8.14 E-UTRAN TDD - FDD Inter-frequency Measurements

8.14.1 E-UTRAN TDD-FDD Inter-frequency event triggered reporting under fading propagation conditions in asynchronous cells

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

8.14.1.1 Test purpose

To verify the UE's ability to make a correct reporting of an event under fading propagation conditions in asynchronous cells within the E-UTRA TDD-FDD inter-frequency cell search requirements. This test will partly verify the TDD-FDD inter-frequency cell search requirements in section 8.1.2.3.3.

8.14.1.2 Test applicability

This test applies to all types of E-UTRA UE supporting FDD and TDD release 9 and forward. Applicability requires support for FGI bit 25.

8.14.1.3 Minimum conformance requirements

When measurement gaps are scheduled the UE shall be able to identify a new FDD inter-frequency within $T_{Identify\_Inter}$ according to the following expression:

$$T_{Identify\_Inter} = T_{Basic\_Identify\_Inter} \cdot \frac{480}{T_{Inter1}} \cdot N_{freq} \quad ms$$

Where:

$T_{Basic\_Identify\_Inter}$ = 480 ms. It is the time period used in the inter frequency equation where the maximum allowed time for the UE to identify a new FDD inter-frequency cell is defined.

N_{freq} is defined in TS 36.133 [4] section 8.1.2.1.1 and T_{Inter1} is defined in TS36.133 [4] section 8.1.2.1.

A cell shall be considered detectable provided following conditions are fulfilled:

- RSRP and RSRP Ês/Iot according to Annex I.2.3 for a corresponding Band,
- other RSRP related side conditions given in Section 9.1 are fulfilled,
- SCH_RP$|_{dBm}$ and SCH Ês/Iot according to Annex I.2.3 for a corresponding Band.

When measurement 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 TS 36.133 sub-clause 9.1.3 with measurement period given by table 8.14.1.3-1.

Table 8.14.1.3-1: RSRP measurement period and measurement bandwidth

Configuration	Physical Layer Measurement period: $T_{Measurement\_Period\_Inter\_FDD}$ [ms]	Measurement bandwidth [RB]
0	480 x N_{freq}	6
1 (Note)	240 x N_{freq}	50
Note: This configuration is optional.		

The UE shall be capable of performing RSRP and RSRQ measurements of at least 4 inter-frequency cells per FDD inter-frequency and the UE physical layer shall be capable of reporting RSRP and RSRQ measurements to higher layers with the measurement period defined in Table 8.14.1.3-1.

Reported measurements contained in event triggered measurement reports shall meet the requirements in TS 36.133 [4] clause 9.

The UE shall not send any event triggered measurement reports, as long as no reporting criteria are fulfilled.

The measurement reporting delay is defined as the time between an event that will trigger a measurement report and the point when the UE starts to transmit the measurement report over the air 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: 2 x TTI_{DCCH}. This measurement reporting delay excludes a delay which caused by no UL resources for UE to send the measurement report.

The event triggered measurement reporting delay, measured without L3 filtering shall be less than $T_{identify\_inter}$ defined in TS 36.133 [4] clause 8.1.2.3.1.1. When L3 filtering is used an additional delay can be expected.

If a cell which has been detectable at least for the time period $T_{identify\_intra}$ defined in TS 36.133 [4] section 8.1.2.2.1.1 becomes undetectable for a period ≤ 5 seconds and then the cell becomes detectable again and triggers an event, the event triggered measurement reporting delay shall be less than $T_{Measurement\_Period\ Intra}$ provided the timing to that cell has not changed more than ± 50 Ts and the L3 filter has not been used. When L3 filtering is used an additional delay can be expected

The normative reference for this requirement is TS 36.133 [4] clause 8.1.2.3.1 and A.8.14.1.

8.14.1.4 Test description

8.14.1.4.1 Initial conditions

Test Environment: Normal, as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1.

Channel Bandwidth to be tested: 10 MHz as defined in TS 36.508 [7] clause 4.3.1.

1. Connect the SS (node B emulator) and faders and AWGN noise sources to the UE antenna connectors as shown in TS 36.508 [7] Annex A figure A.15.
2. The general test parameter settings are set up according to Table 8.14.1.4.1-1.
3. Propagation conditions are set according to Annex B clauses B.0.
4. Message contents are defined in clause 8.14.1.4.3.
5. There are two E-UTRA carriers and one E-UTRA TDD Cell 1 and one E-UTRA FDD Cell 2 on each carrier specified in the test. Cell 1 is the cell used for connection setup with the power level set according to Annex C.0 and C.1 for this test.

Table 8.14.1.4.1-1: General test parameters for E-UTRAN TDD-FDD inter-frequency event triggered reporting in fading propagation conditions

Parameter	Unit	Value	Comment
Cell 1 PDSCH parameters		DL Reference Measurement Channel R.0 TDD	As specified in section A.1.2
Cell 1 PCFICH/PDCCH/PHICH parameters		DL Reference Measurement Channel R.6 TDD	As specified in section A.2.2
Cell1 Special subframe configuration		6	As specified in table 4.2-1 in TS 36.211.
Cell1 Uplink-downlink configuration		1	As specified in TS 36.211 section 4.2 Table 4.2-2.
Cell 2 PDSCH parameters		DL Reference Measurement Channel R.0 FDD	As specified in section A.1.1
Cell 2 PCFICH/PDCCH/PHICH parameters		DL Reference Measurement Channel R.6 FDD	As specified in section A.2.1
Cell 1 E-UTRA TDD RF Channel Number		1	One TDD carrier frequency is used.
Cell 2 E-UTRA FDD RF Channel Number		2	One FDD carrier frequency is used.
Channel Bandwidth ($BW_{channel}$)	MHz	10	
Active cell		Cell 1	Cell 1 is on RF channel number 1
Neighbour cell		Cell 2	Cell 2 is on RF channel number 2
Gap Pattern Id		0	As specified in TS 36.133[4] section 8.1.2.1.
A3-Offset	dB	-6	
Hysteresis	dB	0	
CP length		Normal	
TimeToTrigger	s	0	
Filter coefficient		0	L3 filtering is not used
DRX		OFF	OFF
Time offset between cells		3 ms	Asynchronous cells
T1	s	5	
T2	s	5	

8.14.1.4.2 Test procedure

The test consists of two successive time periods, with time durations of T1 and T2 respectively. During time duration T1, the UE shall not have any timing information of cell 2. Gap pattern configuration #0 is configured before T2 begins to enable inter-frequency monitoring.

1. Ensure the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.
2. Set the parameters according to T1 in Table 8.14.1.5-1. Propagation conditions are set according to Annex B clauses B.1.1 and B.2.2. T1 starts.
3. SS shall transmit an RRCConnectionReconfiguration message.
4. The UE shall transmit RRCConnectionReconfigurationComplete message.
5. When T1 expires, the SS shall switch the power setting from T1 to T2 as specified in Table 8.14.1.5-1.
6. UE shall transmit a MeasurementReport message triggered by Event A3. If the measurement reporting delay from the beginning of time period T2 is less than 3842ms the number of successful tests is increased by one. If the UE fails to report the event within the measurement reporting delay requirement then the number of failure tests is increased by one.
7. After the SS receive the MeasurementReport message in step 6) or when T2 expires, the SS shall transmit a RRCConnectionRelease message to release the RRC connection which includes the release of the established radio bearers as well as all radio resources.

8. Set Cell 2 physical cell identity = ((current cell 2 physical cell identity + 1) mod 14 + 2) for next iteration of the test procedure loop.

9. After the RRC connection release, the SS:
   - transmits in Cell 1 a Paging message (including PagingRecord with UE-Identity) for the UE and ensures the UE is in State 3A according to TS 36.508 [7] clause 4.5.3A (if the paging fails, switches off and on the UE and ensures the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3),
   or
   - switches off and on the UE and ensures the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.

10. Repeat step 2-9 until the confidence level according to Tables G.2.3-1 in Annex G clause G.2 is achieved.

8.14.1.4.3 Message contents

Message contents are according to TS 36.508 [7] clause 4.6 with the following exceptions:

Table 8.14.1.4.3-1: Common Exception messages for E-UTRAN TDD-FDD inter frequency event triggered reporting under fading propagation conditions in asynchronous cells test requirement

Default Message Contents	
Common contents of system information blocks exceptions	
Default RRC messages and information elements contents exceptions	Table H.3.1-1 Table H.3.1-7 Table H.3.1-9

Table 8.14.1.4.3-2: *ReportConfigEUTRA-A3*: Additional E-UTRAN TDD-FDD inter frequency event triggered reporting under fading propagation conditions in asynchronous cells test requirement

Derivation Path: TS 36.508 [7] clause 4.6.6, Table 4.6.6-6 ReportConfigEUTRA-A3			
Information Element	**Value/remark**	**Comment**	**Condition**
ReportConfigEUTRA ::= SEQUENCE {			
triggerType CHOICE {			
event SEQUENCE {			
eventId CHOICE {			
eventA3 SEQUENCE {			
a3-Offset	-12 (-6 dB)	-6 is actual value in dB (-12 * 0.5 dB)	
reportOnLeave	FALSE		
}			
}			
Hysteresis	0 (0 dB)	0 is actual value in dB (0 * 0.5 dB)	
timeToTrigger	0 (0 ms)		
}			
}			

Table 8.14.1.4.3-3: *MeasResults*: Additional E-UTRAN TDD-FDD inter frequency event triggered reporting under fading propagation conditions in asynchronous cells test requirement

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResults ::= SEQUENCE {			
measId	1		
measResultServCell SEQUENCE {			
rsrpResult		Set according to specific test	
rsrqResult		Set according to specific test	
}			
measResultNeighCells CHOICE {			
measResultListEUTRA	MeasResultListEUTRA		
}			
}			

Table 8.14.1.4.3-4: *MeasResultListEUTRA*: Additional E-UTRAN TDD-FDD inter frequency event triggered reporting under fading propagation conditions in asynchronous cells test requirement

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResultListEUTRA::= SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {			
physCellId	PhysicalCellIdentity	Cell 2	
measResult SEQUENCE {			
rsrpResult		Set according to specific test	
rsrqResult		Set according to specific test	
}			
}			

8.14.1.5 Test requirement

Tables 8.14.1.4.1-1 and 8.14.1.5-1 define the primary level settings including test tolerances for event triggered reporting under fading propagation conditions in asynchronous TDD-FDD inter frequency cells test.

Table 8.14.1.5-1: Cell specific test parameters for E-UTRAN TDD-FDD inter-frequency event triggered reporting under fading propagation conditions in asynchronous cells

Parameter	Unit	Cell 1		Cell 2	
		T1	T2	T1	T2
E-UTRA RF Channel Number		1		2	
$BW_{channel}$	MHz	10		10	
OCNG Patterns defined in D.2.1 (OP.1 TDD) and in D.1.2 (OP.2 FDD)		OP.1 TDD		OP.2 FDD	
PBCH_RA	dB	0		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 3	dBm/15 kHz	-98			
RSRP Note 4	dBm/15 kHz	-94.00	-94.00	-Infinity	-90.70
$\hat{E}_s/I_{ot}$	dB	4.00	4.00	-Infinity	7.30
SCH_RP Note 4	dBm/15 kHz	-94.00	-94.00	-Infinity	-90.70
$\hat{E}_s/N_{oc}$	dB	4.00	4.00	-Infinity	7.30
Propagation Condition		ETU70			

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: The resources for uplink transmission are assigned to the UE prior to the start of time period T2.
Note 3: 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 4: RSRP and SCH_RP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.

The UE shall send one Event A3 triggered measurement report, with a measurement reporting delay less than 3842 ms from the beginning of time period T2.

The overall delays measured is defined as the time from the beginning of time period T2, to the moment the UE send one Event A3 triggered measurement report to Cell 2.

The overall delays measured in the test may be up to 2xTTI_{DCCH} higher than the measurement reporting delays because of TTI insertion uncertainty of the measurement report in DCCH.

The overall delays measured test requirement is expressed as:

Overall delays measured = measurement reporting delay + TTI insertion uncertainty

Measurement reporting delay = 3840 ms

TTI insertion uncertainty = TTI_{DCCH} = 1 ms; 2xTTI_{DCCH} = 2 ms

The overall delays measured shall be less than a total of 3842 ms in this test case (note: this gives a total of 3840 ms for measurement reporting delay plus 2 ms for TTI insertion uncertainty).

The rate of correct events observed during repeated tests shall be at least 90% with a confidence level of 95%.

8.14.2 E-UTRAN TDD-FDD Inter-frequency event triggered reporting when DRX is used under fading propagation conditions in asynchronous cells

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

8.14.2.1 Test purpose

To verify the UE's ability to make a correct reporting of an event in DRX under fading propagation conditions in asynchronous cells within the E-UTRA TDD-FDD inter-frequency cell search requirements.

8.14.2.2 Test applicability

This test applies to all types of E-UTRA UE supporting FDD and TDD release 9 and forward. Applicability requires support for FGI bits 5 and 25.

8.14.2.3 Minimum conformance requirements

When measurement gaps are scheduled the UE shall be able to identify a new FDD inter-frequency within $T_{Identify\_Inter}$ as shown in table 8.14.2.3-1:

Table 8.14.2.3-1: Requirement to identify a newly detectable FDD inter-frequency cell

DRX cycle length (s)	$T_{identify\_inter}$ (s) (DRX cycles)	
	Gap period = 40 ms	Gap period = 80 ms
≤0.16	Non DRX Requirements in TS 36.133 [4] clause 8.1.2.3.1.1 are applicable	Non DRX Requirements in TS 36.133 [4] clause 8.1.2.3.1.1 are applicable
0.256	5.12*N_{freq} (20*N_{freq})	7.68*N_{freq} (30*N_{freq})
0.32	6.4*N_{freq} (20*N_{freq})	7.68*N_{freq} (24*N_{freq})
0.32 < DRX-cycle ≤ 2.56	Note (20*N_{freq})	Note (20*N_{freq})
Note: Time depends upon the DRX cycle in use		

The non DRX requirements in TS 36.133 [4] clause 8.1.2.3.1.1 states that when measurement gaps are scheduled the UE shall be able to identify a new FDD inter-frequency within $T_{Identify\ Inter}$ according to the following expression:

$$T_{Identify\_Inter} = T_{Basic\_Identify\_Inter} \cdot \frac{480}{T_{Inter1}} \cdot N_{freq} \quad ms$$

Where:

$T_{Basic\_Identify\_Inter}$ = 480 ms. It is the time period used in the inter frequency equation where the maximum allowed time for the UE to identify a new FDD inter-frequency cell is defined.

N_{freq} is defined in TS 36.133 [4] section 8.1.2.1.1 and T_{Inter1} is defined in TS36.133 [4] section 8.1.2.1.

A cell shall be considered detectable provided following conditions are fulfilled:

- RSRP and RSRP Ês/Iot according to Annex I.2.3 for a corresponding Band,
- other RSRP related side conditions given in TS 36.133 [4] Section 9.1 are fulfilled,
- SCH_RP|$_{dBm}$ and SCH Ês/Iot according to Annex I.2.3 for a corresponding Band.

The UE shall be capable of performing RSRP and RSRQ measurements of at least 4 inter-frequency cells per FDD inter-frequency and the UE physical layer shall be capable of reporting RSRP and RSRQ measurements to higher layers with the measurement period defined in Table 8.14.2.3-2.

Table 8.14.2.3-2: Requirement to measure FDD inter-frequency cells

DRX cycle length (s)	$T_{measure\_inter}$ (s) (DRX cycles)
≤0.08	Non DRX Requirements in TS 36.133 [4] clause 8.1.2.3.1.1 are applicable
0.08 < DRX-cycle ≤ 2.56	Note ($5*N_{freq}$)
Note: Time depends upon the DRX cycle in use	

The measurement accuracy for all measured cells shall be as specified in TS 36.133 [4] clause 9.1.

Reported measurements contained in event triggered measurement reports shall meet the requirements in TS 36.133 [4] clause 9.

The UE shall not send any event triggered measurement reports, as long as no reporting criteria are fulfilled.

The measurement reporting delay is defined as the time between an event that will trigger a measurement report and the point when the UE starts to transmit the measurement report over the air 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: 2 x TTI DCCH. This measurement reporting delay excludes a delay which caused by no UL resources for UE to send the measurement report.

The event triggered measurement reporting delay, measured without L3 filtering shall be less than $T_{identify\ inter}$ defined in TS 36.133 [4] clause 8.1.2.3.1.2. When L3 filtering is used an additional delay can be expected.

If a cell which has been detectable at least for the time period $T_{identify\_intra}$ defined in TS 36.133 [4] section 8.1.2.3.1.2 becomes undetectable for a period ≤ 5 seconds and then the cell becomes detectable again and triggers an event, the event triggered measurement reporting delay shall be less than $T_{Measurement\_Period\ Intra}$ provided the timing to that cell has not changed more than ± 50 Ts and the L3 filter has not been used. When L3 filtering is used an additional delay can be expected.

The normative reference for this requirement is TS 36.133 [4] clause 8.1.2.3.3.2 and A.8.14.2.

8.14.2.4 Test description

8.14.2.4.1 Initial conditions

Test Environment: Normal, as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1.

Channel Bandwidth to be tested: 10 MHz as defined in TS 36.508 [7] clause 4.3.1.

1. Connect the SS (node B emulator) and faders and AWGN noise sources to the UE antenna connectors as shown in TS 36.508 [7] Annex A figure A.15.
2. The general test parameter settings are set up according to Table 8.14.2.4.1-1.
3. Propagation conditions are set according to Annex B clauses B.0.
4. Message contents are defined in clause 8.14.2.4.3.

5. There are two E-UTRA carriers and one E-UTRA TDD Cell 1 and one E-UTRA FDD Cell 2 on each carrier specified in the test. Cell 1 is the cell used for connection setup with the power level set according to Annex C.0 and C.1 for this test.

Table 8.14.2.4.1-1: General test parameters for E-UTRAN TDD-FDD inter-frequency event triggered reporting when DRX is used in fading propagation conditions

Parameter	Unit	Test 1	Test 2	Comment
		Value		
Cell1 PDSCH parameters		DL Reference Measurement Channel R.0 TDD		As specified in section A.1.2. Note that UE may only be allocated at *On Duration*
Cell1PCFICH/PDCCH/PHICH parameters		DL Reference Measurement Channel R.6 TDD		As specified in section A.2.2.
Cell2 PDSCH parameters		DL Reference Measurement Channel R.0 FDD		As specified in section A.1.1. Note that UE may only be allocated at *On Duration*
Cell2PCFICH/PDCCH/PHICH parameters		DL Reference Measurement Channel R.6 FDD		As specified in section A.2.1.
E-UTRA RF Channel Number		1		one TDD carrier frequencies is used.
E-UTRA RF Channel Number		2		one FDD carrier frequencies is used.
Channel Bandwidth ($BW_{channel}$)	MHz	10		
Active cell		Cell 1		Cell 1 is on RF channel number 1
Neighbour cell		Cell 2		Cell 2 is on RF channel number 2
Gap Pattern Id		0		As specified in 3GPP TS 36.133[4] section 8.1.2.1.
Cell1 Uplink-downlink configuration		1		As specified in 3GPP TS 36.211 section 4.2 Table 4.2-2
Cell1 Special subframe configuration		6		As specified in table 4.2-1 in TS 36.211. The same configuration in both cells
A3-Offset	dB	-6		
Hysteresis	dB	0		
CP length		Normal		
TimeToTrigger	s	0		
Filter coefficient		0		L3 filtering is not used
PRACH configuration		4		As specified in table 5.7.1-3 in TS 36.211
Access Barring Information	-	Not Sent		No additional delays in random access procedure.
DRX		ON		DRX related parameters are defined in Table 8.14.2.5-2
Time offset between cells		3 ms		Asynchronous cells
T1	s	5		
T2	s	5	30	

8.14.2.4.2 Test procedure

The test consists of one active cell and one neighbour cell. In the measurement control information it is indicated to the UE that event-triggered reporting with Event A3 is used. The test consists of two successive time periods, with time durations of T1 and T2 respectively. During time duration T1, the UE shall not have any timing information of Cell 2.

In Test 1 when DRX = 40 ms is used, UE needs to be provided at least once every 500 ms with new Timing Advance Command MAC control element to restart the Timer Alignment Timer to keep the UE uplink time alignment. Furthermore, the UE is allocated with PUSCH resource at every DRX cycle. In Test 2 when DRX = 1280 ms is used, the uplink time alignment is not maintained and the UE needs to use RACH to obtain uplink allocation for measurement reporting.

1. Ensure the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.

2. Set the parameters according to T1 in Table 8.14.2.5-1. Propagation conditions are set according to Annex B clauses B.1.1 and B.2.2. T1 starts.

3. SS shall transmit an RRCConnectionReconfiguration message.

4. The UE shall transmit RRCConnectionReconfigurationComplete message.

5. When T1 expires, the SS shall switch the power setting from T1 to T2 as specified in Table 8.14.2.5-1.

6. UE shall transmit a MeasurementReport message triggered by Event A3. If the overall delays measured from the beginning of time period T2 is less than 3882 ms for Test 1 or less than 26882 ms for Test 2 then the number of successful tests is increased by one. If the UE fails to report the event within the overall delays measured requirement then the number of failure tests is increased by one.

7. After the SS receive the MeasurementReport message in step 6) or when T2 expires, the SS shall transmit a RRCConnectionRelease message to release the RRC connection which includes the release of the established radio bearers as well as all radio resources.

8. Set Cell 2 physical cell identity = ((current cell 2 physical cell identity + 1) mod 14 + 2) for next iteration of the test procedure loop.

9. After the RRC connection release, the SS:
 - transmits in Cell 1 a Paging message (including PagingRecord with UE-Identity) for the UE and ensures the UE is in State 3A according to TS 36.508 [7] clause 4.5.3A (if the paging fails, switches off and on the UE and ensures the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3),
 or
 - switches off and on the UE and ensures the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.

10. Repeat step 2-9 until the confidence level according to Tables G.2.3-1 in Annex G clause G.2 is achieved.

11. Repeat step 1-10 for each sub-test in Table 8.14.2.4.1-1 as appropriate.

8.14.2.4.3 Message contents

Message contents are according to TS 36.508 [7] clause 4.6 with the following exceptions:

Table 8.14.2.4.3-1: Common Exception messages for E-UTRAN TDD-FDD inter-frequency event triggered reporting when DRX is used in fading propagation conditions test 1 and 2 requirements

Default Message Contents	
Common contents of system information blocks exceptions	
Default RRC messages and information elements contents exceptions	Table H.3.1-7 Table H.3.1-9 Table H.3.7-1 Table H.3.7-2 Table H.3.7-3

Table 8.14.2.4.3-2: *RRCConnectionReconfiguration*: Additional E-UTRAN TDD-FDD inter-frequency event triggered reporting when DRX is used in fading propagation conditions test 1 and 2 requirement

Derivation Path: TS 36.508 [7] 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 {			
measConfig	MeasConfig -DEFAULT		
radioResourceConfigDedicated	RadioResourceConfigDedicated-HO		
}			
}			
}			
}			

Table 8.14.2.4.3-3: *ReportConfigEUTRA-A3*: Additional E-UTRAN TDD-FDD inter-frequency event triggered reporting when DRX is used in fading propagation conditions test 1 and 2 requirement

Derivation Path: TS 36.508 [7] clause 4.6.6, Table 4.6.6-6 ReportConfigEUTRA-A3			
Information Element	**Value/remark**	**Comment**	**Condition**
ReportConfigEUTRA-A3 ::= SEQUENCE {			
triggerType CHOICE {			
event SEQUENCE {			
eventid CHOICE {			
eventA3 SEQUENCE {			
a3-Offset	-12 (-6 dB)	-6 is actual value in dB (-12 * 0.5 dB)	
reportOnLeave	FALSE		
}			
}			
Hysteresis	0 (0 dB)	0 is actual value in dB (0 * 0.5 dB)	
timeToTrigger	0 (0 ms)		
}			
}			

Table 8.14.2.4.3-4: *SchedulingRequest-Config-DEFAULT*: Additional E-UTRAN TDD-FDD inter-frequency event triggered reporting when DRX is used in fading propagation conditions test 1 and 2 requirements

Derivation Path: TS 36.508 [7] clause 4.6.3, Table 4.6.3-20 SchedulingRequest-Config-DEFAULT			
Information Element	**Value/remark**	**Comment**	**Condition**
SchedulingRequest-Config-DEFAULT ::= CHOICE {			
setup SEQUENCE {			
sr-PUCCH-ResourceIndex	41	10 MHz channel bandwidth parameter	
sr-ConfigIndex	2		
dsr-TransMax	n4		
}			
}			

Table 8.14.2.4.3-5: *MeasResults*: Additional E-UTRAN TDD-FDD inter-frequency event triggered reporting when DRX is used in fading propagation conditions test 1 and 2 requirements

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResults ::= SEQUENCE {			
measId	1	Identifies the measurement id for the reporting being performed	
measResultServCell SEQUENCE {			
rsrpResult		Set according to specific test	
rsrqResult		Set according to specific test	
}			
measResultNeighCells CHOICE {			
measResultListEUTRA	MeasResultListEUTRA		
}			
}			

Table 8.14.2.4.3-6: *MeasResultListEUTRA*: Additional E-UTRAN TDD-FDD inter-frequency event triggered reporting when DRX is used in fading propagation conditions test 1 and 2 requirements

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResultListEUTRA ::= SEQUENCE (SIZE (1..maxCellReport)) OF MeasResultEUTRA {			
physCellId	PhysCellId		
measResult SEQUENCE {			
rsrpResult		Set according to specific test INTEGER(0..97)	
rsrqResult		Set according to specific test INTEGER(0..34)	
}			
}			

Table 8.14.2.4.3-7: *PRACH-Config-DEFAULT*: Additional E-UTRAN TDD-FDD inter-frequency event triggered reporting when DRX is used in fading propagation conditions test 1 and 2 requirements

Derivation Path: TS 36.508 [7] clause 7.3.2 Table 7.3.2-1			
Information Element	**Value/remark**	**Comment**	**Condition**
PRACH-Config-DEFAULT ::= SEQUENCE {			
prach-ConfigIndex	4		
}			

8.14.2.5 Test requirement

Tables 8.14.2.4.1-1, 8.14.2.5-1, 8.14.2.5-2 and 8.14.2.5-3 define the primary level settings including test tolerances for E-UTRAN TDD-FDD inter-frequency event triggered reporting when DRX is used under fading propagation conditions in asynchronous cells test.

Table 8.14.2.5-1: Cell specific test parameters for E-UTRAN TDD-FDD inter-frequency event triggered reporting under fading propagation conditions in asynchronous cells

Parameter	Unit	Cell 1		Cell 2	
		T1	T2	T1	T2
E-UTRA RF Channel Number		1		2	
$BW_{channel}$	MHz	10		10	
OCNG Patterns defined in D.2.1 (OP.1 TDD) and in D.1.2 (OP.2 FDD)		OP.1 TDD		OP.2 FDD	
PBCH_RA	dB	0		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	-98			
RSRP Note 3	dBm/15 kHz	-94	-94	-Infinity	-90.70
$\hat{E}_s/I_{ot}$	dB	4	4	-Infinity	7.30
SCH_RP Note 3	dBm/15 kHz	-94	-94	-Infinity	-90.70
$\hat{E}_s/N_{oc}$	dB	4	4	-Infinity	7.30
Propagation Condition		ETU70			
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 SCH_RP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.					

Table 8.14.2.5-2: DRX-Configuration to be used in E-UTRAN TDD-FDD inter-frequency event triggered reporting when DRX is used in fading propagation conditions

Field	Test1	Test2	Comment
	Value	Value	
onDurationTimer	psf1	psf1	
drx-InactivityTimer	psf1	psf1	
drx-RetransmissionTimer	psf1	psf1	
longDRX-CycleStartOffset	sf40	sf1280	
shortDRX	disable	disable	
Note: For further information see section 6.3.2 in 3GPP TS 36.331 [5].			

Table 8.14.2.5-3: *TimeAlignmentTimer* and *sr-ConfigIndex*-Configuration to be used in E-UTRAN TDD-FDD inter-frequency event triggered reporting when DRX is used in fading propagation conditions

Field	Test1 Value	Test2 Value	Comment
TimeAlignmentTimer	sf500	sf500	For further information see section 6.3.2 in 3GPP TS 36.331 [5].
sr-ConfigIndex	2	2	For further information see section 6.3.2 in 3GPP TS 36.331 and section10.1 in 3GPP TS 36.213 [8].

Editor's note: sr-ConfigIndex in table 8.14.2.5 -3 is not inline with core specs, butit will be corrected in RAN4#67.

In Test 1 when DRX cycle length = 40 ms is used, the overall delays measured is defined as the time from the beginning of time period T2, to the moment the UE send one Event A3 triggered measurement report to Cell 2 on PUSCH.

In Test 2 when DRX cycle length = 1280 ms is used, the overall delays measured is defined as the time from the beginning of time period T2, to the moment the UE starts to send preambles on the PRACH for Scheduling Request (SR) to obtain allocation to send the measurement report to Cell 2 on PUSCH.

For both tests:

The overall delay measured may be up to 2xTTI_{DCCH} higher than the measurement reporting delays because of TTI insertion uncertainty of the measurement report in DCCH.

NOTE 1: The actual overall delays measured in the test may be up to one DRX cycle higher than the measurement reporting delays above because UE is allowed to delay the initiation of the measurement reporting procedure to the next until the Active Time.

NOTE 2: In order to calculate the rate of correct events the system simulator shall verify that it has received correct Event A3 measurement report.

The overall delay measured when DRX cycle length is 40 ms test requirement is expressed as:

Overall delay measured = measurement reporting delay + TTI insertion uncertainty+ DRX cycle length

Measurement reporting delay = $T_{Identify\_Inter}$

$$T_{Identify\_Inter} = T_{Basic\_Identify\_Inter} \cdot \frac{480}{T_{Inter1}} \cdot N_{freq} \quad ms$$

Where:

$T_{Basic\_Identify\_Inter}$ = 480 ms. It is the time period used in the inter frequency equation where the maximum allowed time for the UE to identify a new FDD inter-frequency cell is defined.

T_{Inter1} = 60 ms. It is defined in table 8.1.2.1-1 of TS36.133 [4] clause 8.1.2.1.

N_{freq} = 1. It is defined in TS 36.133 [4] clause 8.1.2.1.1.

TTI insertion uncertainty = 2 ms

DRX cycle length = 40 ms

The overall delays measured when DRX cycle length is 40 ms shall be less than a total of 3882 ms.

The overall delay measured when DRX cycle length is 1280 ms test requirement is expressed as:

Overall delay measured = measurement reporting delay + TTI insertion uncertainty + DRX cycle length

Measurement reporting delay = $T_{identify\_inter}$

$T_{identify\_inter}$ = 25600 ms. When DRX cycle length is 1280 ms then the $T_{identify\_inter}$ is 20 x 1280 ms, as defined in Table 8.14.2.3-1.

TTI insertion uncertainty = 2 ms

DRX cycle length = 1280 ms

The overall delays measured when DRX cycle length is 1280 ms shall be less than a total of 26882 ms.

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%.

8.14.3 E-UTRAN TDD - FDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps

8.14.3.1 Test purpose

To verify the requirement for identification of a new CGI of E-UTRA cell with autonomous gaps.

8.14.3.2 Test applicability

This test applies to all types of E-UTRA TDD UE release 9 and forward with support of inter-frequency SI acquisition for HO. Applicability requires support for FGI bit 25.

8.14.3.3 Minimum conformance requirements

No explicit neighbour list is provided to the UE for identifying a new CGI of E-UTRA cell. The UE shall identify and report the CGI when requested by the network for the purpose of 'reportCGI'. The UE may make autonomous gaps in both downlink reception and uplink transmission for receiving MIB and SIB1 message according to section 5.5.3.1 of TS 36.331 [5]. Note that a UE is not required to use autonomous gap if si-RequestForHO is set to false. If autonomous gaps are used for measurement with the purpose of 'reportCGI', regardless of whether DRX is used or not, the UE shall be able to identify a new CGI of E-UTRA cell within:

$$T_{identify\_CGI,\,inter} = T_{basic\_identify\_CGI,\,inter} \quad ms$$

Where

$T_{basic\_identify\_CGI,inter}$ = 150 ms. This is the time period used in the above equation where the maximum allowed time for the UE to identify a new CGI of E-UTRA cell is defined.

A cell shall be considered identifiable following conditions are fulfilled:

- RSRP related side conditions given in TS36.133[4] Section 9.1 are fulfilled for a corresponding Band,
- $SCH\_RP|_{dBm}$ and SCH Ês/Iot according to Annex I.2.4 for a corresponding Band

The MIB of an E-UTRA cell whose CGI is identified shall be considered decodable by the UE provided the PBCH demodulation requirements are met according to TS 36.331[5].

