-Amount of reporting	Not Present
-Reporting interval	Not Present
-Reporting cell status (10.3.7.61)	
-CHOICE reported cell	Report cells within active set and/or monitored set cells on used frequency
-Maximum number of reported cells	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	Version
Message Type		
UE Information Elements -RRC transaction identifier	0	
-Integrity check info		
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.	
-RRC message sequence number	SS provides the value of this IE, from its internal counter.	
-Integrity protection mode info	Not Present	
-Ciphering mode info	Not Present	
-Activation time	"now"	

Information Element	Value/Remark	Version
-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 channel requirement	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	-40 (-80dB)	
- 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 *mode*	FDD	
-Downlink PDSCH information	Not Present	R99 and Rel-4 only
-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 $P_{Pilot-DPDCH}$	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	R99 and Rel-4 only
-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	150	
-PDSCH with SHO DCH info (10.3.6.47)	Not Present	R99 and Rel-4 only
-PDSCH code mapping (10.3.6.43)	Not Present	R99 and Rel-4

Information Element	Value/Remark	Version
		only
-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	R99 and Rel-4 only
- 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
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
- CHOICE mode	FDD
- Primary CPICH info	Checked that this IE is present
- Primary scrambling code	100
- CPICH Ec/N0	Checked that this IE is present
- CPICH RSCP	Checked that this IE is present
- Cell measured results	
- Cell Identity	Not 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 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 present

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/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	Note 1	Note 3	N/A	N/A	Note 1
OCNS_Ec/Ior	dB	Note2	Note 2	Note 2	-1.13	-1.13	Note 2
$\hat{I}_{or}/I_{oc}$ (Note 4)	dB	0	7.0		-Infinity	6.0	
I_{or}	dBm	-70.0	-63.0		-Infinity	-64.0	
I_{oc}	dBm/3.84 MHz	-70					
CPICH_Ec/Io (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 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 [2] 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 $T_{interrupt2}$

For Release 99, Release 4 and Release 5 $T_{interrupt2}$ is the following equation:

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

For Release 6 and later releases $T_{interrupt2}$ is the following equation:

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

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 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 during period T2, after the UE has reported event 2C. The start of T3 is defined as the end of the last TTI containing the Physical Channel reconfiguration message.

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	0.001	
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 Ec/I0 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	≤5	
T3		s	1	

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/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			-Infinity	-1.8	-1.8
I̊or (Note 4)	dBm	-70.0			-Infinity	-71.8	-71.8
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 I̊or .
NOTE 3: The DPCH may not be power controlled by the power control loop.
NOTE 4: The nominal I̊or values, although not explicitly defined in 25.133 [2] 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. Data shall be sent on the DTCH throughout the call.

4) SS shall transmit a MEASUREMENT CONTROL message on cell 1.

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". The start of T3 is defined as the end of the last TTI containing the physical channel reconfiguration message.

8) The SS shall switch the power settings from T2 to T3 in table 8.3.2.2.3.

9) If the UE transmits the UL DPCCH to cell 2 less than 220 ms from the beginning of time period T3 then the number of successful tests is increased by one. The UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the UL DCCH of cell 2.

10) After 1 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 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	0
-Integrity check info	
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
-RRC message sequence number	SS provides the value of this IE, from its internal counter.
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 Measurement type	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	4
- 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	FALSE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Set to Primary scrambling code of Cell2
- Primary CPICH Tx Power	Not Present
- Tx Diversity Indicator	FALSE
- 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)	
-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
-Reporting cell status (10.3.7.61)	Not Present
-Measurement validity (10.3.7.51)	Not Present
-Inter-frequency set update (10.3.7.22)	
-UE autonomous update mode	On with no reporting
-CHOICE report criteria	Inter-frequency measurement reporting criteria

Information Element/Group name	Value/Remark
-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
-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 and/or virtual active 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

PHYSICAL CHANNEL RECONFIGURATION message (step 7):

Information Element	Value/Remark	Version
Message Type		
UE Information Elements		
-RRC transaction identifier	0	
-Integrity check info		
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.	
-RRC message sequence number	SS provides the value of this IE, from its internal counter.	
-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 channel requirement	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	-40 (-80dB)	
- 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)	

Information Element	Value/Remark	Version
-Spreading factor	64	
-TFCI existence	TRUE	
-Number of FBI bit	Not Present(0)	
-Puncturing Limit	1	
Downlink radio resources		
-CHOICE *mode*	FDD	
-Downlink PDSCH information	Not Present	R99 and Rel-4 only
-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$_{Pilot-DPDCH}$	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	
- 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	R99 and Rel-4 only
-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	250	
-PDSCH with SHO DCH info (10.3.6.47)	Not Present	R99 and Rel-4 only
-PDSCH code mapping (10.3.6.43)	Not Present	R99 and Rel-4 only
-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	R99 and Rel-4 only
- 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
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	2
Measured Results	
- Inter-frequency measured results	
- Frequency Info	Checked that this IE is present
- Inter-freqcell measured results list	
- Cell measured results	
- Cell Identity	Not present
- Cell synchronisation information	
- Tm	Checked that this IE is present
- CHOICE mode	FDD
- Primary CPICH info	Checked that this IE is present
- Primary scrambling code	250
- CPICH Ec/N0	Checked that this IE is present
- 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 present

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
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 for Release 99 and Release 4 only.

8.3.3.2 Minimum requirement

The hard handover delay shall be less than 110 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 [2] clause 5.3.2.2 as follows:

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

$$T_{interrupt} = T_{offset} + T_{UL} + 30*F_{SFN} + 20*KC + 180*UC + 10*F_{max} \text{ ms}$$

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
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.

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 and UL 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	0.001	
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	1	

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/Ior	dB	-10	
P-CCPCH_Ec/Ior	dB	-12	
SCH_Ec/Ior	dB	-12	
PICH_Ec/Ior	dB	-15	
DPCH_Ec/Ior	dB	Note 1	n.a.
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 8.3.3.3: Cell Specific parameters for Handover to TDD cell (cell 2)

Parameter	Unit	Cell 2								
DL timeslot number		0			2			8		
		T1	T2	T3	T1	T2	T3	T1	T2	T3
UTRA RF Channel Number		Channel 2								
P-CCPCH_Ec/Ior	dB	-3			n.a.			n.a.		
PICH_Ec/Ior	dB	n.a.			n.a.			-3		
SCH_Ec/Ior	dB	-9			n.a.			-9		
SCH_t$_{offset}$	dB	5			n.a.			5		
DPCH_Ec/Ior	dB	n.a.			n.a.		Note 1	n.a.		
OCNS_Ec/Ior	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 Ior.										
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. Data shall be sent on the DTCH throughout the call.

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 110 ms from the beginning of time period T3 then the number of successful tests is increased by one.

10) After 1 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

Information Element/Group name	Value/Remark
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
-RRC message sequence number	SS provides the value of this IE, from its internal counter.
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 Measurement type	Inter-frequency measurement
-Inter-frequency measurement (10.3.7.16)	
-Inter-frequency measurement objects list (10.3.7.13)	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*	TDD
-Measurement quantity for frequency quality estimate	Primary CCPCH RSCP
-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)	
-Cell synchronisation information reporting indicator	TRUE
-Cell Identity reporting indicator	TRUE
-CHOICE *mode*	TDD
-Timeslot ISCP reporting indicator	TRUE
-Proposed TGSN reporting required	FALSE
-Primary CCPCH 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
-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	-80 dBm
-W non-used frequency	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	
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
-RRC message sequence number	SS provides the value of this IE, from its internal counter.
-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*	TDD
-UARFCN (Nt)	Same UARFCN as used for cell 2
Uplink radio resources	
-Maximum allowed UL TX power	33 dBm
-CHOICE channel requirement	Uplink DPCH info
-Uplink DPCH info (10.3.6.88)	
-Uplink DPCH power control info (10.3.6.91)	
-CHOICE *mode*	TDD
-CHOICE *TDD option*	3.84 Mcps TDD
-UL Target SIR	Not Present
-CHOICE *UL OL PC info*	Individually signalled
-CHOICE *TDD option*	3.84 Mcps TDD
-Individual Timeslot interference info	1
-Individual timeslot interference (10.3.6.38)	
-Timeslot Number (10.3.6.84)	
-CHOICE *TDD option*	3.84 Mcps TDD
-Timeslot number	10
- UL Timeslot Interference	-90 dBm
-CHOICE *mode*	TDD
-Uplink timing advance control (10.3.6.96)	
-CHOICE Timing Advance	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 *TDD option*	3.84 Mcps
-Timeslot number	10
-TFCI existence	True
-Midamble shift and burst type (10.3.6.41)	
-CHOICE *TDD option*	3.84 Mcps
-CHOICE *Burst Type*	Type 1
-Midamble Allocation Mode	Default

Information Element	Value/Remark
-Midamble configuration burst type 1 and 3	16
-Midamble shift	Not present
-CHOICE *TDD option*	3.84 Mcps
-First timeslot code list	1
-Channelisation code	8/1
-CHOICE more timeslots	No more timeslots
Downlink radio resources	
-CHOICE *mode*	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 *mode*	TDD
-TPC Step size	1 dB
-CHOICE *mode*	TDD
-CHOICE *mode*	TDD
-CHOICE *TDD option*	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 *mode*	TDD
-Primary CCPCH info (10.3.6.57)	
- CHOICE *mode*	TDD
- CHOICE *TDD option*	3.84 Mcps
- CHOICE *sync case*	Case 2
- Timeslot	0
- Cell parameters ID	20
- SCTD indicator	False
-Downlink DPCH info for each RL (10.3.6.21)	
-CHOICE *mode*	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 *TDD option*	3.84 Mcps
- Timeslot number	2
- TFCI existence	True
- Midamble shift and burst type (10.3.6.41)	
- CHOICE *TDD option*	3.84 Mcps
- CHOICE *Burst Type*	Type 1
- Midamble Allocation Mode	Default
- Midamble configuration burst type 1 and 3	16
- Midamble shift	Not present
- CHOICE *TDD option*	3.84 Mcps
- First timeslot channelisation codes (10.3.6.17)	
- CHOICE codes representation	Consecutive codes
- First channelisation code	16/1
- Last channelisation code	16/2
- CHOICE *more timeslots*	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 UE shall begin to send access bursts on the new DCCH of the target cell less than 100 ms from the beginning of time period T3.

The rate of correct handovers observed during repeated tests shall be at least 90%.

NOTE: The test requirement in this case is expressed as:

$T_{\text{Handover delay}}$ = 90 ms (Table 8.3.4.1) + T_{offset} + T_{UL}

T_{offset}: Equal to 4.65 ms, GSM timing uncertainty between the time from when the UE is ready to transmit until the start of the next time-slot in GSM 26 multiframe structure

T_{UL}: Equal to 4.65 ms, the time the UE has to wait in case the next timeslot is an idle frame or a SACCH frame.

This gives a total of 99.3 ms, allow 100 ms in the test case.

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.

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 HANDOVER FROM UTRAN COMMAND with activation time "now". In the GSM Handover command contained in that message, the IE starting time shall not be included. The RRC HANDOVER FROM UTRAN COMMAND message shall be sent to the UE. 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		Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + UL:3.4 DL:3.4 kbps	As specified in TS 34.108 clause 6.10.2.4.1.4
Power Control		On	
Target quality value on DTCH	BLER	0.001	
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 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 the ARFCN of cell 2	NOTE: See Annex I for cell information. The 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	Based on TS 25.133 [2] 8.1.2.5.2.2 table 8.8, rounded up due to 0.5 seconds quantization, as specified in section 10.3.6.33 of TS 25.331 [8]
T1	s	20	
T2	s	5	
T3	s	1	

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
Qrxlevmin	dBm	-115
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 in Table 8.3.4.4.

2) The UE is switched on.

3) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.7. For UEs that require compressed mode, the compressed mode parameters are configured as in the table 8.3.4.3. The compressed mode shall remain inactive. Data shall be sent on the DTCH on the UTRA cell throughout the call.

4) The RF parameters for cell 2 are set up according to T1 in Table 8.3.4.6 and the SS configures a traffic channel.

5) The start of T1 is TTI aligned.

6) If Compressed mode is required, SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message. Otherwise, Go to Step8.

7) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

8) The SS shall transmit a MEASUREMENT CONTROL message on cell 1.

9) At the T1-T2 transition, the SS shall switch the power of cell 2 as in Table 8.3.4.6.

10) The UE shall transmit a MEASUREMENT REPORT message triggered by event 3C.

11) 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 HANDOVER command.

12) The 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 100 ms from the beginning of time period T3, then the number of successful tests is increased by one.

13) At the end of T3 SS shall end the call and UE is switched off. Any timing information of cell 2 is deleted in the UE.

14) Repeat step 1-13 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:

PHYSICAL CHANNEL RECONFIGURATION message for Inter Rat measurement (step 6):

Information Element	Value/Remark	Version
Message Type (10.2.22)		
UE Information Elements		
-RRC transaction identifier	0	
-Integrity check info		
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.	
-RRC message sequence number	SS provides the value of this IE, from its internal counter.	
-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	
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)	Not Present	
Uplink radio resources		
-Maximum allowed UL TX power	33 dBm	
-CHOICE channel requirement	Not Present	
Downlink radio resources		
-CHOICE *mode*	FDD	
-Downlink PDSCH information	Not Present	R99 and Rel-4 only
-Downlink information common for all radio links (10.3.6.24)		
-Downlink DPCH info common for all RL (10.3.6.18)	Not Present	
-CHOICE mode	FDD	
-DPCH compressed mode info (10.3.6.33)		
- Transmission gap pattern sequence	(1/3 TGPS)	
- TGPSI	1	
- TGPS Status Flag	deactivate	
- Transmission gap pattern sequence configuration parameters		
-TGMP	GSM carrier RSSI measurement	
-TGPRC	Infinity	
-TGSN	4	
-TGL1	7	
-TGL2	Not Present	
-TGD	UNDEFINED	
-TGPL1	12	
-TGPL2	Not Present	R99 and Rel-4 only
-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	

Information Element	Value/Remark	Version
-DeltaSIR2	Not Present	
-DeltaSIRafter2	Not Present	
-N Identify abort	Not Present	
-T Reconfirm abort	Not Present	
- Transmission gap pattern sequence	(2/3 TGPS)	
- TGPSI	2	
- TGPS Status Flag	deactivate	
- Transmission gap pattern sequence configuration parameters		
-TGMP	gsm-initialBSICIdentification	
-TGPRC	Infinity	
-TGSN	4	
-TGL1	7	
-TGL2	Not Present	
-TGD	UNDEFINED	
-TGPL1	8	
-TGPL2	Not Present	
-RPP	mode 0	
-ITP	mode 0	
-CHOICE UL/DL mode	UL 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	66	
-T Reconfirm abort	Not Present	
- Transmission gap pattern sequence	(3/3 TGPS)	
- TGPSI	3	
- TGPS Status Flag	deactivate	
- Transmission gap pattern sequence configuration parameters		
-TGMP	GSM BSIC re-confirmation	
-TGPRC	Infinity	
-TGSN	4	
-TGL1	7	
-TGL2	Not Present	
-TGD	UNDEFINED	
-TGPL1	8	
-TGPL2	Not Present	
-RPP	mode 0	
-ITP	mode 0	
-CHOICE UL/DL mode	UL 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	5.5	
-SSDT information (10.3.6.77)	Not Present	R99 and Rel-4 only
-Default DPCH Offset Value (10.3.6.16)	Not Present	
-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	100	
-PDSCH with SHO DCH info (10.3.6.47)	Not Present	R99 and Rel-4 only
-PDSCH code mapping (10.3.6.43)	Not Present	R99 and Rel-4 only
-Downlink DPCH info for each RL (10.3.6.21)		
-CHOICE mode	FDD	
-Primary CPICH usage for channel estimation	Primary CPICH may be used	

Information Element	Value/Remark	Version
-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 change	
-TPC combination index	0	
- SSDT Cell Identity	Not Present	R99 and Rel-4 only
- Closed loop timing adjustment mode	Not Present	
- SCCPCH information for FACH (10.3.6.70)	Not Present	

MEASUREMENT CONTROL message (step 8):

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
-RRC message sequence number	SS provides the value of this IE, from its internal counter.
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 Measurement type	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)	
- UTRAN estimated quality	FALSE
- CHOICE system	GSM
- Observed time difference to GSM cell reporting indicator	FALSE
- GSM Carrier RSSI reporting indicator	FALSE
-Reporting cell status (10.3.7.61)	
-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
-CHOICE reported cell	Report cells within active set or within virtual active set or of the other RAT
-Maximum number of reported cells	2

Information Element/Group name	Value/Remark
Physical channel information elements -DPCH compressed mode status info (10.3.6.34)	If Compressed mode is required, active (for all three patterns specified in table 8.3.4.3). Otherwise, Not Present

HANDOVER FROM UTRAN COMMAND message (step 11):

Information Element	Value/remark
Message Type (10.2.15)	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
-RRC message sequence number	SS provides the value of this IE, from its internal counter.
-Activation time	now
RB information elements	
-RAB information list	1
-RAB Info	
- RAB identity	0000 0001B The first/ leftmost bit of the bit string contains the most significant bit of the RAB identity.
- CN domain identity	CS domain
- NAS Synchronization Indicator	Not present
- Re-establishment timer	Use T315
Other information elements	
-CHOICE System type	GSM
-Frequency Band	Set to "GSM/ PCS 1900" if GSM/ PCS 1900 is used in this test. Otherwise set to "GSM/DCS 1800 Band"
-CHOICE GSM message	Single GSM message
-Single GSM message	GSM HANDOVER COMMAND formatted and coded according to GSM specifications as BIT STRING (1..512). The first/ l*eftmost/ most significant* bit of the bit string contains bit 8 of the first octet of the GSM message. The contents of the HANDOVER COMMAND see next table.

HANDOVER COMMAND

Information Element (GSM)	Value/remark	Version
Protocol Discriminator	RR Management.	
Skip Indicator	0000	
Message Type	00101011	
Cell Description - Network Colour Code - Base station Colour Code - BCCH Carrier Number	 1 5 BCCH ARFCN of cell A as defined in the initial conditions in clause 26.6.5.1 of TS 51.010-1 [25] for the GSM band under test. BCCH ARFCN is 744 for FDD Band II and PCS1900 under test. BCCH ARFCN is 241 for FDD Band V, VI or XIX and GSM850 under test. BCCH ARFCN is 114 for FDD Band VIII and GSM900 under test.	

Information Element (GSM)	Value/remark	Version
Channel Description 2 - Channel Type and TDMA offset - Timeslot Number - Training Sequence Code - Hopping - ARFCN	TCH/F + FACCH/F and SACCH/F Chosen arbitrarily by the test house, but not Zero. Chosen arbitrarily by the test house. Single RF channel. BCCH ARFCN of cell A as defined in the initial conditions in clause 26.6.5.1 of TS 51.010-1 [25] for the GSM band under test. BCCH ARFCN is 744 for FDD Band II and PCS1900 under test. BCCH ARFCN is 241 for FDD Band V, VI or XIX and GSM850 under test. BCCH ARFCN is 114 for FDD Band VIII and GSM900 under test.	
Handover Reference - Handover Reference Value	Chosen arbitrarily by the test house.	
Power Command and ACCESS Type - ATC - EPC_mode - FPC - EPC_FPC - Power level	0 0 0 0 Chosen arbitrarily by the test house.	 REL-5 R99 and REL-4 only REL-5
Synchronization Indication	Not present.	
Channel Mode	speech full rate or half rate version 1	
All other information elements	Not present.	

MEASUREMENT REPORT message for Inter-RAT test cases

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

8.3.4.5 Test requirements

**Table 8.3.4.6: Cell Specific Parameters for Handover UTRAN
to GSM cell case (cell 2), test requirements**

Parameter	Unit	Cell 2 (GSM)	
		T1	T2, T3
Absolute RF Channel Number		BCCH ARFCN of cell A as defined in the initial conditions in clause 26.6.5.1 of TS 51.010-1 [25] for the GSM band under test. BCCH ARFCN is 744 for FDD Band II and PCS1900 under test. BCCH ARFCN is 241 for FDD Band V, VI or XIX and GSM850 under test. BCCH ARFCN is 114 for FDD Band VIII and GSM900 under test.	
RXLEV	dBm	-85	-74

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.

8.3.4a Inter-system Handover from UTRAN FDD to E-UTRAN FDD

Editor's note: This Test case is incomplete for frequencies above 3GHz

- The Test system uncertainties applicable above 3GHz are undefined

- The Test Tolerances and Test Requirements applicable above 3GHz are undefined

8.3.4a.1 Definition and applicability

The UTRAN to E-UTRAN cell handover delay is defined as the time from the end of the last TTI containing an RRC message implying handover to the transmission on the channel of the new RAT.

The requirements and this test apply to Release 8 and later releases UTRA FDD UE that support E-UTRA FDD and inter-RAT PS handover to E-UTRA(FDD) from UTRA. Applicability requires support for EUTRA FGI bit 2.

8.3.4a.2 Minimum requirement

The UE shall start to transmit the PRACH to Cell 2 less than 85ms from the beginning of time period T3.

The rate of correct cell reselections observed during repeated tests shall be at least 90%.

NOTE:

The total HO delay is the sum of the RRC procedure delay and interruption time:

The RRC procedure delay is 50 ms

The interruption time is $Tinterrupt = T_{search} + T_{IU} + 20\ ms$

Where:

T_{search} : 0 ms since the target cell is known.

T_{IU} : 15 ms since the PRACH configuration used in the target cell (E-UTRAN) is assumed to be 4 for FDD and 53 for TDD respectively as specified in table 5.7.1-2 and 5.7.1-4 in TS 36.211 [35]. 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 85 ms for the test case.

The normative reference for this requirement is TS 25.133 [2] clauses 5.4a and A.5.4a

8.3.4a.3 Test purpose

To verify that the UE meets the minimum requirement.

8.3.4a.4 Method of test

8.3.4a.4.1 Initial conditions

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

Frequencies to be tested: see table K.2 in Annex K.

The test parameters are given in Table 8.3.4a.1, 8.3.4a.2 and 8.3.4a.3 below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 3A shall be used. The test consists of three successive time periods, with time durations of T1, T2 and T3 respectively. At the start of time duration T1, the UE does not have any timing information of Cell 2. Starting T2, Cell 2 becomes detectable and the UE is expected to detect and send a measurement report.

The UTRAN shall send a Handover from UTRAN command with activation time "now" with a new active cell, cell 2. In the E-UTRAN Handover command contained in that message, the IE starting time shall not be included. The RRC HANDOVER FROM UTRAN COMMAND message shall be sent to the UE. The start of T3 is defined as the end of 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 8.3.4a.1.

Table 8.3.4a.1: General test parameters for UTRAN FDD to E-UTRAN FDD handover test case

Parameter	Unit	Value	Comment
DCH parameters		DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.101 [1] section A.3.1
Power Control		On	
Target quality value on DTCH	BLER	0.001	
Compressed mode		DL Compressed mode reference pattern 2 in Set 5	Only applicable for UE requiring compressed mode patterns As specified in table A.22 TS 25.101 [1] section A.5
Active cell		Cell 1	
UTRAN FDD measurement quantity		CPICH Ec/N0	
Inter-RAT (E-UTRAN) measurement quantity		RSRP	
Threshold own system	dB	-10	Absolute UTRAN CPICH Ec/N0 threshold for event 3A
Threshold other system	dBm	-99	Absolute E-UTRAN RSRP threshold for event 3A
Hysteresis	dB	0	
Time to Trigger	ms	0	
Filter coefficient		0	
Monitored UTRA FDD cell list size		24 UTRA FDD neighbours on Channel 1	Measurement control information is sent before the compressed mode patterns starts.
PDSCH parameters		DL Reference Measurement Channel R.0 FDD	As specified in TS 36. 521-3 [38] section A.1.1
PCFICH/PDCCH/PHICH parameters		DL Reference Measurement Channel R.6 FDD	As specified in TS 36. 521-3 [38] section A.2.1
PRACH configuration		4	As specified in table 5.7.1-2 in 3GPP TS 36.211 [35]
Access Barring Information	-	Not sent	No additional delays in random access procedure
T1	s	5	
T2	s	≤7	
T3	s	1	

**Table 8.3.4a.2: Cell specific test parameters for UTRAN FDD
to E-UTRAN FDD handover test 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 8.3.4a.3: Cell specific test parameters for UTRAN FDD
to E-UTRAN FDD handover test case (cell 2)**

Parameter	Unit	Cell 2 (E-UTRA)		
		T1	T2	T3
E-UTRA RF Channel number		1		
BW$_{channel}$	MHz	10		
OCNG Patterns defined in TS 36.521-3 [38] section D.1.1 (OP.1 FDD) and in D.1.2 (OP.2 FDD)		OP.2 FDD	OP.2 FDD	OP.1 FDD
PBCH_RA	dB			
PBCH_RB	dB			
PSS_RA	dB			
SSS_RA	dB			
PCFICH_RB	dB			
PHICH_RA	dB			
PHICH_RB	dB	0		
PDCCH_RA	dB			
PDCCH_RB	dB			
PDSCH_RA	dB			
PDSCH_RB	dB			
OCNG_RA$^{Note 1}$	dB			
OCNG_RB$^{Note 1}$	dB			
$\hat{E}_s/I_{ot}$	dB	-infinity	7	7
N_{oc} $^{Note 2}$	dBm/15 kHz	-98		
$\hat{E}_s/N_{oc}$ $^{Note 3}$	dB	-infinity	7	7
RSRP $^{Note 3}$	dBm/15 KHz	-infinity	-91	-91
Io $^{Note 3}$	dBm/9 MHz	-70.22	-62.43	-62.43
Propagation Condition		AWGN		
NOTE 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols.				
NOTE 2: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and shall be modelled as AWGN of appropriate power for N_{oc} to be fulfilled.				
NOTE 3: RSRP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves.				

8.3.4a.4.2 Procedure

1) The RF parameters for cell 1 are set up according to T1 in Table 8.3.4a.2.

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. For UEs that require compressed mode, the compressed mode parameters are configured as in the Table 8.3.4a.1. The compressed mode shall remain inactive. Data shall be sent on the DTCH on the UTRA cell throughout the call.

4) The RF parameters for cell 2 are set up according to T1 in Table 8.3.4a.3 and the SS configures a traffic channel.

5) The start of T1 is TTI aligned.

6) If Compressed mode is required, SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message. Otherwise , Go to Step8.

7) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

8) The SS shall transmit a MEASUREMENT CONTROL message on cell 1.

9) After T1 expired, the SS shall switch the power of cell 2 from T1 to T2 as in Table 8.3.4a.3.

10) The UE shall transmit a MEASUREMENT REPORT message triggered by event 3A.

11) The SS shall transmit a HANDOVER FROM UTRAN COMMAND message with activation time "now" and indicating the traffic channel of the target E-UTRAN FDD 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 HANDOVER COMMAND, at that instant the SS shall switch the power setting from T2 to T3 as specified in Table 8.3.4a.2 and Table 8.3.4a.3.

12) The UE shall transmit a PRACH to cell 2 implying that it has switched to the E-UTRAN FDD cell. If the UE transmits the PRACH to cell2 less than 85 ms from the beginning of time period T3, then the number of successful tests is increased by one.

13) At the end of T3 SS shall end the call and UE is switched off. Any timing information of cell 2 is deleted in the UE.

14) Repeat step 1-13 until the confidence level according to Tables G.2.3-1 in TS 36.521-3 [38] 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 TS 34.108 [3] and clause 4.6.1, 4.6.3, 4.6.4 and 4.7B.1 of TS 36.508 [33], with the following exceptions:

PHYSICAL CHANNEL RECONFIGURATION message:

Derivation Path: TS 36.508 [33], clause 4.7B.1 Table 4.7B.1-5: PHYSICAL CHANNEL RECONFIGURATION			
Information Element	**Value/remark**	**Comment**	**Condition**
Message Type			
RRC transaction identifier	0		
Downlink information common for all radio links			
- Downlink DPCH info common for all RL	Not Present		
- DPCH compressed mode info			
- TGPSI	1		
- TGPS Status Flag	Deactivate		
- TGCFN	Not Present		
- Transmission gap pattern sequence configuration parameters			
- TGMP	E-UTRA measurement		
- TGPRC	Infinity		
- TGSN	10		
- TGL1	10		
- TGL2	Not Present		
- TGD	0		
- TGPL1	8		
- 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 for each radio link	Not Present		
MBMS PL Service Restriction Information	Not Present		

MEASUREMENT CONTROL message:

Derivation Path: TS 36.508 [33], clause 4.7B.1 Table 4.7B.1-3: MEASUREMENT CONTROL			
Information Element	**Value/remark**	**Comment**	**Condition**
Message Type			
RRC transaction identifier	0		
Measurement Identity	2		
CHOICE Measurement type	Inter-RAT measurement		
- CHOICE report criteria	Inter-RAT measurement reporting criteria		
- Parameters required for each event	1 entry		
- Inter-RAT event identity	3a		
- Threshold own system	-10 dB		
- W	0		
- Threshold other system	-74 (-99 dBm)	When measurement quantity is RSRP, range should be (-115..-19), the actual value = Threshold other system - 25 [dBm]	
- Hysteresis	0 dB		
- Time to trigger	10 ms		
- Reporting cell status			
- CHOICE reported cell	Report cells within active set or within virtual active set or of the other RAT		
- Maximum number of reported cells	2		
- DPCH compressed mode status info (10.3.6.34)	If compressed mode is required, Active (for the pattern specified in table 8.3.4a.1). Otherwise, this should be Not Present.		

MEASUREMENT REPORT message

Derivation Path: TS 36.508 [33], clause 4.7B.1 Table 4.7B.1-4: MEASUREMENT REPORT			
Information Element	**Value/remark**	**Comment**	**Condition**
Message Type			
Measurement identity	2		
E-UTRA Measured Results			
- E-UTRA measured results list	1 entry		
- E-UTRA Carrier Frequency	Checked that this IE is present		
- Measured E-UTRA cells	1 entry		
- Physical Cell Identity	Checked that this IE is present	PhysicalCellIdentity of Cell 2	
- RSRP	Checked that this IE is present		
- RSRQ	This IE does not need to be checked		
E-UTRA Event Results			
- Inter-RAT event identity	3a		
- E-UTRA events results list	1 entry		
- E-UTRA Carrier Frequency	Checked that this IE is present	Downlink EARFCN of Cell 2	
- Reported cells	1 entry		
- Physical Cell Identity	Checked that this IE is present	PhysicalCellIdentity of Cell 2	

RRCConnectionReconfiguration

Derivation Path: TS 36.508 [33] clause 4.6.1, Table 4.6.1-8 RRCConnectionReconfiguration			
Information Element	**Value/remark**	**Comment**	**Condition**
RRCConnectionReconfiguration ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE{			
rrcConnectionReconfiguration-r8 SEQUENCE {			
mobilityControlInfo	MobilityControlInfo-HO		HO-TO-EUTRA
dedicatedInfoNASList	Not present		
radioResourceConfigDedicated	RadioResourceConfigDedicated-HO-TO-EUTRA(n, m)		HO-TO-EUTRA(n,m)
securityConfigHO	SecurityConfigHO-DEFAULT		HO-TO-EUTRA
}			
}			
}			
}			

SecurityConfigHO-DEFAULT

Information Element	Value/remark	Comment	Condition
Derivation Path: TS 36.508[33] clause 4.6.4, Table 4.6.4-1: SecurityConfigHO-DEFAULT			
SecurityConfigHO-DEFAULT ::= SEQUENCE {			
handoverType CHOICE {	interRAT		
interRAT SEQUENCE {			
securityAlgorithmConfig SEQUENCE {			
cipheringAlgorithm	Set according to PIXIT parameter for default ciphering algorithm		
integrityProtAlgorithm	Set according to PIXIT parameter for default integrity protection algorithm		
}			
nas-SecurityParamToEUTRA	OCTET STRING (SIZE(6))	This field is used to activate NAS security after inter-RAT handover to E-UTRA. The content is defined in TS 24.301.	
}			
}			
}			

MobilityControlInfo-HO

Information Element	Value/remark	Comment	Condition
Derivation Path: TS 36.508[33] clause 4.6.5, Table 4.6.5-1: MobilityControlInfo-HO			
MobilityControlInfo-HO ::= SEQUENCE {			
targetPhysCellId	Set according to specific message content		
carrierFreq	Set according to the frequency used for E-UTRA cell under test		
carrierBandwidth::= SEQUENCE {			
dl-Bandwidth	Set according to the bandwidth used for E-UTRA cell under test		
ul-Bandwidth	Not present		
}			
additionalSpectrumEmission	1		
t304	ms1000		
newUE-Identity	SS arbitrarily selects a value between '003C'H and 'FFF2'H.		
radioResourceConfigCommon	RadioResourceConfigCommon-DEFAULT		
rach-ConfigDedicated	Not present		
}			

RadioResourceConfigCommon-DEFAULT

Information Element	Value/remark	Comment	Condition
Derivation Path: TS 36.508 [33] clause 4.6.3, Table 4.6.3-13 RadioResourceConfigCommon-DEFAULT			
RadioResourceConfigCommon-DEFAULT ::= SEQUENCE {			
rach-ConfigCommon	RACH-ConfigCommon-DEFAULT		
prach-Config	PRACH-Config-DEFAULT		
pdsch-ConfigCommon	PDSCH-ConfigCommon-DEFAULT		
pusch-ConfigCommon	PUSCH-ConfigCommon-DEFAULT		
phich-Config	PHICH-Config-DEFAULT		
pucch-ConfigCommon	PUCCH-ConfigCommon-DEFAULT		
soundingRSUL-ConfigCommon	SoundingRS-UL-ConfigCommon-DEFAULT		
uplinkPowerControlCommon	UplinkPowerControlCommon-DEFAULT		
antennaInfoCommon SEQUENCE {			
antennaPortsCount	an1		
}			
p-Max	Not present		
tdd-Config	Not present		FDD
ul-CyclicPrefixLength	len1		
}			

PRACH-Config-DEFAULT

Information Element	Value/remark	Comment	Condition
Derivation Path: TS 36.508 [33] clause 4.6.3, Table 4.6.3-7 PRACH-Config-DEFAULT			
PRACH-ConfigInfo SEQUENCE {			
prach-ConfigIndex	4		

RadioResourceConfigDedicated-HO-TO-EUTRA(n,m)

Information Element	Value/remark	Comment	Condition
Derivation Path: TS 36.508 [33] clause 4.6.3, Table 4.6.3-18 RadioResourceConfigDedicated-HO-TO-EUTRA(n,m)			
RadioResourceConfigDedicated-HO-TO-EUTRA(n, m) ::= SEQUENCE {			
srb-ToAddModList SEQUENCE (SIZE (1..2)) OF SEQUENCE {	2 entries		
srb-ToAddMod[1]	SRB-ToAddMod-DEFAULT using condition SRB1		
srb-ToAddMod[2]	SRB-ToAddMod-DEFAULT using condition SRB2		
}			
drb-ToAddModList SEQUENCE (SIZE (1..maxDRB)) OF SEQUENCE {	1 entry		
drb-ToAddMod[1]	DRB-ToAddMod-DEFAULT using condition AM		
}			
drb-ToReleaseList	Not present		
mac-MainConfig CHOICE {			
explicitValue	MAC-MainConfig-RBC		
}			
sps-Config	Not present		
physicalConfigDedicated	PhysicalConfigDedicated-DEFAULT using condition RBC		
}			

MAC-MainConfig-RBC

Information Element	Value/remark	Comment	Condition
Derivation Path: TS 36.508 [33] clause 4.8.2, Table 4.8.2.1.5-1 MAC-MainConfig-RBC			
MAC-MainConfig-RBC ::= SEQUENCE {			
ul-SCH-Config SEQUENCE {			
maxHARQ-Tx	n5		
periodicBSR-Timer	sf20		
retxBSR-Timer	sf320		
ttiBundling	FALSE		
}			
drx-Config	Not present		
timeAlignmentTimerDedicated	sf750		
phr-Config CHOICE {			
setup SEQUENCE {			
periodicPHR-Timer	sf500		
prohibitPHR-Timer	sf200		
dl-PathlossChange	dB3		
}			
}			
}			

PhysicalConfigDedicated-DEFAULT

Information Element	Value/remark	Comment	Condition
Derivation Path: TS 36.508 [33] clause 4.8.2, Table 4.8.2.1.6-1: PhysicalConfigDedicated-DEFAULT			
PhysicalConfigDedicated-DEFAULT ::= SEQUENCE {			
pdsch-ConfigDedicated	Not present		HO-TO-EUTRA
pucch-ConfigDedicated	Not present		HO-TO-EUTRA
pusch-ConfigDedicated	Not present		HO-TO-EUTRA
uplinkPowerControlDedicated	Not present		HO-TO-EUTRA
soundingRS-LU-ConfigDedicated	SoundingRS-Ul-ConfigDedicated-DEFAULT		HO-TO-EUTRA
schedulingRequestConfig	Not present		HO-TO-EUTRA
NOTE: Default values are defined in TS 36.331 [36] section 9.2.4.			

8.3.4a.5 Test requirements

**Table 8.3.4a.4: Test requirement for Cell specific test parameters
for UTRAN FDD to E-UTRAN FDD handover test 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 8.3.4a. 5: Test requirement for Cell specific test parameters for UTRAN FDD to E-UTRAN FDD handover test case (cell 2)

Parameter	Unit	Cell 2 (E-UTRA)		
		T1	T2	T3
E-UTRA RF Channel number		1		
BW$_{channel}$	MHz	10		
OCNG Patterns defined in TS 36.521-3 [38] D.1.1 (OP.1 FDD) and in D.1.2 (OP.2 FDD)		OP.2 FDD	OP.2 FDD	OP.1 FDD
PBCH_RA	dB	0		
PBCH_RB	dB			
PSS_RA	dB			
SSS_RA	dB			
PCFICH_RB	dB			
PHICH_RA	dB			
PHICH_RB	dB			
PDCCH_RA	dB			
PDCCH_RB	dB			
PDSCH_RA	dB			
PDSCH_RB	dB			
OCNG_RA$^{Note 1}$	dB			
OCNG_RB$^{Note 1}$	dB			
$\hat{E}_s/I_{ot}$	dB	-infinity	7.80	7.80
N_{oc} $^{Note 2}$	dBm/15 kHz	-98		
$\hat{E}_s/N_{oc}$ $^{Note 3}$	dB	-infinity	7.80	7.80
RSRP $^{Note 3}$	dBm/15 KHz	-infinity	-90.20	-90.20
Io $^{Note 3}$	dBm/9 MHz	-70.22	-61.75	-61.75
Propagation Condition		AWGN		
NOTE 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols. NOTE 2: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and shall be modelled as AWGN of appropriate power for N_{oc} to be fulfilled. NOTE 3: RSRP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves.				

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 %.

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.

8.3.4b Inter-system Handover from UTRAN FDD to E-UTRAN TDD

Editor's note: This Test case is incomplete for frequencies above 3GHz

- The Test system uncertainties applicable above 3GHz are undefined

- The Test Tolerances and Test Requirements applicable above 3GHz are undefined

8.3.4b.1 Definition and applicability

The UTRAN FDD to E-UTRAN TDD 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 Release 8 and later releases the combined UTRAN FDD and E-UTRAN TDD UE and inter-RAT PS handover to E-UTRA(TDD) from UTRA. Applicability requires support for EUTRA FGI bit 2.

8.3.4b.2 Minimum requirement

The UE shall begin to send PRACH to the target cell less than [80][85] ms from the beginning of time period T3.

The rate of correct handovers observed during repeated tests shall be at least 90%.

NOTE: The test requirement in this case is expressed as:

- The total HO delay is the sum of the RRC procedure delay and interruption time.

- The RRC procedure delay is 50 ms.

- The interruption time is defined as follows:

$T_{interrupt} = T_{search} + T_{IU} + 20$ ms

Where:

T_{search}: is the time required to search the target cell when the target cell is not already known when the handover command is received by the UE. If the target cell is known, then $T_{search} = 0$ ms

T_{IU}: is the interruption uncertainty in acquiring the first available PRACH occasion in the new cell. T_{IU} can be up to 30 ms. It is chosen 10 ms since the PRACH configuration used in the target cell (E-UTRAN TDD) is assumed to be 53 as specified in table 5.7.1-3 and 5.7.1-4 in TS 36.211 [35].

Thus the total interruption time is 30 ms.

The UE shall start to transmit the PRACH to Cell 2 with a handover delay less than 80 ms.

The normative reference for this requirement is TS 25.133 [2] clauses 5.4b.2 and A.5.4b.

8.3.4b.3 Test purpose

To verify that the UE meets the minimum requirement.

8.3.4b.4 Method of test

8.3.4b.4.1 Initial conditions

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

Frequencies to be tested: see table K.2 in Annex K.

The test parameters are given in table 8.3.4b.1, 8.3.4b.2 and 8.3.4b.3 below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 3A 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. Starting T2, cell2 becomes detectable and the UE is expected to detect and sent a measurement report.

The UTRAN shall send a HANDOVER FROM UTRAN COMMAND with activation time "now" with a new active cell,cell2. In the E-UTRAN TDD Handover command contained in that message, the IE starting time shall not be included. The RRC HANDOVER FROM UTRAN COMMAND message shall be sent to the UE. 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 8.3.4b.1.

Table 8.3.4b.1: General test parameters for UTRAN FDD to E-UTRAN TDD handover test case

Parameter	Unit	Value	Comment
DCH parameters		DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.101 [1] section A.3.1
Power Control		On	
Target quality value on DTCH	BLER	0.001	
Compressed mode		DL Compressed mode reference pattern 2 in Set 5	Only applicable for UE requiring compressed mode patterns As specified in table A.22 TS 25.101 [1] section A.5
Active cell		Cell 1	
UTRAN FDD measurement quantity		CPICH Ec/N0	
Inter-RAT (E-UTRAN) measurement quantity		RSRP	
Threshold own system	dB	-10	Absolute UTRAN CPICH Ec/N0 threshold for event 3A
Threshold other system	dBm	-99	Absolute E-UTRAN RSRP threshold for event 3A
Hysteresis	dB	0	
Time to Trigger	ms	0	
Filter coefficient		0	
Monitored UTRA FDD cell list size		24 UTRA FDD neighbours on Channel 1	Measurement control information is sent before the compressed mode patterns starts.
PDSCH parameters		DL Reference Measurement Channel R.0 TDD	As specified in TS36. 521-3 [38] section A.1.2
PCFICH/PDCCH/PHICH parameters		DL Reference Measurement Channel R.6 TDD	As specified in TS36. 521-3 [38] section A.2.2
Access Barring Information	-	Not sent	No additional delays in random access procedure
Special subframe configuration		6	As specified in table 4.2-1 in 3GPP TS 36.211 [35]
Uplink-downlink configuration		1	As specified in table 4.2-2 in 3GPP TS 36.211 [35]
PRACH configuration		53	As specified in table 5.7.1-3 in 3GPP TS 36.211 [35]
T1	s	5	
T2	s	≤7	
T3	s	1	

Table 8.3.4b.2: Cell specific test parameters for UTRAN FDD to E-UTRAN TDD handover test 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 8.3.4b.3: Cell specific test parameters for UTRAN FDD
to E-UTRAN TDD handover test case (cell 2)**

Parameter	Unit	Cell 2 (E-UTRA)		
		T1	T2	T3
E-UTRA RF Channel number		1		
BW$_{channel}$	MHz	10		
OCNG Patterns defined in TS 36. 521-3 [38] section D.2.1 (OP.1 TDD) and D.2.2 (OP.2 TDD)		OP.2 TDD	OP.2 TDD	OP.1 TDD
PBCH_RA	dB	0		
PBCH_RB	dB			
PSS_RA	dB			
SSS_RA	dB			
PCFICH_RB	dB			
PHICH_RA	dB			
PHICH_RB	dB			
PDCCH_RA	dB			
PDCCH_RB	dB			
PDSCH_RA	dB			
PDSCH_RB	dB			
OCNG_RA$^{Note 1}$	dB			
OCNG_RB$^{Note 1}$	dB			
$\hat{E}_s / I_{ot}$	dB	-infinity	7	7
N_{oc} $^{Note 2}$	dBm/15 kHz	-98		
$\hat{E}_s / N_{oc}$ $^{Note 3}$	dB	-infinity	7	7
Io $^{Note 3}$	dBm/9 MHz	-70.22	-62.43	-62.43
RSRP $^{Note 3}$	dBm/15 KHz	-infinity	-91	-91
Propagation Condition		AWGN		
NOTE 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols. NOTE 2: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and shall be modelled as AWGN of appropriate power for N_{oc} to be fulfilled. NOTE 3: RSRP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves.				

8.3.4b.4.2 Procedure

1) The RF parameters for cell 1 are set up according to T1 in Table 8.3.4b.2.

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. For UEs that require compressed mode, the compressed mode parameters are configured as in the table 8.3.4b.1. The compressed mode shall remain inactive. Data shall be sent on the DTCH on the UTRA cell throughout the call.

4) The RF parameters for cell 2 are set up according to T1 in Table 8.3.4b.3 and the SS configures a traffic channel.

5) The start of T1 is TTI aligned.

6) If Compressed mode is required, SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message. Otherwise , Go to Step8.

7) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

8) The SS shall transmit a MEASUREMENT CONTROL message on cell 1.

9) At the T1-T2 transition, the SS shall switch the power of cell 2 as in Table 8.3.4b.3.

10) The UE shall transmit a MEASUREMENT REPORT message triggered by event 3A.

11) The SS shall transmit a HANDOVER FROM UTRAN COMMAND message with activation time "now" and indicating the traffic channel of the target E-UTRAN TDD 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 HANDOVER command.

12) The UE shall transmit a PRACH to cell 2 implying that it has switched to the E-UTRAN TDD cell. If the UE transmits the PRACH to cell2 less than 80 ms from the beginning of time period T3, then the number of successful tests is increased by one.

13) At the end of T3 SS shall end the call and UE is switched off. Any timing information of cell 2 is deleted in the UE.

14) Repeat step 1-13 until the confidence level according to Tables G.2.3-1 in TS36.521-3 [38] 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 TS 34.108 [3] and clause 4.6.1, 4.6.3, 4.6.4 and 4.7B.1 of TS 36.508 [33], with the following exceptions:

PHYSICAL CHANNEL RECONFIGURATION message for Inter RAT measurement (step 6):

Derivation Path: TS 36.508 [33], clause 4.7B.1 Table 4.7B.1-5: PHYSICAL CHANNEL RECONFIGURATION			
Information Element	**Value/remark**	**Comment**	**Condition**
Message Type			
RRC transaction identifier	0		
Downlink information common for all radio links			
- Downlink DPCH info common for all RL	Not Present		
- DPCH compressed mode info			
- TGPSI	1		
- TGPS Status Flag	Deactivate		
- TGCFN	Not Present		
- Transmission gap pattern sequence configuration parameters			
- TGMP	E-UTRA measurement		
- TGPRC	Infinity		
- TGSN	10		
- TGL1	10		
- TGL2	Not Present		
- TGD	0		
- TGPL1	8		
- 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 for each radio link	Not Present		
MBMS PL Service Restriction Information	Not Present		

MEASUREMENT CONTROL message (step 8):

Information Element/Group name	**Value/Remark**

Information Element/Group name	Value/Remark
Message Type (10.2.17 of 25.331)	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
-RRC message sequence number	SS provides the value of this IE, from its internal counter.
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 *Measurement type*	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	E-UTRA
-Measurement quantity	RSRP
-Filter coefficient	0
-Inter-RAT reporting quantity (10.3.7.32)	
- UTRAN estimated quality	FALSE
- CHOICE system	E-UTRA
-E-UTRA	
- Reporting indicator	Measurement quantity
-Reporting cell status (10.3.7.61)	
-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 3A
-Threshold own system	-10dB
-W	Not Present
-Threshold other system	-74 (-99 dBm) When measurement quantity is RSRP, range should be (-115..-19), the actual value = Threshold other system - 25 [dBm]
-Hysteresis	0 dB
-Time to trigger	0 ms
-Reporting cell status	
-CHOICE reported cell	Report cells within active set or within virtual active set or of the other RAT
-Maximum number of reported cells	2
-Idle Interval Information	Not Present
Physical channel information elements	
-DPCH compressed mode status info (10.3.6.34)	If Compressed mode is required, active (for all three patterns specified in table 8.3.4b.1). Otherwise, Not Present

HANDOVER FROM UTRAN COMMAND message (step 11):

Information Element	Value/remark
Message Type (10.2.15 in TS25.331)	
UE information elements	
-RRC transaction identifier	0

-Integrity check info	
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
-RRC message sequence number	SS provides the value of this IE, from its internal counter.
-Activation time	now
RB information elements	
-RAB information list	1
-RAB Info	
- RAB identity	0000 0001B The first/ leftmost bit of the bit string contains the most significant bit of the RAB identity.
- CN domain identity	CS domain
- NAS Synchronization Indicator	Not present
- Re-establishment timer	Use T315
Other information elements	
-CHOICE System type	E-UTRA
-E-UTRA message	Formatted and coded according to E-UTRA specifications. The first/leftmost/most significant bit of the octet string contains bit 8 of the first octet of the E-UTRA message.

HANDOVER COMMAND

HANDOVER COMMAND from UTRA FDD to E-UTRAN TDD is defined in Table 4.6.1-8:
RRCConnectionReconfiguration of 36.508, with the following exceptions:

Derivation Path: TS 36.508 [33] clause 4.6.1, Table 4.6.1-8 RRCConnectionReconfiguration			
Information Element	**Value/remark**	**Comment**	**Condition**
RRCConnectionReconfiguration ::= SEQUENCE {			
rrc-TransactionIdentifier	RRC-TransactionIdentifier-DL		
criticalExtensions CHOICE {			
c1 CHOICE{			
rrcConnectionReconfiguration-r8 SEQUENCE {			
mobilityControlInfo	MobilityControlInfo-HO		HO-TO-EUTRA
dedicatedInfoNASList	Not present		
radioResourceConfigDedicated	RadioResourceConfigDedicated-HO-TO-EUTRA(n, m)		HO-TO-EUTRA(n,m)
securityConfigHO	SecurityConfigHO-DEFAULT		HO-TO-EUTRA
}			
}			
}			
}			

SecurityConfigHO-DEFAULT

Derivation Path: TS 36.508[33] clause 4.6.4, Table 4.6.4-1: SecurityConfigHO-DEFAULT			
Information Element	**Value/remark**	**Comment**	**Condition**
SecurityConfigHO-DEFAULT ::= SEQUENCE {			
handoverType CHOICE {	interRAT		
interRAT SEQUENCE {			
securityAlgorithmConfig SEQUENCE {			
cipheringAlgorithm	Set according to PIXIT parameter for default ciphering algorithm		
integrityProtAlgorithm	Set according to PIXIT parameter for default		

	integrity protection algorithm		
}			
nas-SecurityParamToEUTRA	OCTET STRING (SIZE(6))	This field is used to activate NAS security after inter-RAT handover to E-UTRA. The content is defined in TS 24.301.	
}			
}			
}			

MobilityControlInfo-HO

Derivation Path: TS 36.508[33] clause 4.6.5, Table 4.6.5-1: MobilityControlInfo-HO			
Information Element	**Value/remark**	**Comment**	**Condition**
MobilityControlInfo-HO ::= SEQUENCE {			
targetPhysCellId	Set according to specific message content		
carrierFreq	Set according to the frequency used for E-UTRA cell under test		
carrierBandwidth::= SEQUENCE {			
dl-Bandwidth	Set according to the bandwidth used for E-UTRA cell under test		
ul-Bandwidth	Not present		
}			
additionalSpectrumEmission	1		
t304	ms1000		
newUE-Identity	SS arbitrarily selects a value between '003C'H and 'FFF2'H.		
radioResourceConfigCommon	RadioResourceConfigCommon-DEFAULT		
rach-ConfigDedicated	Not present		
}			

RadioResourceConfigCommon-DEFAULT

Derivation Path: TS 36.508 [33] clause 4.6.3, Table 4.6.3-13 RadioResourceConfigCommon-DEFAULT			
Information Element	**Value/remark**	**Comment**	**Condition**
RadioResourceConfigCommon-DEFAULT ::= SEQUENCE {			
rach-ConfigCommon	RACH-ConfigCommon-DEFAULT		
prach-Config	PRACH-Config-DEFAULT		
pdsch-ConfigCommon	PDSCH-ConfigCommon-DEFAULT		
pusch-ConfigCommon	PUSCH-ConfigCommon-DEFAULT		
phich-Config	PHICH-Config-DEFAULT		
pucch-ConfigCommon	PUCCH-ConfigCommon-DEFAULT		
soundingRSUL-ConfigCommon	SoundingRS-UL-ConfigCommon-DEFAULT		
uplinkPowerControlCommon	UplinkPowerControlCommon-DEFAULT		
antennaInfoCommon SEQUENCE {			
antennaPortsCount	an1		
}			
p-Max	Not present		
tdd-Config	TDD-Config-DEFAULT		TDD

ul-CyclicPrefixLength	len1		
}			

PRACH-ConfCommonDEFAULT

Derivation Path: TS 36.508 [33] clause 4.6.3, Table 4.6.3-7 PRACH-ConfCommonDEFAULT			
Information Element	**Value/remark**	**Comment**	**Condition**
PRACH-ConfigInfo SEQUENCE {			
prach-ConfigIndex	53		

RadioResourceConfigDedicated-HO-TO-EUTRA(n,m)

Derivation Path: TS 36.508 [33] clause 4.6.3, Table 4.6.3-18 RadioResourceConfigDedicated-HO-TO-EUTRA(n,m)			
Information Element	**Value/remark**	**Comment**	**Condition**
RadioResourceConfigDedicated-HO-TO-EUTRA(n, m) ::= SEQUENCE {			
srb-ToAddModList SEQUENCE (SIZE (1..2)) OF SEQUENCE {	2 entries		
srb-ToAddMod[1]	SRB-ToAddMod-DEFAULT using condition SRB1		
srb-ToAddMod[2]	SRB-ToAddMod-DEFAULT using condition SRB2		
}			
drb-ToAddModList SEQUENCE (SIZE (1..maxDRB)) OF SEQUENCE {	1 entry		
drb-ToAddMod[1]	DRB-ToAddMod-DEFAULT using condition AM		
}			
drb-ToReleaseList	Not present		
mac-MainConfig CHOICE {			
explicitValue	MAC-MainConfig-RBC		
}			
sps-Config	Not present		
physicalConfigDedicated	PhysicalConfigDedicated-DEFAULT using condition RBC		
}			

MAC-MainConfig-RBC

Derivation Path: TS 36.508 [33] clause 4.8.2, Table 4.8.2.1.5-1 MAC-MainConfig-RBC			
Information Element	**Value/remark**	**Comment**	**Condition**
MAC-MainConfig-RBC ::= SEQUENCE {			
ul-SCH-Config SEQUENCE {			
maxHARQ-Tx	n5		
periodicBSR-Timer	sf20		
retxBSR-Timer	sf320		
ttiBundling	FALSE		
}			
drx-Config	Not present		
timeAlignmentTimerDedicated	sf750		
phr-Config CHOICE {			
setup SEQUENCE {			
periodicPHR-Timer	sf500		
prohibitPHR-Timer	sf200		
dl-PathlossChange	dB3		
}			
}			
}			

PhysicalConfigDedicated-DEFAULT

Derivation Path: TS 36.508 [33] clause 4.8.2, Table 4.8.2.1.6-1: PhysicalConfigDedicated-DEFAULT				
Information Element	**Value/remark**	**Comment**	**Condition**
PhysicalConfigDedicated-DEFAULT ::= SEQUENCE {			
pdsch-ConfigDedicated	Not present		HO-TO-EUTRA
pucch-ConfigDedicated	Not present		HO-TO-EUTRA
pusch-ConfigDedicated	Not present		HO-TO-EUTRA
uplinkPowerControlDedicated	Not present		HO-TO-EUTRA
soundingRS-LU-ConfigDedicated	SoundingRS-UI-ConfigDedicated-DEFAULT		HO-TO-EUTRA
schedulingRequestConfig	Not present		HO-TO-EUTRA
NOTE: Default values are defined in TS 36.331 [36] section 9.2.4.				

MEASUREMENT REPORT message for Inter-RAT test cases

Information Element	**Value/remark**
Message Type(10.2.19 in TS 25.331)	
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.
Activation time	Not present
Measurement identity	2
E-UTRA Measured Results	
- E-UTRA measured results list	1 entry
- E-UTRA Carrier Frequency	Checked that this IE is present
- Measured E-UTRA cells	1 entry
- Physical Cell Identity	Checked that this IE is present PhysicalCellIdentity of Cell 2
- RSRP	Checked that this IE is present
- RSRQ	Checked that this IE is absent
E-UTRA event results	
- Inter-RAT event identity	3a
- E-UTRA events results list	1 entry
- E-UTRA Carrier Frequency	Checked that this IE is present Downlink EARFCN of Cell 2
- Reported cells	1 entry
- Physical Cell Identity	Checked that this IE is present PhysicalCellIdentity of Cell 2
Measured results on RACH	This IE does not need to be checked.
Additional measured results	This IE does not need to be checked.
Event results	This IE does not need to be checked.
Additional measured results	This IE does not need to be checked.

8.3.4b.5 Test requirements

**Table 8.3.4b.4: Test requirements for Cell specific test parameters
for UTRAN FDD to E-UTRAN TDD handover test 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 8.3.4b.5: Test requirement for Cell specific test parameters
for UTRAN FDD to E-UTRAN TDD handover test case (cell 2)**

Parameter	Unit	Cell 2 (E-UTRA)		
		T1	T2	T3
E-UTRA RF Channel number		1		
BW_channel	MHz	10		
OCNG Patterns defined in TS 36.521-3 section D.2.1 (OP.1 TDD) and D.2.2 (OP.2 TDD)		OP.2 TDD	OP.2 TDD	OP.1 TDD
PBCH_RA	dB	0		
PBCH_RB	dB			
PSS_RA	dB			
SSS_RA	dB			
PCFICH_RB	dB			
PHICH_RA	dB			
PHICH_RB	dB			
PDCCH_RA	dB			
PDCCH_RB	dB			
PDSCH_RA	dB			
PDSCH_RB	dB			
OCNG_RA[Note 1]	dB			
OCNG_RB[Note 1]	dB			
$\hat{E}_s/I_{ot}$	dB	-infinity	7.80	7.80
N_{oc} [Note 2]	dBm/15 kHz	-98		
$\hat{E}_s/N_{oc}$	dB	-infinity	7.80	7.80
RSRP [Note 3]	dBm/15 kHz	-infinity	-90.20	-90.20
Io [Note 3]	dBm/9 MHz	-70.22	-61.75	-61.75
Propagation Condition		AWGN		
NOTE 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols.				
NOTE 2: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and shall be modelled as AWGN of appropriate power for N_{oc} to be fulfilled.				
NOTE 3: RSRP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves.				

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.

8.3.4c Inter-system Handover from UTRAN FDD to E-UTRAN FDD: Unknown Target Cell

Editor's note: This Test case is incomplete for frequencies above 3 GHz

- The Test system uncertainties applicable above 3GHz are undefined

- The Test Tolerances and Test Requirements applicable above 3GHz are undefined

8.3.4c.1 Definition and applicability

The UTRAN to E-UTRAN cell handover delay is defined as the time from the end of the last TTI containing an RRC message implying handover to the transmission on the channel of the new RAT.

The requirements and this test apply to Release 8 and later releases UTRA FDD UE that support E-UTRA FDD and inter-RAT PS handover to E-UTRA(FDD) from UTRA. Applicability requires support for EUTRA FGI bit 2.

8.3.4c.2 Minimum requirement

The UE shall start to transmit the PRACH to Cell 2 less than 165 ms from the beginning of time period T2.

The rate of correct cell reselections observed during repeated tests shall be at least 90%.

NOTE:

The total HO delay is the sum of the RRC procedure delay and interruption time:

The RRC procedure delay is 50 ms

The interruption time is $Tinterrupt = T_{search} + T_{IU} + 20 \, ms$

Where:

T_{search} : 80 ms in case the target cell is unknown.

T_{IU} : 15 ms since the PRACH configuration used in the target cell (E-UTRAN) is assumed to be 4 for FDD and 53 for TDD respectively as specified in table 5.7.1-2 and 5.7.1-4 in TS 36.211 [35]. 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 165 ms for the test case.

The normative reference for this requirement is TS 25.133 [2] clauses 5.4a and A.5.4c.

8.3.4c.3 Test purpose

To verify that the UE meets the minimum requirement.

8.3.4c.4 Method of test

8.3.4c.4.1 Initial conditions

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

Frequencies to be tested: see table K.2 in Annex K.

The test parameters are given in Table 8.3.4c.1, 8.3.4c.2 and 8.3.4c.3 below. The test consists of two successive time periods, with time durations of T1 and T2 respectively. At the start of time duration T1, the UE does not have any timing information of Cell 2. No compressed mode patterns are configured in the test case.

The UTRAN shall send a Handover from UTRAN command with activation time "now" with a new active cell, cell 2. In the E-UTRAN Handover command contained in that message, the IE starting time shall not be included. The RRC HANDOVER FROM UTRAN COMMAND message shall be sent to the UE towards the end of the time period T1. The start of T2 is defined as the end of last TTI containing the handover command.

Table 8.3.4c.1: General test parameters for UTRAN FDD to E-UTRAN FDD handover test case; unknown target E-UTRAN FDD cell

Parameter	Unit	Value	Comment
DCH parameters		DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.101 [1] section A.3.1
Power Control		On	
Target quality value on DTCH	BLER	0.001	
Initial condition	Active cell	Cell 1	UTRAN FDD
	Neighbouring cell	Cell 2	E-UTRAN FDD
Final condition	Active cell	Cell 2	E-UTRAN FDD
PDSCH parameters		DL Reference Measurement Channel R.0 FDD	As specified in TS 36. 521-3 [38] section A.1.1
PCFICH/PDCCH/PHICH parameters		DL Reference Measurement Channel R.6 FDD	As specified in TS 36. 521-3 [38] section A.2.1
PRACH configuration		4	As specified in table 5.7.1-2 in 3GPP TS 36.211 [35]
Access Barring Information	-	Not sent	No additional delays in random access procedure
T1	s	≤5	
T2	s	1	

Table 8.3.4c.2: Cell specific test parameters for cell # 1 in UTRAN FDD to E-UTRAN FDD handover test

Parameter	Unit	Cell 1 (UTRA FDD)
		T1, T2
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 8.3.4c.3: Cell specific test parameters for UTRAN FDD to E-UTRAN FDD handover test case (cell 2)

Parameter	Unit	Cell 2 (E-UTRA FDD)	
		T1	T2
E-UTRA RF Channel number		1	
BW$_{channel}$	MHz	10	
OCNG Patterns defined in TS 36.521-3 [38] D.1.1 (OP.1 FDD) and in D.1.2 (OP.2 FDD)		OP.2 FDD	OP.1 FDD
PBCH_RA	dB		
PBCH_RB	dB		
PSS_RA	dB		
SSS_RA	dB	0	
PCFICH_RB	dB		
PHICH_RA	dB		
PHICH_RB	dB		

Parameter	Unit	Cell 2 (E-UTRA FDD)	
		T1	T2
PDCCH_RA	dB		
PDCCH_RB	dB		
PDSCH_RA	dB		
PDSCH_RB	dB		
OCNG_RA [Note 1]	dB		
OCNG_RB [Note 1]	dB		
$\hat{E}_s / I_{ot}$	dB	-infinity	0
N_{oc} [Note 2]	dBm/15 kHz	-98	
$\hat{E}_s / N_{oc}$	dB	-infinity	0
RSRP [Note 3]	dBm/15 KHz	-infinity	-98
Propagation Condition		AWGN	
NOTE 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols.			
NOTE 2: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and shall be modelled as AWGN of appropriate power for N_{oc} to be fulfilled.			
NOTE 3: RSRP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.			

8.3.4c.4.2 Procedure

1) The RF parameters for cell 1 are set up according to T1 in Table 8.3.4c.2.

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) The RF parameters for cell 2 are set up according to T1 in Table 8.3.4 c.4 and the SS configures a traffic channel. T1 starts.