The requirement for identifying a new CGI of an E-UTRA cell within $T_{basic\_identify\_CGI,inter}$ is applicable when no DRX is used as well as when all the DRX cycles specified in 3GPP TS 36.331 [5] are used.

Given that continuous DL data allocation and no DRX is used, no measurement gaps are configured, and TDD configuration as in TS36.133[4] Table 8.1.2.3.2.1-1 is used, the UE shall have more than 30 ACK/NACK transmitted during the identification of a new CGI of E-UTRA cell.

The ECGI reporting delay occurs due to the delay uncertainty when inserting the ECGI measurement report to the TTI of the uplink DCCH. The delay uncertainty is twice the TTI of the uplink DCCH. In case DRX is used, the ECGI reporting may be delayed until the next DRX cycle.

The normative reference for this requirement is TS 36.133 [4] clause 8.1.2.3.6 and A.8.14.3.

8.14.3.4 Test description

8.14.3.4.1 Initial conditions

Test Environment: Normal, as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1.

Channel Bandwidth to be tested: 10 MHz as defined in TS 36.508 [7] clause 4.3.1.

1. Connect the SS (node B emulator) and AWGN noise sources to the UE antenna connectors as shown in TS 36.508 [7] Annex A figure A.14.

2. The general test parameter settings are set up according to Table 8.14.3.4.1-1.

3. Propagation conditions are set according to Annex B clauses B.0.

4. Message contents are defined in clause 8.14.3.4.3.

5. There is one E-UTRA TDD carrier and one E-UTRA FDD carrier and two cells specified in the test. Cell 1 is the cell used for connection setup with the power level set according to Annex C.0 and C.1 for this test.

Table 8.14.3.4.1-1: General test parameters for E-UTRAN TDD - FDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps

Parameter	Unit	Value	Comment
Cell1PDSCH parameters		DL Reference Measurement Channel R.0 TDD	As specified in section A.1.2
Cell1 PCFICH/PDCCH/PHICH parameters		DL Reference Measurement Channel R.6 TDD	As specified in section A.2.2
Cell2 PDSCH parameters		DL Reference Measurement Channel R.0 FDD	As specified in section A.1.1
Cell2 PCFICH/PDCCH/PHICH parameters		DL Reference Measurement Channel R.6 FDD	As specified in section A.2.1
Cell1 E-UTRA RF channel number		1	One TDD carrier is used
Cell2 E-UTRA RF channel number		2	One FDD carrier is used
Channel Bandwidth ($BW_{channel}$)	MHz	10	
Active cell		Cell 1	Cell 1 is on RF channel number 1.
Neighbour cell		Cell 2	Cell 1 is on RF channel number 2.
CP length		Normal	
Cell1 special subframe configuration		6	As specified in table 4.2-1 in TS 36.211[9].
Cell1 Uplink-downlink configuration		1	As specified in table 4.2-2 in TS 36.211[9].
Gap Pattern Id		0	As specified in 3GPP TS 36.133 section 8.1.2.1 [5].
A3-Offset	dB	-6	
Hysteresis	dB	0	
TimeToTrigger	s	0	
Filter coefficient		0	L3 filtering is not used
DRX		OFF	
si-RequestForHO		TRUE	As specified in section 5.5.3.1 in TS 36.331[5].
Time offset between cells	ms	3	Asynchronous cells
T1	s	5	
T2	s	≤10	
T3	s	5	

8.14.3.4.2 Test procedure

The test comprises of one active cell and one neighbour cell. PDCCHs indicating new transmissions should be sent continuously to ensure that the UE would have ACK/NACK sending during identifying a new CGI of E-UTRAN cell. 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. Gap pattern configuration is configured before T2 begins to enable inter-frequency monitoring. Starting T2, cell 2 becomes detectable and the UE is expected to detect and send a measurement report.

1. Ensure the UE is in 3A-RF according to TS 36.508 [7] clause 7.2A.3.
2. Set the parameters according to T1 in Table 8.14.3.5-1. Propagation conditions are set according to Annex B clauses B.1.1. T1 starts.
3. The SS shall transmit an RRCConnectionReconfiguration with event A3 configured message.
4. The UE shall transmit RRCConnectionReconfigurationComplete message.
5. When T1 expires, the SS shall switch the power setting from T1 to T2 as specified in Table 8.14.3.5-1.
6. The UE shall transmit a MeasurementReport message triggered by Event A3.
7. The SS shall transmit an RRCConnectionReconfiguration message during period T2, The RRC message shall create a measurement report configuration with purpose *reportCGI* and *si-RequestForHO* set to TRUE.
8. The SS shall start T3 timer when the last TTI containing the RRC message implying SI reading is sent to the UE.
9. The UE shall transmit RRCConnectionReconfigurationComplete message.
10. The UE shall transmit a MeasurementReport message containing the cell global identifier of cell 2 within 170 milliseconds from the start of T3. The UE shall be scheduled continuously throughout the test, and from the start of T3 until 170 ms at least 42 ACK/NACK shall be detected as being transmitted by the UE. If the overall delays measured from the beginning of time period T3 is less than 170 ms, and the UE have more than 42 ACK/NACKs transmitted from the start of T3 until 170 ms, then the number of successful tests is increased by one. If the UE fails to report the cell global identifier within the overall delays measured requirement, or the UE have less than 42 ACK/NACKs transmitted from the start of T3 until 170 ms, then the number of failure tests is increased by one.
11. After the SS receive the MeasurementReport message in step 10) or when T3 expires, the SS shall transmit RRCConnectionRelease message to release the RRC connection which includes the release of the established radio bearers as well as all radio resources.
12. Set Cell 2 physical cell identity = ((current cell 2 physical cell identity + 1) mod 14 + 2) for next iteration of the test procedure loop.
13. After the RRC connection release, the SS:
    - transmits in Cell 1 a Paging message (including PagingRecord with ue-Identity) for the UE and ensures the UE is in State 3A according to TS 36.508 [7] clause 4.5.3A (if the paging fails, switches off and on the UE and ensures the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3),
    or
    - switches off and on the UE and ensures the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.
14. Repeat step 2-13 until the confidence level according to Tables G.2.3-1 in Annex G clause G.2 is achieved.

8.14.3.4.3 Message contents

Message contents are according to TS 36.508 [7] clause 4.6 with the following exceptions:

Table 8.14.3.4.3-1: Common Exception messages for E-UTRAN TDD - FDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps test requirement

Default Message Contents	
Common contents of system information blocks exceptions	
Default RRC messages and information elements contents exceptions	Table H.3.1-1 Table H.3.1-7 Table H.3.1-9

Table 8.14.3.4.3-2: *ReportConfigEUTRA-A3*: Additional E-UTRAN TDD - FDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps test requirement (step3)

Derivation Path: TS 36.508 [7] clause 4.6.6, Table 4.6.6-6 ReportConfigEUTRA-A3			
Information Element	**Value/remark**	**Comment**	**Condition**
ReportConfigEUTRA-A3 ::= SEQUENCE {			
triggerType CHOICE {			
event SEQUENCE {			
eventId CHOICE {			
eventA3 SEQUENCE {			
a3-Offset	-12 (-6 dB)	-6 is actual value in dB (-12 * 0.5 dB)	
reportOnLeave	FALSE		
}			
}			
hysteresis	0 (0 dB)	0 is actual value in dB (0 * 0.5 dB)	
timeToTrigger	0 (0 ms)		
}			
}			

Table 8.14.3.4.3-3: *MeasResults*: Additional E-UTRAN TDD - FDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps test requirement

Derivation Path: TS 36.331 [5] clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResults ::= SEQUENCE {			
measId	1	Identifies the measurement id for the reporting being performed	
measResultServCell SEQUENCE {			
rsrpResult		Set according to specific test	
rsrqResult		Set according to specific test	
}			
measResultNeighCells CHOICE {			
measResultListEUTRA	MeasResultListEUTRA		
}			
}			

Table 8.14.3.4.3-4: *MeasResultListEUTRA*: Additional E-UTRAN TDD - FDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps test requirement (step6)

Derivation Path: TS 36.331 [5] clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResultListEUTRA ::= SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {			
physCellId	PhysicalCellIdentity		
measResult SEQUENCE {			
rsrpResult		Set according to specific test INTEGER(0..97)	
rsrqResult		Set according to specific test INTEGER(0..34)	
}			
}			

Table 8.14.3.4.3-5: *ReportConfigEUTRA-PERIODICAL*: Additional E-UTRAN TDD - FDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps test requirement (step7)

Derivation Path: TS 36.508 [7] clause 4.6.6, Table 4.6.6-7 ReportConfigEUTRA-PERIODICAL			
Information Element	**Value/remark**	**Comment**	**Condition**
ReportConfigEUTRA-PERIODICAL ::= SEQUENCE {			
triggerType CHOICE {			
periodical SEQUENCE {			
purpose	reportCGI		
}			
}			
reportAmount	1		
si-RequestForHO-r9	setup		
}			

Table 8.14.3.4.3-6: MeasGapConfig- Additional E-UTRAN FDD - FDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps test requirement (step7)

Derivation Path: 36.331, clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasGapConfig ::= CHOICE {			
release	NULL		
}			

Table 8.14.3.4.3-7: *MeasResultListEUTRA*: Additional E-UTRAN TDD - FDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps test requirement (step10)

Derivation Path: TS 36.331 [5] clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResultListEUTRA ::= SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {			
physCellId	PhysicalCellIdentity		
cgi-Info SEQUENCE{			
cellGlobalId SEQUENCE{			
plmn-Identity	plmn-Identity		
cellIdentity	cellIdentity of cell 2		
}			
trackingAreaCode			
plmn-IdentityList			
}			
}			

Table 8.14.3.4.3-8: *MeasObjectEUTRA-GENERIC*: Additional E-UTRAN TDD - FDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps test requirement

Derivation Path: TS 36.508 [7] clause 4.6.6, Table 4.6.6-2 MeasObjectEUTRA-GENERIC			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasObjectEUTRA-GENERIC(Freq) ::= SEQUENCE {			
cellForWhichToReportCGI	Physical Cell ID of Cell 2		Cell 1
}			

Table 8.14.3.4.3-9: *MeasConfig-DEFAULT*: Additional E-UTRAN TDD - FDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps test requirement (step3)

Derivation Path: TS 36.508 [7] clause 4.6.6, Table 4.6.6-1 MeasConfig-DEFAULT:			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasConfig-DEFAULT ::= SEQUENCE {			
measGapConfig	MeasGapConfig-GP1		Gap Pattern Id = 0
}			

Table 8.14.3.4.3-10: *MeasConfig-DEFAULT*: Additional E-UTRAN TDD - FDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps test requirement (step7)

Derivation Path: TS 36.508 [7] clause 4.6.6, Table 4.6.6-1 MeasConfig-DEFAULT:			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasConfig-DEFAULT ::= SEQUENCE {			
reportConfigToAddModList SEQUENCE (SIZE (1..maxReportConfigId))OF SEQUENCE {	1 entry		
reportConfigId	idReportConfig-P		
reportConfig	ReportConfigEUTRA-PERIODICAL		
}			
measIdToAddModList SEQUENCE (SIZE (1..maxMeasId)) of SEQUENCE {	1 entry		
measId	2		
measObjectId	IdMeasObject-f2		
reportConfigId	IdReportConfig-P		
}			
}			

Table 8.14.3.4.3-11: *MeasResults*: Additional E-UTRAN TDD - FDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps test requirement (step10)

Derivation Path: TS 36.331 [5] clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResults ::= SEQUENCE {			
measId	2	Identifies the measurement id for the reporting being perfomed	
measResultServCell SEQUENCE {			
rsrpResult		Set according to specific test	
rsrqResult		Set according to specific test	
}			
measResultNeighCells CHOICE {			
measResultListEUTRA	MeasResultListEUTRA		
}			
}			

8.14.3.5 Test requirement

Tables 8.14.3.4.1-1 and 8.14.3.5-1 define the primary level settings including test tolerances for E-UTRAN TDD - FDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps test.

Table 8.14.3.5-1: Cell Specific Test requirement Parameters for E-UTRAN TDD - FDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps

Parameter	Unit	Cell 1			Cell 2		
		T1	T2	T3	T1	T2	T3
E-UTRA RF Channel Number		1			2		
$BW_{channel}$	MHz	10			10		
OCNG Patterns defined in D.2.1 (OP.1 TDD) and in D.1.2 (OP.2 FDD)		OP.1 TDD	OP.1 TDD	OP.1 TDD	OP.2 FDD	OP.2 FDD	OP.2 FDD
PBCH_RA	dB	0			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	4	4	4	-Infinity	7	7
N_{oc} Note 2	dBm/15 KHz	-98					
$\hat{E}_s/N_{oc}$	dB	4	4	4	-Infinity	7	7
RSRP Note 3	dBm/15 KHz	-94	-94	-94	-Infinity	-91	-91
SCH_RP Note3	dBm/15 KHz	-94	-94	-94	-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 SCH_RP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.							

The UE shall transmit a measurement report containing the cell global identifier of cell 2 within 170 milliseconds from the start of T3.

The overall delays measured in the test may be up to $2xTTI_{DCCH}$ higher than the measurement reporting delays because of TTI insertion uncertainty of the measurement report in DCCH.

The overall delays measured test requirement is expressed as:

Test requirement = RRC Procedure delay + $T_{identify\_CGI, inter}$ + TTI insertion uncertainty

RRC procedure delay=15ms

$$T_{identify\_CGI, inter} = T_{basic\_identify\_CGI, inter} \quad ms$$

$T_{basic\_identify\_CGI,intra}$ = 150 ms

TTI insertion uncertainty = 2 ms

The overall delays measured is 167 ms, allow 170 ms. The UE shall be scheduled continuously throughout the test, and from the start of T3 until 170 ms at least 42 ACK/NACK shall be detected as being transmitted by the UE.

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: The overall 42 ACK/NACK number is caused by two parts. Firstly, at least 30 ACK/NACK shall be sent during identifying the cell global identifier of cell 2 according to the requirement in TS 36.133 [4] Section 8.1.2.3.7.1. Secondly, given that continuous DL data allocation, and the measurement gaps have been deconfigured before the start of T3, additional 12 ACK/NACK shall be sent from the start of T3 until 170 ms excludes 150 ms for identifying the cell global identifier of cell 2.

8.15 E-UTRAN FDD - TDD Inter-frequency Measurements

8.15.1 E-UTRAN FDD-TDD Inter-frequency event triggered reporting under fading propagation conditions in asynchronous cells

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

8.15.1.1 Test purpose

To verify the UE's ability to make a correct reporting of an event under fading propagation conditions in asynchronous cells within the E-UTRA FDD - TDD inter-frequency cell search requirements. This test will verify the FDD-TDD inter-frequency cell search requirements in section 8.1.2.3.4.

8.15.1.2 Test applicability

This test applies to all types of E-UTRA UE supporting FDD and TDD release 9 and forward. Applicability requires support for FGI bit 25.

8.15.1.3 Minimum conformance requirements

When measurement gaps are scheduled the UE shall be able to identify a new TDD inter-frequency within $T_{Identify\_Inter}$ according to the following expression:

$$T_{Identify\_Inter} = T_{Basic\_Identify\_Inter} \cdot \frac{480}{T_{Inter1}} \cdot N_{freq} \quad ms$$

Where:

$T_{Basic\_Identify\_Inter}$ = 480 ms. It is the time period used in the inter frequency equation where the maximum allowed time for the UE to identify a new TDD inter-frequency cell is defined.

T_{inter1} is defined in TS 36.133 [4] section 8.1.2.1

N_{freq} is defined in TS 36.133 [4] section 8.1.2.1.1.

A cell shall be considered detectable provided following conditions are fulfilled:

- RSRP and RSRP Ês/Iot according to Annex I.2.3 for a corresponding Band,
- other RSRP related side conditions given in TS 36.133 [4] Section 9.1 are fulfilled,
- $SCH\_RP|_{dBm}$ and SCH Ês/Iot according to Annex I.2.3 for a corresponding Band.

When measurement gaps are scheduled for TDD inter frequency measurements the UE physical layer shall be capable of reporting measurements to higher layers with measurement accuracy as specified in TS 36.133 sub-clause 9.1.3 with measurement period ($T_{Measurement\_Period\_TDD\_Inter}$) given by table 8.4.4.1.3-1.

Table 8.15.1.3-1: $T_{Measurement\_Period\_TDD\_Inter}$ for different configurations

Configuration	Measurement bandwidth [RB]	Number of UL/DL sub-frames per half frame (5 ms)		DwPTS		$T_{Measurement\_Period\_TDD\_Inter}$ [ms]
		DL	UL	Normal CP	Extended CP	
0	6	2	2	$19760 \cdot T_s$	$20480 \cdot T_s$	480 x N_{freq}
1 (Note 1)	50	2	2	$19760 \cdot T_s$	$20480 \cdot T_s$	240 x N_{freq}
Note 1: This configuration is optional. Note 2: T_s is defined in 3GPP TS 36.211 [9].						

The UE shall be capable of performing RSRP and RSRQ measurements of at least 4 inter-frequency cells per TDD inter-frequency and the UE physical layer shall be capable of reporting RSRP and RSRQ measurements to higher layers with the measurement period $T_{Measurement\_Period\_TDD\_Inter}$.

Reported measurements contained in event triggered measurement reports shall meet the requirements in TS 36.133 [4] clause 9.

The UE shall not send any event triggered measurement reports, as long as no reporting criteria are fulfilled.

The measurement reporting delay is defined as the time between an event that will trigger a measurement report and the point when the UE starts to transmit the measurement report over the air interface. This requirement assumes that 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: 2 x TTI_{DCCH}. This measurement reporting delay excludes a delay which caused by no UL resources for UE to send the measurement report.

The event triggered measurement reporting delay, measured without L3 filtering shall be less than $T_{Identify\_Inter}$ defined in TS 36.133 [4] clause 8.1.2.3.2.1. When L3 filtering is used an additional delay can be expected.

If a cell which has been detectable at least for the time period $T_{identify\_intra}$ defined in TS 36.133 [4] section 8.1.2.2.1.1 becomes undetectable for a period ≤ 5 seconds and then the cell becomes detectable again and triggers an event, the event triggered measurement reporting delay shall be less than $T_{Measurement\_Period\ Intra}$ provided the timing to that cell has not changed more than ± 50 Ts and the L3 filter has not been used. When L3 filtering is used an additional delay can be expected

The normative reference for this requirement is TS 36.133 [4] clause 8.1.2.3.4 and A.8.15.1.

8.15.1.4 Test description

8.15.1.4.1 Initial conditions

Test Environment: Normal, as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1.

Channel Bandwidth to be tested: 10 MHz as defined in TS 36.508 [7] clause 4.3.1.

1. Connect the SS (node B emulator) and faders and AWGN noise sources to the UE antenna connectors as shown in TS 36.508 [7] Annex A figure A.15.

2. The general test parameter settings are set up according to Table 8.15.1.4.1-1.

3. Propagation conditions are set according to Annex B clauses B.0.

4. Message contents are defined in clause 8.15.1.4.3.

5. There are two E-UTRA carriers and one E-UTRA FDD Cell 1 and one E-UTRA TDD Cell 2 on each carrier specified in the test. Cell 1 is the cell used for connection setup with the power level set according to Annex C.0 and C.1 for this test.

Table 8.15.1.4.1-1: General test parameters for E-UTRAN FDD-TDD inter frequency event triggered reporting in fading propagation conditions

Parameter	Unit	Value	Comment
Cell 1 PDSCH parameters		DL Reference Measurement Channel R.0 FDD	As specified in section A.1.1
Cell 1 PCFICH/PDCCH/PHICH parameters		DL Reference Measurement Channel R.6 FDD	As specified in section A.2.1
Cell 2 PDSCH parameters		DL Reference Measurement Channel R.0 TDD	As specified in section A.1.2
Cell 2 PCFICH/PDCCH/PHICH parameters		DL Reference Measurement Channel R.6 TDD	As specified in section A.2.2
Gap Pattern Id		1	As specified in TS 36.133 section 8.1.2.1.
Cell2 Special subframe configuration		6	As specified in table 4.2-1 in TS 36.211. Applicable to Cell 2.
Cell2 Uplink-downlink configuration		1	As specified in TS 36.211 section 4.2 Table 4.2-2. Applicable to Cell 2.
CP length		Normal	
Cell 1 E-UTRA FDD RF Channel Number		1	One TDD carrier frequency is used.
Cell 2 E-UTRA TDD RF Channel Number		2	One FDD carrier frequency is used.
Channel Bandwidth ($BW_{channel}$)	MHz	10	
Active cell		Cell 1	Cell 1 is on RF channel number 1
Neighbour cell		Cell 2	Cell 2 is on RF channel number 2
A3-Offset	dB	-6	
Hysteresis	dB	0	
TimeToTrigger	s	0	
Filter coefficient		0	L3 filtering is not used
DRX		OFF	
Time offset between cells		3 ms	Asynchronous cells
T1	s	5	
T2	s	10	

8.15.1.4.2 Test procedure

The test consists of two successive time periods, with time durations of T1 and T2 respectively. During time duration T1, the UE shall not have any timing information of cell 2. Gap pattern configuration #1is configured before T2 begins to enable inter-frequency monitoring.

1. Ensure the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.
2. Set the parameters according to T1 in Table 8.15.1.5-1. Propagation conditions are set according to Annex B clauses B.1.1 and B.2.2. T1 starts.
3. SS shall transmit an RRCConnectionReconfiguration message.
4. The UE shall transmit RRCConnectionReconfigurationComplete message.
5. When T1 expires, the SS shall switch the power setting from T1 to T2 as specified in Table 8.15.1.5-1.
6. UE shall transmit a MeasurementReport message triggered by Event A3. If the measurement reporting delay from the beginning of time period T2 is less than 7682 ms the number of successful tests is increased by one. If the UE fails to report the event within the measurement reporting delay requirement then the number of failure tests is increased by one.
7. After the SS receive the MeasurementReport message in step 6) or when T2 expires, the SS shall transmit an RRCConnectionRelease message to release the RRC connection which includes the release of the established radio bearers as well as all radio resources.
8. Set Cell 2 physical cell identity = ((current cell 2 physical cell identity + 1) mod 14 + 2) for next iteration of the test procedure loop.

9. After the RRC connection release, the SS:
   - transmits in Cell 1 a Paging message (including PagingRecord with ue-Identity) for the UE and ensures the UE is in State 3A according to TS 36.508 [7] clause 4.5.3A (if the paging fails, switches off and on the UE and ensures the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3),
   or
   - switches off and on the UE and ensures the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.

10. Repeat step 2-9 until the confidence level according to Tables G.2.3-1 in Annex G clause G.2 is achieved.

8.15.1.4.3 Message contents

Message contents are according to TS 36.508 [7] clause 4.6 with the following exceptions:

Table 8.15.1.4.3-1: Common Exception messages for Additional E-UTRAN FDD-TDD inter frequency event triggered reporting under fading propagation conditions in asynchronous cells test requirement

Default Message Contents	
Common contents of system information blocks exceptions	
Default RRC messages and information elements contents exceptions	Table H3.1-1 Table H3.1-3 Table H.3.1-7

Table 8.15.1.4.3-2: *ReportConfigEUTRA-A3*: Additional E-UTRAN FDD-TDD inter frequency event triggered reporting under fading propagation conditions in asynchronous cells test requirement

Derivation Path: TS 36.508 [7] clause 4.6.6, Table 4.6.6-6 ReportConfigEUTRA-A3			
Information Element	**Value/remark**	**Comment**	**Condition**
ReportConfigEUTRA ::= SEQUENCE {			
triggerType CHOICE {			
event SEQUENCE {			
eventId CHOICE {			
eventA3 SEQUENCE {			
a3-Offset	-12 (-6 dB)	-6 is actual value in dB (-12 * 0.5 dB)	
}			
}			
Hysteresis	0 (0 dB)	0 is actual value in dB (0 * 0.5 dB)	
timeToTrigger	0 (0 ms)		
}			
}			

Table 8.15.1.4.3-3: *MeasResults*: Additional E-UTRAN FDD-TDD inter frequency event triggered reporting under fading propagation conditions in asynchronous cells test requirement

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResults ::= SEQUENCE {			
measId	1		
measResultServCell SEQUENCE {			
rsrpResult		Set according to specific test	
rsrqResult		Set according to specific test	
}			
measResultNeighCells CHOICE {			
measResultListEUTRA	MeasResultListEUTRA		
}			
}			

Table 8.15.1.4.3-4: *MeasResultListEUTRA*: Additional E-UTRAN FDD-TDD inter frequency event triggered reporting under fading propagation conditions in asynchronous cells test requirement

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResultListEUTRA ::= SEQUENCE (SIZE (1..maxCellReport)) OF MeasResultEUTRA {			
MeasResultEUTRA ::= SEQUENCE {			
physCellId	PhysicalCellIdentity	Cell 2	
measResult SEQUENCE {			
rsrpResult		Set according to specific test INTEGER(0..97)	
rsrqResult		Set according to specific test INTEGER(0..34)	
}			
}			

8.15.1.5 Test requirement

Tables 8.15.1.4.1-1 and 8.15.1.5-1 define the primary level settings including test tolerances for event triggered reporting under fading propagation conditions in asynchronous FDD-TDD inter frequency cells test.

Table 8.15.1.5-1: Cell specific test parameters for E-UTRAN FDD-TDD inter frequency event triggered reporting under fading propagation conditions in asynchronous cells

Parameter	Unit	Cell 1		Cell 2	
		T1	T2	T1	T2
E-UTRA RF Channel Number		1		2	
$BW_{channel}$	MHz	10		10	
OCNG Pattern defined in D.1.1 (OP.1 FDD) and in D.2.2 (OP.2 TDD)		OP.1 FDD		OP.2 TDD	
PBCH_RA	dB	0		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	4.00	4.00	-Infinity	7.30
N_{oc} Note 3	dBm/15 kHz	-98			
RSRP Note 4	dBm/15 kHz	-94.00	-94.00	-Infinity	-90.70
SCH_RP Note 4	dBm/15 kHz	-94.00	-94.00	-infinity	-90.70
$\hat{E}_s/N_{oc}$	dB	4.00	4.00	-Infinity	7.30
Propagation Condition		ETU70			
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: The resources for uplink transmission are assigned to the UE priori to the start of time period T2. Note 3: 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 4: RSRP and SCH_RP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.					

The UE shall send one Event A3 triggered measurement report, with a measurement reporting delay less than 7682 ms from the beginning of time period T2.

The overall delays measured is defined as the time from the beginning of time period T2, to the moment the UE send one Event A3 triggered measurement report to Cell 2.

The overall delays measured in the test may be up to 2xTTI_{DCCH} higher than the measurement reporting delays because of TTI insertion uncertainty of the measurement report in DCCH.

The overall delays measured test requirement is expressed as:

Overall delays measured = measurement reporting delay + TTI insertion uncertainty

Measurement reporting delay = 7680 ms

TTI insertion uncertainty = TTI_{DCCH} = 1 ms; 2xTTI_{DCCH} = 2 ms

The overall delays measured shall be less than a total of 7682 ms in this test case (note: a total of 7680 ms for measurement reporting delay plus 2 ms for TTI insertion uncertainty).

The rate of correct events observed during repeated tests shall be at least 90% with a confidence level of 95%.

8.15.2 E-UTRAN FDD-TDD Inter-frequency event triggered reporting when DRX is used under fading propagation conditions in asynchronous cells

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

8.15.2.1 Test purpose

To verify the UE's ability to make a correct reporting of an event in DRX under fading propagation conditions in asynchronous cells within the E-UTRA FDD-TDD inter-frequency cell search requirements.

8.15.2.2 Test applicability

This test applies to all types of E-UTRA UE supporting FDD and TDD release 9 and forward. Applicability requires support for FGI bits 5 and 25.

8.15.2.3 Minimum conformance requirements

When DRX is in use the UE shall be able to identify a new detectable E-UTRAN TDD inter frequency cell within $T_{identify\_inter}$ as shown in table 8.15.2.3-1.

Table 8.15.2.3-1: Requirement to identify a newly detectable TDD inter frequency cell

DRX cycle length (s)	$T_{identify\_inter}$ (s) (DRX cycles)	
	Gap period = 40 ms	Gap period = 80 ms
≤0.16	Non DRX Requirements in TS 36.133 [4] clause 8.1.2.3.4.1 are applicable	Non DRX Requirements in TS 36.133 [4] clause 8.1.2.3.4.1 are applicable
0.256	5.12*Nfreq (20*Nfreq)	7.68*Nfreq (30*Nfreq)
0.32	6.4*Nfreq (20*Nfreq)	7.68*Nfreq (24*Nfreq)
0.32<DRX-cycle≤2.56	Note (20*Nfreq)	Note (20*Nfreq)
Note: Time depends upon the DRX cycle in use		

A cell shall be considered detectable provided following conditions are fulfilled:

- RSRP and RSRP Ês/Iot according to Annex I.2.3 for a corresponding Band,
- other RSRP related side conditions given in TS 36.133 [4] Section 9.1 are fulfilled,
- $SCH\_RP|_{dBm}$ and SCH Ês/Iot according to Annex I.2.3 for a corresponding Band.

The UE shall be capable of performing RSRP and RSRQ measurements of at least 4 inter-frequency cells per TDD inter-frequency and the UE physical layer shall be capable of reporting RSRP and RSRQ measurements to higher layers with the measurement period defined in Table 8.15.2.3-2.

Table 8.15.2.3-2: Requirement to measure TDD inter frequency cells

DRX cycle length (s)	$T_{measure\_inter}$ (s) (DRX cycles)
≤0.84	Non DRX Requirements in TS 36.133 [4] clause 8.1.2.3.4.1 are applicable
0.08<DRX-cycle≤2.56	Note ($5*N_{freq}$)
Note: Time depends upon the DRX cycle in use	

The measurement accuracy for all measured cells shall be as specified in TS 36.133 [4] sub-clause 9.1.

Reported measurements contained in periodically triggered measurement reports shall meet the requirements in TS 36.133 [4] section 9.

Reported measurements contained in event triggered periodic measurement reports shall meet the requirements in TS 36.133 [4] section 9.

The first report in event triggered periodic measurement reporting shall meet the requirements specified in TS 36.133 [4] section 8.1.2.3.2.2.1.3 Event Triggered Reporting.

Reported measurements contained in event triggered measurement reports shall meet the requirements in TS 36.133 [4] section 9.

The UE shall not send any event triggered measurement reports, as long as no reporting criteria are fulfilled.

The measurement reporting delay is defined as the time between an event that will trigger a measurement report and the point when the UE starts to transmit the measurement report over the air 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: 2 x TTI_{DCCH}. This measurement reporting delay excludes a delay which caused by no UL resources for UE to send the measurement report.

The event triggered measurement reporting delay, measured without L3 filtering shall be less than $T_{Identify\_Inter}$ defined in TS 36.133 [4] Section 8.1.2.3.2.2 When L3 filtering is used an additional delay can be expected.

If a cell which has been detectable at least for the time period $T_{identify\_intra}$ defined in TS 36.133 [4] section 8.1.2.2.1.1 becomes undetectable for a period ≤ 5 seconds and then the cell becomes detectable again and triggers an event, the event triggered measurement reporting delay shall be less than $T_{Measurement\_Period\ Intra}$ provided the timing to that cell has not changed more than ± 50 Ts and the L3 filter has not been used. When L3 filtering is used an additional delay can be expected.

The normative reference for this requirement is TS 36.133 [4] clause 8.1.2.3.4.2 and A.8.15.2.

8.15.2.4 Test description

8.15.2.4.1 Initial conditions

Test Environment: Normal, as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1.

Channel Bandwidth to be tested: 10 MHz as defined in TS 36.508 [7] clause 4.3.1.

1. Connect the SS (node B emulator) and faders and AWGN noise sources to the UE antenna connectors as shown in TS 36.508 [7] Annex A figure A.15.
2. The general test parameter settings are set up according to Table 8.15.2.4.1-1.
3. Propagation conditions are set according to Annex B clauses B.0.
4. Message contents are defined in clause 8.15.2.4.3.
5. There are two E-UTRA carriers and one E-UTRA FDD Cell 1 and one E-UTRA TDD Cell 2 on each carrier specified in the test. Cell 1 is the cell used for connection setup with the power level set according to Annex C.0 and C.1 for this test.

Table 8.15.2.4.1-1: General test parameters for E-UTRAN FDD-TDD inter-frequency event triggered reporting when DRX is used in fading propagation conditions

Parameter	Unit	Test 1	Test 2	Comment
		Value		
Cell 1 PDSCH parameters		DL Reference Measurement Channel R.0 FDD		As specified in section A.1.1 Note that UE may only be allocated at *On Duration*
Cell 1 PCFICH/PDCCH/PHICH parameters		DL Reference Measurement Channel R.6 FDD		As specified in section A.2.1.
Cell 2 PDSCH parameters		DL Reference Measurement Channel R.0 TDD		As specified in section A.1.2 Note that UE may only be allocated at *On Duration*
Cell 2 PCFICH/PDCCH/PHICH parameters		DL Reference Measurement Channel R.6 TDD		As specified in section A.2.2
Cell 1 E-UTRA FDD RF Channel Number		1		One FDD carrier frequency is used.
Cell 2 E-UTRA TDD RF Channel Number		2		One TDD carrier frequency is used.
Channel Bandwidth ($BW_{channel}$)	MHz	10		
Active cell		Cell 1		Cell 1 is on RF channel number 1
Neighbour cell		Cell 2		Cell 2 is on RF channel number 2
Gap Pattern Id		0		As specified in 3GPP TS 36.133 [4] section 8.1.2.1.
A3-Offset	dB	-6		
Hysteresis	dB	0		
CP length		Normal		
TimeToTrigger	s	0		
Filter coefficient		0		L3 filtering is not used
Cell 2 Special subframe configuration		6		As specified in table 4.2-1 in TS 36.211
Cell 2 Uplink-downlink configuration		1		As specified in table 4.2-2 in TS 36.211
E-UTRA TDD PRACH configuration		4		As specified in table 5.7.1-2 in TS 36.211
E-UTRA TDD Access Barring Information	-	Not Sent		No additional delays in random access procedure.
DRX		ON		DRX related parameters are defined in Table 8.15.2.5-2
Time offset between cells	ms	3		Asynchronous cells
T1	s	5		
T2	s	5	30	

8.15.2.4.2 Test procedure

The test consists of one active cell and one neighbour cell. In the measurement control information it is indicated to the UE that event-triggered reporting with Event A3 is used. The test consists of two successive time periods, with time durations of T1 and T2 respectively. During time duration T1, the UE shall not have any timing information of Cell 2.

In Test 1 UE needs to be provided at least once every 500ms with new Timing Advance Command MAC control element to restart the Time alignment timer to keep UE uplink time alignment. Furthermore, the UE is allocated with PUSCH resource at every DRX cycle. In Test 2 the uplink time alignment is not maintained and UE needs to use RACH to obtain UL allocation for measurement reporting.

1. Ensure the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.

2. Set the parameters according to T1 in Table 8.15.2.5-1. Propagation conditions are set according to Annex B clauses B.1.1 and B.2.2. T1 starts.

3. The SS shall transmit an RRCConnectionReconfiguration message.

4. The UE shall transmit RRCConnectionReconfigurationComplete message.

5. When T1 expires, the SS shall switch the power setting from T1 to T2 as specified in Table 8.15.2.5-1.

6. The UE shall transmit a MeasurementReport message triggered by Event A3. If the overall delays measured from the beginning of time period T2 is less than 3882 ms for Test 1 and 26882 ms for Test 2 then the number of successful tests is increased by one. If the UE fails to report the event within the overall delays measured requirement then the number of failure tests is increased by one.

7. After the SS receives the MeasurementReport message in step 6 or when T2 expires, the SS shall transmit RRCConnectionRelease message to release the RRC connection which includes the release of the established radio bearers as well as all radio resources.

8. Set Cell 2 physical cell identity = ((current cell 2 physical cell identity + 1) mod 14 + 2) for next iteration of the test procedure loop.

9. After the RRC connection release, the SS:
 - transmits in Cell 1 a Paging message (including PagingRecord with ue-Identity) for the UE and ensures the UE is in State 3A according to TS 36.508 [7] clause 4.5.3A (if the paging fails, switches off and on the UE and ensures the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3),
 or
 - switches off and on the UE and ensures the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.

10. Repeat step 2-9 until the confidence level according to Tables G.2.3-1 in Annex G clause G.2 is achieved.

11. Repeat step 1-10 for each sub-test in Table 8.15.2.4.1-1 as appropriate.

8.15.2.4.3 Message contents

Message contents are according to TS 36.508 [7] clause 4.6 with the following exceptions:

Table 8.15.2.4.3-1: Common Exception messages for Additional E-UTRAN FDD-TDD inter-frequency event triggered reporting when DRX is used in fading propagation conditions test requirement

Default Message Contents	
Common contents of system information blocks exceptions	
Default RRC messages and information elements contents exceptions	Table H.3.1-7 Table H.3.1-9 Table H.3.7-1 Table H.3.7-2 Table H.3.7-3

Table 8.15.2.4.3-2: *RRCConnectionReconfiguration*: Additional E-UTRAN FDD-TDD inter-frequency event triggered reporting when DRX is used in fading propagation conditions test requirement

Derivation Path: TS 36.508 [7] 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 {			
measConfig	MeasConfig-DEFAULT		
radioResourceConfigDedicated	RadioResourceConfigDedicated-HO		
}			
}			
}			
}			

Table 8.15.2.4.3-3: *ReportConfigEUTRA-A3*: Additional E-UTRAN FDD-TDD inter-frequency event triggered reporting when DRX is used in fading propagation conditions test requirement

Derivation Path: TS 36.508 [7] clause 4.6.6, Table 4.6.6-6 ReportConfigEUTRA-A3			
Information Element	**Value/remark**	**Comment**	**Condition**
ReportConfigEUTRA-A3 ::= SEQUENCE {			
triggerType CHOICE {			
event SEQUENCE {			
eventId CHOICE {			
eventA3 SEQUENCE {			
a3-Offset	-12 (-6 dB)	-6 is actual value in dB (-12 * 0.5 dB)	
reportOnLeave	FALSE		
}			
}			
hysteresis	0 (0 dB)	0 is actual value in dB (0 * 0.5 dB)	
timeToTrigger	0 (0 ms)		
}			
}			

Table 8.15.2.4.3-4: *SchedulingRequest-Config-DEFAULT*: Additional E-UTRAN FDD-TDD inter-frequency event triggered reporting when DRX is used in fading propagation conditions test requirement

Derivation Path: TS 36.508 [7] clause 4.6.3, Table 4.6.3-20: SchedulingRequest-Config-DEFAULT			
Information Element	**Value/remark**	**Comment**	**Condition**
SchedulingRequest-Config-DEFAULT ::= CHOICE {			
setup SEQUENCE {			
sr-PUCCH-ResourceIndex	41	Channel-bandwidth-dependent parameter	
sr-ConfigIndex	0		
dsr-TransMax	n4		
}			
}			

Table 8.15.2.4.3-5: *MeasResults:* Additional E-UTRAN FDD-TDD inter-frequency event triggered reporting when DRX is used in fading propagation conditions test requirement

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResults ::= SEQUENCE {			
measId	1		
measResultServCell SEQUENCE {			
rsrpResult	INTEGER(0..97)	Set according to specific test	
rsrqResult	INTEGER(0..34)	Set according to specific test	
}			
measResultNeighCells CHOICE {			
measResultListEUTRA	MeasResultListEUTRA		
}			
}			

Table 8.15.2.4.3-6: *MeasResultListEUTRA*: Additional E-UTRAN FDD-TDD inter-frequency event triggered reporting when DRX is used in fading propagation conditions test requirement

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResultsLIstEUTRA ::= SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {			
physCellId	PhysCellId	INTEGER (0..503)	
measResult SEQUENCE {			
rsrpResult		Set according to specific test	
rsrqResult		Set according to specific test	
}			
}			

Table 8.15.2.4.3-7: *PRACH-Config-DEFAULT*: Additional E-UTRAN FDD-TDD inter-frequency event triggered reporting when DRX is used in fading propagation conditions test requirement

Derivation Path: TS 36.508 [7] clause 7.3.2 Table 7.3.2-1			
Information Element	**Value/remark**	**Comment**	**Condition**
PRACH-Config-DEFAULT ::= SEQUENCE {			
prach-ConfigIndex	4		
}			

8.15.2.5 Test requirement

Tables 8.15.2.5-1, 8.15.2.5-2 and 8.15.2.5-3 define the primary level settings including test tolerances for E-UTRAN FDD-TDD inter-frequency event triggered reporting when DRX is used under fading propagation conditions in asynchronous cells test.

Table 8.15.2.5-1: Cell specific test parameters for E-UTRAN FDD-TDD inter frequency event triggered reporting under fading propagation conditions in asynchronous cells

Parameter	Unit	Cell 1		Cell 2	
		T1	T2	T1	T2
E-UTRA RF Channel Number		1		2	
$BW_{channel}$	MHz	10		10	
OCNG Pattern defined in D.1.1 (OP.1 FDD) and in D.2.2 (OP.2 TDD)		OP.1 FDD		OP.2 TDD	
PBCH_RA	dB	0		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	4.00	4.00	-Infinity	7.30
N_{oc} Note 3	dBm/15 kHz	-98			
RSRP Note 4	dBm/15 kHz	-94.00	-94.00	-Infinity	-90.70
SCH_RP Note 4	dBm/15 kHz	-94.00	-94.00	-infinity	-90.70
$\hat{E}_s/N_{oc}$	dB	4.00	4.00	-Infinity	7.30
Propagation Condition		ETU70			
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: The resources for uplink transmission are assigned to the UE priori to the start of time period T2. Note 3: 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 4: RSRP and SCH_RP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.					

Table 8.15.2.5-2: DRX-Configuration to be used in E-UTRAN FDD-TDD inter-frequency event triggered reporting when DRX is used in fading propagation conditions

Field	Test1	Test2	Comment
	Value	Value	
onDurationTimer	psf1	psf1	
drx-InactivityTimer	psf1	psf1	
drx-RetransmissionTimer	psf1	psf1	
longDRX-CycleStartOffset	sf40	sf1280	
shortDRX	disable	disable	

Table 8.15.2.5-3: *TimeAlignmentTimer* and *sr-ConfigIndex*-Configuration to be used in E-UTRAN FDD-TDD inter-frequency event triggered reporting when DRX is used in fading propagation conditions

Field	Test1	Test2	Comment
	Value	Value	
TimeAlignmentTimer	sf500	sf500	For further information see section 6.3.2 in 3GPP TS 36.331 [5].
sr-ConfigIndex	0	0	For further information see section 6.3.2 in 3GPP TS 36.331 and 10.1 in 3GPP TS 36.213 [8].

Editor's note: sr-ConfigIndex in table 8.15.2.5 -3 is not inline with core specs, but it will be corrected in RAN4#67.

In Test1 when DRX cycle length = 40 ms is used, the overall delay measured is defined as the time from the beginning of time period T2, to the moment when the UE send one Event A3 triggered measurement report on PUSCH.

In Test 2 when DRX cycle length = 1280 ms is used, the overall delay measured is defined as the time from the beginning of time period T2, to the moment the UE starts to send preambles on the PRACH for Scheduling Request (SR) to obtain allocation to send the measurement report to Cell 2 on PUSCH.TTI insertion uncertainty = 2 ms.

For both tests:

The overall delay measured may be up to 2xTTI_{DCCH} higher than the measurement reporting delays because of TTI insertion uncertainty of the measurement report in DCCH.

NOTE 1: The actual overall delays measured in the test may be up to one DRX cycle higher than the measurement reporting delays above because UE is allowed to delay the initiation of the measurement reporting procedure to the next until the Active Time.

NOTE 2: In order to calculate the rate of correct events the system simulator shall verify that it has received correct Event A3 measurement report.

The overall delay measured when DRX cycle length is 40 ms test requirement is expressed as:

Overall delay measured = measurement reporting delay + TTI insertion uncertainty + DRX cycle length

Measurement reporting delay = $T_{Identify\_Inter}$

$$T_{Identify\_Inter} = T_{Basic\_Identify\_Inter} \cdot \frac{480}{T_{Inter1}} \cdot N_{freq} \quad ms$$

Where:

$T_{Basic\_Identify\_Inter}$ = 480 ms. It is the time period used in the inter frequency equation where the maximum allowed time for the UE to identify a new FDD inter-frequency cell is defined.

T_{Inter1} = 60 ms. It is defined in table 8.1.2.1-1 of TS36.133 [4] clause 8.1.2.1.

N_{freq} = 1. It is defined in TS 36.133 [4] clause 8.1.2.1.1.

TTI insertion uncertainty = 2 ms

DRX cycle length = 40 ms

The overall delay measured when DRX cycle length is 40 ms shall be less than a total of 3882 ms.

The overall delay measured when DRX cycle length is 1280 ms test requirement is expressed as:

Overall delay measured = measurement reporting delay + TTI insertion uncertainty + DRX cycle length

Measurement reporting delay = $T_{identify\_inter}$

$T_{identify\_inter}$ = 25600 ms. When DRX cycle length is 1280 ms then the $T_{identify\_inter}$ is 20 x 1280 ms, as defined in Table 8.15.2.3-1.

TTI insertion uncertainty = 2 ms

DRX cycle length = 1280 ms

The overall delay measured when DRX cycle length is 1280 ms shall be less than a total of 26882 ms.

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%.

8.15.3 E-UTRAN FDD - TDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps

8.15.3.1 Test purpose

To verify the requirement for identification of a new CGI of E-UTRA cell with autonomous gaps.

8.15.3.2 Test applicability

This test applies to all types of E-UTRA FDD UE release 9 and forward with support of inter-frequency SI acquisition for HO. Applicability requires support for FGI bit 25.

8.15.3.3 Minimum conformance requirements

No explicit neighbour list is provided to the UE for identifying a new CGI of E-UTRA cell. The UE shall identify and report the CGI when requested by the network for the purpose of 'reportCGI'. The UE may make autonomous gaps in both downlink reception and uplink transmission for receiving MIB and SIB1 message according to section 5.5.3.1 of TS 36.331 [5]. Note that a UE is not required to use autonomous gap if si-RequestForHO is set to false. If autonomous gaps are used for measurement with the purpose of 'reportCGI', regardless of whether DRX is used or not, the UE shall be able to identify a new CGI of E-UTRA cell within:

$$T_{identify\_CGI,\,inter} = T_{basic\_identify\_CGI,\,inter} \quad ms$$

Where

$T_{basic\_identify\_CGI,inter}$ = 150 ms. This is the time period used in the above equation where the maximum allowed time for the UE to identify a new CGI of E-UTRA cell is defined.

A cell shall be considered identifiable following conditions are fulfilled:

- RSRP related side conditions given in TS 36.133[4] Section 9.1 are fulfilled for a corresponding Band,
- SCH_RP and SCH Ês/Iot according to Annex I.2.4 for a corresponding Band.

The MIB of an E-UTRA cell whose CGI is identified shall be considered decodable by the UE provided the PBCH demodulation requirements are met according to TS 36.331[5].

The requirement for identifying a new CGI of an E-UTRA cell within $T_{basic\_identify\_CGI,inter}$ is applicable when no DRX is used as well as when all the DRX cycles specified in 3GPP TS 36.331 [5] are used.

Given that continuous DL data allocation and no DRX is used, and no measurement gaps are configured, the UE shall have more than 60 ACK/NACKs transmitted during the identification of a new CGI of E-UTRA cell.

The ECGI reporting delay occurs due to the delay uncertainty when inserting the ECGI measurement report to the TTI of the uplink DCCH. The delay uncertainty is twice the TTI of the uplink DCCH. In case DRX is used, the ECGI reporting may be delayed until the next DRX cycle.

The normative reference for this requirement is TS 36.133 [4] clause 8.1.2.3.8 and A.8.15.3.

8.15.3.4 Test description

8.15.3.4.1 Initial conditions

Test Environment: Normal, as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1.

Channel Bandwidth to be tested: 10 MHz as defined in TS 36.508 [7] clause 4.3.1.

1. Connect the SS (node B emulator) and AWGN noise sources to the UE antenna connectors as shown in TS 36.508 [7] Annex A figure A.14.
2. The general test parameter settings are set up according to Table 8.15.3.4.1-1.
3. Propagation conditions are set according to Annex B clauses B.0.
4. Message contents are defined in clause 8.15.3.4.3.
5. There is one E-UTRA FDD carrier and one E-UTRA TDD carrier and two cells specified in the test. Cell 1 is the cell used for connection setup with the power level set according to Annex C.0 and C.1 for this test.

Table 8.15.3.4.1-1: General test parameters for E-UTRAN FDD - TDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps

Parameter	Unit	Value	Comment
Cell1 PDSCH parameters		DL Reference Measurement Channel R.3 FDD	As specified in section A.1.1
Cell1 PCFICH/PDCCH/PHICH parameters		DL Reference Measurement Channel R.6 FDD	As specified in section A.2.1
Cell2 PCFICH/PDCCH/PHICH parameters		DL Reference Measurement Channel R.6 TDD	As specified in section A.2.2
E-UTRA RF channel number		1, 2	One FDD and one TDD carrier frequency are used.
Channel Bandwidth ($BW_{channel}$)	MHz	10	
Active cell		Cell 1	Cell 1 is on RF channel number 1.
Neighbour cell		Cell 2	Cell 1 is on RF channel number 2.
CP length		Normal	
Cell 2 Special subframe configuration		6	As specified in table 4.2-1 in TS 36.211[9].
Cell 2 Uplink-downlink configuration		1	As specified in table 4.2-2 in TS 36.211[9].
Gap Pattern Id		0	As specified in 3GPP TS 36.133 [4] section 8.1.2.1.
A3-Offset	dB	-6	
Hysteresis	dB	0	
TimeToTrigger	s	0	
Filter coefficient		0	L3 filtering is not used
DRX		OFF	
si-RequestForHO		TRUE	As specified in section 5.5.3.1 in TS 36.331[5].
Time offset between cells	ms	3	Asynchronous cells
T1	s	5	
T2	s	≤10	
T3	s	5	

8.15.3.4.2 Test procedure

The test comprises of one active cell and one neighbour cell. PDCCHs indicating new transmissions should be sent continuously to ensure that the UE would have ACK/NACK sending during identifying a new CGI of E-UTRAN cell. 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. Gap pattern configuration is configured before T2 begins to enable inter-frequency monitoring. Starting T2, cell 2 becomes detectable and the UE is expected to detect and send a measurement report.

1. Ensure the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.
2. Set the parameters according to T1 in Table 8.15.3.5-1. Propagation conditions are set according to Annex B clauses B.1.1. T1 starts.
3. The SS shall transmit an RRCConnectionReconfiguration with event A3 configured message.
4. The UE shall transmit RRCConnectionReconfigurationComplete message.
5. When T1 expires, the SS shall switch the power setting from T1 to T2 as specified in Table 8.15.3.5-1.
6. The UE shall transmit a MeasurementReport message triggered by Event A3.
7. The SS shall transmit an RRCConnectionReconfiguration message during period T2, The RRC message shall create a measurement report configuration with purpose *reportCGI* and *si-RequestForHO* set to TRUE.
8. The SS shall start T3 timer when the last TTI containing the RRC message implying SI reading is sent to the UE.
9. The UE shall transmit RRCConnectionReconfigurationComplete message.
10. The UE shall transmit a MeasurementReport message containing the cell global identifier of cell 2 within 170 milliseconds from the start of T3. The UE shall be scheduled continuously throughout the test, and from the start

of T3 until 170 ms at least 80 ACK/NACK shall be detected as being transmitted by the UE. If the overall delays measured from the beginning of time period T3 is less than 170 ms, and the UE have more than 80 ACK/NACKs transmitted from the start of T3 until 170 ms, then the number of successful tests is increased by one. If the UE fails to report the cell global identifier within the overall delays measured requirement, or the UE have less than 80 ACK/NACKs transmitted from the start of T3 until 170 ms, then the number of failure tests is increased by one.

11. After the SS receives the MeasurementReport message in step 10) or when T3 expires, the SS shall transmit RRCConnectionRelease message to release the RRC connection which includes the release of the established radio bearers as well as all radio resources.

12. Set Cell 2 physical cell identity = ((current cell 2 physical cell identity + 1) mod 14 + 2) for next iteration of the test procedure loop.

13. After the RRC connection release, the SS:
- transmits in Cell 1 a Paging message (including PagingRecord with ue-Identity) for the UE and ensures the UE is in State 3A according to TS 36.508 [7] clause 4.5.3A (if the paging fails, switches off and on the UE and ensures the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3),
or
- switches off and on the UE and ensures the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.

14. Repeat step 2-13 until the confidence level according to Tables G.2.3-1 in Annex G clause G.2 is achieved.

8.15.3.4.3 Message contents

Message contents are according to TS 36.508 [7] clause 4.6 with the following exceptions:

Table 8.15.3.4.3-1: Common Exception messages for E-UTRAN FDD - TDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps test requirement

Default Message Contents	
Common contents of system information blocks exceptions	
Default RRC messages and information elements contents exceptions	Table H.3.1-1 Table H.3.1-7 Table H.3.1-9

Table 8.15.3.4.3-2: *ReportConfigEUTRA-A3*: Additional E-UTRAN FDD - TDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps test requirement (step3)

Derivation Path: TS 36.508 [7] clause 4.6.6, Table 4.6.6-6 ReportConfigEUTRA-A3			
Information Element	**Value/remark**	**Comment**	**Condition**
ReportConfigEUTRA-A3 ::= SEQUENCE {			
triggerType CHOICE {			
event SEQUENCE {			
eventId CHOICE {			
eventA3 SEQUENCE {			
a3-Offset	-12 (-6 dB)	-6 is actual value in dB (-12 * 0.5 dB)	
reportOnLeave	FALSE		
}			
}			
hysteresis	0 (0 dB)	0 is actual value in dB (0 * 0.5 dB)	
timeToTrigger	0 (0 ms)		
}			
}			

Table 8.15.3.4.3-3: *MeasResults*: Additional E-UTRAN FDD - TDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps test requirement

Derivation Path: TS 36.331 [5] clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResults ::= SEQUENCE {			
measId	1	Identifies the measurement id for the reporting being performed	
measResultServCell SEQUENCE {			
rsrpResult		Set according to specific test	
rsrqResult		Set according to specific test	
}			
measResultNeighCells CHOICE {			
measResultListEUTRA	MeasResultListEUTRA		
}			
}			

Table 8.15.3.4.3-4: *MeasResultListEUTRA*: Additional E-UTRAN FDD - TDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps test requirement (step6)

Derivation Path: TS 36.331 [5] clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResultListEUTRA ::= SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {			
physCellId	PhysicalCellIdentity		
measResult SEQUENCE {			
rsrpResult		Set according to specific test INTEGER(0..97)	
rsrqResult		Set according to specific test INTEGER(0..34)	
}			
}			

Table 8.15.3.4.3-5: *ReportConfigEUTRA-PERIODICAL*: Additional E-UTRAN FDD - TDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps test requirement (step7)

Derivation Path: TS 36.508 [7] clause 4.6.6, Table 4.6.6-7 ReportConfigEUTRA-PERIODICAL			
Information Element	**Value/remark**	**Comment**	**Condition**
ReportConfigEUTRA-PERIODICAL ::= SEQUENCE {			
triggerType CHOICE {			
periodical SEQUENCE {			
purpose	reportCGI		
}			
}			
reportAmount	1		
si-RequestForHO-r9	setup		
}			

Table 8.15.3.4.3-6: MeasGapConfig- Additional E-UTRAN FDD - FDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps test requirement (step7)

Derivation Path: 36.331, clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasGapConfig ::= CHOICE {			
Release	NULL		
}			

Table 8.15.3.4.3-7: *MeasResultListEUTRA*: Additional E-UTRAN FDD - TDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps test requirement (step10)

Derivation Path: TS 36.331 [5] clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResultListEUTRA ::= SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {			
physCellId	PhysicalCellIdentity		
cgi-Info SEQUENCE{			
cellGlobalId SEQUENCE{			
plmn-Identity	plmn-Identity		
cellIdentity	cellIdentity		
}			
trackingAreaCode			
plmn-IdentityList			
}			
}			

Table 8.15.3.4.3-8: *MeasObjectEUTRA-GENERIC*: Additional E-UTRAN FDD - TDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps test requirement

Derivation Path: TS 36.508 [7] clause 4.6.6, Table 4.6.6-2 MeasObjectEUTRA-GENERIC			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasObjectEUTRA-GENERIC(Freq) ::= SEQUENCE {			
neighCellConfig	‘01’B (No MBSFN subframes are present in all neighbour cells)		
cellForWhichToReportCGI	Physical Cell ID of Cell 2		Cell 1
}			

Table 8.15.3.4.3-9: *SystemInformationBlockType2*: Additional E-UTRAN FDD - TDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps test requirement

Derivation Path: TS 36.508 [7] clause 7.2.1.3, Table 7.2.1.3-1 SystemInformationBlockType2 exceptions			
Information Element	**Value/remark**	**Comment**	**Condition**
SystemInformationBlockType2 ::= SEQUENCE {			
mbsfn-SubframeConfig	Not present		Cell 1
}			

Table 8.15.3.4.3-10: *SystemInformationBlockType5*: Additional E-UTRAN FDD - TDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps test requirement

Derivation Path: TS 36.508 [7] clause 7.2.1.3, Table 7.2.1.3-3 SystemInformationBlockType5 exceptions			
Information Element	**Value/remark**	**Comment**	**Condition**
SystemInformationBlockType5 ::= SEQUENCE {			
neighCellConfig[*n*]	01'B (No MBSFN subframes are present in all neighbour cells)		
}			

Table 8.15.3.4.3-11: *MeasConfig-DEFAULT*: Additional E-UTRAN FDD - TDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps test requirement (step3)

Derivation Path: TS 36.508 [7] clause 4.6.6, Table 4.6.6-1 MeasConfig-DEFAULT:			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasConfig-DEFAULT ::= SEQUENCE {			
measGapConfig	MeasGapConfig-GP1		Gap Pattern Id = 0
}			

Table 8.15.3.4.3-12: *MeasConfig-DEFAULT*: Additional E-UTRAN FDD - TDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps test requirement (step7)

Derivation Path: TS 36.508 [7] clause 4.6.6, Table 4.6.6-1 MeasConfig-DEFAULT:			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasConfig-DEFAULT ::= SEQUENCE {			
reportConfigToAddModList SEQUENCE (SIZE (1..maxReportConfigId))OF SEQUENCE {	1 entry		
reportConfigId	idReportConfig-P		
reportConfig	ReportConfigEUTRA-PERIODICAL		
}			
measIdToAddModList SEQUENCE (SIZE (1..maxMeasId)) of SEQUENCE {	1 entry		
measId	2		
measObjectId	IdMeasObject-f2		
reportConfigId	IdReportConfig-P		
}			
}			

Table 8.15.3.4.3-13: *MeasResults*: Additional E-UTRAN FDD - TDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps test requirement (step10)

Derivation Path: TS 36.331 [5] clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResults ::= SEQUENCE {			
measId	2	Identifies the measurement id for the reporting being performed	
measResultServCell SEQUENCE {			
rsrpResult		Set according to specific test	
rsrqResult		Set according to specific test	
}			
measResultNeighCells CHOICE {			
measResultListEUTRA	MeasResultListEUTRA		
}			
}			

8.15.3.5 Test requirement

Tables 8.15.3.4.1-1 and 8.15.3.5-1 define the primary level settings including test tolerances for E-UTRAN FDD - TDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps test.

Table 8.15.3.5-1: Cell Specific Test requirement Parameters for E-UTRAN FDD - TDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps

Parameter	Unit	Cell 1			Cell 2		
		T1	T2	T3	T1	T2	T3
E-UTRA RF Channel Number		1			2		
$BW_{channel}$	MHz	10			10		
OCNG Patterns defined in D.1.10 (OP.10 FDD) and in D.2.2 (OP.2 TDD)		OP.10 FDD	OP.10 FDD	OP.10 FDD	OP.2 TDD	OP.2 TDD	OP.2 TDD
PBCH_RA	dB	0			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	4	4	4	-Infinity	7	7
N_{oc} Note 2	dBm/15 KHz	-98					
$\hat{E}_s/N_{oc}$	dB	4	4	4	-Infinity	7	7
RSRP Note 3	dBm/15 KHz	-94	-94	-94	-Infinity	-91	-91
SCH_RP Note3	dBm/15 KHz	-94	-94	-94	-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 SCH_RP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.							

The UE shall transmit a measurement report containing the cell global identifier of cell 2 within [170] milliseconds from the start of T3.

Test requirement = RRC Procedure delay + $T_{identify\_CGI, inter}$ + reporting delay

= 15 + 150 + 2ms from the start of T3

= 167 ms, allow 170 ms.

The UE shall be scheduled continuously throughout the test, and from the start of T3 until 170 ms at least 60 ACK/NACK shall be detected as being transmitted by the UE.

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: The overall 80 ACK/NACK number is caused by two parts. Firstly, at least 60 ACK/NACK shall be sent during identifying the cell global identifier of cell 2 according to the requirement in TS 36.133[4] Section 8.1.2.3.5.1. Secondly, given that continuous DL data allocation, and the measurement gaps have been deconfigured before the start of T3, additional 20 ACK/NACK shall be sent from the start of T3 until 170 ms excludes 150 ms for identifying the cell global identifier of cell 2.

8.16 E-UTRAN Carrier Aggregation Measurements

8.16.1 E-UTRAN FDD event triggered reporting under deactivated SCell in non-DRX

8.16.1.1 Test purpose

To verify the UE's ability to make correct reportings of Event A2 and A6 under deactivated SCell in non-DRX within the requirements in TS 36.133[4] section 8.3.3.2.1.

8.16.1.2 Test applicability

This test applies to all types of E-UTRA UE FDD release 10 and forward that support CA. Applicability requires support for FGI bit 111.

8.16.1.3 Minimum conformance requirements

When no DRX is in use the UE shall be able to identify a new detectable FDD or TDD cell on the secondary component carrier within $T_{identify\_scc}$, according to the parameter *measCycleSCell* where $T_{identify\_scc}$ = 20 *measCycleSCell*

A cell shall be considered detectable when

- RSRP related side condition given in Section 9.1 are fulfilled for a corresponding Band,

- $SCH\_RP|_{dBm}$ and SCH Ês/Iot according to Annex I.2.7 for a corresponding Band

The measurement period for deactivated SCell measurements is $T_{measure\_scc}$ according to the parameter *measCycleSCell* where $T_{measure\_scc}$ = 5 *measCycleSCell*. The UE shall be capable of performing RSRP and RSRQ measurements for 8 identified cells on the secondary component carrier, and the UE physical layer shall be capable of reporting measurements to higher layers with the measurement period of $T_{measure\_scc}$.

The measurement accuracy for all measured cells shall be as specified in TS 36.133[4] sub-clause 9.1.11 (Carrier aggregation measurement accuracy)

A UE may reconfigure receiver bandwidth taking into account the SCell activation/deactivation status, and when making measurements of cells on an SCC with deactivated SCell. This may cause interruptions (packet drops) to a PCell when the PCell and SCell belong to the adjacent component carriers in the same frequency band. Such interruptions due to making measurements are allowed with up to 0.5% probability of missed ACK/NACK when the *measCycleSCell* is larger than or equal to 640 ms. Otherwise, no interruptions shall be allowed. The requirement considers only missed ACK/NACK due to reconfiguration of the receiver bandwidth, and not due to other causes such as RF impairments or channel conditions. No interruptions due to the SCell activation/deactivation status changes shall be allowed at least when *measCycleSCell* is smaller than 640 ms. When *measCycleSCell* is larger than or equal to 640 ms, interruption duration due to the SCell activation/deactivation status change shall not exceed 5 ms within the activation/deactivation procedure. If the UE receives an RRC message implying that no SCell is configured, no interruptions due to receiver bandwidth reconfiguration shall occur after the corresponding RRC procedure delay has elapsed.

Reported measurements contained in event triggered measurement reports shall meet the requirements in TS 36.133 [4] clause 9.

The UE shall not send any event triggered measurement reports, as long as no reporting criteria are fulfilled.

The measurement reporting delay is defined as the time between an event that will trigger a measurement report and the point when the UE starts to transmit the measurement report over the air 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: 2 x TTI_{DCCH}. This measurement reporting delay excludes a delay which caused by no UL resources for UE to send the measurement report.

The event triggered measurement reporting delay, measured without L3 filtering shall be less than $T_{identify\_scc}$ defined in TS 36.133 [4] clause 8.3.3.2.1. When L3 filtering is used an additional delay can be expected.

If a cell which has been detectable at least for the time period $T_{identify\_scc}$ defined in TS 36.133 [4] section 8.3.3.2.1 becomes undetectable for a period ≤ 5 seconds and then the cell becomes detectable again and triggers an event, the event triggered measurement reporting delay shall be less than $T_{measure\_scc}$ provided the timing to that cell has not changed more than ± 50 Ts and the L3 filter has not been used. When L3 filtering is used an additional delay can be expected.

The normative reference for this requirement is TS 36.133 [4] clause 8.3.3.2.1 and A.8.16.1.

8.16.1.4 Test description

8.16.1.4.1 Initial conditions

Test Environment: Normal, as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1.