5) After T1 expried, the SS shall transmit a HANDOVER FROM UTRAN COMMAND message with activation time "now" and indicating the traffic channel of the target E-UTRAN FDD cell to the UE through DCCH of the serving UTRAN cell. The start of T2 is defined as the end of the last TTI, containing the HANDOVER COMMAND, at that instant the SS shall switch the power setting from T1 to T2 as specified in Table 8.3.4c.2 and Table 8.3.4c.4.

6) The UE shall transmit a PRACH to cell 2 implying that it has switched to the E-UTRAN FDD cell. If the UE transmits the PRACH to cell2 less than 165 ms from the beginning of time period T2, then the number of successful tests is increased by one.

7) At the end of T2 SS shall end the call and UE is switched off. Any timing information of cell 2 is deleted in the UE.

8) Repeat step 1-7 until the confidence level according to Tables G.2.3-1 in TS 36.521-3 [38] 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 TS 34.108 [3] and in clause 4.6.1, 4.6.3, 4.6.4 and 4.7B.1 of TS 36.508 [33], with the following exceptions:

PRACH-ConfCommonDEFAULT: (FDD) for Inter-RAT handover

Derivation Path: TS 36.508 [33] clause 4.6.3, Table 4.6.3-7 PRACH-ConfCommonDEFAULT			
Information Element	Value/remark	Comment	Condition
PRACH-ConfigInfo SEQUENCE {			
prach-ConfigIndex	4		

RRCConnectionReconfiguration

Information Element	Value/remark	Comment	Condition
Derivation Path: TS 36.508 [33] clause 4.6.1, Table 4.6.1-8 RRCConnectionReconfiguration			
RRCConnectionReconfiguration ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE{			
rrcConnectionReconfiguration-r8 SEQUENCE {			
mobilityControlInfo	MobilityControlInfo-HO		HO-TO-EUTRA
dedicatedInfoNASList	Not present		
radioResourceConfigDedicated	RadioResourceConfigDedicated-HO-TO-EUTRA(n, m)		HO-TO-EUTRA(n,m)
securityConfigHO	SecurityConfigHO-DEFAULT		HO-TO-EUTRA
}			
}			
}			
}			

SecurityConfigHO-DEFAULT

Information Element	Value/remark	Comment	Condition
Derivation Path: TS 36.508[33] clause 4.6.4, Table 4.6.4-1: SecurityConfigHO-DEFAULT			
SecurityConfigHO-DEFAULT ::= SEQUENCE {			
handoverType CHOICE {	interRAT		
interRAT SEQUENCE {			
securityAlgorithmConfig SEQUENCE {			
cipheringAlgorithm	Set according to PIXIT parameter for default ciphering algorithm		
integrityProtAlgorithm	Set according to PIXIT parameter for default integrity protection algorithm		
}			
nas-SecurityParamToEUTRA	OCTET STRING (SIZE(6))	This field is used to activate NAS security after inter-RAT handover to E-UTRA. The content is defined in TS 24.301.	
}			
}			
}			

MobilityControlInfo-HO

Information Element	Value/remark	Comment	Condition
Derivation Path: TS 36.508[33] clause 4.6.5, Table 4.6.5-1: MobilityControlInfo-HO			
MobilityControlInfo-HO ::= SEQUENCE {			
targetPhysCellId	Set according to specific message content		
carrierFreq	Set according to the frequency used for E-UTRA cell under test		
carrierBandwidth::= SEQUENCE {			
dl-Bandwidth	Set according to the bandwidth used for E-UTRA cell under test		
ul-Bandwidth	Not present		
}			
additionalSpectrumEmission	1		
t304	ms1000		
newUE-Identity	SS arbitrarily selects a value between '003C'H and 'FFF2'H.		
radioResourceConfigCommon	RadioResourceConfigCommon-DEFAULT		
rach-ConfigDedicated	Not present		
}			

RadioResourceConfigCommon-DEFAULT

Information Element	Value/remark	Comment	Condition
Derivation Path: TS 36.508 [33] clause 4.6.3, Table 4.6.3-13 RadioResourceConfigCommon-DEFAULT			
RadioResourceConfigCommon-DEFAULT ::= SEQUENCE {			
rach-ConfigCommon	RACH-ConfigCommon-DEFAULT		
prach-Config	PRACH-Config-DEFAULT		
pdsch-ConfigCommon	PDSCH-ConfigCommon-DEFAULT		
pusch-ConfigCommon	PUSCH-ConfigCommon-DEFAULT		
phich-Config	PHICH-Config-DEFAULT		
pucch-ConfigCommon	PUCCH-ConfigCommon-DEFAULT		
soundingRSUL-ConfigCommon	SoundingRS-UL-ConfigCommon-DEFAULT		
uplinkPowerControlCommon	UplinkPowerControlCommon-DEFAULT		
antennaInfoCommon SEQUENCE {			
antennaPortsCount	an1		
}			
p-Max	Not present		
tdd-Config	Not present		FDD
ul-CyclicPrefixLength	len1		
}			

RadioResourceConfigDedicated-HO-TO-EUTRA(n,m)

Information Element	Value/remark	Comment	Condition
Derivation Path: TS 36.508 [33] clause 4.6.3, Table 4.6.3-18 RadioResourceConfigDedicated-HO-TO-EUTRA(n,m)			
RadioResourceConfigDedicated-HO-TO-EUTRA(n, m) ::= SEQUENCE {			
srb-ToAddModList SEQUENCE (SIZE (1..2)) OF SEQUENCE {	2 entries		
srb-ToAddMod[1]	SRB-ToAddMod-DEFAULT using condition SRB1		
srb-ToAddMod[2]	SRB-ToAddMod-DEFAULT using condition SRB2		
}			
drb-ToAddModList SEQUENCE (SIZE (1..maxDRB)) OF SEQUENCE {	1 entry		
drb-ToAddMod[1]	DRB-ToAddMod-DEFAULT using condition AM		
}			
drb-ToReleaseList	Not present		
mac-MainConfig CHOICE {			
explicitValue	MAC-MainConfig-RBC		
}			
sps-Config	Not present		
physicalConfigDedicated	PhysicalConfigDedicated-DEFAULT using condition RBC		
}			

MAC-MainConfig-RBC

Information Element	Value/remark	Comment	Condition
Derivation Path: TS 36.508 [33] clause 4.8.2, Table 4.8.2.1.5-1 MAC-MainConfig-RBC			
MAC-MainConfig-RBC ::= SEQUENCE {			
ul-SCH-Config SEQUENCE {			
maxHARQ-Tx	n5		
periodicBSR-Timer	sf20		
retxBSR-Timer	sf320		
ttiBundling	FALSE		
}			
drx-Config	Not present		
timeAlignmentTimerDedicated	sf750		
phr-Config CHOICE {			
setup SEQUENCE {			
periodicPHR-Timer	sf500		
prohibitPHR-Timer	sf200		
dl-PathlossChange	dB3		
}			
}			
}			

PhysicalConfigDedicated-DEFAULT

Derivation Path: TS 36.508 [33] clause 4.8.2, Table 4.8.2.1.6-1: PhysicalConfigDedicated-DEFAULT			
Information Element	**Value/remark**	**Comment**	**Condition**
PhysicalConfigDedicated-DEFAULT ::= SEQUENCE {			
pdsch-ConfigDedicated	Not present		HO-TO-EUTRA
pucch-ConfigDedicated	Not present		HO-TO-EUTRA
pusch-ConfigDedicated	Not present		HO-TO-EUTRA
uplinkPowerControlDedicated	Not present		HO-TO-EUTRA
soundingRS-LU-ConfigDedicated	SoundingRS-Ul-ConfigDedicated-DEFAULT		HO-TO-EUTRA
schedulingRequestConfig	Not present		HO-TO-EUTRA
NOTE: Default values are defined in TS 36.331 [36] section 9.2.4.			

8.3.4c.5 Test requirements

**Table 8.3.4c.4: Test requirement for Cell specific test parameters
for UTRAN FDD to E-UTRAN FDD handover test case (cell 2)**

Parameter	Unit	Cell 2 (E-UTRA FDD)	
		T1	T2
E-UTRA RF Channel number		1	
BW$_{channel}$	MHz	10	
OCNG Patterns defined in TS 36.521-3 [38] D.1.1 (OP.1 FDD) and in D.1.2 (OP.2 FDD)		OP.2 FDD	OP.1 FDD
PBCH_RA	dB	0	
PBCH_RB	dB		
PSS_RA	dB		
SSS_RA	dB		
PCFICH_RB	dB		
PHICH_RA	dB		
PHICH_RB	dB		
PDCCH_RA	dB		
PDCCH_RB	dB		
PDSCH_RA	dB		
PDSCH_RB	dB		
OCNG_RA $^{Note 1}$	dB		
OCNG_RB $^{Note 1}$	dB		
$\hat{E}_s/I_{ot}$	dB	-infinity	0
N_{oc} $^{Note 2}$	dBm/15 kHz	-98	
$\hat{E}_s/N_{oc}$	dB	-infinity	0
RSRP $^{Note 3}$	dBm/15 KHz	-infinity	-98
Propagation Condition		AWGN	
NOTE 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols.			
NOTE 2: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and shall be modelled as AWGN of appropriate power for N_{oc} to be fulfilled.			
NOTE 3: RSRP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.			

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%.

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.

8.3.4d Inter-system Handover from UTRAN FDD to E-UTRAN TDD; Unknown Target Cell

Editor's note: This Test case is incomplete for frequencies above 3GHz

- The Test system uncertainties applicable above 3GHz are undefined

- The Test Tolerances and Test Requirements applicable above 3GHz are undefined

8.3.4d.1 Definition and applicability

The UTRAN FDD to E-UTRAN TDD 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 Release 8 and later releases the combined UTRAN FDD and E-UTRAN TDD UE and inter-RAT PS handover to E-UTRA(TDD) from UTRA. Applicability requires support for EUTRA FGI bit 2.

8.3.4d.2 Minimum requirement

The UE shall begin to send PRACH to the target cell less than 160 ms from the beginning of time period T2.

The rate of correct handovers observed during repeated tests shall be at least 90%.

NOTE: The test requirement in this case is expressed as:

- The total HO delay is the sum of the RRC procedure delay and interruption time.

- The RRC procedure delay is 50 ms.

- The interruption time is defined as follows:

$T_{interrupt} = T_{search} + T_{IU} + 20$ ms

Where:

T_{search}: is the time required to search the target cell when the target cell is not already known when the handover command is received by the UE. T_{search} is 80 ms if the target cell is unknown and signal quality is sufficient for successful cell detection on the first attempt.

T_{IU}: is the interruption uncertainty in acquiring the first available or PRACH occasion in the new cell. T_{IU} can be up to 30 ms. It is chosen 10 ms since the PRACH configuration used in the target cell (E-UTRAN TDD) is assumed to be 53 as specified in table 5.7.1-3 and 5.7.1-4 in TS 36.211 [35].

The total interruption time is 110 ms.

Thus the total HO delay is 160 ms.

The UE shall start to transmit the PRACH to Cell 2 with a handover delay less than 160ms.

The normative reference for this requirement is TS 25.133 [2] clauses 5.4b.2 and A.5.4d.

8.3.4d.3 Test purpose

To verify that the UE meets the minimum requirement.

8.3.4d.4 Method of test

8.3.4d.4.1 Initial conditions

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

Frequencies to be tested: see table K.2 in Annex K.

The test parameters are given in Table 8.3.4d.1, 8.3.4d.2 and 8.3.4d.3 below. The test consists of two successive time periods, with time durations of T1 and T2 respectively. At the start of time duration T1, the UE does not have any timing information of Cell 2. No compressed mode patterns are configured in the test case.

The UTRAN shall send a Handover from UTRAN command with activation time "now" with a new active cell, cell 2. In the E-UTRAN Handover command contained in that message, the IE starting time shall not be included. The RRC HANDOVER FROM UTRAN COMMAND message shall be sent to the UE towards the end of the time period T1. The start of T2 is defined as the end of last TTI containing the handover command.

Table 8.3.4d.1: General test parameters for UTRAN FDD to E-UTRAN TDD handover test case

Parameter	Unit	Value	Comment
DCH parameters		DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.101 [1] section A.3.1
Power Control		On	
Target quality value on DTCH	BLER	0.001	
Initial condition	Active cell	Cell 1	UTRAN FDD
	Neighbouring cell	Cell 2	E-UTRAN TDD
Final condition	Active cell	Cell 2	E-UTRAN TDD
PDSCH parameters		DL Reference Measurement Channel R.0 TDD	As specified in 3GPP TS 36.521-3 [38] section A.1.2
PCFICH/PDCCH/PHICH parameters		DL Reference Measurement Channel R.6 TDD	As specified in 3GPP TS 36.521-3 [38] section A.2.2
PRACH configuration		s	As specified in table 5.7.1-2 in 3GPP TS 36.211 [35]
Access Barring Information	-	Not sent	No additional delays in random access procedure
Special subframe configuration		6	As specified in table 4.2-1 in 3GPP TS 36.211 [35]
Uplink-downlink configuration		1	As specified in table 4.2-2 in 3GPP TS 36.211 [35]
PRACH configuration		53	As specified in table 5.7.1-3 in 3GPP TS 36.211 [35]
T1	s	≤ 5	
T2	s	1	

Table 8.3.4d.2: Cell specific test parameters for UTRAN FDD to E-UTRAN TDD handover test case (cell 1)

Parameter	Unit	Cell 1 (UTRA FDD)
		T1, T2
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 Ior.		

**Table 8.3.4d.3: Cell specific test parameters for UTRAN FDD
to E-UTRAN TDD handover test case (cell 2)**

Parameter	Unit	Cell 2 (E-UTRA TDD)	
		T1	T2
E-UTRA RF Channel number		1	
BWchannel	MHz	10	
OCNG Patterns defined in 3GPP TS 36.521-3 [38] Section D.2.1 (OP.1 TDD) and in D.2.2 (OP.2 TDD)		OP.2 TDD	OP.1 TDD
PBCH_RA	dB	0	
PBCH_RB	dB		
PSS_RA	dB		
SSS_RA	dB		
PCFICH_RB	dB		
PHICH_RA	dB		
PHICH_RB	dB		
PDCCH_RA	dB		
PDCCH_RB	dB		
PDSCH_RA	dB		
PDSCH_RB	dB		
OCNG_RANote 1	dB		
OCNG_RBNote 1	dB		
$\hat{E}_s/I_{ot}$	dB	-infinity	0
N_{oc} Note 2	dBm/15 kHz	-98	
$\hat{E}_s/N_{oc}$	dB	-infinity	0
RSRP Note 3	dBm/15 KHz	-infinity	-98
Propagation Condition		AWGN	
NOTE 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols. NOTE 2: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and shall be modelled as AWGN of appropriate power for N_{oc} to be fulfilled. NOTE 3: RSRP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.			

8.3.4d.4.2 Procedure

1) The RF parameters for cell 1 are set up according to T1 in Table 8.3.4d.2.

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. Data shall be sent on the DTCH on the UTRA cell throughout the call.

4) The RF parameters for cell 2 are set up according to T1 in Table 8.3.4d.3. The start of T1 is TTI aligned.

5) At the T1-T2 transition, the SS shall switch the power of cell 2 to T2 as in Table 8.3.4d.3.

6) The SS shall transmit a HANDOVER FROM UTRAN COMMAND message with activation time "now" with a new active cell, cell 2. The IE starting time shall not be included in the E-UTRAN handover command. The start of T2 is defined as the end of the last TTI, containing the HANDOVER command.

7) The UE shall transmit a PRACH to cell 2 implying that it has switched to the E-UTRAN TDD cell. If the UE transmits the PRACH to cell2 less than 160 ms from the beginning of time period T2, then the number of successful tests is increased by one.

8) At the end of T2 SS shall end the call and UE is switched off. Any timing information of cell 2 is deleted in the UE.

9) Repeat step 1-8 until the confidence level according to Tables G.2.3-1 in TS 36.521-3 [38] 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 TS 34.108 [3] and in clause 4.6.1, 4.6.3, 4.6.4 and 4.7B.1 of TS 36.508 [33], with the following exceptions:

HANDOVER FROM UTRAN COMMAND message (step 6):

Information Element	Value/remark
Message Type (10.2.15 in TS25.331)	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
-RRC message sequence number	SS provides the value of this IE, from its internal counter.
-Activation time	Now
RB information elements	
-RAB information list	1
-RAB Info	
- RAB identity	0000 0001B The first/ leftmost bit of the bit string contains the most significant bit of the RAB identity.
- CN domain identity	CS domain
- NAS Synchronization Indicator	Not present
- Re-establishment timer	Use T315
Other information elements	
-CHOICE System type	E-UTRA
-E-UTRA message	Formatted and coded according to E-UTRA specifications. The first/leftmost/most significant bit of the octet string contains bit 8 of the first octet of the E-UTRA message.

HANDOVER COMMAND

Derivation Path: TS 36.508 [33] clause 4.6.1, Table 4.6.1-8 RRCConnectionReconfiguration			
Information Element	Value/remark	Comment	Condition
RRCConnectionReconfiguration ::= SEQUENCE {			
rrc-TransactionIdentifier	RRC-TransactionIdentifier-DL		
criticalExtensions CHOICE {			
c1 CHOICE{			
rrcConnectionReconfiguration-r8 SEQUENCE {			
mobilityControlInfo	MobilityControlInfo-HO		HO-TO-EUTRA
dedicatedInfoNASList	Not present		
radioResourceConfigDedicated	RadioResourceConfigDedicated-HO-TO-EUTRA(n, m)		HO-TO-EUTRA(n,m)
securityConfigHO	SecurityConfigHO-DEFAULT		HO-TO-EUTRA
}			
}			
}			
}			

SecurityConfigHO-DEFAULT

Information Element	Value/remark	Comment	Condition
Derivation Path: TS 36.508[33] clause 4.6.4, Table 4.6.4-1: SecurityConfigHO-DEFAULT			
SecurityConfigHO-DEFAULT ::= SEQUENCE {			
handoverType CHOICE {	interRAT		
interRAT SEQUENCE {			
securityAlgorithmConfig SEQUENCE {			
cipheringAlgorithm	Set according to PIXIT parameter for default ciphering algorithm		
integrityProtAlgorithm	Set according to PIXIT parameter for default integrity protection algorithm		
}			
nas-SecurityParamToEUTRA	OCTET STRING (SIZE(6))	This field is used to activate NAS security after inter-RAT handover to E-UTRA. The content is defined in TS 24.301.	
}			
}			
}			

MobilityControlInfo-HO

Information Element	Value/remark	Comment	Condition
Derivation Path: TS 36.508[33] clause 4.6.5, Table 4.6.5-1: MobilityControlInfo-HO			
MobilityControlInfo-HO ::= SEQUENCE {			
targetPhysCellId	Set according to specific message content		
carrierFreq	Set according to the frequency used for E-UTRA cell under test		
carrierBandwidth::= SEQUENCE {			
dl-Bandwidth	Set according to the bandwidth used for E-UTRA cell under test		
ul-Bandwidth	Not present		
}			
additionalSpectrumEmission	1		
t304	ms1000		
newUE-Identity	SS arbitrarily selects a value between '003C'H and 'FFF2'H.		
radioResourceConfigCommon	RadioResourceConfigCommon-DEFAULT		
rach-ConfigDedicated	Not present		
}			

RadioResourceConfigCommon-DEFAULT

Derivation Path: TS 36.508 [33] clause 4.6.3, Table 4.6.3-13 RadioResourceConfigCommon-DEFAULT			
Information Element	Value/remark	Comment	Condition
RadioResourceConfigCommon-DEFAULT ::= SEQUENCE {			
rach-ConfigCommon	RACH-ConfigCommon-DEFAULT		
prach-Config	PRACH-Config-DEFAULT		
pdsch-ConfigCommon	PDSCH-ConfigCommon-DEFAULT		
pusch-ConfigCommon	PUSCH-ConfigCommon-DEFAULT		
phich-Config	PHICH-Config-DEFAULT		
pucch-ConfigCommon	PUCCH-ConfigCommon-DEFAULT		
soundingRSUL-ConfigCommon	SoundingRS-UL-ConfigCommon-DEFAULT		
uplinkPowerControlCommon	UplinkPowerControlCommon-DEFAULT		
antennaInfoCommon SEQUENCE {			
antennaPortsCount	an1		
}			
p-Max	Not present		
tdd-Config	TDD-Config-DEFAULT		TDD
ul-CyclicPrefixLength	len1		
}			

PRACH-ConfCommonDEFAULT

Derivation Path: TS 36.508 [33] clause 4.6.3, Table 4.6.3-7 PRACH-ConfCommonDEFAULT			
Information Element	Value/remark	Comment	Condition
PRACH-ConfigInfo SEQUENCE {			
prach-ConfigIndex	53		

RadioResourceConfigDedicated-HO-TO-EUTRA(n,m)

Derivation Path: TS 36.508 [33] clause 4.6.3, Table 4.6.3-18 RadioResourceConfigDedicated-HO-TO-EUTRA(n,m)			
Information Element	Value/remark	Comment	Condition
RadioResourceConfigDedicated-HO-TO-EUTRA(n, m) ::= SEQUENCE {			
srb-ToAddModList SEQUENCE (SIZE (1..2)) OF SEQUENCE {	2 entries		
srb-ToAddMod[1]	SRB-ToAddMod-DEFAULT using condition SRB1		
srb-ToAddMod[2]	SRB-ToAddMod-DEFAULT using condition SRB2		
}			
drb-ToAddModList SEQUENCE (SIZE (1..maxDRB)) OF SEQUENCE {	1 entry		
drb-ToAddMod[1]	DRB-ToAddMod-DEFAULT using condition AM		
}			
drb-ToReleaseList	Not present		
mac-MainConfig CHOICE {			
explicitValue	MAC-MainConfig-RBC		
}			
sps-Config	Not present		
physicalConfigDedicated	PhysicalConfigDedicated-DEFAULT using condition RBC		
}			

MAC-MainConfig-RBC

Derivation Path: TS 36.508 [33] clause 4.8.2, Table 4.8.2.1.5-1 MAC-MainConfig-RBC			
Information Element	**Value/remark**	**Comment**	**Condition**
MAC-MainConfig-RBC ::= SEQUENCE {			
ul-SCH-Config SEQUENCE {			
maxHARQ-Tx	n5		
periodicBSR-Timer	sf20		
retxBSR-Timer	sf320		
ttiBundling	FALSE		
}			
drx-Config	Not present		
timeAlignmentTimerDedicated	sf750		
phr-Config CHOICE {			
setup SEQUENCE {			
periodicPHR-Timer	sf500		
prohibitPHR-Timer	sf200		
dl-PathlossChange	dB3		
}			
}			
}			

PhysicalConfigDedicated-DEFAULT

Derivation Path: TS 36.508 [33] clause 4.8.2, Table 4.8.2.1.6-1: PhysicalConfigDedicated-DEFAULT			
Information Element	**Value/remark**	**Comment**	**Condition**
PhysicalConfigDedicated-DEFAULT ::= SEQUENCE {			
pdsch-ConfigDedicated	Not present		HO-TO-EUTRA
pucch-ConfigDedicated	Not present		HO-TO-EUTRA
pusch-ConfigDedicated	Not present		HO-TO-EUTRA
uplinkPowerControlDedicated	Not present		HO-TO-EUTRA
soundingRS-LU-ConfigDedicated	SoundingRS-UI-ConfigDedicated-DEFAULT		HO-TO-EUTRA
schedulingRequestConfig	Not present		HO-TO-EUTRA
NOTE: Default values are defined in TS 36.331 [36] section 9.2.4.			

8.3.4d.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 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 $T_{identify,intra}$, the cell reselection delay in CELL_FACH state to a cell in the same frequency shall be less than

$$T_{reselection,\,intra} = T_{Measurement\_Period\,Intra} + T_{IU} + 20 + T_{SI} + T_{RA}\ \ ms$$

where

$T_{Measurement\_Period\,Intra} = 200$ 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
T_{SI}		ms	1280	See Annex I for the SIB repetition period of system information blocks.
T1		s	15 (initial), 5 (repetition)	
T2		s	5	

The transport and physical parameters of the S-CCPCH carrying the FACH are defined in TS 34.108 [3] clause 6.1.0b (Contents of System Information Block type 5 (FDD)).

Table 8.3.5.1.2: void

Table 8.3.5.1.3:void

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	
I$_{or}$ (Note 1)	dBm	-62.73	-59.73	-59.73	-62.73	-69.73		-69.73		-69.73		-69.73	
	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	
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	
IE "FACH Measurement occasion info"		not sent		not sent		not sent		not sent		not sent		not sent	

NOTE 1: The nominal Îor values, although not explicitly defined in 25.133 [2] 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 7.3.5 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 at initial or 5 seconds for repeated case 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 1.84 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 5 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 5 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 1.84 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 at initial or 5 s for repeated case 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 1: 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 time to read the relevant system info blocks that needs to be received by the UE to camp on a cell is 1420ms (see note 2) and the maximum RRC procedure delay for reception system information block is 100ms, 1520 ms is assumed in this test case. Therefore the cell re-selection delay shall be less than 1.84 s.(Minimum requirement + 240ms). Specific Message Contents

NOTE 2: 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. The Master Information Block (MIB) is repeated every 8 frame and SIB5 (and SIB11) is segmented into 4 segments where the first segment is scheduled adjacent to the MIB at SIB_POS=40 and the other three segments are scheduled after the MIB (SIB_POS=42, 44 and 46). The maximum time for a UE to read SIB5 will occur if the UE start reading the BCH at the SFN after the MIB located prior to the first segment of SIB5 (SIB_POS 32). Then the UE will not be able to read SIB5 until the second occurrence of SIB5, which will happen at SIB_POS 46 + 1280ms. This gives that the maximum time for the UE to read the relevant system info will be 1420ms ((SIB_POS 46 – SIB_POS 32)*10ms +1280ms).

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

Information Element	Value/remark
RRC transaction identifier	0
Activation time	Not Present
New C-RNTI	1010101010101010 B
RRC State indicator	CELL_FACH

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
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 8.3.5.1.4 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 $T_{identify,inter}$, the cell reselection delay in CELL_FACH state to a FDD cell on a different frequency shall be less than

$$T_{reselection,\,inter} = T_{Measurement\,inter} + T_{IU} + 20 + T_{SI} + T_{RA}\;ms$$

where

$T_{Measurement\_inter}$ 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 1 280 ms

**Table 8.3.5.2.1: General test parameters for Cell Re-selection in CELL_FACH,
two frequencies 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
T_{SI}		ms	1280	See Annex I for the SIB repetition period of system information blocks.
T1		s	15 (initial), 5 (repetition)	
T2		s	5	
NOTE: Monitored cell list size has 6 cells on 2 carriers. See Annex I for the cell information.				

The transport and physical parameters of the S-CCPCH carrying the FACH are defined in TS 34.108 [3] clause 6.1.0b (Contents of System Information Block type 5 (FDD)).

Table 8.3.5.2.2:void

Table 8.3.5.2.3:void

Table 8.3.5.2.4: Cell specific conditions for Cell re-selection in CELL_FACH state, two frequencies 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
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 Ior values, although not explicitly defined in 25.133 [2] 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 7.3.5 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 at initial or 5 seconds for repeated case 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 2.14 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 5 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 5 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 2.14 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 at initial or 5 s for repeated case 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 1: 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 time to read the relevant system info blocks that needs to be received by the UE to camp on a cell is 1420ms (see note 2) and the maximum RRC procedure delay for reception system information block is 100ms, 1520 ms is assumed in this test case. Therefore the cell re-selection delay shall be less than 2.14 s.(Minimum requirement + 240ms).

NOTE 2: 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. The Master Information Block (MIB) is repeated every 8 frame and SIB5 (and SIB11) is segmented into 4 segments where the first segment is scheduled adjacent to the MIB at SIB_POS=40 and the other three segments are scheduled after the MIB (SIB_POS=42, 44 and 46). The maximum time for a UE to read SIB5 will occur if the UE start reading the BCH at the SFN after the MIB located prior to the first segment of SIB5 (SIB_POS 32). Then the UE will not be able to read SIB5 until the second occurrence of SIB5, which will happen at SIB_POS 46 + 1280ms. This gives that the maximum time for the UE to read the relevant system info will be 1420ms ((SIB_POS 46 – SIB_POS 32)*10ms +1280ms).

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

Information Element	Value/remark
RRC transaction identifier	0
Activation time	Not Present
New C-RNTI	1010101010101010 B
RRC State indicator	CELL_FACH

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 frequencies 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
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/3.84 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

$$T_{reselection, GSM} = T_{identify, GSM} + T_{measurement, GSM} + 40 + T_{BCCH} + T_{RA} \text{ ms}$$

where:

$T_{identify, GSM}$ Specified in TS 25.133 [2] clause 8.4.2.5.2.1, here it is 2880 ms

$T_{measurement, GSM}$ Specified in TS 25.133 [2] clause 5.5.2.1.4, here it is 640 ms

T_{BCCH} According to TS 05.08 [20] for R99 and TS 45.008 [30] for Rel-4 and later releases, 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 the UE to transmit radio access bursts in every GSM radio frame. The UE is requested to monitor neighbouring cells on 1 UMTS carrier and 6 GSM cells. The GSM cell is configured as GSM only (GPRS not active).

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 the ARFCN of cell 2	NOTE: See Annex I for cell information.
T1		s	5	
T2		s	10	

The transport and physical parameters of the S-CCPCH carrying the FACH are defined in TS 34.108 [3] clause 6.1.0b (Contents of System Information Block type 5 (FDD)).

Table 8.3.5.3.2: void

Table 8.3.5.3.3: void

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/No	
Qqualmin	dB	-20	
Qrxlevmin	dBm	-115	
UE_TXPWR_MAX_RACH	dBm	21	
Qoffset1$_{s, n}$	dB	C1, C2: 0	

Parameter	Unit	Cell 1 (UTRA)	
		T1	T2
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	
FDD_Qmin	dB	-14	
Qsearch_I	-	always	

Specific 2 quarter Message Contents

All messages indicated shall use the same content as described in the default message content in TS 05.08 [20] clause 9 for R99 and in TS 45.008 [30] clause 9 for Rel-4 and later releases, with the above exceptions.

In order to ensure that all system information can be sent to the UE in one multiframe if all three of the SYSTEM INFORMATION TYPE 2 bis, SYSTEM INFORMATION TYPE 2 quater, and SYSTEM INFORMATION TYPE 2 ter are broadcasted SYSTEM INFORMATION TYPE 2 quater message is sent on BCCH Ext.

8.3.5.3.4.2   Procedure

1) The SS activates cell 1-2 with RF parameters set up according to T1 in tables 8.3.5.3.6 and 8.3.5.3.7.

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 7.3.8 to place the UE in CELL_FACH and the SS waits for this process to complete. T1 starts.

4) After 5 seconds from the beginning of T1, the parameters are changed to those defined for T2 in tables 8.3.5.3.6 and 8.3.5.3.7.

5) The SS waits for random access requests from the UE. If the UE responds on cell 2 within 5.51 s (=5.5 s + T$_{RAS}$) 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 8.3.5.3.6 and 8.3.5.3.7.

8) The SS waits for random access requests from the UE on cell 1. The SS completes the routing area update procedure in UTRA. T1 starts.

9) Repeat step 4) to 8) until the confidence level according to annex F.6.2 is achieved.

8.3.5.3.5 Test requirements

Table 8.3.5.3.6: Cell re-selection UTRAN to GSM cell case (cell 1) Test Requirements

Parameter	Unit	Cell 1 (UTRA)	
		T1	T2
UTRA RF Channel Number		Channel 1	
CPICH_Ec/Ior	dB	-9.9	-10.1
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	-1.309	-1.282
$\hat{I}_{or}/I_{oc}$	dB	0.3	-5.3
I_{oc}	dBm/3.84 MHz	-70	
CPICH_Ec/Io	dB	-12.8	-16.5
CPICH_RSCP	dBm	-79.6	-85.4
Propagation Condition		AWGN	
Cell_selection_and_reselection_quality_measure		CPICH Ec/No	
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 8.3.5.3.7: Cell re-selection UTRAN to GSM cell case (cell 2) Test Requirements

Parameter	Unit	Cell 2 (GSM)	
		T1	T2
Absolute RF Channel Number		BCCH ARFCN of cell A as defined in the initial conditions in clause 26.6.5.1 of TS 51.010-1 [25] for the GSM band under test. BCCH ARFCN is 744 for FDD Band II and PCS1900 under test. BCCH ARFCN is 241 for FDD Band V, VI or XIX and GSM850 under test. BCCH ARFCN is 114 for FDD Band VIII and GSM900 under test.	
RXLEV	dBm	-91	-74
RXLEV_ACCESS_MIN	dBm	-104	
MS_TXPWR_MAX_CCH	dBm	33	
FDD_Qmin	dB	-14	
Qsearch_I	-	always	

NOTE 1: CPICH_Ec/No and CPICH_RSCP levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.

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.

8.3.5.4 Cell Reselection during an MBMS session, two frequencies present in neighbour list

8.3.5.4.1 Definition and applicability

The purpose of this test is to verify the requirement for the cell identification for UEs in an MBMS PTM session and the required functionality on measurement occasions by use of a cell re-selection test case.

The requirements and this test apply to release 6 and later releases for FDD UE that supports MBMS.

8.3.5.4.2 Minimum requirements

The UE is requested to receive the MBMS service and 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.

The cell re-selection delay shall be less than 1.9s.

During T1 and T2 the MTCH SDU ER shall not exceed 4.0%.

The rate of correct cell reselections observed during repeated tests shall be at least 90%.

NOTE: The cell re-selection delay in this case is expressed as:

$$T_{reselection, inter} = T_{Measuremnt, inter} + T_{IU} + 20 + T_{SI} + T_{RA} \text{ ms,}$$

where:

$T_{Measuremnt, inter}$ Specified in TS 25.133 [2] section 8.4.2.3.2 as 480ms

$T_{identify, inter}i$ Specified in TS 25.133 [2] section 8.4.2.3.1 as 2.72 s in this case, thus 3sec for T2 is sufficient for identification of cell 1.

Note: The calculation based on the S-CCPCH carrying the FACH provides a measurement occasion of 20ms repeated every 80ms. As the MTCH TTI length is only 40ms this has to be shortened to a gap of 10ms every 80ms, the re-selection delay is based upon.

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 [8] for a UTRAN cell. 1280 ms is assumed in this test case.

Note: Since 1280 ms is one of the typical values for repeating system information blocks, T_{SI} of 1280 ms could be increased by the RRC procedure delay in order to allow the SIB repetition period of 1280 ms.

T_{RA}: T_{RA} is a delay is caused by the physical random access procedure described in TS 25.214 [5] section 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.

Note: The maximum allowed time to be used to perform the measurements for a UE in an MBMS session may be smaller than the duration of the measurement occasion to fulfil the MBMS demodulation performance.

This gives a total of 1.83 s, allow 1.9s in the test case.

The reference for this requirement is TS 25.133 [2] clause A.5.5.4.1.

8.3.5.4.3 Test purpose

The purpose of this test is to verify the requirement for the cell identification for UEs in an MBMS PTM session and the required functionality on measurement occasions by use of a cell re-selection test case.

8.3.5.4.4 Method of test

8.3.5.4.4.1 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.

For the test parameters given in tables 8.3.5.4.4.1, 8.3.5.4.4.2, 8.3.5.4.4.3, 8.3.5.4.4.4, 8.3.5.4.4.5 and 8.3.5.4.4.6. The UE is requested to receive the MBMS service and 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 8.3.5.4.4.1: General test parameters for Cell Re-selection in CELL_FACH

Parameter		Unit	Value	Comment
initial condition	Active cell		Cell2	UMTS cell providing the MBMS session
final condition	Active cell		Cell1	UMTS inter-frequency neighbour cell (no MBMS session)
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
MBMS preferred frequency layer				**Not used**
T1		s	15(initial), 5 (repetition)	
T2		s	3	
T3		s	3	

The transport and physical parameters of the S-CCPCH carrying the FACH are defined in Table 8.3.5.4.4.2 and Table 8.3.5.4.4.3.

Table 8.3.5.4.4.2: Physical channel parameters for S-CCPCH_1 carrying the FACH.

Parameter	Unit	Level
Channel bit rate	Kbps	120
Channel symbol rate	Ksps	60
Slot Format #I	-	8
TFCI	-	ON
Power offsets of TFCI and Pilot fields relative to data field	dB	0

Table 8.3.5.4.4.3: Void

The transport channel parameters for S-CCPCH_1 carrying FACH are defined in TS34.108 clause 6.1.0b (Content of System Information Block type 5 (FDD)) with M2 condition and with the exception that TTI for FACH carrying BCCH set to 20ms.

The transport and physical parameters of the S-CCPCH carrying the MTCH are defined in Table 8.3.5.4.4.4 and Table 8.3.5.4.4.5.

Table 8.3.5.4.4.4: Physical channel parameters for S-CCPCH_2 carrying the MTCH.

Parameter	Unit	Level
Channel bit rate	Kbps	960
Channel symbol rate	Ksps	480
Slot Format #I	-	14
TFCI	-	ON
Power offsets of TFCI and Pilot fields relative to data field	dB	0

Table 8.3.5.4.4.5: Transport channel parameters for S-CCPCH_2

Parameter	FACH
Transport Channel Number	1
Transport Block Size	2536
Transport Block Set Size	10144
Transmission Time Interval	40ms
Type of Error Protection	Turbo Coding
Coding Rate	1/3
Rate Matching attribute	256
Size of CRC	16
Position of TrCH in radio frame	Flexible

Table 8.3.5.4.4.6: Cell specific test parameters for Cell re-selection in CELL_FACH state

Parameter	Unit	Cell 1			Cell 2		
		T1	T2	T3	T1	T2	T3
UTRA RF Channel Number		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		
S-CCPCH_1_Ec/Ior	dB	-12			-12		
S-CCPCH_2_Ec/Ior	dB	n.a.			-6		
OCNS_Ec/Ior	dB	Note 1			Note 1		
$\hat{I}_{or}/I_{oc}$	dB	-infinity	-3.37	0	0	0	-5
I_{oc}	dBm/3.84 MHz	-70					
CPICH_Ec/Io	dB	- infinity	-15	-13	-13	-13	-16.2
Propagation Condition		AWGN					
Cell_selection_ and_reselection_ quality_measure		CPICH E_c/N_0			CPICH E_c/N_0		
Qqualmin	dB	-20			-20		
Qrxlevmin	dBm	-115			-115		
UE_TXPWR_ MAX_RACH	dBm	21			21		
Qoffset2$_{s,n}$	dB	C1, C2: 0			C2, C1: 0		
Qhyst2	dB	0			0		
Treselection	S	0			0		
Sintrasearch	dB	not sent			not sent		
Sintersearch	dB	not sent			not sent		
IE "FACH Measurement occasion info"		Sent			Sent		
FACH Measurement occasion cycle length coefficient		2			2		
Inter-frequency FDD measurement indicator		TRUE			TRUE		
Inter-frequency TDD measurement indicator		FALSE			FALSE		
NOTE 1: The power of the OCNS channel that is added shall make the total power from the cell to be equal to Ior.							

The cell re-reselection delay is defined as the time from the beginning of time period T3, to the moment when the UE camps on Cell 1, and starts to send preambles on the PRACH for sending the CELL UPDATE message with cause value "cell reselection" in Cell 1.

8.3.5.4.4.2   Procedure

Initiation

1) The SS activates cell 1-2 with T1 defined parameters in table 8.3.5.4.5 and monitors cell 2 for random access requests from the UE. The SS broadcast the cell reselection parameters according to table 8.3.5.4.5.

2) The UE is switched on. The UE has selected the broadcast service provided by the SS (included in the MBMS_ACTIVATED_SERVICES VARIABLE).

3) Set up a call according to the generic call setup procedure TS34.108 [3] clause 7.3.10 to configure and activate an MBMS broadcast session, and transition to CELL_FACH state on Cell 2. The SS waits for this procedure to be completed.

4) Initiate the variables N_UEOK_PREV, N_UEOK_TEMP, N_UEOK_ACC, N_SS_ACC to 0. (The variables N_UEOK_ACC, N_SS_ACC shall not be initiated when returning back from step 15.)

T1

5) Start T1, and simultaneously start transmitting valid MAC headers on MTCH.

6) After 5 s (15 s in the first iteration) from the start of T1, start transmitting invalid MAC headers on MTCH.

T2

7) The parameters are changed as described for T2 in table 8.3.5.4.5 and the SS start sending valid MAC headers on MTCH.

8) After 3 s from the start of T2, start transmitting invalid MAC headers on MTCH and store N_SS.

Read out UE counter

Note: Steps 9 to 13 below implies that the duration of T2 is longer than specified in the core requirement. The active measurement period is however correct.

9) The SS sends a "UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST" message.

10) The UE to respond by a "UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE" message reporting the number of received RLC SDUs on MTCH. Store this in the variable N_UEOK_TEMP.

11) The SS calculate the following:

N_SS: Number of SS transmitted RLC SDUs with valid MAC headers during T1 and T2.

N_UEOK_TEMP: UE received RLC SDUs as reported in the "UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE" message in step 10.

N_UEOK: UE received RLC SDUs during T1 and T2. This is calculated as N_UEOK_TEMP – N_UEOK_PREV.

N_UEOK_ACC: Accumulated sum of N_UEOK during T1 and T2 periods tested so far.

N_SS_ACC: Accumulated sum of N_SS during T1 and T2 periods tested so far.

12) The SS sets the value of N_UEOK_TEMP to N_UEOK_PREV.

T3

13) The parameters are changed as described for T3 in table 8.3.5.4.5.

14) If the UE responds on Cell 1 with a PRACH (CELL UPDATE message cause "cell reselection") within 1.9 s, then a success is recorded for the delay requirement, the SS shall transmit a CELL UPDATE CONFIRM message and the procedure moves to step 16.

15) Since the UE has failed to respond with the correct message within the allowed time, a failure for the delay requirement is recorded. The SS shall then wait for a total of 3 s from the beginning of T3 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 16.

16) After the cell update procedure, the parameters are changed to those defined for T1 in table 8.3.5.4.5.

17) The SS waits for PRACH (CELL UPDATE message cause "cell reselection") from the UE on cell 2. The SS completes the cell update procedure.

Repeat step 5) to 17) until the confidence level for the delay requirement according to annex F.6.2 are achieved. This includes the confidence level for the RLC SDU error ratio. Refer Annex F.6.1 Table F.6.1.8-3.

Post procedure

18) End the call according to the generic call setup procedure TS34.108 [3] clause 7.3.10.

SDU error rate is measured during T1 and T2, as follows:

$$SDU\_ER\_ACC = (N\_SS\_ACC - N\_UEOK\_ACC) / N\_SS\_ACC$$

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 and clause 6.1.0b of 34.108 [3], with the exceptions stated in clause 7.3.10 of 34.108[3], and the following exceptions:

Content of CELL UPDATE CONFIRM message for CELL_FACH (Step 14 or 15)

Information Element	Value/remark
RRC transaction identifier	0
Activation time	Not Present
New C-RNTI	1010101010101010 B
RRC State indicator	CELL_FACH

Contents of System Information Block type 5 (FDD)

- FACH/PCH information		
- TFS	(FACH)	
- CHOICE Transport channel type	Common transport channels	
- Dynamic Transport format information		
- RLC Size	168	
- Number of TB and TTI List		
- Number of Transport blocks	0	
- Number of Transport blocks	1	
- Number of Transport blocks	2	
- CHOICE Logical channel List	ALL	
- Semi-static Transport Format information		
- Transmission time interval	20 ms	
- Type of channel coding	Convolutional	
- Coding Rate	1/2	
- Rate matching attribute	220	
- CRC size	16 bit	
- Transport channel Identity	13 (for FACH)	
- CTCH indicator	FALSE	

8.3.5.4.5 Test requirements

Table 8.3.5.4.5: Cell specific test requirements for Cell re-selection in CELL_FACH state

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			-9		
PCCPCH_Ec/Ior	dB	-11			-11		
SCH_Ec/Ior	dB	-11			-11		
PICH_Ec/Ior	dB	-14			-14		
S-CCPCH_1_Ec/Ior	dB	-11			-11		
S-CCPCH_2_Ec/Ior	dB	n.a.			-5		
OCNS_Ec/Ior	dB	Note 1			Note 1		
$\hat{I}_{or}/I_{oc}$ (Note2)	dB	-infinity	-3.35	2.66	0	2.44	-5
I_{oc}	dBm/3.84 MHz	-70.0	-70.0	-71.5	-70.0	-71.4	-70.0
CPICH_Ec/Io (Note2)	dB	- infinity	-14.0	-10.9	-12.0	-11.0	-15.2
Propagation Condition		AWGN					
Cell_selection_ and_reselection_ quality_measure		CPICH E_c/N_0			CPICH E_c/N_0		
Qqualmin	dB	-20			-20		
Qrxlevmin	dBm	-115			-115		
UE_TXPWR_ MAX_RACH	dBm	21			21		
Qoffset2$_{s,n}$	dB	C1, C2: 0			C2, C1: 0		
Qhyst2	dB	0			0		
Treselection	S	0			0		
Sintrasearch	dB	not sent			not sent		
Sintersearch	dB	not sent			not sent		
IE "FACH Measurement occasion info"		Sent			Sent		
FACH Measurement occasion cycle length coefficient		2			2		
Inter-frequency FDD measurement indicator		TRUE			TRUE		
Inter-frequency TDD measurement indicator		FALSE			FALSE		
NOTE 1: The power of the OCNS channel that is added shall make the total power from the cell to be equal to Ior.							
NOTE 2: 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.

The cell re-reselection delay defined as the time from the beginning of time period T3, to the moment when the UE camps on Cell 1, and starts to send preambles on the PRACH for sending the CELL UPDATE message with cause value "cell reselection" in Cell 1.

For the test to pass, the following need to be fulfilled:

- the SDU error rate during T1 and T2 (SDU_ER_ACC) shall not exceed 4.0 %,

- the total number of successful tests of the cell re-selection delay requirement shall be more than 90% of the cases with a confidence level of 95 %.

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: $T_{evaluateFDD} + T_{SI}$, where:

$T_{evaluateFDD}$ 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
T_{SI}		ms	1280	See Annex I for the SIB repetition period of system information blocks.
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	-4.8	-7.4	-4.8	-7.4
I_{or} (Note 1)	dBm	-62.73	-59.73	-59.73	-62.73	-69.73	-69.73	-69.73	-69.73	-74.75	-77.39	-74.75	-77.39
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	
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 [2] 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 1: 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 time to read the relevant system info blocks that needs to be received by the UE to camp on a cell is 1420ms (see note 2) and the maximum RRC procedure delay for reception system information block is 100ms, 1520 ms is assumed in this test case. Therefore this gives a total of 7.92s (Minimum requirement + 240ms), allow 8s in the test case.

NOTE 2: 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. The Master Information Block (MIB) is repeated every 8 frame and SIB5 (and SIB11) is segmented into 4 segments where the first segment is scheduled adjacent to the MIB at SIB_POS=40 and the other three segments are scheduled after the MIB (SIB_POS=42, 44 and 46). The maximum time for a UE to read SIB5 will occur if the UE start reading the BCH at the SFN after the MIB located prior to the first segment of SIB5 (SIB_POS 32). Then the UE will not be able to read SIB5 until the second occurrence of SIB5, which will happen at SIB_POS 46 + 1280ms. This gives that the maximum time for the UE to read the relevant system info will be 1420ms ((SIB_POS 46 – SIB_POS 32)*10ms +1280ms).

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 (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	 Reference to TS 34.108 [3] clause 6.1 "Default settings (FDD)"

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/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	
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: $T_{evaluateFDD} + T_{SI}$, where:

$T_{evaluateFDD}$ 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 8 s 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
T$_{SI}$		ms	1280	See Annex I for the SIB repetition period of system information blocks.
DRX cycle length		s	1.28	The value shall be used for all cells in the test.
T1		s	30	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.
NOTE: Monitored cell list size has 6 cells on 2 carriers. See Annex I for the cell information.				

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/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
Ior (Note 1)	dBm	-73.39	-67.75	-67.75	-73.39	-77.39	-74.75	-77.39	-74.75	-74.75	-77.39	-74.75	-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 Ec/N0		CPICH Ec/N0		CPICH Ec/N0		CPICH Ec/N0		CPICH Ec/N0		CPICH Ec/N0	
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	
Qoffset2s, 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 Îor values, although not explicitly defined in 25.133 [2] 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 30 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) After a total of 15 s from the beginning of T1, the parameters are changed to those defined for T2 in table 8.3.6.2.3.

11) Steps 5 to 10 are repeated until the confidence level according to annex F.6.2 is achieved.

NOTE 1: T1 is initially 30 s to allow enough time for the UE to search for cells as it has no prior knowledge of these.

NOTE 2: 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 1420ms (see note 3) and the maximum RRC procedure delay for reception system information block is 100ms, 1520 ms is assumed in this test case. Therefore this gives a total of 7.82s (Minimum requirement + 240ms), allow 8s in the test case.

NOTE 3: 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. The Master Information Block (MIB) is repeated every 8 frame and SIB5 (and SIB11) is segmented into 4 segments where the first segment is scheduled adjacent to the MIB at SIB_POS=40 and the other three segments are scheduled after the MIB (SIB_POS=42, 44 and 46). The maximum time for a UE to read SIB5 will occur if the UE start reading the BCH at the SFN after the MIB located prior to the first segment of SIB5 (SIB_POS 32). Then the UE will not be able to read SIB5 until the second occurrence of SIB5, which will happen at SIB_POS 46 + 1280ms. This gives that the maximum time for the UE to read the relevant system info will be 1420ms ((SIB_POS 46 – SIB_POS 32)*10ms +1280ms).

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 (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	Reference to TS 34.108 [3] clause 6.1 "Default settings (FDD)"

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
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/3.84 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.

8.3.6.3 Cell re-selection during an MBMS session, one UTRAN inter-frequency and 2 GSM cells present in the neighbour list

8.3.6.3.1 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 a Release 6 and later releases for UE supporting GSM and MBMS.

8.3.6.3.2 Minimum requirement

The cell re-selection delay is defined as the time from the beginning of time period T3, to the moment when the UE camps on Cell 3, and starts to send the RR Channel Request message for location update to Cell 3.

The cell re-selection delay shall be less than 2.75 s + T_{BCCH}, where T_{BCCH} is the maximum time allowed to read BCCH data from GSM cell, see TS 45.008 [30].

During T1 and T2 the MTCH SDU ER shall not exceed 4.0%.

The rate of correct cell reselections observed during repeated tests shall be at least 90%.

NOTE: The cell re-selection delay can be expressed as: Max(3* $T_{measureFDD}$, $T_{measureGSM}$+DRX cycle length) + T_{BCCH}, where:

$T_{measureFDD}$ See table 4.1 in TS 25.133 [2] clause 4.2.2.

$T_{measureGSM}$ See table 4.1 in TS 25.133 [2] clause 4.2.2.

DRX cycle length   160ms see Table A.4.7.A

T_{BCCH} Maximum time allowed to read BCCH data from GSM cell, see TS 45.008 [30]. According to [20] and [30], the maximum time allowed to read the BCCH data, when being synchronized to a BCCH carrier, is 1.9 s.

This gives a total of 2.72 s + T_{BCCH}, allow 2.75 s + T_{BCCH} in the test case.

The normative reference for this requirement is TS 25.133 [2] clauses 4.2.2 and A.5.6.3.

8.3.6.3.3 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.

8.3.6.3.4 Method of test

8.3.6.3.4.1 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.

This scenario implies the presence of 1 UTRAN serving cell, 1 UTRAN inter-frequency cell and 2 GSM cells of which one is to be re-selected. The UE is requested to monitor neighbour cells on 2 UMTS carriers (Channel 1, Channel 2) and 12 GSM cells. Test parameters are given in Tables 8.3.6.3.1 to 8.3.6.3.5.

Table 8.3.6.3.1: General test parameters for Cell Re-selection

Parameter		Unit	Value	Comment
Initial condition	Active cell		Cell2	UMTS cell providing the MBMS session
	Neighbour cells		Cell1	UMTS inter-frequency neighbour cell
			Cell3, Cell4	GSM cells
Final condition	Active cell		Cell3	
DRX cycle length		ms	160	
HCS				Not used
MBMS preferred frequency layer				Not used
Monitored cell list size			2 UMTS cells and 12 GSM cells, including the UARFCN of UMTS cells 1, 2 and the ARFCN of the GSM cells 3,4	NOTE: See Annex I for cell information
T1		s	15 (initial), 5 repeated	
T2		s	45	
T3		s	7	

The transport and physical channel parameters of the S-CCPCH_2 carrying the MTCH are defined in Tables 8.3.6.3.2 and 8.3.6.3.3.

The transport and physical parameters of the S-CCPCH_1 carrying the PCH/FACH/MCCH are defined in TS 34.108 [3] clause 6.1.0b (Contents of System Information Block type 5 (FDD)) with M2 condition.

Table 8.3.6.3.2: Physical channel parameters for S-CCPCH_2 carrying the MTCH.

Parameter	Unit	Level
Channel bit rate	kbps	960
Channel symbol rate	ksps	480
Slot Format #I	-	14
TFCI	-	ON
Power offsets of TFCI and Pilot fields relative to data field	dB	0

Table 8.3.6.3.3: Transport channel parameters for S-CCPCH_2

Parameter	FACH
Transport Channel Number	1
Transport Block Size	2536
Transport Block Set Size	10144
Transmission Time Interval	40ms
Type of Error Protection	Turbo Coding
Coding Rate	1/3
Rate Matching attribute	256
Size of CRC	16
Position of TrCH in radio frame	Flexible

Table 8.3.6.3.4: Cell specific test parameters for serving Cell2 and inter-frequency neighbour Cell1

Parameter	Unit	Cell 1			Cell 2		
		T1	T2	T3	T1	T2	T3
UTRA RF Channel Number		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		
S-CCPCH_1_Ec/Ior	dB	-12			-12		
S-CCPCH_2_Ec/Ior	dB	n.a.			-6,8		
OCNS_Ec/Ior	dB	Note 1			Note 1		
$\hat{I}_{or}/I_{oc}$	dB	-infinity	-4.75	-infinity	0	0	-15
I_{oc}	dBm/3.84 MHz	-70					
CPICH_Ec/Io	dB	- infinity	-16	- infinity	-13	-13	-25.14
CPICH_RSCP		- infinity	-84,75	- infinity	-80	-80	-95
Propagation Condition		AWGN					
Cell_selection_ and_reselection_ quality_measure		CPICH E_c/N_0			CPICH E_c/N_0		
Qqualmin	dB	-20			-20		
Qrxlevmin	dBm	-115			-115		
UE_TXPWR_ MAX_RACH	dBm	21			21		
Qoffset2$_{s,n}$	dB	C1, C2: 0			C2, C1: 0		
Qhyst2	dB	0			0		
Qoffset1$_{s,n}$	dB				C2, C3: 0; C2, C4: 0		
Qhyst1	dB	0			0		
Treselection	s	0			0		
Sintrasearch	dB	not sent			not sent		
Sintersearch	dB	not sent			not sent		
SsearchRAT	dB	not sent			not sent		
NOTE 1: The power of the OCNS channel that is added shall make the total power from the cell to be equal to Ior.							

Table 8.3.6.3.5: Cell re-selection parameters for GSM cells case (cell 3 and cell4)

Parameter	Unit	Cell 3 (GSM)			Cell 4 (GSM)		
		T1	T2	T3	T1	T2	T3
Absolute RF Channel Number		ARFCN 2			ARFCN 1		
RXLEV	dBm	-infinity	-85	-85	-infinity	-85	-infinity
RXLEV_ACCESS_MIN	dBm	-104			-104		
MS_TXPWR_MAX_CCH	dBm	33			33		
FDD_Qmin	dB	-14			-14		
Qsearch_I	-	always			always		

Specific 2 quarter Message Contents

All messages indicated shall use the same content as described in the default message content in TS45.008 [30] clause 9, with the above exceptions.

8.3.6.3.4.2 Procedure

Initiation

1) Initiate the variables N_UEOK, N_UEOK_ACC, N_SS_ACC to 0.

2) The SS activates cell 1 to 4 with T1 defined parameters in tables 8.3.6.3.6 and 8.3.6.3.7 and monitors cell 2 and 3 for random access requests from the UE. The SS broadcast the cell reselection parameters according to tables 8.3.6.3.6 and 8.3.6.3.7.

3) The UE is switched on. The UE has selected the broadcast service provided by the SS (included in the MBMS_ACTIVATED_SERVICES VARIABLE).

4) Set up a call according to the generic call setup procedure TS34.108 [3] clause 7.3.10 to configure and activate an MBMS broadcast session, and transition to CELL_PCH state. The SS waits for this procedure to be completed.

T1

5) Start T1, and simultaneously start transmitting valid MAC headers on MTCH

6) After 5 s (15 s in the first iteration) from the start of T1, start transmitting invalid MAC headers on MTCH.

T2

7) The parameters are changed as described for T2 in tables 8.3.6.3.6 and 8.3.6.3.7 and the SS start sending valid MAC headers on MTCH.

8) After 45 s from the start of T2, start transmitting invalid MAC headers on MTCH and store N_SS.

Go to CELL_FACH and read out UE counter

NOTE: Steps 9 to 16 below implies that the duration of T2 is longer than specified in the core requirement. The active measurement period is however correct.

9) The SS transmits a PAGING TYPE 1 message specified in TS 34.108 [3] clause 7.3.10.4 to the UE on the PCH and the UE moves to CELL_FACH state, sending a CELL UPDATE message. The SS replies with a CELL UPDATE CONFIRM message.

10) UE confirms the received C-RNTI to be used in CELL FACH state by transmitting a UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH.

11) The SS sends a "UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST" message.

12) The UE to respond by a "UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE" message reporting the number of received RLC SDUs on MTCH. Store this in the variable N_UEOK.

13) The SS calculate the following:

N_SS: Number of SS transmitted RLC SDUs with valid MAC headers during T1 and T2

N_UEOK: UE received RLC SDUs as reported in the "UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE" message in step 12

N_UEOK_ACC: Accumulated sum of N_UEOK during T1 and T2 periods tested so far.

N_SS_ACC: Accumulated sum of N_SS during T1 and T2 periods tested so far.

Go back to CELL_PCH

14) The SS orders the UE to move to CELL_PCH state by transmitting a PHYSICAL CHANNEL RECONFIGURATION message with the RRC state indicator set to "CELL_PCH".

15) The UE send a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message

T3

16) The parameters are changed as described for T3 in tables 8.3.6.3.6 and 8.3.6.3.7.

17) The SS waits for a location registration procedure from the UE. If the UE begins transmitting on cell 3 (GSM cell) within 4.65 s then a success is recorded for the delay requirement, the SS completes the location update procedure in GSM and the procedure continues with step 19.

18) Since the UE has failed to respond with the correct message within the allowed time, a failure for the delay requirement is recorded. The SS shall then wait for a total of 7s from the beginning of T3 and if no response is received, the UE shall be switched off and the procedure returns to step 2. Otherwise the SS completes the location update procedure in GSM and the procedure continues with step 19.

19) After the location update procedure in GSM, the parameters are changed to those defined for T1 in tables 8.3.6.3.6 and 8.3.6.3.7.

20) The SS waits for random access requests from the UE on cell 2. The SS completes the routing area update procedure in UTRA.

Repeat step 4) to 20) until the confidence level for the delay requirement according to annex F.6.2 are achieved. This includes the confidence level for the RLC SDU error ratio. Refer Annex F.6.1 Table F.6.1.8-3

SDU error rate is measured during T1 and T2, as follows:

SDU_ER_ACC = (N_SS_ACC – N_UEOK_ACC) / N_SS_ACC

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 exceptions stated in clause 7.3.10 of 34.108 [3].

Contents of PHYSICAL CHANNEL RECONFIGURATION message: AM (Step 4 and 14)

Information Element	Value/remark
UTRAN DRX cycle length coefficient	4

Content of CELL UPDATE CONFIRM message for CELL_FACH (Step 9)

Information Element	Value/remark
RRC transaction identifier	0
Activation time	Not Present
New C-RNTI	0000000000000001 B
RRC State indicator	CELL_FACH

8.3.6.3.5 Test requirements

For the test to pass, the following need to be fulfilled:

- the SDU error rate during T1 and T2 (SDU_ER_ACC) shall not exceed 4.0 %,

- the total number of successful tests of the cell re-selection delay requirement shall be more than 90% of the cases with a confidence level of 95 %.

Table 8.3.6.3.6: Cell specific test requirements for serving Cell2 and inter-frequency neighbour Cell1

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			-9		-10.1
PCCPCH_Ec/Ior	dB	-11			-11		-12
SCH_Ec/Ior	dB	-11			-11		-12
PICH_Ec/Ior	dB	-14			-14		-15
S-CCPCH_1_Ec/Ior	dB	-11			-11		-12
S-CCPCH_2_Ec/Ior	dB	n.a.			-5,8		-6.8
OCNS_Ec/Ior	dB	Note 1			Note 1		
$\hat{I}_{or}/I_{oc}$ (Note2)	dB	-infinity	-4.74	-infinity	0	2.63	-15.3
I_{oc}	dBm/3.84 MHz	-70.0			-70.0	-71.5	-70
CPICH_Ec/Io (Note2)	dB	- infinity	-15	- infinity	-12	-10.9	-25.54
CPICH_RSCP (Note2)		- infinity	-83.75	- infinity	-79	-77.9	-95.4
Propagation Condition		AWGN					
Cell_selection_ and_reselection_ quality_measure		CPICH E_c/N_0			CPICH E_c/N_0		
Qqualmin	dB	-20			-20		
Qrxlevmin	dBm	-115			-115		

Parameter	Unit	Cell 1			Cell 2		
		T1	T2	T3	T1	T2	T3
UE_TXPWR_ MAX_RACH	dBm	21			21		
Qoffset2$_{s, n}$	dB	C1, C2: 0			C2, C1: 0		
Qhyst2	dB	0			0		
Qoffset1$_{s, n}$	dB				C2, C3: 0; C2, C4: 0		
Qhyst1	dB	0			0		
Treselection	s	0			0		
Sintrasearch	dB	not sent			not sent		
Sintersearch	dB	not sent			not sent		
SsearchRAT	dB	not sent			not sent		
NOTE 1: The power of the OCNS channel that is added shall make the total power from the cell to be equal to Ior.							
NOTE 2: These parameters are not directly settable, but are derived by calculation from the settable parameters.							

Table 8.3.6.3.7: Cell re-selection requirements for GSM cells case (cell 3 and cell4) Test Requirements

Parameter	Unit	Cell 3 (GSM)			Cell 4 (GSM)		
		T1	T2	T3	T1	T2	T3
Absolute RF Channel Number		BCCH ARFCN 2 of cell B as defined in the initial conditions in clause 26.6.5.1 of TS 51.010-1 [25] for the GSM band under test. BCCH ARFCN 2 is 805 for FDD Band II and PCS1900 under test. BCCH ARFCN 2 is 251 for FDD Band V, VI or XIX and GSM850 under test. BCCH ARFCN 2 is 124 for FDD Band VIII and GSM900 under test. BCCH ARFCN 2 is 512 for FDD Band III or IX and DCS1800 under test.			BCCH ARFCN 1 of cell A as defined in the initial conditions in clause 26.6.5.1 of TS 51.010-1 [25] for the GSM band under test. BCCH ARFCN 1 is 744 for FDD Band II and PCS1900 under test. BCCH ARFCN 1 is 241 for FDD Band V, VI or XIX and GSM850 under test. BCCH ARFCN 1 is 114 for FDD Band VIII and GSM900 under test. BCCH ARFCN 1 is 885 for FDD Band III or IX and DCS1800 under test.		
RXLEV	dBm	-infinity	-86	-84	-infinity	-86	-infinity
RXLEV_ACCESS_MIN	dBm	-104			-104		
MS_TXPWR_MAX_CCH	dBm	33			33		
FDD_Qmin	dB	-14			-14		
Qsearch_I	-	always			always		

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.