Channel Bandwidth to be tested: 10 MHz as defined in TS 36.508 [7] clause 4.3.1.

1. Connect the SS (node B emulator) and faders and AWGN noise sources to the UE antenna connectors as shown in TS 36.508 [7] Annex A, Figure group A.42 as appropriate.

2. The general test parameter settings are set up according to Table 8.16.1.4.1-1.

3. Propagation conditions are set according to Annex B clauses B.0.

4. Message contents are defined in clause 8.16.1.4.3.

5. Cell1 is PCell on the primary component carrier, Cell 2 is SCell on the secondary component carrier, and Cell3 is the neighbouring cell of Cell 2 on the secondary component carrier, Cell 1 is the cell used for connection setup with the power levels set according to Annex C.0 and C.1 for this test, Cell 2 and Cell 3 shall be powered OFF.

Table 8.16.1.4.1-1: General test parameters for E-UTRAN FDD event triggered reporting on configured but deactivated SCell in non-DRX under fading propagation conditions

Parameter		Unit	Value	Comment
PDSCH parameters			DL Reference Measurement Channel R.0 FDD	As specified in section A.1.1
PCFICH/PDCCH/PHICH parameters			DL Reference Measurement Channel R.6 FDD	As specified in section A.2.1
E-UTRA RF Channel Number			1, 2	Two radio channels are used for this test
Active PCell			Cell 1	Primary cell on RF channel number 1.
Configured deactivated SCell			Cell 2	Configured deactivated secondary cell on RF channel number 2.
Neighbour cell			Cell 3	Neighbour cell to be identified on RF channel number 2.
Channel Bandwidth ($BW_{channel}$)		MHz	10	Channel bandwidth for cells on primary and secondary component carriers
CP length			Normal	
DRX			OFF	Continuous monitoring of primary cell
A2	Hysteresis	dB	0	Hysteresis for evaluation of event A2.
	Threshold RSRP	dBm	-93	Actual RSRP threshold for event A2. Needs to take absolute accuracy tolerance in TS 36.133 [4] section 9.1.11.1 into account plus margin.
	Time To Trigger	s	0	
A6	Hysteresis	dB	0	Hysteresis for evaluation of event A6.
	Offset	dB	-6	Offset parameter for evaluation of event A6. Needs to take relative accuracy tolerance in TS 36.133 [4] section 9.1.11.2 into account plus margin.
	Report on leave		False	
	Time To Trigger	s	0	
Cell-individual offset for cells on RF channel number 1		dB	0	Individual offset for cells on primary component carrier.
Cell-individual offset for cells on RF channel number 2		dB	0	Individual offset for cells on secondary component carrier.
Filter coefficient			0	L3 filtering is not used
SCell measurement cycle (measCycleSCell)		ms	320	
Cell2 timing offset to cell1		μs	0	
Time alignment error between cell2 and cell1		μs	≤ Time alignment error as specified in TS 36.104 [29] clause 6.5.3.1.	The value of time alignment error depends upon the type of carrier aggregation.
Cell3 timing offset to cell1		μs	3	Synchronous cells 3μs or 92*Ts
T1		s	5	During this time the UE shall be aware of cells 1 and 2 but not cell 3.
T2		s	≤12	UE should report Event A6 within 6.4s (20×measCycleSCell)
T3		s	5	UE should report Event A2 within 200 ms and 1.6s for cells 1 and 2, respectively.

8.16.1.4.2 Test procedure

The test consists of three successive time periods, with duration of T1, T2 and T3, respectively. During T1 the UE shall not have any information on cell 3. Immediately at beginning of T2 the transmission power of cell 3 is increased to same level as for cell 2, and due to usage of an offset this shall result in reporting of Event A6. At beginning of T3 the transmission powers of cells 1, 2 and 3 are reduced below a threshold value and this shall result in reporting of Event A2 for PCell and SCell, respectively.

1. Ensure the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.

2. Configure SCC according to Annex C.0, C.1 for all downlink physical channels except PHICH.

3. The SS shall configure SCell (Cell 2) on the SCC as per TS 36.508 [7] clause 5.2A.4 with the message content exceptions defined in clause 8.16.1.4.3.

4. Set the parameters according to T1 in Table 8.16.1.5-1. Propagation conditions are set according to Annex B clauses B.1.1 and B.2.2. T1 starts.

5. The SS shall transmit an RRCConnectionReconfiguration message with events A6 and A2 configured.

6. The UE shall transmit an RRCConnectionReconfigurationComplete message.

7. When T1 expires, the SS shall switch the power setting from T1 to T2 as specified in Table 8.16.1.5-1.

8. The UE shall transmit a MeasurementReport message triggered by Event A6. If the measurement reporting delay from the beginning of time period T2 is less than 6402ms, then count a success for the event “A6”. Otherwise count a fail for the event “A6”.

9. After the SS receives the MeasurementReport message in step 8) or when T2 expires, the SS shall switch the power setting from T2 to T3 as specified in Table 8.16.1.5-1.

10. The UE shall transmit MeasurementReport messages triggered by Event A2 for Cell 1 and Cell 2, respectively.

10a. If the measurement reporting delay for Cell 1 from the beginning of time period T3 is less than 200ms, then count a success for the event “Cell 1 A2”. Otherwise count a fail for the event “Cell 1 A2”.

10b. If the measurement reporting delay for Cell 2 from the beginning of time period T3 is less than 1602ms, then count a success for the event “Cell 2 A2”. Otherwise count a fail for the event “Cell 2 A2.

11. After the SS receives the MeasurementReport message in step 8) and 10) or when T3 expires, the SS shall transmit a RRCConnectionRelease message to release the RRC connection which includes the release of the established radio bearers as well as all radio resources.

12. Set Cell 3 physical cell identity = ((current cell 3 physical cell identity + 1) mod 14 + 2) for next iteration of the test procedure loop. If physical cell identity of Cell 3 = physical cell identity of Cell 2 then skip this physical cell identity value for Cell 3.

13. After the RRC connection release, the SS:
    - transmits in Cell 1 a Paging message (including PagingRecord with UE-Identity) for the UE and ensures the UE is in State 3A according to TS 36.508 [7] clause 4.5.3A (if the paging fails, switches off and on the UE and ensures the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3),
    or
    - switches off and on the UE and ensures the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.

14. Repeat step 3-13 until a test verdict has been achieved.

Each of the events “A6”, “Cell 1 A2” and “Cell 2 A2” is evaluated independently for the statistic, resulting in an event verdict: pass or fail. Each event is evaluated only until the confidence level according to Table G.2.3-1 in Annex G.2 is achieved. Different events may require different times for a verdict.
If both events pass, the test passes. If one event fails, the test fails.

8.16.1.4.3 Message contents

Message contents are according to TS 36.508 [7] clause 4.6 with the following exceptions:

Table 8.16.1.4.3-1: Common Exception messages

Default Message Contents	
Common contents of system information blocks exceptions	
Default RRC messages and information elements contents exceptions	Table H.3.1-1 Table H.3.1-7 Table H.4.1-5 Table H.4.1-6

Table 8.16.1.4.3-2: *SCellToAddMod-r10*

Derivation Path: 36.508, Table 4.6.3-19D			
Information Element	**Value/remark**	**Comment**	**Condition**
SCellToAddMod-r10 ::= SEQUENCE {			
sCellIndex-r10	1		
cellIdentification-r10 SEQUENCE {			
physCellId-r10	PhysicalCellIdentity of Cell 2		
dl-CarrierFreq-r10	Same downlink EARFCN as used for Cell 2		
}			
}			

Table 8.16.1.4.3-3: *RadioResourceConfigCommonSCell-r10*

Derivation Path: 36.508, Table 4.6.3-13A			
Information Element	**Value/remark**	**Comment**	**Condition**
RadioResourceConfigCommonSCell-r10 ::= SEQUENCE {			
nonUL-Configuration-r10 SEQUENCE {			
dl-Bandwidth-r10	Same downlink system bandwidth as used for Cell 2		
}			
}			

Table 8.16.1.4.3-4: *MeasConfig:* Additional E-UTRAN FDD event triggered reporting on configured but deactivated SCell in non-DRX under fading propagation conditions requirements

Derivation path: 36.508 clause 4.6.6 table 4.6.6-1			
Information Element	**Value/Remark**	**Comment**	**Condition**
MeasConfig ::= SEQUENCE {			
measObjectToAddModList SEQUENCE (SIZE (1..maxObjectId)) OF SEQUENCE {	2 entries		
measObjectId[1]	IdMeasObject-f1		
measObject[1]	MeasObjectEUTRA-GENERIC(f1)	Cell 1	
measObjectId[2]	IdMeasObject-f2		
measObject[2]	MeasObjectEUTRA-GENERIC(f2)	Cell 2, 3	
}			
reportConfigToAddModList SEQUENCE (SIZE (1..maxReportConfigId)) OF SEQUENCE {	2 entries		
reportConfigId[1]	IdReportConfig-A6		
reportConfig[1]	ReportConfig-A6		
reportConfigId[2]	IdReportConfig-A2		
reportConfig[2]	ReportConfig-A2-H		
}			
measIdToAddModList SEQUENCE (SIZE (1..maxMeasId)) OF SEQUENCE {	3 entries		
measId[1]	1		
measObjectId[1]	IdMeasObject-f2		
reportConfigId[1]	IdReportConfig-A6		
measId[2]	2		
measObjectId[2]	IdMeasObject-f1		
reportConfigId[2]	IdReportConfig-A2		
measId[3]	3		
measObjectId[3]	IdMeasObject-f2		
reportConfigId[3]	IdReportConfig-A2		
}			
}			

Table 8.16.1.4.3-5: MeasObjectEUTRA-GENERIC(f2): Additional E-UTRAN FDD event triggered reporting on configured but deactivated SCell in non-DRX under fading propagation conditions requirements

Derivation Path: 36.508 clause 7.3.3 Table 7.3.4-1			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasObjectEUTRA-GENERIC(Freq) ::= SEQUENCE {			
cellsToAddModList SEQUENCE (SIZE (1..maxCellMeas)) { }	Not present		
measCycleSCell-r10	sf320		
}			

Table 8.16.1.4.3-6: *ReportConfig-A2-H*: Additional E-UTRAN FDD event triggered reporting on configured but deactivated SCell in non-DRX under fading propagation conditions requirements

Derivation Path: 36.508 clause 4.6.6 table 4.6.6-5 ReportConfigEUTRA-A2(-93)			
Information Element	**Value/remark**	**Comment**	**Condition**
ReportConfigEUTRA-A2(Thres) ::= SEQUENCE {			
triggerType CHOICE {			
event SEQUENCE {			
eventId CHOICE {			
eventA2 SEQUENCE {			
a2-Threshold CHOICE {			
threshold-RSRP	47	The actual value is IE value – 140 dBm	
}			
}			
}			
hysteresis	0 (0 dB)		
timeToTrigger	ms0		
}			
}			
triggerQuantity	rsrp		
reportQuantity	both		
maxReportCells	1		
reportInterval	ms1024		
reportAmount	r1		
}			

Table 8.16.1.4.3-7: *MeasurementReport*: Additional E-UTRAN FDD event triggered reporting on configured but deactivated SCell in non-DRX under fading propagation conditions requirements

Derivation path: 36.508 4.6.1 table 4.6.1-5			
Information Element	**Value/Remark**	**Comment**	**Condition**
MeasurementReport ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
measurementReport-r8 SEQUENCE {			
measResults ::= SEQUENCE {			
measId	2		
measResultPCell ::= SEQUENCE {		Report Cell 1	
rsrpResult	(0..97)		
rsrqResult	(0..34)		
}			
measResultNeighCells CHOICE { }	Not present		
measResultForECID-r9	Not present		
locationInfo-r10	Not present		
measResultServFreqList-r10 SEQUENCE (SIZE (1..maxServCell-r10)) OF SEQUENCE {			
servFreqId-r10	1		
measResultSCell-r10 SEQUENCE {		Cell 2	
rsrpResultSCell-r10	(0..97)		
rsrqResultSCell-r10	(0..34)		
}			
}			
}			
}			
}			
}			
}			

Table 8.16.1.4.3-8: *MeasurementReport*: Additional E-UTRAN FDD event triggered reporting on configured but deactivated SCell in non-DRX under fading propagation conditions requirements

Derivation path: 36.508 4.6.1 table 4.6.1-5			
Information Element	**Value/Remark**	**Comment**	**Condition**
MeasurementReport ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
measurementReport-r8 SEQUENCE {			
measResults ::= SEQUENCE {			
measId	3		
measResultPCell ::= SEQUENCE {		Report Cell 1	
rsrpResult	(0..97)		
rsrqResult	(0..34)		
}			
measResultNeighCells CHOICE { }	Not present		
measResultForECID-r9	Not present		
locationInfo-r10	Not present		
measResultServFreqList-r10 SEQUENCE (SIZE (1..maxServCell-r10)) OF SEQUENCE {			
servFreqId-r10	1		
measResultSCell-r10 SEQUENCE {		Cell 2	
rsrpResultSCell-r10	(0..97)		
rsrqResultSCell-r10	(0..34)		
}			
}			
}			
}			
}			
}			
}			

8.16.1.5 Test requirement

Table 8.16.1.4-1 and Table 8.16.1.5-1 define the primary level settings including test tolerances for E-UTRAN FDD-FDD Event triggered reporting on configured but deactivated SCell with PCell interruption in non-DRX test.

Table 8.16.1.5-1: Cell specific test parameters for E-UTRAN FDD event triggered reporting on configured but deactivated SCell in non-DRX under fading propagation conditions

Parameter	Unit	Cell 1			Cell 2			Cell 3		
		T1	T2	T3	T1	T2	T3	T1	T2	T3
E-UTRA RF Channel Number		1			2			2		
$BW_{channel}$	MHz	10			10			10		
Timing offset to Cell 1	μs	-			0			3		
OCNG Patterns defined inD.1.1 (OP.1 FDD) and in D.1.2 (OP.2 FDD)		OP.1 FDD			OP.2 FDD			OP.2 FDD		
PBCH_RA	dB	0			0			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	-101.00			-101.00					
RSRP Note 3	dBm/15 kHz	-81.80	-81.80	-104.00	-81.80	-81.80	-104.20	-infinity	-82.00	-104.00
$\hat{E}_s/I_{ot}$	dB	19.20	19.20	-3.00	19.20	0.15	-4.96	-infinity	-0.25	-4.70
SCH_RP Note 3	dBm/15 kHz	-81.80	-81.80	-104.00	-81.80	-81.80	-104.20	-infinity	-82.00	-104.00
$\hat{E}_s/N_{oc}$	dB	19.20	19.20	-3.00	19.20	19.20	-3.20	-infinity	19.00	-3.00
Propagation Condition		ETU70								
Note 1: OCNG shall be used such that all 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 SCH_RP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.										
Note 4: The resources for uplink transmission are assigned to the UE prior to the start of time period T2.										

The measurement reporting delay is defined as the time between an event that will trigger a measurement report and the point when the UE starts to transmit the measurement report over the air interface

The actual overall delays measured in the tests may be up to $2 \times TTI_{DCCH}$ higher than the measurement reporting delays above because of TTI insertion uncertainty of the measurement report in DCCH.

The event triggered measurement reporting delay, measured without L3 filtering shall be less than $T_{identify\_scc}$

The overall delays measured test requirement for Event A6 is expressed as:

Overall delays measured = measurement reporting delay + TTI insertion uncertainty

Where:

measurement reporting delay $= T_{identify\_scc}$

$T_{identify\_scc} = 20$ *measCycleSCell*

measCycleSCell = 320 ms

The UE shall send one Event A6 triggered measurement report with a measurement reporting delay of less than 6402 ms from the beginning of time T2 (note: this gives a total of 6400 ms for measurement reporting delay plus 2 ms for TTI insertion uncertainty).

In the RRC_CONNECTED state the measurement period for intra frequency RSRP and RSRQ measurements is 200 ms as per TS 36.133[4] section 8.1.2.2.1

The UE shall send one Event A2 triggered measurement report for Cell 1 with a measurement reporting delay of less than 200 ms from beginning of time T3.

The measurement period for deactivated scell measurements is $T_{measure\_scc}$ according to the parameter *measCycleSCell*

The overall delays measured test requirement for Event A2 for Cell 2 is expressed as:

Overall delays measured = measurement reporting delay + TTI insertion uncertainty

Where:

measurement reporting delay $= T_{measure\_scc}$

where $T_{measure\_scc} = 5$ *measCycleSCell*.

The UE shall send one Event A2 triggered measurement report for Cell 2 with a measurement reporting delay of less than 1602ms from beginning of time T3(note: this gives a total of 1600 ms for measurement reporting delay plus 2 ms for TTI insertion uncertainty).

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% with a confidence level of 95% for each of the events.

The statistical pass/ fail decisions are done separately for Event A6 and Event A2.

Decide the test pass, if events A6 **and** A2 are passed, otherwise fail the UE.

8.16.2 E-UTRAN TDD event triggered reporting under deactivated SCell in non-DRX

8.16.2.1 Test purpose

To verify the UE's ability to make correct reportings of Event A2 and A6 under deactivated SCell in non-DRX within the requirements in TS 36.133[4] section 8.3.3.2.1.

8.16.2.2 Test applicability

This test applies to all types of E-UTRA UE TDD release 10 and forward that support CA. Applicability requires support for FGI bit 111.

8.16.2.3 Minimum conformance requirements

When no DRX is in use the UE shall be able to identify a new detectable FDD or TDD cell on the secondary component carrier within $T_{identify\_scc}$, according to the parameter *measCycleSCell* where $T_{identify\_scc}$ = 20 *measCycleSCell*

A cell shall be considered detectable when

- RSRP related side condition given in Section 9.1 are fulfilled for a corresponding Band,
- $SCH\_RP|_{dBm}$ and SCH Ês/Iot according to Annex I.2.7 for a corresponding Band

The measurement period for deactivated scell measurements is $T_{measure\_scc}$ according to the parameter *measCycleSCell* where $T_{measure\_scc}$ = 5 *measCycleSCell*. The UE shall be capable of performing RSRP and RSRQ measurements for 8 identified cells on the secondary component carrier, and the UE physical layer shall be capable of reporting measurements to higher layers with the measurement period of $T_{measure\_scc}$.

The measurement accuracy for all measured cells shall be as specified in TS 36.133[4] sub-clause 9.1.11 (Carrier aggregation measurement accuracy)

A UE may reconfigure receiver bandwidth taking into account the SCell activation/deactivation status, and when making measurements of cells on an SCC with deactivated SCell. This may cause interruptions (packet drops) to a PCell when the PCell and SCell belong to the adjacent component carriers in the same frequency band as the measured secondary component carrier. Such interruptions due to making measurements are allowed with up to 0.5% probability of missed ACK/NACK when the *measCycleSCell* is larger than or equal to 640 ms. Otherwise, no interruptions shall be allowed. The requirement considers only missed ACK/NACK due to reconfiguration of the receiver bandwdith, and not due to other causes such as RF impairments or channel conditions. No interruptions due to the SCell activation/deactivation status changes shall be allowed at least when *measCycleSCell* is smaller than 640 ms. When *measCycleSCell* is larger than or equal to 640 ms, interruption duration due to the SCell activation/deactivation status change shall not exceed 5 ms within the activation/deactivation procedure. If the UE receives an RRC message implying that no SCell is configured, no interruptions due to receiver bandwidth reconfiguration shall occur after the corresponding RRC procedure delay has elapsed.

Reported measurements contained in event triggered measurement reports shall meet the requirements in TS 36.133 [4] clause 9.

The UE shall not send any event triggered measurement reports, as long as no reporting criteria are fulfilled.

The measurement reporting delay is defined as the time between an event that will trigger a measurement report and the point when the UE starts to transmit the measurement report over the air 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: 2 x TTI_{DCCH}. This measurement reporting delay excludes a delay which caused by no UL resources for UE to send the measurement report.

The event triggered measurement reporting delay, measured without L3 filtering shall be less than $T_{identify\_scc}$ defined in TS 36.133 [4] clause 8.3.3.2.1. When L3 filtering is used an additional delay can be expected.

If a cell which has been detectable at least for the time period $T_{identify\_scc}$ defined in TS 36.133 [4] section 8.3.3.2.1 becomes undetectable for a period ≤ 5 seconds and then the cell becomes detectable again and triggers an event, the event triggered measurement reporting delay shall be less than $T_{measure\_scc}$ provided the timing to that cell has not changed more than ± 50 Ts and the L3 filter has not been used. When L3 filtering is used an additional delay can be expected.

The normative reference for this requirement is TS 36.133 [4] clause 8.3.3.2.1 and A.8.16.2.

8.16.2.4 Test description

8.16.2.4.1 Initial conditions

Test Environment: Normal, as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1.

Channel Bandwidth to be tested: 10 MHz as defined in TS 36.508 [7] clause 4.3.1.

1. Connect the SS (node B emulator) and faders and AWGN noise sources to the UE antenna connectors as shown in TS 36.508 [7] Annex A, Figure group A.42 as appropriate.

2. The general test parameter settings are set up according to Table 8.16.2.4.1-1.

3. Propagation conditions are set according to Annex B clauses B.0.

4. Message contents are defined in clause 8.16.2.4.3.

5. Cell1 is PCell on the primary component carrier, Cell 2 is SCell on the secondary component carrier, and Cell3 is the neighbouring cell of Cell 2 on the secondary component carrier. Cell 1 is the cell used for connection setup with the power levels set according to Annex C.0 and C.1 for this test, Cell 2 and Cell 3 shall be powered OFF.

Table 8.16.2.4.1-1: General test parameters for E-UTRAN TDD event triggered reporting on configured but deactivated SCell in non-DRX under fading propagation conditions

Parameter		Unit	Value	Comment
PDSCH parameters			DL Reference Measurement Channel R.0 TDD	As specified in section A.1.2
PCFICH/PDCCH/PHICH parameters			DL Reference Measurement Channel R.6 TDD	As specified in section A.2.2
E-UTRA RF Channel Number			1, 2	Two radio channels are used for this test
Active PCell			Cell 1	Primary cell on RF channel number 1.
Configured deactivated SCell			Cell 2	Configured deactivated secondary cell on RF channel number 2.
Neighbour cell			Cell 3	Neighbour cell to be identified on RF channel number 2.
Channel Bandwidth ($BW_{channel}$)		MHz	10	Channel bandwidth for cells on primary and secondary component carriers
CP length			Normal	
Special subframe configuration			6	As specified in table 4.2.1 in TS 36.211. The same configuration applies to all cells.
Uplink-downlink configuration			1	
DRX			OFF	Continuous monitoring of primary cell
A2	Hysteresis	dB	0	Hysteresis for evaluation of event A2.
	Threshold RSRP	dBm	-93	Actual RSRP threshold for event A2. Needs to take absolute accuracy tolerance in TS 36.133 [4] section 9.1.11.1 into account plus margin.
	Time To Trigger	s	0	
A6	Hysteresis	dB	0	Hysteresis for evaluation of event A6.
	Offset	dB	-6	Offset parameter for evaluation of event A6. Needs to take relative accuracy tolerance in TS 36.133 [4] section 9.1.11.2 into account plus margin.
	Report on leave		False	
	Time To Trigger	s	0	
Cell-individual offset for cells on RF channel number 1		dB	0	Individual offset for cells on primary component carrier.
Cell-individual offset for cells on RF channel number 2		dB	0	Individual offset for cells on secondary component carrier.
Filter coefficient			0	L3 filtering is not used
SCell measurement cycle (measCycleSCell)		ms	320	
Cell2 timing offset to cell1		μs	0	
Time alignment error between cell2 and cell1		μs	≤ Time alignment error as specified in TS 36.104 [29] clause 6.5.3.1.	The value of time alignment error depends upon the type of carrier aggregation.
Cell3 timing offset to cell1		μs	3	Synchronous cells 3μs or 92*Ts
T1		s	5	During this time the UE shall be aware of cells 1 and 2 but not cell 3.
T2		s	≤12	UE should report Event A6 within 6.4s (20×scellMeasCycle)
T3		s	5	UE should report Event A2 within 200 ms and 1.6s for cells 1 and 2, respectively.

8.16.2.4.2 Test procedure

The test consists of three successive time periods, with duration of T1, T2 and T3, respectively. During T1 the UE shall not have any information on cell 3. Immediately at beginning of T2 the transmission power of cell 3 is increased to same level as for cell 2, and due to usage of an offset this shall result in reporting of Event A6. At beginning of T3 the transmission powers of cells 1, 2 and 3 are reduced below a threshold value and this shall result in reporting of Event A2 for PCell and SCell, respectively.

1. Ensure the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.

2. Configure SCC according to Annex C.0, C.1 for all downlink physical channels except PHICH.

3. The SS shall configure SCell (Cell 2) on the SCC as per TS 36.508 [7] clause 5.2A.4 with the message content exceptions defined in clause 8.16.2.4.3.

4. Set the parameters according to T1 in Table 8.16.2.5-1. Propagation conditions are set according to Annex B clauses B.1.1 and B.2.2. T1 starts.

5. The SS shall transmit an RRCConnectionReconfiguration message with events A6 and A2 configured.

6. The UE shall transmit an RRCConnectionReconfigurationComplete message.

7. When T1 expires, the SS shall switch the power setting from T1 to T2 as specified in Table 8.16.2.5-1.

8. The UE shall transmit a MeasurementReport message triggered by Event A6. If the measurement reporting delay from the beginning of time period T2 is less than 6402ms, then count a success for the event “A6”. Otherwise count a fail for the event “A6”.

9. After the SS receives the MeasurementReport message in step 8) or when T2 expires, the SS shall switch the power setting from T2 to T3 as specified in Table 8.16.2.5-1.

10. The UE shall transmit MeasurementReport messages triggered by Event A2 for Cell 1 and Cell 2, respectively.

10a. If the measurement reporting delay for Cell 1 from the beginning of time period T3 is less, then count a success for the event “Cell 1 A2”. Otherwise count a fail for the event “Cell 1 A2”.

10b. If the measurement reporting delay for Cell 2 from the beginning of time period T3 is less than 1602ms, then count a success for the event “Cell 2 A2”. Otherwise count a fail for the event “Cell 2 A2”.

11. After the SS receives the MeasurementReport message in step 8) and 10) or when T3 expires, the SS shall transmit a RRCConnectionRelease message to release the RRC connection which includes the release of the established radio bearers as well as all radio resources.

12. Set Cell 3 physical cell identity = ((current cell 3 physical cell identity + 1) mod 14 + 2) for next iteration of the test procedure loop.

13. After the RRC connection release, the SS:
- transmits in Cell 1 a Paging message (including PagingRecord with UE-Identity) for the UE and ensures the UE is in State 3A according to TS 36.508 [7] clause 4.5.3A (if the paging fails, switches off and on the UE and ensures the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3),
or
- switches off and on the UE and ensures the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.

14. Repeat step 3-13 until a test verdict has been achieved.

Each of the events “A6”, “Cell 1 A2” and “Cell 2 A2” is evaluated independently for the statistic, resulting in an event verdict: pass or fail. Each event is evaluated only until the confidence level according to Table G.2.3-1 in Annex G.2 is achieved. Different events may require different times for a verdict.
If both events pass, the test passes. If one event fails, the test fails.

8.16.2.4.3 Message contents

Message contents are according to TS 36.508 [7] clause 4.6 with the following exceptions:

Table 8.16.2.4.3-1: Common Exception messages

Default Message Contents	
Common contents of system information blocks exceptions	
Default RRC messages and information elements contents exceptions	Table H.3.1-1 Table H.3.1-7 Table H.4.1-5 Table H.4.1-6

Table 8.16.2.4.3-2: *SCellToAddMod-r10*

Derivation Path: 36.508, Table 4.6.3-19D			
Information Element	**Value/remark**	**Comment**	**Condition**
SCellToAddMod-r10 ::= SEQUENCE {			
sCellIndex-r10	1		
cellIdentification-r10 SEQUENCE {			
physCellId-r10	PhysicalCellIdentity of Cell 2		
dl-CarrierFreq-r10	Same downlink EARFCN as used for Cell 2		
}			
}			

Table 8.16.2.4.3-3: *RadioResourceConfigCommonSCell-r10*

Derivation Path: 36.508, Table 4.6.3-13A			
Information Element	**Value/remark**	**Comment**	**Condition**
RadioResourceConfigCommonSCell-r10 ::= SEQUENCE {			
nonUL-Configuration-r10 SEQUENCE {			
dl-Bandwidth-r10	Same downlink system bandwidth as used for Cell 2		
}			
}			

Table 8.16.2.4.3-4: *MeasConfig:* Additional E-UTRAN TDD event triggered reporting on configured but deactivated SCell in non-DRX under fading propagation conditions requirements

Derivation path: 36.508 clause 4.6.6 table 4.6.6-1			
Information Element	**Value/Remark**	**Comment**	**Condition**
MeasConfig ::= SEQUENCE {			
measObjectToAddModList SEQUENCE (SIZE (1..maxObjectId)) OF SEQUENCE {	2 entries		
measObjectId[1]	IdMeasObject-f1		
measObject[1]	MeasObjectEUTRA-GENERIC(f1)	Cell 1	
measObjectId[2]	IdMeasObject-f2		
measObject[2]	MeasObjectEUTRA-GENERIC(f2)	Cell 2, 3	
}			
reportConfigToAddModList SEQUENCE (SIZE (1..maxReportConfigId)) OF SEQUENCE {	2 entries		
reportConfigId[1]	IdReportConfig-A6		
reportConfig[1]	ReportConfig-A6		
reportConfigId[2]	IdReportConfig-A2		
reportConfig[2]	ReportConfig-A2-H		
}			
measIdToAddModList SEQUENCE (SIZE (1..maxMeasId)) OF SEQUENCE {	3 entries		
measId[1]	1		
measObjectId[1]	IdMeasObject-f2		
reportConfigId[1]	IdReportConfig-A6		
measId[2]	2		
measObjectId[2]	IdMeasObject-f1		
reportConfigId[2]	IdReportConfig-A2		
measId[3]	3		
measObjectId[3]	IdMeasObject-f2		
reportConfigId[3]	IdReportConfig-A2		
}			
}			

Table 8.16.2.4.3-5: MeasObjectEUTRA-GENERIC(f2): Additional E-UTRAN TDD event triggered reporting on configured but deactivated SCell in non-DRX under fading propagation conditions requirements

Derivation Path: 36.508 clause 4.6.6-2			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasObjectEUTRA-GENERIC(Freq) ::= SEQUENCE {			
cellsToAddModList SEQUENCE (SIZE (1..maxCellMeas)) {	Not present		
cellIndex	2		
physCellId	Physical cell id of Cell 3		
cellIndividualOffset	0		
}			
measCycleSCell-r10	sf320		
}			

Table 8.16.2.4.3-6: *ReportConfig-A2-H*: Additional E-UTRAN TDD event triggered reporting on configured but deactivated SCell in non-DRX under fading propagation conditions requirements

Derivation Path: 36.508 clause 4.6.6 table 4.6.6-5 ReportConfigEUTRA-A2(-90)			
Information Element	**Value/remark**	**Comment**	**Condition**
ReportConfigEUTRA-A2(Thres) ::= SEQUENCE {			
triggerType CHOICE {			
event SEQUENCE {			
eventId CHOICE {			
eventA2 SEQUENCE {			
a2-Threshold CHOICE {			
threshold-RSRP	47	The actual value is IE value – 140 dBm	
}			
}			
}			
hysteresis	0 (0 dB)		
timeToTrigger	ms0		
}			
}			
triggerQuantity	rsrp		
reportQuantity	both		
maxReportCells	1		
reportInterval	ms1024		
reportAmount	r1		
}			

Table 8.16.2.4.3-7: *MeasurementReport*: Additional E-UTRAN TDD event triggered reporting on configured but deactivated SCell in non-DRX under fading propagation conditions requirements

Derivation path: 36.508 4.6.1 table 4.6.1-5			
Information Element	**Value/Remark**	**Comment**	**Condition**
MeasurementReport ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
measurementReport-r8 SEQUENCE {			
measResults ::= SEQUENCE {			
measId	2		
measResultPCell::= SEQUENCE {		Report Cell 1	
rsrpResult	(0..97)		
rsrqResult	(0..34)		
}			
measResultNeighCells CHOICE { }	Not present		
measResultForECID-r9	Not present		
locationInfo-r10	Not present		
measResultServFreqList-r10 SEQUENCE (SIZE (1..maxServCell-r10)) OF SEQUENCE {			
servFreqId-r10	1		
measResultSCell-r10 SEQUENCE {		Cell 2	
rsrpResultSCell-r10	(0..97)		
rsrqResultSCell-r10	(0..34)		
}			
}			
}			
}			
}			
}			

Table 8.16.2.4.3-8: *MeasurementReport*: Additional E-UTRAN TDD event triggered reporting on configured but deactivated SCell in non-DRX under fading propagation conditions requirements

Derivation path: 36.508 4.6.1 table 4.6.1-5			
Information Element	**Value/Remark**	**Comment**	**Condition**
MeasurementReport ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
measurementReport-r8 SEQUENCE {			
measResults ::= SEQUENCE {			
measId	3		
measResultPCell::= SEQUENCE {		Report Cell 1	
rsrpResult	(0..97)		
rsrqResult	(0..34)		
}			
measResultNeighCells CHOICE {			
MeasResultEUTRA ::= SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {		Report Cell 2	
physCellId	physCellId of Cell 2		
cgi-Info	Not present		
measResult SEQUENCE {			
rsrpResult	(0..97)		
rsrqResult	(0..34)		
}			
}			
}			
measResultForECID-r9	Not present		
locationInfo-r10	Not present		
measResultServFreqList-r10 SEQUENCE (SIZE (1..maxServCell-r10)) OF SEQUENCE {			
servFreqId-r10	1		
measResultSCell-r10 SEQUENCE {		Cell 2	
rsrpResultSCell-r10	(0..97)		
rsrqResultSCell-r10	(0..34)		
}			
}			
}			
}			
}			
}			

8.16.2.5 Test requirement

Table 8.16.2.4-1 and Table 8.16.2.5-1 define the primary level settings including test tolerances for E-UTRAN TDD-TDD Event triggered reporting on configured but deactivated SCell with PCell interruption in non-DRX test.

Table 8.16.2.5-1: Cell specific test parameters for E-UTRAN TDD event triggered reporting on configured but deactivated SCell in non-DRX under fading propagation conditions

Parameter	Unit	Cell 1			Cell 2			Cell 3		
		T1	T2	T3	T1	T2	T3	T1	T2	T3
E-UTRA RF Channel Number		1			2			2		
$BW_{channel}$	MHz	10			10			10		
Timing offset to Cell 1	µs	-			0			3		
OCNG Patterns defined in D.2.1 (OP.1 TDD) and in D.2.2 (OP.2 TDD)		OP.1 TDD			OP.2 TDD			OP.2 TDD		
PBCH_RA	dB	0			0			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	-101.00			-101.00					
RSRP Note 3	dBm/15 kHz	-81.80	-81.80	-104.00	-81.80	-81.80	-104.20	-infinity	-82.00	-104.00
$\hat{E}_s/I_{ot}$	dB	19.20	19.20	-3.00	19.20	0.15	-4.96	-infinity	-0.25	-4.70
SCH_RP Note 3	dBm/15 kHz	-81.80	-81.80	-104.00	-81.80	-81.80	-104.20	-infinity	-82.00	-104.00
$\hat{E}_s/N_{oc}$	dB	19.20	19.20	-3.00	19.20	19.20	-3.20	-infinity	19.00	-3.00
Propagation Condition		ETU70								
Note 1: OCNG shall be used such that all 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 SCH_RP levels have been derived from other parameters for information purposes. They are not settable parameters themselves. Note 4: The resources for uplink transmission are assigned to the UE prior to the start of time period T2.										

The measurement reporting delay is defined as the time between an event that will trigger a measurement report and the point when the UE starts to transmit the measurement report over the air interface

The actual overall delays measured in the tests may be up to $2 \times TTI_{DCCH}$ higher than the measurement reporting delays above because of TTI insertion uncertainty of the measurement report in DCCH.

The event triggered measurement reporting delay, measured without L3 filtering shall be less than $T_{identify\_scc}$

The overall delays measured test requirement for Event A6 is expressed as:

Overall delays measured = measurement reporting delay + TTI insertion uncertainty

Where:

measurement reporting delay $= T_{identify\_scc}$

$T_{identify\_scc} = 20\ measCycleSCell$

$measCycleSCell = 320$ ms

The UE shall send one Event A6 triggered measurement report with a measurement reporting delay of less than 6402 ms from the beginning of time T2 (note: this gives a total of 6400 ms for measurement reporting delay plus 2 ms for TTI insertion uncertainty).

In the RRC_CONNECTED state the measurement period for intra frequency RSRP and RSRQ measurements is 200 ms as per TS 36.133[4] section 8.1.2.2.1

The UE shall send one Event A2 triggered measurement report for Cell 1 with a measurement reporting delay of less than 202 ms from beginning of time T3.

The measurement period for deactivated scell measurements is $T_{measure\_scc}$ according to the parameter *measCycleSCell*

The overall delays measured test requirement for Event A2 for Cell 2 is expressed as:

Overall delays measured = measurement reporting delay + TTI insertion uncertainty

Where:

measurement reporting delay = $T_{measure\_scc}$

where $T_{measure\_scc}$ = 5 *measCycleSCell*.

The UE shall send one Event A2 triggered measurement report for Cell 2 with a measurement reporting delay of less than 1602ms from beginning of time T3(note: this gives a total of 1600 ms for measurement reporting delay plus 2 ms for TTI insertion uncertainty).

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% with a confidence level of 95% for each of the events.

The statistical pass/ fail decisions are done separately for Event A6 and Event A2.

Decide the test pass, if events A6 **and** A2 are passed, otherwise fail the UE.

8.16.3 E-UTRAN FDD-FDD Event triggered reporting on deactivated SCell with PCell interruption in non-DRX

8.16.3.1 Test purpose

To verify the UE's ability to make a correct reporting of an event on deactivated SCell with PCell interruption in non-DRX within the E-UTRA FDD-FDD measurements of the secondary component carrier cell search requirements in section 8.3.3.2.1 while at the same time fulfilling the requirements on interruption rate.

8.16.3.2 Test applicability

This test applies to all types of E-UTRA UE FDD release 10 and forward that support intra-band contiguous CA. Applicability requires support for FGI bit 111.

8.16.3.3 Minimum conformance requirements

When no DRX is in use the UE shall be able to identify a new detectable FDD or TDD cell on the secondary component carrier within $T_{identify\_scc}$, according to the parameter *measCycleSCell* where $T_{identify\_scc}$ = 20 *measCycleSCell*

A cell shall be considered detectable when

- RSRP related side condition given in Section 9.1 are fulfilled for a corresponding Band,
- $SCH\_RP|_{dBm}$ and SCH Ês/Iot according to Annex I.2.7 for a corresponding Band

The measurement period for deactivated scell measurements is $T_{measure\_scc}$ according to the parameter *measCycleSCell* where $T_{measure\_scc}$ = 5 *measCycleSCell*. The UE shall be capable of performing RSRP and RSRQ measurements for 8 identified cells on the secondary component carrier, and the UE physical layer shall be capable of reporting measurements to higher layers with the measurement period of $T_{measure\_scc}$.

The measurement accuracy for all measured cells shall be as specified in TS 36.133[4] sub-clause 9.1.11 (Carrier aggregation measurement accuracy)

A UE may reconfigure receiver bandwidth taking into account the SCell activation/deactivation status, and when making measurements of cells on an SCC with deactivated SCell. This may cause interruptions (packet drops) to a PCell when the PCell and the SCell belong to the adjacent component carriers in the same frequency band. Such interruptions due to making measurements are allowed with up to 0.5% probability of missed ACK/NACK when the *measCycleSCell* is larger than or equal to 640 ms. Otherwise, no interruptions shall be allowed. The requirement considers only missed ACK/NACK due to reconfiguration of the receiver bandwidth, and not due to other causes such as RF impairments or channel conditions. No interruptions due to the SCell activation/deactivation status changes shall be allowed at least when *measCycleSCell* is smaller than 640 ms. When *measCycleSCell* is larger than or equal to 640 ms, interruption duration due to the SCell activation/deactivation status change shall not exceed 5 ms within the activation/deactivation procedure. If the UE receives an RRC message implying that no SCell is configured, no interruptions due to receiver bandwidth reconfiguration shall occur after the corresponding RRC procedure delay has elapsed.

Reported measurements contained in event triggered measurement reports shall meet the requirements in TS 36.133 [4] clause 9.

The UE shall not send any event triggered measurement reports, as long as no reporting criteria are fulfilled.

The measurement reporting delay is defined as the time between an event that will trigger a measurement report and the point when the UE starts to transmit the measurement report over the air 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: 2 x TTI_{DCCH}. This measurement reporting delay excludes a delay which caused by no UL resources for UE to send the measurement report.

The event triggered measurement reporting delay, measured without L3 filtering shall be less than $T_{identify\_scc}$ defined in TS 36.133 [4] clause 8.3.3.2.1. When L3 filtering is used an additional delay can be expected.

If a cell which has been detectable at least for the time period $T_{identify\_scc}$ defined in TS 36.133 [4] section 8.3.3.2.1 becomes undetectable for a period ≤ 5 seconds and then the cell becomes detectable again and triggers an event, the event triggered measurement reporting delay shall be less than $T_{measure\_scc}$ provided the timing to that cell has not changed more than ± 50 Ts and the L3 filter has not been used. When L3 filtering is used an additional delay can be expected.

The normative reference for this requirement is TS 36.133 [4] clause 8.3.3.2.1 and A.8.16.3.

8.16.3.4 Test description

8.16.3.4.1 Initial conditions

Test Environment: Normal, as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1 for different CA bandwidth classes.

Channel Bandwidth to be tested: 10 MHz as defined in TS 36.508 [7] clause 4.3.1 for different CA configurations as defined in TS 36.521-1 [10] clause 5.4.2A.

1. Connect the SS (node B emulator) and AWGN noise sources to the UE antenna connectors as shown in TS 36.508 [7] Annex A, Figure group A.41 as appropriate.
2. The general test parameter settings are set up according to Table 8.16.3.4.1-1.
3. Propagation conditions are set according to Annex B clauses B.0.
4. Message contents are defined in clause 8.16.3.4.3.

5. There are two E-UTRA FDD carriers with one cell on one E-UTRA FDD carrier and two cells on the other E-UTRA FDD carrier specified in the test. Cell 1 is PCell on the PCC, Cell 2 is the SCell on the Secondary Component Carrier (SCC), and Cell 3 is a neighbour cell on the SCC. PCell (Cell 1) is the cell used for connection setup with the power level set according to Annex C.0 and C.1 for this test. Cell 2 and Cell 3 shall be powered OFF.

Table 8.16.3.4.1-1: General test parameters for E-UTRAN FDD-FDD Event triggered reporting on configured but deactivated SCell with PCell interruption in non-DRX

Parameter		Unit	Value	Comment
PDSCH parameters			DL Reference Measurement Channel R.0 FDD	As specified in section A.3.1.1.1
PCFICH/PDCCH/PHICH parameters			DL Reference Measurement Channel R.6 FDD	As specified in section A.3.1.2.1
E-UTRA RF Channel Number			1, 2	Two radio channels are used for this test
Active PCell			Cell 1	Primary cell on RF channel number 1
Configured deactivated SCell			Cell 2	Configured deactivated secondary cell on RF channel number 2
Neighbour cell			Cell 3	Neighbour cell to be identified on RF channel number 2
Channel Bandwidth ($BW_{channel}$)		MHz	10	Channel bandwidth for cells on primary and secondary component carriers
CP length			Normal	
DRX			OFF	Continuous monitoring of primary cell
A6	Hysteresis	dB	0	Hysteresis for evaluation of event A6
	Offset	dB	-3	Offset parameter for evaluation of event A6. Needs to take relative accuracy tolerance in section 9.1.11.2 in TS 36.133 [4] into account plus margin
	Report on leave		False	
	Time To Trigger	s	0	
Cell-individual offset for cells on RF channel number 1		dB	0	Individual offset for cells on primary component carrier.
Cell-individual offset for cells on RF channel number 2		dB	0	Individual offset for cells on secondary component carrier
Filter coefficient			0	L3 filtering is not used
SCell measurement cycle		ms	1280	
Cell2 timing offset to cell1		μs	0	
Time alignment error between cell2 and cell1		μs	≤ Time alignment error as specified in TS 36.104 [29] clause 6.5.3.1.	The value of time alignment error depends upon the type of carrier aggregation.
Cell3 timing offset to cell1		μs	3	Synchronous cells 3μs or 92*Ts
T1		s	5	During this time the UE shall be aware of cells 1 and 2 but not cell 3
T2		s	≤30	UE should report Event A6 within 25.6s (20×scellMeasCycle)

8.16.3.4.2 Test procedure

The test consists of Cell 1 the PCell, Cell 2 the SCell on the Secondary Component Carrier (SCC), and Cell 3 the neighbouring cell on the SCC. In the measurement control information it is indicated to the UE that event-triggered reporting with Event A6 is used. The test consists of two successive time periods, with time durations of T1 and T2 respectively. During time duration T1, the UE shall not have any timing information of Cell 3. Starting T2, Cell 3 becomes detectable and the UE is expected to detect and send a measurement report. The UE shall be scheduled on PCell continuously throughout the test.

1. Ensure the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.
2. Configure SCC according to Annex C.0 and C.1 for all downlink physical channels except PHICH.
3. The SS shall configure the SCell (Cell 2) on the SCC as per TS 36.508 [7] clause 5.2A.4.

4. Set the parameters according to T1 in Table 8.16.3.5-1 as appropriate. Propagation conditions are set according to Annex B clauses B.1.1. T1 starts.

5. The SS shall transmit an RRCConnectionReconfiguration message with Event A6 configured.

6. The UE shall transmit RRCConnectionReconfigurationComplete message.

7. When T1 expires, the SS shall switch the power setting from T1 to T2 as specified in Table 8.16.3.5-1.

8. UE shall transmit a MeasurementReport message triggered by Event A6. If the overall delays measured from the beginning of time period T2 is less than 25602 ms and at least 99.5% of all ACK/NACKS transmitted by the UE are detected by the system simulator until the measurement report is received during T2 the number of successful tests is increased by one. If the UE fails to report the event within the overall delays measured requirement or less than 99.5% of all ACK/NACKS transmitted by the UE are detected by the system simulator then the number of failure tests is increased by one.

9. After the SS receives the MeasurementReport message in step 8) or when T2 expires, the SS shall transmit RRCConnectionRelease message to release the RRC connection which includes the release of the established radio bearers as well as all radio resources.

10. Set Cell 3 physical cell identity = ((current cell 3 physical cell identity + 1) mod 14 + 2) for next iteration of the test procedure loop. If physical cell identity of Cell 3 = physical cell identity of Cell 2 then skip this physical cell identity value for Cell 3.

11. After the RRC connection release, the SS:
    - transmits in Cell 1 a Paging message (including PagingRecord with UE-Identity) for the UE and ensures the UE is in State 3A-RF according to TS 36.508 [7] clause 4.5.3A (if the paging fails, switches off and on the UE and ensures the UE is in State 3A-RF-CA according to TS 36.508 [7] clause 7.2A.3),
    or
    - switches off and on the UE and ensures the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.

12. Repeat step 3-11 until the confidence level according to Tables G.2.3-1 in Annex G clause G.2 is achieved.

8.16.3.4.3 Message contents

Message contents are according to TS 36.508 [7] clause 4.6 with the following exceptions:

Table 8.16.3.4.3-1: Common Exception messages for E-UTRAN FDD-FDD Event triggered reporting on deactivated SCell with PCell interruption in non-DRX

Default Message Contents	
Common contents of system information blocks exceptions	
Default RRC messages and information elements contents exceptions	Table H.3.1-1 Table H.3.1-7 Table H.4.1-2 Table H.4.1-3 Table H.4.1-5 Table H.4.1-6

Table 8.16.3.4.3-2: *SchedulingRequest-Config-DEFAULT*: Additional E-UTRAN FDD-FDD Event triggered reporting on deactivated SCell with PCell interruption in non-DRX test requirements

Derivation Path: TS 36.508 [7] clause 4.6.3, Table 4.6.3-20 SchedulingRequest-Config-DEFAULT			
Information Element	**Value/remark**	**Comment**	**Condition**
SchedulingRequest-Config-DEFAULT ::= CHOICE {			
setup SEQUENCE {			
sr-PUCCH-ResourceIndex	41	10 MHz channel bandwidth parameter	
sr-ConfigIndex	0		
dsr-TransMax	n4		
}			
}			

8.16.3.5 Test requirement

Table 8.16.3. 4.1-1 and Table 8.16.3.5-1 define the primary level settings including test tolerances for E-UTRAN FDD-FDD Event triggered reporting on configured but deactivated SCell with PCell interruption in non-DRX test.

Table 8.16.3.5-1: Cell specific test parameters for E-UTRAN FDD-FDD Event triggered reporting on configured but deactivated SCell with PCell interruption in non-DRX

Parameter	Unit	Cell 1		Cell 2		Cell 3	
		T1	T2	T1	T2	T1	T2
E-UTRA RF Channel Number		1		2		2	
$BW_{channel}$	MHz	10		10		10	
OCNG Pattern defined in D.1.1 (OP.1 FDD) and in D.1.2 (OP.2)		OP.1 FDD		OP.2 FDD		OP.2 FDD	
Timing offset to Cell1	μs	-		0		3	
PBCH_RA	dB	0		0		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 3	dBm/15 kHz	-98					
RSRP Note 4	dBm/15 kHz	-82	-82	-82	-82	-Infinity	-82
$\hat{E}_s/I_{ot}$	dB	16	16	16	-0.11	-Infinity	-0.11
SCH_RP Note 4	dBm/15 kHz	-82	-82	-82	-82	-Infinity	-82
$\hat{E}_s/N_{oc}$	dB	16	16	16	16	-Infinity	16
Propagation Condition		AWGN					
NOTE 1: OCNG shall be used such that all cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols.							
NOTE 2: The resources for uplink transmission are assigned to the UE prior to the start of time period T2.							
NOTE 3: 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 4: RSRP and SCH_RP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.							

The UE shall send one Event A6 triggered measurement report, with a measurement reporting delay less than 25602 ms from the beginning of time period T2.

The overall delays measured is defined as the time from the beginning of time period T2, to the moment the UE send one Event A6 triggered measurement report to Cell 3.

The overall delays measured test requirement is expressed as:

Overall delays measured = measurement reporting delay + TTI insertion uncertainty

Measurement reporting delay = 25.6s

TTI insertion uncertainty = TTI_{DCCH} = 1 ms; 2xTTI_{DCCH} = 2 ms

The overall delays measured shall be less than a total of 25602 ms in this test case (note: this gives a total of 25.6s for measurement reporting delay plus 2 ms for TTI insertion uncertainty).

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

The UE shall be scheduled on PCell continuously throughout the test. From the start of T1 until the measurement report is received during T2, at least 99.5% of all ACK/NACKs transmitted by the UE shall be detected by the system simulator.

For a test to be considered successful requirements on both event detection and percentage of transmitted ACK/NACKs have to be fulfilled simultaneously.

The rate of correct events observed during repeated tests shall be at least 90% with a confidence level of 95%.

NOTE: The actual overall delays measured in the test may be up to 2xTTI_{DCCH} higher than the measurement reporting delays above because of TTI insertion uncertainty of the measurement report in DCCH.

8.16.4 E-UTRAN TDD-TDD Event triggered reporting on deactivated SCell with PCell interruption in non-DRX

8.16.4.1 Test purpose

To verify the UE's ability to make a correct reporting of an event on deactivated SCell with PCell interruption in non-DRX within the E-UTRA TDD-TDD measurements of the secondary component carrier cell search requirements in section 8.3.3.2.1 while at the same time fulfilling the requirements on interruption rate.

8.16.4.2 Test applicability

This test applies to all types of E-UTRA UE TDD release 10 and forward that support intra-band contiguous CA.

8.16.4.3 Minimum conformance requirements

When no DRX is in use the UE shall be able to identify a new detectable FDD or TDD cell on the secondary component carrier within $T_{identify\_scc}$, according to the parameter *measCycleSCell* where $T_{identify\_scc}$ = 20 *measCycleSCell*.

A cell shall be considered detectable when

- RSRP related side condition given in Section 9.1 are fulfilled for a corresponding Band,
- $SCH\_RP|_{dBm}$ and SCH Ês/Iot according to Annex I.2.7 for a corresponding Band

The measurement period for deactivated scell measurements is $T_{measure\_scc}$ according to the parameter *measCycleSCell* where $T_{measure\_scc}$ = 5 *measCycleSCell*. The UE shall be capable of performing RSRP and RSRQ measurements for 8 identified cells on the secondary component carrier, and the UE physical layer shall be capable of reporting measurements to higher layers with the measurement period of $T_{measure\_scc}$.

The measurement accuracy for all measured cells shall be as specified in TS 36.133[4] sub-clause 9.1.11 (Carrier aggregation measurement accuracy)

A UE may reconfigure receiver bandwidth taking into account the SCell activation/deactivation status, and when making measurements of cells on an SCC with deactivated SCell. This may cause interruptions (packet drops) to a PCell when the PCell and the SCell belong to the adjacent component carriers in the same frequency band. Such interruptions due to making measurements are allowed with up to 0.5% probability of missed ACK/NACK when the *measCycleSCell* is larger than or equal to 640 ms. Otherwise, no interruptions shall be allowed. The requirement considers only missed ACK/NACK due to reconfiguration of the receiver bandwidth, and not due to other causes such as RF impairments or channel conditions. No interruptions due to the SCell activation/deactivation status changes shall be allowed at least when *measCycleSCell* is smaller than 640 ms. When *measCycleSCell* is larger than or equal to 640 ms, interruption duration due to the SCell activation/deactivation status change shall not exceed 5 ms within the activation/deactivation procedure. If the UE receives an RRC message implying that no SCell is configured, no interruptions due to receiver bandwidth reconfiguration shall occur after the corresponding RRC procedure delay has elapsed.

Reported measurements contained in event triggered measurement reports shall meet the requirements in TS 36.133 [4] clause 9.

The UE shall not send any event triggered measurement reports, as long as no reporting criteria are fulfilled.

The measurement reporting delay is defined as the time between an event that will trigger a measurement report and the point when the UE starts to transmit the measurement report over the air 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: 2 x TTI_{DCCH}. This measurement reporting delay excludes a delay which caused by no UL resources for UE to send the measurement report.

The event triggered measurement reporting delay, measured without L3 filtering shall be less than $T_{identify\_scc}$ defined in TS 36.133 [4] clause 8.3.3.2.1. When L3 filtering is used an additional delay can be expected.

If a cell which has been detectable at least for the time period $T_{identify\_scc}$ defined in TS 36.133 [4] section 8.3.3.2.1 becomes undetectable for a period $\leq$ 5 seconds and then the cell becomes detectable again and triggers an event, the event triggered measurement reporting delay shall be less than $T_{measure\_scc}$ provided the timing to that cell has not changed more than $\pm$ 50 Ts and the L3 filter has not been used. When L3 filtering is used an additional delay can be expected.

The normative reference for this requirement is TS 36.133 [4] clause 8.3.3.2.1 and A.8.16.4.

8.16.4.4 Test description

8.16.4.4.1 Initial conditions

Test Environment: Normal, as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1 for different CA bandwidth classes.

Channel Bandwidth to be tested: 10 MHz as defined in TS 36.508 [7] clause 4.3.1 for different CA configurations as defined in TS 36.521-1 [10] clause 5.4.2A.

1. Connect the SS (node B emulator) and AWGN noise sources to the UE antenna connectors as shown in TS 36.508 [7] Annex A, Figure group A.41 as appropriate.
2. The general test parameter settings are set up according to Table 8.16.4.4.1-1.
3. Propagation conditions are set according to Annex B clauses B.0.
4. Message contents are defined in clause 8.16.4.4.3.
5. There are two E-UTRA TDD carriers with one cell on one E-UTRA TDD carrier and two cells on the other E-UTRA TDD carrier specified in the test. Cell 1 is PCell on the PCC, Cell 2 is the SCell on the Secondary Component Carrier (SCC), and Cell 3 is a neighbour cell on the SCC. PCell (Cell 1) is the cell used for connection setup with the power level set according to Annex C.0 and C.1 for this test. Cell 2 and Cell 3 shall be powered OFF.

Table 8.16.4.4.1-1: General test parameters for E-UTRAN TDD-TDD Event triggered reporting on configured but deactivated SCell with PCell interruption in non-DRX

Parameter		Unit	Value	Comment
PDSCH parameters			DL Reference Measurement Channel R.0 TDD	As specified in section A.3.1.1.2
PCFICH/PDCCH/PHICH parameters			DL Reference Measurement Channel R.6 TDD	As specified in section A.3.1.2.2
E-UTRA RF Channel Number			1, 2	Two radio channels are used for this test
Active PCell			Cell 1	Primary cell on RF channel number 1
Configured deactivated SCell			Cell 2	Configured deactivated secondary cell on RF channel number 2
Neighbour cell			Cell 3	Neighbour cell to be identified on RF channel number 2
Channel Bandwidth ($BW_{channel}$)		MHz	10	Channel bandwidth for cells on primary and secondary component carriers
CP length			Normal	
Special subframe configuration			6	As specified in table 4.2.1 in TS 36.211 [8] The same configuration applies to all cells
Uplink-downlink configuration			1	
DRX			OFF	Continuous monitoring of primary cell
A6	Hysteresis	dB	0	Hysteresis for evaluation of event A6.
	Offset	dB	-3	Offset parameter for evaluation of event A6. Needs to take relative accuracy tolerance in section 9.1.11.2 in TS 36.133 [4] into account plus margin
	Report on leave		False	
	Time To Trigger	s	0	
Cell-individual offset for cells on RF channel number 1		dB	0	Individual offset for cells on primary component carrier
Cell-individual offset for cells on RF channel number 2		dB	0	Individual offset for cells on secondary component carrier
Filter coefficient			0	L3 filtering is not used
SCell measurement cycle		ms	1280	
Cell2 timing offset to cell1		µs	0	
Time alignment error between cell2 and cell1		µs	≤ Time alignment error as specified in TS 36.104 [29] clause 6.5.3.1.	The value of time alignment error depends upon the type of carrier aggregation.
Cell3 timing offset to cell1		µs	3	Synchronous cells 3µs or 92*Ts
T1		s	5	During this time the UE shall be aware of cells 1 and 2 but not cell 3
T2		s	≤30	UE should report Event A6 within 25.6s (20×scellMeasCycle)

8.16.4.4.2 Test procedure

The test consists of Cell 1 the PCell, Cell 2 the SCell on the Secondary Component Carrier (SCC), and Cell 3 the neighbouring cell on the SCC. In the measurement control information it is indicated to the UE that event-triggered reporting with Event A6 is used. The test consists of two successive time periods, with time durations of T1 and T2 respectively. During time duration T1, the UE shall not have any timing information of Cell 3. Starting T2, Cell 3 becomes detectable and the UE is expected to detect and send a measurement report. The UE shall be scheduled on PCell continuously throughout the test.

1. Ensure the UE is in State 3A-RF-CA according to TS 36.508 [7] clause 7.2A.5.

2. Configure SCC according to Annex C.0 and C.1 for all downlink physical channels except PHICH.

3. The SS shall configure the SCell (Cell 2) on the SCC as per TS 36.508 [7] clause 5.2A.4.

4. Set the parameters according to T1 in Table 8.16.4.5-1 as appropriate. Propagation conditions are set according to Annex B clauses B.1.1. T1 starts.

5. SS shall transmit an RRCConnectionReconfiguration message.

6. The UE shall transmit RRCConnectionReconfigurationComplete message.

7. When T1 expires, the SS shall switch the power setting from T1 to T2 as specified in Table 8.16.4.5-1.

8. UE shall transmit a MeasurementReport message triggered by Event A6. If the overall delays measured from the beginning of time period T2 is less than 25602 ms and at least 99.5% of all ACK/NACKS transmitted by the UE are detected by the system simulator until the measurement report is received during T2 the number of successful tests is increased by one. If the UE fails to report the event within the overall delays measured requirement or less than 99.5% of all ACK/NACKS transmitted by the UE are detected by the system simulator then the number of failure tests is increased by one.

9. After the SS receive the MeasurementReport message in step 8) or when T2 expires, the SS shall transmit RRCConnectionRelease message to release the RRC connection which includes the release of the established radio bearers as well as all radio resources.

10. Set Cell 3 physical cell identity = ((current cell 3 physical cell identity + 1) mod 14 + 2) for next iteration of the test procedure loop.

11. After the RRC connection release, the SS:
- transmits in Cell 1 a Paging message (including PagingRecord with UE-Identity) for the UE and ensures the UE is in State 3A-RF according to TS 36.508 [7] clause 4.5.3A (if the paging fails, switches off and on the UE and ensures the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3),
or
- switches off and on the UE and ensures the UE is in State 3A-RF-CA according to TS 36.508 [7] clause 7.2A.3.

12. Repeat step 3-11 until the confidence level according to Tables G.2.3-1 in Annex G clause G.2 is achieved.

8.16.4.4.3 Message contents

Message contents are according to TS 36.508 [7] clause 4.6 with the following exceptions:

Table 8.16.4.4.3-1: Common Exception messages for E-UTRAN TDD-TDD Event triggered reporting on deactivated SCell with PCell interruption in non-DRX

Default Message Contents	
Common contents of system information blocks exceptions	
Default RRC messages and information elements contents exceptions	Table H.3.1-1 Table H.3.1-7 Table H.4.1-2 Table H.4.1-3 Table H.4.1-5 Table H.4.1-6

Table 8.16.4.4.3-2: *SchedulingRequest-Config-DEFAULT*: Additional E-UTRAN TDD-TDD Event triggered reporting on deactivated SCell with PCell interruption in non-DRX test requirements

Derivation Path: TS 36.508 [7] clause 4.6.3, Table 4.6.3-20 SchedulingRequest-Config-DEFAULT			
Information Element	**Value/remark**	**Comment**	**Condition**
SchedulingRequest-Config-DEFAULT ::= CHOICE {			
setup SEQUENCE {			
sr-PUCCH-ResourceIndex	41	10 MHz channel bandwidth parameter	
sr-ConfigIndex	0		
dsr-TransMax	n4		
}			
}			

8.16.4.5 Test requirement

Table 8.16.4.4.1-1 and Table 8.16.4.5-1 define the primary level settings including test tolerances for E-UTRAN TDD-TDD Event triggered reporting on configured but deactivated SCell with PCell interruption in non-DRX test.

Table 8.16.4.5-1: Cell specific test parameters for E-UTRAN TDD-TDD Event triggered reporting on configured but deactivated SCell with PCell interruption in non-DRX

Parameter	Unit	Cell 1		Cell 2		Cell 3	
		T1	T2	T1	T2	T1	T2
E-UTRA RF Channel Number		1		2		2	
$BW_{channel}$	MHz	10		10		10	
OCNG Pattern defined in D.2.1 (OP.1 TDD) and in D.2.2 (OP.2)		OP.1 TDD		OP.2 TDD		OP.2 TDD	
Timing offset to Cell1	μs	-		0		3	
PBCH_RA	dB	0		0		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 3	dBm/15 kHz	-98					
RSRP Note 4	dBm/15 kHz	-82	-82	-82	-82	-Infinity	-82
$\hat{E}_s/I_{ot}$	dB	16	16	16	-0.11	-Infinity	-0.11
SCH_RP Note 4	dBm/15 kHz	-82	-82	-82	-82	-Infinity	-82
$\hat{E}_s/N_{oc}$	dB	16	16	16	16	-Infinity	16
Propagation Condition		AWGN					
NOTE 1: OCNG shall be used such that all cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols. NOTE 2: The resources for uplink transmission are assigned to the UE prior to the start of time period T2. NOTE 3: 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 4: RSRP and SCH_RP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.							

The UE shall send one Event A6 triggered measurement report, with a measurement reporting delay less than 25602 ms from the beginning of time period T2.

The overall delays measured is defined as the time from the beginning of time period T2, to the moment the UE send one Event A6 triggered measurement report to Cell 3.

The overall delays measured test requirement is expressed as:

Overall delays measured = measurement reporting delay + TTI insertion uncertainty

Measurement reporting delay = 25.6s

TTI insertion uncertainty = TTI_{DCCH} = 1 ms; 2xTTI_{DCCH} = 2 ms

The overall delays measured shall be less than a total of 25602 ms in this test case (note: this gives a total of 25.6s for measurement reporting delay plus 2 ms for TTI insertion uncertainty).

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

The UE shall be scheduled on PCell continuously throughout the test. From the start of T1 until the measurement report is received during T2, at least 99.5% of all ACK/NACKs transmitted by the UE shall be detected by the system simulator.

For a test to be considered successful requirements on both event detection and percentage of transmitted ACK/NACKs have to be fulfilled simultaneously.

The rate of correct events observed during repeated tests shall be at least 90% with a confidence level of 95%.

NOTE: The actual overall delays measured in the test may be up to $2xTTI_{DCCH}$ higher than the measurement reporting delays above because of TTI insertion uncertainty of the measurement report in DCCH.