8.3.7 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: $T_{evaluateFDD} + T_{SI}$, where:

$T_{evaluateFDD}$ 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 0010(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
T_{SI}		ms	1280	See Annex I for the SIB repetition period of system information blocks.
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	-4.8	-7.4	-4.8	-7.4
Ior (Note 1)	dBm	-62.73	-59.73	-59.73	-62.73	-69.73	-69.73	-69.73	-69.73	-74.75	-77.39	-74.75	-77.39
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 Ec/N0		CPICH Ec/N0		CPICH Ec/N0		CPICH Ec/N0		CPICH Ec/N0		CPICH Ec/N0	
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 Îor values, although not explicitly defined in 25.133 [2] 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 1: 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 time to read the relevant system info blocks that needs to be received by the UE to camp on a cell is 1420ms and the maximum RRC procedure delay for reception system information block is 100ms, 1520 ms is assumed in this test case. Therefore this gives a total of 7.92s (Minimum requirement + 240ms), allow 8s in the test case.

NOTE 2: 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. The Master Information Block (MIB) is repeated every 8 frame and SIB5 (and SIB11) is segmented into 4 segments where the first segment is scheduled adjacent to the MIB at SIB_POS=40 and the other three segments are scheduled after the MIB (SIB_POS=42, 44 and 46). The maximum time for a UE to read SIB5 will occur if the UE start reading the BCH at the SFN after the MIB located prior to the first segment of SIB5 (SIB_POS 32). Then the UE will not be able to read SIB5 until the second occurrence of SIB5, which will happen at SIB_POS 46 + 1280ms. This gives that the maximum time for the UE to read the relevant system info will be 1420ms ((SIB_POS 46 − SIB_POS 32)*10ms +1280ms).

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 (Step 3)

Information Element	Value/remark
RRC State Indicator	URA PCH
UTRAN DRX cycle length coefficient	7

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	As specified in Table 8.3.7.1.1

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: $T_{evaluateFDD} + T_{SI}$, where:

$T_{evaluateFDD}$ 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	
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 0010(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
T_{SI}		ms	1280	See Annex I for the SIB repetition period of system information blocks.
DRX cycle length		s	1,28	The value shall be used for all cells in the test.
T1		s	30	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
Ior (Note 1)	dBm	-73.39	-67.75	-67.75	-73.39	-77.39	-74.75	-77.39	-74.75	-74.75	-77.39	-74.75	-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 Ec/N0		CPICH Ec/N0		CPICH Ec/N0		CPICH Ec/N0		CPICH Ec/N0		CPICH Ec/N0	
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	
Qoffset2s, 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	
Sintrasearch	dB	not sent		not sent		not sent		not sent		not sent		not sent	

NOTE 1: The nominal Îor values, although not explicitly defined in 25.133 [2] 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 30 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) After a total of 15 s from the beginning of T1, the parameters are changed to those defined for T2 in table 8.3.7.2.3.

11) Steps 5 to 10 are repeated until the confidence level according to annex F.6.2 is achieved.

NOTE 1: T1 is initially 30 s to allow enough time for the UE to search for cells as it has no prior knowledge of these.

NOTE 2: 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 time to read the relevant system info blocks that needs to be received by the UE to camp on a cell is 1420ms (see note 3) and the maximum RRC procedure delay for reception system information block is 100ms, 1520 ms is assumed in this test case. Therefore this gives a total of 7.82s (Minimum requirement + 240ms), allow 8s in the test case.

NOTE 3: 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. The Master Information Block (MIB) is repeated every 8 frame and SIB5 (and SIB11) is segmented into 4 segments where the first segment is scheduled adjacent to the MIB at SIB_POS=40 and the other three segments are scheduled after the MIB (SIB_POS=42, 44 and 46). The maximum time for a UE to read SIB5 will occur if the UE start reading the BCH at the SFN after the MIB located prior to the first segment of SIB5 (SIB_POS 32). Then the UE will not be able to read SIB5 until the second occurrence of SIB5, which will happen at SIB_POS 46 + 1280ms. This gives that the maximum time for the UE to read the relevant system info will be 1420ms ((SIB_POS 46 – SIB_POS 32)*10ms +1280ms).

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 (Step 3)

Information Element	Value/remark
RRC State Indicator	URA PCH
UTRAN DRX cycle length coefficient	7

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	As specified in Table 8.3.7.2.1

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/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
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/ 3.84 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 8.3.7.2.2 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.

8.3.8   Serving HS-DSCH cell change

8.3.8.1   Definition and applicability

When the UE receives a RRC message implying HS-DSCH cell change with the activation time "now" or earlier than RRC procedure delay seconds from the end of the last TTI containing the RRC command, the UE shall be ready to receive the HS-SCCH channel from the new cell within D_{cell_change} seconds from the end of the last TTI containing the RRC command.

The requirements and this test apply to Release 6 and later releases for all types of UTRA for the FDD UE that support HSDPA (all categories).

8.3.8.2   Minimum requirement

The UE shall start to transmit the CQI to cell 2 based on the quality of cell 2 less than 74 ms from the beginning of time period T4.

The UE shall also be able to start to receive the first HS-SCCH message from cell 2 less than 74 ms from the beginning of time period T4 and transmit the ACK or NAK which corresponds to the HS-SCCH message.

NOTE: The delay D_{cell_change} equals the RRC procedure delay defined in TS25.331 Section 13.5.2 plus the interruption time of receiving HS-DSCH data stated in section 5.10.2.2 of TS 25.133.
The RRC procedure delay is 50 ms and the interruption time is given by $T_{interrupt1} = T_{IU} + 22$ ms=24 ms.

The total delay $D_{cell\_change} = 50 + 24$ ms $= 74$ ms

The reference for this requirement is TS 25.133 [2] clauses 5.10.2 and A.5.8.

8.3.8.3   Test purpose

The purpose of this test is to verify the requirement for the delay when performing the serving HS-DSCH cell change in CELL_DCH state specified in section 8.3.8.2.

8.3.8.4   Method of test

The test parameters are given in Table 8.3.8.1, 8.3.8.1a, and 8.3.8.2 below. The test consists of 4 successive time periods, with a time duration of T1, T2, T3 and T4 respectively. At the start of time duration T1 the UE have cell 1 and cell 2 in active set and cell 1 as the serving HS-DSCH cell.

Data shall be transmitted continuously to the UE on the HS-DSCH channel.

Table 8.3.8.1: General test parameters for serving HS-DSCH cell change

Parameter		Unit	Value	Comment
DCH parameters			DL Reference Measurement Channel 12.2 kbps	As specified in section C.3.1
Power Control			On	
Target quality value on DTCH		BLER	0.001	
HSDPA parameters			Fixed Reference Channel Definition H-Set 1, with QPSK modulation only.	As specified in section C.8.1.1
Initial conditions	Active cells		Cell 1 and Cell 2	
	Serving HS-DSCH cell		Cell 1	
Final condition	Active cell		Cell 1 and Cell 2	
	Serving HS-DSCH cell		Cell 2	
Hysteresis		dB	0	
Time to Trigger		ms	0	
Filter coefficient			0	
CQI Feedback cycle, k		ms	2 (0 for cell 1)	
CQI repetition factor			1	
HS-SCCH-1 signalling pattern		-	The six sub-frame HS-SCCH-1 signalling pattern shall be "…XOOXOO…", where "X" indicates TTI in which the HS-SCCH-1 uses the identity of the UE under test, and "O" indicates TTI in which the HS-SCCH-1 uses a different UE identity.	
DPCH Frame offset		256*chip	0	
Default DPCH Offset Value (DOFF)		512*chip	0	
T1		s	5	
T2		s	3	
T3		s	0.5	
T4		ms	100	

Table 8.3.8.1a: Cell specific test parameters for serving HS-DSCH cell change, initial conditions

Parameter	Unit	Cell 1	Cell 2
		T0	T0
UTRA RF Channel Number		Channel 1	Channel 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
DPCH_Ec/Ior	dB	(Note 1)	N/A
HS-PDSCH_Ec/Ior(Note 3)	dB	-10	-inf
HS-SCCH-1_ Ec/Ior(Note 4)	dB	-13	-inf
OCNS_Ec/Ior	dB	(Note 2)	-0.94
$\hat{I}_{or}/I_{oc}$	dB	3.64	-inf
I_{oc}	dBm/3.84 MHz	-70
CPICH_Ec/Io	dB	-13	-inf
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 Ior.			
NOTE 3: E_c/I_{or} value represent the per code power for HS-PDSCH channel.			
NOTE 4: HS-SCCH-2, HS-SCCH-3, and HS-SCCH-4 are DTX.			

Table 8.3.8.2: Cell specific test parameters for serving HS-DSCH cell change

Parameter	Unit	Cell 1				Cell 2			
		T1	T2	T3	T4	T1	T2	T3	T4
UTRA RF Channel Number		Channel 1				Channel 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			
DPCH_Ec/Ior	dB	Note1	Note1	Note1	N/A	N/A	N/A	Note3	Note1
HS-PDSCH_Ec/Ior	dB	-10			-inf	-inf			-10
HS-SCCH-1_ Ec/Ior	dB	-13			-inf	-inf			-13
OCNS		Note2	Note2	Note2	Note2	Note2	Note2	Note2	Note2
$\hat{I}_{or}/I_{oc}$	dB	3.64	1.14			1.14	3.64		
I_{oc}	dBm/3.84 MHz	-70							
CPICH_Ec/Io	dB	-13	-15.5			-15.5	-13		
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.									

8.3.8.4.1 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 (node B emulator) and fader and AWGN noise source to the UE antenna connector as shown in figure A.14.

2) Set up an HSDPA call according to TS 34.108 [3] clause 7.3.6 with levels according to T0 in table 8.3.8.1a with cell 1 as serving HS-DSCH cell.

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 (QPSK): The information bit payload block is 9377 bits long. Hence the PRBSequence must be at least 9377 * 10 bits long.) Use a PRBS from ITU-T O.153 Ref [27]

4) Once the HSDPA connection is setup, start transmitting HSDPA Data.

8.3.8.4.2 Procedure

1) Turn on cell 2 and set the levels for both cells according to T1 in table 8.3.8.3.

2) SS shall send a MEASUREMENT CONTROL message (event 1A, 1B)

3) SS shall send a MEASUREMENT CONTROL message (event 1D)

4) UE shall send a MEASUREMENT REPORT message triggered by event 1A containing the CFN-SFN observed time difference between cell1 and cell2.

5) SS shall send an ACTIVE SET UPDATE message with activation time "now", adding cell 2 to the active set

6) UE shall send a ACTIVE SET UPDATE COMPLETE message

7) After 5 seconds from the beginning of T1, the SS shall switch the power settings from T1 to T2 according to the parameters defined in table 8.3.8.3.

8) During time period T2, UE shall transmit a MEASUREMENT REPORT message (intra frequency) triggered by event 1D for cell 2.

9) After 3 seconds from the beginning of T2, the SS shall switch the power settings from T2 to T3 according to the parameters defined in table 8.3.8.3.

10) During T3, no CQI measurements shall be reported by the UE.

11) SS shall transmit a PHYSICAL CHANNEL RECONFIGURATION message (cell 2 HS-DSCH serving cell) with activation time set to "now" changing serving HS-DSCH from cell 1 to cell 2. The start of T4 is defined as the end of the last TTI containing the physical channel reconfiguration message.

12) The SS shall switch the power settings from T3 to T4 in table 8.3.8.3 and immediately start transmitting HSDPA Data on cell 2. The SS shall not send any HSDPA data on cell 1 after the start of T4.

13) The SS shall measure the time from start of T4 until the start of the HS-DPCCH subframe where the UE starts transmitting CQI measurements on cell 2

14) The SS shall measure the time from start of T4 until the start of the HS-DPCCH subframe where the UE starts transmitting ACK/NAK. The SS shall not start to monitor the HS-DPCCH for ACK/NAK until one frame after the start of T4 to eliminate the risk of detecting the ACK/NAK for cell 1.

15) If steps 10, 13 and 14 fulfil the test requirements, then the number of successful tests is increased by one.

16) The UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the UL DCCH of cell 2.

17) SS shall transmit a PHYSICAL CHANNEL RECONFIGURATION message (cell 1 HS-DSCH serving cell) with activation time set to "now" changing serving HS-DSCH back to cell 1.

18) The SS shall switch the power settings from T4 to T1 in table 8.3.8.3. The start of T1 is defined as the end of the last TTI containing the physical channel reconfiguration message.

19) The SS shall start transmitting HSDPA Data on cell 1 and shall not send any HSDPA data on cell 2.

20) During T1, the UE may transmit a MEASUREMENT REPORT message (intra frequency) triggered by event 1D for cell 1 and may also transmit a MEASUREMENT REPORT message (intra frequency) triggered by event 1B for cell 2.

21) During T2. T3 and T4, the UE may transmit MEASUREMENT REPORT messages (intra frequency) triggered by event 1B for cell 1.

22) Repeat step 7-21 until the confidence level according to annex F.6.2 is achieved

Specific Message Contents

The default messages for SIB11 and SIB12 as specified for Cell 1 and Cell 2 in clause 6.1.4 of 34.108 [3] are used.

Default parameters according to Cell 1 and Cell 2 in clause 6.1.4.

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 1A, 1B)

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
-RRC message sequence number	SS provides the value of this IE, from its internal counter.
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 Measurement type	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)	
-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	FALSE
-Reporting quantities for monitored set cells (10.3.7.5)	
-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	FALSE
-Reporting quantities for detected set cells (10.3.7.5)	Not Present

Information Element/Group name	Value/Remark
-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
-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	
- CHOICE reported cell	Report cell within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	3
-Intra-frequency event identity	Event 1B
-Triggering condition 1	Active 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
-Amount of reporting	Not Present
-Reporting interval	Not Present
-Reporting cell status	
- CHOICE reported cell	Report cell within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	3
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 CONTROL (event 1D):

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark
Measurement identity	2
Measurement command	Setup
- 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	
- Cell synchronisation information reporting indicator	FALSE
- Cell Identity reporting indicator	FALSE
- CPICH Ec/N0 reporting indicator	TRUE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell Identity reporting indicator	FALSE
- CPICH Ec/N0 reporting indicator	FALSE
- CPICH RSCP reporting indicator	FALSE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected set cells	Not Present
- Reporting cell status	Not present
- Measurement validity	Not present
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Parameters required for each event	
- Intra-frequency event identity	1D
- Triggering condition 2	Active set cells
- Hysteresis	0
- Time to trigger	0
- Reporting cell status	
- CHOICE reported cell	Report cells within active set
- Maximum number of reported cells	3
- Use CIO	FALSE
Measurement reporting mode	
- Measurement reporting transfer mode	Acknowledged mode RLC
- Periodic reporting / Event trigger reporting mode	Event trigger
Additional measurement list	Not present
DPCH compressed mode status info	Not present

ACTIVE SET UPDATE message:

Information Element/Group name	Type and reference	Value/Remark	Release
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		
-message authentication code		SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.	
-RRC message sequence number		SS provides the value of this IE, from its internal counter.	
-Integrity protection mode info	Integrity protection mode info 10.3.3.19	Not Present	
-Ciphering mode info	Ciphering mode info	Not Present	

Information Element/Group name	Type and reference	Value/Remark	Release
	10.3.3.5		
-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 10.3.6.68	Radio link addition information required for each RL to add	
-Primary CPICH info	Primary CPICH info 10.3.6.60	Same as defined in cell2	
-D7ownlink DPCH info for each RL -CHOICE *mode* -FDD	Downlink DPCH info for each RL 10.3.6.21		
-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	
-Closed loop timing adjustment mode	Integer(1, 2)	Not Present	
-TFCI combining indicator	TFCI combining indicator 10.3.6.81	FALSE	R99 and Rel4 only
-SCCPCH Information for FACH	SCCPCH Information for FACH 10.3.6.70	Not Present	
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	

Contents of PHYSICAL CHANNEL RECONFIGURATION message (cell 2 HS-DSCH serving cell):

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects an integer between 0 and 3
Integrity check info	
- message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC message sequence number	SS provides the value of this IE, from its internal counter.
Integrity protection mode info	Not Present
Ciphering mode info	Not Present
Activation time	Not Present

Information Element	Value/remark
Delay restriction flag	Not Present
New U-RNTI	Not Present
New C-RNTI	Not Present
New H-RNTI	'0101 0101 0101 0101'
New Primary E-RNTI	Not Present
New Secondary E-RNTI	Not Present
RRC State indicator	CELL_DCH
UTRAN DRX cycle length coefficient	Not Present
CN information info	Not Present
URA identity	Not Present
Downlink counter synchronization info	Not Present
Frequency info	Not present
Maximum allowed UL TX power	Not present
CHOICE channel requirement	Uplink DPCH info
- Uplink DPCH power control info	
- DPCCH power offset	-40 (-80dB)
- PC Preamble	1 frame
- SRB delay	7 frames
- Power Control Algorithm	Algorithm1
- TPC step size	0 (1dB)
- Δ_{ACK}	3
- Δ_{NACK}	3
- Ack-Nack repetition factor	1
- Scrambling code type	Long
- Scrambling code number	0 (0 to 16777215)
- Number of DPDCH	Not Present(1)
- spreading factor	64
- TFCI existence	TRUE
- Number of FBI bit	Not Present(0)
- Puncturing Limit	1
E-DCH Info	Not Present
CHOICE Mode	FDD
Downlink HS-PDSCH Information	
- HS-SCCH Info	
- CHOICE mode	FDD
- DL Scrambling Code	Not present
- HS-SCCH Channelisation Code Information	
- HS-SCCH Channelisation Code	2
- HS-SCCH Channelisation Code	3
- HS-SCCH Channelisation Code	6
- HS-SCCH Channelisation Code	7
- Measurement Feedback Info	
- CHOICE mode	FDD
- Measurement Power Offset	12 (6 dB)
- CQI Feedback cycle, k	2 ms
- CQI repetition factor	1
- Δ_{CQI}	5 (corresponds to 0dB in relative power offset)
- CHOICE mode	FDD (no data)
Downlink information common for all radio links	
- Downlink DPCH info common for all RL	
- Timing indicator	Maintain
- CFN-targetSFN frame offset	Not Present
- Downlink DPCH power control information	
- DPC mode	0 (single)
- CHOICE mode	FDD
- Power offset $P_{Pilot\text{-}DPDCH}$	0
- DL rate matching restriction information	Not Present
- Spreading factor	Reference to clause 6.10 Parameter Set
- Fixed or Flexible Position	Reference to clause 6.10 Parameter Set
- TFCI existence	Reference to clause 6.10 Parameter Set
- CHOICE SF	Reference to clause 6.10 Parameter Set
- DPCH compressed mode info	Not Present
- TX Diversity mode	None
- Default DPCH Offset Value	Not Present
- MAC-hs reset indicator	Not Present

Information Element	Value/remark
- Downlink information for each radio link	(for cell 1)
- Choice mode	FDD
- Primary CPICH info	
- Primary scrambling code	Same as defined in cell1
- Cell ID	Not Present
- Serving HS-DSCH radio link indicator	FALSE
- Downlink DPCH info for each RL	Not present
- Downlink information for each radio link	(for cell 2)
- Choice mode	FDD
- Primary CPICH info	
- Primary scrambling code	Same as defined in cell2
- Serving HS-DSCH radio link indicator	TRUE
- Downlink DPCH info for each RL	
- CHOICE mode	FDD
- Primary CPICH usage for channel estimation	Primary CPICH may be used
- DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38 400
- 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
- Closed loop timing adjustment mode	Not Present
MBMS PL Service Restriction Information	Not Present

Contents of PHYSICAL CHANNEL RECONFIGURATION message (cell 1 HS-DSCH serving cell):

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects an integer between 0 and 3
Integrity check info	
- message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC message sequence number	SS provides the value of this IE, from its internal counter.
Integrity protection mode info	Not Present
Ciphering mode info	Not Present
Activation time	Not Present
Delay restriction flag	Not Present
New U-RNTI	Not Present
New C-RNTI	Not Present
New H-RNTI	'0101 0101 0101 0101'
New Primary E-RNTI	Not Present
New Secondary E-RNTI	Not Present
RRC State indicator	CELL_DCH
UTRAN DRX cycle length coefficient	Not Present
CN information info	Not Present
URA identity	Not Present
Downlink counter synchronization info	Not Present
Frequency info	Not present
Maximum allowed UL TX power	Not present
CHOICE channel requirement	Uplink DPCH info
- Uplink DPCH power control info	
- DPCCH power offset	-40 (-80dB)
- PC Preamble	1 frame
- SRB delay	7 frames
- Power Control Algorithm	Algorithm1
- TPC step size	0 (1dB)
- Δ_{ACK}	3
- Δ_{NACK}	3
- Ack-Nack repetition factor	1
- Scrambling code type	Long

Information Element	Value/remark
- 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
E-DCH Info	Not Present
CHOICE Mode	FDD
Downlink HS-PDSCH Information	
- HS-SCCH Info	
- CHOICE mode	FDD
- DL Scrambling Code	Not present
- HS-SCCH Channelisation Code Information	
- HS-SCCH Channelisation Code	2
- HS-SCCH Channelisation Code	3
- HS-SCCH Channelisation Code	6
- HS-SCCH Channelisation Code	7
- Measurement Feedback Info	
- CHOICE mode	FDD
- Measurement Power Offset	12 (6 dB)
- CQI Feedback cycle, k	0
- CQI repetition factor	1
- Δ_{CQI}	5 (corresponds to 0dB in relative power offset)
- CHOICE mode	FDD (no data)
Downlink information common for all radio links	
- Downlink DPCH info common for all RL	
- Timing indicator	Maintain
- CFN-targetSFN frame offset	Not Present
- Downlink DPCH power control information	
- DPC mode	0 (single)
- CHOICE mode	FDD
- Power offset P$_{Pilot-DPDCH}$	0
- DL rate matching restriction information	Not Present
- Spreading factor	Reference to clause 6.10 Parameter Set
- Fixed or Flexible Position	Reference to clause 6.10 Parameter Set
- TFCI existence	Reference to clause 6.10 Parameter Set
- CHOICE SF	Reference to clause 6.10 Parameter Set
- DPCH compressed mode info	Not Present
- TX Diversity mode	None
- Default DPCH Offset Value	Not Present
- MAC-hs reset indicator	Not Present
- Downlink information for each radio link	(for cell 2)
- Choice mode	FDD
- Primary CPICH info	
- Primary scrambling code	Same as defined in cell 2
- Cell ID	Not Present
- Serving HS-DSCH radio link indicator	FALSE
- Downlink DPCH info for each RL	Not present
- Downlink information for each radio link	(for cell 1)
- Choice mode	FDD
- Primary CPICH info	
- Primary scrambling code	Same as defined in cell 1
- Serving HS-DSCH radio link indicator	TRUE
- Downlink DPCH info for each RL	
- CHOICE mode	FDD
- Primary CPICH usage for channel estimation	Primary CPICH may be used
- DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38 400
- 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
- Closed loop timing adjustment mode	Not Present
MBMS PL Service Restriction Information	Not Present

MEASUREMENT REPORT message for Intra frequency event 1A,1B

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

MEASUREMENT REPORT message for Intra frequency, event 1D 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	2

8.3.8.5 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 8.3.8.2a: Cell specific test parameters for serving HS-DSCH cell change, initial conditions

Parameter	Unit	Cell 1	Cell 2
		T0	T0
UTRA RF Channel Number		Channel 1	Channel 1
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	(Note 1)	N/A
HS-PDSCH_Ec/Ior(Note 3)	dB	-9.3	-inf
HS-SCCH-1_ Ec/Ior(Note 4)	dB	-12.3	-inf
OCNS_Ec/Ior	dB	(Note 2)	-1.13
$\hat{I}_{or}/I_{oc}$	dB	3.64	-inf
I_{oc}	dBm/3.84 MHz	-70	
CPICH_Ec/Io	dB	-12.3	-inf
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 Ior.			
NOTE 3: E_c/I_{or} value represent the per code power for HS-PDSCH channel.			
NOTE 4: HS-SCCH-2, HS-SCCH-3, and HS-SCCH-4 are DTX.			

Table 8.3.8.3: Cell specific test parameters for serving HS-DSCH cell change

Parameter	Unit	Cell 1				Cell 2			
		T1	T2	T3	T4	T1	T2	T3	T4
UTRA RF Channel Number		Channel 1				Channel 1			
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	Note3	Note1
HS-PDSCH_Ec/Ior Note 5	dB	-9.3			-inf	-inf			-9.3
HS-SCCH-1_Ec/Ior Note 6	dB	-12.3			-inf	-inf			-12.3
OCNS		Note2	Note2	Note2	Note2	Note2	Note2	Note2	Note2
$\hat{I}_{or}/I_{oc}$	dB	3.64	1.14			1.14	3.64		
I_{oc}	dBm/3.84 MHz	-70							
CPICH_Ec/Io	dB	-12.3	-14.8			-14.8	-12.3		
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 chip.
NOTE 5: E_c/I_{or} value represent the per code power for HS-PDSCH channel.
NOTE 6: HS-SCCH-2, HS-SCCH-3, and HS-SCCH-4 are DTX.

The delay from the start of the HS-DSCH sub frame until the start of the corresponding UL HS-DPCCH is 5.3 ms. The test requirement for ACK/NAK shall be increased by this delay. This delay is not relevant for CQI reporting.

The maximum uncertainty of delay due to not scheduling any data to the UE is 2 HS-SCCH sub frames for HS-SCCH signalling pattern used (up to 2 consecutive sub frames not allocated to the UE), the test requirement for ACK/NAK shall be increased by this delay. This delay is not relevant for CQI reporting.

Step 10: No CQI reports shall be sent prior to serving cell change. The reason is that the source of the CQI reports (which cell it is calculated from) can not be determined, and the test must therefore verify that no CQI reports are transmitted based on cell 1 measurements.

Step 13: Time from end of last frame of the serving cell change command to the sub frame of HS-DPCCH where CQI is starting shall be less than 74 ms $+ T_0 * T_{chip} = 74.3$ ms. Allow 75 ms in the test.

Step 14: Time from end of last frame of the serving cell change command to the sub frame of HS-DPCCH where ACK/NAK is starting shall be less than 74 ms $+ 7.5 * T_{slot} + T_0 * T_{chip} + 2 * T_{subframe} = 74 + 9.3 = 83.3$ ms. Allow 85 ms in the test.

> 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.

8.3.9 Enhanced Serving HS-DSCH cell change

8.3.9.1 Definition and applicability

The enhanced serving HS-DSCH cell change procedure is initiated from UTRAN either with a RRC message that implies a change of the serving HS-DSCH cell or through an HS-SCCH order sent on the target cell (target cell is the cell which becomes the serving cell after the enhanced serving HS-DSCH cell change procedure).

The requirements and this test apply to Release 8 and later releases for all types of UTRA for the FDD UE that indicate support for HSDPA and Target Cell Pre-Configuration (all HSDPA categories).

8.3.9.2 Minimum requirement

When the UE receives an HS-SCCH order from the target cell that implies enhanced HS-DSCH serving cell change:

- if the activation time is not equal to "now", the UE shall be ready to receive the full configured HS-SCCH set from the target cell within MAX{40 ms, activation time – the end of the TTI containing the HS-SCCH order} from the end of the TTI containing the HS-SCCH order.

- if the activation time is set to "now", the UE shall be ready to receive the full configured HS-SCCH set within 40 ms from the end of the TTI containing the HS-SCCH order.

The UE shall start to receive the first HS-SCCH message on HS-SCCH-2 from cell 2 within no more than 40 ms from the beginning of time period T4 and transmit the ACK or NACK which corresponds to the HS-SCCH message.

Note: Since HS-SCCH-2 on cell 2 is the only HS-SCCH which is being transmitted from the start of T4, either ACK or NACK transmission from the UE after the start of T4 implies that the enhanced serving cell change has been completed.

The rate of correct serving cell changes observed during repeated tests shall be at least 90%.

The reference for this requirement is TS 25.133 [2] clauses 5.11.2 and A.5.9.

8.3.9.3 Test purpose

The purpose of this test is to verify the requirement for the delay when performing the enhanced serving HS-DSCH cell change in CELL_DCH state specified in section 8.3.9.2.

8.3.9.4 Method of test

The test parameters are given in Table 8.3.9.1 and 8.3.9.2 below. The test consists of 4 successive time periods, with time durations of T1, T2, T3 and T4 respectively. At the start of time duration T1 the UE has cell 1 and cell 2 in the active set and cell 1 as the serving HS-DSCH cell. Target cell preconfiguration is provided for cell 2 in the active set update. The target cell preconfiguration shall not contain the optional IE "Activation time offset". After sending event 1D during time period T2, the UE should start to monitor HS-SCCH-1 from cell 2. A single HS-SCCH order implying serving cell change starts to be transmitted from cell 2 during T3. By the start of T4, the single HS-SCCH order implying serving cell change completes transmission, and within the time specified in section 8.3.9.2 the UE shall also be monitoring the HS-SCCH-2 on target cell 2.

Data shall be transmitted continuously to the UE on the HS-DSCH channel of cell 1 during T1 and T2, and on the HS-DSCH channel of cell2 during T4.

Table 8.3.9.1: General test parameters for enhanced serving HS-DSCH cell change

Parameter		Unit	Value	Comment
F-DPCH slot format			0	
Power Control			On	
Target quality value on F-DPCH		TPC BER	0.05	5%
HSDPA parameters			Fixed Reference Channel Definition H-Set 1, with QPSK modulation only	As specified in TS 34.121-1 section C.8.1.1
Initial conditions	Active cells		Cell 1 and Cell 2	
	Serving HS-DSCH cell		Cell 1	
Final condition	Active cell		Cell 1 and Cell 2	
	Serving HS-DSCH cell		Cell 2	
Hysteresis		dB	0	
Time to Trigger		ms	0	
Filter coefficient			0	
T1		s	5	
T2		s	1	
T3		ms	100	
T4		ms	100	

Table 8.3.9.2: Cell specific test parameters for enhanced serving HS-DSCH cell change

Parameter	Unit	Cell 1				Cell 2			
		T1	T2	T3	T4	T1	T2	T3	T4
UTRA RF Channel Number		Channel 1				Channel 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			
F-DPCH_Ec/Ior	dB	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
HS-PDSCH_Ec/Ior	dB	-10		-inf		-inf			-10
HS-SCCH-1_ Ec/Ior	dB	-13		-inf		-inf		-13	-inf
HS-SCCH-2 Ec/Ior	dB	-inf				-inf			-13
OCNS		Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
$\hat{I}_{or}/I_{oc}$	dB	3.64	1.14			1.14	3.64		
I_{oc}	dBm/ 3,84 MHz	-70							
CPICH_Ec/Io	dB	-13	-15.5			-15.5	-13		
Propagation Condition		AWGN							
Relative delay of paths received from cell 2 with respect to cell 1	Chips	{-148 … 148} Note 3							
NOTE 1: The F-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 relative delay of the path from cell 2 with respect to cell 1 shall always be within ±148 chip.									

8.3.9.4.1 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 (node B emulator) and fader and AWGN noise source to the UE antenna connector as shown in figure A.14.

2) Set up an HSDPA call according to TS 34.108 [3] clause 7.3.6 with levels according to T1 in table 8.3.9.3 with cell 1 as serving HS-DSCH cell.

3) Once the HSDPA connection is setup, start transmitting HSDPA Data on cell 1.

4) 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 (QPSK): The information bit payload block is 9377 bits long. Hence the PRBSequence must be at least 9377 * 10 bits long.) Use a PRBS from ITU-T O.153 Ref [27]

5) SS shall send a MEASUREMENT CONTROL message (event 1A)

6) UE shall send a MEASUREMENT REPORT message triggered by event 1A containing the CFN-SFN observed time difference between cell1 and cell2.

7) SS shall send an ACTIVE SET UPDATE message with activation time "now", adding cell 2 to the active set

8) UE shall send a ACTIVE SET UPDATE COMPLETE message

8.3.9.4.2 Procedure

1) T1 starts

2) SS shall send a MEASUREMENT CONTROL message (event 1D)

3) After 5 seconds from the beginning of T1, the SS shall switch the power settings from T1 to T2 according to the parameters defined in table 8.3.9.3.

4) During time period T2, UE shall transmit a MEASUREMENT REPORT message (intra frequency) triggered by event 1D for cell 2.

5) After 1 second from the beginning of T2, the SS shall switch the power settings from T2 to T3 according to the parameters defined in table 8.3.9.3. The SS shall not send any HSDPA data on cell 1 after the start of T3.

6) During time period T3 UTRAN shall send an HS-SCCH order on HS-SCCH-1 from cell 2 implying enhanced serving HS-DSCH from cell 1 to cell 2. The HS-SCCH order message shall be sent to the UE so that the end of the TTI containing the HS-SCCH order corresponds to the beginning of T4.

7) At the start of T4 the SS shall switch the power settings from T3 to T4 according to the parameters defined in table 8.3.9.3 and the SS shall transmit data to the UE using HS-SCCH-2 and HS-PDSCH on cell 2.

8) The SS shall measure the time from start of T4 until the start of the HS-DPCCH subframe where the UE starts transmitting ACK/NAK. The first ACK corresponds to HS-SCCH order on HS-SCCH-1. Then any following ACK/NACK received from the UE indicates that the UE is monitoring HS-SCCH-2.

9) If step 8 fulfils the test requirements, then the number of successful tests is increased by one.

10) SS shall transmit a PHYSICAL CHANNEL RECONFIGURATION message (cell 1 HS-DSCH serving cell) with activation time set to "now" changing serving HS-DSCH back to cell 1.

11) The UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message

12) The SS shall switch the power settings from T4 to T1 in table 8.3.9.3. The start of T1 is defined as the end of the last TTI containing the physical channel reconfiguration message.

13) The SS shall start transmitting HSDPA Data on cell 1 and shall not send any HSDPA data on cell 2.

14) Repeat step 3-13 until the confidence level according to annex F.6.2 is achieved

Specific Message Contents

The default messages for SIB11 and SIB12 as specified for Cell 1 and Cell 2 in clause 6.1.4 of 34.108 [3] are used.

Default parameters according to Cell 1 and Cell 2 in clause 6.1.4.

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 1A)

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements -RRC transaction identifier -Integrity check info -message authentication code	0 SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
-RRC message sequence number	SS provides the value of this IE, from its internal counter.
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 Measurement type
 -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 measurement
	
	Not Present
	
	0
	FDD
	CPICH_Ec/N0

Information Element/Group name	Value/Remark
-Intra-frequency reporting quantity (10.3.7.41)	
-Reporting quantities for active set cells (10.3.7.5)	
-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	FALSE
-Reporting quantities for monitored set cells (10.3.7.5)	
-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	FALSE
-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
-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	
- CHOICE reported cell	Report cell within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	3
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:

Information Element/Group name	Type and reference	Value/Remark	Release
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		
-message authentication code		SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.	
-RRC message sequence number		SS provides the value of this IE, from its internal counter.	
-Integrity protection mode info	Integrity protection mode info 10.3.3.19	Not Present	

Information Element/Group name	Type and reference	Value/Remark	Release
-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 10.3.6.68	Radio link addition information required for each RL to add	
-Primary CPICH info	Primary CPICH info 10.3.6.60	Same as defined in cell2	
-Downlink DPCH info for each RL	Downlink DPCH info for each RL 10.3.6.21		
-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	
-Closed loop timing adjustment mode	Integer(1, 2)	Not Present	
-TFCI combining indicator	TFCI combining indicator 10.3.6.81	FALSE	R99 and Rel4 only
-SCCPCH Information for FACH	SCCPCH Information for FACH 10.3.6.70	Not Present	
-Target cell preconfiguration information	Target cell preconfiguration information 10.3.6.79a	Target cell preconfiguration information required	
-Activation Time offset	Activation Time offset 10.3.6.79a	Not Present	Rel-8
-New H-RNTI	H-RNTI 10.3.3.14a	'0101 0101 0101 0101'	Rel-8
-New Primary E_RNTI	E-RNTI 10.3.3.10a	Not Present	Rel-8
-New Secondary E-RNTI	E-RNTI 10.3.3.10a	Not Present	Rel-8
-Serving HS-DSCH cell information	Serving HS-DSCH cell information 10.3.6.74a		Rel-8
-Δ_{ACK}		3	
-Δ_{NACK}		3	
-HARQ_preamble_mode		0	
-Primary CPICH info		0	
-Downlink HS-PDSCH Information			
- HS-SCCH Info			

Information Element/Group name	Type and reference	Value/Remark	Release
- Measurement Feedback Info			
- CHOICE mode			
FDD			
- Downlink 64QAM configured		FALSE	
- HS-DSCH TB size table		FALSE	
- HARQ Info			
- Number of Processes		6	
- CHOICE *Memory Partitioning*		Implicit	
- MAC-hs reset indicator		FALSE	
-E-DCH reconfiguration information	E-DCH reconfiguration information 10.3.6.69a		Rel-8
- E-DCH RL Info new serving cell			
- Primary CPICH info			
- Primary Scrambling Code		Set to the primary scrambling code of cell 2	
- E-AGCH Info			
- E-AGCH Channelisation Code		10	
- Serving Grant		Not Present	
- E-DPCCH/DPCCH power offset		Not Present	
- Reference E-TFCIs		Not present	
- Power Offset for Scheduling Info		Not Present	
- 3-Index-Step Threshold		Not Present	
- 2-Index-Step Threshold		Not Present	
- E-HICH Information		Not Present	
- CHOICE E-RGCH Information		Not Present	
- E-DCH RL Info other cells		Not Present	
-DTX-DRX timing information	DTX-DRX timing information 10.3.6.34b	Not Present	Rel-8
-DTX-DRX Information	DTX-DRX Information 10.3.6.34a	Not Present	Rel-8
-HS-SCCH less Information	HS-SCCH less Information 10.3.6.36ab	Not Present	Rel-8
-MIMO parameters	MIMO parameters 10.3.6.41a	Not Present	Rel-8
- Downlink secondary cell info FDD	Downlink secondary cell info FDD 10.3.6.31a	Not Present	Rel-8
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	

MEASUREMENT CONTROL (event 1D):

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark
Measurement identity	2
Measurement command	Setup
- 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	
- Cell synchronisation information reporting indicator	FALSE
- Cell Identity reporting indicator	FALSE
- CPICH Ec/N0 reporting indicator	TRUE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell Identity reporting indicator	FALSE
- CPICH Ec/N0 reporting indicator	FALSE
- CPICH RSCP reporting indicator	FALSE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected set cells	Not Present
- Reporting cell status	Not present
- Measurement validity	Not present
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Parameters required for each event	
- Intra-frequency event identity	1D
- Triggering condition 2	Active set cells
- Hysteresis	0
- Time to trigger	0
- Reporting cell status	
- CHOICE reported cell	Report cells within active set
- Maximum number of reported cells	3
- Use CIO	FALSE
Measurement reporting mode	
- Measurement reporting transfer mode	Acknowledged mode RLC
- Periodic reporting / Event trigger reporting mode	Event trigger
Additional measurement list	Not present
DPCH compressed mode status info	Not present

Contents of PHYSICAL CHANNEL RECONFIGURATION message (cell 1 HS-DSCH serving cell):

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects an integer between 0 and 3
Integrity check info	
- message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC message sequence number	SS provides the value of this IE, from its internal counter.
Integrity protection mode info	Not Present
Ciphering mode info	Not Present
Activation time	Not Present
Delay restriction flag	Not Present
New U-RNTI	Not Present
New C-RNTI	Not Present
New H-RNTI	'0101 0101 0101 0101'
New Primary E-RNTI	Not Present
New Secondary E-RNTI	Not Present

Information Element	Value/remark
RRC State indicator	CELL_DCH
UTRAN DRX cycle length coefficient	Not Present
CN information info	Not Present
URA identity	Not Present
Downlink counter synchronization info	Not Present
Frequency info	Not present
Maximum allowed UL TX power	Not present
CHOICE channel requirement	Uplink DPCH info
- Uplink DPCH power control info	
- DPCCH power offset	-40 (-80dB)
- PC Preamble	1 frame
- SRB delay	7 frames
- Power Control Algorithm	Algorithm1
- TPC step size	0 (1dB)
- Δ_{ACK}	3
- Δ_{NACK}	3
- Ack-Nack repetition factor	1
- Scrambling code type	Long
- Scrambling code number	0 (0 to 16777215)
- Number of DPDCH	Not Present(1)
- spreading factor	64
- TFCI existence	TRUE
- Number of FBI bit	Not Present(0)
- Puncturing Limit	1
E-DCH Info	Not Present
CHOICE Mode	FDD
Downlink HS-PDSCH Information	
- HS-SCCH Info	
- CHOICE mode	FDD
- DL Scrambling Code	Not present
- HS-SCCH Channelisation Code Information	
- HS-SCCH Channelisation Code	2
- HS-SCCH Channelisation Code	3
- HS-SCCH Channelisation Code	6
- HS-SCCH Channelisation Code	7
- Measurement Feedback Info	
- CHOICE mode	FDD
- Measurement Power Offset	12 (6 dB)
- CQI Feedback cycle, k	0
- CQI repetition factor	1
- Δ_{CQI}	5 (corresponds to 0dB in relative power offset)
- CHOICE mode	FDD (no data)
Downlink information common for all radio links	
- Downlink DPCH info common for all RL	
- Timing indicator	Maintain
- CFN-targetSFN frame offset	Not Present
- Downlink DPCH power control information	
- DPC mode	0 (single)
- CHOICE mode	FDD
- Power offset $P_{Pilot-DPDCH}$	0
- DL rate matching restriction information	Not Present
- Spreading factor	Reference to clause 6.10 Parameter Set
- Fixed or Flexible Position	Reference to clause 6.10 Parameter Set
- TFCI existence	Reference to clause 6.10 Parameter Set
- CHOICE SF	Reference to clause 6.10 Parameter Set
- DPCH compressed mode info	Not Present
- TX Diversity mode	None
- Default DPCH Offset Value	Not Present
- MAC-hs reset indicator	Not Present

Information Element	Value/remark
- Downlink information for each radio link	(for cell 2)
- Choice mode	FDD
- Primary CPICH info	
- Primary scrambling code	Same as defined in cell 2
- Cell ID	Not Present
- Serving HS-DSCH radio link indicator	FALSE
- Downlink DPCH info for each RL	Not present
- Downlink information for each radio link	(for cell 1)
- Choice mode	FDD
- Primary CPICH info	
- Primary scrambling code	Same as defined in cell 1
- Serving HS-DSCH radio link indicator	TRUE
- Downlink DPCH info for each RL	
- CHOICE mode	FDD
- Primary CPICH usage for channel estimation	Primary CPICH may be used
- DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38 400
- 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
- Closed loop timing adjustment mode	Not Present
MBMS PL Service Restriction Information	Not Present

MEASUREMENT REPORT message for Intra frequency event 1A

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

MEASUREMENT REPORT message for Intra frequency, event 1D 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	2

8.3.9.5 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 8.3.9.3: Cell specific test parameters for enhanced serving HS-DSCH cell change

Parameter	Unit	Cell 1				Cell 2			
		T1	T2	T3	T4	T1	T2	T3	T4
UTRA RF Channel Number		Channel 1				Channel 1			
CPICH_Ec/Ior	dB	-9.3				-9.3			
PCCPCH_Ec/Ior	dB	-11.3				-9.3			
SCH_Ec/Ior	dB	-11.3				-11.3			
PICH_Ec/Ior	dB	-14.3				-14.3			
F-DPCH_Ec/Ior	dB	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
HS-PDSCH_Ec/Ior Note 4	dB	-9.3		-inf		-inf			-9.3
HS-SCCH-1_ Ec/Ior	dB	-12.3		-inf		-inf		-12.3	-inf
HS-SCCH-2 Ec/Ior	dB	-inf				-inf			-12.3
OCNS		Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
$\hat{I}_{or}/I_{oc}$	dB	3.64	1.14			1.14	3.64		
I_{oc}	dBm/ 3,84 MHz	-70							
CPICH_Ec/Io	dB	-12.3	-14.8			-14.8	-12.3		
Propagation Condition		AWGN							
Relative delay of paths received from cell 2 with respect to cell 1	Chips	{-147.5 … 147.5} Note 3							
NOTE 1: The F-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 relative delay of the path from cell 2 with respect to cell 1 shall always be within ±147.5 chip.									
NOTE 4: E_c/I_{or} value represent the per code power for HS-PDSCH channel.									

Step 8: Time from the start of T4 to the sub frame of HS-DPCCH where ACK/NAK corresponding to HS-SCCH-2 is starting shall be less than 40 ms + 7.5*T_{slot} + T_0*T_{chip}+ 2*$T_{subframe}$ = 40 + 9.3 = 49.3 ms. Allow 50 ms in the test.

NOTE 1: The first ACK that UE sends after the start of T4 corresponds to HS-SCCH order on HS-SCCH-1. After that either ACK or NACK transmission from the UE implies that the enhanced serving cell change has been completed and UE is monitoring HS-SCCH-2.

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.

8.3.10   System information acquisition for CSG cell

8.3.10.1   Intrafrequency System information acquisition for CSG cell

8.3.10.1.1   Definition and applicability

For intra frequency CSG cells, CSG SI decoding is typically triggered when a cell with primary scrambling code in a preconfigured range meets the criteria for measurement reporting. For intra frequency system information acquisition, interruption in downlink reception or uplink transmission shall not be performed to acquire system information.

The requirements in this section apply to a FDD UE release 9 and forward which supports CSG and intra-frequency system information acquisition of a CSG cell in preparation for handover.

8.3.10.1.2 Minimum requirement

The CSG SI reporting delay shall not be more than $T_{CSG-SI-Report}$ where $T_{CSG-SI-Report}$ in ms is given by

$$T_{CSG-SI-Report} = [630] + 40 * SIB3\_REP$$

SIB3_REP is the repetition period at which the CSG cell schedules SIB3 blocks in units of frames

This requirement is applicable for CSG target cell configurations where the information required to make the SI report can be determined from the MIB and SIB3 alone, and SIB3 is not segmented into multiple TTI. Additionally, for the requirement to be applicable, the reception conditions shall be [TBD] such that the system frame number of the target CSG cell, the MIB and SIB3 can each be successfully decoded in no more than four attempts.

Reporting delay results from delay uncertainty when inserting the measurement report to the TTI of the uplink DCCH. The delay uncertainty is twice the TTI of the uplink DCCH.

The UE shall transmit an Event 1A-triggered measurement report containing the cell identity and CSG identity of cell 2 and membership indication set to false within [2.71] seconds from the start of T2

$$\text{Test requirement} = T_{identify\ intra} + T_{CSG-SI-Report}$$

$$= 800 + [630] + 40 * 32 \text{ from the start of T2}$$

$$= [2.71] \text{ seconds.}$$

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

The rate of correct events observed during repeated tests shall be at least 90%.

NOTE: The actual overall delays measured in the test may be up to 2 x $TTI_{UL\ DCCH}$ higher than the measurement reporting delays above because of TTI insertion uncertainty of the measurement report in the UL DCCH.

The measured quality on the DTCH of the UE downlink during T2 shall not exceed BLER=0.01±30% = 0.013

The reference for this requirement is TS 25.133 [2] clauses 5.13 and A.5.10.

8.3.10.1.3 Test purpose

The purpose of this test is to verify the requirement for intra frequency CSG SI acquisition in section 8.3.10.1.2.

8.3.10.1.4 Method of test

8.3.10.1.4.1 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 8.3.10.1.1 and 8.3.10.1.2 below. In the measurement control information cell 2 shall be included in the "Intra-frequency SI Acquisition" IE. The test consists of two successive time periods, with time duration of T1 and T2 respectively. At the start of time duration T1, the UE may not have any timing information of cell 2.

Table 8.3.10.1.1: General test parameters for intra frequency CSG SI acquisition

Parameter		Unit	Value	Comment
DCH parameters			DL and UL Reference Measurement Channel 12.2 kbps	As specified in TS 25.101 section A.3.1 and A.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 1	Handover to cell 2 is not requested
Reporting range		dB	3	Applicable for event 1A
Hysteresis		dB	0	
W			1	Applicable for event 1A
Reporting deactivation threshold			0	Applicable for event 1A
Time to Trigger		Ms	0	
SIB3_REP		Frames	32	Applicable for cell 2 SIB3 scheduling
SIB3 SEG_COUNT			1	Applicable for cell 2 SIB3 scheduling
UE whitelist			Empty	
Monitored cell list size			24 on channel 1	Measurement control information is sent before the start of the test
CSG id (of cell 2)			Set to any non-empty value (In this test case, it is set to 2)	
Filter coefficient			0	
T1		S	5	
T2		S	5	

Table 8.3.10.1.2: Cell specific test parameters for intra frequency CSG SI acquisition

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	Note 1		N/A	
OCNS		Note 2		-0.941	
$\hat{I}_{or}/I_{oc}$	dB	0	6.97	-Infinity	5.97
I_{oc}	dBm / 3,84 MHz	-63.01	-70	Note 3	Note 3
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 Ioc level is common for cell 1 and cell 2					

8.3.10.1.4.2 Procedure

1) The RF parameters are set up according to T1 in Table 8.3.10.1.3.

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 send a MEASUREMENT CONTROL message (event 1A) on Cell 1. Cell 2 is included in the "Intra-frequency SI Acquisition" IE. T1 starts.

5) After 5 seconds from the beginning of T1, the SS shall switch the power settings from T1 to T2 according to the parameters defined in table 8.3.10.1.3.

6) SS shall measure the time and the UE downlink BLER from the start of T2 until receiving the MEASUREMENT REPORT message.

7) If the MEASUREMENT REPORT message containing the cell identity, CSG identity of cell 2 and not containing membership indication within 2.71 seconds from the start of T2 and BLER shall not exceed 0.013, then the number of successful tests is increased by one.

8) After 5 seconds from the beginning of time period T2, the UE is switched off. Any timing information of cell 2 is deleted in the UE.

9) Repeat step 1-8 until the confidence level according to annex F.6.2 is achieved

Specific Message Contents

The default messages for SIB11 and SIB12 as specified for Cell 1 and Cell 2 in clause 6.1.4 of 34.108 [3] are used.

Default parameters according to Cell 1 and Cell 2 in clause 6.1.4, with the following exceptions:

The "CSG Indicator" in MIB of the Cell 2 is set to TRUE.

The "CSG Identity" in SIB3 of the Cell 2 is 2. "CSG PSC Split Information" is also included in SIB3 with "Start PSC" set to 144 and "Number of PSCs" set to 10.

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 1A (step 4):

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
-RRC message sequence number	SS provides the value of this IE, from its internal counter.
Measurement Information elements	
-Measurement Identity	1
-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 Measurement type	Intra-frequency measurement
-Intra-frequency measurement (10.3.7.36)	
-Intra-frequency measurement objects list (10.3.7.33)	
- Intra-frequency SI Acquisition	
- CHOICE mode	FDD
- Intra-frequency SI Acquisition info	
- Primary Scrambling code	
- Primary CPICH info	
- Primary Scrambling code	Set to same code as used for cell 2(150)
-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 monitored set cells (10.3.7.5)	
-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	FALSE
-Reporting quantities for detected set cells (10.3.7.5)	Not Present

Information Element/Group name	Value/Remark
-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 1 A
-Triggering condition 2	Monitored set cells
-Reporting Range Constant	3 dB
-Cells forbidden to affect Reporting Range	Not Present
-W	1
-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
-Reporting cell status	
- CHOICE reported cell	Report cell within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	3
Physical channel information elements -DPCH compressed mode status info (10.3.6.34)	Not Present

MEASUREMENT REPORT message (step 7):

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
Integrity check info - Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results - CHOICE *Measurement*	
-Intra-frequency measured results list	
-Intra-frequency measurement results	
- Cell measured results	
- Cell Identity	2 (The same as the Cell 2)
- CSG Identity	2
- CSG Member indication	Not present indicates that the UE is the non-member UE.
- CHOICE *mode*	
-FDD	
- Primary CPICH info	
- Primary scrambling code	150(The same as the cell2)
- CPICH Ec/N0	Check that this IE is present
- CPICH RSCP	Check that this IE is present
- Pathloss	Check that this IE is absent
Measured results on RACH	Check that this IE is absent
Additional measured results	Check that this IE is absent
Event results	
- CHOICE *event result*	Intra-frequency measurement event results
- Intra-frequency event identity	1a
- Cell measurement event results	
- CHOICE *mode*	FDD
- Primary CPICH info	150

8.3.10.1.5 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 %.

Table 8.3.10.1.3: Cell specific test parameters for intra frequency CSG SI acquisition

Parameter	Unit	Cell 1		Cell 2	
		T1	T2	T1	T2
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	Note 1		N/A	
OCNS		Note 2		-1.13	
$\hat{I}_{or}/I_{oc}$	dB	0	7.0	-Infinity	6.0
I_{oc}	dBm/3,84 MHz	-63.01	-70	Note 3	Note 3
CPICH_Ec/Io	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 Ioc level is common for cell 1 and cell 2					

Step 7: Time from the start of T2 to the time UE sending measurement report shall be less than 2.71 seconds and BLER shall not exceed 0.013.

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.

8.3.10.2 Inter frequency System information acquisition for CSG cell

8.3.10.2.1 Definition and applicability

For inter frequency CSG cells, CSG SI decoding is explicitly requested by RRC signalling. For the inter frequency case the UE may make autonomous gaps in both downlink reception and uplink transmission.

The requirements in this section apply to a FDD UE release 9 and forward which supports CSG and inter-frequency system information acquisition of a CSG cell in preparation for handover.

8.3.10.2.2 Minimum requirement

When inter frequency CSG SI decoding of a neighbour cell is requested by UTRAN, the UE may interrupt ongoing downlink reception, and uplink transmission to perform the decoding on another frequency. The total of the gaps in reception and the total of the gaps in transmission during the period $T_{CSG-SI-Report}$ shall not exceed $T_{CSG-SI-Interruption}$ where $T_{CSG-SI-Interruption}$ =[600ms]. This requirement is applicable for CSG target cell configurations where the information required to make the SI report can be determined from the MIB and SIB3 alone, and SIB3 is not segmented into multiple TTI. Additionally, for the requirement to be applicable, the reception conditions shall be [TBD] such that the system frame number of the target CSG cell, the MIB and SIB3 can each be successfully decoded in no more than four attempts

The UE shall transmit a measurement report containing the cell identity, CSG identity of cell 2 and membership indication set to FALSE within [1.96] seconds from the start of T3.

Test requirement = RRC Procedure delay + $T_{CSG-SI-Report}$

$$= 50 + [630] + 40*32 \text{ from the start of T3}$$

$$= [1.96] \text{ seconds.}$$

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

The rate of correct events observed during repeated tests shall be at least 90%.

NOTE 1: The actual overall delays measured in the test may be up to 2 x $TTI_{UL\ DCCH}$ higher than the measurement reporting delays above because of TTI insertion uncertainty of the measurement report in the UL DCCH.

The measured quality on the DTCH of the UE downlink measured from the start of T3 until 1.96 seconds after the start of T3 using loopback shall not exceed BLER= 0.612

NOTE 2: The test BLER is defined from the requirements as follows:
- 600ms of downlink interruption and 600ms of uplink interruption may occur = 30 DTCH TTI
- Due to loopback delay (up to 10 TTI), this means that 30 + 30 = 60 TTI loopback throughput may be lost due to gaps in uplink and downlink
- There are 98 TTI in the test interval (1.96 seconds)
- The remaining 98-60 = 38 TTI should have a BLER not exceeding 0.001+30% = 0.0013

Overall maximum allowed BLER is (38/98)*0.0013 + (60/98)*1 = 0.612

The reference for this requirement is TS 25.133 [2] clauses 5.13 and A.5.11.

8.3.10.2.3 Test purpose

The purpose of this test is to verify the requirement for inter frequency CSG SI acquisition in section 8.3.10.2.2.

8.3.10.2.4 Method of test

8.3.10.2.4.1 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 8.3.10.2.1 and 8.3.10.2.2 below. The test consists of three successive time periods, with a time duration T1, T2 and T3. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 2C shall be used. The CPICH Ec/Io 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.

During T2, the UE shall transmit a measurement report with event 2C, and UTRAN shall respond with a measurement control message which reconfigures inter frequency measurements with the Inter-frequency SI Acquisition IE containing the PSC of cell 2. The start of T3 is defined as the end of the last TTI containing this measurement control message

Table 8.3.10.2.1: 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 TS 25.101 section A.3.1 and A.2.1
Power Control			On	
Target quality value on DTCH		BLER	0.001	
Compressed mode			A.22 set 1	As specified in TS 25.101 section A.5.
Initial conditions	Active cell		Cell 1	
	Neighbour cell		Cell 2	
Final conditions	Active cell		Cell 1	Handover to cell 2 is not requested
Threshold non used frequency		dB	-18	Absolute Ec/I0 threshold for event 2C
Hysteresis		dB	0	
W non-used frequency			1	Applicable for event 2C
Time to Trigger		Ms	0	
Filter coefficient			0	
SIB3_REP		Frames	32	Applicable for cell 2 SIB3 scheduling
SIB3 SEG_COUNT			1	Applicable for cell 2 SIB3 scheduling
CSG id (of cell 2)			Set to any non-empty value (In this test case ,it is set to 2)	

Parameter	Unit	Value	Comment
CSG Indicator (of cell 2)		Set to TRUE	
UE whitelist		Empty	
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	5	
T2	S	≤5	
T3	S	5	

Table 8.3.10.2.2: 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/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	Note 1			N/A		
OCNS		Note 2			-0.941		
$\hat{I}_{or}/I_{oc}$	dB	0			-Infinity	-1.8	-1.8
I_{oc}	dBm/3,84 MHz	-70					
CPICH_Ec/Io	dB	-13			-Infinity	-14	-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} .							

8.3.10.2.4.2 Procedure

1) The RF parameters are set up according to T1 in Table 8.3.10.2.3.

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 8.3.10.2.1. The compressed mode shall remain inactive. Data shall be sent on the DTCH throughout the call.

4) SS shall send a MEASUREMENT CONTROL message (event 2C) on Cell 1. T1 starts.

5) 5 seconds after step 4 has completed, the SS shall switch the power settings from T1 to T2 according to the parameters defined in table 8.3.10.2.3.

6) SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message to active the compressed mode.

7) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

8) UE shall transmit a MEASUREMENT REPORT message triggered by event 2C during T2.

9) SS shall transmit a MEASUREMENT CONTROL message with the Inter-frequency SI Acquisition IE containing the PSC of Cell 2. The start of T3 is defined as the end of the last TTI containing this measurement control message.

10) SS shall measure the time and the BLER from the start of T3 until receiving the MEASUREMENT REPORT message.

11) If the MEASUREMENT REPORT message containing the cell identity, CSG identity of Cell 2 and not containing membership indication within 1.96 seconds from the start of T3 and BLER is less than 0.612, then the number of successful tests is increased by one.

12) 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.

13) Repeat step 1-12 until the confidence level according to annex F.6.2 is achieved

Specific Message Contents

The default messages for SIB11 and SIB12 as specified for Cell 1 and Cell 2 in clause 6.1.4 of 34.108 [3] are used.

Default parameters according to Cell 1 and Cell 2 in clause 6.1.4, with the following exceptions:

The "CSG Identity" in SIB3 of the Cell 2 is 2. "CSG PSC Split Information" is also included in SIB3 with "Start PSC" set to 248 and "Number of PSCs" set to 10.

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	0
-Integrity check info	
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
-RRC message sequence number	SS provides the value of this IE, from its internal counter.
Measurement Information elements	
-Measurement Identity	1
-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 Measurement type	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	4
- Frequency info	
- CHOICE mode	FDD
- UARFCN uplink(Nu)	Not Present
- UARFCN downlink(Nd)	Same frequency as "Channel2" in Table 8.3.10.2.2
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Set to Primary scrambling code of Cell2 (250)
- Primary CPICH Tx Power	Not Present
- Tx Diversity Indicator	FALSE
- 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)	

Information Element/Group name	Value/Remark
-UTRA Carrier RSSI	FALSE
-Frequency quality estimate	FALSE
-Non frequency related cell reporting quantities (10.3.7.5)	
-Cell synchronisation information reporting indicator	TRUE
-Cell Identity reporting indicator	FALSE
-CHOICE mode	FDD
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH 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
-Inter-frequency set update (10.3.7.22)	
-UE autonomous update mode	On with no reporting
-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
-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 and/or virtual active 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

PHYSICAL CHANNEL RECONFIGURATION (Step 6)

Information Element	Value/remark	Version
RRC State Indicator	CELL_DCH	
Downlink information common for all radio links - Downlink DPCH info common for all RL (10.3.6.18)	Not Present	
- CHOICE mode	FDD	
- DPCH compressed mode info (10.3.6.33)		
- TGPSI	1	
- TGPS Status Flag	activate	
- TGCFN	(Current CFN+(256 – TTI/10msec)) mod256	
- Transmission gap pattern sequence configuration parameters		
- TGMP	FDD Measurement	
- TGPRC	Infinity	
- TGSN	4	
- TGL1	7	
- TGL2	Not Present	
- TGD	Undefined	
- TGPL1	3	
- TGPL2	Not Present	R99 and REL-4 only
- RPP	mode 0	
- ITP	mode 0	
- CHOICE UL/DL Mode	UL and DL, UL only, or DL only, depending on UE capability	
- Downlink compressed mode method	SF/2 or Not present depending on UE capability	
- Uplink compressed mode method	SF/2 or Not present depending on UE capability	
- Downlink frame type	B	

Information Element	Value/remark	Version
RRC State Indicator	CELL_DCH	
- DeltaSIR1	20 (2.0)	
- DeltaSIRAfter1	10 (1.0)	
- DeltaSIR2	Not Present	
- DeltaSIRAfter2	Not Present	
- N identify abort	Not Present	
- T Reconfirm abort	Not Present	
- TX Diversity Mode	Not Present	
- SSDT information	Not Present	R99 and Rel-4 only
- Default DPCH Offset Value	Not Present	

MEASUREMENT REPORT message (step 8)

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	Check that this IE is absent
Measured results on RACH	Check that this IE is absent
Additional measured results	Check that this IE is absent
Measured Results (10.3.7.44)	
- CHOICE *Measurement*	
- Inter-frequency measured results list (10.3.7.15)	
- Frequency info	Same frequency as "Channel2" in Table 8.3.10.2.2
- Inter-frequency measurement results	
- Cell measured results (10.3.7.3)	
- Cell Identity	Not present
- CSG Identity	Not present
- CSG Member indication	Not present
- Cell synchronisation information	
- Tm	Checked that this IE is present
- CHOICE *mode*	
-FDD	
- Primary CPICH info	
- Primary scrambling code	250 (The same as the cell2)
- CPICH Ec/N0	Check that this IE is present
- CPICH RSCP	Check that this IE is present
- Pathloss	Check that this IE is absent
Event results (10.3.7.7)	
- CHOICE *event result*	
- Inter-frequency measurement event results (10.3.7.17)	
- Inter-frequency event identity	2c
- Inter-frequency cells	
- Frequency info	Same frequency as "Channel2" in Table 8.3.10.2.2
- Non frequency related measurement event results (10.3.7.4)	
- CHOICE *mode*	
- FDD	
- Primary CPICH info	
- Primary scrambling code	250 (The same as the cell2)

MEASUREMENT CONTROL message (step 9)

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements	
-RRC transaction identifier	2
-Integrity check info	
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
-RRC message sequence number	SS provides the value of this IE, from its internal counter.
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	Periodical reporting
-Additional measurements list (10.3.7.1)	Not Present
-CHOICE Measurement type	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	Not Present
- Inter-frequency SI Acquisition	
- Frequency Info	
- CHOICE mode	FDD
- UARFCN uplink(Nu)	Not Present
- UARFCN downlink(Nd)	Same frequency as "Channel2" in Table 8.3.10.2.2
- CHOICE mode	FDD
- Primary Scrambling Code	The same as Cell 2 (250)
-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)	
-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	FALSE
-Reporting cell status (10.3.7.61)	Not Present
-Measurement validity (10.3.7.51)	Not Present
-Inter-frequency set update (10.3.7.22)	Not Present
-CHOICE report criteria	Periodical reporting criteria
- Periodical reporting criteria (10.3.7.53)	
- Amount of reporting	1
- Reporting interval	2000 ms
Physical channel information elements	
-DPCH compressed mode status info (10.3.6.34)	Not Present

MEASUREMENT REPORT message (step 10)

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	2
Measured Results	
- CHOICE *Measurement*	
- Inter-frequency measured results list (10.3.7.15)	
- Frequency info	Same frequency as "Channel2" in Table 8.3.10.2.2
- Inter-frequency measurement results	
- Cell measured results (10.3.7.3)	
- Cell Identity	4 (The same as the Cell 2)
- CSG Identity	2
- CSG Member indication	Not present indicates that the UE is the non-member UE.
- CHOICE *mode*	
-FDD	
- Primary CPICH info	
- Primary scrambling code	250 (The same as the cell2)
- CPICH Ec/N0	Check that this IE is present
- CPICH RSCP	Check that this IE is present
- Pathloss	Check that this IE is absent
Measured results on RACH	Check that this IE is absent
Additional measured results	Check that this IE is absent
Event results	Check that this IE is absent

8.3.10.2.5 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 %.