8.16.5 E-UTRAN FDD event triggered reporting under deactivated SCell in non-DRX for 20 MHz bandwidth

Editor's note: This test case is incomplete. The following aspects are either missing or not yet determined:

- *The Test system uncertainties applicable to this test are undefined*
- *The Test tolerances applicable to this test are undefined*

8.16.5.1 Test purpose

To verify the UE's ability to make correct reportings of Event A2 and A6 under deactivated SCell in non-DRX within the requirements in TS 36.133[4] section 8.3.3.2.1.

8.16.5.2 Test applicability

This test applies to all types of E-UTRA UE FDD release 10 and forward that support CA. Applicability requires support for FGI bit 111.

8.16.5.3 Minimum conformance requirements

When no DRX is in use the UE shall be able to identify a new detectable FDD or TDD cell on the secondary component carrier within $T_{identify\_scc}$, according to the parameter *measCycleSCell* where $T_{identify\_scc}$ = 20 *measCycleSCell*.

A cell shall be considered detectable when

- RSRP related side condition given in Section 9.1 are fulfilled for a corresponding Band,
- $SCH\_RP|_{dBm}$ and SCH Ês/Iot according to Annex B.2.7 for a corresponding Band.

The measurement period for deactivated scell measurements is $T_{measure\_scc}$ according to the parameter *measCycleSCell* where $T_{measure\_scc}$ = 5 *measCycleSCell*. The UE shall be capable of performing RSRP and RSRQ measurements for 8 identified cells on the secondary component carrier, and the UE physical layer shall be capable of reporting measurements to higher layers with the measurement period of $T_{measure\_scc}$.

The measurement accuracy for all measured cells shall be as specified in the sub-clause 9.1.11 (Carrier aggregation measurement accuracy).

A UE may reconfigure receiver bandwidth taking into account the SCell activation/deactivation status, and when making measurements of cells on an SCC with deactivated SCell. This may cause interruptions (packet drops) to a PCell when the PCell and the SCell belong to the adjacent component carriers in the same frequency band. Such interruptions due to making measurements are allowed with up to 0.5% probability of missed ACK/NACK when the *measCycleSCell* is larger than or equal to 640 ms. Otherwise, no interruptions shall be allowed. The requirement considers only missed ACK/NACK due to reconfiguration of the receiver bandwidth, and not due to other causes such as RF impairments or channel conditions. No interruptions due to the SCell activation/deactivation status changes shall be allowed at least when *measCycleSCell* is smaller than 640 ms. When *measCycleSCell* is larger than or equal to 640 ms, interruption duration due to the SCell activation/deactivation status change shall not exceed 5 ms within the activation/deactivation procedure. If the UE receives an RRC message implying that no SCell is configured, no interruptions due to receiver bandwidth reconfiguration shall occur after the corresponding RRC procedure delay has elapsed.

Reported measurements contained in event triggered measurement reports shall meet the requirements in TS 36.133 [4] clause 9.

The UE shall not send any event triggered measurement reports, as long as no reporting criteria are fulfilled.

The measurement reporting delay is defined as the time between an event that will trigger a measurement report and the point when the UE starts to transmit the measurement report over the air 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: 2 x TTI_{DCCH}.This measurement reporting delay excludes a delay which is caused by no UL resources for UE to send the measurement report.

The event triggered measurement reporting delay, measured without L3 filtering shall be less than $T_{identify\_scc}$ defined in TS 36.133 [4] section 8.3.3.2.1. When L3 filtering is used an additional delay can be expected.

If a cell which has been detectable at least for the time period $T_{identify\_scc}$ defined in TS 36.133 [4] section 8.3.3.2.1 becomes undetectable for a period ≤ 5 seconds and then the cell becomes detectable again and triggers an event, the event triggered measurement reporting delay shall be less than $T_{measure\_scc}$ provided the timing to that cell has not changed more than ± 50 Ts and the L3 filter has not been used. When L3 filtering is used an additional delay can be expected.

The normative reference for this requirement is TS 36.133 [4] clause 8.3.3.2.1 and A.8.16.5.

8.16.5.4 Test description

8.16.5.4.1 Initial conditions

Test Environment: Normal, as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1.

Channel Bandwidth to be tested: 20 MHz as defined in TS 36.508 [7] clause 4.3.1.

1. Connect the SS (node B emulator) and faders and AWGN noise sources to the UE antenna connectors as shown in TS 36.508 [7] Annex A, Figure group A.42 as appropriate.
2. The general test parameter settings are set up according to Table 8.16.5.4.1-1.
3. Propagation conditions are set according to Annex B clauses B.0.
4. Message contents are defined in clause 8.16.5.4.3.
5. Cell1 is PCell on the primary component carrier, Cell 2 is SCell on the secondary component carrier, and Cell3 is the neighbouring cell of Cell 2 on the secondary component carrier, Cell 1 is the cell used for connection setup with the power levels set according to Annex C.0 and C.1 for this test, Cell 2 and Cell 3 shall be powered OFF.

Table 8.16.5.4.1-1: General test parameters for E-UTRAN FDD event triggered reporting on configured but deactivated SCell in non-DRX under fading propagation conditions, 20 MHz

Parameter	Unit	Value	Comment
PDSCH parameters		DL Reference Measurement Channel R.4 FDD	As specified in section A.1.1
PCFICH/PDCCH/PHICH parameters		DL Reference Measurement Channel R.10 FDD	As specified in section A.2.1
Channel Bandwidth ($BW_{channel}$)	MHz	20	Channel bandwidth for cells on primary and secondary component carriers
Note 1: See Table 8.16.1.4.1-1 for other general test parameters. [Note 2: This test verifies the RRM requirement which is independent of channel bandwidth and is performed according to the principle defined in TS 36.133 [4] section A.3.6.1.]			

8.16.5.4.2 Test procedure

The test consists of three successive time periods, with duration of T1, T2 and T3, respectively. During T1 the UE shall not have any information on cell 3. Immediately at beginning of T2 the transmission power of cell 3 is increased to same level as for cell 2, and due to usage of an offset this shall result in reporting of Event A6. At beginning of T3 the transmission powers of cells 1, 2 and 3 are reduced below a threshold value and this shall result in reporting of Event A2 for PCell and SCell, respectively.

1. Ensure the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.

2. Configure SCC according to Annex C.0, C.1 for all downlink physical channels except PHICH.

3. The SS shall configure SCell (Cell 2) on the SCC as per TS 36.508 [7] clause 5.2A.4 with the message content exceptions defined in clause 8.16.5.4.3.

4. Set the parameters according to T1 in Table 8.16.5.5-1. Propagation conditions are set according to Annex B clauses B.1.1 and B.2.2. T1 starts.

5. The SS shall transmit an RRCConnectionReconfiguration message with events A6 and A2 configured.

6. The UE shall transmit an RRCConnectionReconfigurationComplete message.

7. When T1 expires, the SS shall switch the power setting from T1 to T2 as specified in Table 8.16.5.5-1.

8. The UE shall transmit a MeasurementReport message triggered by Event A6. If the measurement reporting delay from the beginning of time period T2 is less than 6402ms, then count a success for the event “A6”. Otherwise count a fail for the event “A6”.

9. After the SS receives the MeasurementReport message in step 8) or when T2 expires, the SS shall switch the power setting from T2 to T3 as specified in Table 8.16.5.5-1.

10. The UE shall transmit MeasurementReport messages triggered by Event A2 for Cell 1 and Cell 2, respectively.

10a. If the measurement reporting delay for Cell 1 from the beginning of time period T3 is less than 200ms, then count a success for the event “Cell 1 A2”. Otherwise count a fail for the event “Cell 1 A2”.

10b. If the measurement reporting delay for Cell 2 from the beginning of time period T3 is less than 1602ms, then count a success for the event “Cell 2 A2”. Otherwise count a fail for the event “Cell 2 A2.

11. After the SS receives the MeasurementReport message in step 8) and 10) or when T3 expires, the SS shall transmit an RRCConnectionRelease message to release the RRC connection which includes the release of the established radio bearers as well as all radio resources.

12. Set Cell 3 physical cell identity = ((current cell 3 physical cell identity + 1) mod 14 + 2) for next iteration of the test procedure loop. If physical cell identity of Cell 3 = physical cell identity of Cell 2 then skip this physical cell identity value for Cell 3.

13. After the RRC connection release, the SS:
    - transmits in Cell 1 a Paging message (including PagingRecord with UE-Identity) for the UE and ensures the UE is in State 3A according to TS 36.508 [7] clause 4.5.3A (if the paging fails, switches off and on the UE and ensures the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3),
    or
    - switches off and on the UE and ensures the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.

14. Repeat step 3-13 until a test verdict has been achieved.

Each of the events “A6”, “Cell 1 A2” and “Cell 2 A2” is evaluated independently for the statistic, resulting in an event verdict: pass or fail. Each event is evaluated only until the confidence level according to Table G.2.3-1 in Annex G.2 is achieved. Different events may require different times for a verdict.
If both events pass, the test passes. If one event fails, the test fails.

8.16.5.4.3 Message contents

Message contents are according to TS 36.508 [7] clause 4.6 with the following exceptions:

Table 8.16.5.4.3-1: Common Exception messages

Default Message Contents	
Common contents of system information blocks exceptions	
Default RRC messages and information elements contents exceptions	Table H.3.1-1 Table H.3.1-7 Table H.4.1-5 Table H.4.1-6

Table 8.16.5.4.3-2: *SCellToAddMod-r10*

Derivation Path: 36.508, Table 4.6.3-19D			
Information Element	**Value/remark**	**Comment**	**Condition**
SCellToAddMod-r10 ::= SEQUENCE {			
sCellIndex-r10	1		
cellIdentification-r10 SEQUENCE {			
physCellId-r10	PhysicalCellIdentity of Cell 2		
dl-CarrierFreq-r10	Same downlink EARFCN as used for Cell 2		
}			
}			

Table 8.16.5.4.3-3: *RadioResourceConfigCommonSCell-r10*

Derivation Path: 36.508, Table 4.6.3-13A			
Information Element	**Value/remark**	**Comment**	**Condition**
RadioResourceConfigCommonSCell-r10 ::= SEQUENCE {			
nonUL-Configuration-r10 SEQUENCE {			
dl-Bandwidth-r10	Same downlink system bandwidth as used for Cell 2	n100	
}			
}			

Table 8.16.5.4.3-4: *MeasConfig:* Additional E-UTRAN FDD event triggered reporting on configured but deactivated SCell in non-DRX under fading propagation conditions, 20 MHz requirements

Derivation path: 36.508 clause 4.6.6 table 4.6.6-1			
Information Element	**Value/Remark**	**Comment**	**Condition**
MeasConfig ::= SEQUENCE {			
measObjectToAddModList SEQUENCE (SIZE (1..maxObjectId)) OF SEQUENCE {	2 entries		
measObjectId[1]	IdMeasObject-f1		
measObject[1]	MeasObjectEUTRA-GENERIC(f1)	Cell 1	
measObjectId[2]	IdMeasObject-f2		
measObject[2]	MeasObjectEUTRA-GENERIC(f2)	Cell 2, 3	
}			
reportConfigToAddModList SEQUENCE (SIZE (1..maxReportConfigId)) OF SEQUENCE {	2 entries		
reportConfigId[1]	IdReportConfig-A6		
reportConfig[1]	ReportConfig-A6		
reportConfigId[2]	IdReportConfig-A2		
reportConfig[2]	ReportConfig-A2-H		
}			
measIdToAddModList SEQUENCE (SIZE (1..maxMeasId)) OF SEQUENCE {	3 entries		
measId[1]	1		
measObjectId[1]	IdMeasObject-f2		
reportConfigId[1]	IdReportConfig-A6		
measId[2]	2		
measObjectId[2]	IdMeasObject-f1		
reportConfigId[2]	IdReportConfig-A2		
measId[3]	3		
measObjectId[3]	IdMeasObject-f2		
reportConfigId[3]	IdReportConfig-A2		
}			
}			

Table 8.16.5.4.3-5: MeasObjectEUTRA-GENERIC(f2): Additional E-UTRAN FDD event triggered reporting on configured but deactivated SCell in non-DRX under fading propagation conditions, 20 MHz requirements

Derivation Path: 36.508 clause 7.3.3 Table 7.3.4-1			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasObjectEUTRA-GENERIC(Freq) ::= SEQUENCE {			
cellsToAddModList SEQUENCE (SIZE (1..maxCellMeas)) { }	Not present		
measCycleSCell-r10	sf320		
}			

Table 8.16.5.4.3-6: *ReportConfig-A2-H*: Additional E-UTRAN FDD event triggered reporting on configured but deactivated SCell in non-DRX under fading propagation conditions, 20 MHz requirements

Derivation Path: 36.508 clause 4.6.6 table 4.6.6-5 ReportConfigEUTRA-A2(-90)			
Information Element	**Value/remark**	**Comment**	**Condition**
ReportConfigEUTRA-A2(Thres) ::= SEQUENCE {			
triggerType CHOICE {			
event SEQUENCE {			
eventId CHOICE {			
eventA2 SEQUENCE {			
a2-Threshold CHOICE {			
threshold-RSRP	47	The actual value is IE value – 140 dBm	
}			
}			
}			
hysteresis	0 (0 dB)		
timeToTrigger	ms0		
}			
}			
triggerQuantity	rsrp		
reportQuantity	both		
maxReportCells	1		
reportInterval	ms1024		
reportAmount	r1		
}			

Table 8.16.5.4.3-7: *MeasurementReport*: Additional E-UTRAN FDD event triggered reporting on configured but deactivated SCell in non-DRX under fading propagation conditions, 20 MHz requirements

Derivation path: 36.508 4.6.1 table 4.6.1-5			
Information Element	**Value/Remark**	**Comment**	**Condition**
MeasurementReport ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
measurementReport-r8 SEQUENCE {			
measResults ::= SEQUENCE {			
measId	2		
measResultPCell ::= SEQUENCE {		Cell 1	
rsrpResult	(0..97)		
rsrqResult	(0..34)		
}			
measResultNeighCells CHOICE { }	Not present		
measResultForECID-r9	Not present		
locationInfo-r10	Not present		
measResultServFreqList-r10 SEQUENCE (SIZE (1..maxServCell-r10)) OF SEQUENCE {			
servFreqId-r10	1		
measResultSCell-r10 SEQUENCE {		Cell 2	
rsrpResultSCell-r10	(0..97)		
rsrqResultSCell-r10	(0..34)		
}			
}			
}			
}			
}			
}			
}			

Table 8.16.5.4.3-8: *MeasurementReport*: Additional E-UTRAN FDD event triggered reporting on configured but deactivated SCell in non-DRX under fading propagation conditions, 20 MHz requirements

Derivation path: 36.508 4.6.1 table 4.6.1-5			
Information Element	**Value/Remark**	**Comment**	**Condition**
MeasurementReport ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
measurementReport-r8 SEQUENCE {			
measResults ::= SEQUENCE {			
measId	3		
measResultPCell ::= SEQUENCE {		Report Cell 1	
rsrpResult	(0..97)		
rsrqResult	(0..34)		
}			
measResultNeighCells CHOICE {			
MeasResultEUTRA ::= SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE { }	Not present		
measResultForECID-r9	Not present		
locationInfo-r10	Not present		
measResultServFreqList-r10 SEQUENCE (SIZE (1..maxServCell-r10)) OF SEQUENCE {			
servFreqId-r10	1		
measResultSCell-r10 SEQUENCE {		Cell 2	
rsrpResultSCell-r10	(0..97)		
rsrqResultSCell-r10	(0..34)		
}			
}			
}			
}			
}			
}			
}			

8.16.5.5 Test requirement

Table 8.16.5.4-1 and Table 8.16.5.5-1 define the primary level settings including test tolerances for E-UTRAN FDD-FDD Event triggered reporting on configured but deactivated SCell in non-DRX under fading propagation condition for 20 MHz channel BW.

Table 8.16.5.5-1: Cell specific test parameters for E-UTRAN FDD event triggered reporting on configured but deactivated SCell in non-DRX under fading propagation conditions, 20 MHz

Parameter	Unit	Cell 1			Cell 2			Cell 3		
		T1	T2	T3	T1	T2	T3	T1	T2	T3
$BW_{channel}$	MHz	20			20			20		
OCNG Patterns defined in D.1.11 (OP.11 FDD) and in D.1.12 (OP.12 FDD)		OP.11 FDD			OP.12 FDD			OP.12 FDD		
Note: See Table 8.16.1.5-1 for other cell-specific test parameters.										

The measurement reporting delay is defined as the time between an event that will trigger a measurement report and the point when the UE starts to transmit the measurement report over the air interface.

The actual overall delays measured in the tests may be up to 2×TTI_{DCCH} higher than the measurement reporting delays above because of TTI insertion uncertainty of the measurement report in DCCH.

The event triggered measurement reporting delay, measured without L3 filtering shall be less than $T_{identify\_scc}$.

The overall delays measured test requirement for Event A6 is expressed as:

Overall delays measured = measurement reporting delay + TTI insertion uncertainty.

Where:

measurement reporting delay = $T_{identify\_scc}$.

$T_{identify\_scc}$ = 20 *measCycleSCell*

measCycleSCell = 320 ms

The UE shall send one Event A6 triggered measurement report with a measurement reporting delay of less than 6402 ms from the beginning of time T2 (note: this gives a total of 6400 ms for measurement reporting delay plus 2 ms for TTI insertion uncertainty).

In the RRC_CONNECTED state the measurement period for intra frequency RSRP and RSRQ measurements is 200 ms as per TS 36.133[4] section 8.1.2.2.1.

The UE shall send one Event A2 triggered measurement report for Cell 1 with a measurement reporting delay of less than 200 ms from beginning of time T3.

The measurement period for deactivated scell measurements is $T_{measure\_scc}$ according to the parameter *measCycleSCell*

The overall delays measured test requirement for Event A2 for Cell 2 is expressed as:

Overall delays measured = measurement reporting delay + TTI insertion uncertainty.

Where:

measurement reporting delay = $T_{measure\_scc}$

where $T_{measure\_scc}$ = 5 *measCycleSCell*.

The UE shall send one Event A2 triggered measurement report for Cell 2 with a measurement reporting delay of less than 1602ms from beginning of time T3(note: this gives a total of 1600 ms for measurement reporting delay plus 2 ms for TTI insertion uncertainty).

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% with a confidence level of 95% for each of the events.

The statistical pass/ fail decisions are done separately for Event A6 and Event A2.

Decide the test pass, if events A6 **and** A2 are passed, otherwise fail the UE.

8.16.6 E-UTRAN TDD event triggered reporting under deactivated SCell in non-DRX for 20 MHz bandwidth

Editor's note: This test case is incomplete. The following aspects are either missing or not yet determined:

- *The Test system uncertainties applicable to this test are undefined*
- *The Test tolerances applicable to this test are undefined*

8.16.6.1 Test purpose

To verify the UE's ability to make correct reportings of Event A2 and A6 under deactivated SCell in non-DRX for 20 MHz bandwidth within the requirements in TS 36.133[4] section 8.3.3.2.1.

8.16.6.2 Test applicability

This test applies to all types of E-UTRA UE TDD release 10 and forward that support CA 20 MHz channel bandwidth for both PCell and SCell. Applicability requires support for FGI bit 111.

8.16.6.3 Minimum conformance requirements

When no DRX is in use the UE shall be able to identify a new detectable FDD or TDD cell on the secondary component carrier within $T_{identify\_scc}$, according to the parameter *measCycleSCell* where $T_{identify\_scc}$ = 20 *measCycleSCell*.

A cell shall be considered detectable when

- RSRP related side condition given in Section 9.1 are fulfilled for a corresponding Band,
- $SCH\_RP|_{dBm}$ and SCH Ês/Iot according to Annex B.2.7 for a corresponding Band

The measurement period for deactivated scell measurements is $T_{measure\_scc}$ according to the parameter *measCycleSCell* where $T_{measure\_scc}$ = 5 *measCycleSCell*. The UE shall be capable of performing RSRP and RSRQ measurements for 8 identified cells on the secondary component carrier, and the UE physical layer shall be capable of reporting measurements to higher layers with the measurement period of $T_{measure\_scc}$.

The measurement accuracy for all measured cells shall be as specified in the sub-clause 9.1.11 (Carrier aggregation measurement accuracy).

A UE may reconfigure receiver bandwidth taking into account the SCell activation/deactivation status, and when making measurements of cells on an SCC with deactivated SCell. This may cause interruptions (packet drops) to a PCell when the PCell and the SCell belong to the adjacent component carriers in the same frequency band. Such interruptions due to making measurements are allowed with up to 0.5% probability of missed ACK/NACK when the *measCycleSCell* is larger than or equal to 640 ms. Otherwise, no interruptions shall be allowed. The requirement considers only missed ACK/NACK due to reconfiguration of the receiver bandwidth, and not due to other causes such as RF impairments or channel conditions. No interruptions due to the SCell activation/deactivation status changes shall be allowed at least when *measCycleSCell* is smaller than 640 ms. When *measCycleSCell* is larger than or equal to 640 ms, interruption duration due to the SCell activation/deactivation status change shall not exceed 5 ms within the activation/deactivation procedure. If the UE receives an RRC message implying that no SCell is configured, no interruptions due to receiver bandwidth reconfiguration shall occur after the corresponding RRC procedure delay has elapsed.

Reported measurements contained in event triggered measurement reports shall meet the requirements in TS 36.133 [4] clause 9.

The UE shall not send any event triggered measurement reports, as long as no reporting criteria are fulfilled.

The measurement reporting delay is defined as the time between an event that will trigger a measurement report and the point when the UE starts to transmit the measurement report over the air 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: 2 x TTI_{DCCH}.This measurement reporting delay excludes a delay which is caused by no UL resources for UE to send the measurement report.

The event triggered measurement reporting delay, measured without L3 filtering shall be less than $T_{identify\_scc}$ defined in TS 36.133 [4] section 8.3.3.2.1. When L3 filtering is used an additional delay can be expected.

If a cell which has been detectable at least for the time period $T_{identify\_scc}$ defined in TS 36.133 [4] section 8.3.3.2.1 becomes undetectable for a period $\leq$ 5 seconds and then the cell becomes detectable again and triggers an event, the event triggered measurement reporting delay shall be less than $T_{measure\_scc}$ provided the timing to that cell has not changed more than ± 50 Ts and the L3 filter has not been used. When L3 filtering is used an additional delay can be expected.

The normative reference for this requirement is TS 36.133 [4] clause 8.3.3.2.1 and A.8.16.6.

8.16.6.4 Test description

8.16.6.4.1 Initial conditions

Test Environment: Normal, as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1.

Channel Bandwidth to be tested: 20 MHz as defined in TS 36.508 [7] clause 4.3.1.

1. Connect the SS (node B emulator) and faders and AWGN noise sources to the UE antenna connectors as shown in TS 36.508 [7] Annex A, Figure group A.42 as appropriate.

2. The general test parameter settings are set up according to Table 8.16.6.4.1-1.

3. Propagation conditions are set according to Annex B clauses B.0.

4. Message contents are defined in clause 8.16.6.4.3.

5. Cell1 is PCell on the primary component carrier, Cell 2 is SCell on the secondary component carrier, and Cell3 is the neighbouring cell of Cell 2 on the secondary component carrier. Cell 1 is the cell used for connection setup with the power levels set according to Annex C.0 and C.1 for this test, Cell 2 and Cell 3 shall be powered OFF.

Table 8.16.6.4.1-1: General test parameters for E-UTRAN TDD event triggered reporting on configured but deactivated SCell in non-DRX under fading propagation conditions, 20 MHz

Parameter	Unit	Value	Comment
PDSCH parameters		DL Reference Measurement Channel R.3 TDD	As specified in section A.1.2
PCFICH/PDCCH/PHICH parameters		DL Reference Measurement Channel R.10 TDD	As specified in section A.2.2
Channel Bandwidth ($BW_{channel}$)	MHz	20	Channel bandwidth for cells on primary and secondary component carriers
Note 1: See Table 8.16.2.4.1-1 for other general test parameters. [Note 2: This test verifies the RRM requirement which is independent of channel bandwidth and is performed according to the principle defined in TS 36.133 [4] section A.3.6.1.]			

8.16.6.4.2 Test procedure

The test consists of three successive time periods, with duration of T1, T2 and T3, respectively. During T1 the UE shall not have any information on cell 3. Immediately at beginning of T2 the transmission power of cell 3 is increased to same level as for cell 2, and due to usage of an offset this shall result in reporting of Event A6. At beginning of T3 the transmission powers of cells 1, 2 and 3 are reduced below a threshold value and this shall result in reporting of Event A2 for PCell and SCell, respectively.

1. Ensure the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.

2. Configure SCC according to Annex C.0, C.1 for all downlink physical channels except PHICH.

3. The SS shall configure SCell (Cell 2) on the SCC as per TS 36.508 [7] clause 5.2A.4 with the message content exceptions defined in clause 8.16.6.4.3.

4. Set the parameters according to T1 in Table 8.16.6.5-1. Propagation conditions are set according to Annex B clauses B.1.1 and B.2.2. T1 starts.

5. The SS shall transmit an RRCConnectionReconfiguration message with events A6 and A2 configured.

6. The UE shall transmit an RRCConnectionReconfigurationComplete message.

7. When T1 expires, the SS shall switch the power setting from T1 to T2 as specified in Table 8.16.6.5-1.

8. The UE shall transmit a MeasurementReport message triggered by Event A6. If the measurement reporting delay from the beginning of time period T2 is less than 6402ms, then count a success for the event “A6”. Otherwise count a fail for the event “A6”.

9. After the SS receives the MeasurementReport message in step 8) or when T2 expires, the SS shall switch the power setting from T2 to T3 as specified in Table 8.16.6.5-1.

10. The UE shall transmit MeasurementReport messages triggered by Event A2 for Cell 1 and Cell 2, respectively.

10a. If the measurement reporting delay for Cell 1 from the beginning of time period T3 is less, then count a success for the event “Cell 1 A2”. Otherwise count a fail for the event “Cell 1 A2”.

10b. If the measurement reporting delay for Cell 2 from the beginning of time period T3 is less than 1602ms, then count a success for the event “Cell 2 A2”. Otherwise count a fail for the event “Cell 2 A2”.

11. After the SS receives the MeasurementReport message in step 8) and 10) or when T3 expires, the SS shall transmit a RRCConnectionRelease message to release the RRC connection which includes the release of the established radio bearers as well as all radio resources.

12. Set Cell 3 physical cell identity = ((current cell 3 physical cell identity + 1) mod 14 + 2) for next iteration of the test procedure loop. If physical cell identity of Cell 3 = physical cell identity of Cell 2 then skip this physical cell identity value for Cell 3.

13. After the RRC connection release, the SS:
- transmits in Cell 1 a Paging message (including PagingRecord with UE-Identity) for the UE and ensures the UE is in State 3A according to TS 36.508 [7] clause 4.5.3A (if the paging fails, switches off and on the UE and ensures the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3),
or
- switches off and on the UE and ensures the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.

14. Repeat step 3-13 until a test verdict has been achieved.

Each of the events “A6”, “Cell 1 A2” and “Cell 2 A2” is evaluated independently for the statistic, resulting in an event verdict: pass or fail. Each event is evaluated only until the confidence level according to Table G.2.3-1 in Annex G.2 is achieved. Different events may require different times for a verdict.
If both events pass, the test passes. If one event fails, the test fails.

8.16.6.4.3 Message contents

Message contents are according to TS 36.508 [7] clause 4.6 with the following exceptions:

Table 8.16.6.4.3-1: Common Exception messages

Default Message Contents	
Common contents of system information blocks exceptions	
Default RRC messages and information elements contents exceptions	Table H.3.1-1 Table H.3.1-7 Table H.4.1-5 Table H.4.1-6

Table 8.16.6.4.3-2: *SCellToAddMod-r10*

Derivation Path: 36.508, Table 4.6.3-19D			
Information Element	**Value/remark**	**Comment**	**Condition**
SCellToAddMod-r10 ::= SEQUENCE {			
sCellIndex-r10	1		
cellIdentification-r10 SEQUENCE {			
physCellId-r10	PhysicalCellIdentity of Cell 2		
dl-CarrierFreq-r10	Same downlink EARFCN as used for Cell 2		
}			
}			

Table 8.16.6.4.3-3: *RadioResourceConfigCommonSCell-r10*

Derivation Path: 36.508, Table 4.6.3-13A			
Information Element	**Value/remark**	**Comment**	**Condition**
RadioResourceConfigCommonSCell-r10 ::= SEQUENCE {			
nonUL-Configuration-r10 SEQUENCE {			
dl-Bandwidth-r10	Same downlink system bandwidth as used for Cell 2	n100	
}			
}			

Table 8.16.6.4.3-4: *MeasConfig:* Additional E-UTRAN TDD event triggered reporting on configured but deactivated SCell in non-DRX under fading propagation conditions requirements, 20 MHz

Derivation path: 36.508 clause 4.6.6 table 4.6.6-1			
Information Element	**Value/Remark**	**Comment**	**Condition**
MeasConfig ::= SEQUENCE {			
measObjectToAddModList SEQUENCE (SIZE (1..maxObjectId)) OF SEQUENCE {	2 entries		
measObjectId[1]	IdMeasObject-f1		
measObject[1]	MeasObjectEUTRA-GENERIC(f1)	Cell 1	
measObjectId[2]	IdMeasObject-f2		
measObject[2]	MeasObjectEUTRA-GENERIC(f2)	Cell 2, 3	
}			
reportConfigToAddModList SEQUENCE (SIZE (1..maxReportConfigId)) OF SEQUENCE {	2 entries		
reportConfigId[1]	IdReportConfig-A6		
reportConfig[1]	ReportConfig-A6		
reportConfigId[2]	IdReportConfig-A2		
reportConfig[2]	ReportConfig-A2-H		
}			
measIdToAddModList SEQUENCE (SIZE (1..maxMeasId)) OF SEQUENCE {	3 entries		
measId[1]	1		
measObjectId[1]	IdMeasObject-f2		
reportConfigId[1]	IdReportConfig-A6		
measId[2]	2		
measObjectId[2]	IdMeasObject-f1		
reportConfigId[2]	IdReportConfig-A2		
measId[3]	3		
measObjectId[3]	IdMeasObject-f2		
reportConfigId[3]	IdReportConfig-A2		
}			
}			

Table 8.16.6.4.3-5: MeasObjectEUTRA-GENERIC(f2): Additional E-UTRAN TDD event triggered reporting on configured but deactivated SCell in non-DRX under fading propagation conditions, 20 MHz requirements

Derivation Path: 36.508 clause 7.3.3 Table 7.3.4-1			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasObjectEUTRA-GENERIC(Freq) ::= SEQUENCE {			
cellsToAddModList SEQUENCE (SIZE (1..maxCellMeas)) { }	Not present		
measCycleSCell-r10	sf320		
}			

Table 8.16.6.4.3-6: *ReportConfig-A2-H*: Additional E-UTRAN TDD event triggered reporting on configured but deactivated SCell in non-DRX under fading propagation conditions, 20 MHz requirements

Derivation Path: 36.508 clause 4.6.6 table 4.6.6-5 ReportConfigEUTRA-A2(-90)			
Information Element	**Value/remark**	**Comment**	**Condition**
ReportConfigEUTRA-A2(Thres) ::= SEQUENCE {			
triggerType CHOICE {			
event SEQUENCE {			
eventId CHOICE {			
eventA2 SEQUENCE {			
a2-Threshold CHOICE {			
threshold-RSRP	47	The actual value is IE value – 140 dBm	
}			
}			
}			
hysteresis	0 (0 dB)		
timeToTrigger	ms0		
}			
}			
triggerQuantity	rsrp		
reportQuantity	both		
maxReportCells	1		
reportInterval	ms1024		
reportAmount	r1		
}			

Table 8.16.6.4.3-7: *MeasurementReport*: Additional E-UTRAN TDD event triggered reporting on configured but deactivated SCell in non-DRX under fading propagation conditions, 20 MHz requirements

Derivation path: 36.508 4.6.1 table 4.6.1-5			
Information Element	**Value/Remark**	**Comment**	**Condition**
MeasurementReport ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
measurementReport-r8 SEQUENCE {			
measResults ::= SEQUENCE {			
measId	2		
measResultPCell::= SEQUENCE {		Report Cell 1	
rsrpResult	(0..97)		
rsrqResult	(0..34)		
}			
measResultNeighCells CHOICE { }	Not present		
measResultForECID-r9	Not present		
locationInfo-r10	Not present		
measResultServFreqList-r10 SEQUENCE (SIZE (1..maxServCell-r10)) OF SEQUENCE {			
servFreqId-r10	1		
measResultSCell-r10 SEQUENCE {		Cell 2	
rsrpResultSCell-r10	(0..97)		
rsrqResultSCell-r10	(0..34)		
}			
}			
}			
}			
}			
}			

Table 8.16.6.4.3-8: *MeasurementReport*: Additional E-UTRAN TDD event triggered reporting on configured but deactivated SCell in non-DRX under fading propagation conditions, 20 MHz requirements

Derivation path: 36.508 4.6.1 table 4.6.1-5			
Information Element	**Value/Remark**	**Comment**	**Condition**
MeasurementReport ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
measurementReport-r8 SEQUENCE {			
measResults ::= SEQUENCE {			
measId	3		
measResultPCell::= SEQUENCE {		Report Cell 1	
rsrpResult	(0..97)		
rsrqResult	(0..34)		
}			
measResultNeighCells CHOICE {			
MeasResultEUTRA ::= SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE { }	Not present		
measResultForECID-r9	Not present		
locationInfo-r10	Not present		
measResultServFreqList-r10 SEQUENCE (SIZE (1..maxServCell-r10)) OF SEQUENCE {			
servFreqId-r10	1		
measResultSCell-r10 SEQUENCE {		Cell 2	
rsrpResultSCell-r10	(0..97)		
rsrqResultSCell-r10	(0..34)		
}			
}			
}			
}			
}			
}			
}			

8.16.6.5 Test requirement

Table 8.16.6.4-1 and Table 8.16.6.5-1 define the primary level settings including test tolerances for E-UTRAN TDD-TDD Event triggered reporting on configured but deactivated SCell in non-DRX test under fading propogation conditions for 20 MHz channel BW.