Table 8.3.10.2.3: 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/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	Note 1			N/A		
OCNS		Note 2			-1.16		
$\hat{I}_{or}/I_{oc}$	dB	0			-Infinity	-1.8	-1.8
I_{oc}	dBm/3,84 MHz	-70					
CPICH_Ec/Io	dB	-12.2			-Infinity	-13.2	-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$_{or}$.							

Step 11: Time from the start of T3 to the time UE sending measurement report shall be less than 1.96 seconds and the BLER during this time shall be less than 0.612.

> 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.

8.4 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

$T_{RRC-RE-ESTABLISH} = 160ms + (N_{313}-1)*10ms + T_{313}$

$T_{UE-RE-ESTABLISH\_REQ-KNOWN} = 50ms + T_{search} + T_{SI} + T_{RA},$

$N_{313} = $ 20

$T_{313} = $ 0s

$T_{search} = $ 100ms

$T_{RA} = $ The additional delay caused by the random access procedure. 40 ms is assumed in this test case.

T_{SI} 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, table 8.4.1.1.A , and table 8.4.1.2 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. NOTE: See Annex I for cell information.
Cell 2			Included in the monitored set
T_{SI}	ms	1280	See Annex I for the SIB repetition period of system information blocks.
Reporting frequency	Seconds	4	
T1	s	10	
T2	s	6	

Table 8.4.1.1.A 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_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	Note 1	-infinity
OCNS_Ec/Ior	dB	Note 2	-0.941
$\hat{I}_{or}/I_{oc}$	dB	2.39	-infinity
I_{oc}	dBm/3.84 MHz	-70	
CPICH_Ec/Io	dB	-12	-infinity
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 8.4.1.2 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	Note 1	-Infinity	Not applicable	
OCNS_Ec/Ior	dB	Note 2	-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			
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}.					

8.4.1.1.4.2 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] subclause 7.3.4 without Compressed mode parameters.

4) The RF parameters are setup according to T1.

5) 10 s after step4 has completed, the parameters are changed to that as described for T2.

6) If the UE responds on cell 2 within 2.1 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 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 1: 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 is defined in 25.331 for a UTRAN cell. Since the maximum time to read the relevant system info blocks that needs to be received by the UE to camp on a cell is 1420ms (see note 2) and the maximum RRC procedure delay for reception system information block is 100ms, 1520ms is assumed in this test case. Therefore this gives a total of 2060ms (Minimum requirement + 240ms), allow 2.1s in the test case.

NOTE 2: 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. The Master Information Block (MIB) is repeated every 8 frame and SIB5 (and SIB11) is segmented into 4 segments where the first segment is scheduled adjacent to the MIB at SIB_POS=40 and the other three segments are scheduled after the MIB (SIB_POS=42, 44 and 46). The maximum time for a UE to read SIB5 will occur if the UE start reading the BCH at the SFN after the MIB located prior to the first segment of SIB5 (SIB_POS 32). Then the UE will not be able to read SIB5 until the second occurrence of SIB5, which will happen at SIB_POS 46 + 1280ms. This gives that the maximum time for the UE to read the relevant system info will be 1420ms ((SIB_POS 46 − SIB_POS 32)*10ms +1280ms).

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 RRC CONNECTION RELEASE message UM (Step 7):

Information Element	Value/remark	Version
Release cause	Re-establishment Reject	

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.

8.4.1.2   Test 2

8.4.1.2.1   Definition and applicability

The UE Re-establishment delay requirement ($T_{\text{UE-E-ESTABLISH-REQ}}$) 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.

$T_{\text{UE-RE-ESTABLISH-REQ}}$ 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.

8.4.1.2.2   Minimum requirement

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

$$T_{\text{RE-ESTABLISH}} = T_{\text{RRC-RE-ESTABLISH}} + T_{\text{UE-RE-ESTABLISH-REQ-UNKNOWN}}.$$

where

$T_{\text{RRC-RE-ESTABLISH}} = \quad 160\text{ms} + (N_{313}-1)*10\text{ms} + T_{313}$

$T_{\text{UE-RE-ESTABLISH-REQ-UNKNOWN}} = 50\text{ms} + T_{\text{search}}*NF + T_{SI} + T_{RA}$,

$N_{313} = \qquad 20$

$T_{313} = \qquad 0\text{s}$

$T_{\text{search}} = \qquad 800\text{ms}$

NF   is the number of different frequencies in the monitored set. 3 frequencies are assumed in this test case.

$T_{RA} = \qquad$ The additional delay caused by the random access procedure. 40 ms is assumed in this test case.

T_{SI} 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 4120ms, allow 4.2s in the test case.

8.4.1.2.3 Test purpose

To verify that the UE meets the minimum requirement.

8.4.1.2.4 Method of test

8.4.1.2.4.1 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 test parameters are given in table 8.4.1.3 and table 8.4.1.4 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 consists 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 8.4.1.3 General test parameters for RRC re-establishment delay, Test 2

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 include 2 additional frequencies. NOTE: See Annex I for cell information.
Cell 2			Cell 2 is not included in the monitored set. Cell 2 is located on one of the 2 additional frequencies of the monitored set. NOTE: Cell 2 is included in the monitored cell list (SIB 11), but not known by the UE.
T_{SI}	ms	1280	See Annex I for the SIB repetition period of system information blocks.
Reporting frequency	Seconds	4	
T1	s	10	
T2	s	6	

Table 8.4.1.4 Cell specific parameters for RRC re-establishment delay test, Test 2

Parameter	Unit	Cell 1		Cell 2	
		T1	T2	T1	T2
Cell Frequency	ChNr	1		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	
DCH_Ec/Ior	dB	Note 1	-Infinity	Not applicable	
OCNS_Ec/Ior	dB	Note 2	-0.941	-0.941	
$\hat{I}_{or}/I_{oc}$	dB	-3,35	-Infinity	-Infinity	0,02
I_{oc}	dBm/3.84 MHz	-70			
CPICH_Ec/Io	dB	-15	-Infinity	-Infinity	-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}.					

8.4.1.2.4.2 Procedure

1) The RF parameters are set up according to T1.

2) The UE is switched on.

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

4) 10 s after step3 has completed, the parameters are changed to that as described for T2.

5) If the UE responds on cell 2 within 4.4 s from the beginning of time period T2 with a CELL_UPDATE command then the number of successful tests is increased by one.

6) SS shall transmit a RRC CONNECTION RELEASE message to make the UE transit to idle mode.

7) After 6 seconds the RF parameters are set up according to T1.

8) The SS shall wait for 30s to make the UE complete cell reselection to cell1.

9) Repeat step 3-8 until the confidence level according to annex F.6.2 is achieved.

NOTE 1: 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 is defined in 25.331 for a UTRAN cell. Since the maximum time to read the relevant system info blocks that needs to be received by the UE to camp on a cell is 1420ms (see note 2) and the maximum RRC procedure delay for reception system information block is 100ms, 1520ms ms is assumed in this test case. Therefore this gives a total of 4360ms (Minimum requirement + 240ms), allow 4.4s in the test case.

NOTE 2: 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. The Master Information Block (MIB) is repeated every 8 frame and SIB5 (and SIB11) is segmented into 4 segments where the first segment is scheduled adjacent to the MIB at SIB_POS=40 and the other three segments are scheduled after the MIB (SIB_POS=42, 44 and 46). The maximum time for a UE to read SIB5 will occur if the UE start reading the BCH at the SFN after the MIB located prior to the first segment of SIB5 (SIB_POS 32). Then the UE will not be able to read SIB5 until the second occurrence of SIB5, which will happen at SIB_POS 46 + 1280ms. This gives that the maximum time for the UE to read the relevant system info will be 1420ms ((SIB_POS 46 – SIB_POS 32)*10ms +1280ms).

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 RRC CONNECTION RELEASE message UM (Step 6):

Information Element	Value/remark	Version
Release cause	Re-establishment Reject	

8.4.1.2.5 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%.

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.

8.4.2 Random Access

8.4.2.1 Correct behaviour when receiving an ACK (Release 5 and earlier)

8.4.2.1.1 Definition and applicability

The random access procedure is used when establishing the layer 1 communication between the UE and UTRAN. The random access shall provide a fast access but without disturbing ongoing connections. The random access is specified in clause 6 of TS 25.214 [5] and the control of the RACH transmission is specified in clause 11.2 of TS 25.321. A random access transmit sequence is described in clause 6.7.2 of TS 25.303.

This test is applicable for Release 5 and earlier releases only. See subclause 8.4.2.1A for later releases.

8.4.2.1.2 Minimum Requirements

The UE shall have capability to calculate initial power according to the open loop algorithm and apply this power level at the first preamble and increase the power on additional preambles. The absolute power applied to the first preamble shall have an accuracy as specified in table 6.3 of TS 25.101 [1]. The relative power applied to additional preambles shall have an accuracy as specified in clause 6.5.2.1 of 25.101 [1].

The absolute power applied to the first preamble shall be -30 dBm with an accuracy as specified in clause 6.4.1.1 of TS 25.101 [1]. The accuracy is ± 9dB in the case of normal condition or ±12dB in the case of extreme condition.

There are two relative powers, one is the power difference for preamble ramping and another is the power difference between last preamble part and message part. From the test parameter in the table 8.4.2.1.2, the test requirement of the power difference for all preamble ramping is 3dB (Power offset P0). The accuracy is ±2 dB as specified in clause 6.5.2.1 of 25.101 [1]. The test requirement of the power difference between 10th preamble PRACH and message part is 3 dB (note). The accuracy is ±2 dB as specified in clause 6.5.2.1 of 25.101 [1].

> NOTE: In order to calculate the power difference between 10th preamble PRACH and message part by using Power offset P $_{p-m}$ in the table 8.4.2.1.2, the gain factors of PRACH message part are needed. The gain factor β_d is set to15. The temporary gain factor β_c is set to 15.

The UE shall stop transmitting preambles upon a ACK on the AICH has been received and then transmit a message. The UE shall transmit 10 preambles and 1 message.

The normative reference for this requirements is TS 25.133 [2] clauses 6.3.2 and A.6.2.2.1.

8.4.2.1.3 Test purpose

The purpose of this test is to verify that the behaviour of the random access procedure is according to the requirements and that the PRACH power settings are within specified limits.

8.4.2.1.4 Method of test

8.4.2.1.4.1 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.

1) Connect the SS to the UE antenna connector as shown in figure A.1 in the case of the PRACH power measurement. And in the case of the function test of the random access procedure, connect the SS to the UE antenna connector as shown in figure A.8. A spectrum analyzer is set to 0 span mode.

See TS 34.108 [3] for details regarding generic call setup procedure.

Table 8.4.2.1.1: RF Parameters for Random Access test

Parameter	Unit	Cell 1
UTRA RF Channel Number		Channel 1
CPICH_Ec/Ior	dB	-10
PCCPCH_Ec/Ior	dB	-12
SCH_Ec/Ior	dB	-12
Number of other transmitted Acquisition Indicators	-	0
AICH_Ec/Ior	dB	-10
PICH_Ec/Ior	dB	-15
OCNS_Ec/Ior when an AI is not transmitted	dB	-0,941
OCNS_Ec/Ior when an AI is transmitted	dB	-1,516
$\hat{I}_{or}/I_{oc}$	dB	0
I_{oc}	dBm/3.84 MHz	-70
CPICH_Ec/Io	dB	-13
Propagation Condition		AWGN

The test parameters "System Information Block (SIB) type 5 (ASC #0)" defined in clause 6.1 of TS 34.108 [3], shall be used in all random access tests (see note). Crucial parameters for the test requirements are repeated in tables 8.4.2.1.2 and 8.4.2.1.3 and these overrule the parameters defined in SIB type 5.

NOTE: A parameter of AC-to-ASC mapping(AC0-9) in SIB5 of clause 6.1 of TS 34.108 [3] shall be set to 0 in the case of all random access tests. The EFACC of Type A, which is specified in clause 8.3.2.15 of TS 34.108 [3], shall be selected.

Table 8.4.2.1.2: UE parameters for Random Access test

Parameter	Unit	Value
Access Service Class (ASC#0) - Persistence value	0..1	1
Maximum number of preamble ramping cycles (M_{max}).		2
Maximum number of preambles in one preamble ramping cycle (Preamble Retrans Max)		12
The backoff time T_{B01} $N_{B01min=}N_{B01max}$	ms #TTI	N/A 10
Power step when no acquisition indicator is received (Power offset P0)	dB	3
Power offset between the last transmitted preamble and the control part of the message (Power offset P p-m)	dB	0
Maximum allowed UL TX power	DBm	21

Table 8.4.2.1.3: SS parameters for Random Access test

Parameter	Unit	Value
Primary CPICH DL TX power	dBm	-8
UL interference	dBm	-92
SIR in open loop power control (Constant value)	dB	-10
AICH Power Offset	dB	0

8.4.2.1.4.2 Procedure

1) A call is set up according to the Generic call setup procedure. The test parameters are set up according to table 8.4.2.1.1, table 8.4.2.1.2 and table 8.4.2.1.3. The PRACH procedure within the call setup is used for the test. It is necessary that an ACK on the AICH shall be transmitted after 10 preambles have been received by the SS

2) Measure the first PRACH preamble output power, the each power difference for preamble ramping and the power difference between 10th preamble PRACH and message part of the UE according to annex B.

3) Measure the number of the preamble part and the message part by using a spectrum analyzer.

8.4.2.1.5 Test requirements

The accuracy of the first preamble as specified in clause 6.4.1.1 of TS 25.101 [1] shall not be verified in this test. It is verified under the section 5.4.1, Open loop power control.

There are two relative powers, one is the power difference for preamble ramping and another is the power difference between last preamble part and message part. From the test parameter in the table 8.4.2.1.2, the test requirement of the power difference for all preamble ramping is 3dB (Power offset P0). The accuracy is ±3 dB. The test requirement of the power difference between 10th preamble PRACH and message part (control + data) is 3 dB (note). The accuracy is ±3 dB

Table 8.4.2.1.4:
Test requirement for power difference

	Power difference for all preambles		Power difference between 10th preamble PRACH and message part (control+data)	
Test requirement	3dB	±3 dB	3dB	±3 dB

NOTE: In order to calculate the power difference between 10th preamble PRACH and message part by using Power offset P p-m in the table 8.4.2.1.2, the gain factors of PRACH message part are needed. The gain factor β_d is set to 15. The temporary gain factor β_c is set to 15.

The UE shall stop transmitting preambles upon a ACK on the AICH has been received and then transmit a message. The UE shall transmit 10 preambles and 1 message.

Table 8.4.2.1.5: RF Parameters for Random Access test

Parameter	Unit	Cell 1
UTRA RF Channel Number		Channel 1
CPICH_Ec/Ior	dB	-10
PCCPCH_Ec/Ior	dB	-12
SCH_Ec/Ior	dB	-12
Number of other transmitted Acquisition Indicators	-	0
AICH_Ec/Ior	dB	-10
PICH_Ec/Ior	dB	-15
OCNS_Ec/Ior when an AI is not transmitted	dB	-0,941
OCNS_Ec/Ior when an AI is transmitted	dB	-1,516
$\hat{I}_{or}/I_{oc}$	dB	0
I_{oc}	dBm/3.84 MHz	-70
CPICH_Ec/Io	dB	-13
Propagation Condition		AWGN

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.

8.4.2.1A Correct behaviour when receiving an ACK (Release 6 and later)

8.4.2.1A.1 Definition and applicability

The random access procedure is used when establishing the layer 1 communication between the UE and UTRAN. The random access shall provide a fast access but without disturbing ongoing connections. The random access is specified in clause 6 of TS 25.214 [5] and the control of the RACH transmission is specified in clause 11.2 of TS 25.321. A random access transmit sequence is described in clause 6.7.2 of TS 25.303.

This test is applicable for Release 6 and later releases only. This test includes measurement of PRACH timing. See subclause 8.4.2.1 for the PRACH test for earlier releases that does not include PRACH timing.

8.4.2.1A.2 Minimum Requirements

The UE shall have capability to calculate initial power according to the open loop algorithm and apply this power level at the first preamble and increase the power on additional preambles. The absolute power applied to the first preamble shall have an accuracy as specified in table 6.3 of TS 25.101 [1]. The relative power applied to additional preambles shall have an accuracy as specified in clause 6.5.2.1 of 25.101 [1].

The absolute power applied to the first preamble shall be -30 dBm with an accuracy as specified in clause 6.4.1.1 of TS 25.101 [1]. The accuracy is ± 9dB in the case of normal condition or ±12dB in the case of extreme condition.

There are two relative powers, one is the power difference for preamble ramping and another is the power difference between last preamble part and message part. From the test parameter in the table 8.4.2.1A.2, the test requirement of the power difference for all preamble ramping is 3dB (Power offset P0). The accuracy is ±2 dB as specified in clause 6.5.2.1 of 25.101 [1]. The test requirement of the power difference between 10th preamble PRACH and message part is 3 dB (note). The accuracy is ±2 dB as specified in clause 6.5.2.1 of 25.101 [1].

NOTE: In order to calculate the power difference between 10th preamble PRACH and message part by using Power offset P_{p-m} in the table 8.4.2.1A.2, the gain factors of PRACH message part are needed. The gain factor β_d is set to 15. The temporary gain factor β_c is set to 15.

The UE shall stop transmitting preambles upon an ACK on the AICH has been received and then transmit a message. The UE shall transmit 10 preambles and 1 message.

The UE PRACH burst timing error shall be less than or equal to ± 3.5 Chips. The reference point shall be the expected timing calculated from the UE's reference detected path of the P-CCPCH.

The normative reference for this requirement is TS 25.133 [2] clauses 6.3.2, 7.4.2 and A.6.2.2.1.

8.4.2.1A.3 Test purpose

The purpose of this test is to verify that the behaviour of the random access procedure is according to the requirements and that the PRACH power settings and timing are within specified limits.

8.4.2.1A.4 Method of test

8.4.2.1A.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 the SS to the UE antenna connector as shown in figure A.1 in the case of the PRACH power measurement. And in the case of the function test of the random access procedure, connect the SS to the UE antenna connector as shown in figure A.8.

See TS 34.108 [3] for details regarding generic call setup procedure.

Table 8.4.2.1A.1: RF Parameters for Random Access test

Parameter	Unit	Cell 1
UTRA RF Channel Number		Channel 1
CPICH_Ec/Ior	dB	-10
PCCPCH_Ec/Ior	dB	-12
SCH_Ec/Ior	dB	-12
Number of other transmitted Acquisition Indicators	-	0
AICH_Ec/Ior	dB	-10
PICH_Ec/Ior	dB	-15
OCNS_Ec/Ior when an AI is not transmitted	dB	-0,941
OCNS_Ec/Ior when an AI is transmitted	dB	-1,516
$\hat{I}_{or}/I_{oc}$	dB	0
I_{oc}	dBm/3.84 MHz	-70
CPICH_Ec/Io	dB	-13
Propagation Condition		AWGN

The test parameters "System Information Block (SIB) type 5 (ASC #0)" defined in clause 6.1 of TS 34.108 [3], shall be used in all random access tests (see note). Crucial parameters for the test requirements are repeated in tables 8.4.2.1A.2 and 8.4.2.1A.3 and these overrule the parameters defined in SIB type 5.

NOTE: A parameter of AC-to-ASC mapping (AC0-9) in SIB5 of clause 6.1 of TS 34.108 [3] shall be set to 0 in the case of all random access tests. The EFACC of Type A, which is specified in clause 8.3.2.15 of TS 34.108 [3], shall be selected.

Table 8.4.2.1A.2: UE parameters for Random Access test

Parameter	Unit	Value
Access Service Class (ASC#0) - Persistence value	0..1	1
Maximum number of preamble ramping cycles (M_{max}).		2
Maximum number of preambles in one preamble ramping cycle (Preamble Retrans Max)		12
The backoff time T_{B01} $N_{B01 min=}N_{B01max}$	ms #TTI	N/A 10
Power step when no acquisition indicator is received (Power offset P0)	dB	3
Power offset between the last transmitted preamble and the control part of the message (Power offset P p-m)	dB	0
Maximum allowed UL TX power	DBm	21

Table 8.4.2.1A.3: SS parameters for Random Access test

Parameter	Unit	Value
Primary CPICH DL TX power	dBm	-8
UL interference	dBm	-92
SIR in open loop power control (Constant value)	dB	-10
AICH Power Offset	dB	0

8.4.2.1A.4.2 Procedure

1) A call is set up according to the Generic call setup procedure. The test parameters are set up according to table 8.4.2.1A.1, table 8.4.2.1A.2 and table 8.4.2.1A.3. The PRACH procedure within the call setup is used for the test. It is necessary that an ACK on the AICH shall be transmitted after 10 preambles have been received by the SS

2) Measure the first PRACH preamble output power and timing, the each power difference for preamble ramping and the power difference between 10th preamble PRACH and message part of the UE according to annex B.

3) Measure the number and timing of the preamble part and the message part by using a spectrum analyzer.

8.4.2.1A.5 Test requirements

The power accuracy of the first preamble as specified in clause 6.4.1.1 of TS 25.101 [1] shall not be verified in this test. It is verified under the section 5.4.1, Open loop power control.

The timing accuracy of all measured PRACH preamble and PRACH message bursts shall be within ± 4 chips of the reference timing for the used access slot for PRACH preambles or slot for PRACH messages. The reference timing shall be the expected timing calculated from the UE's reference detected path of the P-CCPCH.

There are two relative powers, one is the power difference for preamble ramping and another is the power difference between last preamble part and message part. From the test parameter in the table 8.4.2.1A.2, the test requirement of the power difference for all preamble ramping is 3 dB (Power offset P0). The accuracy is ±3 dB. The test requirement of the power difference between 10th preamble PRACH and message part (control + data) is 3 dB (note). The accuracy is ±3 dB

Table 8.4.2.1A.4:
Test requirement for power difference

	Power difference for all preambles		Power difference between 10th preamble PRACH and message part (control+data)	
Test requirement	3dB	±3 dB	3dB	±3 dB

NOTE: In order to calculate the power difference between 10th preamble PRACH and message part by using Power offset P $_{p-m}$ in the table 8.4.2.1A.2, the gain factors of PRACH message part are needed. The gain factor β_d is set to 15. The temporary gain factor β_c is set to 15.

The UE shall stop transmitting preambles upon an ACK on the AICH has been received and then transmit a message. The UE shall transmit 10 preambles and 1 message.

Table 8.4.2.1A.5: RF Parameters for Random Access test

Parameter	Unit	Cell 1
UTRA RF Channel Number		Channel 1
CPICH_Ec/Ior	dB	-10
PCCPCH_Ec/Ior	dB	-12
SCH_Ec/Ior	dB	-12
Number of other transmitted Acquisition Indicators	-	0
AICH_Ec/Ior	dB	-10
PICH_Ec/Ior	dB	-15
OCNS_Ec/Ior when an AI is not transmitted	dB	-0,941
OCNS_Ec/Ior when an AI is transmitted	dB	-1,516
$\hat{I}_{or}/I_{oc}$	dB	0
I_{oc}	dBm/3.84 MHz	-70
CPICH_Ec/Io	dB	-13
Propagation Condition		AWGN

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.

8.4.2.2 Correct behaviour when receiving an NACK

8.4.2.2.1 Definition and applicability

The random access procedure is used when establishing the layer 1 communication between the UE and UTRAN. The random access shall provide a fast access but without disturbing ongoing connections. The random access is specified in clause 6 of TS 25.214 and the control of the RACH transmission is specified in clause 11.2 of TS 25.321. A random access transmit sequence is described in clause 6.7.2 of TS 25.303.

8.4.2.2.2 Minimum Requirements

The UE shall stop transmitting preambles upon a NACK on the AICH has been received and then repeat the ramping procedure when the back off timer T_{B01} expires.

The UE shall transmit 10 preambles in the first ramping cycle and no transmission shall be done by the UE within 100 ms after the NACK has been transmitted by the SS. Then the UE shall start the second preamble ramping cycle.

The normative reference for this requirements is TS 25.133 [2] clauses 6.3.2 and A.6.2.2.2.

8.4.2.2.3 Test purpose

The purpose of this test is to verify that the behaviour of the random access procedure is according to the requirements.

8.4.2.2.4 Method of test

8.4.2.2.4.1 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.

1) Connect the SS to the UE antenna connector as shown in figure A.8. A spectrum analyzer is set to 0 span mode.

See TS 34.108 [3] for details regarding generic call setup procedure.

8.4.2.2.4.2 Procedure

1) A call is set up according to the Generic call setup procedure. The test parameters are set up according to table 8.4.2.1.1, table 8.4.2.1.2 and table 8.4.2.1.3. The PRACH procedure within the call setup is used for the test. It is necessary that an NACK on the AICH shall be transmitted after 10 preambles have been received by the SS

2) Measure the number of the preamble part and the time delay between 10th preamble in the first ramping cycle and first preamble in the second ramping cycle by using a spectrum analyzer.

8.4.2.2.5 Test requirements

The UE shall stop transmitting preambles upon a NACK on the AICH has been received and then repeat the ramping procedure when the back off timer T_{B01} expires.

The UE shall transmit 10 preambles in the first ramping cycle and no transmission shall be done by the UE within 100 ms after the NACK has been transmitted by the SS. Then the UE shall start the second preamble ramping cycle.

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.

8.4.2.3 Correct behaviour at Time-out

8.4.2.3.1 Definition and applicability

The random access procedure is used when establishing the layer 1 communication between the UE and UTRAN. The random access shall provide a fast access but without disturbing ongoing connections. The random access is specified in clause 6 of TS 25.214 and the control of the RACH transmission is specified in clause 11.2 of TS 25.321. A random access transmit sequence is described in clause 6.7.2 of TS 25.303.

8.4.2.3.2 Minimum Requirements

The UE shall stop transmit preambles when reaching the maximum number of preambles allowed in a cycle. The UE shall then repeat the ramping procedure until the maximum number of preamble ramping cycles are reached. No ACK/NACK shall be sent by SS during this test.

The UE shall transmit 2 preambles cycles, consisting of 12 preambles in each preamble cycle.

The normative reference for this requirements is TS 25.133 [2] clauses 6.3.2 and A.6.2.2.3.

8.4.2.3.3 Test purpose

The purpose of this test is to verify that the behaviour of the random access procedure is according to the requirements.

8.4.2.3.4 Method of test

8.4.2.3.4.1 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 the SS to the UE antenna connector as shown in figure A.8. A spectrum analyzer is set to 0 span mode.

See TS 34.108 [3] for details regarding generic call setup procedure.

8.4.2.3.4.2 Procedure

1) A call is set up according to the Generic call setup procedure. The test parameters are set up according to table 8.4.2.1.1, table 8.4.2.1.2, and table 8.4.2.1.3. The PRACH procedure within the call setup is used for the test. It is necessary that SS shall transmit no AICH.

2) Measure the number of the preamble part by using a spectrum analyzer.

8.4.2.3.5 Test requirements

The UE shall stop transmit preambles when reaching the maximum number of preambles allowed in a cycle. The UE shall then repeat the ramping procedure until the maximum number of preamble ramping cycles are reached. No ACK/NACK shall be sent by SS during this test.

The UE shall transmit 2 preambles cycles, consisting of 12 preambles in each preamble cycle.

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.

8.4.2.4 Correct behaviour when reaching maximum transmit power

8.4.2.4.1 Definition and applicability

The random access procedure is used when establishing the layer 1 communication between the UE and UTRAN. The random access shall provide a fast access but without disturbing ongoing connections. The random access is specified in clause 6 of TS 25.214 [5] and the control of the RACH transmission is specified in clause 11.2 of TS 25.321 [13]. A random access transmit sequence is described in clause 6.7.2 of TS 25.303 [12].

8.4.2.4.2 Minimum Requirements

The UE shall not exceed the maximum allowed UL TX power, which is specified in Table 8.4.2.4.1 and configured by the SS, with more than the accuracy tolerances as defined in section 6.5 of TS 25.133 [2].

Section 6.5 of TS25.133 [2] states that for UE output powers that are outside the range covered by the UE transmitted power measurement the UE output power shall not exceed the Maximum allowed UL TX Power with more than the tolerances specified for the Open loop power control in TS 25.101 [1] section 6.4.1.

No ACK/NACK shall be sent by SS during this test.

8.4.2.4.3 Test purpose

The purpose of this test is to verify that the PRACH power behaviour when reaching Maximum allowed UL TX power is correct.

8.4.2.4.4 Method of test

8.4.2.4.4.1 Initial condition

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

See TS 34.108 [3] for details regarding generic call setup procedure.

Table 8.4.2.4.1: UE parameters for correct behaviour when reaching maximum transmit power

Parameter	Unit	Value
Access Service Class (ASC#0)		
- Persistence value	0..1	1
Maximum number of preamble ramping cycles (M_{max}).		2
Maximum number of preambles in one preamble ramping cycle (Preamble Retrans Max)		12
The backoff time T_{B01} $N_{B01min}=N_{B01max}$	ms #TTI	N/A 10
Power step when no acquisition indicator is received (Power offset P0)	dB	6
Power offset between the last transmitted preamble and the control part of the message (Power offset P p-m)	dB	0
Maximum allowed UL TX power	dBm	0

8.4.2.4.4.2 Procedure

1) A call is set up according to the Generic call setup procedure. The test parameters are set up according to table 8.4.2.1.1, table 8.4.2.4.1 and table 8.4.2.1.3. The PRACH procedure within the call setup is used for the test. It is necessary that SS shall transmit no AICH.

2) Set the TX output level of the SS to obtain $\hat{I}_{or}$ at the UE antenna connector. $\hat{I}_{or}$ shall be according to table 8.4.2.1.4.

3) Measure all PRACH preamble output power of the UE according to annex B.

8.4.2.4.5 Test requirements

The UE shall not exceed the Maximum allowed UL TX power configured by the SS with more than the tolerance specified in Table 8.4.2.4.2.

Table 8.4.2.4.2: Test requirement for maximum preamble power

	Maximum preamble power	
Test requirement(normal)	0dBm	±10 dB
Test requirement(extreme)	0dBm	±13 dB

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.

8.4.3 Transport format combination selection in UE

8.4.3.1 Interactive or Background, PS, UL: 64 kbps

8.4.3.1.1 Definition and applicability

When the UE estimates that a certain TFC would require more power than the maximum transmit power, it shall limit the usage of transport format combinations for the assigned transport format set, according to the functionality specified in section 11.4 in TS25.321 [13]. This in order to make it possible for the network operator to maximise the coverage. Transport format combination selection is described in section 11.4 of TS 25.321 [13].

The requirements and this test apply to all types of UTRA for the FDD UE for Release 99, Release 4, Release 5 and later releases.

8.4.3.1.2 Minimum requirements

The UE shall continuously evaluate based on the *Elimination, Recovery* and *Blocking* criteria defined below, how TFCs on an uplink DPDCH can be used for the purpose of TFC selection. The evaluation shall be performed for every TFC in the TFCS using the estimated UE transmit power of a given TFC. The UE transmit power estimation for a given TFC shall be made using the UE transmitted power measured over the measurement period, defined in 9.1.6.1 of TS 25.133 [2] as one slot, and the gain factors of the corresponding TFC.

The UE shall consider the *Elimination* criterion for a given TFC to be detected if the estimated UE transmit power needed for this TFC is greater than the Maximum UE transmitter power for at least X out of the last Y successive measurement periods immediately preceding evaluation. The MAC in the UE shall consider that the TFC is in Excess-Power state for the purpose of TFC selection.

MAC in the UE shall indicate the available bit rate for each logical channel to upper layers within T_{notify} from the moment the *Elimination* criterion was detected.

The UE shall consider the *Recovery* criterion for a given TFC to be detected if the estimated UE transmit power needed for this TFC has not been greater than the Maximum UE transmitter power for the last Z successive measurement periods immediately preceding evaluation. The MAC in the UE shall consider that the TFC is in Supported state for the purpose of TFC selection.

MAC in the UE shall indicate the available bit rate for each logical channel to upper layers within T_{notify} from the moment the *Recovery* criterion was detected.

The evaluation of the *Elimination* criterion and the *Recovery* criterion shall be performed at least once per radio frame.

The definitions of the parameters X,Y and Z which shall be used when evaluating the *Elimination* and the *Recovery* criteria when no compressed mode patterns are activated are given in Table 8.4.3.1.1.

Table 8.4.3.1.1: X, Y, Z parameters for TFC selection

X	Y	Z
15	30	30

The UE shall consider the *Blocking* criterion for a given TFC to be fulfilled at the latest at the start of the longest uplink TTI after the moment at which the TFC will have been in Excess-Power state for a duration of:

$$(T_{notify} + T_{modify} + T_{L1\_proc})$$

where:

T_{notify} equals 15 ms

T_{modify} equals $MAX(T_{adapt\_max}, T_{TTI})$

$T_{L1\,proc}$ equals 15 ms

T_{adapt_max} equals $MAX(T_{adapt\_1}, T_{adapt\_2}, ..., T_{adapt\_N})$

N equals the number of logical channels that need to change rate

For Release 99 and Release 4, T_{adapt_n} equals the time it takes for higher layers to provide data to MAC in a new supported bit rate, for logical channel n. Table 8.4.3.1.2 defines T_{adapt} times for different services. For services where no codec is used T_{adapt} shall be considered to be equal to 0 ms.

Table 8.4.3.1.2: T_{adapt}

Service	T_{adapt} [ms]
UMTS AMR	40
UMTS AMR2	60

For Release 5 and later releases T_{adapt_n} equals the time it takes for higher layers to provide data to MAC in a new supported bit rate, for logical channel n. For services where no codec is used T_{adapt} shall be considered to be equal to 0 ms. For services where either UMTS_AMR2 or UMTS_AMR_WB is used, Tadapt shall be considered to be equal to the time required to switch from the current codec mode to a new supported codec mode. In that case Tadapt equals 20 ms + 40 ms per codec mode switch. E.g. Tadapt equals 60ms if one codec mode switch is necessary and Tadapt equals 140ms if 3 codec mode switches are necessary.

T_{TTI} equals the longest uplink TTI of the selected TFC (ms).

The Maximum UE transmitter power is defined as follows

Maximum UE transmitter power = MIN(Maximum allowed UL TX Power, UE maximum transmit power)

where

Maximum allowed UL TX Power is set by SS and defined in TS 25.331 [8], and

UE maximum transmit power is defined by the UE power class, and specified in TS 25.101 [1].

The normative reference for these requirements is TS 25.133 [2] clauses 6.4.2 and A.6.4.1.

8.4.3.1.3 Test purpose

The purpose is to verify the UE blocks (stops using) a currently used TFC when the UE output power is not sufficient to support that TFC. The test will verify the general requirement on TFC selection in section 8.4.3.1.2 for a RAB intended for packet data services, i.e. Interactive or Background, PS, UL: 64kbps as defined in TS 34.108 [3].

8.4.3.1.4 Method of test

8.4.3.1.4.1 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.

The test parameters are given in Tables 8.4.3.1.3, 8.4.3.1.4, 8.4.3.1.5 and 8.4.3.1.6 below. The test consists of 2 successive time periods, with a time duration of T1 and T2 respectively.

Details on the UL reference RAB in table 8.4.3.1.3 and 8.4.3.1.4 can be found in TS 34.108 [3] section "Interactive or background / UL:64 DL: 64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH".

Table 8.4.3.1.3: UL reference RAB, Interactive or Background

	TFI	64 kbps RAB (20ms TTI)	DCCH 3.4kbps (40ms TTI)
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Table 8.4.3.1.4: UL TFCI

TFCI	(64 kbps RAB, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF0, TF1)
UL_TFC2	(TF1, TF0)
UL_TFC3	(TF1, TF1)
UL_TFC4	(TF2, TF0)
UL_TFC5	(TF2, TF1)
UL_TFC6	(TF3, TF0)
UL_TFC7	(TF3, TF1)
UL_TFC8	(TF4, TF0)
UL_TFC9	(TF4, TF1)

Table 8.4.3.1.5: General test parameters

Parameter	Unit	Value	Comment
TFCS size		10	
TFCS		UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC7, UL_TFC8, UL_TFC9	
Power Control		On	
Active cell		Cell 1	
Maximum allowed UL TX power	dBm	21	
T0	s	10	
T1	s	30	
T2	s	2	
Propagation condition		AWGN	

Table 8.4.3.1.6: Cell specific test parameters

Parameter	Unit	Cell 1		
		T0	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		
DPCH_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 Ior .				

The amount of available user data shall be sufficient to allow uplink transmission at the highest bit rate (UL_TFC8 or UL_TFC9) during the entire test and it shall be ensured that the UE is using UL_TFC8 or UL_TFC9 at the end of T1.

8.4.3.1.4.2 Procedure

1) The SS activates cell 1 with T0 parameters defined in table 8.4.3.1.6.

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 7.3.2, using the test procedure to setup a PS call using the parameters defined in tables 8.4.3.1.3, 8.4.3.1.4 and 8.4.3.1.5.

4) SS shall transmit a MEASUREMENT CONTROL message.

5) For T1=30 secs the SS shall command the UE output power to be between 14 and 15 dB below the UE Maximum allowed UL Tx power (table 8.4.3.1.5).

6) The SS shall start sending continuously TPC_cmd=1 to the UE for T2=2 secs (see NOTE).

7) The time from the beginning of T2 until the UE blocks (stops using) UL_TFC8 and UL_TFC9 shall be measured by the SS. The UE shall stop using UL_TFC8 and UL_TFC9 within 140 ms from beginning of time period T2. A success is counted, if the UE stops within 140ms. An error is counted otherwise.

8) Repeat steps 5-7 until the confidence level according to annex F.6.2 is achieved.

NOTE: This will emulate that UL_TFC8 to UL_TFC9 can not be supported because the UE reaches the maximum UL Tx power and still SS is sending power-up commands. .

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:

RRC CONNECTION SETUP message is defined in clause 9.1.1, "Contents of RRC CONNECTION SETUP message: UM (Transition to CELL_DCH)" using condition A1.

RADIO BEARER SETUP message is defined in clause 9.1.1, "Contents of RADIO BEARER SETUP message: AM or UM " using condition A3.

MEASUREMENT CONTROL message:

Information Element	Value/Remark
Message Type	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
-RRC message sequence number	SS provides the value of this IE, from its internal counter.
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	Not Present
-Intra-frequency measurement quantity	
-Filter coefficient	0
-CHOICE mode	FDD

Information Element	Value/Remark
-Measurement quantity	CPICH RSCP
-Intra-frequency reporting quantity	
-Reporting quantities for active set cells	
-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
-Reporting quantities for monitored set cells	
-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	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 report criteria	Periodical reporting criteria
-Amount of reporting	Infinity
-Reporting interval	250 ms
Physical channel information elements -DPCH compressed mode status info	Not Present

8.4.3.1.5 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.

8.4.3.1A Interactive or Background, PS, UL: 64 kbps + Conversational / speech, CS, UL: 12.2kbps

8.4.3.1A.1 Definition and applicability

When the UE estimates that a certain TFC would require more power than the maximum transmit power, it shall limit the usage of transport format combinations for the assigned transport format set, according to the functionality specified in section 11.4 in TS25.321 [13]. This in order to make it possible for the network operator to maximise the coverage. Transport format combination selection is described in section 11.4 of TS 25.321 [13].

The requirements and this test apply to all types of UTRA for the FDD UE for Release 10 and later releases.

8.4.3.1A.2 Minimum requirements

The UE shall continuously evaluate based on the *Elimination, Recovery* and *Blocking* criteria defined below, how TFCs on an uplink DPDCH can be used for the purpose of TFC selection. The evaluation shall be performed for every TFC in the TFCS using the estimated UE transmit power of a given TFC. The UE transmit power estimation for a given TFC shall be made using the UE transmitted power measured over the measurement period, defined in 9.1.6.1 of TS 25.133 [2] as one slot, and the gain factors of the corresponding TFC.

The UE shall consider the *Elimination* criterion for a given TFC to be detected if the estimated UE transmit power needed for this TFC is greater than the Maximum UE transmitter power for at least X out of the last Y successive measurement periods immediately preceding evaluation. The MAC in the UE shall consider that the TFC is in Excess-Power state for the purpose of TFC selection.

MAC in the UE shall indicate the available bit rate for each logical channel to upper layers within T_{notify} from the moment the *Elimination* criterion was detected.

The UE shall consider the *Recovery* criterion for a given TFC to be detected if the estimated UE transmit power needed for this TFC has not been greater than the Maximum UE transmitter power for the last Z successive measurement periods immediately preceding evaluation. The MAC in the UE shall consider that the TFC is in Supported state for the purpose of TFC selection.

MAC in the UE shall indicate the available bit rate for each logical channel to upper layers within T_{notify} from the moment the *Recovery* criterion was detected.

The evaluation of the *Elimination* criterion and the *Recovery* criterion shall be performed at least once per radio frame.

The definitions of the parameters X, Y and Z which shall be used when evaluating the *Elimination* and the *Recovery* criteria when no compressed mode patterns are activated are given in Table 8.4.3.1A.1.

Table 8.4.3.1A.1: X, Y, Z parameters for TFC selection

X	Y	Z
15	30	30

The UE shall consider the *Blocking* criterion for a given TFC to be fulfilled at the latest at the start of the longest uplink TTI after the moment at which the TFC will have been in Excess-Power state for a duration of:

$$(T_{notify} + T_{modify} + T_{L1\_proc})$$

where:

T_{notify} equals 15 ms

T_{modify} equals $MAX(T_{adapt\_max}, T_{TTI})$

$T_{L1\,proc}$ equals 15 ms

T_{adapt_max} equals $MAX(T_{adapt\_1}, T_{adapt\_2}, ..., T_{adapt\_N})$

N equals the number of logical channels that need to change rate

For Release 99 and Release 4, T_{adapt_n} equals the time it takes for higher layers to provide data to MAC in a new supported bit rate, for logical channel n. Table 8.4.3.1A.2 defines T_{adapt} times for different services. For services where no codec is used T_{adapt} shall be considered to be equal to 0 ms.

Table 8.4.3.1A.2: T_{adapt}

Service	T_{adapt} [ms]
UMTS AMR	40
UMTS AMR2	60

For Release 5 and later releases T_{adapt_n} equals the time it takes for higher layers to provide data to MAC in a new supported bit rate, for logical channel n. For services where no codec is used T_{adapt} shall be considered to be equal to 0 ms. For services where either UMTS_AMR2 or UMTS_AMR_WB is used, Tadapt shall be considered to be equal to the time required to switch from the current codec mode to a new supported codec mode. In that case Tadapt equals 20 ms + 40 ms per codec mode switch. E.g. Tadapt equals 60ms if one codec mode switch is necessary and Tadapt equals 140ms if 3 codec mode switches are necessary.

T_{TTI} equals the longest uplink TTI of the selected TFC (ms).

The Maximum UE transmitter power is defined as follows

Maximum UE transmitter power = MIN(Maximum allowed UL TX Power, UE maximum transmit power)

where

Maximum allowed UL TX Power is set by SS and defined in TS 25.331 [8], and

UE maximum transmit power is defined by the UE power class, and specified in TS 25.101 [1].

The normative reference for these requirements is TS 25.133 [2] clauses 6.4.2 and A.6.4.1.

8.4.3.1A.3 Test purpose

The purpose is to verify the UE blocks (stops using) a currently used TFC when the UE output power is not sufficient to support that TFC. The test will verify the general requirement on TFC selection in section 8.4.3.1A.2 for a RAB intended for circuit switched and packet data services, i.e. Interactive or Background, PS, UL: 64kbps + Conversational / speech / CS UL:12.2kbps as defined in TS 34.108 [3].

8.4.3.1A.4 Method of test

8.4.3.1A.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.

The test parameters are given in Tables 8.4.3.1A.3, 8.4.3.1A.4, 8.4.3.1A.5 and 8.4.3.1A.6 below. The test consists of 2 successive time periods, with a time duration of T1 and T2 respectively.

Details on the UL reference RAB in table 8.4.3.1A.3 and 8.4.3.1A.4 can be found in TS 34.108 [3] section "Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:64 kbps / PS RAB+ UL:3.4 DL: 3.4 kbps SRBs for DCCH".

Table 8.4.3.1A.3: UL reference RAB, Interactive or Background + Conversational/ Speech

	TFI	12.2kbps RAB subflow#1 (20ms TTI)	12.2kbps RAB subflow#2 (20ms TTI)	12.2kbps RAB subflow#3 (20ms TTI)	64 kbps RAB (20ms TTI)	DCCH 3.4kbps (40ms TTI)
TFS	TF0, bits	0x81	0x103	0x60	0x340	0x148
	TF1, bits	1x39	1x103	1x60	1x340	1x148
	TF2, bits	1x81	N/A	N/A	2x340	N/A
	TF3, bits	N/A	N/A	N/A	3x340	N/A
	TF4, bits	N/A	N/A	N/A	4x340	N/A

Table 8.4.3.1A.4: UL TFCI

TFCI	(12.2kbps RAB subflow#1, 12.2kbps RAB subflow#2, 12.2kbps RAB subflow#3, ,64 kbps RAB, DCCH)
UL_TFC0	(TF0,TF0,TF0,TF0,TF0)
UL_TFC1	(TF1,TF0,TF0,TF0,TF0)
UL_TFC2	(TF2,TF1,TF1,TF0,TF0)
UL_TFC3	(TF0,TF0,TF0,TF1,TF0)
UL_TFC4	(TF1,TF0,TF0,TF1,TF0)
UL_TFC5	(TF2,TF1,TF1,TF1,TF0)
UL_TFC6	(TF0,TF0,TF0,TF2,TF0)
UL_TFC7	(TF1,TF0,TF0,TF2,TF0)
UL_TFC8	(TF2,TF1,TF1,TF2,TF0)
UL_TFC9	(TF0,TF0,TF0,TF3,TF0)
U L_TFC10	(TF1,TF0,TF0,TF3,TF0)
U L_TFC11	(TF2,TF1,TF1,TF3,TF0)
UL_TFC12	(TF0,TF0,TF0,TF4,TF0)
UL_TFC13	(TF1,TF0,TF0,TF4,TF0)
UL_TFC14	(TF2,TF1,TF1,TF4,TF0)
UL_TFC15	(TF0,TF0,TF0,TF0,TF1)
UL_TFC16	(TF1,TF0,TF0,TF0,TF1)
UL_TFC17	(TF2,TF1,TF1,TF0,TF1)
UL_TFC18	(TF0,TF0,TF0,TF1,TF1)
UL_TFC19	(TF1,TF0,TF0,TF1,TF1)
UL_TFC20	(TF2,TF1,TF1,TF1,TF1)
UL_TFC21	(TF0,TF0,TF0,TF2,TF1)
UL_TFC22	(TF1,TF0,TF0,TF2,TF1)
UL_TFC23	(TF2,TF1,TF1,TF2,TF1)
UL_TFC24	(TF0,TF0,TF0,TF3,TF1)
UL_TFC25	(TF1,TF0,TF0,TF3,TF1)
UL_TFC26	(TF2,TF1,TF1,TF3,TF1)
UL_TFC27	(TF0,TF0,TF0,TF4,TF1)
UL_TFC28	(TF1,TF0,TF0,TF4,TF1)
UL_TFC29	(TF2,TF1,TF1,TF4,TF1)

Table 8.4.3.1A.5: General test parameters

Parameter	Unit	Value	Comment
TFCS size		30	
TFCS		UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC7, UL_TFC8, UL_TFC9, UL_TFC10, UL_TFC11, UL_TFC12, UL_TFC13, UL_TFC14, UL_TFC15, UL_TFC16, UL_TFC17, UL_TFC18, UL_TFC19, UL_TFC20, UL_TFC21, UL_TFC22, UL_TFC23, UL_TFC24, UL_TFC25, UL_TFC26, UL_TFC27, UL_TFC28, UL_TFC29	
Power Control		On	
Active cell		Cell 1	
Maximum allowed UL TX power	dBm	21	
T0	S	10	
T1	S	30	
T2	S	2	
Propagation condition		AWGN	

Table 8.4.3.1A.6: Cell specific test parameters

Parameter	Unit	Cell 1		
		T0	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		
DPCH_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 Ior.				

The amount of available user data shall be sufficient to allow uplink transmission at the highest bit rate (UL_TFC28 or UL_TFC29) during the entire test and it shall be ensured that the UE is using UL_TFC28 or UL_TFC29 at the end of T1.

8.4.3.1A.4.2 Procedure

1) The SS activates cell 1 with T0 parameters defined in table 8.4.3.1A.6.

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 7.3.2 using the test procedure to setup a CS+PS multi RAB combination call using the parameters defined in tables 8.4.3.1A.3, 8.4.3.1A.4 and 8.4.3.1A.5.

4) SS shall transmit a MEASUREMENT CONTROL message.

5) For T1=30 secs the SS shall command the UE output power to be between 14 and 15 dB below the UE Maximum allowed UL Tx power (table 8.4.3.1A.5).

6) The SS shall start sending continuously TPC_cmd=1 to the UE for T2=2 secs (see NOTE).

7) The time from the beginning of T2 until the UE blocks (stops using) UL_TFC28 and UL_TFC29 shall be measured by the SS. The UE shall stop using UL_TFC28 and UL_TFC29 within 140 ms from beginning of time period T2. A success is counted, if the UE stops within 140ms. An error is counted otherwise

8) Repeat steps 5-7 until the confidence level according to annex F.6.2 is achieved.

NOTE: This will emulate that UL_TFC28 to UL_TFC29 can not be supported because the UE reaches the maximum UL Tx power and still SS is sending power-up commands.

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:

The SS establish the reference radio bearer configuration as specified in TS 34.108 [3] section "Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:64 kbps / PS RAB+ UL:3.4 DL: 3.4 kbps SRBs for DCCH".

MEASUREMENT CONTROL message:

Information Element	Value/Remark
Message Type	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
-RRC message sequence number	SS provides the value of this IE, from its internal counter.
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	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	
-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
-Reporting quantities for monitored set cells	
-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	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 report criteria	Periodical reporting criteria
-Amount of reporting	Infinity
-Reporting interval	250 ms
Physical channel information elements	
-DPCH compressed mode status info	Not Present

8.4.3.1A.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.

8.4.4 E-TFC restriction in UE

8.4.4.1 10ms TTI E-DCH E-TFC restriction

8.4.4.1.1 Definition and applicability

When the UE estimates that a certain TFC and E-TFC would require more power than the maximum transmit power, it shall limit the usage of transport format combinations for the assigned transport format set, according to the functionality specified in section 11.8.1.4 in TS25.321 [13]. This is in order to make it possible for the network operator to maximise the coverage. E-TFC selection is described in section 11.8.1.4 of TS25.321 [13].

The requirements of this test apply to Release 6 and later releases for all types of UTRA for the FDD UE that support E-DCH and HSDPA.

8.4.4.1.2 Minimum requirements

The UE shall continuously evaluate based on the *Elimination, Recovery* and *Blocking* criteria defined below, how TFCs on an uplink DPDCH can be used for the purpose of TFC selection. The evaluation shall be performed for every TFC in the TFCS using the estimated UE transmit power.

The UE transmit power estimation for a given TFC, when HS-DPCCH is not transmitted during the measurement period, shall be calculated using the DPDCH and DPCCH gain factors of the corresponding TFC and reference transmit power. The reference transmit power is the transmit power of DPCCH and DPDCH of a given TFC during the measurement period for which UE transmit power estimation is made. If HS-DPCCH is transmitted either partially or totally within the given measurement period the UE transmit power estimation for a given TFC shall be calculated using DPDCH and DPCCH gain factors, the maximum value of the HS-DPCCH gain factor that is used during the measurement period, and the reference transmit power. The timing of the measurement period, which is defined in 9.1.6.1 of TS 25.133 [2] as one slot, is the same as the timing of the DPCH slot.

E-TFC selection is allowed only in the CELL_DCH state. E-TFC selection is based on the estimated power leftover from TFC selection if the DPDCH is present and from the HS-DPCCH.

The UE shall estimate the normalised remaining power margin available for E-TFC selection based on the following equation for E-TFC candidate j

$$NRPM_j = (PMax_j - P_{DPCCH,target} - P_{DPDCH} - P_{HS-DPCCH} - P_{E-DPCCH}) / P_{DPCCH,target} ,$$

where

$PMax_j$ = Maximum UE transmitter power for E-TFC-j as defined in section 6.5 of TS25.133 [2].

$P_{DPCCH}(t)$ represents a slotwise estimate of the current UE DPCCH power at time t. If at time t, the UE is transmitting a compressed mode frame then $P_{DPCCH,comp}(t) = P_{DPCCH}(t) \times (N_{pilot,C} / N_{pilot,N})$ else $P_{DPCCH,comp}(t) = P_{DPCCH}(t)$. If the UE is not transmitting uplink DPCCH during the slot at time t, either due to compressed mode gaps or when discontinuous uplink DPCCH transmission operation is enabled then the power shall not contribute to the filtered result. Samples of $P_{DPCCH,comp}(t)$ shall be filtered using a filter period of 3 slotwise estimates of $P_{DPCCH,,comp}(t)$ when the E-DCH TTI is 2ms or 15 slotwise estimates of P_{DPCCH},comp when the E-DCH TTI is 10ms to give $P_{DPCCH,filtered}$. The accuracy of the P_{DPCCH} estimate shall be at least that specified in table 8.4.4.1.1.2.

If the target E-DCH TTI for which $NRPM_j$ evaluated does not correspond to a compressed mode frame then $P_{DPCCH,target} = P_{DPCCH,filtered}$.

If the target E-DCH TTI for which $NRPM_j$ is being evaluated corresponds to a compressed mode frame then $P_{DPCCH,target} = P_{DPCCH,filtered} \times (N_{pilot,N} / N_{pilot,C})$. $N_{pilot,N}$ and $N_{pilot,C}$ are numbers of pilot symbols as defined in [5].

P_{DPDCH} = estimated DPDCH transmit power, based on $P_{DPCCH,target}$ and the gain factors from the TFC selection that has already been made. If the target E-DCH TTI for which $NRPM_j$ is being evaluated corresponds to a compressed mode frame then the modification to the gain factors which occur due to compressed mode shall be included in the estimate of P_{DPDCH}

$P_{HS-DPCCH}$ = estimated HS-DPCCH transmit power based on the maximum HS-DPCCH gain factor based on $P_{DPCCH,target}$ and the most recent signalled values of Δ_{ACK}, Δ_{NACK} and Δ_{CQI}. If the target E-DCH TTI for which $NRPM_j$ is being evaluated corresponds to a compressed mode frame then the modification to the gain factors which occur due to compressed mode shall be included in the estimate of $P_{HS-DPCCH}$

$P_{E-DPCCH}$ = estimated E-DPCCH transmit power, based on $P_{DPCCH,target}$ and the E-DPCCH gain factor calculated using the most recent signalled value of $\Delta_{E-DPCCH}$. If the target E-DCH TTI for which $NRPM_j$ is being evaluated

corresponds to a compressed mode frame then the modification to the gain factors which occur due to compressed mode shall be included in the estimate of $P_{E-DPCCH}$

NOTE: $P_{DPCCH}(t)$, $PMax_j$, $P_{DPCCH,filt,target}$, P_{DPDCH}, $P_{HS-DPCCH}$, and $P_{E-DPCCH}$ are expressed in linear power units

The UE shall consider the *Elimination* criterion for a given TFC to be detected if the estimated UE transmit power needed for this TFC is greater than the Maximum UE transmitter power for at least X out of the last Y successive measurement periods immediately preceding evaluation. The MAC in the UE shall consider that the TFC is in Excess-Power state for the purpose of TFC selection.

MAC in the UE shall indicate the available bit rate for each logical channel to upper layers within T_{notify} from the moment the *Elimination* criterion was detected.

The UE shall consider the *Recovery* criterion for a given TFC to be detected if the estimated UE transmit power needed for this TFC has not been greater than the Maximum UE transmitter power for the last Z successive measurement periods immediately preceding evaluation. The MAC in the UE shall consider that the TFC is in Supported state for the purpose of TFC selection.

MAC in the UE shall indicate the available bitrates for each logical channel to upper layers within T_{notify} from the moment the *Recovery* criterion was detected.

The evaluation of the *Elimination* criterion and the *Recovery* criterion shall be performed at least once per radio frame.

The definitions of the parameters X, Y and Z which shall be used when evaluating the *Elimination* and the *Recovery* criteria when no compressed mode patterns are activated are given in Table 8.4.4.1.1.1.

Table 8.4.4.1.1.1: X, Y, Z parameters for TFC selection

X	Y	Z
15	30	30

The UE shall consider the *Blocking* criterion for a given TFC to be fulfilled at the latest at the start of the longest uplink TTI after the moment at which the TFC will have been in Excess-Power state for a duration of:

$$(T_{notify} + T_{modify} + T_{L1\_proc})$$

where:

T_{notify} equals 15 ms, and

T_{modify} equals $MAX(T_{adapt\_max}, T_{TTI})$, and

$T_{L1\,proc}$ equals 15 ms, and

T_{adapt_max} equals $MAX(T_{adapt\_1}, T_{adapt\_2}, ..., T_{adapt\_N})$, and

N equals the number of logical channels that need to change rate, and

T_{adapt_n} equals the time it takes for higher layers to provide data to MAC in a new supported bit rate, for logical channel n. For services where no codec is used T_{adapt} shall be considered to be equal to 0 ms. For services where either UMTS_AMR2 or UMTS_AMR_WB is used, Tadapt shall be considered to be equal to the time required to switch from the current codec mode to a new supported codec mode. In that case Tadapt equals 20 ms + 40 ms per codec mode switch. E.g. Tadapt equals 60ms if one codec mode switch is necessary and Tadapt equals 140ms if 3 codec mode switches are necessary.

T_{TTI} equals the longest uplink TTI of the selected TFC (ms).

The UE shall be able to update the normalised remaining power estimate of each E-TFC at least every E-DCH TTI. The UE shall use the latest available estimate of $NRPM_j$ at the time when all absolute and relative grants relating to the E-DCH TTI under consideration have been received. Using the estimates of $NRPM_j$ the UE shall evaluate for each E-TFC which configured MAC-d flows are supported and which are unsupported as follows:

In the case that the target E-DCH TTI for which E-TFC restriction is being considered does not belong to a compressed mode frame then if $NRPM_j \geq \sum (\beta_{ed,j}/\beta_c)^2$ then E-TFC$_j$ can be supported, otherwise it cannot be supported

In the case that the target E-DCH TTI for which E-TFC restriction is being considered belongs to a compressed mode frame then if $NRPM_j \geq \sum(\beta_{ed,C,j}/\beta_{c,C})^2$ then E-TFC$_j$ can be supported, otherwise it cannot be supported

$\beta_{ed,j}/\beta_c$ and $\beta_{ed,C,j}/\beta_{c,C}$ is the quantized amplitude ratio.

If the UE is allowed to reduce its maximum transmit power for certain TFCs and E-TFCs, the UE shall use the reduced maximum transmit power in the evaluation of the TFC and E-TFC selection criteria for those TFCs.

Table 8.4.4.1.1.2: Accuracy requirements for the estimate of P$_{DPCCH}$ used in E-TFC restriction

Total UE output power value (dBm)	P$_{DPCCH}$ accuracy(dB) (note 1)
25<= total output power <34	note 2
24<= total output power <25	±2.0
23<= total output power <24	±2.0
22<= total output power <23	±2.0
21<= total output power <22	±2.0
20<= total output power < 21	±2.5
19<= total output power <20	±3.0
18<= total output power <19	±3.5
17<= total output power <18	±4.0
16<= total output power <17	±4.0
15<= total output power <16	±4.0
14<= total output power <15	±4.0
13<= total output power <14	±4.0 (power class 4) ±6.0 (power class 3)
12<= total output power <13	±4.0 (power class 4) ±6.0 (power class 3)
11<= total output power <12	±4.0 (power class 4) ±6.0 (power class 3)
-50<= total output power <11	±6.0
NOTE 1: P$_{DPCCH}$ accuracy is the difference between the estimate of P$_{DPCCH}$ used by the UE for the purposes of E-TFC selection and the actual power of the DPCCH being transmitted NOTE 2: No tolerance is specified.	

The normative reference for these requirements is TS 25.133 [2] clauses 6.4.2 and A.6.6.1.1.

8.4.4.1.3 Test Purpose

The purpose is to verify the UE stops using a currently used E-TFC when its remaining power margin is not sufficient to support that E-TFC, and resumes using that E-TFC when its remaining power margin is sufficient to support it. This test will verify the general requirement on E-TFC selection in section 8.4.4.1.2 for a 10 ms TTI E-DCH Transport Block Size Table 0 as defined in TS 25.321 [13].

The test will verify the general requirement on E-TFC restriction and recovery in section 6.4 of TS 25.133 [2] for a 10ms TTI E-DCH Transport Block Size Table 0.

NOTE: The test case covers only the continuous uplink DPCCH transmission scenario.

8.4.4.1.4 Method of test

8.4.4.1.4.1 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.

1) Connect the SS (node B emulator) to the UE antenna connector as shown in figure A.1.

2) The UL Reference Measurement Channel and the Fixed Reference Channels (FRC H-Set 1, QPSK) are specified in Annex C.11.1 and C.8.1.1.

The test parameters are given in Table 8.4.4.1.3 and 8.4.4.1.6 below. The test consists of 2 time periods, with a time duration of T1 and T2 respectively.

The UE shall be configured to transmit UL DTCH data continuously on the DPCH. An HSDPA radio bearer shall be configured so that the UE transmits ACK on the UL HS-DPCCH. An E-DCH radio bearer shall be configured, so that UE is transmitting E-DPCCH and E-DPDCH in the initial condition before the time T1, defined as T0.

Table 8.4.4.1.3: General test parameters

Parameter	Unit	Value	Comment
UL DPCH configuration		12.2kbps reference measurement channel	
E-DCH Transport Block Size Table		10ms TTI E-DCH Transport Block Size Table 0 according to TS 25.321 [13] annex B.3	
UL Power Control		On	
Active cell		Cell 1	
Maximum allowed UL TX power	dBm	24	For a class 4 UE maximum allowed TX power can still be signalled as 24dBm however the UE only has capability to transmit 21dBm
Propagation condition		AWGN	
β_d/β_C		9/15	Care needs to be taken to ensure that TFCS with β_d/β_C =9/15 is always used even during power limited part of the test in T2
A_{hs}		2	$\Delta_{ACK}=\Delta_{NACK}=\Delta_{CQI}$
A_{ec}		2	
$\beta_{ed,ref}/\beta_C$		5/15	
L_{ref}		1	
K_{ref}		18	
Δ_{harq}	dB	0	
$PL_{non-max}$		0.52	
Periodicity for Scheduling Info		Every TTI	
E-DCH MAC-D flow maximum number of retransmissions		0	
T1	S	2	
T2	S	2	

Table 8.4.4.1.4: Additional cell specific parameters

Parameter	Unit	Cell 1		
		T0	T1	T2
UTRA RF Channel Number		Channel 1		
P-CPICH E_c/I_{or}		-10		
PCCPCH E_c/I_{or}	dB	-12		
SCH E_c/I_{or}	dB	-12		
PICH E_c/I_{or}	dB	-15		
DPCH E_c/I_{or}	dB	-7.5		
HS-SCCH E_c/I_{or}	dB	-7.5		
HS-PDSCH E_c/I_{or}	dB	-3.67		
E-RGCH E_c/I_{or}	dB	DTX'd		
E-AGCH E_c/I_{or}	dB	-20		
E-HICH E_c/I_{or}	dB	-20		
OCNS E_c/I_{or}	dB	Note 1		

$\hat{I}_{or}$	dBm/3.84 MHz	-70
NOTE 1: The power of the OCNS channel that is added shall make the total power from the cell to be equal to I_{or}.		