Table 8.16.6.5-1: Cell specific test parameters for E-UTRAN TDD event triggered reporting on configured but deactivated SCell in non-DRX under fading propagation conditions, 20 MHz

Parameter	Unit	Cell 1			Cell 2			Cell 3		
		T1	T2	T3	T1	T2	T3	T1	T2	T3
$BW_{channel}$	MHz	20			20			20		
OCNG Patterns defined in D.2.7 (OP.7 TDD) and in D.2.8 (OP.8 TDD)		OP.7 TDD			OP.8 TDD			OP.8 TDD		
Note: See Table 8.16.2.5-1 for other cell-specific test parameters.										

The measurement reporting delay is defined as the time between an event that will trigger a measurement report and the point when the UE starts to transmit the measurement report over the air interface.

The actual overall delays measured in the tests may be up to $2 \times TTI_{DCCH}$ higher than the measurement reporting delays above because of TTI insertion uncertainty of the measurement report in DCCH.

The event triggered measurement reporting delay, measured without L3 filtering shall be less than $T_{identify\_scc}$.

The overall delays measured test requirement for Event A6 is expressed as:

Overall delays measured = measurement reporting delay + TTI insertion uncertainty

Where:

measurement reporting delay = $T_{identify\_scc}$

$T_{identify\_scc}$ = 20 *measCycleSCell*

measCycleSCell = 320 ms

The UE shall send one Event A6 triggered measurement report with a measurement reporting delay of less than 6402 ms from the beginning of time T2 (note: this gives a total of 6400 ms for measurement reporting delay plus 2 ms for TTI insertion uncertainty).

In the RRC_CONNECTED state the measurement period for intra frequency RSRP and RSRQ measurements is 200 ms as per TS 36.133[4] section 8.1.2.2.1.

The UE shall send one Event A2 triggered measurement report for Cell 1 with a measurement reporting delay of less than 202 ms from beginning of time T3.

The measurement period for deactivated scell measurements is $T_{measure\_scc}$ according to the parameter *measCycleSCell*.

The overall delays measured test requirement for Event A2 for Cell 2 is expressed as:

Overall delays measured = measurement reporting delay + TTI insertion uncertainty

Where:

measurement reporting delay = $T_{measure\_scc}$

where $T_{measure\_scc}$ = 5 *measCycleSCell*.

The UE shall send one Event A2 triggered measurement report for Cell 2 with a measurement reporting delay of less than 1602ms from beginning of time T3(note: this gives a total of 1600 ms for measurement reporting delay plus 2 ms for TTI insertion uncertainty).

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% with a confidence level of 95% for each of the events.

The statistical pass/ fail decisions are done separately for Event A6 and Event A2.

Decide the test pass, if events A6 **and** A2 are passed, otherwise fail the UE.

8.18.1 E-UTRAN TDD-HRPD event triggered reporting under fading propagation conditions

Editor's note: This test case is incomplete. The following aspects are either missing or not yet determined:

- *The Test system uncertainties applicable to this test are undefined*
- *The Test tolerances applicable to this test are undefined*

8.18.1.1 Test purpose

To verify the UE's ability to make a correct reporting of an event under fading propagation conditions within the E-UTRA TDD - HRPD cell search requirements.

8.18.1.2 Test applicability

This test applies to all types of E-UTRA TDD UE release 9 and forward that support HRPD. Applicability requires support for FGI bit 15.

8.18.1.3 Minimum requirement

UE shall perform HRPD measurements according to the procedure defined in 3GPP2 C.S0024-B on the HRPD neighbour cells indicated by the serving eNode B. If measurement gaps are required, the UE shall perform HRPD measurements only during the measurement gaps configured by the serving eNode B.

The normative reference for this requirement is TS 36.133 [4] clause 8.1.2.4.12 and A.8.18.1.

8.18.1.4 Test description

8.18.1.4.1 Initial conditions

Test Environment: Normal, as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1.

Channel Bandwidth to be tested: 10 MHz as defined in TS 36.508 [7] clause 4.3.1.

1. Connect the SS (node B emulator) and faders and AWGN noise sources to the UE antenna connectors as shown in TS 36.508 [7] Annex A figure A.23.
2. The general test parameter settings are set up according to Table 8.18.1.4.1-1.
3. Propagation conditions are set according to Annex B clauses B.0.
4. Message contents are defined in clause 8.18.1.4.3.
5. There is one E-UTRA TDD serving cell and one HRPD cell specified in the test. Cell 1 (E-UTRA TDD cell) is the cell used for connection setup with the power level set according to Annex C.0 and C.1 for this test.

Table 8.18.1.4.1-1: General test parameters for E-UTRAN TDD to HRPD event triggered reporting under fading propagation conditions

Parameter	Unit	Value	Comment
PDSCH parameters		DL Reference Measurement Channel R.0 TDD	As specified in section A.1.2
PCFICH/PDCCH/PHICH parameters		DL Reference Measurement Channel R.6 TDD	As specified in section A.2.2
Active cell		Cell 1	E-UTRAN TDD cell
Neighbouring cell		Cell 2	HRPD cell
Gap Pattern Id		1	As specified in 3GPP TS 36.133 section 8.1.2.1.
E-UTRAN TDD measurement quantity		RSRP	
Inter-RAT (HRPD) measurement quantity		CDMA2000 HRPD Pilot Strength	
b1-ThresholdCDMA2000	dB	-7	Absolute 'CDMA2000 HRPD Pilot Strength' threshold for event B1
Hysteresis	dB	0	
TimeToTrigger	s	0	
Filter coefficient		0	L3 filtering is not used
DRX		OFF	Non-DRX test
Access Barring Information	-	Not sent	No additional delays in random access procedure
E-UTRA RF Channel Number		1	One E-UTRA TDD carrier frequency is used.
E-UTRA Channel Bandwidth ($BW_{channel}$)	MHz	10	
Uplink-downlink configuration of cell 1		1	As specified in table 4.2.2 in TS 36.211
Special subframe configuration of cell 1		6	As specified in table 4.2.1 in TS 36.211
HRPD RF Channel Number		1	One HRPD carrier frequency is used.
HRPD neighbour cell list size		8	HRPD cells on HRPD RF channel 1 provided in the cell list before T2.
cdma2000-SearchWindowSize		8 (60 PN chips)	Search window size as defined in section 6.3.5 in 3GPP TS 36.331
T1	s	5	
T2	s	3	

8.18.1.4.2 Test procedure

The test consists of one active cell and one neighbour cell. The test consists of two successive time periods, with time durations of T1 and T2 respectively. During time duration T1, the UE shall not have any timing information of Cell 2.

1. Ensure the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.

2. Set the parameters according to T1 in Tables 8.18.1.5-1 and 8.18.1.5-2. Propagation conditions are set according to Annex B clause B.1.1 and B.2.2. T1 starts.

3. The neighbour cell shall broadcast its own PN offset and the measurement cell list of Cell 1 shall contain the PN offset of Cell 2. SS shall transmit an RRCConnectionReconfiguration message.

4. The UE shall transmit RRCConnectionReconfigurationComplete message.

5. When T1 expires, the SS shall switch the power setting from T1 to T2 as specified in Tables 8.19.1.5-1 and 8.19.1.5-2.

6. UE shall transmit a MeasurementReport message triggered by Event B1. If the measurement reporting delay measured from the beginning of time period T2 is less than 2136 ms then the number of successful tests is increased by one. If the UE fails to report the event within the measurement reporting delay requirement then the number of failure tests is increased by one.

7. After the SS receive the MeasurementReport message in step 6) or when T2 expires, the SS shall transmit RRCConnectionRelease message to release the RRC connection which includes the release of the established radio bearers as well as all radio resources.

8. The SS shall set a different PN Offset on Cell 2, as the previous timing information of Cell 2 is invalid in the UE for the next iteration of the test procedure loop.

9. After the RRC connection release, the SS:
   - transmits in Cell 1 a Paging message (including PagingRecord with ue-Identity) for the UE and ensures the UE is in State 3A according to TS 36.508 [7] clause 4.5.3A (if the paging fails, switches off and on the UE and ensures the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3),
   or
   - switches off and on the UE and ensures the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.

10. Repeat step 2-9 until the confidence level according to Tables G.2.3-1 in Annex G clause G.2 is achieved.

8.18.1.4.3 Message contents

Message contents are according to TS 36.508 [7] clause 4.6 with the following exceptions:

Table 8.18.1.4.3-1: Common Exception messages for E-UTRAN TDD - HRPD event triggered reporting under fading propagation conditions

Default Message Contents	
Common contents of system information blocks exceptions	
Default RRC messages and information elements contents exceptions	Table H.3.1-1 Table H.3.1-7

Table 8.18.1.4.3-2: *MeasConfig-DEFAULT*: Additional E-UTRAN TDD - HRPD event triggered reporting under fading propagation conditions

Derivation Path: TS 36.508 [7] clause 4.6.6, Table 4.6.6-1 MeasConfig-DEFAULT:			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasConfig-DEFAULT ::= SEQUENCE {			
measObjectToRemoveList	Not present		
measObjectToAddModList SEQUENCE (SIZE (1..maxObjectId)) OF SEQUENCE {	2 entry		
MeasObjectToAddMod SEQUENCE {			
measObjectId	IdMeasObject-f1	f1 is the frequency of the serving cell(E-UTRA Cell)	
measObject CHOICE {			
measObjectEUTRA	MeasObjectEUTRA-GENERIC(f1)	E-UTRA Cell	
}			
}			
MeasObjectToAddMod SEQUENCE {			
measObjectId	IdMeasObject-f14	f14 is the frequency of the neighbouring cell(CDMA2000 Cell)	
measObject CHOICE {			
measObjectCDMA2000	MeasObjectCDMA2000	CDMA2000 Cell	
}			
}			
}			
reportConfigToRemoveList	Not present		
reportConfigToAddModList SEQUENCE (SIZE (1..maxReportConfigId)) OF SEQUENCE {	1 entry		
reportConfigId	idReportConfig-B1		
reportConfig	ReportConfigInterRAT-B1-CDMA2000		
}			
measIdToRemoveList	Not present		
measIdToAddModList SEQUENCE (SIZE (1..maxMeasId)) OF SEQUENCE {	1 entry		
measId	1		
measObjectId	IdMeasObject-f14		
reportConfigId	IdReportConfig-B1		
}			
quantityConfig	QuantityConfig-DEFAULT		CDMA2000
measGapConfig	MeasGapConfig-GP2		Gap Pattern Id = 1
s-Measure	Not present		
preRegistrationInfoHRPD	Not present		
speedStatePars	Not present		
}			

Table 8.18.1.4.3-3: *ReportConfigInterRAT-B1-CDMA2000*: Additional E-UTRAN TDD - HRPD event triggered reporting under fading propagation conditions

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
ReportConfigInterRAT-B1-CDMA2000(CDMA2000-Thres) ::= SEQUENCE {			
triggerType CHOICE {			
event SEQUENCE {			
eventId CHOICE {			
eventB1 SEQUENCE {			
b1-Threshold CHOICE {			
b1-ThresholdCDMA2000 CHOICE {			
ThresholdCDMA2000	14(-7)	-2*10*log10(Ec/Io) in units of 0.5dB, see C.S0005-A for details	
}			
}			
}			
}			
hysteresis	0		
}			
}			
}			

Table 8.18.1.4.3-4: *MeasResults*: Additional E-UTRAN TDD - HRPD event triggered reporting under fading propagation conditions

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResults ::= SEQUENCE {			
measId	1		
measResultServCell SEQUENCE {			
rsrpResult		Set according to specific test	
rsrqResult		Set according to specific test	
}			
MeasResultNeighCells CHOICE {			
measResultsCDMA2000	MeasResultsCDMA2000		
}			
}			

Table 8.18.1.4.3-5: *MeasResultsCDMA2000*: Additional E-UTRAN TDD - HRPD event triggered reporting under fading propagation conditions

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResultsCDMA2000::= SEQUENCE {			
preRegistrationStatusHRPD	true		
measResultListCDMA2000	MeasResultListCDMA2000		
}			

Table 8.18.1.4.3-6: *MeasResultListCDMA2000*: Additional E-UTRAN TDD - HRPD event triggered reporting under fading propagation conditions

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResultListCDMA2000::= SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {			
physCellId	PhysCellIdCDMA2000		
measResult SEQUENCE {			
pilotStrength	6(-3)	-2*10*log10(Ec/Io) in units of 0.5dB, see C.S0005-A for details	
}			
}			

8.18.1.5 Test requirement

Tables 8.18.1.4.1-1, 8.18.1.5-1 and 8.18.1.5-2 define the primary level settings including test tolerances for E-UTRAN TDD - HRPD event triggered reporting under fading propagation conditions test.

Table 8.18.1.5-1: Cell specific test parameters for E-UTRAN TDD cell#1 for event triggered reporting under fading propagation conditions

Parameter	Unit	Cell 1 (E-UTRA)	
		T1	T2
E-UTRA RF Channel number		1	
$BW_{channel}$	MHz	10	
OCNG Patterns defined in D.2.1 (OP.1 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		
N_{oc} Note 2	dBm/15 kHz	-98	
RSRP Note 3	dBm/15 KHz	-98 +TT	-98+TT
$\hat{E}_s/N_{oc}$	dB	0	0
$\hat{E}_s/I_{ot}$	dB	0+TT	0+TT
Propagation Condition		ETU70	
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.			

Table 8.18.1.5-2: Cell specific test parameters for HRPD (cell # 2) for event triggered reporting under fading propagation conditions

Parameter	Unit	Cell 2 (HRPD)	
		T1	T2
$\frac{\text{Control } E_b}{N_t}$ (38.4 kbps)	dB	21	
$\frac{\text{Control } E_b}{N_t}$ (76.8 kbps)	dB	18	
$\hat{I}_{or}/I_{oc}$	dB	-infinity	0
I_{oc}	dBm/1.2288 MHz	-55	
CDMA2000 HRPD Pilot Strength	dB	-infinity	-3+TT
Propagation Condition		ETU70	

The overall delays measured is defined as the time from the beginning of time period T2, to the moment the UE send one Event B1 triggered measurement report to Cell 2.

The overall delays measured test requirement is expressed as:

Overall delays measured = measurement reporting delay + TTI insertion uncertainty

Measurement reporting delay = $T_{measurement\_HRPD} = T_{measurement\_CDMA2000\_1x}$

$$T_{measurement\_CDMA2000\_1x} = T_{basic\_measurement\_CDMA2000\_1x} \cdot N_{Freq} \cdot S_{gap}$$

$T_{basic\_identify\_UTRA\_TDD} = 100$ ms

$N_{Freq} = 1$

$S_{gap} = 64/3$

TTI insertion uncertainty = 2 ms

The overall delays measured shall be less than a total of 2136 ms in this test case (note: this gives a total of 2134 ms for measurement reporting delay plus 2 ms for TTI insertion uncertainty).

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%.

8.19.1 E-UTRAN TDD-CDMA2000 1X event triggered reporting under fading propagation conditions

Editor's note: This section is incomplete. The following aspects are either missing or not yet determined:

- *The Test system uncertainties applicable to this test are undefined*
- *The Test tolerances applicable to this test are undefined*

8.19.1.1 Test purpose

To verify the UE's ability to make a correct reporting of an event under fading propagation conditions within the E-UTRA TDD-CDMA2000 1X inter-frequency cell search requirements.

8.19.1.2 Test applicability

This test applies to all types of E-UTRA FDD UE release 9 and forward that support cdma2000 1xRTT. Applicability requires support for FGI bit 15.

8.19.1.3 Minimum conformance requirements

When measurement gaps are scheduled for CDMA2000 1xRTT inter RAT measurements, or the UE supports capability of conducting such measurements without gaps, the UE physical layer shall be capable of reporting CDMA2000 1xRTT Pilot Strength measurements to higher layers with measurement accuracy as specified in TS36.133 [4] Section 9.5, corresponding to a 90% measurement success rate, with measurement period given by

$$T_{measurement\_CDMA2000\_1x} = T_{basic\_measurement\_CDMA2000\_1x} \cdot N_{Freq} \cdot S_{gap}$$

where $T_{basic\_measurement\_CDMA2000\_1x}$ = 100 ms and the measurement gap specific scale factor S_{gap} is based on the measurement gap pattern in use as defined in Table 8.19.1.3-1. If inter-frequency RSTD measurements are configured as a part of the measurement configuration, S_{gap} shall be based to the Gap Pattern Id 1.

Table 8.19.1.3-1: Gap Pattern Specific Scale Factor

Gap Pattern Id	S_{gap}
0	32/3
1	64/3

Reported measurements in periodically triggered measurement reports shall meet the requirements in TS 36.133 [4] section 9.

The measurement reporting delay of each periodic report is defined as the time between the end of the last measurement period and the moment when the UE starts to transmit the measurement report over the Uu interface. This delay shall be less than T_{71m} defined in 3GPP2 C.S0005-D for each periodic report. This measurement reporting delay excludes a delay which is caused by the unavailability of the uplink resources for the UE to send the measurement report.

The normative reference for this requirement is TS 36.133 [4] clause 8.1.2.4.10 and A.8.19.1.

8.19.1.4 Test description

8.19.1.4.1 Initial conditions

Test Environment: Normal, as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1.

Channel Bandwidth to be tested: 10 MHz as defined in TS 36.508 [7] clause 4.3.1.

1. Connect the SS (node B emulator) and faders and AWGN noise sources to the UE antenna connectors as shown in TS 36.508 [7] Annex A figure A.23.

2. The general test parameter settings are set up according to Table 8.19.1.4.1-1.

3. Propagation conditions are set according to Annex B clauses B.0.

4. Message contents are defined in clause 8.19.1.4.3.

5. There is one E-UTRA FDD serving cell and one cdma2000 1xRTT cell specified in the test. Cell 1 (E-UTRA FDD cell) is the cell used for connection setup with the power level set according to Annex C.0 and C.1 for this test.

Table 8.19.1.4.1-1: General test parameters for E-UTRAN TDD-CDMA2000 1X event triggered reporting in fading propagation conditions

Parameter	Unit	Value	Comment
PDSCH parameters (E-UTRAN TDD)		DL Reference Measurement Channel R.0 TDD	As specified in section A.1.2.
PCFICH/PDCCH/PHICH parameters (E-UTRAN TDD)		DL Reference Measurement Channel R.6 TDD	As specified in section A.2.2
Gap Pattern Id		1	As specified in 3GPP TS 36.133 section 8.1.2.1.
Active cell		Cell 1	Cell 1 is on E-UTRA RF channel number 1.
Neighbour cell		Cell 2	Cell 2 is on CDMA2000 1X RF channel number 1.
Special subframe configuration		6	As specified in table 4.2-1 in 3GPP TS 36.211. Applicable to cell 1.
Uplink-downlink configuration		1	As specified in table 4.2-2 in 3GPP TS 36.211. Applicable to cell 1.
CP length		Normal	Applicable to cell 1.
E-UTRA RF Channel Number		1	One E-UTRA TDD carrier frequency is used.
E-UTRA Channel Bandwidth ($BW_{channel}$)	MHz	10	
CDMA2000 1X Channel Number		1	One CDMA2000 1X carrier frequency is used.
Inter-RAT (CDMA2000 1X) measurement quantity		CDMA2000 1xRTT Pilot Strength	
B1-Threshold-CDMA2000	dB	-14	Absolute 'CDMA2000 1xRTT Pilot Strength' threshold for event B1
Hysteresis	dB	0	
Time To Trigger	ms	0	
Filter coefficient		0	L3 filtering is not used.
DRX		OFF	
cdma2000 1X neighbour cell list size		8	cdma2000 1X cells on cdma2000 1X RF channel 1 provided in the cell list before T2.
cdma2000-SearchWindowSize		8 (60 PN chips)	Search window size as defined in section 6.3.5 in 3GPP TS 36.331
T1	s	5	
T2	s	3	

8.19.1.4.2 Test procedure

The test consists of one active cell and one neighbour cell. In the measurement control information it is indicated to the UE that event-triggered reporting with Event B1 is used. The test consists of two successive time periods, with time durations of T1 and T2 respectively. During time duration T1, the UE shall not have any timing information of cell 2.

1. Ensure the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3. Cell 1 is the active cell.

2. Set the parameters according to T1 in Tables 8.19.1.5-1 and 8.19.1.5-2. Propagation conditions are set according to Annex B clause B.1.1 and B.2.2. T1 starts.

3. The neighbour cell shall broadcast its own PN offset and the measurement cell list of Cell 1 shall contain the PN offset of Cell 2. The SS shall transmit an RRCConnectionReconfiguration message.

4. The UE shall transmit RRCConnectionReconfigurationComplete message.

5. When T1 expires, the SS shall switch the power setting from T1 to T2 as specified in Tables 8.19.1.5-1 and 8.19.1.5-2.

6. The UE shall transmit a MeasurementReport message triggered by Event B1. If the measurement reporting delay measured from the beginning of time period T2 is less than 2136 ms then the number of successful tests is increased by one. If the UE fails to report the event within the measurement reporting delay requirement then the number of failure tests is increased by one.

7. After the SS receives the MeasurementReport message in step 6) or when T2 expires, the SS shall transmit RRCConnectionRelease message to release the RRC connection which includes the release of the established radio bearers as well as all radio resources.

8. The SS shall set a different PN Offset on Cell 2, as the previous timing information of Cell 2 is invalid in the UE for the next iteration of the test procedure loop.

9. After the RRC connection release, the SS:
   - transmits in Cell 1 a Paging message (including Paging Record with ue-Identity) for the UE and ensures the UE is in State 3A according to TS 36.508 [7] clause 4.5.3A (if the paging fails, switches off and on the UE and ensures the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3),
   or
   - switches off and on the UE and ensures the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.

10. Repeat step 2-9 until the confidence level according to Tables G.2.3-1 in Annex G clause G.2 is achieved.

8.19.1.4.3 Message contents

Message contents are according to TS 36.508 [7] clause 4.6 with the following exceptions:

Table 8.19.1.4.3-1: Common Exception messages for E-UTRAN TDD – CDMA 2000 1X event triggered reporting under fading propagation conditions

Default Message Contents	
Common contents of system information blocks exceptions	
Default RRC messages and information elements contents exceptions	Table H.3.1-1 Table H.3.1-7

Table 8.18.1.4.3-2: *MeasConfig-DEFAULT*: Additional E-UTRAN TDD – CDMA2000 1X event triggered reporting under fading propagation conditions

Derivation Path: TS 36.508 [7] clause 4.6.6, Table 4.6.6-1 MeasConfig-DEFAULT:			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasConfig-DEFAULT ::= SEQUENCE {			
measObjectToRemoveList	Not present		
measObjectToAddModList SEQUENCE (SIZE (1..maxObjectId)) OF SEQUENCE {	2 entry		
MeasObjectToAddMod SEQUENCE {			
measObjectId	IdMeasObject-f1	f1 is the frequency of the serving cell(E-UTRA Cell)	
measObject CHOICE {			
measObjectEUTRA	MeasObjectEUTRA-GENERIC(f1)	E-UTRA Cell	
}			
}			
MeasObjectToAddMod SEQUENCE {			
measObjectId	IdMeasObject-f17	f17 is the frequency of the neighbouring cell(CDMA2000 Cell)	
measObject CHOICE {			
measObjectCDMA2000	MeasObjectCDMA2000	CDMA2000 Cell	
}			
}			
}			
reportConfigToRemoveList	Not present		
reportConfigToAddModList SEQUENCE (SIZE (1..maxReportConfigId)) OF SEQUENCE {	1 entry		
reportConfigId	idReportConfig-B1		
reportConfig	ReportConfigInterRAT-B1-CDMA2000		
}			
measIdToRemoveList	Not present		
measIdToAddModList SEQUENCE (SIZE (1..maxMeasId)) OF SEQUENCE {	1 entry		
measId	1		
measObjectId	IdMeasObject-f17		
reportConfigId	IdReportConfig-B1		
}			
quantityConfig	QuantityConfig-DEFAULT		CDMA2000
measGapConfig	MeasGapConfig-GP2		Gap Pattern Id = 1
s-Measure	Not present		
preRegistrationInfoHRPD	Not present		
speedStatePars	Not present		
}			

Table 8.19.1.4.3-3: *ReportConfigInterRAT-B1-CDMA2000*: Additional E-UTRAN TDD – CDMA2000 1X event triggered reporting under fading propagation conditions

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
ReportConfigInterRAT-B1-CDMA2000 (CDMA2000-Thres) ::= SEQUENCE {			
triggerType CHOICE {			
event SEQUENCE {			
eventId CHOICE {			
eventB1 SEQUENCE {			
b1-Threshold CHOICE {			
b1-Threshold CDMA2000	28(-14)	INTEGER (0..63)	CDMA2000
}			
}			
}			
hysteresis	0 (0dB)	The actual value is IE value * 0.5 dB.	
timeToTrigger	ms0		
}			
}			
}			

Table 8.19.1.4.3-4: *MeasResults*: Additional E-UTRAN TDD – CDMA2000 1X event triggered reporting under fading propagation conditions

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResults ::= SEQUENCE {			
measId	1		
measResultPCell SEQUENCE {			
rsrpResult		Set according to specific test	
rsrqResult		Set according to specific test	
}			
measResultNeighCells CHOICE {			
measResultsCDMA2000	MeasResultsCDMA2000		
}			
}			

Table 8.19.1.4.3-5: MeasResultsCDMA2000: Additional E-UTRAN TDD – CDMA 2000 1X event triggered reporting under fading propagation conditions

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResultsCDMA2000::= SEQUENCE (			
preRegistrationStatusHRPD	FALSE		
measResultListCDMA2000	MeasResultListCDMA2000		
}			

Table 8.19.1.4.3-6: MeasResultListCDMA2000: Additional E-UTRAN TDD – CDMA2000 1X event triggered reporting under fading propagation conditions

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResultListCDMA2000::= SEQUENCE (SIZE (1..maxCellReport)) OF MeasResultCDMA2000 {			
MeasResultCDMA2000 ::= SEQUENCE {			
physCellId	PhysCellIdCDMA2000		
measResult ::= SEQUENCE {			
pilotStrength	20 (-10)	INTEGER (0..63)	
}			
}			
}			

8.19.1.5 Test requirement

Tables 8.19.1.4.1-1, 8.19.1.5-1 and 8.19.1.5-2 define the primary level settings including test tolerances for E-UTRAN TDD-CDMA2000 1X event triggered reporting under fading propagation conditions.

Table 8.19.1.5-1: Cell specific test parameters for E-UTRAN TDD (cell # 1) for event triggered reporting of CDMA2000 1X cell under fading propagation conditions

Parameter	Unit	Cell 1	
		T1	T2
E-UTRA RF Channel Number		1	
$BW_{channel}$	MHz	10	
OCNG Pattern defined in D.2.1 (OP.1 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	4+TT	4+TT
$\hat{E}_s/N_{oc}$	dB	4	4
N_{oc}	dBm/15 kHz	-98	
RSRP	dBm/15 kHz	-94+TT	-94+TT
SCH_RP	dBm/15 kHz	-94+TT	-94+TT
Propagation Condition		ETU70	
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: The resources for uplink transmission are assigned to the UE prior to the start of time period T2.			

Table 8.19.1.5-2: Cell specific test parameters for CDMA2000 1X (cell # 2) for event triggered reporting of CDMA2000 1X cell under fading propagation conditions

Parameter	Unit	Cell 2 (cdma2000 1X)	
		T1	T2
$\frac{\text{Pilot } E_c}{I_{or}}$	dB	-7	
$\frac{\text{Sync } E_c}{I_{or}}$	dB	-16	
$\frac{\text{Paging } E_c}{I_{or}}$ (4.8 kbps)	dB	-12	
$\hat{I}_{or}/I_{oc}$	dB	-infinity	0
I_{oc}	dBm/1.2288 MHz	-55	
CDMA2000 1xRTT Pilot Strength	dB	-infinity	-10+TT
Propagation Condition		ETU70	

The overall delay measured is defined as the time from the beginning of time period T2, to the moment the UE sends one Event B1 triggered measurement report including PN offset of Cell 2.

The actual overall delays measured in the test may be up to 2xTTIDCCH higher than the measurement reporting delays above because of TTI insertion uncertainty of the measurement report in DCCH.

The overall delays measured test requirement is expressed as:

Overall delays measured = measurement reporting delay + TTI insertion uncertainty

Measurement reporting delay = $T_{measurement\_CDMA2000\_1x}$

$$T_{measurement\_CDMA2000\_1x} = T_{basic\_measurement\_CDMA2000\_1x} \cdot N_{Freq} \cdot S_{gap}$$

$T_{basic\_measurement\_CDMA2000\_1x}$ = 100 ms.

N_{Freq} = 1. It is defined in TS 36.133 [4] clause 8.1.2.1.1.

S_{gap}=64/3. It is based on the measurement gap pattern in use as defined in Table 8.19.1.3-1.

TTI insertion uncertainty = 2 ms

The overall delays measured shall be less than a total of 2136 ms in this test case (note: this gives a total of 2134 ms for measurement reporting delay plus 2 ms for TTI insertion uncertainty).

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%.

8.20 Inter-frequency/RAT Measurements in CA mode

8.20.1 E-UTRAN FDD-FDD Inter-frequency event triggered reporting under fading propagation conditions in asynchronous cells

Editor's note: This test case is incomplete. The following aspects are either missing or not yet determined:

- The Test Tolerances are undefined

8.20.1.1 Test purpose

To verify the UE's ability to make a correct reporting of an event under fading propagation conditions in asynchronous cells within the E-UTRA FDD inter-frequency cell search requirements in CA mode. This test will partly verify the FDD-FDD inter-frequency cell search requirements.

8.20.1.2 Test applicability

This test applies to all types of E-UTRA FDD UE release 10 and forward that support CA.

8.20.1.3 Minimum conformance requirements

When measurement gaps are scheduled the UE shall be able to identify a new FDD inter-frequency within $T_{Identify\_Inter}$ according to the following expression:

$$T_{Identify\_Inter} = T_{Basic\_Identify\_Inter} \cdot \frac{480}{T_{Inter1}} \cdot N_{freq} \quad ms$$

Where:

$T_{Basic\_Identify\_Inter}$ = 480 ms. It is the time period used in the inter frequency equation where the maximum allowed time for the UE to identify a new FDD inter-frequency cell is defined.

N_{freq} is defined in TS 36.133 [4] section 8.1.2.1.1 and T_{Inter1} is defined in TS36.133 [4] section 8.1.2.1.

A cell shall be considered detectable provided following conditions are fulfilled:

- RSRP and RSRP Ês/Iot according to Annex I.2.3 for a corresponding Band,
- other RSRP related side conditions given in Sections 9.1.3.1 and 9.1.3.2 and RSRQ related side conditions given in Sections 9.1.6.1 and 9.1.6.2 are fulfilled,
- SCH_RP$|_{dBm}$ and SCH Ês/Iot according to Annex I.2.3 for a corresponding Band.

When measurement gaps are scheduled for FDD inter frequency measurements the UE physical layer shall be capable of reporting RSRP and RSRQ measurements to higher layers with measurement accuracy as specified in TS 36.133 sub-clauses 9.1.3.1, 9.1.3.2, 9.1.6.1, and 9.1.6.2, respectively, with measurement period given by table 8.20.1.3-1.

Table 8.20.1.3-1: Measurement period and measurement bandwidth

Configuration	Physical Layer Measurement period: $T_{Measurement\_Period\_Inter\_FDD}$ [ms]	Measurement bandwidth [RB]
0	480 x N_{freq}	6
1 (Note)	240 x N_{freq}	50
Note: This configuration is optional.		