The amount of available user data shall be sufficient to allow E-DCH uplink transmission at the highest possible bit rate with E-DCH TB index 127. It shall also be ensured that sufficient data is made available on the DTCH so that the UE is continuously transmitting on the DPCH.

8.4.4.1.4.2 Procedure

1) The SS activates cell 1 with T0 parameters defined in table 8.4.4.1.4.

2) The UE is switched on.

3) An E-DCH call is set up according to TS 34.108 [3] 7.3.9 with the following exceptions in the RADIO BEARER SETUP messages. These exceptions are derived from Table 8.4.4.1.3, and in addition allow the beta values to be set and each UL physical channel to be at constant power during the measurement.

4) Enter the UE into loopback mode 1 looping back both the 12.2kbps RMC and HSDPA to E-DCH and start the loopback test. See TS 34.109 [4] clauses 5.3.2.3 and 5.3.2.6. This way the UE is configured to transmit a data stream on the E-DPDCH with E-DPCCH.

Table 8.4.4.1.4A Contents of RADIO BEARER SETUP message: AM or UM (Test Loop Mode1)

Information Element	Value/Remark
UL Transport channel information for all transport channels	
- 2bit CTFC	3
- Power offset Information	
- CHOICE Gain Factors	Signalled Gain Factors
- CHOICE mode	FDD
- Gain factor ßc	15/15
- Gain factor ßd	9/15
Maximum allowed UL TX power	24dBm
NOTE: All other 2 bit CTFC values use computed gain factors as in the default message.	

Table 8.4.4.1.4B Contents of RADIO BEARER SETUP message: AM or UM (E-DCH and HSDPA)

Information Element	Value/Remark
- Added or reconfigured E-DCH MAC-d flow	
- E-DCH MAC-d flow maximum number of retransmissions	0
Uplink DPCH info	
- Δ_{ACK}	8, giving A_{hs} = 30/15
- Δ_{NACK}	8, giving A_{hs} = 30/15
- Ack-Nack repetition factor	3 (required for continuous HS-DPCCH signal)
E-DCH info	Uplink DPCH info
- E-DPCCH info	
- E-DPCCH/DPCCH power offset	8, giving A_{ec} = 30/15
- E-DPDCH info	
- Reference E-TFCIs	1 E-TFCI
- Reference E-TFCI	0
- Reference E-TFCI PO	0, giving A_{ed} = 5/15
- Maximum channelisation codes	sf4, for E-DPDCH Categories 1
	2sf4, for E-DPDCH Categories 2 and 3
	2sf2, for E-DPDCH Categories 4, 5, 6 and 7
- PLnon-max	0.52
- Scheduling Information Configuration	
- Periodicity for Scheduling Info – grant	Every TTI
Downlink HS-PDSCH Information	
- Measurement Feedback Info	
- CQI Feedback cycle, k	4 ms
- CQI repetition factor	2 (required for continuous HS-DPCCH signal)

Information Element	Value/Remark
- Δ_{CQI}	8, giving A_{hs} = 30/15

5) The Nominal Avg. Information Bit Rate in the DL is set to 534 kbps according to QPSK H-Set 1. The UL RLC PDU size shall be 336 bits. The SS signals AG value = 31 and AG scope = 0 on the E-AGCH continuously to give UE grants to make use of the maximum possible data rate.

6) Before T1, the SS shall send continuously TPC_cmd = +1 to the UE. The UE shall be transmitting at its maximum DPCCH power and the UE uplink E-DPCCH shall either be not transmitted or indicate E-TFCI with index 0.

7) From the start of T1 the system simulator shall send sufficient consecutive TPC_cmd = -1 to the UE until the DPCCH power is between -2.3dBm and +1dBm for a power class 3 UE, or between -6.3dBm and -3dBm for a power class 4 UE.

8) From the start of T1 the E-TFC indicated on the UE uplink E-DPCCH shall be measured by the SS. An "ETFCI recovery success" is counted, if the UE is using the E-TFC index which represents the maximum of the UE's capabilities as shown in Table 8.4.4.1.5, within 50ms from the start of T1. An ETFCI recovery error is counted otherwise.

Table 8.4.4.1.5: UE's 10 ms TTI FDD E-DCH

E-DPDCH Category	E-TFCI Index
Category 1	101
Category 2 - 3	119
Category 4 - 7	127

9) Before T2, UE P_{DPCCH} power shall be between -2.3dBm and +1dBm for a power class 3 UE, or between -6.3dBm and -3dBm for a power class 4 UE. The UE uplink E-DPCCH shall indicate use of the E-TFCI which represents the maximum of the UE's capabilities.

10) From the start of T2 the system simulator shall send shall send continuously TPC_cmd = +1 to the UE.

11) From the start of T2 the E-TFC indicated on the UE uplink E-DPCCH or the absence of E-DPCCH shall be measured by the SS. An "ETFCI restriction success" is counted, if the E-DPCCH isn't transmitted or if the UE is using E-TFC with index 0, within 50 ms from the start of T2. An ETFCI restriction error is counted otherwise. During this phase the UE may perform DTX of the E-DPDCH in accordance with [5] clause 5.1.2.6, and the SS shall transmit an ACK on the E-HICH whenever a UE transmission is detected via E-DPCCH, regardless of whether the E-DPDCH is correctly decoded.

12) Repeat steps 6-11 until the confidence level according to Annex F.6.2 is achieved.

NOTE: The required headroom to support E-TFC 127 can be calculated using the parameters $L_{ref}=1$, $K_{ref}=18$ and $K_{127}=20000$. This requires {(5006) * 3+12} *4 = 60120 bits before rate matching/ARQ based on section 4 of [31]. This can be transmitted on 2xSF/2 codes, so needs equivalent of 4xSF/4 codes, giving $L_{127}=4$.

8.4.4.1.5 Test Requirements

For the test to pass, the ETFCI recovery success ratio shall be more than 90%, and also the ETFCI restriction success ratio shall be more than 90%, each with a confidence level of 95%.

Table 8.4.4.1.6: Cell specific test parameters

Parameter	Unit	Cell 1		
		T0	T1	T2
UTRA RF Channel Number		Channel 1		
P-CPICH E_c/I_{or}		-9.9		
PCCPCH E_c/I_{or}	dB	-12		
SCH E_c/I_{or}	dB	-12		
PICH E_c/I_{or}	dB	-15		
DPCH E_c/I_{or}	dB	-7.5		
HS-SCCH E_c/I_{or}	dB	-7.5		
HS-DSCH E_c/I_{or} (Note 2)	dB	-3.7		
E-RGCH E_c/I_{or}	dB	DTX'd		
E-AGCH E_c/I_{or}	dB	-20		
E-HICH E_c/I_{or}	dB	-20		
OCNS E_c/I_{or}	dB	Note 1		
$\hat{I}_{or}$	dBm/3.84 MHz	-69.3		
NOTE 1: The power of the OCNS channel that is added shall make the total power from the cell to be equal to I$_{or}$.				
NOTE 2: E_c/I_{or} value represent the total power of the HS-DSCH channel (which include five codes as required by H-Set 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.

8.4.4.2 2ms TTI E-DCH E-TFC restriction

8.4.4.2.1 Definition and applicability

When the UE estimates that a certain TFC and E-TFC would require more power than the maximum transmit power, it shall limit the usage of transport format combinations for the assigned transport format set, according to the functionality specified in section 11.8.1.4 in TS25.321 [13]. This is in order to make it possible for the network operator to maximise the coverage. E-TFC selection is described in section 11.8.1.4 of TS25.321 [13].

The requirements of this test apply to Release 6 and later releases for all types of UTRA for the FDD UE that support E-DCH with 2ms and HSDPA.

The feature of 16QAM is supported by E-DCH Category 7, but it is not used in this test. E-DCH Category 7 is tested as same as E-DCH Category 6.

8.4.4.2.2 Minimum requirements

The UE shall continuously evaluate based on the *Elimination, Recovery* and *Blocking* criteria defined below, how TFCs on an uplink DPDCH can be used for the purpose of TFC selection. The evaluation shall be performed for every TFC in the TFCS using the estimated UE transmit power.

The UE transmit power estimation for a given TFC, when HS-DPCCH is not transmitted during the measurement period, shall be calculated using the DPDCH and DPCCH gain factors of the corresponding TFC and reference transmit power. The reference transmit power is the transmit power of DPCCH and DPDCH of a given TFC during the measurement period for which UE transmit power estimation is made. If HS-DPCCH is transmitted either partially or totally within the given measurement period the UE transmit power estimation for a given TFC shall be calculated using DPDCH and DPCCH gain factors, the maximum value of the HS-DPCCH gain factor that is used during the measurement period, and the reference transmit power. The timing of the measurement period, which is defined in 9.1.6.1 of TS 25.133 [2] as one slot, is the same as the timing of the DPCH slot.

E-TFC selection is allowed only in the CELL_DCH state. E-TFC selection is based on the estimated power leftover from TFC selection if the DPDCH is present and from the HS-DPCCH.

The UE shall estimate the normalised remaining power margin available for E-TFC selection based on the following equation for E-TFC candidate j

$$NRPM_j = (PMax_j - P_{DPCCH,target} - P_{DPDCH} - P_{HS-DPCCH} - P_{E-DPCCH})/P_{DPCCH,target},$$

where

$PMax_j$ = Maximum UE transmitter power for E-TFC-j as defined in section 6.5 of TS25.133 [2].

$P_{DPCCH}(t)$ represents a slotwise estimate of the current UE DPCCH power at time t. If at time t, the UE is transmitting a compressed mode frame then $P_{DPCCH,comp}(t) = P_{DPCCH}(t) \times (N_{pilot,C}/N_{pilot,N})$ else $P_{DPCCH,comp}(t) = P_{DPCCH}(t)$. If the UE is not transmitting uplink DPCCH during the slot at time t, either due to compressed mode gaps or when discontinuous uplink DPCCH transmission operation is enabled then the power shall not contribute to the filtered result. Samples of $P_{DPCCH,comp}(t)$ shall be filtered using a filter period of 3 slotwise estimates of $P_{DPCCH,comp}(t)$ when the E-DCH TTI is 2ms or 15 slotwise estimates of P_{DPCCH},comp when the E-DCH TTI is 10ms to give $P_{DPCCH,filtered}$. The accuracy of the P_{DPCCH} estimate shall be at least that specified in table 8.4.4.1.1.2.

If the target E-DCH TTI for which $NRPM_j$ evaluated does not correspond to a compressed mode frame then $P_{DPCCH,target} = P_{DPCCH,filtered}$.

If the target E-DCH TTI for which $NRPM_j$ is being evaluated corresponds to a compressed mode frame then $P_{DPCCH,target} = P_{DPCCH,filtered} \times (N_{pilot,N}/N_{pilot,C})$. $N_{pilot,N}$ and $N_{pilot,C}$ are numbers of pilot symbols as defined in [5].

P_{DPDCH} = estimated DPDCH transmit power, based on $P_{DPCCH,target}$ and the gain factors from the TFC selection that has already been made. If the target E-DCH TTI for which $NRPM_j$ is being evaluated corresponds to a compressed mode frame then the modification to the gain factors which occur due to compressed mode shall be included in the estimate of P_{DPDCH}

$P_{HS-DPCCH}$ = estimated HS-DPCCH transmit power based on the maximum HS-DPCCH gain factor based on $P_{DPCCH,target}$ and the most recent signalled values of Δ_{ACK}, Δ_{NACK} and Δ_{CQI}. If the target E-DCH TTI for which $NRPM_j$ is being evaluated corresponds to a compressed mode frame then the modification to the gain factors which occur due to compressed mode shall be included in the estimate of $P_{HS-DPCCH}$

$P_{E-DPCCH}$ = estimated E-DPCCH transmit power, based on $P_{DPCCH,target}$ and the E-DPCCH gain factor calculated using the most recent signalled value of $\Delta_{E-DPCCH}$. If the target E-DCH TTI for which $NRPM_j$ is being evaluated corresponds to a compressed mode frame then the modification to the gain factors which occur due to compressed mode shall be included in the estimate of $P_{E-DPCCH}$

NOTE: $P_{DPCCH}(t)$, $PMax_j$, $P_{DPCCH,filt,target}$, P_{DPDCH}, $P_{HS-DPCCH}$, and $P_{E-DPCCH}$ are expressed in linear power units

The UE shall consider the *Elimination* criterion for a given TFC to be detected if the estimated UE transmit power needed for this TFC is greater than the Maximum UE transmitter power for at least X out of the last Y successive measurement periods immediately preceding evaluation. The MAC in the UE shall consider that the TFC is in Excess-Power state for the purpose of TFC selection.

MAC in the UE shall indicate the available bit rate for each logical channel to upper layers within T_{notify} from the moment the *Elimination* criterion was detected.

The UE shall consider the *Recovery* criterion for a given TFC to be detected if the estimated UE transmit power needed for this TFC has not been greater than the Maximum UE transmitter power for the last Z successive measurement periods immediately preceding evaluation. The MAC in the UE shall consider that the TFC is in Supported state for the purpose of TFC selection.

MAC in the UE shall indicate the available bit rate for each logical channel to upper layers within T_{notify} from the moment the *Recovery* criterion was detected.

The evaluation of the *Elimination* criterion and the *Recovery* criterion shall be performed at least once per radio frame.

The definitions of the parameters X, Y and Z which shall be used when evaluating the *Elimination* and the *Recovery* criteria when no compressed mode patterns are activated are given in Table 8.4.4.2.2.1.

Table 8.4.4.2.2.1: X, Y, Z parameters for TFC selection

X	Y	Z
15	30	30

The UE shall consider the *Blocking* criterion for a given TFC to be fulfilled at the latest at the start of the longest uplink TTI after the moment at which the TFC will have been in Excess-Power state for a duration of:

$$(T_{notify} + T_{modify} + T_{L1\_proc})$$

where:

> T_{notify} equals 15 ms, and
>
> T_{modify} equals $MAX(T_{adapt\_max}, T_{TTI})$, and
>
> $T_{L1 proc}$ equals 15 ms, and
>
> T_{adapt_max} equals $MAX(T_{adapt\_1}, T_{adapt\_2}, ..., T_{adapt\_N})$, and
>
> N equals the number of logical channels that need to change rate, and
>
> T_{adapt_n} equals the time it takes for higher layers to provide data to MAC in a new supported bit rate, for logical channel n. For services where no codec is used T_{adapt} shall be considered to be equal to 0 ms. For services where either UMTS_AMR2 or UMTS_AMR_WB is used, Tadapt shall be considered to be equal to the time required to switch from the current codec mode to a new supported codec mode. In that case Tadapt equals 20 ms + 40 ms per codec mode switch. E.g. Tadapt equals 60ms if one codec mode switch is necessary and Tadapt equals 140ms if 3 codec mode switches are necessary.
>
> T_{TTI} equals the longest uplink TTI of the selected TFC (ms).

The UE shall be able to update the normalised remaining power estimate of each E-TFC at least every E-DCH TTI. The UE shall use the latest available estimate of $NRPM_j$ at the time when all absolute and relative grants relating to the E-DCH TTI under consideration have been received. Using the estimates of $NRPM_j$ the UE shall evaluate for each E-TFC which configured MAC-d flows are supported and which are unsupported as follows:

In the case that the target E-DCH TTI for which E-TFC restriction is being considered does not belong to a compressed mode frame then if $NRPM_j \geq \sum(\beta_{ed,j}/\beta_c)^2$ then E-TFC$_j$ can be supported, otherwise it cannot be supported

In the case that the target E-DCH TTI for which E-TFC restriction is being considered belongs to a compressed mode frame then if $NRPM_j \geq \sum(\beta_{ed,C,j}/\beta_{c,C})^2$ then E-TFC$_j$ can be supported, otherwise it cannot be supported

$\beta_{ed,j}/\beta_c$ and $\beta_{ed,C,j}/\beta_{c,C}$ is the quantized amplitude ratio.

If the UE is allowed to reduce its maximum transmit power for certain TFCs and E-TFCs, the UE shall use the reduced maximum transmit power in the evaluation of the TFC and E-TFC selection criteria for those TFCs.

Table 8.4.4.2.2.2: Accuracy requirements for the estimate of P_{DPCCH} used in E-TFC restriction

Total UE output power value (dBm)	P_{DPCCH} accuracy(dB) (note 1)
25<= total output power <34	Note 2
24<= total output power <25	±2.0
23<= total output power <24	±2.0
22<= total output power <23	±2.0
21<= total output power <22	±2.0
20<= total output power < 21	±2.5
19<= total output power <20	±3.0
18<= total output power <19	±3.5
17<= total output power <18	±4.0
16<= total output power <17	±4.0
15<= total output power <16	±4.0
14<= total output power <15	±4.0
13<= total output power <14	±4.0 (power class 4) ±6.0 (power class 3)
12<= total output power <13	±4.0 (power class 4) ±6.0 (power class 3)
11<= total output power <12	±4.0 (power class 4) ±6.0 (power class 3)
-50<= total output power <11	±6.0
NOTE 1: P_{DPCCH} accuracy is the difference between the estimate of P_{DPCCH} used by the UE for the purposes of E-TFC selection and the actual power of the DPCCH being transmitted NOTE 2: No tolerance is specified.	

The normative reference for these requirements is TS 25.133 [2] clauses 6.4.2 and A.6.6.1.2.

8.4.4.2.3 Test Purpose

The purpose is to verify the UE stops using a currently used E-TFC when its remaining power margin is not sufficient to support that E-TFC, and resumes using that E-TFC when its remaining power margin is sufficient to support it. This test will verify the general requirement on E-TFC selection in section 8.4.4.2.2 for a 2 ms TTI E-DCH Transport Block Size Table 0 as defined in TS 25.321 [13].

The test will verify the general requirement on E-TFC restriction and recovery in section 6.4 of TS25.133 [2] for a 2 ms TTI E-DCH Transport Block Size Table 0.

NOTE: The test case covers only the continuous uplink DPCCH transmission scenario.

8.4.4.2.4 Method of test

8.4.4.2.4.1 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.

1) Connect the SS (node B emulator) to the UE antenna connector as shown in figure A.1.

2) The UL Reference Measurement Channel and the Fixed Reference Channels (FRC H-Set 1, QPSK) are specified in Annex C.11.1 and C.8.1.1.

The test parameters are given in Table 8.4.4.2.3 and 8.4.4.2.6 below. The test consists of 2time periods, with a time duration of T1 and T2 respectively.

The UE shall be configured to transmit UL DTCH data continuously on the DPCH. An HSDPA radio bearer shall be configured so that the UE transmits ACK on the UL HS-DPCCH. An E-DCH radio bearer shall be configured, so that UE is transmitting E-DPCCH and E-DPDCH in the initial condition before the time T1, defined as T0.

Table 8.4.4.2.3: General test parameters

Parameter	Unit	Value	Comment
UL DPCH configuration		12.2kbps reference measurement channel	
E-DCH Transport Block Size Table		2ms TTI E-DCH Transport Block Size Table 0 according to 25.321 annex B.1	
UL Power Control		On	
Active cell		Cell 1	
Maximum allowed UL TX power	dBm	24	For a class 4 UE maximum allowed TX power can still be signalled as 24dBm however the UE only has capability to transmit 21dBm
Propagation condition		AWGN	
β_d/β_C		9/15	Care needs to be taken to ensure that TFCS with β_d/β_C =9/15 is always used even during power limited part of the test in T2
A_{hs}		2	$\Delta_{ACK=}\Delta_{NACK=}\Delta_{CQI}$
A_{ec}		2	
$\beta_{ed,ref}/\beta_C$		5/15	
L_{ref}		1	
K_{ref}		18	
Δ_{harq}	dB	0	
$PL_{non\text{-}max}$		0.52	
Periodicity for Scheduling Info		Every TTI	
E-DCH MAC-d flow maximum number of retransmissions		0	
T1	S	2	
T2	S	2	

Table 8.4.4.2.4: Additional cell specific parameters

Parameter	Unit	Cell 1		
		T0	T1	T2
UTRA RF Channel Number		Channel 1		
P-CPICH E_c/I_{or}		-10		
PCCPCH E_c/I_{or}	dB	-12		
SCH E_c/I_{or}	dB	-12		
PICH E_c/I_{or}	dB	-15		
DPCH E_c/I_{or}	dB	-7.5		
HS-SCCH E_c/I_{or}	dB	-7.5		
HS-DSCH E_c/I_{or}	dB	-3.67		
E-RGCH E_c/I_{or}	dB	-DTX'd		
E-AGCH E_c/I_{or}	dB	-20		
E-HICH E_c/I_{or}	dB	-20		
OCNS E_c/I_{or}	dB	Note 1		
$\hat{I}_{or}$	dBm/3.84 MHz	-70		
NOTE 1: The power of the OCNS channel that is added shall make the total power from the cell to be equal to I_{or} .				

The amount of available user data shall be sufficient to allow E-DCH uplink transmission at the highest possible bit rate with E-DCH TB index 127. It shall also be ensured that sufficient data is made available on the DTCH so that the UE is continuously transmitting on the DPCH.

8.4.4.2.4.2   Procedure

1) The SS activates cell 1 with T0 parameters defined in table 8.4.4.2.4.

2) The UE is switched on.

3) An E-DCH call is set up according to TS 34.108 [3] 7.3.9 with the following exceptions in the RADIO BEARER SETUP messages. These exceptions are derived from Table 8.4.4.2.3, and in addition allow the beta values to be set and each UL physical channel to be at constant power during the measurement.

4) Enter the UE into loopback mode 1 looping back both the 12.2kbps RMC and HSDPA to E-DCH with Category 2 and 4, or enter the UE into loopback test mode 1 looping back HSDPA to E-DCH by uplink SRB for DCCH mapped on E-DCH and downlink SRB for DCCH on DCH for E-DCH Category 6 and 7, and start the loopback test. See TS 34.109 [4] clauses 5.3.2.3 and 5.3.2.6. This way the UE is configured to transmit a data stream on the E-DPDCH with E-DPCCH.

Table 8.4.4.2.4A Contents of RADIO BEARER SETUP message: AM or UM (Test Loop Mode1)

Information Element	Value/Remark
UL Transport channel information for all transport channels	
- 2bit CTFC	3
- Power offset Information	
- CHOICE Gain Factors	Signalled Gain Factors
- CHOICE mode	FDD
- Gain factor ßc	15/15
- Gain factor ßd	9/15
Maximum allowed UL TX power	24dBm
NOTE: All other 2 bit CTFC values use computed gain factors as in the default message.	

Table 8.4.4.2.4B Contents of RADIO BEARER SETUP message: AM or UM (E-DCH and HSDPA)

Information Element	Value/Remark

Added or Reconfigured TrCH information list
- Added or Reconfigured UL TrCH information
  - CHOICE UL parameters
    - E-DCH Transmission Time Interval
	2 ms

- Added or reconfigured E-DCH MAC-d flow - E-DCH MAC-d flow maximum number of retransmissions	0
Uplink DPCH info - Δ_{ACK}	8, giving A_{hs} = 30/15
- Δ_{NACK}	8, giving A_{hs} = 30/15
- Ack-Nack repetition factor	3 (required for continuous HS-DPCCH signal)

E-DCH info
 - E-DPCCH info
  - E-DPCCH/DPCCH power offset
 - E-DPDCH info
  - Reference E-TFCIs
   - Reference E-TFCI
   - Reference E-TFCI PO
  - Maximum channelisation codes
 	
  - PLnon-max
  - Scheduling Information Configuration
   - Periodicity for Scheduling Info – grant
	Uplink DPCH info
	
	8, giving A_{ec} = 30/15
	
	1 E-TFCI
	0
	0, giving A_{ed} = 5/15
	2sf4, for E-DPDCH Category 2
	2sf2, for E-DPDCH Category 4
	sf4x2_and_sf2x2, for E-DPDCH Category 6 and 7
	0.52
	
	[Every TTI] Ensures that some data is sent on every TTI even in the power limited phase

Downlink HS-PDSCH Information
 - Measurement Feedback Info
  - CQI Feedback cycle, k
  - CQI repetition factor
  - Δ_{CQI}
	
	4 ms
	2 (required for continuous HS-DPCCH signal)
	8, giving A_{hs} = 30/15

5) The Nominal Avg. Information Bit Rate in the DL is set to 534 kbps according to QPSK H-Set 1. The UL RLC PDU size = 336 bits. The SS signals AG value = 31 and AG scope = 0 on the E-AGCH continuously to give UE grants to make use of the maximum possible data rate.

6) Before T1, the SS shall send continuously TPC_cmd = +1 to the UE. The UE shall be transmitting at its maximum DPCCH power and the UE uplink E-DPCCH either be not transmitted or indicate use of E-TFCI with index 0.

7) From the start of T1 the system simulator shall send sufficient consecutive TPC_cmd = -1 to the UE until the DPCCH power is between -1.3 dBm and 2.0 dBm for a power class 3 UE, or between -4.3 dBm and -1 dBm for a power class 4 UE.

8) From the start of T1 the E-TFC indicated on the UE uplink E-DPCCH shall be measured by the SS. An "ETFCI recovery success" is counted, if the UE is using the E-TFC index which represents the maximum of the UE's capabilities as shown in Table 8.4.4.2.5, within 31 ms from the start of T1. An ETFCI recovery error is counted otherwise.

Table 8.4.4.2.5: UE's 2 ms TTI FDD E-DCH

E-DPDCH Category	E-TFCI Index
Category 2	**88**
Category 4	**108**
Category 6 - 7	**127**

9) Before T2, UE P_{DPCCH} power shall be between -1.3dBm and +2dBm for a power class 3 UE, or between -4.3dBm and -10dBm for a power class 4 UE. The UE uplink E-DPCCH shall indicate use of the E-TFCI which represents the maximum of the UE's capabilities.

10) From the start of T2 the system simulator shall send shall send continuously TPC_cmd = +1 to the UE.

11) From the start of T2 the E-TFC indicated on the UE uplink E-DPCCH or the absence of E-DPCCH shall be measured by the SS. An "ETFCI restriction success" is counted, if the E-DPCCH isn't transmitted or if the UE is using E-TFC with index 0, within 31 ms from the start of T2. An ETFCI restriction error is counted otherwise. During this phase the UE may perform DTX of the E-DPDCH in accordance with [5] clause 5.1.2.6, and the SS shall transmit an ACK on the E-HICH whenever a UE transmission is detected via E-DPCCH, regardless of whether the E-DPDCH is correctly decoded.

12) Repeat steps 6-11 until the confidence level according to Annex F.6.2 is achieved.

NOTE: The required headroom to support E-TFC 127 can be calculated using the parameters $L_{ref}=1$, $K_{ref}=18$ and $K_{127}=11484$. This requires $\{(3836) * 3+12\} *4 = 34560$ bits before rate matching/ARQ based on section 4 of [31]. This can be transmitted on 2xSF/2 codes, so needs equivalent of 4xSF/4 codes, giving $L_{127}=4$.

8.4.4.2.5 Test Requirements

For the test to pass, the ETFCI recovery success ratio shall be more than 90%, and also the ETFCI restriction success ratio shall be more than 90%, each with a confidence level of 95%.

Table 8.4.4.2.6: Additional cell specific test parameters

Parameter	Unit	Cell 1		
		T0	T1	T2
UTRA RF Channel Number		Channel 1		
P-CPICH E_c/I_{or}		-9.9		
PCCPCH E_c/I_{or}	dB	-12		
SCH E_c/I_{or}	dB	-12		
PICH E_c/I_{or}	dB	-15		
DPCH E_c/I_{or}	dB	-7.5		
HS-SCCH E_c/I_{or}	dB	-7.5		
HS-DSCH E_c/I_{or} (Note 2)	dB	-3.7		
E-RGCH E_c/I_{or}	dB	-DTX'd		
E-AGCH E_c/I_{or}	dB	-20		
E-HICH E_c/I_{or}	dB	-20		
OCNS E_c/I_{or}	dB	Note 1		
$\hat{I}_{or}$	dBm/3.84 MHz	-69.3		
NOTE 1: The power of the OCNS channel that is added shall make the total power from the cell to be equal to I_{or}.				
NOTE 2: E_c/I_{or} value represent the total power of the HS-DSCH channel (which include five codes as required by H-Set 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.

8.5 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 initial transmission timing error shall be less than or equal to ±1.5 chips. This requirement applies at the first transmission on the DPCCH/DPDCH. 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 or F-DPCH 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. In case the UE is initially allocated in soft handover, the reference cell shall be the same cell as used for calculating the initial CFN as defined in 25.331 [8].

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.

When the UE has performed a timing-maintained intra- or inter-frequency hard handover and higher layers has indicated that the UE shall not perform any synchronisation procedure for timing maintained intra- or inter-frequency hard handover, or when the UE attempts to re establish all dedicated physical channel(s) after an inter-RAT, intra- or inter-frequency hard-handover failure [18], it shall resume UL transmission with the same transmit timing as used immediately before the handover attempt. After resuming transmission, transmit timing adjustment requirements defined in the remainder of this clause apply.

The UE shall be capable of changing the transmission timing according to the received downlink DPCCH/DPDCH or F-DPCH frame. When the transmission timing error between the UE and the reference cell exceeds ±1.5 chips the UE is required to adjust its timing to within ±1.5 chips.

All adjustments made to the UE timing shall follow these rules:

1) The maximum amount of the timing change in one adjustment shall be ¼ chip.

2) The minimum adjustment rate shall be 233ns per second.

3) The maximum adjustment rate shall be ¼ chip per 200 ms.

In particular, within any given 800*d ms period, the UE transmit timing shall not change in excess of ±d chip from the timing at the beginning of this 800*d ms period, where 0≤d≤1/4.

The normative reference for this requirement is TS 25.133 [2] clause 7.1.2.

NOTE 1: The requirement to test that the start of adjustment occurs no later than the RRC procedure delay after the cell update message is not to be tested.

NOTE 2: The understanding of the period 800*d is that this is the period between any two timing adjustments. Since d is not defined it is only possible to test against this requirement using the maximum value of d = ¼. This defines a minimum period of 200ms over which the maximum adjustment rate of ¼ chip per 200ms can fairly be evaluated.

NOTE 3: Due to the fact that the UE can update its timing at any interval, including just less than 200ms, when evaluating the maximum adjustment rate in any 200ms period an additional ¼ chip quantization uncertainty must be allowed for since there exists the possibility of two timing adjustments during the evaluation period.

NOTE 4: The minimum adjustment rate of 233ns/s is only to be evaluated from the end of the RRC procedure delay until the UE has converged on the new reference cell.

NOTE 5: In addition to the minimum requirements above, an additional allowance is made to the maximum and minimum adjustment rates of 0.384 chips / s and -0.384 chips/s respectively for the possibility of up to a 0.1 PPM frequency error between the UE and the test system.

8.5.1.3 Test purpose

The purpose of this test is to:

1) Verify that the UE initial transmit timing accuracy is within the limits specified in 8.5.1.5.

2) Verify that the UE transmit timing accuracy remains within the limits specified in 8.5.1.5 when the timing of a cell in the active set not used as the reference cell changes its timing.

3) After receipt of the ACTIVESET UPDATE message, verify that the maximum amount of timing change in one adjustment, and the minimum and maximum adjustment rate are within the limits specified in 8.5.1.5.

4) Verify that after convergence on the new reference cell the UE is within the limits specified in 8.5.1.5.

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.

The reporting of event 1A and event 1B is configured with SIB 11.

1) Connect the test system to the UE antenna connector as shown in figure A.14.

Table 8.5.1.1: Test parameters for UE Transmit Timing requirements

Parameter	Unit	Level
DPCH_Ec/ Ior, Cell 1 and Cell 2	dB	-13.5
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	-1.2
I$_{or,}$ Cell 1	dBm/3.84 MHz	-96
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	µs	+/-2
Propagation condition	AWGN	

8.5.1.4.2 Procedure

1. A call is set up with Cell 1 according to the Generic call setup procedure specified in TS 34.108 [3] subclause 7.3.4 without Compressed mode. The test parameters are set up according to table 8.5.1.2.

2. After a connection is set up with cell 1, the test system shall measure the UE transmit timing offset with respect to the first detected path (in time) of the downlink DPCCH/DPDCH of cell 1.

3. Cell 2 is introduced into the test system at a delay of +2 µs (7.68 chips) from cell 1. The UE shall transmit a Measurement report message triggered by event 1A. The test system transmits an ACTIVESET UPDATE message (Radio link addition information).

4. The test system transmits a Measurement Control message. The test system verifies that cell 2 is added to the active set.

5. The test system shall measure the UE transmit timing error with respect to the first detected path (in time) of the downlink DPCCH/DPDCH of cell 1.

6. The test system switches the Tx timing of cell 2 to a delay of -2 µs with respect to cell 1. During this step the UE may loose the knowledge of the timing of cell 2. It is assumed that the UE regains knowledge of cell 2 timing prior to step 11.

7. After 2 seconds the test system verifies that cell 2 remains in the active set. The SS then sends a Measurement Control message (measurement release for measurement ID 2).

8. The test system shall measure the UE transmit timing error with respect to the first detected path (in time) of the downlink DPCCH/DPDCH of cell 1.

9. The test system switches off cell 1.

10. Void

11. The UE shall transmit a Measurement report message triggered by event 1B, and the test system shall transmit an ACTIVESET UPDATE message (Radio link removal information). The test system samples the UE Transmit Timing once per frame, beginning immediately after the last TTI, containing the ACTIVESET UPDATE, The samples are named TrTm(t) **Transmit Tim**ing (discrete **t**ime) starting at t=0. This instant shall be designated t=RRC_start. The instant taken 60 ms later (the maximum allowed RRC procedure delay) shall be designated t=RRC_end. The sampling of timing shall continue until t > RRC_end + 1800. (The furthest the UE has to adjust is 8.68 chips @ (¼/0.28 - 0.384) chips / s = 17.1 seconds.)

12. After step 11 has completed, the test system shall, after a delay of 2 seconds, measure the UE transmit timing offset with respect to the first detected path (in time) of the downlink DPCCH/DPDCH of the new reference cell.

13. The test system turns on cell 1 again with the same timing as used in step 1 of the procedure. The UE shall transmit a Measurement report message triggered by event 1A. The test system shall transmit an ACTIVESET UPDATE message (Radio link addition information).

14. The test system transmits a Measurement Control message. The test system verifies that cell 1 is added to the active set. SS then sends a Measurement Control message (measurement release for measurement ID 2).

15. Test system measures the UE transmit timing with respect to the first detected path (in time) of the downlink DPCCH/DPDCH of cell 2.

16. Test system switches off cell 2 and starts sampling the UE Transmit Timing error relative to cell 2 at a rate of once per frame. starting at t=0.

17. Void.

18. Step 11 is repeated.

19. Step 12 is repeated.

MEASUREMENT CONTROL message

Information Element	Value/Remark
Message Type	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
-RRC message sequence number	SS provides the value of this IE, from its internal counter.
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	Intra-frequency measurement
-Intra-frequency measurement	
- Intra-frequency measurement objects list	
-Intra-frequency cell info list	Not Present
-Intra-frequency measurement quantity	0
-Filter coefficient	FDD
-CHOICE mode	CPICH RSCP
-Measurement quantity	

Information Element	Value/Remark
-Intra-frequency reporting quantity	
-Reporting quantities for active set cells	
-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
-Reporting quantities for monitored set cells	
-Cell synchronisation information reporting indicator	FALSE
-Cell Identity reporting indicator	FALSE
-CHOICE mode	FDD
-CPICH Ec/N0 reporting indicator	FALSE
-CPICH RSCP reporting indicator	FALSE
-Pathloss reporting indicator	FALSE
-Reporting quantities for detected set cells	Not Present
-Reporting cell status	
-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 report criteria	Periodical reporting criteria
-Amount of reporting	Infinity
-Reporting interval	250 ms
Physical channel information elements	
-DPCH compressed mode status info	Not Present

ACTIVESET UPDATE message (Radio link addition information)

Information Element/Group name	Value/Remark	Version
Message Type (10.2.17)		
UE information elements		
- RRC transaction identifier	0	
- Integrity check info		
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.	
-RRC message sequence number	SS provides the value of this IE, from its internal counter.	
- Activation time	"now".	
- New U-RNTI	Not Present	
CN information elements		
- CN Information info	Not Present	
Phy CH information elements		
Uplink radio resources		
- Maximum allowed UL TX power	33 dBm	
Downlink radio resources		
- Radio link addition information	1	
- Radio link addition information		
- Primary CPICH info		
- Primary scrambling code	Same as adding cell	
- Downlink DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	This should be reflected by the IE" Cell synchronisation information" in received MEASUREMENT REPORT message	
- Secondary CPICH info	Not Present	

Information Element/Group name	Value/Remark	Version
- 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	R99 and Rel-4 only
- Closed loop timing adjustment mode	Not Present	
- TFCI combining indicator	FALSE	R99 and Rel-4 only
- SCCPCH Information for FACH	Not Present	
- Radio link removal information	Not Present	
- TX Diversity Mode	Not Present	
- SSDT information	Not Present	R99 and Rel-4 only

ACTIVESET UPDATE message (Radio link removal information)

Information Element/Group name	Value/Remark	Version
Message Type (10.2.17)		
UE information elements		
- RRC transaction identifier	0	
- Integrity check info		
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.	
-RRC message sequence number	SS provides the value of this IE, from its internal counter.	
- Activation time	"now".	
- New U-RNTI	Not Present	
CN information elements		
- CN Information info	Not Present	
Phy CH information elements		
Uplink radio resources		
- Maximum allowed UL TX power	33 dBm	
Downlink radio resources		
- Radio link addition information	Not Present	
- Radio link removal information	1	
- Primary CPICH info		
- Primary scrambling code	Same as removing cell	
- TX Diversity Mode	Not Present	
- SSDT information	Not Present	R99 and Rel-4 only

Measurement Control message (measurement release)

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements	
- RRC transaction identifier	0
- Integrity check info	
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
-RRC message sequence number	SS provides the value of this IE, from its internal counter.
Measurement Information elements	
-Measurement Identity	2
-Measurement Command	release

8.5.1.5 Test requirements

Table 8.5.1.2: Test parameters for UE Transmit Timing requirements

Parameter	Unit	Level
DPCH_Ec/ Ior, Cell 1 and Cell 2	dB	-13.4
CPICH_Ec/ Ior, Cell 1 and Cell 2	dB	-9.9
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	-1.21
I_{or}, Cell 1	dBm/3.84 MHz	-95
$\hat{I}_{or}$, Cell 2	dBm/3.84 MHz	-97.7
Information data rate	kbps	12.2
Relative delay of path received from cell 2 with respect to cell 1	µs	+/-2
Propagation condition	AWGN	

The following measurement uncertainties have been taken into account in the test requirements below:

The accuracy of transmit timing measurements relative to the reference cell $= \pm 0.5$ chips

The accuracy of the difference between two transmit timing measurements $= \pm 0.25$ chips1) In steps 2, 5 and 8, the UE transmit timing offset shall be within $T_0 \pm 2.0$ chips with respect to the first detected path (in time) of the downlink DPCCH/DPDCH of cell 1.

2) In step 11, .check for all adjacent samples that the maximum adjustment step of ¼ chip adjusted for measurement uncertainty is met:

From t=1 until the end of the measurement record, $|TrTm (t) - TrTm (t-1)|$ shall be $\leq (¼ + 0.25)$ chips.

Check for the short term maximum allowed adjustment rate of ¼ chip in 200 ms adjusted for quantization uncertainty, frequency drift and measurement uncertainty, using a sliding window of step size 10ms:

From t=20 until the end of the measurement record, $|TrTm (t) - TrTm (t-20)|$ shall be $\leq (¼ + ¼ + 0.384/5 + 0.25)$ chips.

Check for the long term maximum allowed adjustment rate of ¼ chip in 200 ms adjusted for frequency drift, quantization uncertainty and measurement uncertainty:

From t=RRC_end+21 until the end of the measurement record, $|TrTm (t) - TrTm (RRC\_end)|$ shall be $\leq ((t-RRC\_end)/20*(¼ + 0.384/5) + ¼ + 0.25)$ chips.

Check for convergence then for the long term minimum allowed adjustment rate of 233 ns/s (¼ chip in 280 ms) adjusted for frequency drift, quantization uncertainty and measurement uncertainty:

For $|TrTm (t)| < 5.68$ chips, the UE is regarded as still adjusting.
For $|TrTm (t)| \geq 5.68$ chips, the UE is regarded as converged.

For the last transition from adjusting to converged:
$|TrTm (t) - TrTm (RRC\_end)|$ shall be $\geq ((t-RRC\_end)/28*(¼ - 0.384*0.28) - ¼ - 0.25)$ chips.

Check that final timing is within ± 1.5 chips ± 0.5 chip measurement uncertainty of the timing of the new reference cell

For t=1750 to t=1800, $5.68 < |TrTm (t)| < 9.68$

3) In step 12. and 15, the UE transmit timing error shall be within $T_0 \pm 2.0$ chips with respect to the first detected path (in time) of the downlink DPCCH/DPDCH of cell 2.

4) In step 18, .Repeat test requirement step 2 for the second set of TrTm (t) data.

5) In step 19., UE transmit timing offset shall be within $T_0 \pm 2.0$ 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.
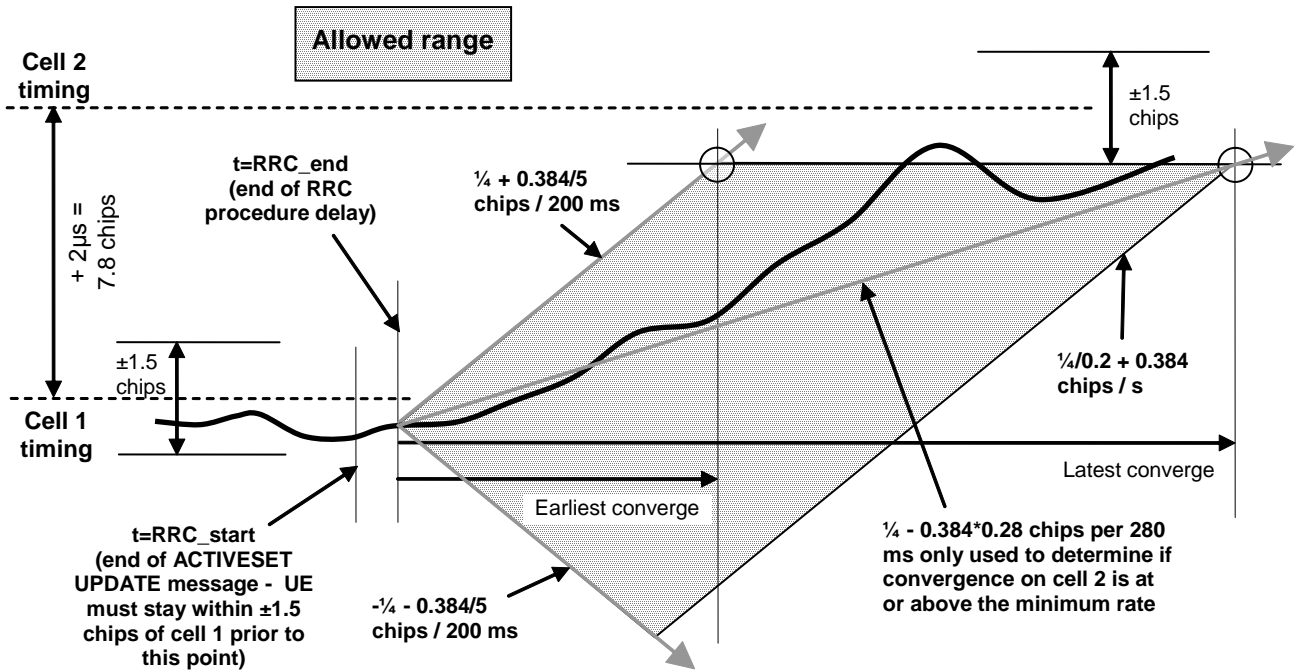
Figure 8.5.1.5 Illustration of measurement principle (excluding measurement uncertainty)

8.6 UE Measurements Procedures

8.6.1 FDD intra frequency measurements

8.6.1.1 Event triggered reporting in AWGN propagation conditions (R99)

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 Release 99 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

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

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/Ior is equally divided between primary synchronisation code and secondary synchronisation code. When L3 filtering is used an additional delay can be expected.

In case of conflict when a compressed gap sequence is activated the UE may choose to prioritise the SFN decoding. 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 $Y_{measurement\,intra}$ cells , where $Y_{measurement\,intra}$ 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 $Y_{measurement\,intra}$ 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.

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

where

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

$T_{Measurement\_Period\ Intra} = 200$ 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.

$T_{basic\_identify\_FDD,\ intra} = 800$ 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.

Reported measurements contained in event triggered measurement reports shall meet the requirements in section 9 of TS 25.133 [2].

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

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 event triggered measurement reporting delay, on cells belonging to monitored set, measured without L3 filtering, shall be less than the above defined $T_{identify\ intra}$ 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 $T_{Measurement\_Period\ Intra}$ 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 $T_{identify\_intra}$ and then enters or leaves the reporting range, the event triggered measurement reporting delay shall be less than $T_{Measurement\_Period\ Intra}$ 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 8.6.1.1.3 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 time difference shall be reported together with Event 1A.. The test consists of four successive time periods, with a time duration of T1, T2, T3 and T4 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		0	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	NOTE: See Annex I for cell information.
T1	s	5	
T2	s	5	
T3	s	1	
T4	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	T4	T1	T2	T3	T4
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	Note 1				N/A		Note 1	
OCNS		Note 2				-0.941		Note 2	
$\hat{I}_{or}/I_{oc}$	dB	0	6.97	6.97	0	-Infinity	5.97	5.97	-Infinity
I$_{or}$ (Note 3)	dBm	-70	-63.03	-63.03	-70	-Infinity	-64.03	-64.03	-Infinity
I_{oc}	dBm/3.84 MHz	-70							
CPICH_Ec/Io	dB	-13	-13	-13	-13	-Infinity	-14	-14	-Infinity
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 nominal Îor values, although not explicitly defined in 25.133 [2] 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, with cell 1 active.

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. The scrambling code is set to Cell2.

4. SS shall transmit a MEASUREMENT CONTROL message. T1 starts.

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 the counter event1A_failure is increased by one. If the reporting delay for this event is within the required limit, the counter event1A_success is increased by one.

7. During the time period T2 the SS shall after the Event 1A triggered measurement is reported send an Active Set Update command with activation time "start of T3" 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 the RRC procedure delay prior to the beginning of T3.

8. After 6 seconds from the beginning of T2, the SS shall switch the power settings from T2 to T4 in table 8.6.1.1.3.

9. UE shall transmit a MEASUREMENT REPORT message triggered by event 1B. The measurement reporting delay from the beginning of T4 shall be less than 280 ms. If the UE fails to report the event within the required delay, then the counter event1B_failure is increased by one. If the reporting delay for this event is within the required limit, the counter event1B_success is increased by one.

10. After the SS receive the MEASUREMENT REPORT message in step 9) or 5 seconds after the beginning of T4, the SS shall transmits a RRC Connection Release message to make the UE to transit to idle mode.

11. SS shall sets the new primary code groups and primary codes on Cell2. Three different primary code groups and primary codes according to Annex I are used to turn on Cell2. Previous timing information of cell 2 is invalid in the UE. The RF parameters are set up according to T1.

12. Repeat steps 3-11 according to Annex F.6.2 Table 6.2.8. If one counter reaches the pass criterion, this counter is stopped and the remaining counters are continued. For the overall outcome of the test to be considered a pass, the counters for 1A events and for 1B events shall independently indicate a pass result. The test is stopped immediately and the test is considered to be a fail, if any counter reaches an early fail criterion.

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 -message authentication code -RRC message sequence number	 0 SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I. SS provides the value of this IE, from its internal counter.
Measurement Information elements -Measurement Identity -Measurement Command (10.3.7.46) -Measurement Reporting Mode (10.3.7.49)	 1 Modify

Information Element/Group name	Value/Remark
-Measurement Report Transfer Mode	AM RLC
-Periodical Reporting / Event Trigger Reporting Mode	Event trigger
-Additional measurements list (10.3.7.1)	Not Present
-CHOICE Measurement type	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)	
-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	FALSE
-Reporting quantities for monitored set cells (10.3.7.5)	
-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	FALSE
-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
-W	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	1
-Reporting interval	0 ms (Note 2)
-Reporting cell status	
- CHOICE reported cell	Report cell within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	3
-Intra-frequency event identity	Event 1B
-Triggering condition 1	Active set cells
-Reporting Range Constant	3 dB
-Cells forbidden to affect Reporting Range	Not Present
-W	0
-Hysteresis	0 dB
-Threshold used frequency	Not Present
-Reporting deactivation threshold	Not Present
-Replacement activation threshold	Not Present
-Time to trigger	0 ms
-Amount of reporting	Not Present
-Reporting interval	Not Present
-Reporting cell status	
- CHOICE reported cell	Report cell within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	3

Information Element/Group name	Value/Remark
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%. For the overall outcome of the test to be considered a pass, the counters for 1A events and for 1B events shall independently indicate a pass result.

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	T4	T1	T2	T3	T4
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	Note 1				N/A		Note 1	
OCNS		Note 2				-1.13		Note 2	
$\hat{I}_{or}/I_{oc}$ *(Note 3)*	dB	0	7.0	7.0	0	-Infinity	6.0	6.0	-Infinity
$\hat{I}_{or}$)	dBm	-70	-63.0	-63.0	-70	-Infinity	-64.0	-64.0	-Infinity
I_{oc}	dBm/3.84 MHz	-70							
CPICH_Ec/Io (Note 3)	dB	-12.3	-12.3	-12.3	-12.3	-Infinity	-13.3	-13.3	-Infinity
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: 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.

8.6.1.1A   Event triggered reporting in AWGN propagation conditions (Rel-4 and later)

8.6.1.1A.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 of this test apply to the Rel-4 and later FDD UE.

8.6.1.1A.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

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

A cell shall be considered detectable when

CPICH Ec/Io $\geq$ -20 dB if DL_DRX_Active = 0, or CPICH Ec/Io $\geq$ -17dB if DL_DRX_Active=1,

SCH_Ec/Io $\geq$ -20 dB if DL_DRX_Active = 0, or SCH Ec/Io $\geq$ -17dB if DL_DRX_Active=1, 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.

In case of conflict when a compressed gap sequence is activated the UE may choose to prioritise the SFN decoding.

The UE shall be able to identify a new detectable cell not belonging to the monitored set within

$$T_{identify\ detected\ set} = 30s$$

when CPICH Ec/Io $\geq$ -20 dB, SCH_Ec/Io $\geq$ -17 dB 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.

In the CELL_DCH state the measurement period for intra frequency measurements is 200 ms. When no transmission gap pattern sequence is activated and DL_DRX_Active=0, 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, and/or DL_DRX_Active=1, the UE shall be capable of performing CPICH measurements for at least $Y_{measurement\ intra}$ cells , where $Y_{measurement\ intra}$ 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 $Y_{measurement\ intra}$ 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.

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

where

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

$T_{Measurement\_Period\ Intra} = 200$ 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. If DL_DRX_Active=1, and the UE is performing DRX , intra frequency measurements are assumed only to be performed when the receiver is guaranteed to be active, and simultaneously to data reception from the active set cell/s.

If DL_DRX_Active = 0 then $T_{basic\_identify\_FDD,intra} = 800$ ms, or if DL_DRX_Active =1 then $T_{basic\_identify\_FDD,intra} = 300$ 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 UE shall furthermore be capable of performing CPICH measurements for at least 1 detected intra-frequency cell, in the detected set, and the UE physical layer shall be capable of reporting measurements to higher layers with the measurement period of 10 s. 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].

Reported measurements contained in event triggered measurement reports shall meet the requirements in section 9 of TS 25.133 [2].

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

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 event triggered measurement reporting delay, on cells belonging to monitored set, measured without L3 filtering, shall be less than the above defined $T_{identify\ intra}$ 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 $T_{Measurement\_Period\ Intra}$ 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 $T_{identify\_intra}$ and then enters or leaves the reporting range, the event triggered measurement reporting delay shall be less than $T_{Measurement\_Period\ Intra}$ when the L3 filter has not been used and the UE CPICH measurement capabilities defined above are valid.

The event triggered measurement reporting delay on cells not belonging to monitored set, measured without L3 filtering, and shall be less than the above defined $T_{identify\ detected\ set}$ defined above.

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

NOTE 1: The DL_DRX_Active parameter is only valid for a Rel-7 UE supporting discontinuous uplink DPCCH transmission (CPC) and it shall be disregarded for Rel-6 or earlier UEs.

NOTE 2: The minimum requirements for Rel-6 and earlier UEs are the same as for Rel-7 UE with DL_DRX_Active parameter set to 0.

8.6.1.1A.3 Test purpose

To verify that the UE meets the minimum requirements.

NOTE: The test case covers only the continuous uplink DPCCH transmission scenario. Hence the test case is effectively the same for all UE releases.

8.6.1.1A.4 Method of test

8.6.1.1A.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 8.6.1.1A.1 to 8.6.1.1A.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. 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 8.6.1.1A.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	NOTE: See Annex I for cell information

Parameter	Unit	Value	Comment
T1	s	5	
T2	s	5	
T3	s	5	

**Table 8.6.1.1A.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		Note 1			N/A	
OCNS_Ec/Ior	dB		Note 2			-0.941	
$\hat{I}_{or}/I_{oc}$	dB	0	6.97	0	-Infinity	5.97	-Infinity
I$_{or}$ (Note 3)	dBm	-70	-63.03	-70	-Infinity	-64.03	-Infinity
I_{oc}	dBm/3.84 MHz	-70					
CPICH_Ec/Io	dB	-13	-13	-13	-Infinity	-14	-Infinity
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 nominal Îor values, although not explicitly defined in 25.133 [2] are added here since they are implied and need to be identified so that the test equipment can be configured.							

8.6.1.1A.4.2   Procedure

1. The RF parameters are set up according to T1 in table 8.6.1.1A.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. The scrambling code is set to Cell2.

4. SS shall transmit a MEASUREMENT CONTROL message. T1 starts.

5. After 5 seconds from the beginning of T1, the SS shall switch the power settings from T1 to T2 in table 8.6.1.1A.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 the counter event1A_failure is increased by one. If the reporting delay for this event is within the required limit, the counter event1A_success 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 8.6.1.1A.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 UE fails to report the event within the required delay, then the counter event1B_failure is increased by one. If the reporting delay for this event is within the required limit, the counter event1B_success is increased by one.

9. After the SS receives the MEASUREMENT REPORT message in step 8) or 5 seconds after the beginning of T3, the SS shall transmits a RRC Connection Release message to make the UE to transit to idle mode.

10. SS shall sets the new primary code group and primary code on Cell2. Three different primary code groups and primary codes according to Annex I are used to turn on Cell2. Previous timing information of cell 2 is invalid in the UE. The RF parameters are set up according to T1 in table 8.6.1.1A.3.

11. Repeat steps 3-10 according to Annex F.6.2 Table 6.2.8. If one counter reaches the pass criterion, this counter is stopped and the remaining counters are continued. For the overall outcome of the test to be considered a pass, the counters for 1A events and for 1B events shall independently indicate a pass result. The test is stopped immediately and the test is considered to be a fail, if any counter reaches an early fail criterion.

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
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
-RRC message sequence number	SS provides the value of this IE, from its internal counter.
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 Measurement type -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) -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator	 TRUE (Note 1) TRUE FDD TRUE TRUE FALSE
-Reporting quantities for monitored set cells (10.3.7.5) -Cell synchronisation information reporting indicator -Cell Identity reporting indicator -CHOICE mode -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator	 TRUE (Note 1) TRUE FDD TRUE TRUE FALSE
-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

Information Element/Group name	Value/Remark
-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	Infinity
-Reporting interval	0 ms (Note 2)
-Reporting cell status	
- CHOICE reported cell	Report cell within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	3
-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
-Amount of reporting	Not Present
-Reporting interval	Not Present
-Reporting cell status	
- CHOICE reported cell	Report cell within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	3
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.

8.6.1.1A.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%. For the overall outcome of the test to be considered a pass, the counters for 1A events and for 1B events shall independently indicate a pass result.

Table 8.6.1.1A.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/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		Note 1			N/A	
OCNS			Note 2			-1.13	
$\hat{I}_{or}/I_{oc}$ (Note 3)	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/Io (Note 3)	dB	-12.3	-12.3	-12.3	-Infinity	-13.3	-Infinity
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: 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.

8.6.1.2 Event triggered reporting of multiple neighbours in AWGN propagation condition (R99)

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 Release 99 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 8.6.1.2.4.

**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	Note 1	N/A	N/A
OCNS_Ec/Ior	dB	Note 2	-0.941	-0.941
$\hat{I}_{or}/I_{oc}$	dB	0	-Inf	-Inf
Îor (Note 3)	dBm	-85	-Inf	-Inf
I_{oc}	dBm/3.84 MHz	-85		
CPICH_Ec/Io	dB	-13	-Inf	-Inf
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 nominal Îor values, although not explicitly defined in 25.133 [2] are added here since they are implied and need to be identified so that the test equipment can be configured.				

The test parameters are given in table 8.6.1.2.2 and 8.6.1.2.5. 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 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. In the initial condition before the time T1, defined as T0, only Cell 1 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		0	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	NOTE: See Annex I for cell information.
T1	s	10	
T2	s	1	
T3	s	10	
T4	s	4	
T5	s	1	
T6	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	T5	T6	T1	T2	T3	T4	T5	T6	T1	T2	T3	T4	T5	T6
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	Note 1						N/A						N/A	Note 1			N/A	
OCNS_Ec/Ior	dB	Note 2						-0.941						-0.941	Note 2			-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	
$\hat{I}_{or}$ (Note 3)	dBm	-78.03	-78.07	-79.03		-78.88		-Inf	-75.57	-78.03		-77.38		-79.03	-78.07	-Inf		-79.38	
I_{oc}	dBm/3.84 MHz	-85																	
CPICH_Ec/Io	dB	-13	-16	-14		-15.5		-Inf	-13.5	-13		-14		-14	-16	-Inf		-16	
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 nominal Îor values, although not explicitly defined in 25.133 [2] are added here since they are implied and need to be identified so that the test equipment can be configured.

8.6.1.2.4.2 Procedure

1) The RF parameters are set up according to T0 in table 8.6.1.2.4.

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. The scrambling code is set to Cell2 and Cell3.

4) SS shall transmit the initial MEASUREMENT CONTROL message.

5) 5 seconds after step4 has completed, the SS shall switch the power settings for T0 to T1 in table 8.6.1.2.5.

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 the counter event1A_failure is increased by one. If the reporting delay for this event is within the required limit, the counter event1A_success is increased by one.

7) During the time period T1, the SS shall after the Event 1A triggered measurement is reported send an Active Set Update command with activation time "start of T2" adding cell 3 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 least the RRC procedure delay prior to the beginning of T2.

8) 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.

9) After 11 seconds from the beginning of T1, the SS shall switch the power settings from T1 to T3 in table 8.6.1.2.5.

10) UE shall transmit a MEASUREMENT REPORT message for Cell 2 triggered by event 1C. The measurement reporting delay from the beginning of T3 shall be less than 880 ms. If the UE fails to report the event within the required delay, then the counter event1C_failure is increased by one. If the reporting delay for this event is within the required limit, the counter event1C_success is increased by one.

11) UE shall transmit a MEASUREMENT REPORT message for Cell 2 triggered by event 1A. The measurement reporting delay from the beginning of T3 shall be less than 880 ms. If the UE fails to report the event within the required delay, then the counter event1A_failure is increased by one. If the reporting delay for this event is within the required limit, the counter event1A_success is increased by one.

12) SS shall transmit the measurement control message to disable event 1C reporting.

13) After 10 seconds from the beginning of T3, the SS shall switch the power settings from T3 to T4 in table 8.6.1.2.5.

14) UE shall transmit a MEASUREMENT REPORT message for Cell 3 triggered by event 1B. The measurement reporting delay from the beginning of T4 shall be less than 280 ms. If the UE fails to report the event within the required delay, then the counter event1B_failure is increased by one. If the reporting delay for this event is within the required limit, the counter event1B_success is increased by one.

15) During the time period T4, SS shall after the Event 1B triggered measurement is reported send an Active Set Update command with activation time "start of T5" removing cell 3 from 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 least the RRC procedure delay prior to the beginning of T5.

16) Void.

17) After 5 seconds from the beginning of T4, the SS shall switch the power settings from T5 to T6 in table 8.6.1.2.5.

18) UE shall transmit a MEASUREMENT REPORT message for Cell 3 triggered by event 1A. The measurement reporting delay from the beginning of T6 shall be less than 280 ms. If the UE fails to report the event within the required delay, then the counter event1A_failure is increased by one. If the reporting delay for this event is within the required limit, the counter event1A_success is increased by one.

19) Void.

20) Void.

21) After the SS receive the MEASUREMENT REPORT message in step 18) or 10 seconds after the beginning of T6, the SS shall transmits a RRC Connection Release message to make the UE to transit to idle mode.

22) SS shall sets the new primary code group and primary code on Cell2 and Cell3. Three different primary code groups and primary codes according to Annex I are used to turn on Cell2 and Cell3. Previous timing information of Cell 2 and Cell3 are invalid in the UE. The RF parameters are set up according to T0 in table 8.6.1.2.4.

23) Repeat steps 3-22 used with three different primary code groups and primary codes on Cell2 and Cell3 until the confidence level according to annex F.6.2 is achieved. If one counter reaches the pass criterion, this counter is stopped and the remaining counters are continued. For the overall outcome of the test to be considered a pass, the counters for 1A events and for 1B events and for 1C events shall independently indicate a pass result. The test is stopped immediately and the test is considered to be a fail, if any counter reaches an early fail criterion.

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:

Initial MEASUREMENT CONTROL message:

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements -RRC transaction identifier -Integrity check info	 0
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
-RRC message sequence number	SS provides the value of this IE, from its internal counter.
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 Measurement type -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)
  -Cell synchronisation information reporting indicator
  -Cell Identity reporting indicator
  -CHOICE mode
   -CPICH Ec/N0 reporting indicator
   -CPICH RSCP reporting indicator
   -Pathloss reporting indicator
	
	TRUE (Note 1)
	TRUE
	FDD
	TRUE
	TRUE
	FALSE

-Reporting quantities for monitored set cells (10.3.7.5)
  -Cell synchronisation information reporting indicator
  -Cell Identity reporting indicator
  -CHOICE mode
   -CPICH Ec/N0 reporting indicator
   -CPICH RSCP reporting indicator
   -Pathloss reporting indicator
	
	TRUE (Note 1)
	TRUE
	FDD
	TRUE
	TRUE
	FALSE

-Reporting quantities for detected set cells (10.3.7.5)	Not Present

Information Element/Group name	Value/Remark
-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	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	1
-Reporting interval	0 ms (Note 2)
-Reporting cell status	
- CHOICE reported cell	Report cell within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	3
-Intra-frequency event identity	Event 1B
-Triggering condition 1	Active set cells
-Reporting Range Constant	3 dB
-Cells forbidden to affect Reporting Range	Not Present
-W	0
-Hysteresis	0 dB
-Threshold used frequency	Not Present
-Reporting deactivation threshold	Not Present
-Replacement activation threshold	Not Present
-Time to trigger	0 ms
-Amount of reporting	Not Present
-Reporting interval	Not Present
-Reporting cell status	
- CHOICE reported cell	Report cell within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	3
-Intra-frequency event identity	Event 1C
-Reporting Range Constant	Not present
-Cells forbidden to affect Reporting Range	Not Present
-W	Not present
-Hysteresis	0 dB
-Threshold used frequency	Not Present
-Reporting deactivation threshold	Not present
-Replacement activation threshold	0
-Time to trigger	0 ms
-Amount of reporting	1
-Reporting interval	0 ms (Note 2)
-Reporting cell status	
- CHOICE reported cell	Report cell within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	3
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 CONTROL message to disable event 1C reporting:

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
-RRC message sequence number	SS provides the value of this IE, from its internal counter.
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 Measurement type	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)	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
-W	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	1
-Reporting interval	0 ms (Note 1)
-Reporting cell status	
- CHOICE reported cell	Report cell within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	3
-Intra-frequency event identity	Event 1B
-Triggering condition 1	Active set cells
-Reporting Range Constant	3 dB
-Cells forbidden to affect Reporting Range	Not Present
-W	0
-Hysteresis	0 dB
-Threshold used frequency	Not Present
-Reporting deactivation threshold	Not Present
-Replacement activation threshold	Not Present
-Time to trigger	0 ms
-Amount of reporting	Not Present
-Reporting interval	Not Present
-Reporting cell status	
- CHOICE reported cell	Report cell within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	3

Information Element/Group name	Value/Remark
Physical channel information elements -DPCH compressed mode status info (10.3.6.34)	Not Present
NOTE 1: 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%. For the overall outcome of the test to be considered a pass, the counters for 1A events and for 1B events and for 1C events shall independently indicate a pass result.

**Table 8.6.1.2.4: Initial test requirements 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	-9.3	-9.3	-9.3
PCCPCH_Ec/Ior	dB	-11.3	-11.3	-11.3
SCH_Ec/Ior	dB	-11.3	-11.3	-11.3
PICH_Ec/Ior	dB	-14.3	-14.3	-14.3
DPCH_Ec/Ior	dB	Note 1	N/A	N/A
OCNS_Ec/Ior	dB	Note 2	-1.13	-1.13
$\hat{I}_{or}/I_{oc}$ (Note 3)	dB	0	-Inf	-Inf
I_{or})	dBm	-85)	-Inf	-Inf
I_{oc}	dBm/3.84 MHz	-85		
CPICH_Ec/Io(Note 3)	dB	-12.3	-Inf	-Inf
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 1: These parameters are not directly settable, but are derived by calculation from the settable parameters.				

Table 8.6.1.2.5: Test requirements for Event triggered reporting of multiple neighbours in AWGN propagation condition

Parameter	Unit	Cell 1						Cell 2						Cell3					
		T1	T2	T3	T4	T5	T6	T1	T2	T3	T4	T5	T6	T1	T2	T3	T4	T5	T6
CPICH_Ec/Ior	dB	-9.3	-9.3	-9.3	-9.3	-9.3	-9.3	-9.3	-9.3	-9.3	-9.3	-9.3	-9.3	-9.3	-9.3	-9.3	-9.3	-9.3	-9.3
PCCPCH_Ec/Ior	dB	-11.3	-11.3	-11.3	-11.3	-11.3	-11.3	-11.3	-11.3	-11.3	-11.3	-11.3	-11.3	-11.3	-11.3	-11.3	-11.3	-11.3	-11.3
SCH_Ec/Ior	dB	-11.3	-11.3	-11.3	-11.3	-11.3	-11.3	-11.3	-11.3	-11.3	-11.3	-11.3	-11.3	-11.3	-11.3	-11.3	-11.3	-11.3	-11.3
PICH_Ec/Ior	dB	-14.3	-14.3	-14.3	-14.3	-14.3	-14.3	-14.3	-14.3	-14.3	-14.3	-14.3	-14.3	-14.3	-14.3	-14.3	-14.3	-14.3	-14.3
DPCH_Ec/Ior	dB	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Note 1	Note 1	N/A	N/A
OCNS_Ec/Ior	dB	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	-1.13	-1.13	-1.13	-1.13	-1.13	-1.13	-1.13	-1.13	Note 2	Note 2	-1.13	-1.13
$\hat{I}_{or}/I_{oc}$ (Note 3)	dB	7.0		6.9	6.0		6.1	-Inf		9.4	7.0		7.6	6.0		6.9	-Inf		5.6
I_{or}	dBm	-78.0		-78.1	-79.0		-78.9	-Inf		-75.6	-78.0		-77.4	-79.0		-78.1	-Inf		-79.4
I_{oc}	dBm/3.84 MHz	-85																	
CPICH_Ec/Io (Note 3)	dB	-12.3		-15.3	-13.3		-14.8	-Inf		-12.8	-12.3		-13.3	-13.3		-15.3	-Inf		-15.3
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: 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.

8.6.1.2A Event triggered reporting of multiple neighbours in AWGN propagation condition (Rel-4 and later)

8.6.1.2A.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 of this test apply to the Rel-4 and later FDD UE.

8.6.1.2A.2 Minimum requirements

The requirements are the same as in sub clause 8.6.1.1A.2.

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

8.6.1.2A.3 Test purpose

To verify that the UE meets the minimum requirements.

NOTE : The test case covers only the continuous uplink DPCCH transmission scenario. Hence the test case is effectively the same for all UE releases.

8.6.1.2A.4 Method of test

8.6.1.2A.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 8.6.1.2A.4.

Table 8.6.1.2A.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	Note 1	N/A	N/A
OCNS_Ec/Ior	dB	Note 2	-0.941	-0.941
$\hat{I}_{or}/I_{oc}$	dB	0	-Inf	-Inf
$\hat{I}_{or}$ (Note 3)	dBm	-85	-Inf	-Inf
I_{oc}	dBm/3.84 MHz	-85		
CPICH_Ec/Io	dB	-13	-Inf	-Inf
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 nominal $\hat{I}_{or}$ values, although not explicitly defined in 25.133 [2] are added here since they are implied and need to be identified so that the test equipment can be configured.				

The test parameters are given in table 8.6.1.2A.2 and 8.6.1.2A.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 8.6.1.2A.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	NOTE: See Annex I for cell information
T1	S	10	
T2	S	10	
T3	S	5	
T4	S	10	

**Table 8.6.1.2A.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/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	Note 1				N/A				N/A			
OCNS_Ec/Ior	dB	Note 2				-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
$\hat{I}_{or}$ (Note 3)	dBm	-78.03	-78.07	-79.03	-78.88	-Inf	-75.57	-78.03	-77.38	-79.03	-78.07	-Inf	-79.38
I_{oc}	dBm/3.84 MHz	-85											
CPICH_Ec/Io	dB	-13	-16	-14	-15.5	-Inf	-13.5	-13	-14	-14	-16	-Inf	-16
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 nominal $\hat{I}_{or}$ values, although not explicitly defined in 25.133 [2] are added here since they are implied and need to be identified so that the test equipment can be configured.													

8.6.1.2A.4.2 Procedure

1) The RF parameters are set up according to T0 in table 8.6.1.2A.4.

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. The scrambling code is set to Cell2 and Cell3.

4) SS shall transmit the initial MEASUREMENT CONTROL message.

5) 5 seconds after step4 has completed, the SS shall switch the power settings for T0 to T1 in table 8.6.1.2A.5.

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 the counter event1A_failure is increased by one. If the reporting delay for this event is within the required limit, the counter event1A_success 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 in table 8.6.1.2A.5.

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 the counter event1C_failure is increased by one. If the reporting delay for this event is within the required limit, the counter event1C_success 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 the counter event1A_failure is increased by one. If the reporting delay for this event is within the required limit, the counter event1A_success 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) SS shall transmit the measurement control message to disable event 1C reporting

13) After 10 seconds from the beginning of T2, the SS shall switch the power settings from T2 to T3 in table 8.6.1.2A.5.

14) 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 the counter event1B_failure is increased by one. If the reporting delay for this event is within the required limit, the counter event1B_success is increased by one.

15) After 5 seconds from the beginning of T3, the SS shall switch the power settings from T3 to T4 in table 8.6.1.2A.5.

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 UE fails to report the event within the required delay, then the counter event1A_failure is increased by one. If the reporting delay for this event is within the required limit, the counter event1A_success is increased by one.

17) Void

18) Void

19) After the SS receive the MEASUREMENT REPORT message in step 16) or 10 seconds after the beginning of T4, the SS shall transmits a RRC Connection Release message to make the UE to transit to idle mode.

20) SS shall sets the new primary code group and primary code on Cell2 and Cell3. Three different primary code groups and primary codes according to Annex I are used to turn on Cell2 and Cell3. Previous timing information of Cell 2 and Cell3 are invalid in the UE. The RF parameters are set up according to T0 in table 8.6.1.2A.4.

21) Repeat steps 3-20 until the confidence level according to annex F.6.2 is achieved. If one counter reaches the pass criterion, this counter is stopped and the remaining counters are continued. For the overall outcome of the test to be considered a pass, the counters for 1A events and for 1B and for 1C events shall independently indicate a pass result. The test is stopped immediately and the test is considered to be a fail, if any counter reaches an early fail criterion.

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:

Initial MEASUREMENT CONTROL message:

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
-RRC message sequence number	SS provides the value of this IE, from its internal counter.
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 Measurement type	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)	
-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	FALSE
-Reporting quantities for monitored set cells (10.3.7.5)	
-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	FALSE
-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

Information Element/Group name	Value/Remark
-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	Infinity
-Reporting interval	0 ms (Note 2)
-Reporting cell status	
- CHOICE reported cell	Report cell within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	3
-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
-Amount of reporting	Not Present
-Reporting interval	Not Present
-Reporting cell status	
- CHOICE reported cell	Report cell within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	3
-Intra-frequency event identity	Event 1C
-Reporting Range Constant	Not present
-Cells forbidden to affect Reporting Range	Not Present
-W	Not present
-Hysteresis	0 dB
-Threshold used frequency	Not Present
-Reporting deactivation threshold	Not present
-Replacement activation threshold	0
-Time to trigger	0 ms
-Amount of reporting	Infinity
-Reporting interval	0 ms (Note 2)
-Reporting cell status	
- CHOICE reported cell	Report cell within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	3
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 CONTROL message to disable event 1C reporting:

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
-RRC message sequence number	SS provides the value of this IE, from its internal counter.
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 Measurement type	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)	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
-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 1)
-Reporting cell status	
- CHOICE reported cell	Report cell within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	3
-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
-Amount of reporting	Not Present
-Reporting interval	Not Present
-Reporting cell status	
- CHOICE reported cell	Report cell within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	3

Information Element/Group name	Value/Remark
Physical channel information elements	
-DPCH compressed mode status info (10.3.6.34)	Not Present
NOTE 1: 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.

8.6.1.2A.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%. For the overall outcome of the test to be considered a pass, the counters for 1A events and for 1B events and for 1C events shall independently indicate a pass result.

**Table 8.6.1.2A.4: Initial test requirements 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	-9.3	-9.3	-9.3
PCCPCH_Ec/Ior	dB	-11.3	-11.3	-11.3
SCH_Ec/Ior	dB	-11.3	-11.3	-11.3
PICH_Ec/Ior	dB	-14.3	-14.3	-14.3
DPCH_Ec/Ior	dB	Note 1	N/A	N/A
OCNS_Ec/Ior	dB	Note 2	-1.13	-1.13
$\hat{I}_{or}/I_{oc}$	dB	0	-Inf	-Inf
I_{or}	dBm	-85	-Inf	-Inf
I_{oc}	dBm/3.84 MHz		-85	
CPICH_Ec/Io$_{(Note\ 3)}$	dB	-12.3	-Inf	-Inf
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: These parameters are not directly settable, but are derived by calculation from the settable parameters.				

**Table 8.6.1.2A.5: Test requirements 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/Ior	dB	-9.3				-9.3				-9.3			
PCCPCH_Ec/Ior	dB	-11.3				-11.3				-11.3			
SCH_Ec/Ior	dB	-11.3				-11.3				-11.3			
PICH_Ec/Ior	dB	-14.3				-14.3				-14.3			
DPCH_Ec/Ior	dB	Note 1				N/A				N/A			
OCNS_Ec/Ior	dB	Note 2				-1.13				-1.13			
$\hat{I}_{or}/I_{oc}$ (Note 3)	dB	7.0	6.9	6.0	6.1	-Inf	9.4	7.0	7.6	6.0	6.9	-Inf	5.6
I_{or}	dBm	-78.0	-78.1	-79.0	-78.9	-Inf	-75.6	-78.0	-77.4	-79.0	-78.1	-Inf	-79.4
I_{oc}	dBm/3.84 MHz	-85											
CPICH_Ec/Io (Note 3)	dB	-12.3	-15.3	-13.3	-14.8	-Inf	-12.8	-12.3	-13.3	-13.3	-15.3	-Inf	-15.3
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: 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.

8.6.1.3 Event triggered reporting of two detectable neighbours in AWGN propagation condition (R99)

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 Release 99 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 initial test parameters are given in table 8.6.1.3.1.

Table 8.6.1.3.1: Cell specific initial test parameters for Event triggered reporting of two detectable 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	Note 1	-0.941	-0.941
$\hat{I}_{or}/I_{oc}$	dB	Note 2	-Inf	-Inf
I$_{or}$ (Note 3)	dBm	-79.13	-Inf	-Inf
I_{oc}	dBm/3.84 MHz	-85		
CPICH_Ec/Io	dB	-11	-Inf	-Inf
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 Ior.				
NOTE 3: The nominal Îor values, although not explicitly defined in 25.133 [2] are added here since they are implied and need to be identified so that the test equipment can be configured.				

The test parameters are given in table 8.6.1.3.2 and 8.6.1.3.5. 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. CPICH Ec/Io and SFN-CFN observed time difference shall be reported together with Event 1A. The test consists of five successive time periods, with a time duration of T1, T2, T3, T4 and T5 respectively. In the initial condition before the time T1, defined as T0, only Cell1 is active.

**Table 8.6.1.3.2: 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		0	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	NOTE: See Annex I for cell information.
T1	s	10	
T2	s	10	
T3	s	1	
T4	s	10	
T5	s	10	

Table 8.6.1.3.3: 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	T5	T1	T2	T3	T4	T5	T1	T2	T3	T4	T5
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	Note 1					N/A		Note 1			N/A				
OCNS_Ec/Ior	dB	Note 2					-0.941		Note 2			-0.941				
$\hat{I}_{or}/I_{oc}$	dB	14.55	28.51		14.45	28.51	-Inf	27.51		13.95	21.51	8.05	21.51		13.95	27.5
I$_{or}$ (Note 3)	dBm	70.45	56.49		70.55	56.49	-Inf	-57.49		-71.05	-63.49	-76.95	-63.49		-71.05	-57.49
I_{oc}	dBm/3.84 MHz	-85														
CPICH_Ec/Io	dB	-11	-13		-14.5	-13	-Inf	-14.0		-15	-20	-17.5	-20		-15	-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 Ior																
NOTE 3: The nominal Îor values, although not explicitly defined in 25.133 [2] are added here since they are implied and need to be identified so that the test equipment can be configured.																

8.6.1.3.4.2 Procedure

1) The RF parameters are set up according to T0 in table 8.6.1.3.4.

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. The scrambling code is set to Cell2 and Cell3.

4) SS shall transmit a MEASUREMENT CONTROL message. T0 starts.

5) After 10 seconds from the beginning T0, the SS shall switch the power settings from T0 to T1 in table 8.6.1.3.5.

6) After a total of 10 seconds from the beginning of T1, the SS shall switch the power settings from T1 to T2.

7) 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 the counter event1A_failure is increased by one. If the reporting delay for this event is within the required limit, the counter event1A_success is increased by one.

8) During the time period T2, the SS shall, after the Event 1A triggered measurement is reported, send an Active Set Update command with activation time "start of T3" 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 least the RRC procedure delay prior to the beginning of T3.

9) After 11 seconds from the beginning T2, the SS shall switch the power settings from T2 to T4.

10) 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 UE fails to report the event within the required delay, then the counter event1A_failure is increased by one. If the reporting delay for this event is within the required limit, the counter event1A_success is increased by one.

11) After 10 seconds from the beginning T4, the SS shall switch the power settings from T4 to T5.

12) UE shall transmit a MEASUREMENT REPORT message for Cell 2 triggered by event 1B. The measurement reporting delay from the beginning of T5 shall be less than 280 ms. If the UE fails to report the event within the required delay, then the counter event1B_failure is increased by one If the reporting delay for this event is within the required limit, the counter event1B_success is increased by one.

13) After the SS receive the MEASUREMENT REPORT message in step 12) or 10 seconds after the beginning of T5, the SS shall transmits a RRC Connection Release message to make the UE to transit to idle mode.

14) SS shall sets the new primary code group and primary code on Cell2 and Cell3. Three different primary code groups and primary codes according to Annex I are used to turn on Cell2 and Cell3. Previous timing information of Cell 2 and Cell3 are invalid in the UE. The RF parameters are set up according to T0 in table 8.6.1.3.4.

15) Repeat steps 3-14 until the confidence level according to annex F.6.2 is achieved. If one counter reaches the pass criterion, this counter is stopped and the remaining counters are continued. For the overall outcome of the test to be considered a pass, the counters for 1A events and for 1B events shall independently indicate a pass result. The test is stopped immediately and the test is considered to be a fail, if any counter reaches an early fail criterion.

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	
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
-RRC message sequence number	SS provides the value of this IE, from its internal counter.
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 Measurement type	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)	
-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	FALSE
-Reporting quantities for monitored set cells (10.3.7.5)	
-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	FALSE
-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

Information Element/Group name	Value/Remark
-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	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	
- CHOICE reported cell	Report cell within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	3
-Intra-frequency event identity	Event 1B
-Triggering condition 1	Active set cells
-Reporting Range Constant	3 dB
-Cells forbidden to affect Reporting Range	Not Present
-W	0
-Hysteresis	0 dB
-Threshold used frequency	Not Present
-Reporting deactivation threshold	Not Present
-Replacement activation threshold	Not Present
-Time to trigger	0 ms
-Amount of reporting	Not Present
-Reporting interval	Not Present
-Reporting cell status	
- CHOICE reported cell	Report cell within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	3
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%. For the overall outcome of the test to be considered a pass, the counters for 1A events and for 1B events shall independently indicate a pass result.

Table 8.6.1.3.4: Initial test parameters for Event triggered reporting of two detectable neighbours in AWGN propagation condition

Parameter	Unit	Cell 1	Cell 2	Cell3
		T0	T0	T0
CPICH_Ec/Ior	dB	-9.60	-9.60	-9.60
PCCPCH_Ec/Ior	dB	-11.60	-11.60	-11.60
SCH_Ec/Ior	dB	-11.60	-11.60	-11.60
PICH_Ec/Ior	dB	-14.60	-14.60	-14.60
DPCH_Ec/Ior	dB	Note 1	N/A	N/A
OCNS_Ec/Ior	dB	Note 2	-1.04	-1.04
$\hat{I}_{or}/I_{oc}$ (Note 3)	dB	5.90	-Inf	-Inf
$I_{or)}$	dBm	-79.10	-Inf	-Inf
I_{oc}	dBm/3.84 MHz	-85		
CPICH_Ec/Io (Note 3)	dB	-10.49	-Inf	-Inf
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 Ior.				
NOTE 3: These parameters are not directly settable, but are derived by calculation from the settable parameters.				

Table 8.6.1.3.5: 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	T5	T1	T2	T3	T4	T5	T1	T2	T3	T4	T5
CPICH_Ec/Ior	dB	-960					-9.60					-9.60				
PCCPCH_Ec/Ior	dB	-11.60					-11.60					-11.60				
SCH_Ec/Ior	dB	-11.60					-11.60					-11.60				
PICH_Ec/Ior	dB	-14.60					-14.60					-14.60				
DPCH_Ec/Ior	dB	Note 1					N/A		Note 1			N/A				
OCNS_Ec/Ior	dB	Note 2					-1.04		Note 2			-1.04				
$\hat{I}_{or}/I_{oc}$ (Note 3)	dB	14.6	28.50		14.5	28.5	-Inf	27.50		14.0	21.50	8.1	21.50		14.0	27.5
I$_{or}$	dBm	-70.40	-56.50		-70.50	-56.50	-Inf	-57.50		-71.00	-63.50	-76.90	-63.50		-71.00	-57.50
I_{oc}	dBm/3.84 MHz	-85														
CPICH_Ec/Io (Note 3)	dB	-10.60	-12.60		-14.1	-12.60	-Inf	-13.60		-14.60	-19.60	-17.1	-19.60		-14.60	-13.60
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 Ior																
NOTE 3: 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.

8.6.1.3A Event triggered reporting of two detectable neighbours in AWGN propagation condition (Rel-4 and later)

8.6.1.3A.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 of this test apply to the Rel-4 and later FDD UE.

8.6.1.3A.2 Minimum requirements

The requirements are the same as in sub clause 8.6.1.1A.2.

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

8.6.1.3A.3 Test purpose

To verify that the UE meets the minimum requirements.

NOTE : The test case covers only the continuous uplink DPCCH transmission scenario. Hence the test case is effectively the same for all UE releases.

8.6.1.3A.4 Method of test

8.6.1.3A.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 8.6.1.3A.4.

Table 8.6.1.3A.1: Cell specific initial test parameters for Event triggered reporting of two detectable neighbours in AWGN propagation condition

Parameter	Unit	Cell 1 T0	Cell 2 T0	Cell3 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	Note 1	N/A	N/A
OCNS_Ec/Ior	dB	Note 2	-0.941	-0.941
$\hat{I}_{or}/I_{oc}$	dB	5.87	-Inf	-Inf
I$_{or}$ (Note 3)	dBm	-79.13	-Inf	-Inf
I_{oc}	dBm/3.84 MHz	-85		
CPICH_Ec/Io	dB	-11	-Inf	-Inf
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 nominal Îor values, although not explicitly defined in 25.133 [2] are added here since they are implied and need to be identified so that the test equipment can be configured.				

The test parameters are given in table 8.6.1.3A2 and 8.6.1.3A.5. 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 8.6.1.3A.2: 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	NOTE: See Annex I for cell information.
T1	S	10	
T2	S	10	
T3	S	10	
T4	S	10	

**Table 8.6.1.3A.3: 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/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	Note 1				N/A				N/A			
OCNS_Ec/Ior	dB	Note 2				-0.941				-0.941			
$\hat{I}_{or}/I_{oc}$	dB	14.55	28.51	14.45	28.51	-Inf	27.51	13.95	21.51	8.05	21.51	13.95	27.51
$\hat{I}_{or}$ (Note 3)	dBm	-70.45	-56.49	-70.55	-56.49	-Inf	-57.49	-71.05	-63.49	-76.95	-63.49	-71.05	-57.49
I_{oc}	dBm/3.84 MHz	-85											
CPICH_Ec/Io	dB	-11	-13	-14.5	-13	-Inf	-14.0	-15	-20	-17.5	-20	-15	-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 nominal $\hat{I}_{or}$ values, although not explicitly defined in 25.133 [2] are added here since they are implied and need to be identified so that the test equipment can be configured.													

8.6.1.3A.4.2 Procedure

1) The RF parameters are set up according to T0 in table 8.6.1.3A.4.

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. The scrambling code is set to Cell2 and Cell3.

4) SS shall transmit a MEASUREMENT CONTROL message. T0 starts.

5) After 10 seconds from the beginning T0, the SS shall switch the power settings from T0 to T1 in 8.6.1.3A.5.

6) After a total of 10 seconds from the beginning of T1, the SS shall switch the power settings from T1 to T2.

7) 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 the counter event1A_failure is increased by one. If the reporting delay for this event is within the required limit, the counter event1A_success is increased by one.

8) After 10 seconds from the beginning T2, the SS shall switch the power settings from T2 to T3.

9) 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 the counter event1A_failure is increased by one. If the reporting delay for this event is within the required limit, counter event1A_success is increased by one.

10) After 10 seconds from the beginning T3, the SS shall switch the power settings from T3 to T4.

11) 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 UE fails to report the event within the required delay, then the counter event1B_failure is increased by one If the reporting delay for this event is within the required limit, the counter event1B_success is increased by one.

12) After the SS receive the MEASUREMENT REPORT message in step 11) or 10 seconds after the beginning of T4, the SS shall transmits a RRC Connection Release message to make the UE to transit to idle mode.

13) SS shall sets the new primary code group and primary code on Cell2 and Cell3. Three different primary code groups and primary codes according to Annex I are used to turn on Cell2 and Cell3. Previous timing information of Cell 2 and Cell3 are invalid in the UE. The RF parameters are set up according to T0.

14) Repeat steps 3-13 used with three different primary code groups and primary codes on Cell2 and Cell3 until the confidence level according to annex F.6.2 is achieved. If one counter reaches the pass criterion, this counter is stopped and the remaining counters are continued. For the overall outcome of the test to be considered a pass, the counters for 1A events and for 1B events shall independently indicate a pass result. The test is stopped immediately and the test is considered to be a fail, if any counter reaches an early fail criterion.

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	
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
-RRC message sequence number	SS provides the value of this IE, from its internal counter.
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 Measurement type	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)	
-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	FALSE

Information Element/Group name	Value/Remark
-Reporting quantities for monitored set cells (10.3.7.5)	
-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	FALSE
-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
-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	
- CHOICE reported cell	Report cell within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	3
-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
-Amount of reporting	Not Present
-Reporting interval	Not Present
-Reporting cell status	
- CHOICE reported cell	Report cell within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	3
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.

8.6.1.3A.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%. For the overall outcome of the test to be considered a pass, the counters for 1A events and for 1B events shall independently indicate a pass result.

**Table 8.6.1.3A.4: Initial test parameters for Event triggered reporting
of two detectable neighbours in AWGN propagation condition**

Parameter	Unit	Cell 1	Cell 2	Cell3
		T0	T0	T0
CPICH_Ec/Ior	dB	-9.60	-9.60	-9.60
PCCPCH_Ec/Ior	dB	-11.60	-11.60	-11.60
SCH_Ec/Ior	dB	-11.60	-11.60	-11.60
PICH_Ec/Ior	dB	-14.60	-14.60	-14.60
DPCH_Ec/Ior	dB	Note 1	N/A	N/A
OCNS_Ec/Ior	dB	Note 2	-1.04	-1.04
$\hat{I}_{or}/I_{oc}$ (Note 3)	dB	5.90	-Inf	-Inf
$\hat{I}_{or)}$	dBm	-79.10	-Inf	-Inf
I_{oc}	dBm/3.84 MHz		-85	
CPICH_Ec/Io (Note 3)	dB	-10.59	-Inf	-Inf
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: These parameters are not directly settable, but are derived by calculation from the settable parameters.				

**Table 8.6.1.3A.5: 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/Ior	dB	-9.60				-9.60				-9.60			
PCCPCH_Ec/Ior	dB	-11.60				-11.60				-11.60			
SCH_Ec/Ior	dB	-11.60				-11.60				-11.60			
PICH_Ec/Ior	dB	-14.60				-14.60				-14.60			
DPCH_Ec/Ior	dB	Note 1				N/A				N/A			
OCNS_Ec/Ior	dB	Note 2				-1.04				-1.04			
$\hat{I}_{or}/I_{oc}$ (Note 3)	dB	14.60	28.50	14.50	28.50	-Inf	27.50	14.0	21.50	8.10	21.50	14.0	27.50
$\hat{I}_{or}$	dBm	-70.40	-56.50	-70.50	-56.50	-Inf	-57.50	-71.00	-63.50	-76.90	-63.50	-71.00	-57.50
I_{oc}	dBm/3.84 MHz	-85											
CPICH_Ec/Io (Note 3)	dB	-10.60	-12.60	-14.10	-12.60	-Inf	-13.60	-14.60	-19.60	-17.10	-19.60	-14.60	-13.60
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: 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.

8.6.1.4 Void

8.6.1.4A Correct reporting of neighbours in fading propagation condition (Rel-4 and later)

8.6.1.4A.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 of this test apply to the Release 4 and later FDD UE.

8.6.1.4A.2 Minimum requirements

The requirements are the same as in sub clause 8.6.1.1A.2.

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

8.6.1.4A.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.

NOTE : The test case covers only the continuous uplink DPCCH transmission scenario. Hence the test case is effectively the same for all UE releases.

8.6.1.4A.4 Method of test

8.6.1.4A.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 8.6.1.4A.1 and 8.6.1.4A.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 DCCH shall be 20ms.

**Table 8.6.1.4A.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. NOTE: See Annex I for cell information.
T1	s	200	
T2	s	201	

**Table 8.6.1.4A.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	Note 1		N/A	
OCNS_Ec/Ior	dB	Note 2		-0.941	
$\hat{I}_{or}/I_{oc}$	dB	7.29	3.29	3.29	7.29
İor (Note 3)	dBm	-62.71	-66.71	-66.71	-62.71
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				
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 nominal İor values, although not explicitly defined in 25.133 [2] are added here since they are implied and need to be identified so that the test equipment can be configured.					

8.6.1.4A.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. The scrambling code is set to Cell2.

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 in table 8.6.1.4A.3 at the beginning of T1.

6) UE may start to transmit 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 receives 60 or greater 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 may start to transmit 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 SS shall transmits a RRC Connection Release message to make the UE to transit to idle mode.

13) SS shall sets the different previous primary code group and primary code on Cell2. Three different primary code groups and primary codes according to Annex I are used to turn on Cell2. Previous timing information of cell 2 is invalid in the UE. The RF parameters are set up according to T1.

14) Repeat steps 3-13 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	
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
-RRC message sequence number	SS provides the value of this IE, from its internal counter.
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 Measurement type	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)	
-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	FALSE
-Reporting quantities for monitored set cells (10.3.7.5)	
-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	FALSE
-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

Information Element/Group name	Value/Remark
-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
-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	Infinity
-Reporting interval	0 ms (Note 2)
-Reporting cell status	
- CHOICE reported cell	Report cell within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	3
-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
-W	1.0
-Hysteresis	0 dB
-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	Not Present
-Reporting cell status	
- CHOICE reported cell	Report cell within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	3
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.

8.6.1.4A.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.

**Table 8.6.1.4A.3: Test requirements for correct reporting
of neighbours in fading propagation condition**

Parameter	Unit	Cell 1		Cell 2	
		T1	T2	T1	T2
CPICH_Ec/Ior	dB	-9.30	-9.70	-9.70	-9.30
PCCPCH_Ec/Ior	dB	-11.30	-11.70	-11.70	-11.30
SCH_Ec/Ior	dB	-11.30	-11.70	-11.70	-11.30
PICH_Ec/Ior	dB	-14.30	-14.70	-14.70	-14.30
DPCH_Ec/Ior	dB	Note 1	Note 1	N/A	
OCNS_Ec/Ior	dB	Note 2	Note 2	-1.02	-1.13
$\hat{I}_{or}/I_{oc}$ *(Note 3)*	dB	7.30	3.30	3.30	7.30
$\hat{I}_{or}$	dBm	-62.70	-66.70	-66.70	-62.70
I_{oc}	dBm/3.84 MHz	-70			
CPICH_Ec/Io *(Note 3)*	dB	-11.30	-15.70	-15.70	-11.30
Propagation Condition	Case 5 as specified in table D.2.2.1				
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: 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.

8.6.1.5 Event triggered reporting of multiple neighbour cells in Case 1 fading condition

8.6.1.5.1 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 of this test apply to the Release 5 and later FDD UE.

8.6.1.5.2 Minimum requirements

The requirements are the same as in sub clause 8.6.1.1A.2.

The normative reference for these requirements is TS 25.133 [2] clauses 8.1.2.2 and A.8.1.5.

8.6.1.5.3 Test purpose

To verify that the UE meets the minimum requirements. The test is performed in Case 1 fading propagation conditions.

NOTE: The test case covers only the continuous uplink DPCCH transmission scenario. Hence the test case is effectively the same for all UE releases.

8.6.1.5.4 Method of test

8.6.1.5.4.1 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 8.6.1.5.1 and 8.6.1.5.2. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 1A shall be used and "CFN-SFN-Observed Time Difference" shall be reported. The test consists of two successive time periods, each with time duration of T1 and T2 respectively. During time duration T1, the UE shall not have any timing information of invisible cells.

**Table 8.6.1.5.1: General test parameters for event triggered reporting
in multi-cell pedestrian 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	
Active cells		Cell2, Cell3, Cell4	
Hysteresis	dB	0	Applicable for event 1A
Time to Trigger	ms	0	Applicable for event 1A
Filter coefficient		0	Applicable for event 1A
Reporting range R_{1a}	dB	9	Applicable for event 1A
W		0	Applicable for event 1A
TriggeringCondition		activeSetAndMonitoredSetCells	Applicable for event 1A
Monitored cell list size		32	
T1	s	5	
T2	s	5	

**Table 8.6.1.5.2: Cell specific test parameters for event triggered reporting
in multi-cell pedestrian fading propagation condition**

Parameter	Unit	Cell 1		Cell 2		Cell 3		Cell 4	
		T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number		Channel 1		Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior	dB	-10		-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15		-15	
DPCH_Ec/Ior	dB	n.a.		Note 1		Note 1		Note 1	
OCNS_Ec/Ior	dB	-0.941		Note 2		Note 2		Note 2	
$\hat{I}_{or}/I_{oc}$	dB	-∞	1.3	4.3	1.3	4.3	1.3	1.3	4.3
I_{oc}	dBm/3.84 MHz	-70							
Propagation Condition		Case 1 (3km/h) as specified in table D.2.2.1							
CPICH_Ec/Io	dB	-∞	-17.6	-14.6	-17.6	-14.6	-17.6	-17.6	-14.6
$\dfrac{SCH\_\hat{E}_{c,maxpath}}{I_o}$	dB	-∞	-20.0	-17.0	-20.0	-17.0	-20.0	-20.0	-17.0
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 equal to Ior.									
NOTE 3: CPICH_Ec/Io and SCH_Ec_maxpath/Io levels have been calculated from other parameters for information purposes. They are not settable themselves.									

8.6.1.5.4.2   Procedure

1) The RF parameters are set up according to T1 in table 8.6.1.5.1.

2) The UE is switched on.

3) A call is set up with Cell 2 in AWGN conditions, according to the test procedure specified in TS 34.108 [3] sub clause 7.3.2. The scrambling codes are set to Cell1.

4) SS shall transmit a MEASUREMENT CONTROL message.

5) The fading simulator is switched on, configured with the settings in table 8.6.1.5.3.

6) The SS shall send an Active Set Update command with activation time "start of T1" adding cell 3 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 least the RRC procedure delay prior to the beginning of T1.

7) The SS shall send an Active Set Update command with activation time "start of T1" adding cell 4 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 least the RRC procedure delay prior to the beginning of T1. T1 starts.

8) After 5 seconds from the beginning of T1, the SS shall switch the power settings from T1 to T2 according to the parameters defined in table 8.6.1.5.3.

9) UE shall transmit a MEASUREMENT REPORT message for Cell 1 triggered by event 1A containing the CFN-SFN observe time difference between cell 1 and cell 2. 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 the counter event1A_failure is increased by one. If the reporting delay for this event is within the required limit, the counter event1A_success is increased by one.

10) After the SS receives the MEASUREMENT REPORT message in step 9) or 5 seconds after the beginning of T2, the SS shall transmits a RRC Connection Release message to make the UE to transit to idle mode.

11) SS shall set the new primary code group and primary code on Cell 1. Three different primary code groups and primary codes according to Annex I are used to turn on Cell 1. Previous timing information of cell 1 is invalid in the UE. The RF parameters are set up according to T1 in table 8.6.1.5.3.

12) Repeat steps 3-11 according to Annex F.6.2 is achieved. If one counter reaches the pass criterion, this counter is stopped and the remaining counters are continued. For the overall outcome of the test to be considered a pass, the counters for 1A events shall independently indicate a pass result. The test is stopped immediately and the test is considered to be a fail, if any counter reaches an early fail criterion.

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
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
-RRC message sequence number	SS provides the value of this IE, from its internal counter.
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 Measurement type -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

Information Element/Group name	Value/Remark
-Reporting quantities for active set cells (10.3.7.5)	
-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	FALSE
-Reporting quantities for monitored set cells (10.3.7.5)	
-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	FALSE
-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 1	Active set cells and monitored set cells
-Reporting Range Constant	9 dB
-Cells forbidden to affect Reporting Range	Not Present
-W	0
-Hysteresis	0 dB
-Threshold used frequency	Not Present
-Reporting deactivation threshold	Not Present
-Replacement activation threshold	Not Present
-Time to trigger	0 ms
-Amount of reporting	Infinity
-Reporting interval	0 ms (Note 2)
-Reporting cell status	
- CHOICE reported cell	Report cell within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	3
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.

8.6.1.5.5 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%. For the overall outcome of the test to be considered a pass, the counters for Event 1A shall independently indicate a pass result.

**Table 8.6.1.5.3: Test requirements for Cell specific test parameters
for event triggered reporting in multi-cell pedestrian fading propagation condition**

Parameter	Unit	Cell 1		Cell 2		Cell 3		Cell 4	
		T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number		Channel 1		Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior	dB	-9.3		-9.3		-9.3		-9.3	
PCCPCH_Ec/Ior	dB	-11.3		-11.3		-11.3		-11.3	
SCH_Ec/Ior	dB	-11.3		-11.3		-11.3		-11.3	
PICH_Ec/Ior	dB	-14.3		-14.3		-14.3		-14.3	
DPCH_Ec/Ior	dB	n.a.		Note 1		Note 1		Note 1	
OCNS_Ec/Ior	dB	-1.13	-1.19	Note 2		Note 2		Note 2	
$\hat{I}_{or}/I_{oc}$	dB	-∞	1.2	4.2	1.2	4.2	1.2	1.2	4.2
I_{oc}	dBm/3.84 MHz	-70							
Propagation Condition		Case 1 (3km/h) as specified in table D.2.2.1							
CPICH_Ec/Io	dB	-∞	-16.9	-13.9	-16.9	-13.9	-16.9	-16.9	-13.9
	dB	-∞	-19.3	-16.3	-19.3	-16.3	-19.3	-19.3	-16.3
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 equal to I_or.									
NOTE 3: CPICH_Ec/Io and SCH_Ec_maxpath/Io levels have been calculated from other parameters for information purposes. They are not settable themselves.									

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.

8.6.1.6   Event triggered reporting of multiple neighbour cells in Case 3 fading condition

8.6.1.6.1   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 of this test apply to the Release 5 and later FDD UE.

8.6.1.6.2   Minimum requirements

The requirements are the same as in sub clause 8.6.1.1A.2.

The normative reference for these requirements is TS 25.133 [2] clauses 8.1.2.2 and A.8.1.6.

8.6.1.6.3   Test purpose

To verify that the UE meets the minimum requirements. The test is performed in Case 3 fading propagation conditions.

NOTE :   The test case covers only the continuous uplink DPCCH transmission scenario. Hence the test case is effectively the same for all UE releases.

8.6.1.6.4   Method of test

8.6.1.6.4.1   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 8.6.1.5.1 and 8.6.1.5.2. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 1A and Event 1F shall be used and "CFN-SFN-Observed Time Difference" shall be reported. The test consists of two successive time periods, each with time duration of T1 and T2 respectively. During time duration T1, the UE shall not have any timing information of invisible cells.

Table 8.6.1.6.1: General test parameters for event triggered reporting
in multi-cell pedestrian 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	
Active cells		Cell2, Cell3, Cell4	
Hysteresis	dB	0	Applicable for event 1A
Time to Trigger	ms	0	Applicable for event 1A
Filter coefficient		0	Applicable for event 1A and event 1F
Reporting range R_{1a}	dB	8	Applicable for event 1A
W		0	Applicable for event 1A
TriggeringCondition		activeSetAndMonitoredSetCells	Applicable for event 1A
Absolute threshold T_{1f}	dB	-20	Applicable for event 1F
Time to Trigger	ms	0	Applicable for event 1F
TriggeringCondition		activeSet	Applicable for event 1F
Monitored cell list size		32	
T1	s	5	
T2	s	5	

Table 8.6.1.6.2: Cell specific test parameters for event triggered reporting
in multi-cell pedestrian fading propagation condition

Parameter	Unit	Cell 1		Cell 2		Cell 3		Cell 4	
		T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number		Channel 1		Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior	dB	-10		-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12		-12	
SCH_Ec/Ior	dB	-9.3		-9.3		-9.3		-9.3	
PICH_Ec/Ior	dB	-15		-15		-15		-15	
DPCH_Ec/Ior	dB	n.a.		Note 1		Note 1		Note 1	
OCNS_Ec/Ior	dB	Note 2		Note 2		Note 2		Note 2	
$\hat{I}_{or}/I_{oc}$	dB	-∞	1.1	3.6	4.6	3.6	4.6	6.6	-∞
I_{oc}	dBm/3.84 MHz	-70							
Propagation Condition		Case 3 (120km/h)							
CPICH_Ec/Io	dB	-∞	-18.0	-16.5	-14.5	-16.5	-14.5	-13.5	-∞
$\dfrac{SCH\_\hat{E}_{c,\mathrm{maxpath}}}{I_o}$	dB	-∞	-20.0	-18.5	-16.5	18.5	-16.5	-15.5	-∞
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 equal to Ior.									
NOTE 3: CPICH_Ec/Io, SCH_Ec_maxpath/Io, and I_o levels have been calculated from other parameters for information purposes. They are not settable themselves.									

8.6.1.6.4.2 Procedure

1) The RF parameters are set up according to T1 in table 8.6.1.6.1.

2) The UE is switched on.

3) A call is set up with Cell 2 in AWGN conditions, according to the test procedure specified in TS 34.108 [3] sub clause 7.3.2. The scrambling code is set to Cell1.

4) SS shall transmit a MEASUREMENT CONTROL message.

5) The fading simulator is switched on, configured with the settings in table 8.6.1.6.3.

6) The SS shall send an Active Set Update command with activation time "start of T1" adding cell 3 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 least the RRC procedure delay prior to the beginning of T1.

7) The SS shall send an Active Set Update command with activation time "start of T1" adding cell 4 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 least the RRC procedure delay prior to the beginning of T1. T1 starts.

8) After 5 seconds from the beginning of T1, the SS shall switch the power settings from T1 to T2 according to the parameters defined in table 8.6.1.6.3.

9) UE shall transmit a MEASUREMENT REPORT message for Cell 1 triggered by event 1A containing the CFN-SFN observe time difference between cell 1 and cell 2. 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 the counter event1A_failure is increased by one. If the reporting delay for this event is within the required limit, the counter event1A_success is increased by one.

10) During the time period T2, SS shall after the Event 1A triggered measurement is reported send an Active Set Update command with activation time "start of T2" removing cell 4 from 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 least the RRC procedure delay prior to the beginning of T2.

11) UE shall transmit a MEASUREMENT REPORT message for Cell 1 triggered by event 1F containing the CFN-SFN observe time difference between cell 1 and cell 2. 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 the counter event1F_failure is increased by one. If the reporting delay for this event is within the required limit, the counter event1F_success is increased by one.

12) After the SS receives the MEASUREMENT REPORT message in step 11) or 5 seconds after the beginning of T2, the SS shall transmits a RRC Connection Release message to make the UE to transit to idle mode.

13) SS shall set the new primary code group and primary code on Cell 1. Three different primary code groups and primary codes according to Annex I are used to turn on Cell 1. Previous timing information of cell 1 is invalid in the UE. The RF parameters are set up according to T1 in table 8.6.1.6.3.

14) Repeat steps 3-13 according to Annex F.6.2 is achieved. If one counter reaches the pass criterion, this counter is stopped and the remaining counters are continued. For the overall outcome of the test to be considered a pass, the counters for 1A events and for 1F events shall independently indicate a pass result. The test is stopped immediately and the test is considered to be a fail, if any counter reaches an early fail criterion.

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
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/leftmost bit of the bit string contains the most significant bit of the MAC-I.
-RRC message sequence number	SS provides the value of this IE, from its internal counter.
Measurement Information elements -Measurement Identity -Measurement Command (10.3.7.46) -Measurement Reporting Mode (10.3.7.49)	1 Modify

Information Element/Group name	Value/Remark
-Measurement Report Transfer Mode	AM RLC
-Periodical Reporting / Event Trigger Reporting Mode	Event trigger
-Additional measurements list (10.3.7.1)	Not Present
-CHOICE Measurement type	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)	
-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	FALSE
-Reporting quantities for monitored set cells (10.3.7.5)	
-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	FALSE
-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	8 dB
-Cells forbidden to affect Reporting Range	Not Present
-W	0
-Hysteresis	0 dB
-Threshold used frequency	Not Present
-Reporting deactivation threshold	Not Present
-Replacement activation threshold	Not Present
-Time to trigger	0 ms
-Amount of reporting	Infinity
-Reporting interval	0 ms (Note 2)
-Reporting cell status	
- CHOICE reported cell	Report cell within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	3
-Intra-frequency event identity	Event 1F
-Triggering condition 1	Active set cells
-Reporting Range Constant	Not Present
-Cells forbidden to affect Reporting Range	Not Present
-W	Not Present
-Hysteresis	Not Present
-Threshold used frequency	-20 dB
-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	
- CHOICE reported cell	Report cell within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	3

Information Element/Group name	Value/Remark
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.

8.6.1.6.5 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%. For the overall outcome of the test to be considered a pass, the counters for Event 1A and for Event 1F shall independently indicate a pass result.

**Table 8.6.1.6.3: Test requirements for Cell specific test parameters
for event triggered reporting in multi-cell pedestrian fading propagation condition**

Parameter	Unit	Cell 1		Cell 2		Cell 3		Cell 4	
		T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number		Channel 1		Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior	dB	-9.3		-9.3		-9.3		-9.3	
PCCPCH_Ec/Ior	dB	-11.3		-11.3		-11.3		-11.3	
SCH_Ec/Ior	dB	-8.6		-8.6		-8.6		-8.6	
PICH_Ec/Ior	dB	-14.3		-14.3		-14.3		-14.3	
DPCH_Ec/Ior	dB	n.a.		Note 1		Note 1		Note 1	
OCNS_Ec/Ior	dB	Note 2		Note 2		Note 2		Note 2	
$\hat{I}_{or}/I_{oc}$	dB	$-\infty$	0.80	3.3	4.3	3.3	4.3	6.3	$-\infty$
I_{oc}	dBm/3.84 MHz	-70							
Propagation Condition		Case 3 (120km/h)							
CPICH_Ec/Io	dB	$-\infty$	-17.3	-15.8	-13.8	-15.8	-13.8	-12.8	$-\infty$
$\dfrac{SCH\_\hat{E}_{c,\text{maxpath}}}{I_o}$	dB	$-\infty$	-19.3	-17.8	-15.8	-17.8	-15.8	-14.8	$-\infty$
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 equal to I_or.									
NOTE 3: CPICH_Ec/Io, SCH_Ec_maxpath/Io, and I_o levels have been calculated from other parameters for information purposes. They are not settable themselves.									

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 (Release 5 and earlier)

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 all types of UTRA for the FDD UE for Release 5 and earlier releases.

8.6.2.1.2 Minimum requirements

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

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

A cell shall be considered detectable when CPICH Ec/Io $\geq$ -20 dB, SCH_Ec/Io $\geq$ -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 [2] with measurement period given by

$$T_{measurement\ inter} = Max\left\{T_{Measurement\_PeriodInter}, T_{basic\ measurement\ FDD\ inter} \cdot \frac{T_{Measurement\_PeriodInter}}{T_{Inter}} \cdot N_{Freq}\right\} ms$$

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 $X_{basic\ measurement\ FDD\ inter}$ 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 $T_{Measurement\_Inter}$.

$X_{basic\ measurement\ FDDinter} = 6$

$T_{Measurement\_Period\ Inter} = 480$ ms. The period used for calculating the measurement period $T_{measurement\_inter}$ for inter frequency CPICH measurements.

T_{Inter}: This is the minimum time that is available for inter frequency measurements, during the period $T_{Measurement\_Period\ inter}$ 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 [31] and by assuming 2*0.5 ms for implementation margin and after that taking only full slots into account in the calculation.

$T_{basic\_identify\_FDD,inter} = 800$ 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.

$T_{basic\_measurement\_FDD\ inter} = 50$ 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 $T_{identify\ inter}$ defined in Clause 8.1.2.3.1 of 25.133 [2] When L3 filtering is used an additional delay can be expected.

If a cell has been detectable at least for the time period $T_{identify\_inter}$ and then enters or leaves the reporting range, the event triggered measurement reporting delay shall be less than $T_{Measurement\_Period\ Inter}$ 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	Note 1	N/A	N/A
OCNS_Ec/Ior	dB	Note 2	-0.941	-0.941
$\hat{I}_{or}/I_{oc}$	dB	0	-Inf	-Inf
I̅or (Note 3)	dBm	-70	-Inf	-Inf
I_{oc}	dBm/3.84 MHz	-70		
CPICH_Ec/Io	dB	-13	-Inf	-Inf
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 nominal Îor values, although not explicitly defined in 25.133 [2] are added here since they are implied and need to be identified so that the test equipment can be configured.				

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	If required, 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	NOTE: See Annex I for cell information. The 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	Note 1		N/A		N/A	
OCNS_Ec/Ior	dB	Note 2		−0.941		−0.941	
$\hat{I}_{or}/I_{oc}$	dB	0	5.42	-Infinity	3.92	-1.8	-1.8
I$_{or}$ (Note 3)	dBm	-70	-64.58	-Infinity	-66.08	-71.80	-71.80
I_{oc}	dBm/3.84 MHz	-70				-70	
CPICH_Ec/Io	dB	-13	-13	-Infinity	-14.5	-14	-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 nominal Ior values, although not explicitly defined in 25.133 [2] are added here since they are implied and need to be identified so that the test equipment can be configured.							

8.6.2.1.4.2   Procedure

1) The parameters are set up according to table 8.6.2.1.2 and table 8.6.2.1.4.

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. The scrambling code is set to Cell2 and Cell3.

4) SS shall transmit a MEASUREMENT CONTROL message (inter frequency).

5) SS shall transmit a MEASUREMENT CONTROL message (intra frequency).

6) If compressed mode is required, SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message. Otherwise go to step 8.

7) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

8) 5 seconds after the previous step has completed, the SS shall switch the power settings from T0 to T1 according to the parameters defined in table 8.6.2.1.5.

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 the counter event2C_failure is increased by one. If the reporting delay for this event is within the required limit, the counter event2C_success is increased by one.

10) After 10 seconds from the beginning of T1, the SS shall switch the power settings from T1 to T2 according to the parameters defined in table 8.6.2.1.5.

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 UE fails to report the event within the required delay, then the counter event1A_failure is increased by one. If the reporting delay for this event is within the required limit, the counter event1A_success is increased by one.

12) After the SS receive the MEASUREMENT REPORT message in step 11) or 5 seconds after the beginning of T2, the SS shall transmits a RRC Connection Release message to make the UE to transit to idle mode.

13) SS shall sets the new primary code groups and primary codes on Cell2 and Cell3. Three different primary code groups and primary codes according to Annex I are used to turn on Cell2 and Cell3. Previous timing information of Cell 2 and Cell3 are invalid in the UE. The RF parameters are set up according to T0.

14) Repeat steps 3-13 used with three different primary code groups and primary codes on Cell2 and Cell3 until the confidence level according to annex F.6.2 is achieved. If one counter reaches the pass criterion, this counter is stopped and the remaining counters are continued. For the overall outcome of the test to be considered a pass, the counters for 2C events and for 1A events shall independently indicate a pass result. The test is stopped immediately and the test is considered to be a fail, if any counter reaches an early fail criterion.

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	Version
Message Type		
UE Information Elements		
-RRC transaction identifier	0	
-Integrity check info		
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.	
-RRC message sequence number	SS provides the value of this IE, from its internal counter.	
-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	
CN Information Elements		
-CN Information info	Not Present	
UTRAN mobility information elements		
-URA identity	Not Present	

Information Element	Value/Remark	Version
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	FDD	
-Downlink PDSCH information	Not Present	R99 and Rel-4 only
-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	FDD measurement	
-TGPRC	Infinity	
-TGSN	4	
-TGL1	7	
-TGL2	Not Present	
-TGD	UNDEFINED	
-TGPL1	3	
-TGPL2	Not Present	R99 and Rel-4 only
-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	R99 and Rel-4 only
-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	R99 and Rel-4 only
-PDSCH code mapping	Not Present	R99 and Rel-4 only
-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	R99 and

Information Element	Value/Remark	Version
		Rel-4 only
-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	
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
-RRC message sequence number	SS provides the value of this IE, from its internal counter.
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 Measurement type	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	4
- Frequency info	
- CHOICE mode	FDD
- UARFCN uplink(Nu)	Not Present
- UARFCN downlink(Nd)	Same frequency as "Channel2" in Table 8.6.2.1.5
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Set to Primary scrambling code of Cell3
- Primary CPICH Tx Power	Not Present
- Tx Diversity Indicator	FALSE
- Cell for measurement	Not Present
-Inter-frequency measurement quantity (10.3.7.18)	
-CHOICE reporting criteria	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)	
-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	FALSE

Information Element/Group name	Value/Remark
-Reporting cell status (10.3.7.61)	Not Present
-Measurement validity (10.3.7.51)	Not Present
- Inter-frequency set update (10.3.7.22)	
-UE autonomous update mode	On with no reporting
-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
-Hysteresis	0 dB
-Time to trigger	0 ms
-Reporting cell status	
-CHOICE reported cell	Report cells within monitored and/or virtual active set on non-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 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	
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
-RRC message sequence number	SS provides the value of this IE, from its internal counter.
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 Measurement type	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)	
-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	FALSE

Information Element/Group name	Value/Remark
-Reporting quantities for monitored set cells (10.3.7.5)	
-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	FALSE
-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	Infinity
-Reporting interval	0 ms (Note 2)
-Reporting cell status	
-CHOICE reported cell	Report cell within active set and/or monitored set cells on used frequency
-Maximum number of reported cells	3
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%. For the overall outcome of the test to be considered a pass, the counters for 2C events and for 1A events shall independently indicate a pass result.

**Table 8.6.2.1.4: Test requirements for 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	-9.2	-9.2	-9.2
PCCPCH_Ec/Ior	dB	-11.2	-11.2	-11.2
SCH_Ec/Ior	dB	-11.2	-11.2	-11.2
PICH_Ec/Ior	dB	-14.2	-14.2	-14.2
DPCH_Ec/Ior	dB	Note 1	N/A	N/A
OCNS_Ec/Ior	dB	Note 2	-1.16	-1.16
$\hat{I}_{or}/I_{oc}$ (Note 3)	dB	0	-Inf	-Inf
$\hat{I}_{or}$	dBm	-70	-Inf	-Inf
I_{oc}	dBm/3.84 MHz	-70		
CPICH_Ec/Io (Note 3)	dB	-12.21	-Inf	-Inf
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: These parameters are not directly settable, but are derived by calculation from the settable parameters.				

**Table 8.6.2.1.5: Test requirements 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	-9.2		-9.2		-9.2	
PCCPCH_Ec/Ior	dB	-11.2		-11.2		-11.2	
SCH_Ec/Ior	dB	-11.2		-11.2		-11.2	
PICH_Ec/Ior	dB	-14.2		-14.2		-14.2	
DPCH_Ec/Ior	dB	Note 1		N/A		N/A	
OCNS_Ec/Ior	dB	Note 2		-1.16		-1.16	
$\hat{I}_{or}/I_{oc}$ (Note 3)	dB	0	5.42	-Infinity	3.9	-1.8	-1.8
$\hat{I}_{or}$	dBm	-70	-64.6	-Infinity	-66.10	-71.8	-71.8
I_{oc}	dBm/3.84 MHz	-70					
CPICH_Ec/Io (Note 3)	dB	-12.21	-12.20	-Infinity	-13.70	-13.20	-13.20
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: 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.

8.6.2.1A Correct reporting of neighbours in AWGN propagation condition (Release 6 and later)

8.6.2.1A.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 Release 6 and later release for all types of UTRA for the FDD UE.

8.6.2.1A.2 Minimum requirements

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

$$T_{identify,\ inter} = T_{basic\ identify\ FDD,inter} \cdot \frac{T_{Measurement\ Period,Inter}}{T_{Inter}} \cdot N_{Freq} \quad ms$$

A cell shall be considered detectable when CPICH Ec/Io $\geq$ -20 dB, SCH_Ec/Io $\geq$ -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 [2] with measurement period given by

$$T_{measurement\ inter} = Max\left\{ T_{Measurement\_Period\ Inter}, T_{basic\ measurement\ FDD\ inter} \cdot \frac{T_{Measurement\_Period\ Inter}}{T_{Inter}} \cdot N_{Freq} \right\} ms$$

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 $X_{basic\ measurement\ FDD\ inter}$ 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 $T_{Measurement\_Inter}$.

$X_{basic\ measurement\ FDD\ inter} = 6$

$T_{Measurement\_Period\ Inter} = 480$ ms. The period used for calculating the measurement period $T_{measurement\_inter}$ for inter frequency CPICH measurements.

$T_{Inter:}$ This is the minimum time that is available for inter frequency measurements, during the period $T_{Measurement\_Period\ inter}$ 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 [31] and by assuming 2*0.5 ms for implementation margin and after that taking only full slots into account in the calculation.

$T_{basic\_identify\_FDD,inter} = 300$ 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.

$T_{basic\_measurement\_FDD\ inter} = 50$ 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 $T_{identify\ inter}$ defined in Clause 8.1.2.3.1 of 25.133 [2] When L3 filtering is used an additional delay can be expected.

If a cell has been detectable at least for the time period $T_{identify\_inter}$ and then enters or leaves the reporting range, the event triggered measurement reporting delay shall be less than $T_{Measurement\_Period\ Inter}$ 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.

8.6.2.1A.3 Test purpose

To verify that the UE meets the minimum requirements.

8.6.2.1A.4   Method of test

8.6.2.1A.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 8.6.2.1A.1

**Table 8.6.2.1A.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	Note 1	N/A	N/A
OCNS_Ec/Ior	dB	Note 2	-0.941	-0.941
$\hat{I}_{or}/I_{oc}$	dB	0	-Inf	-Inf
I_{or} (Note 3)	dBm	-70	-Inf	-Inf
I_{oc}	dBm/3.84 MHz	-70		
CPICH_Ec/Io	dB	-13	-Inf	-Inf
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 nominal Îor values, although not explicitly defined in 25.133 [2] are added here since they are implied and need to be identified so that the test equipment can be configured.				

The test consists of two successive time periods, with a time duration T1 and T2. The test parameters are given in tables 8.6.2.1A.2 and 8.6.2.1A.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 8.6.2.1A.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	If required, 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	NOTE: See Annex I for cell information. The information is sent before the compressed mode pattern starts.
T1	s	5	
T2	s	5	

**Table 8.6.2.1A.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	Note 1		N/A		N/A	
OCNS_Ec/Ior	dB	Note 2		−0.941		−0.941	
$\hat{I}_{or}/I_{oc}$	dB	0	5.42	-Infinity	3.92	-1.8	-1.8
I$_{or}$ (Note 3)	dBm	-70	-64.58	-Infinity	-66.08	-71.80	-71.80
I_{oc}	dBm/3.84 MHz	-70				-70	
CPICH_Ec/Io	dB	-13	-13	-Infinity	-14.5	-14	-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 nominal Ior values, although not explicitly defined in 25.133 [2] are added here since they are implied and need to be identified so that the test equipment can be configured.							

8.6.2.1A.4.2 Procedure

1) The parameters are set up according to table 8.6.2.1A.2 and table 8.6.2.1A.4.

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. The scrambling code is set to Cell2 and Cell3.

4) SS shall transmit a MEASUREMENT CONTROL message (inter frequency).

5) SS shall transmit a MEASUREMENT CONTROL message (intra frequency).

6) If compressed mode is required, SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message. Otherwise, go to step 8.

7) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

8) 5 seconds after the previous step has completed, the SS shall switch the power settings from T0 to T1 according to the parameters defined in table 8.6.2.1A.5.

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 [3.48] seconds. If the UE fails to report the event within the required delay, then the counter event2C_failure is increased by one. If the reporting delay for this event is within the required limit, the counter event2C_success is increased by one.

10) After 5 seconds from the beginning of T1, the SS shall switch the power settings from T1 to T2 according to the parameters defined in table 8.6.2.1A.5.

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 UE fails to report the event within the required delay, then the counter event1A_failure is increased by one. If the reporting delay for this event is within the required limit, the counter event1A_success is increased by one.

12) After the SS receive the MEASUREMENT REPORT message in step 11) or 5 seconds after the beginning of T2, the SS shall transmits a RRC Connection Release message to make the UE to transit to idle mode.

13) SS shall sets the new primary code groups and primary codes on Cell2 and Cell3. Three different primary code groups and primary codes according to Annex I are used to turn on Cell2 and Cell3. Previous timing information of Cell 2 and Cell3 are invalid in the UE. The RF parameters are set up according to T0.

14) Repeat steps 3-13 used with three different primary code groups and primary codes on Cell2 and Cell3 until the confidence level according to annex F.6.2 is achieved. If one counter reaches the pass criterion, this counter is stopped and the remaining counters are continued. For the overall outcome of the test to be considered a pass, the counters for 2C events and for 1A events shall independently indicate a pass result. The test is stopped immediately and the test is considered to be a fail, if any counter reaches an early fail criterion.

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	Version
Message Type		
UE Information Elements		
-RRC transaction identifier	0	
-Integrity check info		
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.	
-RRC message sequence number	SS provides the value of this IE, from its internal counter.	
-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	
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	FDD	
-Downlink PDSCH information	Not Present	R99 and Rel-4 only
-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	FDD measurement	
-TGPRC	Infinity	
-TGSN	4	
-TGL1	7	
-TGL2	Not Present	

Information Element	Value/Remark	Version
-TGD	UNDEFINED	
-TGPL1	3	
-TGPL2	Not Present	R99 and Rel-4 only
-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	R99 and Rel-4 only
-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	R99 and Rel-4 only
-PDSCH code mapping	Not Present	R99 and Rel-4 only
-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	R99 and Rel-4 only
-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	
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
-RRC message sequence number	SS provides the value of this IE, from its internal counter.
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

Information Element/Group name	Value/Remark
-CHOICE Measurement type	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	4
- Frequency info	
- CHOICE mode	FDD
- UARFCN uplink(Nu)	Not Present
- UARFCN downlink(Nd)	Same frequency as "Channel2" in Table 8.6.2.1.5
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Set to Primary scrambling code of Cell3
- Primary CPICH Tx Power	Not Present
- Tx Diversity Indicator	FALSE
- Cell for measurement	Not Present
-Inter-frequency measurement quantity (10.3.7.18)	
-CHOICE reporting criteria	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)	
-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	FALSE
-Reporting cell status (10.3.7.61)	Not Present
-Measurement validity (10.3.7.51)	Not Present
- Inter-frequency set update (10.3.7.22)	
-UE autonomous update mode	On with no reporting
-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
-Hysteresis	0 dB
-Time to trigger	0 ms
-Reporting cell status	
-CHOICE reported cell	Report cells within monitored and/or virtual active set on non-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 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	
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
-RRC message sequence number	SS provides the value of this IE, from its internal counter.
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 Measurement type	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)	
-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	FALSE
-Reporting quantities for monitored set cells (10.3.7.5)	
-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	FALSE
-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	Infinity
-Reporting interval	0 ms (Note 2)
-Reporting cell status	
-CHOICE reported cell	Report cell within active set and/or monitored set cells on used frequency
-Maximum number of reported cells	3

Information Element/Group name	Value/Remark
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.

8.6.2.1A.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%. For the overall outcome of the test to be considered a pass, the counters for 2C events and for 1A events shall independently indicate a pass result.

**Table 8.6.2.1A.4: Test requirements for 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	-9.2	-9.2	-9.2
PCCPCH_Ec/Ior	dB	-11.2	-11.2	-11.2
SCH_Ec/Ior	dB	-11.2	-11.2	-11.2
PICH_Ec/Ior	dB	-14.2	-14.2	-14.2
DPCH_Ec/Ior	dB	Note 1	N/A	N/A
OCNS_Ec/Ior	dB	Note 2	-1.16	-1.16
$\hat{I}_{or}/I_{oc}$ (Note 3)	dB	0	-Inf	-Inf
I_{or}	dBm	-70	-Inf	-Inf
I_{oc}	dBm/3.84 MHz	-70		
CPICH_Ec/Io (Note 3)	dB	-12.21	-Inf	-Inf
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: These parameters are not directly settable, but are derived by calculation from the settable parameters.				

**Table 8.6.2.1A.5: Test requirements 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	-9.2		-9.2		-9.2	
PCCPCH_Ec/Ior	dB	-11.2		-11.2		-11.2	
SCH_Ec/Ior	dB	-11.2		-11.2		-11.2	
PICH_Ec/Ior	dB	-14.2		-14.2		-14.2	
DPCH_Ec/Ior	dB	Note 1		N/A		N/A	
OCNS_Ec/Ior	dB	Note 2		-1.16		-1.16	
$\hat{I}_{or}/I_{oc}$ *(Note 3)*	dB	0	5.42	-Infinity	3.9	-1.8	-1.8
I$_{or}$	dBm	-70	-64.6	-Infinity	-66.10	-71.8	-71.8
I_{oc}	dBm/3.84 MHz	-70					
CPICH_Ec/Io *(Note 3)*	dB	-12.21	-12.20	-Infinity	-13.70	-13.20	-13.20
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: 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.

8.6.2.2 Correct reporting of neighbours in fading propagation condition (Release 5 only)

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 for Release 5 only to all types of UTRA for the FDD UE.

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: mid 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 C.3.1 and C.2.1
Power Control		On	
Compressed mode		C.5.2 set 2 (TGPL1=12)	If required, as specified in C.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	NOTE: See Annex I for cell information. The information is sent before the compressed mode pattern starts.
Propagation Condition		Case 5	As specified in Annex D
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/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	Note 1		N/A	
OCNS_Ec/Ior	dB	Note 2		-0.941	
$\hat{I}_{or}/I_{oc}$	dB	0		-Infinity	-1.8
I_{or} (Note 3)	dBm	-70		-Infinity	-71.8
I_{oc}	dBm/3.84 MHz	-70		-70	
CPICH_Ec/Io	dB	-13		-Infinity	-14
Propagation Condition		Case 5 as specified in Annex D			
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 nominal Îor values, although not explicitly defined in 25.133 [2] are added here since they are implied and need to be identified so that the test equipment can be configured.					

8.6.2.2.4.2   Procedure

1)   The RF parameters are set up according to T1 in table 8.6.2.2.4.3.

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. The scrambling code is set to Cell2.

4)   SS shall transmit a MEASUREMENT CONTROL message.

5)   If compressed mode is required, SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message. Otherwise go to step 6.

6) The fading simulator is switched on, configured with settings in table 8.6.2.2.4.3. T1 starts.

7) After 2 seconds from the beginning of T1, the SS shall switch the power settings from T1 to T2 according to the parameters defined in table 8.6.2.2.4.3.

8) 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.

9) After the SS receive the MEASUREMENT REPORT message in step 8) or 40 seconds after the beginning of T2, the SS shall transmits a RRC Connection Release message to make the UE to transit to idle mode.

10) SS shall sets the new primary code group and primary code on Cell2. Three different primary code groups and primary codes according to Annex I are used to turn on Cell2. Previous timing information of Cell 2 is invalid in the UE. The RF parameters are set up according to T1.

11) Repeat steps 3-10 until the confidence level is achieved 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 -Integrity check info	0
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
-RRC message sequence number	SS provides the value of this IE, from its internal counter.
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 Measurement type
-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 for measurement
 -Inter-frequency measurement quantity (10.3.7.18)
  -CHOICE reporting criteria
	Inter-frequency measurement
	
	Not Present
	
	4
	
	FDD
	Not Present
	Same frequency as "Channel2" in Table 8.6.2.2.4.3
	
	Not Present
	Not Present
	FALSE
	FDD
	
	Set to Primary scrambling code of Cell2
	Not Present
	FALSE
	Not Present
	
	Inter-frequency reporting criteria

Information Element/Group name	Value/Remark
-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)	
-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	FALSE
-Reporting cell status (10.3.7.61)	Not Present
-Measurement validity (10.3.7.51)	Not Present
- Inter-frequency set update (10.3.7.22)	
-UE autonomous update mode	On with no reporting
-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
-Hysteresis	0 dB
-Time to trigger	0 ms
-Reporting cell status	
-CHOICE reported cell	Report cells within monitored and/or virtual active set on non-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.	

PHYSICAL CHANNEL RECONFIGURATION message for Inter frequency measurement:

Information Element	Value/Remark	Version
Message Type		
UE Information Elements		
-RRC transaction identifier	0	
-Integrity check info		
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.	
-RRC message sequence number	SS provides the value of this IE, from its internal counter.	
-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	
CN Information Elements		
-CN Information info	Not Present	
UTRAN mobility information elements		
-URA identity	Not Present	

Information Element	Value/Remark	Version
RB information elements		
-Downlink counter synchronisation info	Not Present	
PhyCH information elements		
-Frequency info	Not Present	
Uplink radio resources		
-Maximum allowed UL TX power	33 dBm	
Downlink radio resources		
-CHOICE *mode*	FDD	
-Downlink PDSCH information	Not Present	R99 and Rel-4 only
-Downlink information common for all radio links (10.3.6.24)		
-Downlink DPCH info common for all RL (10.3.6.18)	Not Present	
-CHOICE mode	FDD	
-DPCH compressed mode info (10.3.6.33)		
-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	FDD measurement	
-TGPRC	Infinity	
-TGSN	4	
-TGL1	7	
-TGL2	Not Present	
-TGD	UNDEFINED	
-TGPL1	12	
-TGPL2	Not Present	R99 and Rel-4 only
-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 (10.3.6.86)	Not Present	
-SSDT information (10.3.6.77)	Not Present	R99 and Rel-4 only
-Default DPCH Offset Value (10.3.6.16)	Not Present	
-Downlink information per radio link list		
-Downlink information for each radio link (10.3.6.27)		
-CHOICE mode	FDD	
-Primary CPICH info (10.3.6.60)		
-Primary scrambling code	100	
-PDSCH with SHO DCH info (10.3.6.47)	Not Present	R99 and Rel-4 only
-PDSCH code mapping (10.3.6.43)	Not Present	R99 and Rel-4 only
-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	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	R99 and Rel-4 only
- 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

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.

Table 8.6.2.2.4.3: Test requirements 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/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	Note 1		N/A	
OCNS_Ec/Ior	dB	Note 2		-1.16	
$\hat{I}_{or}/I_{oc}$ (Note 3)	dB	0		-Infinity	-1.8
I$_{or}$	dBm	-70		-Infinity	-71.8
I_{oc}	dBm/3.84 MHz	-70			
CPICH_Ec/Io (Note 3)	dB	-12.21		-Infinity	-13.2
Propagation Condition		Case 5 as specified in Annex D			
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: 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.

8.6.2.2A Correct reporting of neighbours in fading propagation condition (Release 6 and later)

8.6.2.2A.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 for Release 6 and later releases to all types of UTRA for the FDD UE.

8.6.2.2A.2 Minimum requirements

The requirements are the same as in sub clause 8.6.2.1A.2.

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

8.6.2.2A.3 Test purpose

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

8.6.2.2A.4 Method of test

8.6.2.2A.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 8.6.2.2A.4.1 and 8.6.2.2A.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 8.6.2.2A.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 C.3.1 and C.2.1
Power Control		On	
Compressed mode		C.5.2 set 2 (TGPL1=12)	If required, as specified in C.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	NOTE: See Annex I for cell information. The information is sent before the compressed mode pattern starts.
Propagation Condition		Case 5	As specified in Annex D
Frequency offset	ppm	+/- 0.1	Frequency offset between Cell 1 and Cell 2.
T1	s	2	
T2	s	15	

**Table 8.6.2.2A.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/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	Note 1		N/A	
OCNS_Ec/Ior	dB	Note 2		-0.941	
$\hat{I}_{or}/I_{oc}$	dB	0		-Infinity	-1.8
I$_{or}$ (Note 3)	dBm	-70		-Infinity	-71.8
I_{oc}	dBm/3.84 MHz	-70		-70	
CPICH_Ec/Io	dB	-13		-Infinity	-14
Propagation Condition		Case 5 as specified in Annex D			
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 nominal Îor values, although not explicitly defined in 25.133 [2] are added here since they are implied and need to be identified so that the test equipment can be configured.					

8.6.2.2A.4.2 Procedure

1) The RF parameters are set up according to T1 in table 8.6.2.2A.4.3.

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. The scrambling code is set to Cell2.

4) SS shall transmit a MEASUREMENT CONTROL message.

5) If compressed mode is required, SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message. Otherwise, go to step 6.

6) The fading simulator is switched on, configured with settings in table 8.6.2.2A.4.3. T1 starts.

7) After 2 seconds from the beginning of T1, the SS shall switch the power settings from T1 to T2 according to the parameters defined in table 8.6.2.2A.4.3.

8) UE shall transmit a MEASUREMENT REPORT message triggered by event 2C. The measurement reporting delay from the beginning of T2 shall be less than [13.9] 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.

9) After the SS receive the MEASUREMENT REPORT message in step 8) or 15 seconds after the beginning of T2, the SS shall transmits a RRC Connection Release message to make the UE to transit to idle mode.

10) SS shall sets the new primary code group and primary code on Cell2. Three different primary code groups and primary codes according to Annex I are used to turn on Cell2. Previous timing information of Cell 2 is invalid in the UE. The RF parameters are set up according to T1.

11) Repeat steps 3-10 until the confidence level is achieved 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 -Integrity check info	0
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
-RRC message sequence number	SS provides the value of this IE, from its internal counter.
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 Measurement type
 -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
	Inter-frequency measurement
	
	Not Present
	
	4
	
	FDD
	Not Present
	Same frequency as "Channel2" in Table 8.6.2.2.4.3
	
	Not Present
	Not Present
	FALSE

Information Element/Group name	Value/Remark
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Set to Primary scrambling code of Cell2
- Primary CPICH Tx Power	Not Present
- Tx Diversity Indicator	FALSE
- Cell for measurement	Not Present
-Inter-frequency measurement quantity (10.3.7.18)	
-CHOICE reporting criteria	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)	
-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	FALSE
-Reporting cell status (10.3.7.61)	Not Present
-Measurement validity (10.3.7.51)	Not Present
- Inter-frequency set update (10.3.7.22)	
-UE autonomous update mode	On with no reporting
-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
-Hysteresis	0 dB
-Time to trigger	0 ms
-Reporting cell status	
-CHOICE reported cell	Report cells within monitored and/or virtual active set on non-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.	

PHYSICAL CHANNEL RECONFIGURATION message for Inter frequency measurement:

Information Element	Value/Remark	Version
Message Type		
UE Information Elements		
-RRC transaction identifier	0	
-Integrity check info		
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.	
-RRC message sequence number	SS provides the value of this IE, from its internal counter.	
-Integrity protection mode info	Not Present	
-Ciphering mode info	Not Present	
-Activation time	Not Present	
-New U-RNTI	Not Present	

Information Element	Value/Remark	Version
-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	Not Present	
Uplink radio resources		
-Maximum allowed UL TX power	33 dBm	
Downlink radio resources		
-CHOICE *mode*	FDD	
-Downlink PDSCH information	Not Present	R99 and Rel-4 only
-Downlink information common for all radio links (10.3.6.24)		
-Downlink DPCH info common for all RL (10.3.6.18)	Not Present	
-CHOICE mode	FDD	
-DPCH compressed mode info (10.3.6.33)		
-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	FDD measurement	
-TGPRC	Infinity	
-TGSN	4	
-TGL1	7	
-TGL2	Not Present	
-TGD	UNDEFINED	
-TGPL1	12	
-TGPL2	Not Present	R99 and Rel-4 only
-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 (10.3.6.86)	Not Present	
-SSDT information (10.3.6.77)	Not Present	R99 and Rel-4 only
-Default DPCH Offset Value (10.3.6.16)	Not Present	
-Downlink information per radio link list		
-Downlink information for each radio link (10.3.6.27)		
-CHOICE mode	FDD	
-Primary CPICH info (10.3.6.60)		
-Primary scrambling code	100	
-PDSCH with SHO DCH info (10.3.6.47)	Not Present	R99 and Rel-4 only
-PDSCH code mapping (10.3.6.43)	Not Present	R99 and Rel-4 only
-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	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	

Information Element	Value/Remark	Version
-Code number	96	
-Scrambling code change	No code change	
-TPC combination index	0	
- SSDT Cell Identity	Not Present	R99 and Rel-4 only
- 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

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

8.6.2.2A.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.

**Table 8.6.2.2A.4.3: Test requirements 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/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	Note 1		N/A	
OCNS_Ec/Ior	dB	Note 2		-1.16	
$\hat{I}_{or}/I_{oc}$ (Note 3)	dB	0		-Infinity	-1.8
I$_{or}$	dBm	-70		-Infinity	-71.8
I_{oc}	dBm/3.84 MHz	-70			
CPICH_Ec/Io (Note 3)	dB	-12.21		-Infinity	-13.2
Propagation Condition	Case 5 as specified in Annex D				
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: 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.

8.6.2.3 Correct reporting of neighbours in fading propagation condition using TGL1=14

8.6.2.3.1 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 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 for Release 6 and later releases to all types of UTRA for the FDD UE.

8.6.2.3.2 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.8.2.3.

8.6.2.3.3 Test purpose

To verify that the UE meets the minimum requirements. The test is performed in fading propagation conditions using TGL1=14.

8.6.2.3.4 Method of test

8.6.2.3.4.1 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.

The test parameters are given in table 8.6.2.3.4.1 and 8.6.2.3.4.2. 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 8.6.2.3.4.1: General test parameters for correct reporting
of neighbours in fading propagation condition using TGL1=14**

Parameter	Unit	Value	Comment
DCH parameters		DL 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 4 (TGPL1=4)	As specified in C.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	NOTE: See Annex I for cell information. The information is sent before the compressed mode pattern starts.
Propagation Condition		Case 5	As specified in Annex D
Frequency offset	ppm	+/- 0.1	Frequency offset between Cell 1 and Cell 2.
T1	s	2	
T2	s	2	

**Table 8.6.2.3.4.2: Cell specific test parameters for correct reporting
of neighbours in fading propagation condition using TGL1=14**

Parameter	Unit	Cell 1		Cell 2	
		T1	T2	T1	T2
UTRA RF Channel Number		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	Note 1		N/A	
OCNS		Note 2		-0.941	
$\hat{I}_{or}/I_{oc}$	dB	0		-Infinity	-1.8
$\hat{I}_{or}$ (Note 3)	dB	-70		-Infinity	-71.8
I_{oc}	dBm/3.84 MHz	-70		-70	
CPICH_Ec/Io	dB	-13		-Infinity	-14
Propagation Condition	Case 5 as specified in Annex D				
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 nominal Îor values, although not explicitly defined in 25.133 [2] are added here since they are implied and need to be identified so that the test equipment can be configured.					

8.6.2.3.4.2 Procedure

1) The RF parameters are set up according to T1 in table 8.6.2.3.4.3.

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. The scrambling code is set to Cell2.

4) SS shall transmit a MEASUREMENT CONTROL message.

5) SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message.

6) The fading simulator is switched on, configured with settings in table 8.6.2.3.4.3. T1 starts.

7) After 2 seconds from the beginning of T1, the SS shall switch the power settings from T1 to T2 according to the parameters defined in table 8.6.2.3.4.3.

8) UE shall transmit a MEASUREMENT REPORT message triggered by event 2C. The measurement reporting delay from the beginning of T2 shall be less than [1.78] 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.

9) After the SS receive the MEASUREMENT REPORT message in step 8) or 2 seconds after the beginning of T2, the SS shall transmits a RRC Connection Release message to make the UE to transit to idle mode.

10) SS shall sets the new primary code group and primary code on Cell2. Three different primary code groups and primary codes according to Annex I are used to turn on Cell2. Previous timing information of Cell 2 is invalid in the UE. The RF parameters are set up according to T1.

11) Repeat steps 3-10 until the confidence level is achieved 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	
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
-RRC message sequence number	SS provides the value of this IE, from its internal counter.
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 Measurement type	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	4
- Frequency info	
- CHOICE mode	FDD
- UARFCN uplink(Nu)	Not Present
- UARFCN downlink(Nd)	Same frequency as "Channel2" in Table 8.6.2.3.4.3
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Set to Primary scrambling code of Cell2
- Primary CPICH Tx Power	Not Present
- Tx Diversity Indicator	FALSE
- Cell for measurement	Not Present
-Inter-frequency measurement quantity (10.3.7.18)	
-CHOICE reporting criteria	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)	
-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	FALSE
-Reporting cell status (10.3.7.61)	Not Present
-Measurement validity (10.3.7.51)	Not Present
- Inter-frequency set update (10.3.7.22)	
-UE autonomous update mode	On with no reporting
-CHOICE report criteria	Inter-frequency measurement reporting criteria
-Inter-frequency measurement reporting criteria (10.3.7.19)	
-Parameters required for each event	1

Information Element/Group name	Value/Remark
-Inter-frequency event identity	Event 2C
-Threshold used frequency	Not present
-W used frequency	Not present
-Hysteresis	0 dB
-Time to trigger	0 ms
-Reporting cell status	
-CHOICE reported cell	Report cells within monitored and/or virtual active set on non-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.	

PHYSICAL CHANNEL RECONFIGURATION message for Inter frequency measurement:

Information Element	Value/Remark	Version
Message Type		
UE Information Elements		
-RRC transaction identifier	0	
-Integrity check info		
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.	
-RRC message sequence number	SS provides the value of this IE, from its internal counter.	
-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	
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	33 dBm	
Downlink radio resources		
-CHOICE *mode*	FDD	
-Downlink PDSCH information	Not Present	R99 and Rel-4 only
-Downlink information common for all radio links (10.3.6.24)		
-Downlink DPCH info common for all RL (10.3.6.18)	Not Present	
-CHOICE mode	FDD	
-DPCH compressed mode info (10.3.6.33)		
-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	FDD measurement	

Information Element	Value/Remark	Version
-TGPRC	Infinity	
-TGSN	8	
-TGL1	14	
-TGL2	Not Present	
-TGD	UNDEFINED	
-TGPL1	4	
-TGPL2	Not Present	R99 and Rel-4 only
-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 (10.3.6.86)	Not Present	
-SSDT information (10.3.6.77)	Not Present	R99 and Rel-4 only
-Default DPCH Offset Value (10.3.6.16)	Not Present	
-Downlink information per radio link list		
-Downlink information for each radio link (10.3.6.27)		
-CHOICE mode	FDD	
-Primary CPICH info (10.3.6.60)		
-Primary scrambling code	100	
-PDSCH with SHO DCH info (10.3.6.47)	Not Present	R99 and Rel-4 only
-PDSCH code mapping (10.3.6.43)	Not Present	R99 and Rel-4 only
-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	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	R99 and Rel-4 only
- 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

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

8.6.2.3.5 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% 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.

**Table 8.6.2.3.4.3: Test requirements 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/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	Note 1		N/A	
OCNS_Ec/Ior	dB	Note 2		-1.16	
$\hat{I}_{or}/I_{oc}$ *(Note 3)*	dB	0		-Infinity	-1.8
I$_{or}$	dBm	-70		-Infinity	-71.8
I_{oc}	dBm/3.84 MHz	-70			
CPICH_Ec/Io *(Note 3)*	dB	-12.21		-Infinity	-13.2
Propagation Condition	Case 5 as specified in Annex D				
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: 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.

8.6.3 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 for Release 99 and Release 4 only.

8.6.3.1.2 Minimum requirement

8.6.3.1.2.1 3.84Mcps TDD option

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

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

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

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

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 $X_{basic\ measurement\ TDD\ inter}$ 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 $T_{measurement\ TDD\ inter}$.

where

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

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

$N_{TDD\ inter}$. 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 $T_{Measurement\_Period\ TDD\ inter}$ with an arbitrarily chosen timing.

$N_{basic\_identify\_TDD\ inter} = 80$. 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.

$N_{basic\_measurement\_TDD\ inter} = 5$. This is the number of transmission gap patterns in a transmission gap pattern sequence for inter-frequency TDD measurements during the time period $T_{Measurement\_Period\ TDD\ inter}$ 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.

8.6.3.1.2.2   1.28Mcps TDD option

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

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

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 $\geq$ -8 dB and DwPCH_Ec/Io $\geq$ -5 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

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

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 $X_{basic\ measurement\ TDD\ inter}$ 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 $T_{measurement\ TDD\ inter}$.

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

8.6.3.1.4.1.1 3.84Mcps TDD option

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 3.84Mcps 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/Ior	dB	-10
P-CCPCH_Ec/Ior	dB	-12
SCH_Ec/Ior	dB	-12
PICH_Ec/Ior	dB	-15
DPCH_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 8.6.3.1.3: Cell 2 specific parameters for Correct reporting
of TDD inter-frequency neighbours in AWGN propagation condition**

Parameter	Unit	Cell 2			
DL timeslot number		**0**		**8**	
		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_t$_{offset}$	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: 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.					

8.6.3.1.4.1.2   1.28Mcps TDD option

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 8.6.3.1.1A, 8.6.3.1.2A and 8.6.3.1.3A. 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 1.28Mcps 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 8.6.3.1.1A: 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 25.101 section A.3.1
Power Control			On	
Target quality value on DTCH		BLER	0.01	
Compressed mode			A.22 set 3	As specified in TS25.101 section A.5
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 8.6.3.1.2A: 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/Ior	dB	-10
P-CCPCH_Ec/Ior	dB	-12
SCH_Ec/Ior	dB	-12
PICH_Ec/Ior	dB	-15
DPCH_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 8.6.3.1.3A: Cell 2 specific parameters for Correct reporting
of TDD inter-frequency neighbours in AWGN propagation condition**

Parameter	Unit	Cell 2			
DL timeslot number		0		DwPTs	
		T1	T2	T1	T2
UTRA RF Channel Number		Channel 2			
P-CCPCH_Ec/Ior	dB	-3			
DwPCH_Ec/Ior	dB			0	
OCNS_Ec/Ior	dB	-3			
P-CCPCH RSCP	dBm	-75	-67		
$\hat{I}_{or}/I_{oc}$	dB	-2	6	-2	6
I_{oc}	dBm/1.28 MHz	-70			
Propagation Condition		AWGN			

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.

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	
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/leftmost bit of the bit string contains the most significant bit of the MAC-I.
-RRC message sequence number	SS provides the value of this IE, from its internal counter.
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 Measurement type	Inter-frequency measurement
-Inter-frequency measurement (10.3.7.16)	
-Inter-frequency measurement objects list (10.3.7.13)	
-CHOICE inter-frequency cell removal	No inter-frequency cells removed
-New inter-frequency cells	1
-Inter-frequency cell id	1
-Frequency info (10.3.6.36)	
-CHOICE *mode*	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 *mode*	TDD
-Primary CCPCH info (10.3.6.57)	
-CHOICE mode	TDD
-3.84Mcps	
-CHOICE Sync case	2
-Timeslot	0
-1.28 Mcps	
- TSTD indicator	True
-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 reporting criteria	Inter-frequency reporting criteria
-Filter coefficient (10.3.7.9)	0
-CHOICE *mode*	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)	
-Cell synchronisation information reporting indicator	FALSE
-Cell identity reporting indicator	FALSE

Information Element/Group name	Value/Remark
-CHOICE mode	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 report criteria	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
-Reporting Cell Status (10.3..61)	
-CHOICE reported cell	Report cells within active and/or monitored set on used frequency or within virtual active and/or monitored set on non-used frequency
-Maximum number of reported cells	3
-Parameters required for each non-used frequency	
- Threshold non-used frequency	-71
- W non-used frequency	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	Version
Message Type		
UE Information Elements -RRC transaction identifier	0	
-Integrity check info		
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.	
-RRC message sequence number	SS provides the value of this IE, from its internal counter.	
-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	
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	FDD	
-Downlink PDSCH information	Not Present	R99 and Rel-4 only
-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		

Information Element	Value/Remark	Version
-TGPSI	1	
-TGPS Status Flag	Activate	
-TGCFN	(Current CFN + (256 – TTI/10msec))mod 256	
-Transmission gap pattern sequence configuration parameters		
-TGMP	TDD measurement	
-TGPRC	Not present	
-TGSN	10	
-TGL1	10	
-TGL2	Not Present	
-TGD	UNDEFINED	
-TGPL1	11	
-TGPL2	Not Present	R99 and Rel-4 only
-RPP	Mode 0	
-ITP	Mode 0	
-CHOICE UL/DL mode	UL and DL	
-Downlink compressed mode method	SF/2	
-Uplink compressed mode method	puncturing	
-Downlink frame type	A	
-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	R99 and Rel-4 only
-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	R99 and Rel-4 only
-PDSCH code mapping	Not Present	R99 and Rel-4 only
-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	R99 and Rel-4 only
-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	
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
-RRC message sequence number	SS provides the value of this IE, from its internal counter.
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
-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 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 [2] 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 the ARFCN of cell 2	See Annex I for cell information. Measurement control information is sent before the compressed mode patterns starts.
N Identify abort		66	Taken from table 8.7 in TS 25.133 [2].
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
		T0,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_Ec/Ior	dB	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			
		T0	T1	T2	T3
Absolute RF Channel Number		ARFCN 1			
RXLEV	dBm	-Infinity	-Infinity	-75	-85

8.6.4.1.4.2 Test 1 Procedure

1) The RF parameters are set up according to T0 in Table 8.6.4.2 and 8.6.4.7.

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. The RF parameters are set up according to T1 in Table 8.6.4.2 and 8.6.4.7.

4) If compressed mode is required, SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message. Otherwise go to step 6.

5) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

6) SS shall transmit a MEASUREMENT CONTROL message.

7) After 5 seconds from the beginning of T1, the SS shall switch the power settings from T1 to T2 in Table 8.6.4.2 and 8.6.4.7.

8) UE shall transmit a MEASUREMENT REPORT message triggered by event 3C. The measurement reporting delay from the beginning of T2 shall be less than 6.32s. If the UE fails to report the event within the required delay, then the counter event3C_failure is increased by one. If the reporting delay for this event is within the required limit, the counter event3C_success is increased by one.

9) After 7 seconds from the beginning of T2, the SS shall switch the power settings from T2 to T3 in Table 8.6.4.2 and 8.6.4.7.

10) UE shall transmit a MEASUREMENT REPORT message triggered by event 3B. The measurement reporting delay from the beginning of T3 shall be less than 1040 ms. If the UE fails to report the event within the required delay, then. The counter event3B_failure is increased by one. If the reporting delay for this event is within the required limit, the counter event3B_success is increased by one.

11) After the SS receive the MEASUREMENT REPORT message in step 10) or 5 seconds after the beginning of T3, the UE is switched off.

12) Repeat steps 1-11according to Annex F.6.2 Table F.6.2.8. If one counter reaches the pass criterion, this counter is stopped and the remaining counters are continued. For the overall outcome of the test to be considered a pass, the counters for 3C events and for 3B events shall independently indicate a pass result. The test is stopped immediately and the test is considered to be a fail, if any counter reaches an early fail criterion.

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 Rat measurement (step 4):

Information Element	Value/Remark	Version
Message Type (10.2.22)		
UE Information Elements		
-RRC transaction identifier	0	
-Integrity check info		
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.	
-RRC message sequence number	SS provides the value of this IE, from its internal counter.	
-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	
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)	Not Present	
Uplink radio resources		
-Maximum allowed UL TX power	33 dBm	
-CHOICE channel requirement	Not Present	
Downlink radio resources		
-CHOICE *mode*	FDD	
-Downlink PDSCH information	Not Present	R99 and Rel-4 only
-Downlink information common for all radio links (10.3.6.24)		
-Downlink DPCH info common for all RL (10.3.6.18)	Not Present	
-CHOICE mode	FDD	
-DPCH compressed mode info (10.3.6.33)		
- Transmission gap pattern sequence	(1/2 TGPS)	
- TGPSI	1	
- TGPS Status Flag	deactivate	
- Transmission gap pattern sequence configuration parameters		
-TGMP	GSM carrier RSSI measurement	
-TGPRC	Infinity	
-TGSN	4	
-TGL1	7	
-TGL2	Not Present	
-TGD	UNDEFINED	
-TGPL1	12	
-TGPL2	Not Present	R99 and Rel-4 only
-RPP	mode 0	
-ITP	mode 0	

Information Element	Value/Remark	Version
-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	
- Transmission gap pattern sequence	(2/2 TGPS)	
- TGPSI	2	
- TGPS Status Flag	deactivate	
- Transmission gap pattern sequence configuration parameters		
-TGMP	gsm-initialBSICIdentification	
-TGPRC	Infinity	
-TGSN	4	
-TGL1	7	
-TGL2	Not Present	
-TGD	UNDEFINED	
-TGPL1	8	
-TGPL2	Not Present	
-RPP	mode 0	
-ITP	mode 0	
-CHOICE UL/DL mode	UL 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	66	
-T Reconfirm abort	Not Present	
-SSDT information (10.3.6.77)	Not Present	R99 and Rel-4 only
-Default DPCH Offset Value (10.3.6.16)	Not Present	
-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	100	
-PDSCH with SHO DCH info (10.3.6.47)	Not Present	R99 and Rel-4 only
-PDSCH code mapping (10.3.6.43)	Not Present	R99 and Rel-4 only
-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	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 change	
-TPC combination index	0	
- SSDT Cell Identity	Not Present	R99 and Rel-4 only
- Closed loop timing adjustment mode	Not Present	
- SCCPCH information for FACH (10.3.6.70)	Not Present	

MEASUREMENT CONTROL message:

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
-RRC message sequence number	SS provides the value of this IE, from its internal counter.
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 Measurement type	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)	
- UTRAN estimated quality	FALSE
- CHOICE system	GSM
- Observed time difference to GSM cell reporting indicator	FALSE
- GSM Carrier RSSI reporting indicator	FALSE
-Reporting cell status (10.3.7.61)	Not Present
-CHOICE report criteria	Inter-RAT measurement reporting criteria
-Inter-RAT measurement reporting criteria (10.3.7.30)	
-Parameters required for each event	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)	If compressed mode is required, Active (for two patterns specified in table 8.6.4.1). Otherwise, this should be Not Present.

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 the ARFCN of cell 2	See Annex I for cell information. 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
		T0, 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_Ec/Ior	dB	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 8.6.4.6: Cell specific test parameters for Correct reporting
of GSM neighbours in AWGN propagation condition (cell 2)**

Parameter	Unit	Cell 2			
		T0	T1	T2	T3
Absolute RF Channel Number		ARFCN 1			
RXLEV	dBm	-Infinity	-Infinity	-75	-85

8.6.4.1.4.4   Test 2 Procedure

1) The RF parameters are set up according to T0 in Table 8.6.4.5 and 8.6.4.8.

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. The RF parameters are set up according to T1 in Table 8.6.4.5 and 8.6.4.8.

4) If compressed mode is required, SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message. Otherwise, go to step 6.

5) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message

6) SS shall transmit a MEASUREMENT CONTROL message.

7) After 5 seconds from the beginning of T1, the SS shall switch the power settings from T1 to T2 in Table 8.6.4.5 and 8.6.4.8.

8) UE shall transmit a MEASUREMENT REPORT message triggered by event 3C. The measurement reporting delay from the beginning of T2 shall be less than 1040 ms. If the UE fails to report the event within the required delay, then the counter event3C_failure is increased by one. If the reporting delay for this event is within the required limit, the counter event3C_success is increased by one.

9) After 2 seconds from the beginning of T2, the SS shall switch the power settings from T2 to T3 in Table 8.6.4.5 and 8.6.4.8.

10) UE shall transmit a MEASUREMENT REPORT message triggered by event 3B. The measurement reporting delay from the beginning of T3 shall be less than 1040 ms. If the UE fails to report the event within the required delay, then the counter event3B_failure is increased by one. If the reporting delay for this event is within the required limit, the counter event3B_success is increased by one.

11) After the SS receive the MEASUREMENT REPORT message in step 10) or 5 seconds after the beginning of T3, the UE is switched off.

12) Repeat steps 1-11 according to Annex F.6.2 Table F.6.2.8. If one counter reaches the pass criterion, this counter is stopped and the remaining counters are continued. For the overall outcome of the test to be considered a pass, the counters for 3C events and for 3B events shall independently indicate a pass result. The test is stopped immediately and the test is considered to be a fail, if any counter reaches an early fail criterion.

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 Rat measurement (step 4):

Information Element	Value/Remark	Version
Message Type (10.2.22)		
UE Information Elements -RRC transaction identifier -Integrity check info -message authentication code	0 SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.	
-RRC message sequence number	SS provides the value of this IE, from its internal counter.	

Information Element	Value/Remark	Version
-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	
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)	Not Present	
Uplink radio resources		
-Maximum allowed UL TX power	33 dBm	
-CHOICE channel requirement	Not Present	
Downlink radio resources		
-CHOICE *mode*	FDD	
-Downlink PDSCH information	Not Present	R99 and Rel-4 only
-Downlink information common for all radio links (10.3.6.24)		
-Downlink DPCH info common for all RL (10.3.6.18)	Not Present	
-CHOICE mode	FDD	
-DPCH compressed mode info (10.3.6.33)		
- Transmission gap pattern sequence	1	
- TGPSI	1	
- TGPS Status Flag	deactivate	
- Transmission gap pattern sequence configuration parameters		
-TGMP	GSM carrier RSSI measurement	
-TGPRC	Infinity	
-TGSN	4	
-TGL1	7	
-TGL2	Not Present	
-TGD	UNDEFINED	
-TGPL1	12	
-TGPL2	Not Present	R99 and Rel-4 only
-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 (10.3.6.86)	None	
-SSDT information (10.3.6.77)	Not Present	R99 and Rel-4 only
-Default DPCH Offset Value (10.3.6.16)	Not Present	
-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	100	
-PDSCH with SHO DCH info (10.3.6.47)	Not Present	R99 and Rel-4 only
-PDSCH code mapping (10.3.6.43)	Not Present	R99 and Rel-4 only
-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	Set to value Default DPCH Offset Value (as	

Information Element	Value/Remark	Version
	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 change	
-TPC combination index	0	
- SSDT Cell Identity	Not Present	R99 and Rel-4 only
- Closed loop timing adjustment mode	Not Present	
- SCCPCH information for FACH (10.3.6.70)	Not Present	

MEASUREMENT CONTROL message:

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
-RRC message sequence number	SS provides the value of this IE, from its internal counter.
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 Measurement type	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)	
- UTRAN estimated quality	FALSE
- CHOICE system	GSM
- Observed time difference to GSM cell reporting indicator	FALSE
- GSM Carrier RSSI reporting indicator	FALSE
-Reporting cell status (10.3.7.61)	Not Present
-CHOICE report criteria	Inter-RAT measurement reporting criteria
-Inter-RAT measurement reporting criteria (10.3.7.30)	
-Parameters required for each event	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

Information Element/Group name	Value/Remark
-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)	If compressed mode is required, Active (for the pattern specified in table 8.6.4.4). Otherwise, this should be Not Present.

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

Table 8.6.4.7: Cell specific test parameters for Correct reporting of GSM neighbours in AWGN propagation condition (cell 2), test requirements

Parameter	Unit	Cell 2			
		T0	T1	T2	T3
Absolute RF Channel Number		BCCH ARFCN of cell A as defined in the initial conditions in clause 26.6.5.1 of TS 51.010-1 [25] for the GSM band under test. BCCH ARFCN is 744 for FDD Band II and PCS1900 under test. BCCH ARFCN is 241 for FDD Band V, VI or XIX and GSM850 under test. BCCH ARFCN is 114 for FDD Band VIII and GSM900 under test.			
RXLEV	dBm	-Infinity	-Infinity	-75	-85

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%. For the overall outcome of the test to be considered a pass, the counters for 3C events and for 3B events shall independently indicate a pass result.

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

Table 8.6.4.8: Cell specific test parameters for Correct reporting of GSM neighbours in AWGN propagation condition (cell 2), test requirements

Parameter	Unit	Cell 2			
		T0	T1	T2	T3
Absolute RF Channel Number		BCCH ARFCN of cell A as defined in the initial conditions in clause 26.6.5.1 of TS 51.010-1 [25] for the GSM band under test. BCCH ARFCN is 744 for FDD Band II and PCS1900 under test. BCCH ARFCN is 241 for FDD Band V, VI or XIX and GSM850 under test. BCCH ARFCN is 114 for FDD Band VIII and GSM900 under test.			
RXLEV	dBm	-Infinity	-Infinity	-75	-85

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%. For the overall outcome of the test to be considered a pass, the counters for 3C events and for 3B events shall independently indicate a pass result.

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.

8.6.5 Combined inter frequency and GSM measurements

8.6.5.1 Correct reporting of neighbours in AWGN propagation condition

8.6.5.1.1 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 6 and later releases.

8.6.5.1.2 Minimum requirement

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

$$T_{identify,\ inter} = T_{basic\ identify\ FDD,inter} \cdot \frac{T_{Measurement\ Period,Inter}}{T_{Inter}} \cdot N_{Freq} \ ms$$

The UE physical layer shall when transmission gaps are scheduled for FDD inter frequency measurements also 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 [2] with measurement period given by

$$T_{measurement\ inter} = Max\left\{ T_{Measurement\_Period\ Inter}\ ,\ T_{basic\ measurement\ FDD\ inter} \cdot \frac{T_{Measurement\_Period\ Inter}}{T_{Inter}} \cdot N_{Freq} \right\} ms$$

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 $X_{basic\ measurement\ FDD\ inter}$ 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 $T_{Measurement\_Inter}$.

$X_{basic\ measurement\ FDD\ inter} = 6$

$T_{identify,\ inter} = 3.3\ s$

$T_{Measurement\_Period\ Inter} = 480$ ms. The period used for calculating the measurement period $T_{measurement\_inter}$ for inter frequency CPICH measurements.

$T_{Inter} = 44$ ms. This is the minimum time that is available for inter frequency measurements, during the period $T_{Measurement\_Period\ inter}$ with an arbitrarily chosen timing. The minimum time per transmission gap is calculated by using 6 gaps of length 11 slots each.

$T_{basic\_identify\_FDD,inter} = 300$ 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.

$T_{basic\_measurement\_FDD\ inter} = 50$ 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.

A cell shall be considered detectable when CPICH Ec/Io $\geq$ -20 dB, SCH_Ec/Io $\geq$ -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.

The event triggered measurement reporting delay, measured without L3 filtering shall be less than T $_{identify\ inter}$ defined in Clause 8.1.2.3.1 of 25.133 [2] When L3 filtering is used an additional delay can be expected.

The event triggered measurement reporting delay for a GSM cell with verified BSIC, measured without L3 filtering shall be less than 2 * T$_{Measurement\_Period,\ GSM}$ = 2 * 480 ms = 960 ms.

If a cell has been detectable at least for the time period T$_{identify\_inter}$ and then enters or leaves the reporting range, the event triggered measurement reporting delay shall be less than T$_{Measurement\_Period\ Inter}$ 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.

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 8.1.2.3, 8.1.2.5 and A.8.54.1.

8.6.5.1.3   Test purpose

To verify that the UE makes correct reporting of an event when doing combined inter frequency and GSM measurements.

8.6.5.1.4   Method of test

8.6.5.1.4.1   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 tables 8.6.5.1.4.1, 8.6.5.1.4.2 and 8.6.5.1.4.3. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 2B and 3A shall be used as well as periodic reporting with period 4s. The test consists of five successive time periods, with a time duration T1, T2, T3, T4 and T5 respectively.

**Table 8.6.5.1.4.1: General test parameters for Correct reporting
of neighbours in AWGN propagation condition**

Parameter	Unit	Value	Comment
DCH parameters		DL Reference Measurement Channel 12.2 kbps	As specified in C.3.1
Power Control		On	
Compressed mode Inter frequency measurements		 DL compressed mode reference pattern 3, set 1	Only applicable for UE requiring compressed mode patterns. As specified in table C.5.3
- GSM carrier RSSI measurement		DL compressed mode reference pattern 3, set 2	As specified in table C.5.3
- GSM Initial BSIC identification		DL compressed mode reference pattern 3, set 3	As specified in table C.5.3
- GSM BSIC reconfirmation		DL compressed mode reference pattern 3, set 4	As specified in table C.5.3
Active cell		Cell 1	

Parameter	Unit	Value	Comment
Inter-RAT measurement quantity		GSM Carrier RSSI	
BSIC verification required		required	
Absolute Threshold (Ec/N0) used frequency	dB	-15	Ec/Io threshold for Event 2B and 3A
Absolute Threshold (Ec/N0) used for a not used frequency	dB	-15	Ec/Io threshold for Event 2B
Threshold other system	dBm	-80	Absolute GSM carrier RSSI threshold for event 3A.
Time to Trigger	ms	0	
Filter coefficient		0	
Monitored cell list size		Total 24 FDD neighbours 8 on frequency Channel 2 6 GSM neighbours including ARFCN 1	See annex I for cell information. Measurement control information is sent before the compressed mode pattern starts.
Propagation Condition		AWGN	
T1	s	1	
T2	s	4	
T3	s	1	
T4	s	8	
T5	s	15	

Table 8.6.5.1.4.2: Cell Specific parameters for Correct reporting of neighbours in AWGN propagation condition

Parameter	Unit	Cell 1						Cell 2					
		T0	T1	T2	T3	T4	T5	T0	T1	T2	T3	T4	T5
UTRA RF Channel Number		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	Note 1				N/A		N/A				Note 1	
OCNS		Note 2				- 0.941		-0.941				Note 2	
$\hat{I}_{or}/I_{oc}$	dB	0		-8				-Infinity	0	0		-8	
I_{oc}	dBm/3.84 MHz	-60											
CPICH_Ec/Io	dB	-13		-18.6				-Infinity	-13	-13	-18.6		
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 8.6.5.1.4.3: Cell specific test parameters for Correct reporting of GSM neighbours in AWGN propagation condition (cell 3)

Parameter	Unit	Cell 3					
		T0	T1	T2	T3	T4	T5
Absolute RF Channel Number		ARFCN 1					
RXLEV	dBm	-Infinity				-75	
GSM BSIC		N/A				Valid	Not valid

8.6.5.1.4.2   Procedure

1) The RF parameters are set up according to T0 in Table 8.6.5.1.4.4 and 8.6.5.1.4.5.

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.

4) If Compressed mode is required, SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message (compressed gaps). Otherwise, Go to Step6.

5) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message (compressed gaps).

6) SS shall transmit a MEASUREMENT CONTROL message (inter frequency)

7) SS shall transmit a MEASUREMENT CONTROL message (periodic inter RAT)

8) SS shall transmit a MEASUREMENT CONTROL message (event triggered inter RAT, activation of TGPSI 1-4)

9) 3 seconds after step8 has completed, the SS shall switch the power settings from T0 to T1 according to the parameters defined in table 8.6.5.1.4.4 and 8.6.5.1.4.5.

10) 1 seconds after step9 has completed, the SS shall switch the power settings from T1 to T2 according to the parameters defined in tables 8.6.5.1.4.4 and 8.6.5.1.4.5.

11) UE shall transmit a MEASUREMENT REPORT message (inter frequency) triggered by event 2B for cell 2. The measurement reporting delay from the beginning of T2 shall be less than 3.5 seconds. If the UE fails to report the event within the required delay, then the counter event2B_failure is increased by one. If the reporting delay for this event is within the required limit, the counter event2B_success is increased by one.

12) After 4 seconds from the beginning of T2, the SS shall switch the power settings from T2 to T3 according to the parameters defined in tables 8.6.5.1.4.4 and 8.6.5.1.4.5

13) The UE shall receive a PHYSICAL CHANNEL RECONFIGURATION so that a timing maintained hard handover is completed to cell 2 within 1 s since the beginning of T3.

14) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message

15) SS shall transmit a MEASUREMENT CONTROL message (Intra Frequency)

16) After 1 seconds from the beginning of T3, the SS shall switch the power settings from T3 to T4 according to the parameters defined in tables 8.6.5.1.4.4 and 8.6.5.1.4.5.

17) UE shall transmit a MEASUREMENT REPORT message (inter RAT) triggered by event 3A for cell 3. The measurement reporting delay from the beginning of T4 shall be less than 6.24 s. If the UE fails to report the event within the required delay, then the counter event3A_failure is increased by one. If the reporting delay for this event is within the required limit, the counter event3A _success is increased by one.

18) After 8 seconds from the beginning of T4, the SS shall switch the power settings from T4 to T5 according to the parameters defined in tables 8.6.5.1.4.4 and 8.6.5.1.4.5.

19) UE shall in a periodic MEASUREMENT REPORT message (inter RAT) indicate that the BSIC of the GSM carrier is not verified. The measurement reporting delay from the beginning of T5 until this message shall be less than 9.04 s. If the UE fails to report the event within the required delay, then the counter BSIC_failure is increased by one. If the reporting delay for this event is within the required limit, the counter BSIC_success is increased by one.

20) After the SS receive the MEASUREMENT REPORT message in step 19) or 15 seconds after the beginning of T5, the UE is switched off.

21) Repeat steps 1-19 according to Annex F.6.2 Table F.6.2.8. If one counter reaches the pass criterion, this counter is stopped and the remaining counters are continued. For the overall outcome of the test to be considered a pass, the counters for 2B events, 3A events and for BSIC events shall independently indicate a pass result. The test is stopped immediately and the test is considered to be a fail, if any counter reaches an early fail criterion.

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 (inter frequency)

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
-RRC message sequence number	SS provides the value of this IE, from its internal counter.
Measurement Information elements	
-Measurement Identity	1
-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 Measurement type	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	Refer to table K.1
- Frequency info	
- CHOICE mode	FDD
- UARFCN uplink(Nu)	Not Present
- UARFCN downlink(Nd)	Same frequency as "Channel2" in Table 8.6.5.1.4.2
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Set to Primary scrambling code of Cell2
- Primary CPICH Tx Power	Not present
- Tx Diversity Indicator	FALSE
- 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)	
-Cell synchronisation information reporting indicator	FALSE
-Cell Identity reporting indicator	FALSE
-CHOICE mode	FDD
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	FALSE
-Pathloss reporting indicator	FALSE
-Reporting cell status (10.3.7.61)	Not Present
-Measurement validity (10.3.7.51)	Not Present
-Inter-frequency set update (10.3.7.22)	
-UE autonomous update mode	On with no reporting
-CHOICE report criteria	Inter-frequency measurement reporting criteria

Information Element/Group name	Value/Remark
-Inter-frequency measurement reporting criteria (10.3.7.19)	
- Parameters required for each events	
- Inter-frequency event identity	2b
- Threshold used frequency	-15 dB
- W used frequency	0
- Hysteresis	0 dB
- Time to trigger	0 ms
- Reporting cell status	Within active set or within virtual active set or of the other RAT
- Maximum number of reporting cells	1
- Non used frequency parameter list	
- Threshold non used frequency	-15 dB
- W non-used frequency	0
Physical channel information elements	
-DPCH compressed mode status info (10.3.6.34)	Not present

MEASUREMENT CONTROL message (event triggered inter RAT, activation of TGPSI 1-4)

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
-RRC message sequence number	SS provides the value of this IE, from its internal counter.
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 Measurement type	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 EcNo
-CHOICE system	GSM
-Measurement quantity	GSM Carrier RSSI
-Filter coefficient	0
-BSIC verification required	Required
-Inter-RAT reporting quantity (10.3.7.32)	
- UTRAN estimated quality	FALSE
- CHOICE system	GSM
- Observed time difference to GSM cell reporting indicator	FALSE
- GSM Carrier RSSI reporting indicator	TRUE
-Reporting cell status (10.3.7.61)	Not Present
-CHOICE report criteria	Inter-RAT measurement reporting criteria
-Inter-RAT measurement reporting criteria (10.3.7.30)	
-Inter-RAT event identity (10.3.7.24	Event 3A
-Threshold own system	-15
-W	0
-Threshold other system	-80
-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

Information Element/Group name	Value/Remark
-Maximum number of reported cells	2
Physical channel information elements -DPCH compressed mode status info (10.3.6.34) - TGPS reconfiguration CFN	If Compressed mode is required, Active . Otherwise , Not present. (Current CFN + (230 – TTI/10msec))mod 256
-Transmission gap pattern sequence (1 to <MaxTGPS>)	
- TGPSI	1
- TGPS Status Flag	activate
- TGCFN	(TGPS reconfiguration CFN +6)mod 256
- TGPSI	2
- TGPS Status Flag	activate
- TGCFN	(TGPS reconfiguration CFN +10)mod 256
- TGPSI	3
- TGPS Status Flag	activate
- TGCFN	(TGPS reconfiguration CFN +18)mod 256
- TGPSI	4
- TGPS Status Flag	activate
- TGCFN	(TGPS reconfiguration CFN +26)mod 256

MEASUREMENT CONTROL message (periodic inter RAT)

Information Element/Group name	Value/Remark	Version
Message Type (10.2.17)		
UE information elements -RRC transaction identifier -Integrity check info	0	
-message authentication code -RRC message sequence number	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I. SS provides the value of this IE, from its internal counter.	
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)	3 Setup AM RLC Periodical reporting Not Present	

-CHOICE Measurement type
 -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)
   -CHOICE system
   -Measurement quantity
   -Filter coefficient
   -BSIC verification required
  -Inter-RAT reporting quantity (10.3.7.32)
   -UTRAN estimated quality
   -CHOICE system
    -GSM carrier RSSI reporting indicator
  -Reporting cell status (10.3.7.61)
   -CHOICE reported cell
 	
   -Maximum number of reported cells
  -CHOICE report criteria
  -Periodical reporting criteria (10.3.7.53)
   -Amount of reporting
   -Reporting interval
	Inter-RAT measurement
	
	Not Present
	
	Not Present
	
	GSM
	GSM Carrier RSSI
	0
	not required
	
	FALSE
	GSM
	TRUE
	
	Report cells within active set or within virtual active set or of the other RAT
	6
	Periodical reporting criteria
	
	Infinity
	4000 ms	

Physical channel information elements -DPCH compressed mode status info (10.3.6.34)	Not Present	

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 -message authentication code -RRC message sequence number	 0 SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I. SS provides the value of this IE, from its internal counter.
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)	 4 Setup AM RLC Event trigger Not Present

-CHOICE Measurement type
-Intra-frequency measurement (10.3.7.36)
 -Intra-frequency measurement objects list (10.3.7.33)
  - CHOICE Intra-frequency cell removal
  - New intra-frequency cells
  - Intra-frequency cell id
  - 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
  - Cells for measurement
-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
	
	Refer to table K.1
	
	Not Present
	Not Present
	FALSE
	FDD
	
	Set to Primary scrambling code of Cell2
	Not present
	FALSE
	Not Present
	
	0
	FDD
	CPICH_Ec/N0

-Reporting quantities for active set cells (10.3.7.5)
 -Cell synchronisation information reporting indicator
 -Cell Identity reporting indicator
 -CHOICE mode
  -CPICH Ec/N0 reporting indicator
  -CPICH RSCP reporting indicator
  -Pathloss reporting indicator
	
	FALSE
	TRUE
	FDD
	TRUE
	TRUE
	FALSE

-Reporting quantities for monitored set cells (10.3.7.5)
 -Cell synchronisation information reporting indicator
 -Cell Identity reporting indicator
 -CHOICE mode
  -CPICH Ec/N0 reporting indicator
  -CPICH RSCP reporting indicator
  -Pathloss reporting indicator
	
	FALSE
	TRUE
	FDD
	TRUE
	TRUE
	FALSE

-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

Information Element/Group name	Value/Remark
-Intra-frequency event identity	Event 1 A
-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	Infinity
-Reporting interval	0 ms (Note 1)
-Reporting cell status (10.3.7.61)	
-CHOICE reported cell	Report cells within active set and/or monitored set cells on used frequency
-Maximum number of reported cells	2
Physical channel information elements -DPCH compressed mode status info (10.3.6.34)	Not Present
NOTE 1: Reporting interval = 0 ms means no periodical reporting	

PHYSICAL CHANNEL RECONFIGURATION (compressed gaps):

Information Element	Value/Remark	Version
Message Type (10.2.22)		
UE Information Elements -RRC transaction identifier	0	
-Integrity check info		
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.	
-RRC message sequence number	SS provides the value of this IE, from its internal counter.	
-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	
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)	Not Present	
Uplink radio resources -Maximum allowed UL TX power	33 dBm	
-CHOICE channel requirement	Not Present	
Downlink radio resources -CHOICE *mode*	FDD	
-Downlink information common for all radio links (10.3.6.24)		
-Downlink DPCH info common for all RL (10.3.6.18)	Not Present	
-CHOICE mode	FDD	
-DPCH compressed mode info (10.3.6.33)		
- Transmission gap pattern sequence	(1/3 TGPS)	
- TGPSI	1	
- TGPS Status Flag	deactivate	
- Transmission gap pattern sequence configuration parameters		
-TGMP	FDD measurement	
-TGPRC	Infinity	

Information Element	Value/Remark	Version
-TGSN	8	
-TGL1	14	
-TGL2	Not Present	
-TGD	UNDEFINED	
-TGPL1	8	
-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	
- Transmission gap pattern sequence	(2/3 TGPS)	
- TGPSI	2	
- TGPS Status Flag	deactivate	
- Transmission gap pattern sequence configuration parameters		
-TGMP	GSM carrier RSSI measurement	
-TGPRC	Infinity	
-TGSN	8	
-TGL1	14	
-TGL2	Not Present	
-TGD	UNDEFINED	
-TGPL1	24	
-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	
- Transmission gap pattern sequence	(3/3 TGPS)	
- TGPSI	3	
- TGPS Status Flag	deactivate	
- Transmission gap pattern sequence configuration parameters		
-TGMP	GSM Initial BSIC identification	
-TGPRC	Infinity	
-TGSN	8	
-TGL1	14	
-TGL2	Not Present	
-TGD	UNDEFINED	
-TGPL1	24	
-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	22	
-T Reconfirm abort	Not Present	
- Transmission gap pattern sequence	4	
- TGPSI	4	

Information Element	Value/Remark	Version
- TGPS Status Flag	deactivate	
- Transmission gap pattern sequence configuration parameters		
-TGMP	GSM BSIC re-confirmation	
-TGPRC	Infinity	
-TGSN	8	
-TGL1	14	
-TGL2	Not Present	
-TGD	UNDEFINED	
-TGPL1	24	
-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	5.5	
-TX Diversity mode (10.3.6.86)	None	
-Default DPCH Offset Value (10.3.6.16)	Not Present	
-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	Set to Primary scrambling code of Cell1	
-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	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 change	
-TPC combination index	0	
- Closed loop timing adjustment mode	Not Present	
- SCCPCH information for FACH (10.3.6.70)	Not Present	

PHYSICAL CHANNEL RECONFIGURATION message for Hard Handover:

Information Element	Value/Remark	Version
Message Type		
UE Information Elements		
-RRC transaction identifier	0	
-Integrity check info		
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.	
-RRC message sequence number	SS provides the value of this IE, from its internal counter.	
-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	

Information Element	Value/Remark	Version
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 channel requirement	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	-40 (-80dB)	
- 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 *mode*	FDD	
-Downlink information common for all radio links (10.3.6.24)		
-Downlink DPCH info common for all RL (10.3.6.18)		
-Timing indicator	Maintain	
-CFN-targetSFN frame offset	Not Present	
-Downlink DPCH power control information (10.3.6.23)		
-DPC mode	0 (single)	
-CHOICE mode	FDD	
-Power offset $P_{Pilot-DPDCH}$	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	
-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	Set to Primary scrambling code of Cell2	
-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	

Information Element	Value/Remark	Version
-Spreading factor	128	
-Code number	96	
-Scrambling code change	No change	
-TPC combination index	0	
- Closed loop timing adjustment mode	Not Present	
- SCCPCH information for FACH (10.3.6.70)	Not Present	

MEASUREMENT REPORT message for inter-frequency

This message shall use the same content as described in Annex I "Contents of MEASUREMENT REPORT message for Inter frequency test cases" with the following exceptions:

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

MEASUREMENT REPORT message for inter-RAT, Event triggered

This message shall use the same content as described in Annex I "Contents of MEASUREMENT REPORT message for inter – RAT test cases" with the following exceptions:

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	2

MEASUREMENT REPORT message for inter-RAT, periodic reporting

This message shall use the same content as described in Annex I "Contents of MEASUREMENT REPORT message for inter – RAT test cases" with the following exceptions:

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	3

8.6.5.1.5 Test requirements

Table 8.6.5.1.4.4: Cell Specific parameters for Correct reporting of neighbours in AWGN propagation condition

Parameter	Unit	Cell 1						Cell 2					
		T0	T1	T2	T3	T4	T5	T0	T1	T2	T3	T4	T5
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	Note 1				N/A		N/A				Note 1	
OCNS		Note 2				- 0.941		-0.941				Note 2	
$\hat{I}_{or}/I_{oc}$	dB	0		-8				-Infinity	0	0	-8		
I_{oc}	dBm/3.84 MHz	-60											
CPICH_Ec/Io (Note 3)	dB	-12.2		-17.8				-Infinity	-12.2	-12.2	-17.8		
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: These parameters are not directly settable, but are derived by calculation from the settable parameters.													

Table 8.6.5.1.4.5: Cell specific test parameters for Correct reporting of GSM neighbours in AWGN propagation condition (cell 3)

Parameter	Unit	Cell 3					
		T0	T1	T2	T3	T4	T5
Absolute RF Channel Number		BCCH ARFCN of cell A as defined in the initial conditions in clause 26.6.5.1 of TS 51.010-1 [25] for the GSM band under test. BCCH ARFCN is 744 for FDD Band II and PCS1900 under test. BCCH ARFCN is 241 for FDD Band V, VI or XIX and GSM850 under test. BCCH ARFCN is 114 for FDD Band VIII and GSM900 under test. BCCH ARFCN is 885 for FDD Band III or IX and DCS1800 under test.					
RXLEV	dBm	-Infinity				-74	
GSM BSIC		N/A				Valid	Not valid

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%. For the overall outcome of the test to be considered a pass, the counters for 2B events, 3A events and for BSIC events shall independently indicate a pass result.

> 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.

8.6.6 E-UTRAN Measurement

8.6.6.1 Correct reporting of E-UTRAN FDD neighbour in fading propagation condition

Editor's note: This Test case is incomplete for frequencies above 3GHz

- The Test system uncertainties applicable above 3GHz are undefined

- The Test Tolerances and Test Requirements applicable above 3GHz are undefined

8.6.6.1.1 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 Release 8 and later releases UTRA FDD UE that support E-UTRA FDD. Applicability requires support for EUTRA FGI bit 2.

8.6.6.1.2 Minimum requirement

When compressed mode gaps are used for E-UTRAN measurements, the UE shall be able to identify a new detectable E-UTRAN cell within

$$T_{\text{Identify,E-UTRAN}} = N_{freq,E-UTRA} \cdot T_{\text{Basic\_Identify\_E-UTRAN}} \cdot \frac{480}{T_{\text{E-UTRAN}}} \quad ms \, ;$$

If the UE does not need compressed mode to perform E-UTRAN measurements, the UE shall be able to identify a new detectable E-UTRAN cell within $T_{\text{Basic\_Identify\_E-UTRAN}}$ ms.

Where:

$T_{\text{E-UTRAN}}$: This is the minimum time that is available for E-UTRAN measurements during a 480ms period with an arbitrarily chosen timing. The minimum time per compressed mode gap is calculated by subtracting 2*0.5 ms from the length of the gap.

$N_{freq,E-UTRAN}$: This is the number of E-UTRAN carriers being monitored

$T_{\text{Basic\_Identify\_E-UTRAN}} = 480ms$

When L3 filtering is used an additional delay can be expected.

An E-UTRAN cell shall be considered detectable when

- RSRP$|_{dBm} \geq$ -125 dBm for Bands 1, 4, 6, 10, 11, 18, 19, 21 33, 34, 35, 36, 37, 38, 39, 40 and RSRP Ês/Iot $\geq$ -4 dB,

- RSRP$|_{dBm} \geq$ -124 dBm for Bands 9 and RSRP Ês/Iot $\geq$ -4 dB,

- RSRP$|_{dBm} \geq$ -123 dBm for Bands 2, 5, 7, 17 and RSRP Ês/Iot $\geq$ -4 dB,

- RSRP$|_{dBm} \geq$ -122 dBm for Bands 3, 8, 12, 13, 14,20 and RSRP Ês/Iot $\geq$ -4 dB,

- RSRP$|_{dBm} \geq$ -121.5 dBm for Band 25 and RSRP Ês/Iot $\geq$ -4 dB,

- RSRP$|_{dBm} \geq$ -122.5 dBm for Band 26 and RSRP Ês/Iot $\geq$ -4 dB,(Note1)

- other RSRP related side condition given in Section 9.1 of [24] are fulfilled.

- SCH_RP$|_{dBm} \geq$ -125 dBm for Bands 1, 4, 6, 10, 11, 18, 19, 21 33, 34, 35, 36, 37, 38, 39, 40 and SCH_RP/Iot $\geq$ -4 dB,

- SCH_RP$|_{dBm} \geq$ -124 dBm for Band 9 and SCH_RP/Iot $\geq$ -4 dB,

- SCH_RP $|_{dBm} \geq$ -123 dBm for Bands 2, 5, 7, 17 and SCH_RP/Iot $\geq$ -4 dB,

- SCH_RP $|_{dBm} \geq$ -122 dBm for Bands 3, 8, 12, 13, 14,20 and SCH_RP/Iot $\geq$ -4 dB,

- SCH_RP $|_{dBm} \geq$ -121.5 dBm for Band 25 and SCH_RP/Iot $\geq$ -4 dB

- SCH_RP $|_{dBm} \geq$ -122.5 dBm for Band 26 and SCH_RP/Iot $\geq$ -4 dB (NOTE 1)

NOTE 1: The condition is -123 dBm when the carrier frequency of the assigned E-UTRA channel bandwidth is within 865-894 MHz

When compressed mode gaps are scheduled for E-UTRAN measurements the UE physical layer shall be capable of reporting measurements to higher layers with measurement accuracy as specified in TS 25.133 [2] sub-clause 9.1.4a and 9.1.4b with measurement period of $T_{Measurement\_Period\_E\text{-}UTRAN} = 480 \times N_{Freq}$ ms where N_{Freq} is the number of E-UTRAN frequencies indicated in the inter-RAT measurement control information.

The UE shall be capable of performing RSRP and RSRQ measurements of at least 4 E-UTRAN cells per E-UTRAN frequency for up to 4 E-UTRAN FDD and 4 E-UTRAN TDD frequencies, according to its supported UE capabilities. Additionally, for a UE supporting E-UTRA measurements in Cell-DCH state, the UE shall be capable of monitoring a minimum total of at least 8 carrier frequency layers, including the intra-frequency serving layer and comprising of any allowed combination of E-UTRA FDD, E-UTRA TDD, UTRA FDD, UTRA TDD and GSM layers (one GSM layer corresponds to 32 cells).

Reported measurements in event triggered measurement reports shall meet the requirements in TS 25.133 [2] section 9.

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

The event triggered measurement reporting delay, measured without L3 filtering shall be less than $T_{identify, E\text{-}UTRAN}$ defined in TS 25.133 [2] section 8.1.2.6.1. When L3 filtering is used an additional delay can be expected.

If a cell has been detectable at least for the time period than $T_{identify, E\text{-}UTRAN}$ and then enters or leaves the reporting range, the event triggered measurement reporting delay shall be less than $T_{Measurement\_Period\_E\text{-}UTRAN}$ provided the timing to that cell has not changed more than [FFS] while transmission gap has not been available and the L3 filter has not been used.

The normative reference for this requirement is TS 25.133 [2] clauses 8.1.2.6 and A.8.6.1.

8.6.6.1.3 Test purpose

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

8.6.6.1.4 Method of test

8.6.6.1.4.1 Initial conditions

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

Frequencies to be tested: see table K.2 in Annex K.

The test consists of three successive time periods, with time duration T1, T2 and T3. The test parameters are given in tables 8.6.6.1.4.1, 8.6.6.1.4.2 and 8.6.6.1.4.3. In the measurement control information it is indicated to the UE that event-triggered reporting with Events 3B and 3C shall be used.

**Table 8.6.6.1.4.1: General test parameters for correct reporting
of E-UTRAN FDD neighbours in fading propagation condition**

Parameter	Unit	Value	Comment
DCH parameters		DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.101 [1] section A.3.1. This is for UTRAN FDD
Power Control		On	This is relevant for UTRAN FDD
Compressed mode pattern		Pattern 2; Set 4	As specified in table A.22 in section A.5 in TS 25.101 [1].
Inter-RAT (E-UTRAN FDD) measurement quantity		RSRP	
Active cell		Cell 1	Cell 1 is on UTRA RF channel number 1
Neighbour cell		Cell 2	Cell 2 is on E-UTRA RF channel number 1
Threshold other system (E-UTRAN FDD)	dBm	-95	Absolute threshold for triggering events 3b and 3c
Hysteresis	dB	0	
Time to Trigger	ms	0	
Filter coefficient		0	
UTRA RF Channel Number		1	One UTRA FDD carrier frequency is used
E-UTRA RF Channel Number		1	One E-UTRA FDD carrier frequency is used
E-UTRA Channel Bandwidth (BW$_{channel}$)	MHz	10	
Monitored UTRA FDD cell list size		24	UTRA cells on UTRA RF channel 1 provided in the cell list. Measurement control information is sent before the compressed mode pattern starts.
T1	s	5	
T2	s	4	
T3	s	4	

**Table 8.6.6.1.4.2: Cell Specific parameters for correct reporting
of E-UTRAN FDD neighbours in fading 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	0	0
I_{oc}	dBm/3.84 MHz	-70		
CPICH_Ec/Io	dB	-13	-13	-13
Propagation Condition		Case 5 (Note 3)		
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: Case 5 propagation conditions are defined in Annex A of 3GPP TS 25.101 [1].				

**Table 8.6.6.1.4.3: Cell Specific parameters for correct reporting
of E-UTRAN FDD neighbours in fading propagation condition (cell # 2)**

Parameter	Unit	Cell 2		
		T1	T2	T3
E-UTRA RF Channel Number		1		
BW$_{channel}$	MHz	10		
OCNG Pattern defined in D.1.2 in 3GPP TS 36. 521-3 [38] (OP.2 FDD)		OP.2 FDD		
PBCH_RA	dB	0		
PBCH_RB	dB			
PSS_RA	dB			
SSS_RA	dB			
PCFICH_RB	dB			
PHICH_RA	dB			
PHICH_RB	dB			
PDCCH_RA	dB			
PDCCH_RB	dB			
PDSCH_RA	dB			
PDSCH_RB	dB			
OCNG_RA$^{Note\ 1}$	dB			
OCNG_RB$^{Note\ 1}$	dB			
N_{oc} $^{Note\ 2}$	dBm/15 kHz	-100		
$\hat{E}_s / N_{oc}$	dB	-Infinity	16	-4
$\hat{E}_s / I_{ot}$	dB	-Infinity	16	-4
RSRP$^{Note\ 3}$	dBm/15 kHz	-Infinity	-84	-104
SCH_RP$^{Note\ 3}$	dBm/15 kHz	-Infinity	-84	-104
Io$^{Note\ 3}$	dBm/9 MHz	-72.22	-56.11	-70.76
Propagation Condition		ETU70 (Note 4)		
NOTE 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols. OCNG patterns are specified in annex D of 3GPP TS 36. 521-3 [38].				
NOTE 2: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and shall be modelled as AWGN of appropriate power for N_{oc} to be fulfilled.				
NOTE 3: RSRP, SCH_RP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves.				
NOTE 4: ETU70 propagation conditions are specified in Annex B.2 of 3GPP TS 36.101 [37].				

8.6.6.1.4.2 Procedure

1) The RF parameters for cell 1 are set up according to T0 in Table 8.6.6.1.5.1.

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. The SS shall switch the power settings from T0 to T1 according to the parameters defined in 8.6.6.1.5.2 and 8.6.6.1.5.3.

4) If compressed mode is required, SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message. Otherwise go to step 6.

5) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

6) SS shall transmit a MEASUREMENT CONTROL message.

7) After 5 seconds from the beginning of T1, the SS shall switch the power settings from T1 to T2 in Table 8.6.6.1.5.1 and 8.6.6.1.5.2.

8) UE shall transmit a MEASUREMENT REPORT message triggered by event 3C. If the UE needs compressed mode to perform E-UTRAN measurements, the measurement reporting delay from the beginning of T2 shall be less than 2.65 s, otherwise the measurement reporting delay from the beginning of T2 shall be less than 480 ms.

If the UE fails to report the event within the required delay, then the counter event3C failure is increased by one. If the reporting delay for this event is within the required limit, the counter event3C success is increased by one.

9) After 4 seconds from the beginning of T2, the SS shall switch the power settings from T2 to T3 in Table 8.6.6.1.5.1 and 8.6.6.1.5.2.

10) UE shall transmit a MEASUREMENT REPORT message triggered by event 3B. The measurement reporting delay from the beginning of T3 shall be less than 480 ms. If the UE fails to report the event within the required delay, then the counter event3B failure is increased by one. If the reporting delay for this event is within the required limit, the counter event3B success is increased by one.

11) After the SS receive the MEASUREMENT REPORT message in step 10) or 4 seconds after the beginning of T3, the UE is switched off.

12) Repeat steps 1-11 according to Tables G.2.3-1 in TS 36.521-3 [38]. If one counter reaches the pass criterion, this counter is stopped and the remaining counters are continued. For the overall outcome of the test to be considered a pass, the counters for 3C events and for 3B events shall independently indicate a pass result. The test is stopped immediately and the test is considered to be a fail, if any counter reaches an early fail criterion.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 4.7B.1 of TS 36.508 [33], with the following exceptions:

PHYSICAL CHANNEL RECONFIGURATION message:

Derivation Path: TS 36.508 [33], clause 4.7B.1 Table 4.7B.1-5: PHYSICAL CHANNEL RECONFIGURATION			
Information Element	**Value/remark**	**Comment**	**Condition**
Message Type			
RRC transaction identifier	0		
Downlink information common for all radio links			
- Downlink DPCH info common for all RL	Not Present		
- DPCH compressed mode info			
- TGPSI	1		
- TGPS Status Flag	Deactivate		
- TGCFN	Not Present		
- Transmission gap pattern sequence configuration parameters			
- TGMP	E-UTRA measurement		
- TGPRC	Infinity		
- TGSN	8		
- TGL1	14		
- TGL2	Not Present		
- TGD	0		
- TGPL1	4		
- 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 for each radio link	Not Present		
MBMS PL Service Restriction Information	Not Present		

MEASUREMENT CONTROL message:

Information Element	Value/remark	Comment	Condition
Derivation Path: TS 36.508 [33], clause 4.7B.1 Table 4.7B.1-3: MEASUREMENT CONTROL			
Message Type			
RRC transaction identifier	0		
Measurement Identity	2		
CHOICE Measurement type	Inter-RAT measurement		
- CHOICE report criteria	Inter-RAT measurement reporting criteria		
- Parameters required for each event	2 entry		
- Inter-RAT event identity	3b		
- Threshold own system	Not Present		
- W	Not Present		
- Threshold other system	-70 (-95 dBm)	When measurement quantity is RSRP, range should be (-115..-19), the actual value = Threshold other system - 25 [dBm]	
- Hysteresis	0 dB		
- Time to trigger	0 ms		
- Reporting cell status			
- 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	3c		
- Threshold own system	Not Present		
- W	Not Present		
- Threshold other system	-70 (-95 dBm)	When measurement quantity is RSRP, range should be (-115..-19), the actual value = Threshold other system - 25 [dBm]	
- Hysteresis	0 dB		
- Time to trigger	0 ms		
- Reporting cell status			
- 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)	If compressed mode is required, Active (for the pattern specified in table 8.6.6.1.4.1). Otherwise, this should be Not Present.		

MEASUREMENT REPORT message

Information Element	Value/remark	Comment	Condition
Derivation Path: TS 36.508 [33], clause 4.7B.1 Table 4.7B.1-4: MEASUREMENT REPORT			
Message Type			
Measurement identity	2		
E-UTRA Measured Results			
- E-UTRA measured results list	1 entry		
- E-UTRA Carrier Frequency	Checked that this IE is present		
- Measured E-UTRA cells	1 entry		
- Physical Cell Identity	Checked that this IE is present	PhysicalCellIdentity of Cell 2	
- RSRP	Checked that this IE is present		
- RSRQ	This IE does not need to be checked		
E-UTRA Event Results			
- Inter-RAT event identity	3b or 3c		
- E-UTRA events results list	1 entry		
- E-UTRA Carrier Frequency	Checked that this IE is present	Downlink EARFCN of Cell 2	
- Reported cells	1 entry		
- Physical Cell Identity	Checked that this IE is present	PhysicalCellIdentity of Cell 2	

8.6.6.1.5 Test requirements

If the UE needs compressed mode to perform E-UTRAN measurements:

- The UE shall send one Event 3C triggered measurement report for cell 2, with a measurement reporting delay less than 2.65 seconds from the beginning of time period T2.

- The UE shall send one Event 3B triggered measurement report for cell 2, with a measurement reporting delay less than 480 ms from the beginning of time period T3.

If the UE does not need compressed mode to perform E-UTRAN measurements:

- The UE shall send one Event 3C triggered measurement report for cell 2, with a measurement reporting delay less than 480 ms from the beginning of time period T2.

- The UE shall send one Event 3B triggered measurement report for cell 2, with a measurement reporting delay less than 480 ms from the beginning of time period T3.

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

**Table 8.6.6.1.5.1: Test requirement for correct reporting
of E-UTRAN FDD neighbours in fading propagation condition (cell #1) for T0**

Parameter	Unit	Cell 1
		T0
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	-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 8.6.6.1.5.2: Test requirement for correct reporting
of E-UTRAN FDD neighbours in fading 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	0	0
I_{oc}	dBm/3.84 MHz	-70		
CPICH_Ec/Io	dB	-13	-13	-13
Propagation Condition		Case 5 (Note 3)		
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: Case 5 propagation conditions are defined in Annex A of 3GPP TS 25.101 [1].				

**Table 8.6.6.1.5.3: Test requirement for correct reporting
of E-UTRAN FDD neighbours in fading propagation condition (cell #2)**

Parameter	Unit	Cell 2		
		T1	T2	T3
E-UTRA RF Channel Number		1		
BW$_{channel}$	MHz	10		
OCNG Pattern defined in D.1.2 in 3GPP TS 36. 521-3 [38] (OP.2 FDD)		OP.2 FDD		
PBCH_RA	dB	0		
PBCH_RB	dB			
PSS_RA	dB			
SSS_RA	dB			
PCFICH_RB	dB			
PHICH_RA	dB			
PHICH_RB	dB			
PDCCH_RA	dB			
PDCCH_RB	dB			
PDSCH_RA	dB			
PDSCH_RB	dB			
OCNG_RA$^{Note 1}$	dB			
OCNG_RB$^{Note 1}$	dB			
N_{oc} $^{Note 2}$	dBm/15 kHz	-100.6		
$\hat{E}_s/N_{oc}$	dB	-Infinity	16.6	-3.4
$\hat{E}_s/I_{ot}$	dB	-Infinity	16.6	-3.4
RSRP $^{Note 3}$	dBm/15 kHz	-Infinity	-84	-104
SCH_RP $^{Note 3}$	dBm/15 kHz	-Infinity	-84	-104
Io $^{Note 3}$	dBm/9 MHz	-72.82	-56.12	-71.18
Propagation Condition		ETU70 (Note 4)		
NOTE 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols. OCNG patterns are specified in annex D of 3GPP TS 36. 521-3 [38].				
NOTE 2: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and shall be modelled as AWGN of appropriate power for N_{oc} to be fulfilled.				
NOTE 3: RSRP, SCH_RP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves.				
NOTE 4: ETU70 propagation conditions are specified in Annex B.2 of 3GPP TS 36.101 [37].				

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 %.

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.

8.6.6.2 Correct reporting of E-UTRAN TDD neighbour in fading propagation condition

Editor's note: This Test case is incomplete for frequencies above 3GHz

- The Test system uncertainties applicable above 3GHz are undefined

- The Test Tolerances and Test Requirements applicable above 3GHz are undefined

8.6.6.2.1 Definition and applicability

In the event triggered reporting period the measurement reporting delay is defined as the time between any events 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 delay by other RRC signalling on the DCCH. This

measurement reporting delay exclude a delay uncertainty resulted when inserting the measurement report to the TTI of the uplink DCCH. The delay uncertainty is twice the TTI of uplink DCCH,

The requirement in this section will apply only to UE supporting UTRAN FDD and E-UTRAN TDD. Applicability requires support for EUTRA FGI bit 2.

8.6.6.2.2 Minimum requirement

1) In CELL_DCH state when a transmission gap pattern sequence is provided by the UTRAN the UE shall continuously measure previously detected E-UTRAN cells and search for new E-UTRAN cells.

- In order for the requirements in the following subsections to apply the UTRAN must provide a transmission gap pattern sequence with measurement purpose "E-UTRAN measurement" using the following combinations for TGL1, TGL2, TGD and Max TGPL:

Table 8.6.6.2.1

TGL1 [slots]	TGL2 [slots]	TGD [slots]	Max TGPL [frames]
≥10	-	undefined	12

2) If the UE does not need compressed mode to perform E-UTRAN measurements:

- the UE shall measure either all E-UTRAN cells present in the monitored set or, if only frequencies are provided in the neighbour cell list, the strongest cells present in the detected set, up to the monitoring capabilities of the UE.

- the relevant requirements for E-UTRAN dedicated mode when a [TBD] channel is assigned in 3GPP TS 36.133 shall apply.

The normative reference for these requirements is TS 25.133 [2] clauses 8.1.2.6 and A.8.6.1.

8.6.6.2.3 Test purpose

To verify that the UE meets the minimum requirement.

8.6.6.2.4 Method of test

8.6.6.2.4.1 Initial conditions

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

Frequencies to be tested: see table K.2 in Annex K.

The test parameters are given in table 8.6.6.2.2, 8.6.6.2.3 and 8.6.6.2.4 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 8.6.6.2.4.1: General test parameters for correct reporting
of E-UTRAN TDD 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. This is for UTRAN FDD
Power Control		On	This is relevant for UTRAN FDD
Compressed mode pattern		Pattern 2; Set 4	As specified in table A.22 in section A.5 in TS 25.101.
Inter-RAT (E-UTRAN TDD) measurement quantity		RSRP	
Active cell		Cell 1	Cell 1 is on UTRA RF channel number 1
Neighbour cell		Cell 2	Cell 2 is on E-UTRA RF channel number 1
Threshold other system (E-UTRAN TDD)	dBm	-95	Absolute threshold for triggering events 3b and 3c
Hysteresis	dB	0	
Time to Trigger	ms	0	
Filter coefficient		0	
UTRA RF Channel Number		1	One UTRA FDD carrier frequency is used
E-UTRA RF Channel Number		1	One E-UTRA TDD carrier frequency is used
E-UTRA Channel Bandwidth (BW$_{channel}$)	**MHz**	10	
Special subframe configuration		6	As specified in table 4.2-1 in 3GPP TS 36.211. This is for E-UTRAN TDD
Uplink-downlink configuration		1	As specified in table 4.2-2 in 3GPP TS 36.211. This is for E-UTRAN TDD
Monitored UTRA FDD cell list size		24	UTRA cells on UTRA RF channel 1 provided in the cell list. Measurement control information is sent before the compressed mode pattern starts.
T1	s	5	At the end of T3, cell 2 shall be powered off, and during the off time the physical cell identity shall be changed, The intention is to ensure that cell 2 has not been detected by the UE prior to the start of period T2.
T2	s	4	
T3	s	4	

**Table 8.6.6.2.4.2: Cell Specific parameters for correct reporting
of E-UTRAN TDD neighbours in fading 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	0	0
I_{oc}	dBm/3.84 MHz	-70		
CPICH_Ec/Io	dB	-13	-13	-13
Propagation Condition		Case 5 (Note 3)		
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: Case 5 propagation conditions are defined in Annex A of 3GPP TS 25.101.				

**Table 8.6.6.2.4.3: Cell Specific parameters for correct reporting
of E-UTRAN TDD neighbours in fading propagation condition (cell # 2)**

Parameter	Unit	Cell 2		
		T1	T2	T3
E-UTRA RF Channel Number		1		
BW$_{channel}$	MHz	10		
OCNG Pattern defined in A.3.2.2.2 in 3GPP TS 36.133 (OP.2 TDD)		OP.2 TDD		
PBCH_RA	dB	0		
PBCH_RB	dB			
PSS_RA	dB			
SSS_RA	dB			
PCFICH_RB	dB			
PHICH_RA	dB			
PHICH_RB	dB			
PDCCH_RA	dB			
PDCCH_RB	dB			
PDSCH_RA	dB			
PDSCH_RB	dB			
OCNG_RA$^{Note 1}$	dB			
OCNG RB$^{Note 1}$	dB			
N_{oc} $^{Note 2}$	dBm/15 kHz	-100		
$\hat{E}_s/N_{oc}$	dB	-Infinity	16	-4
$\hat{E}_s/I_{ot}$	dB	-Infinity	16	-4
RSRP$^{Note 3}$	dBm/15 kHz	-Infinity	-84	-104
SCH_RP$^{Note 3}$	dBm/15 kHz	-Infinity	-84	-104
Io$^{Note 3}$	dBm/9 MHz	-72.22	-56.11	-70.76
Propagation Condition		ETU70 (Note 4)		
NOTE 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols. OCNG patterns are specified in annex A 3.2 of 3GPP TS 36.133.				
NOTE 2: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and shall be modelled as AWGN of appropriate power for N_{oc} to be fulfilled.				
NOTE 3: RSRP, SCH_RP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves.				
NOTE 4: ETU70 propagation conditions are specified in Annex B.2 of 3GPP TS 36.101.				

8.6.6.2.4.2 Procedure

1) The UE is switched on.

2) The RF parameters for cell 1 are set up according to T1 in Table 8.6.6.2.5.1 and 8.6.6.2.5.2.

3) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2.

4) If Compressed mode is required, SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message. Otherwise , Go to Step6.

5) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

6) The SS shall transmit a MEASUREMENT CONTROL message on cell 1.

7) After 5 seconds from the beginning of T1 , the SS shall switch the power from T1 to T2 as in Table 8.6.6.2.5.1 and 8.6.6.2.5.2.(Make sure that the step 2-6 are finished before the end of T1.)

8) The UE shall transmit a MEASUREMENT REPORT message triggered by event 3C. The measurement reporting delay from the beginning of T2 shall be less than 2.65 seconds for UE which needs compressed mode to perform E-UTRAN measurement .If the UE does not need compressed mode to perform E-UTRAN measurement the UE shall send one Event 3C triggered measurement report for cell 2, with a measurement reporting delay less than 480 ms from the beginning of time period T2. If the UE fails to report the event within the required delay, then the counter event3C_failure is increased by one. If the reporting delay for this event is within the required time, the counter event3C_success is increased by one.

9) After 4 seconds from the beginning of T2, the SS shall switch the power setting from T2 to T3 as in table 8.6.6.2.5.1and 8.6.6.2.5.2.

10) The UE shall transmit a MEASUREMENT REPORT message triggered by event 3B. The measurement reporting delay from the beginning of T3 shall be less than 480 ms. If the UE fails to report the event within the required delay, then the counter event3B_failure is increased by one. If the reporting delay for this event is within the required time, the counter event3B_success is increased by one.

11) After the SS receive the MEASUREMENT REPORT message in step 10) or 4 seconds after the beginning of T3, Cell2 is powered off, and during the off time the physical cell identity shall be changed. The RF parameters for cell 1 are set up according to T1 in Table 8.6.6.2.5.1 and 8.6.6.2.5.2.

12) Repeat step 7)~11) until the confidence level according to Tables G.2.3-1 in TS36.521-3 [38] is achieved. If one counter reaches the pass criterion, this counter is stopped and the remaining counters are continued. For the overall outcome of the test to be considered a pass, the counters for 3C events and for 3B events shall independently indicate a pass result. The test is stopped immediately and the test is considered to be a fail, if any counter reaches an early fail criterion.

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 Rat measurement (step 6):

FFS

MEASUREMENT CONTROL message:

Information Element/Group name	Value/Remark
Message Type (10.2.17 in TS25.331)	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
-RRC message sequence number	SS provides the value of this IE, from its internal counter.
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 *Measurement type*	Inter-RAT measurement
-Inter-RAT measurement (10.3.7.27)	
-Inter-RAT measurement objects list (10.3.7.23)	
-Inter-RAT measurement quantity (10.3.7.29)	Not Present
-Measurement quantity for UTRAN quality estimate (10.3.7.38)	
-Filter coefficient	0
-CHOICE mode	FDD
-Measurement quantity	CPICH Ec/N0
-CHOICE system	E-UTRA
-Measurement quantity	RSRP

Information Element/Group name	Value/Remark
-Filter coefficient	0
-Inter-RAT reporting quantity (10.3.7.32)	
- UTRAN estimated quality	FALSE
- CHOICE system	E-UTRA
-E-UTRA	
- Reporting indicator	Measurement quantity
-Reporting cell status (10.3.7.61)	Not Present
-CHOICE report criteria	Inter-RAT measurement reporting criteria
-Inter-RAT measurement reporting criteria (10.3.7.30)	
-Parameters required for each event	2
-Inter-RAT event identity (10.3.7.24	Event 3B
-Threshold own system	Not Present
-W	Not Present
-Threshold other system	-70 (-95 dBm) When measurement quantity is RSRP, range should be (-115..-19), the actual value = Threshold other system - 25 [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	-70 (-95 dBm) When measurement quantity is RSRP, range should be (-115..-19), the actual value = Threshold other system - 25 [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
-Idle Interval Information	Not Present
Physical channel information elements	
-DPCH compressed mode status info (10.3.6.34)	If compressed mode is required, Active (for two patterns specified in table 8.6.6.6). Otherwise, this should be Not Present.

MEASUREMENT REPORT message for Inter-RAT test cases

Information Element	Value/remark
Message Type(10.2.19 in TS25.331)	
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.
Activation time	Integer (0..255)
Measurement identity	2
E-UTRA Measured Results	
- E-UTRA measured results list	
- E-UTRA Carrier Frequency	Checked that this IE is present
- Measured E-UTRA cells	Checked that this IE is present
- Physical Cell Identity	Checked that this IE is present

Information Element	Value/remark
- RSRP	Checked that this IE is present
- RSRQ	Checked that this IE is absent
E-UTRA event results	
- Inter-RAT event identity	3b or 3c
- E-UTRA events results list	
- E-UTRA Carrier Frequency	Checked that this IE is present
- Reported cells	Checked that this IE is present
- Physical Cell Identity	Checked that this IE is present
Measured results on RACH	This IE does not need to be checked.
Event results	This IE does not need to be checked.
Additional measured results	This IE does not need to be checked.
Additional measured results	This IE does not need to be checked.

8.6.6.2.5 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 %.

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 8.6.6.2.5.1: Cell Specific parameters for correct reporting
of E-UTRAN TDD neighbours in fading 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	0	0
I_{oc}	dBm/3.84 MHz	-70		
CPICH_Ec/Io	dB	-13	-13	-13
Propagation Condition		Case 5 (Note 3)		
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: Case 5 propagation conditions are defined in Annex A of 3GPP TS 25.101.				

**Table 8.6.6.2.5.2: Cell Specific parameters for correct reporting
of E-UTRAN TDD neighbours in fading propagation condition (cell # 2)**

Parameter	Unit	Cell 2		
		T1	T2	T3
E-UTRA RF Channel Number		1		
BW$_{channel}$	MHz	10		
OCNG Pattern defined in A.3.2.2.2 in 3GPP TS 36.133 (OP.2 TDD)		OP.2 TDD		
PBCH_RA	dB			
PBCH_RB	dB			
PSS_RA	dB			
SSS_RA	dB			
PCFICH_RB	dB			
PHICH_RA	dB			
PHICH_RB	dB	0		
PDCCH_RA	dB			
PDCCH_RB	dB			
PDSCH_RA	dB			
PDSCH_RB	dB			
OCNG_RA$^{Note 1}$	dB			
OCNG_RB$^{Note 1}$	dB			
N_{oc} $^{Note 2}$	dBm/15 kHz	-100.6		
$\hat{E}_s / N_{oc}$	dB	-Infinity	16.6	-3.4
$\hat{E}_s / I_{ot}$	dB	-Infinity	16.6	-3.4
RSRP$^{Note 3}$	dBm/15 kHz	-Infinity	-84	-104
SCH_RP$^{Note 3}$	dBm/15 kHz	-Infinity	-84	-104
Io$^{Note 3}$	dBm/9 MHz	-72.82	-56.12	-71.18
Propagation Condition		ETU70 (Note 4)		
NOTE 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols. OCNG patterns are specified in annex A 3.2 of 3GPP TS 36.133.				
NOTE 2: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and shall be modelled as AWGN of appropriate power for N_{oc} to be fulfilled.				
NOTE 3: RSRP, SCH_RP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves.				
NOTE 4: ETU70 propagation conditions are specified in Annex B.2 of 3GPP TS 36.101.				

8.6.7 Combined Inter-frequency and E-UTRAN measurements

8.6.7.1 Correct reporting of E-UTRA FDD neighbours in fading propagation condition

Editor's note: This Test case is incomplete for frequencies above 3GHz

- The Test system uncertainties applicable above 3GHz are undefined

- The Test Tolerances and Test Requirements applicable above 3GHz are undefined

8.6.7.1.1 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 test apply to Release 8 and later releases UTRA FDD UE that support E-UTRA FDD. Applicability requires support for EUTRA FGI bit 2.

The requirements are also applicable for a UE not requiring compressed mode for inter-frequency or inter-RAT E-UTRAN FDD measurements. In case a UE is not requiring compressed mode for inter-frequency measurements no compressed mode pattern with measurement purpose "FDD measurement" should be sent and in case a UE is not requiring compressed mode for inter-RAT E-UTRAN measurements no compressed mode pattern with measurement purpose "E-UTRAN measurements" should be sent for the parameters specified in table A.8.30 of TS 25.133 [2].

8.6.7.1.2   Minimum requirement

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

$$T_{\text{identify, inter}} = T_{\text{basic identify FDD,inter}} \cdot \frac{T_{\text{Measurement Period,Inter}}}{T_{\text{Inter}}} \cdot N_{Freq} \ \ \text{ms}$$

A cell shall be considered detectable when CPICH Ec/Io $\geq$ -20 dB, SCH_Ec/Io $\geq$ -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 TS 25.133 [2] with measurement period given by:

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

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 $T_{\text{Measurement\_Inter}}$.

$X_{\text{basic measurement FDD inter}} = 6$

$T_{\text{identify, inter}} = 3.3 \ s$

$T_{\text{Measurement\_Period Inter}} = 480$ ms. The period used for calculating the measurement period $T_{\text{measurement\_inter}}$ for inter frequency CPICH measurements.

$T_{\text{Inter}} = 44$ ms. 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 6 gaps of length 11 slots each.

$T_{\text{basic\_identify\_FDD,inter}} = 300$ 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 TS 25.133 [2] 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.

When compressed mode gaps are used for E-UTRAN measurements, the UE shall be able to identify a new detectable E-UTRAN cell within

$$T_{\text{Identify E-UTRAN}} = N_{freq,E-UTRA} \cdot T_{\text{Basic\_Identify\_E-UTRAN}} \cdot \frac{480}{T_{\text{E-UTRAN}}} \ \ ms \ ;$$

If the UE does not need compressed mode to perform E-UTRAN measurements, the UE shall be able to identify a new detectable E-UTRAN cell within $T_{Basic\_Identify\_E-UTRAN}$ ms.

Where:

$T_{E-UTRAN}$: This is the minimum time that is available for E-UTRAN measurements during a 480ms period with an arbitrarily chosen timing. The minimum time per compressed mode gap is calculated by subtracting 2*0.5 ms from the length of the gap.

$N_{freq,E-UTRAN}$: This is the number of E-UTRAN carriers being monitored

$T_{Basic\_Identify\_E-UTRAN} = 480ms$

When L3 filtering is used an additional delay can be expected.

An E-UTRAN cell shall be considered detectable when:

- $RSRP|_{dBm} \geq$ -125 dBm for Bands 1, 4, 6, 10, 11, 18, 19, 21, 23, 24, 33, 34, 35, 36, 37, 38, 39, 40 and RSRP Ês/Iot $\geq$ -4 dB,

- $RSRP|_{dBm} \geq$ -124 dBm for Bands 9 and RSRP Ês/Iot $\geq$ -4 dB,

- $RSRP|_{dBm} \geq$ -123 dBm for Bands 2, 5, 7, 27 and SCH RSRP Ês/Iot $\geq$ -4 dB,

- $RSRP|_{dBm} \geq$ -122 dBm for Bands 3, 8, 12, 13, 14, 17, 20, 22 and RSRP Ês/Iot $\geq$ -4 dB,

- $RSRP|_{dBm} \geq$ -121.5 dBm for Band 25 and RSRP Ês/Iot $\geq$ -4 dB,

- $RSRP|_{dBm} \geq$ -122.5 dBm for Band 26 and RSRP Ês/Iot $\geq$ -4 dB, (Note1)

- other RSRP related side condition given in Section 9.1 of [24] are fulfilled,

- $SCH\_RP|_{dBm} \geq$ -125 dBm for Bands 1, 4, 6, 10, 11, 18, 19, 21, 23, 24, 33, 34, 35, 36, 37, 38, 39, 40 and SCH_RP/Iot $\geq$ -4 dB,

- $SCH\_RP|_{dBm} \geq$ -124 dBm for Band 9 and SCH_RP/Iot $\geq$ -4 dB,

- $SCH\_RP|_{dBm} \geq$ -123 dBm for Bands 2, 5, 7, 27 and SCH_RP/Iot $\geq$ -4 dB,

- $SCH\_RP|_{dBm} \geq$ -122 dBm for Bands 3, 8, 12, 13, 14, 17, 20, 22 and SCH_RP/Iot $\geq$ -4 dB,

- $SCH\_RP|_{dBm} \geq$ -121.5 dBm for Band 25 and SCH_RP/Iot $\geq$ -4 dB.

- $SCH\_RP|_{dBm} \geq$ -122.5 dBm for Band 26 and SCH_RP/Iot $\geq$ -4 dB (NOTE 1)

NOTE 1: The condition is -123 dBm when the carrier frequency of the assigned E-UTRA channel bandwidth is within 865-894 MHz

When compressed mode gaps are scheduled for E-UTRAN measurements the UE physical layer shall be capable of reporting measurements to higher layers with measurement accuracy as specified in TS 25.133 [2] sub-clause 9.1.4a and 9.1.4b with measurement period of $T_{Measurement\_Period\_E-UTRAN} = 480$ x N_{Freq} ms where N_{Freq} is the number of E-UTRAN frequencies indicated in the inter-RAT measurement control information.

The UE shall be capable of performing RSRP and RSRQ measurements of at least 4 E-UTRAN cells per E-UTRAN frequency for up to 4 E-UTRAN FDD and 4 E-UTRAN TDD frequencies, according to its supported UE capabilities. Additionally, for a UE supporting E-UTRA measurements in Cell-DCH state, the UE shall be capable of monitoring a minimum total of at least 8 carrier frequency layers, including the intra-frequency serving layer and comprising of any allowed combination of E-UTRA FDD, E-UTRA TDD, UTRA FDD, UTRA TDD and GSM layers (one GSM layer corresponds to 32 cells).

Reported measurements in event triggered measurement reports shall meet the requirements in TS 25.133 [2] section 9.

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

The event triggered measurement reporting delay, measured without L3 filtering shall be less than $T_{identify,E-UTRAN}$ defined in TS 25.133 [2] section 8.1.2.6.1. When L3 filtering is used an additional delay can be expected.

If a cell has been detectable at least for the time period than $T_{identify, E-UTRAN}$ and then enters or leaves the reporting range, the event triggered measurement reporting delay shall be less than $T_{Measurement\_Period\_E-UTRAN}$ provided the timing to that cell has not changed more than [FFS] 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, 8.1.2.6 and A.8.7.1.

8.6.7.1.3 Test purpose

To verify that the UE makes correct reporting of an event when doing inter frequency and E-UTRAN FDD measurements. The test will partly verify the requirements in TS 25.133 [2] clauses 8.1.2.3 and 8.1.2.6.

8.6.7.1.4 Method of test

8.6.7.1.4.1 Initial conditions

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

Frequencies to be tested: see table K.2 in Annex K.

The test consists of two successive time periods, with time durations T1 and T2. The test parameters are given in tables 8.6.7.1.4.1, 8.6.7.1.4.2 and 8.6.7.1.4.3 below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 2B and 3A shall be used.

**Table 8.6.7.1.4.1: 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 [1] section A.3.1
Power Control		On	
Compressed mode Inter frequency measurements E-UTRAN measurement		 DL compressed mode reference pattern 2, set 5 DL compressed mode reference pattern 2, set 5	Only applicable for UE requiring compressed mode patterns. As specified in table A.22 TS 25.101 [1] section A.5 As specified in table A.22 TS 25.101 [1] section A.5
Active cell		Cell 1	
Inter-RAT measurement quantity		E-UTRAN RSRP	
Absolute Threshold (Ec/N0) used frequency	dB	-9	Ec/N0 threshold for Event 2b and 3a
Absolute Threshold (Ec/N0) used for a not used frequency	dB	-18	Ec/IN0 threshold for Event 2b
Threshold other system	dBm	-96	Absolute E-UTRA RSRP threshold for event 3a.
Time to Trigger	ms	0	
Filter coefficient		0	
Monitored cell list size		Total 24 FDD neighbours 8 on frequency Channel 2	Measurement control information is sent before the compressed mode pattern starts.
T1	s	≥1	
T2	s	10	

**Table 8.6.7.1.4.2: Cell Specific 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/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	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/Io	dB	-13		-Infinity	-14
Propagation Condition		AWGN		Case 5 as specified in Annex B of TS25.101 [1]	
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 Ior					

**Table 8.6.7.1.4.3: Cell specific test parameters for Correct reporting
of E-UTRAN FDD neighbours in fading propagation condition (cell 3)**

Parameter	Unit	Cell 3	
		T1	T2
E-UTRA RF Channel Number		1	
BW$_{channel}$	MHz	10	
OCNG Pattern defined in D.1.2 in 3GPP TS 36. 521-3 [38] (OP.2 FDD)		OP.2 FDD	
PBCH_RA	dB		
PBCH_RB	dB		
PSS_RA	dB		
SSS_RA	dB		
PCFICH_RB	dB		
PHICH_RA	dB		
PHICH_RB	dB	0	
PDCCH_RA	dB		
PDCCH_RB	dB		
PDSCH_RA	dB		
PDSCH_RB	dB		
OCNG_RA[Note 1]	dB		
OCNG_RB[Note 1]	dB		
N_{oc} [Note 2]	dBm/15 kHz	-98	
$\hat{E}_s/N_{oc}$	dB	-Infinity	13
$\hat{E}_s/I_{ot}$	dB	-Infinity	13
RSRP[Note 3]	dBm/15 kHz	-Infinity	-85
SCH_RP[Note 3]	dBm/15 kHz	-Infinity	-85
Io Note 3	dBm/9 MHz	-70.22	-57.01
Propagation Condition		ETU70 (Note 4)	
NOTE 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols. OCNG patterns are specified in annex D of 3GPP TS 36. 521-3 [38].			
NOTE 2: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and shall be modelled as AWGN of appropriate power for N_{oc} to be fulfilled.			
NOTE 3: RSRP , SCH_RP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves.			
NOTE 4: ETU70 propagation conditions are specified in Annex B.2 of 3GPP TS 36.101 [37].			

8.6.7.1.4.2 Procedure

1) The RF parameters are set up according to T1 in Table 8.6.7.1.4.4 and 8.6.7.1.4.5.

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. T1 starts.

4) If Compressed mode is required, SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message (compressed gaps). Otherwise, Go to Step6.

5) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message (compressed gaps).

6) SS shall transmit a MEASUREMENT CONTROL message (inter frequency).

7) SS shall transmit a MEASUREMENT CONTROL message (inter RAT).8) 5 seconds from the beginning of T1, the SS shall switch the power settings from T1 to T2 according to the parameters defined in tables 8.6.7.1.4.4 and 8.6.7.1.4.5.

9) UE shall transmit a MEASUREMENT REPORT message (inter frequency) triggered by event 2B for cell 2. The measurement reporting delay for cell 2 from the beginning of T2 shall be less than 5.14 seconds. If the UE fails to report the events within the required delay, then the counter event2B failure is increased by one. If the reporting delays for this event is within the required limit, the counter event2B success is increased by one.

10) UE shall transmit a MEASUREMENT REPORT message (inter RAT) triggered by event 3A for cell 3. The measurement reporting delay for cell 3 from the beginning of T2 shall be less than 8.23 s. If the UE fails to report the event within the required delay, then the counter event3A failure is increased by one. If the reporting delay for this event is within the required limit, the counter event3A success is increased by one.

11) After the SS receive the MEASUREMENT REPORT messages in step 10) or 10 seconds after the beginning of T2, the UE is switched off.

12) Repeat steps 1-11 according to Tables G.2.3-1 in TS36.521-3 [38]. If one counter reaches the pass criterion, this counter is stopped and the remaining counters are continued. For the overall outcome of the test to be considered a pass, the counters for 2B events and for 3A events shall independently indicate a pass result. The test is stopped immediately and the test is considered to be a fail, if any counter reaches an early fail criterion.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 4.7B.1 of TS 36.508 [33], with the following exceptions:

PHYSICAL CHANNEL RECONFIGURATION message:

Derivation Path: TS 36.508 [33], clause 4.7B.1 Table 4.7B.1-5: PHYSICAL CHANNEL RECONFIGURATION			
Information Element	Value/remark	Comment	Condition
Message Type			
RRC transaction identifier	0		
Downlink information common for all radio links			
- Downlink DPCH info common for all RL	Not Present		
- DPCH compressed mode info			
- Transmission gap pattern sequence	(1/2 TGPS)		
- TGPSI	1		
- TGPS Status Flag	activate		
- TGCFN	(((Current CFN + (230 – TTI/10msec))mod 256) +6)mod 256		
- Transmission gap pattern sequence configuration parameters	1		
- TGMP	FDD Measurement		
- TGPRC	Infinity		
- TGSN	10		
- TGL1	10		
- TGL2	Not Present		
- TGD	0		

- TGPL1	8		
- 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		
- Transmission gap pattern sequence	(2/2 TGPS)		
- TGPSI	2		
- TGPS Status Flag	activate		
- TGCFN	((((Current CFN + (230 – TTI/10msec))mod 256) +10)mod 256		
- Transmission gap pattern sequence configuration parameters	2		
- TGMP	E-UTRA measurement		
- TGPRC	Infinity		
- TGSN	10		
- TGL1	10		
- TGL2	Not Present		
- TGD	0		
- TGPL1	8		
- 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 for each radio link	Not Present		
MBMS PL Service Restriction Information	Not Present		

MEASUREMENT CONTROL message(inter frequency):

Derivation Path: TS 36.508 [33], clause 4.7B.1 Table 4.7B.1-3: MEASUREMENT CONTROL			
Information Element	**Value/remark**	**Comment**	**Condition**
Message Type			
RRC transaction identifier	0		
Measurement Identity	1		
CHOICE Measurement type	Inter-frequency measurement		
-Inter-frequency measurement			
-Inter-frequency measurement objects list			
- CHOICE Inter-frequency cell removal	Not Present		
- New Inter frequency cells			
- Inter frequency cell id	Refer to table K.1		
- Frequency info			
- CHOICE mode	FDD		
- UARFCN uplink(Nu)	Not Present		

- UARFCN downlink(Nd)	Same frequency as "Channel2" in Table 8.6.7.1.4.2		
- Cell info			
- Cell individual offset	Not Present		
- Reference time difference to cell	Not Present		
- CHOICE mode	FDD		
- Primary CPICH info			
- Primary scrambling code	Set to Primary scrambling code of Cell2		
- Primary CPICH Tx Power	Not present		
- Read SFN indicator	FALSE		
- Tx Diversity Indicator	FALSE		
- 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 Ec/N0		
- I Inter-frequency reporting quantity			
- UTRA Carrier RSSI	FALSE		
- Frequency quality estimate	FALSE		
- Non frequency related cell reporting quantities			
-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		
- Reporting cell status	Not present		
-Measurement validity	Not Present		
- Inter-frequency set update			
-UE autonomous update mode	On with no reporting		
- CHOICE report criteria	Inter-frequency measurement reporting criteria		
- Parameters required for each event	1 entry		
- Inter-frequency event identity	2b		
- Threshold used frequency	-9 dB		
- W used frequency	0		
- Hysteresis	0		
- Time to trigger	0 ms		
- Reporting cell status			
- CHOICE reported cell	Report cells within monitored and/or virtual active set on non-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		
DPCH Compressed mode status info	Not present		

MEASUREMENT CONTROL message(event triggered inter RAT):

Derivation Path: TS 36.508 [33], clause 4.7B.1 Table 4.7B.1-3: MEASUREMENT CONTROL			
Information Element	**Value/remark**	**Comment**	**Condition**
Message Type			
RRC transaction identifier	0		
Measurement Identity	2		

CHOICE Measurement type	Inter-RAT measurement		
-Inter-RAT measurement			
- Inter-RAT measurement quantity			
- CHOICE system	E-UTRA		
- Measurement quantity	RSRP		
- Filter coefficient	0		
- Inter-RAT reporting quantity			
- UTRAN estimated quality	FALSE		
- CHOICE system	E-UTRA		
- Reporting quantity	both		
- CHOICE report criteria	Inter-RAT measurement reporting criteria		
- Parameters required for each event	1 entry		
- Inter-RAT event identity	3a		
- Threshold own system	-9 dB		
- W	0		
- Threshold other system	-71 (-96 dBm)	When measurement quantity is RSRP, range should be (-115..-19), the actual value = Threshold other system - 25 [dBm]	
- Hysteresis	0		
- Time to trigger	0 ms		
- Reporting cell status			
- CHOICE reported cell	Report cells within active set or within virtual active set or of the other RAT		
- Maximum number of reported cells	3		
DPCH Compressed mode status info	Not present		

MEASUREMENT REPORT message for inter-frequency

Derivation Path: TS 36.508 [33], clause 4.7B.1 Table 4.7B.1-4: MEASUREMENT REPORT			
Information Element	**Value/remark**	**Comment**	**Condition**
Message Type			
Measurement identity	1		
Measured Results			
- Inter-frequency measured results list	1 entry		
- UTRA Carrier RSSI	This IE does not need to be checked		
- Inter-frequency cell measurement results			
- Cell measured results			
- Cell Identity	Not present		
- Cell synchronisation information			
-Tm	This IE does not need to be checked		
- OFF	This IE does not need to be checked		
- CHOICE mode	FDD		
- Primary CPICH info	Checked that this IE is present		
- Primary scrambling code	See Annex K and TS 34.108 [3] section 6.1.4		
- CPICH Ec/N0	Checked that this IE is present		
- CPICH RSCP	Checked that this IE is present		
- Pathloss	Not present		
Event Results	interFreqEventResults		
-eventID	e2b		
E-UTRA Measured Results	Not present		
E-UTRA Event Results	Not present		

MEASUREMENT REPORT message for inter-RAT, Event triggered

Information Element	Value/remark	Comment	Condition
Derivation Path: TS 36.508 [33], clause 4.7B.1 Table 4.7B.1-4: MEASUREMENT REPORT			
Message Type			
Measurement identity	2		
E-UTRA Measured Results			
- E-UTRA measured results list	1 entry		
- E-UTRA Carrier Frequency	Checked that this IE is present		
- Measured E-UTRA cells	1 entry		
- Physical Cell Identity	Checked that this IE is present	Physical Cell Identity of Cell 3	
- RSRP	Checked that this IE is present		
- RSRQ	This IE does not need to be checked		
E-UTRA Event Results			
- Inter-RAT event identity	3a		
- E-UTRA events results list	1 entry		
- E-UTRA Carrier Frequency	Checked that this IE is present	Downlink EARFCN of Cell 3	
- Reported cells	1 entry		
- Physical Cell Identity	Checked that this IE is present	Physical Cell Identity of Cell 3	

8.6.7.1.5 Test requirements

The UE shall send one Event 2B triggered measurement report for Cell2, with a measurement reporting delay less than 5.14 s from the beginning of time period T2.

The UE shall send one Event 3A triggered measurement report for Cell3, with a measurement reporting delay less than 8.23 s from the beginning of time period T2.

NOTE: The delay for inter frequency cell detection is equal to:

$$T_{identify,\ inter} = T_{basicidentifyFDD,inter} \cdot \frac{T_{Measurement\ Period,Inter}}{T_{Inter}} \cdot N_{Freq}\ ms = 5143\ ms$$

where:

$T_{basicidentifyFDD,inter}$ is specified in TS 25.133 [2] clause 8.1.2.3.2 as 300 ms

$T_{Measurement\ Period,Inter}$ is specified in TS 25.133 [2] clause 8.1.2.3.2 as 480 ms

and

T_{Inter} is specified in TS 25.133 [2] clause 8.1.2.3.2 as 6 gaps of length 7 slots each, 28 ms

NOTE: The delay for interRAT cell detection is equal to:

$$T_{Identify,E-UTRAN} = N_{freq,E-UTRA} \cdot T_{Basic\_Identify\_E-UTRAN} \cdot \frac{480}{T_{E-UTRAN}}\ ms = 8229\ ms$$

where:

$T_{Basic\_Identify\_E-UTRAN}$ is specified in TS 25.133 [2] clause 8.1.2.6 as 480 ms

and

$T_{E\text{-}UTRAN}$ is specified in TS 25.133 [2] clause 8.1.2.6 as 6 gaps of length 7 slots each, 28 ms

**Table 8.6.7.1.4.4: Cell Specific 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/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	Note 1		N/A	
OCNS		Note 2		-0.941	
$\hat{I}_{or}/I_{oc}$	dB	0		-Infinity	-1. 1
I_{oc}	dBm/3,84 MHz	-70		-70	
CPICH_Ec/Io	dB	-13		-Infinity	-13.6
Propagation Condition		AWGN		Case 5 as specified in Annex B of TS25.101 [1]	
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 Ior					

**Table 8.6.7.1.4.5: Cell specific test parameters for Correct reporting
of E-UTRAN FDD neighbours in fading propagation condition (cell 3)**

Parameter	Unit	Cell 3	
		T1	T2
E-UTRA RF Channel Number		1	
BW$_{channel}$	MHz	10	
OCNG Pattern defined in D.1.2 in 3GPP TS 36. 521-3 [38] (OP.2 FDD)		OP.2 FDD	
PBCH_RA	dB		
PBCH_RB	dB		
PSS_RA	dB		
SSS_RA	dB		
PCFICH_RB	dB		
PHICH_RA	dB		
PHICH_RB	dB	0	
PDCCH_RA	dB		
PDCCH_RB	dB		
PDSCH_RA	dB		
PDSCH_RB	dB		
OCNG_RA$^{Note\ 1}$	dB		
OCNG_RB$^{Note\ 1}$	dB		
N_{oc} $^{Note\ 2}$	dBm/15 kHz	-98	
$\hat{E}_s/N_{oc}$	dB	-Infinity	13
$\hat{E}_s/I_{ot}$	dB	-Infinity	13
RSRP $^{Note\ 3}$	dBm/15 kHz	-Infinity	-85
SCH_RP $^{Note\ 3}$	dBm/15 kHz	-Infinity	-85
Io $^{Note\ 3}$	dBm/9 MHz	-70.22	-57.01
Propagation Condition		ETU70 (Note 4)	
NOTE 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols. OCNG patterns are specified in annex D of 3GPP TS 36. 521-3 [38].			
NOTE 2: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and shall be modelled as AWGN of appropriate power for N_{oc} to be fulfilled.			
NOTE 3: RSRP, SCH_RP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves.			
NOTE 4: ETU70 propagation conditions are specified in Annex B.2 of 3GPP TS 36.101 [37].			

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%. For the overall outcome of the test to be considered a pass, the counters for 2B events and 3A events shall independently indicate a pass result.

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.

8.6.7.2 Correct reporting of E-UTRA TDD neighbours in Fading propagation condition

Editor's note: This section is incomplete. The following aspects are either missing or not yet determined:

- The cell mapping is undefined

- The Test system uncertainties applicable above 3GHz are undefined

- The Test Tolerances and Test Requirements applicable above 3GHz are undefined

8.6.7.2.1 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 in this section apply only to UE supporting UTRA FDD and E-UTRA TDD for Release 8 and later releases. Applicability requires support for EUTRA FGI bit 2.

8.6.7.2.2 Minimum requirement

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

$$
\text{T}_{\text{identify, inter}} = \text{T}_{\text{basic identify FDD,inter}} \cdot \frac{\text{T}_{\text{Measurement Period,Inter}}}{\text{T}_{\text{Inter}}} \cdot N_{Freq} \text{ ms}
$$

The UE physical layer shall when transmission gaps are scheduled for FDD inter frequency measurements also 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 [2] with measurement period given by

$$
\text{T}_{\text{measurement inter}} = Max\left\{\text{T}_{\text{Measurement\_Period Inter}}, \text{T}_{\text{basic measurement FDD inter}} \cdot \frac{\text{T}_{\text{Measurement\_Period Inter}}}{\text{T}_{\text{Inter}}} \cdot N_{Freq}\right\} ms
$$

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

$\text{T}_{\text{Measurement\_Period Inter}} = 480$ ms. The period used for calculating the measurement period $\text{T}_{\text{measurement\_inter}}$ for inter frequency CPICH measurements.

$\text{T}_{\text{basic\_identify\_FDD,inter}} = 300$ 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.

$\text{T}_{\text{Inter}} = 28$ ms. This is the minimum time that is available for inter frequency measurements, during the period $\text{T}_{\text{Measurement\_Period inter}}$ with an arbitrarily chosen timing. The minimum time per transmission gap is calculated by using 6 gaps of length 7 slots each.

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

Thus the delay for inter frequency cell detection is equal to 5143 ms.

In CELL_DCH state when a transmission gap pattern sequence is provided by the UTRAN the UE shall continuously measure previously detected E-UTRAN cells and search for new E-UTRAN cells.

When compressed mode gaps are used for E-UTRAN measurements, the UE shall be able to identify a new detectable E-UTRAN cell within

$$T_{\text{Identify,E-UTRAN}} = N_{freq,E-UTRA} \cdot T_{\text{Basic\_Identify\_E-UTRAN}} \cdot \frac{480}{T_{\text{E-UTRAN}}} \quad ms \; ;$$

If the UE does not need compressed mode to perform E-UTRAN measurements, the UE shall be able to identify a new detectable E-UTRAN cell within $T_{\text{Basic\_Identify\_E-UTRAN}}$ ms.

Where:

$T_{\text{E-UTRAN}}$: 28 ms. This is the minimum time that is available for E-UTRAN measurements during a 480ms period with an arbitrarily chosen timing. . The minimum time per transmission gap is calculated by using 6 gaps of length 7 slots each.

$N_{freq,\text{E-UTRAN}}$:This is the number of E-UTRAN carriers being monitored

$T_{\text{Basic\_Identify\_E-UTRAN}} = 480$ms

Thus the delay for interRAT cell detection is equal to 8229 ms.

The normative reference for these requirements is TS 25.133 [2] clauses 8.1.2.3, 8.1.2.6 and A.8.7.2.

8.6.7.2.3 Test purpose

To verify that the UE makes correct reporting of an event when doing combined inter frequency and EUTRAN TDD measurements.

8.6.7.2.4 Method of test

8.6.7.2.4.1 Initial conditions

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

Frequencies to be tested: see table K.2 in Annex K.

The test parameters are given in tables 8.6.7.2.4.1, 8.6.7.2.4.2 and 8.6.7.2.4.3. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 2B and 3A shall be used. The test consists of two successive time periods, with time duration T1 and T2.

**Table 8.6.7.2.4.1: 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 [1] section A.3.1
Power Control		On	
Compressed mode Inter frequency measurements E-UTRAN measurement		 DL compressed mode reference pattern 2, set 5 DL compressed mode reference pattern 2, set 5	Only applicable for UE requiring compressed mode patterns. As specified in table A.22 TS 25.101 [1] section A.5 As specified in table A.22 TS 25.101 [1] section A.5
Active cell		Cell 1	
Inter-RAT measurement quantity		E-UTRAN RSRP	
Absolute Threshold (Ec/N0) used frequency	dB	-9	Ec/N0 threshold for Event 2b and 3a
Absolute Threshold (Ec/N0) used for a not used frequency	dB	-18	Ec/IN0 threshold for Event 2b
Threshold other system	dBm	-96	Absolute E-UTRA RSRP threshold for event 3a.
Time to Trigger	ms	0	
Filter coefficient		0	
Monitored cell list size		Total 24 FDD neighbours 8 on frequency Channel 2	Measurement control information is sent before the compressed mode pattern starts.
T1	s	≥1	
T2	s	10	

**Table 8.6.7.2.4.2: Cell Specific 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/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	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/Io	dB	-13		-Infinity	-14
Propagation Condition		AWGN		Case 5 as specified in Annex B of TS 25.101 [1]	
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 Ior					

**Table 8.6.7.2.4.3: Cell specific test parameters for Correct reporting
of E-UTRAN TDD neighbours in fading propagation condition (cell 3)**

Parameter	Unit	Cell 3	
		T1	T2
E-UTRA RF Channel Number		1	
BW$_{channel}$	MHz	10	
OCNG Pattern defined in D.2.1 in 3GPP TS 36.521-3 [38] (OP.2 TDD)		OP.2 TDD	
PBCH_RA	dB		
PBCH_RB	dB		
PSS_RA	dB		
SSS_RA	dB		
PCFICH_RB	dB		
PHICH_RA	dB		
PHICH_RB	dB	0	
PDCCH_RA	dB		
PDCCH_RB	dB		
PDSCH_RA	dB		
PDSCH_RB	dB		
OCNG_RA$^{Note\ 1}$	dB		
OCNG_RB$^{Note\ 1}$	dB		
N_{oc} $^{Note\ 2}$	dBm/15 kHz	-98	
$\hat{E}_s/N_{oc}$	dB	-Infinity	13
$\hat{E}_s/I_{ot}$	dB	-Infinity	13
RSRP $^{Note\ 3}$	dBm/15 kHz	-Infinity	-85
SCH_RP $^{Note\ 3}$	dBm/15 kHz	-Infinity	-85
Io $^{Note\ 3}$	dBm/9 MHz	-70.22	-57.01
Propagation Condition		ETU70 (Note 4)	
NOTE 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols. OCNG patterns are specified in annex D of 3GPP TS 36.521-3 [38].			
NOTE 2: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and shall be modelled as AWGN of appropriate power for N_{oc} to be fulfilled.			
NOTE 3: RSRP, SCH_RP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves.			
NOTE 4: ETU70 propagation conditions are specified in Annex B.2 of 3GPP TS 36.101 [37].			

8.6.7.2.4.2 Procedure

1) The RF parameters are set up according to T1 in Table 8.6.7.2.4.4 and 8.6.7.2.4.5.

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 T1 starts.

4) If Compressed mode is required, SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message (compressed gaps). Otherwise, Go to Step 6.

5) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message (compressed gaps).

6) SS shall transmit a MEASUREMENT CONTROL message (inter frequency)

7) SS shall transmit a MEASUREMENT CONTROL message (event triggered inter RAT, activation of TGPSI 1-2)

8) 5 second from the beginning of T1, the SS shall switch the power settings from T1 to T2 according to the parameters defined in tables 8.6.7.2.4.4 and 8.6.7.2.4.5.

9) UE shall transmit a MEASUREMENT REPORT message (inter frequency) triggered by event 2B for cell 2. The measurement reporting delay from the beginning of T2 shall be less than 5.14 seconds. If the UE fails to report the event within the required delay, then the counter event2B_failure is increased by one. If the reporting delay for this event is within the required limit, the counter event2B_success is increased by one.

10) UE shall transmit a MEASUREMENT REPORT message (inter RAT) triggered by event 3A for cell 3. The measurement reporting delay from the beginning of T2 shall be less than 8.229 s. If the UE fails to report the event within the required delay, then the counter event3A_failure is increased by one. If the reporting delay for this event is within the required limit, the counter event3A _success is increased by one.

11) After 10 seconds after the beginning of T2, the UE is switched off.

12) Repeat steps 1-11 according to Tables G.2.3-1 in TS36.521-3 [38]. If one counter reaches the pass criterion, this counter is stopped and the remaining counters are continued. For the overall outcome of the test to be considered a pass, the counters for 2B events, 3A events shall independently indicate a pass result. The test is stopped immediately and the test is considered to be a fail, if any counter reaches an early fail criterion.

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 (inter frequency)

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
-RRC message sequence number	SS provides the value of this IE, from its internal counter.
Measurement Information elements	
-Measurement Identity	1
-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 Measurement type	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	Refer to table K.1
- Frequency info	
- CHOICE mode	FDD
- UARFCN uplink(Nu)	Not Present
- UARFCN downlink(Nd)	Same frequency as "Channel2" in Table 8.6.5.1.4.2
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Set to Primary scrambling code of Cell2
- Primary CPICH Tx Power	Not present
- Tx Diversity Indicator	FALSE
- 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

Information Element/Group name	Value/Remark
-Frequency quality estimate	FALSE
-Non frequency related cell reporting quantities (10.3.7.5)	
-Cell synchronisation information reporting indicator	FALSE
-Cell Identity reporting indicator	FALSE
-CHOICE mode	FDD
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	FALSE
-Pathloss reporting indicator	FALSE
-Reporting cell status (10.3.7.61)	Not Present
-Measurement validity (10.3.7.51)	Not Present
-Inter-frequency set update (10.3.7.22)	
-UE autonomous update mode	On with no reporting
-CHOICE report criteria	Inter-frequency measurement reporting criteria
-Inter-frequency measurement reporting criteria (10.3.7.19)	
- Parameters required for each events	
- Inter-frequency event identity	2b
- Threshold used frequency	-15 dB
- W used frequency	0
- Hysteresis	0 dB
- Time to trigger	0 ms
- Reporting cell status	Within active set or within virtual active set or of the other RAT
- Maximum number of reporting cells	1
- Non used frequency parameter list	
- Threshold non used frequency	-15 dB
- W non-used frequency	0
Physical channel information elements	
-DPCH compressed mode status info (10.3.6.34)	Not present

MEASUREMENT CONTROL message (event triggered inter RAT, activation of TGPSI 1-2)

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
-RRC message sequence number	SS provides the value of this IE, from its internal counter.
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 Measurement type	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 EcNo
-CHOICE system	E-UTRA
-Measurement quantity	RSRP
-Filter coefficient	0
-Inter-RAT reporting quantity (10.3.7.32)	
- UTRAN estimated quality	FALSE

Information Element/Group name	Value/Remark
- CHOICE system	E-UTRA
- Reporting quantity	Measurement quantity
-Reporting cell status (10.3.7.61)	
-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 3A
-Threshold own system	-9 dB
-W	0
-Threshold other system	-71 (-96 dBm) When measurement quantity is RSRP, range should be (-115..-19), the actual value = Threshold other system - 25 [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)	If Compressed mode is required, Active . Otherwise , Not present.
- TGPS reconfiguration CFN	(Current CFN + (230 – TTI/10msec))mod 256
-Transmission gap pattern sequence (1 to <MaxTGPS>)	
- TGPSI	1
- TGPS Status Flag	activate
- TGCFN	(TGPS reconfiguration CFN +6)mod 256
- TGPSI	2
- TGPS Status Flag	activate
- TGCFN	(TGPS reconfiguration CFN +10)mod 256

PHYSICAL CHANNEL RECONFIGURATION (compressed gaps):

Information Element	Value/Remark	Version
Message Type (10.2.22)		
UE Information Elements		
-RRC transaction identifier	0	
-Integrity check info		
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.	
-RRC message sequence number	SS provides the value of this IE, from its internal counter.	
-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	
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)	Not Present	
Uplink radio resources		
-Maximum allowed UL TX power	33 dBm	
-CHOICE channel requirement	Not Present	
Downlink radio resources		

Information Element	Value/Remark	Version
-CHOICE *mode*	FDD	
-Downlink information common for all radio links (10.3.6.24)		
-Downlink DPCH info common for all RL (10.3.6.18)	Not Present	
-CHOICE mode	FDD	
-DPCH compressed mode info (10.3.6.33)		
- Transmission gap pattern sequence	(1/2 TGPS)	
- TGPSI	1	
- TGPS Status Flag	Deactivate	
- Transmission gap pattern sequence configuration parameters		
-TGMP	FDD measurement	
-TGPRC	Infinity	
-TGSN	10	
-TGL1	10	
-TGL2	Not Present	
-TGD	UNDEFINED	
-TGPL1	8	
-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	
- Transmission gap pattern sequence	(2/2 TGPS)	
- TGPSI	2	
- TGPS Status Flag	Deactivate	
- Transmission gap pattern sequence configuration parameters		
-TGMP	E-UTRA Measurement	
-TGPRC	Infinity	
-TGSN	10	
-TGL1	10	
-TGL2	Not Present	
-TGD	UNDEFINED	
-TGPL1	8	
-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 (10.3.6.86)	None	
-Default DPCH Offset Value (10.3.6.16)	Not Present	
-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	Set to Primary scrambling code of Cell1	
-Downlink DPCH info for each RL (10.3.6.21)		
-CHOICE mode	FDD	

Information Element	Value/Remark	Version
-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 change	
-TPC combination index	0	
- Closed loop timing adjustment mode	Not Present	
- SCCPCH information for FACH (10.3.6.70)	Not Present	

MEASUREMENT REPORT message for inter-frequency

This message shall use the same content as described in Annex I "Contents of MEASUREMENT REPORT message for Inter frequency test cases" with the following exceptions:

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

MEASUREMENT REPORT message for inter-RAT, Event triggered

This message shall use the same content as described in Annex I "Contents of MEASUREMENT REPORT message for inter – RAT test cases" with the following exceptions:

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	2

8.6.7.2.5 Test requirements

**Table 8.6.7.2.4.4: Cell Specific 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/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	Note 1		N/A	
OCNS		Note 2		-0.941	
$\hat{I}_{or}/I_{oc}$	dB	0		-Infinity	-1.1
I_{oc}	dBm/3,84 MHz	-70		-70	
CPICH_Ec/Io	dB	-13		-Infinity	-13.6
Propagation Condition		AWGN		Case 5 as specified in Annex B of TS25.101 [1]	
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 Ior					

**Table 8.6.7.2.4.5: Cell specific test parameters for Correct reporting
of E-UTRAN TDD neighbours in fading propagation condition (cell 3)**

Parameter	Unit	Cell 3	
		T1	T2
E-UTRA RF Channel Number		1	
BW$_{channel}$	MHz	10	
OCNG Pattern defined in D.2.1 in 3GPP TS 36.521-3 [38] (OP.2 TDD)		OP.2 TDD	
PBCH_RA	dB		
PBCH_RB	dB		
PSS_RA	dB		
SSS_RA	dB		
PCFICH_RB	dB		
PHICH_RA	dB		
PHICH_RB	dB	0	
PDCCH_RA	dB		
PDCCH_RB	dB		
PDSCH_RA	dB		
PDSCH_RB	dB		
OCNG_RA$^{Note 1}$	dB		
OCNG_RB$^{Note 1}$	dB		
N_{oc} $^{Note 2}$	dBm/15 kHz	-98	
$\hat{E}_s/N_{oc}$	dB	-Infinity	13
$\hat{E}_s/I_{ot}$	dB	-Infinity	13
RSRP$^{Note 3}$	dBm/15 kHz	-Infinity	-85
SCH_RP$^{Note 3}$	dBm/15 kHz	-Infinity	-85
Io$^{Note 3}$	dBm/9 MHz	-70.22	-57.01
Propagation Condition		ETU70 (Note 4)	
NOTE 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols. OCNG patterns are specified in annex D of 3GPP TS 36.521-3 [38].			
NOTE 2: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and shall be modelled as AWGN of appropriate power for N_{oc} to be fulfilled.			
NOTE 3: RSRP, SCH_RP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves.			
NOTE 4: ETU70 propagation conditions are specified in Annex B.2 of 3GPP TS 36.101 [37].			

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% . For the overall outcome of the test to be considered a pass, the counters for 2B events and 3A events shall independently indicate a pass result.

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.