The UE shall be capable of performing RSRP and RSRQ measurements of at least 4 inter-frequency cells per FDD inter-frequency and the UE physical layer shall be capable of reporting RSRP and RSRQ measurements to higher layers with the measurement period defined in Table 8.20.1.3-1.

Reported RSRP and RSRQ measurements contained in event triggered measurement reports shall meet the requirements in TS 36.133 [4] clauses 9.1.3.1, 9.1.3.2, 9.1.6.1, and 9.1.6.2, respectively.

The UE shall not send any event triggered measurement reports, as long as no reporting criteria are fulfilled.

The measurement reporting delay is defined as the time between an event that will trigger a measurement report and the point when the UE starts to transmit the measurement report over the air 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: 2 x TTI_{DCCH}. This measurement reporting delay excludes a delay which caused by no UL resources for UE to send the measurement report.

The event triggered measurement reporting delay, measured without L3 filtering shall be less than $T_{identify\_inter}$ defined in TS 36.133 [4] clause 8.1.2.3.1.1. When L3 filtering is used an additional delay can be expected.

If a cell which has been detectable at least for the time period $T_{identify\_intra}$ defined in TS 36.133 [4] section 8.1.2.2.1.1 becomes undetectable for a period ≤ 5 seconds and then the cell becomes detectable again and triggers an event, the event triggered measurement reporting delay shall be less than $T_{Measurement\_Period\ Intra}$ provided the timing to that cell has not changed more than ± 50 Ts and the L3 filter has not been used. When L3 filtering is used an additional delay can be expected

The normative reference for this requirement is TS 36.133 [4] clause 8.1.2.3.1 and A.8.20.1.

8.20.1.4 Test description

8.20.1.4.1 Initial conditions

Test Environment: Normal, as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1 for different CA bandwidth classes.

Channel Bandwidth to be tested: 10 MHz as defined in TS 36.508 [7] clause 4.3.1 for different CA configurations as defined in TS36.521-1[10] clause 5.4.2A.

1. Connect the SS (node B emulator) and faders and AWGN noise sources to the UE antenna connectors as shown in TS 36.508 [7] Annex A, Figure group A.43 as appropriate.
2. The general test parameter settings are set up according to Table 8.20.1.4.1-1.
3. Propagation conditions are set according to Annex B clauses B.0.
4. Message contents are defined in clause 8.20.1.4.3.
5. There are three E-UTRA FDD carriers and three cells specified in the test. Cell 1 is the PCell used for connection setup with the power level set according to Annex C.0 and C.1 for this test. Cell 2 is the inter-frequency neighbour cell, Cell 3 is the SCell. Cell 2 and Cell 3 shall be powered OFF.

Table 8.20.1.4.1-1: General test parameters for E-UTRAN FDD-FDD inter-frequency event triggered reporting in fading propagation conditions

Parameter	Unit	Value	Comment
PDSCH parameters		DL Reference Measurement Channel R.0 FDD	As specified in section A.1.1
PCFICH/PDCCH/PHICH parameters		DL Reference Measurement Channel R.6 FDD	As specified in section A.2.1
E-UTRA RF Channel Number		1, 2	Two FDD carrier frequencies are used.
E-UTRA RF Channel Number for SCell		3	One FDD carrier frequencies is used
Channel Bandwidth ($BW_{channel}$)	MHz	10	
Active cell		Cell 1	Cell 1 is on RF channel number 1
Neighbour cell		Cell 2	Cell 2 is on RF channel number 2
Configured active SCell		Cell 3	Cell 3 is on RF channel number 3
Gap Pattern Id		0	As specified in 3GPP TS 36.133 section 8.1.2.1.
A3-Offset	dB	-6	
Hysteresis	dB	0	
CP length		Normal	
TimeToTrigger	s	0	
Filter coefficient		0	L3 filtering is not used
DRX		OFF	OFF
Cell2 timing offset to cell1	ms	3	Asynchronous cells
Cell3 timing offset to cell1	µs	0	Synchronous cells
Time alignment error between cell3 and cell1	µs	≤ Time alignment error as specified in 3GPP TS 36.104 [30] clause 6.5.3.1.	The value of time alignment error depends upon the type of carrier aggregation.
T1	s	5	
T2	s	5	

8.20.1.4.2 Test procedure

The test consists of two successive time periods, with time duration of T1, and T2 respectively. During time duration T1, the UE shall not have any timing information of cell 2.

1. Ensure the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.
2. Configure SCC according to Annex C.0, C.1 for all downlink physical channels except PHICH.
3. The SS shall configure the SCell (Cell 3) on the SCC as per TS 36.508 [7] clause 5.2A.4 with the message content exceptions defined in clause 8.20.1.4.3.
4. The SS activates SCC by sending the activation MAC-CE (Refer TS 36.321 [13], clauses 5.13, 6.1.3.8). Wait for at least 2 seconds (Refer TS 36.133, clauses 8.3.3.2).
5. Set the parameters according to T1 in Table 8.20.1.5-1. Propagation conditions are set according to Annex B clauses B.1.1 and B.2.2. T1 starts.
6. The SS shall transmit an RRCConnectionReconfiguration message with event A3 configured.
7. The UE shall transmit an RRCConnectionReconfigurationComplete message.
8. When T1 expires, the SS shall switch the power setting from T1 to T2 as specified in Table 8.20.1.5-1.
9. UE shall transmit a MeasurementReport message triggered by Event A3. If the measurement reporting delay from the beginning of time period T2 is less than 3842ms the number of successful tests is increased by one. If the UE fails to report the event within the measurement reporting delay requirement then the number of failure tests is increased by one.
10. After the SS receives the MeasurementReport message in step 9) or when T2 expires, the SS shall transmit a RRCConnectionRelease message to release the RRC connection which includes the release of the established radio bearers as well as all radio resources.
11. Set Cell 2 physical cell identity = ((current cell 2 physical cell identity + 1) mod 14 + 2) for next iteration of the test procedure loop.
12. After the RRC connection release, the SS:
- transmits in Cell 1 a Paging message (including PagingRecord with UE-Identity) for the UE and ensures the UE is in State 3A according to TS 36.508 [7] clause 4.5.3A (if the paging fails, switches off and on the UE and ensures the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3),
or
- switches off and on the UE and ensures the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.
13. Repeat steps 2-12 until the confidence level according to Tables G.2.3-1 in Annex G clause G.2 is achieved.

8.20.1.4.3 Message contents

Message contents are according to TS 36.508 [7] clause 4.6 with the following exceptions:

Table 8.20.1.4.3-1: Common Exception messages for E-UTRAN FDD-FDD inter frequency event triggered reporting under fading propagation conditions in asynchronous cells test requirement

Default Message Contents	
Common contents of system information blocks exceptions	
Default RRC messages and information elements contents exceptions	Table H.3.1-1 Table H.3.1-7

Table 8.20.1.4.3-2: *MeasConfig:* E-UTRAN FDD-FDD inter frequency event triggered reporting under fading propagation conditions in asynchronous cells test requirements

Derivation path: 36.508 clause 4.6.6 table 4.6.6-1			
Information Element	**Value/Remark**	**Comment**	**Condition**
MeasConfig ::= SEQUENCE {			
measObjectToAddModList SEQUENCE (SIZE (1..maxObjectId)) OF SEQUENCE {	2 entries		
measObjectId[1]	IdMeasObject-f1		
measObject[1]	MeasObjectEUTRA-GENERIC(f1)	Cell 1	
measObjectId[2]	IdMeasObject-f2		
measObject[2]	MeasObjectEUTRA-GENERIC(f2)	Cell 2	
measObjectId[3]	IdMeasObject-f3		
measObject[3]	MeasObjectEUTRA-GENERIC(f3)	Cell 3	
}			
reportConfigToAddModList SEQUENCE (SIZE (1..maxReportConfigId)) OF SEQUENCE {	1 entry		
reportConfigId[1]	IdReportConfig-A3		
reportConfig[1]	ReportConfigEUTRA-A3		
}			
measIdToAddModList SEQUENCE (SIZE (1..maxMeasId)) OF SEQUENCE {	1 entry		
measId[1]	1		
measObjectId[1]	IdMeasObject-f2		
reportConfigId[1]	IdReportConfig-A3		
}			
measGapConfig	MeasGapConfig-GP1		Gap Pattern Id = 0
}			

Table 8.20.1.4.3-3: *ReportConfigEUTRA-A3*: Additional E-UTRAN FDD-FDD inter frequency event triggered reporting under fading propagation conditions in asynchronous cells test requirement

Derivation Path: TS 36.508 [7] clause 4.6.6, Table 4.6.6-6 ReportConfigEUTRA-A3			
Information Element	**Value/remark**	**Comment**	**Condition**
ReportConfigEUTRA-A3 ::= SEQUENCE {			
triggerType CHOICE {			
event SEQUENCE {			
eventId CHOICE {			
eventA3 SEQUENCE {			
a3-Offset	-12 (-6 dB)	-6 is actual value in dB (-12 * 0.5 dB)	
reportOnLeave	FALSE		
}			
}			
Hysteresis	0 (0 dB)	0 is actual value in dB (0 * 0.5 dB)	
timeToTrigger	0 (0 ms)		
}			
}			

Table 8.20.1.4.3-4: MeasurementReport: Additional E-UTRAN FDD-FDD inter frequency event triggered reporting under fading propagation conditions in asynchronous cells test requirement

Derivation path: 36.508 4.6.1 table 4.6.1-5			
Information Element	**Value/Remark**	**Comment**	**Condition**
MeasurementReport ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
measurementReport-r8 SEQUENCE {			
measResults ::= SEQUENCE {			
measId	1		
measResultPCell::= SEQUENCE {		PCell	
rsrpResult	(0..97)	Set according to specific test	
rsrqResult	(0..34)	Set according to specific test	
}			
measResultNeighCells CHOICE {			
MeasResultEUTRA ::= SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {		Neighbour cell	
physCellId	physCellId of Cell 2		
cgi-Info	Not present		
measResult SEQUENCE {			
rsrpResult	(0..97)	Set according to specific test	
rsrqResult	(0..34)	Set according to specific test	
}			
}			
}			
measResultForECID-r9	Not present		
locationInfo-r10	Not present		
measResultServFreqList-r10 SEQUENCE (SIZE (1..maxServCell-r10)) OF SEQUENCE {			
servFreqId-r10	1		
measResultSCell-r10 SEQUENCE {		SCell	
rsrpResultSCell-r10	(0..97)	Set according to specific test	
rsrqResultSCell-r10	(0..34)	Set according to specific test	
}			
}			
}			
}			
}			
}			

8.20.1.5 Test requirement

Tables 8.20.1.4.1-1 and 8.20.1.5-1 define the primary level settings including test tolerances for event triggered reporting under fading propagation conditions in asynchronous inter frequency cells test.

Table 8.20.1.5-1: Cell specific test parameters for E-UTRAN FDD-FDD inter-frequency event triggered reporting under fading propagation conditions in synchronous cells

Parameter	Unit	Cell 1		Cell 2		Cell 3	
		T1	T2	T1	T2	T1	T2
E-UTRA RF Channel Number		1		2		3	
$BW_{channel}$	MHz	10		10		10	
OCNG Patterns defined in D.1.1 (OP.1 FDD) and in D.1.2 (OP.2 FDD)		OP.1 FDD		OP.2 FDD		OP.1 FDD	
PBCH_RA	dB	0		0		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 3	dBm/15 kHz	-98					
RSRP Note 4	dBm/15 kHz	-94 + TT	-94 + TT	-Infinity	-91 +TT	-94 +TT	-94 + TT
$\hat{E}_s/I_{ot}$	dB	4 + TT	4 + TT	-Infinity	7 +TT	4 +TT	4 + TT
SCH_RP Note 4	dBm/15 kHz	-94 + TT	-94 + TT	-Infinity	-91 +TT	-94 +TT	-94 + TT
$\hat{E}_s/N_{oc}$	dB	4 + TT	4 +TT	-Infinity	7 +TT	4 + TT	4 + TT
Propagation Condition		ETU70					
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: The resources for uplink transmission are assigned to the UE prior to the start of time period T2. Note 3: 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 4: RSRP and SCH_RP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.							

The UE shall send one Event A3 triggered measurement report, with a measurement reporting delay less than 3842 ms from the beginning of time period T2.

The overall delays measured is defined as the time from the beginning of time period T2, to the moment the UE send one Event A3 triggered measurement report to Cell 2.

The overall delays measured in the test may be up to 2xTTI_{DCCH} higher than the measurement reporting delays because of TTI insertion uncertainty of the measurement report in DCCH.

The overall delays measured test requirement is expressed as:

Overall delays measured = measurement reporting delay + TTI insertion uncertainty

Measurement reporting delay = 3840 ms

TTI insertion uncertainty = TTI_{DCCH} = 1 ms; 2xTTI_{DCCH} = 2 ms

The overall delays measured shall be less than a total of 3842 ms in this test case (note: this gives a total of 3840 ms for measurement reporting delay plus 2 ms for TTI insertion uncertainty).

The rate of correct events observed during repeated tests shall be at least 90% with a confidence level of 95%.

NOTE: The actual overall delays measured in the test may be up to $2xTTI_{DCCH}$ higher than the measurement reporting delays above because of TTI insertion uncertainty of the measurement report in DCCH.

8.20.2 E-UTRAN TDD-TDD Inter-frequency event triggered reporting under fading propagation conditions in synchronous cells

Editor's note: This test case is incomplete. The following aspects are either missing or not yet determined:

- The Test Tolerances are undefined

8.20.2.1 Test purpose

To verify the UE's ability to make a correct reporting of an event under fading propagation conditions in asynchronous cells within the E-UTRA TDD inter-frequency cell search requirements in CA mode. This test will partly verify the TDD-TDD inter-frequency cell search requirements.

8.20.2.2 Test applicability

This test applies to all types of E-UTRA TDD UE release 10 and forward that support CA.

8.20.2.3 Minimum conformance requirements

When measurement gaps are scheduled the UE shall be able to identify a new TDD inter-frequency within $T_{Identify\_Inter}$ according to the following expression:

$$T_{Identify\_Inter} = T_{Basic\_Identify\_Inter} \cdot \frac{480}{T_{Inter1}} \cdot N_{freq} \quad ms$$

Where:

$T_{Basic\_Identify\_Inter}$ = 480 ms. It is the time period used in the inter frequency equation where the maximum allowed time for the UE to identify a new TDD inter-frequency cell is defined.

N_{freq} is defined in TS 36.133 [4] section 8.1.2.1.1 and T_{Inter1} is defined in TS36.133 [4] section 8.1.2.1.

A cell shall be considered detectable provided following conditions are fulfilled:

- RSRP and RSRP Ês/Iot according to Annex I.2.3 for a corresponding Band,
- other RSRP related side conditions given in Sections 9.1.3.1 and 9.1.3.2 and RSRQ related side conditions given in Sections 9.1.6.1 and 9.1.6.2 are fulfilled,
- $SCH\_RP|_{dBm}$ and SCH Ês/Iot according to Annex I.2.3 for a corresponding Band.

When measurement gaps are scheduled for TDD inter frequency measurements the UE physical layer shall be capable of reporting RSRP and RSRQ measurements to higher layers with measurement accuracy as specified in TS 36.133 sub-clauses 9.1.3.1, 9.1.3.2, 9.1.6.1, and 9.1.6.2, respectively, with measurement period given by table 8.20.1.3-1.

Table 8.20.2.3-1: Measurement period and measurement bandwidth

Configuration	Measurement bandwidth [RB]	Number of UL/DL sub-frames per half frame (5 ms)		DwPTS		$T_{Measurement\_Period\_TDD\_Inter}$ [ms]
		DL	UL	Normal CP	Extended CP	
0	6	2	2	$19760 \cdot T_s$	$20480 \cdot T_s$	480 x N_{freq}
1 (Note 1)	50	2	2	$19760 \cdot T_s$	$20480 \cdot T_s$	240 x N_{freq}
Note 1: This configuration is optional. Note 2: T_s is defined in 3GPP TS 36.211 [9].						

The UE shall be capable of performing RSRP and RSRQ measurements of at least 4 inter-frequency cells per TDD inter-frequency and the UE physical layer shall be capable of reporting RSRP and RSRQ measurements to higher layers with the measurement period $T_{Measurement\_Period\_TDD\_Inter.}$.

Reported RSRP and RSRQ measurements contained in event triggered measurement reports shall meet the requirements in TS 36.133 [4] clauses 9.1.3.1, 9.1.3.2, 9.1.6.1, and 9.1.6.2, respectively.

The UE shall not send any event triggered measurement reports, as long as no reporting criteria are fulfilled.

The measurement reporting delay is defined as the time between an event that will trigger a measurement report and the point when the UE starts to transmit the measurement report over the air interface. This requirement assumes that 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: 2 x TTI_{DCCH}. This measurement reporting delay excludes a delay which caused by no UL resources for UE to send the measurement report.

The event triggered measurement reporting delay, measured without L3 filtering shall be less than $T_{identify\_inter}$ defined in TS 36.133 [4] clause 8.1.2.3.1.1. When L3 filtering is used an additional delay can be expected.

If a cell which has been detectable at least for the time period $T_{identify\_intra}$ defined in TS 36.133 [4] section 8.1.2.2.1.1 becomes undetectable for a period ≤ 5 seconds and then the cell becomes detectable again and triggers an event, the event triggered measurement reporting delay shall be less than $T_{Measurement\_Period\ Intra}$ provided the timing to that cell has not changed more than ± 50 Ts and the L3 filter has not been used. When L3 filtering is used an additional delay can be expected

The normative reference for this requirement is TS 36.133 [4] clause 8.1.2.3.2 and A.8.20.2.

8.20.2.4 Test description

8.20.2.4.1 Initial conditions

Test Environment: Normal, as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1 for different CA bandwidth classes.

Channel Bandwidth to be tested: 10 MHz as defined in TS 36.508 [7] clause 4.3.1 for different CA configurations as defined in TS36.521-1[10] clause 5.4.2A.

1. Connect the SS (node B emulator) and faders and AWGN noise sources to the UE antenna connectors as shown in TS 36.508 [7] Annex A, Figure group A.43 as appropriate.

2. The general test parameter settings are set up according to Table 8.20.2.4.1-1.

3. Propagation conditions are set according to Annex B clauses B.0.

4. Message contents are defined in clause 8.20.2.4.3.

5. There are three E-UTRA TDD carriers and three cells specified in the test. Cell 1 is the PCell used for connection setup with the power level set according to Annex C.0 and C.1 for this test. Cell 2 is the inter-frequency neighbour cell, Cell 3 is the SCell. Cell 2 and Cell 3 shall be powered OFF.

Table 8.20.2.4.1-1: General test parameters for E-UTRAN TDD-TDD inter-frequency event triggered reporting in fading propagation conditions

Parameter	Unit	Value	Comment
PDSCH parameters		DL Reference Measurement Channel R.0 TDD	As specified in section A.1.2
PCFICH/PDCCH/PHICH parameters		DL Reference Measurement Channel R.6 TDD	As specified in section A.2.2
Gap Pattern Id		1	As specified in 3GPP TS 36.133 section 8.1.2.1.
Special subframe configuration		6	As specified in table 4.2-1 in TS 36.211. The same configuration in both cells
Uplink-downlink configuration		1	As specified in 3GPP TS 36.211 section 4.2 Table 4.2-2
CP length		Normal	
E-UTRA RF Channel Number		1, 2	Two TDD carrier frequencies are used.
E-UTRA RF Channel Number for SCell		3	One TDD carrier frequencies is used
Channel Bandwidth ($BW_{channel}$)	MHz	10	
Active cell		Cell 1	Cell 1 is on RF channel number 1
Neighbour cell		Cell 2	Cell 2 is on RF channel number 2
Configured active SCell		Cell 3	Cell 3 is on RF channel number 3
A3-Offset	dB	-6	
Hysteresis	dB	0	
TimeToTrigger	s	0	
Filter coefficient		0	L3 filtering is not used
DRX		OFF	
Time offset between cells		3 µs	Synchronous cells
T1	s	5	
T2	s	10	

8.20.2.4.2 Test procedure

The test consists of two successive time periods, with time duration of T1, and T2 respectively. During time duration T1, the UE shall not have any timing information of cell 2

1. Ensure the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.
2. Configure SCC according to Annex C.0, C.1 for all downlink physical channels except PHICH.
3. The SS shall configure the SCell (Cell 3) on the SCC as per TS 36.508 [7] clause 5.2A.4 with the message content exceptions defined in clause 8.20.2.4.3.
4. The SS activates SCC by sending the activation MAC-CE (Refer TS 36.321 [13], clauses 5.13, 6.1.3.8). Wait for at least 2 seconds (Refer TS 36.133, clauses 8.3.3.2).
5. Set the parameters according to T1 in Table 8.20.2.5-1. Propagation conditions are set according to Annex B clauses B.1.1 and B.2.2. T1 starts.
6. The SS shall transmit an RRCConnectionReconfiguration message with event A3 configured.
7. The UE shall transmit an RRCConnectionReconfigurationComplete message.
8. When T1 expires, the SS shall switch the power setting from T1 to T2 as specified in Table 8.20.2.5-1.
9. UE shall transmit a MeasurementReport message triggered by Event A3. If the measurement reporting delay from the beginning of time period T2 is less than 7682ms the number of successful tests is increased by one. If the UE fails to report the event within the measurement reporting delay requirement then the number of failure tests is increased by one.
10. After the SS receives the MeasurementReport message in step 9) or when T2 expires, the SS shall transmit a RRCConnectionRelease message to release the RRC connection which includes the release of the established radio bearers as well as all radio resources.

11. Set Cell 2 physical cell identity = ((current cell 2 physical cell identity + 1) mod 14 + 2) for next iteration of the test procedure loop.

12. After the RRC connection release, the SS:
 - transmits in Cell 1 a Paging message (including PagingRecord with UE-Identity) for the UE and ensures the UE is in State 3A according to TS 36.508 [7] clause 4.5.3A (if the paging fails, switches off and on the UE and ensures the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3),
 or
 - switches off and on the UE and ensures the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.

13. Repeat steps 2-12 until the confidence level according to Tables G.2.3-1 in Annex G clause G.2 is achieved.

8.20.2.4.3 Message contents

Message contents are according to TS 36.508 [7] clause 4.6 with the following exceptions:

Table 8.20.2.4.3-1: Common Exception messages for E-UTRAN TDD-TDD inter frequency event triggered reporting under fading propagation conditions in synchronous cells test requirement

Default Message Contents	
Common contents of system information blocks exceptions	
Default RRC messages and information elements contents exceptions	Table H.3.1-1 Table H.3.1-7 Table H.4.1-5

Table 8.20.2.4.3-2: *MeasConfig:* E-UTRAN TDD-TDD inter frequency event triggered reporting under fading propagation conditions in synchronous cells test requirements

Derivation path: 36.508 clause 4.6.6 table 4.6.6-1			
Information Element	**Value/Remark**	**Comment**	**Condition**
MeasConfig ::= SEQUENCE {			
measObjectToAddModList SEQUENCE (SIZE (1..maxObjectId)) OF SEQUENCE {	2 entries		
measObjectId[1]	IdMeasObject-f1		
measObject[1]	MeasObjectEUTRA-GENERIC(f1)	Cell 1	
measObjectId[2]	IdMeasObject-f2		
measObject[2]	MeasObjectEUTRA-GENERIC(f2)	Cell 2	
measObjectId[3]	IdMeasObject-f3		
measObject[3]	MeasObjectEUTRA-GENERIC(f3)	Cell 3	
}			
reportConfigToAddModList SEQUENCE (SIZE (1..maxReportConfigId)) OF SEQUENCE {	1 entry		
reportConfigId[1]	IdReportConfig-A3		
reportConfig[1]	ReportConfigEUTRA-A3		
}			
measIdToAddModList SEQUENCE (SIZE (1..maxMeasId)) OF SEQUENCE {	1 entry		
measId[1]	1		
measObjectId[1]	IdMeasObject-f2		
reportConfigId[1]	IdReportConfig-A3		
}			
measGapConfig	MeasGapConfig-GP2		Gap Pattern Id = 1
}			

Table 8.20.2.4.3-3: *ReportConfigEUTRA-A3*: Additional E-UTRAN TDD-TDD inter frequency event triggered reporting under fading propagation conditions in synchronous cells test requirement

Derivation Path: TS 36.508 [7] clause 4.6.6, Table 4.6.6-6 ReportConfigEUTRA-A3			
Information Element	**Value/remark**	**Comment**	**Condition**
ReportConfigEUTRA ::= SEQUENCE {			
triggerType CHOICE {			
event SEQUENCE {			
eventId CHOICE {			
eventA3 SEQUENCE {			
a3-Offset	-12 (-6 dB)	-6 is actual value in dB (-12 * 0.5 dB)	
reportOnLeave	FALSE		
}			
}			
Hysteresis	0 (0 dB)	0 is actual value in dB (0 * 0.5 dB)	
timeToTrigger	0 (0 ms)		
}			
}			

8.20.2.5 Test requirement

Tables 8.20.2.4.1-1 and 8.20.2.5-1 define the primary level settings including test tolerances for event triggered reporting under fading propagation conditions in asynchronous inter frequency cells test.

Table 8.20.2.5-1: Cell specific test parameters for E-UTRAN TDD-TDD inter-frequency event triggered reporting under fading propagation conditions in synchronous cells

Parameter	Unit	Cell 1		Cell 2		Cell 3	
		T1	T2	T1	T2	T1	T2
E-UTRA RF Channel Number		1		2		3	
$BW_{channel}$	MHz	10		10		10	
OCNG Pattern defined in D.2.1 (OP.1 TDD) and in D.2.2 (OP.2)		OP.1 TDD		OP.2 TDD		OP.1 TDD	
PBCH_RA	dB	0		0		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	4 + TT	4 + TT	-Infinity	7 + TT	4 + TT	4 + TT
N_{oc} Note 3	dBm/15 kHz	-98					
RSRP Note 4	dBm/15 kHz	-94 + TT	-94 + TT	-Infinity	-91 + TT	-94 + TT	-94 + TT
SCH_RP Note 4	dBm/15 kHz	-94 + TT	-94 + TT	-infinity	-91 + TT	-94 + TT	-94 + TT
$\hat{E}_s/N_{oc}$	dB	4 + TT	4 + TT	-Infinity	7 + TT	4 + TT	4 + TT
Propagation Condition		ETU70					
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: The resources for uplink transmission are assigned to the UE priori to the start of time period T2. Note 3: 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 4: RSRP and SCH_RP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.							

The UE shall send one Event A3 triggered measurement report, with a measurement reporting delay less than 7682 ms from the beginning of time period T2.

TTI insertion uncertainty = 2 ms

The overall delays measured shall be less than a total of 7682 ms in this test case (note: a total of 7680 ms for measurement reporting delay plus 2 ms for TTI insertion uncertainty).

The rate of correct events observed during repeated tests shall be at least 90% with a confidence level of 95%.

NOTE: The actual overall delays measured in the test may be up to 2xTTI_{DCCH} higher than the measurement reporting delays above because of TTI insertion uncertainty of the measurement report in DCCH.

8.20.3 E-UTRAN FDD - UTRAN FDD event triggered reporting under fading propagation conditions

Editor's note: This test case is incomplete. The following aspects are either missing or not yet determined:

- The Test Tolerances are undefined

8.20.3.1 Test purpose

To verify the UE's ability to make a correct reporting of an event under fading propagation conditions within the E-UTRA FDD - UTRA FDD cell search requirements in CA mode.

8.20.3.2 Test applicability

This test applies to all types of E-UTRA FDD UE release 10 and forward that support CA and UTRA FDD. Applicability requires support for FGI bit 15.

8.20.3.3 Minimum conformance requirements

The measurement reporting delay shall be less than $T_{identify, UTRA\_FDD}$ in RRC_CONNECTED state.

When explicit neighbour list is provided and no DRX is used the UE shall be able to identify a new detectable cell within

$$T_{identify,\ UTRA\_FDD} = T_{basic\_identify\_UTRA\_FDD} \cdot \frac{480}{T_{inter1}} \cdot N_{Freq} \quad ms$$

Where:

$T_{basic\_identify\_UTRA\_FDD}$ = 300 ms. This is the time period used in the inter-RAT equation where the maximum allowed time for the UE to identify a new UTRA FDD cell is defined.

T_{Inter1} = 30 ms. This is the minimum available time for inter-RAT measurement during 480 ms period

N_{Freq}: This is the number of UTRA carriers being monitored

A cell shall be considered detectable when

- CPICH Ec/Io $\geq$ -20 dB,
- SCH_Ec/Io ≥ -17 dB for at least one channel tap and SCH_Ec/Ior is equally divided between primary synchronisation code and secondary synchronisation code. When L3 filtering is used an additional delay can be expected.

When measurement gaps are scheduled for UTRA FDD inter RAT measurement the UE physical layer shall be capable of reporting measurements to higher layers with measurement accuracy as specified in TS 36.133 [4] clause 9.2 of with measurement period given by

$$T_{measurement\_UTRA\_FDD} = Max\left\{T_{Measurement\_Period\ UTRA\_FDD}, T_{basic\_measurement\_UTRA\_FDD} \cdot \frac{480}{T_{inter1}} \cdot N_{Freq}\right\} ms$$

Where:

$X_{basic\ measurement\ UTRA\_FDD}$ = 6 (cells)

$T_{Measurement\_Period\ UTRA\_FDD}$ = 480 ms. The period used for calculating the measurement period.

$T_{basic\_measurement\_UTRA\_FDD}$ = 50 ms. This is the time period used in the equation where the maximum allowed time for the UE to identify a new UTRA FDD cell is defined.

T_{Inter1} = 30 ms. This is the minimum available time for inter-RAT measurement during 480 ms period

N_{Freq}: This is the number of UTRA carriers being monitored

If the UE does not need measurement gaps to perform UTRA FDD measurements, the measurement period for UTRA FDD measurements is 480 ms.

The UE shall be capable of performing UTRA FDD CPICH measurements for $X_{basic\ measurement\ UTRA\_FDD}$ inter-frequency cells per FDD frequency and the UE physical layer shall be capable of reporting measurements to higher layers with the measurement period of $T_{Measurement\_UTRA\_FDD}$.

Reported measurements contained in event triggered measurement reports shall meet the requirements in TS 36.133 [4] clause 9.

The UE shall not send any event triggered measurement reports, as long as no reporting criteria are fulfilled.

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 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. This measurement reporting delay excludes a delay which caused by no UL resources for UE to send the measurement report.

The event triggered measurement reporting delay, measured without L3 filtering shall be less than $T_{identify\ UTRA\_FDD}$ defined in TS 36.133 [4] clause 8.1.2.4.1.1.1. When L3 filtering is used an additional delay can be expected.

The normative reference for this requirement is TS 36.133 [4] clause 8.1.2.4.1 and A.8.20.3.

8.20.3.4 Test description

8.20.3.4.1 Initial conditions

Test Environment: Normal, as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1 for different CA bandwidth classes.

Channel Bandwidth to be tested: 10 MHz as defined in TS 36.508 [7] clause 4.3.1 for different CA configurations as defined in TS36.521-1[10] clause 5.4.2A.

1. Connect the SS (node B emulator) and faders and AWGN noise sources to the UE antenna connectors as shown in TS 36.508 [7] Annex A, Figure group A.44 as appropriate.
2. The general test parameter settings are set up according to Table 8.20.3.4.1-1.
3. Propagation conditions are set according to Annex B clauses B.0.
4. Message contents are defined in clause 8.20.3.4.3.
5. There is one E-UTRA FDD Cell 1 for PCC, one E-UTRA FDD Cell 3 for SCC and one UTRA FDD Cell 2 specified in the test. Cell 1 (E-UTRA FDD cell for PCC) is the cell used for connection setup with the power level set according to Annex C.0 and C.1 for this test. Cell 2 and Cell 3 shall be powered OFF.

Table 8.20.3.1-1: General test parameters for E-UTRAN FDD-UTRAN FDD event triggered reporting in fading propagation conditions

Parameter	Unit	Value	Comment
PDSCH parameters (E-UTRAN FDD)		DL Reference Measurement Channel R.0 FDD	As specified in section A.1.1.
PCFICH/PDCCH/PHICH parameters (E-UTRAN FDD)		DL Reference Measurement Channel R.6 FDD	As specified in section A.2.1.
Gap Pattern Id		1	As specified in 3GPP TS 36.133 section 8.1.2.1.
Active cell		Cell 1	Cell 1 is on E-UTRA RF channel number 1.
Neighbour cell		Cell 2	Cell 2 is on UTRA RF channel number 1.
Configured active SCell		Cell 3	Cell 3 is on E-UTRA RF channel number 2.
CP length		Normal	Applicable to cell 1
E-UTRA RF Channel Number		1	One E-UTRA FDD carrier frequency is used.
E-UTRA RF Channel Number for SCell		2	One E-UTRA FDD carrier frequency is used.
E-UTRA Channel Bandwidth ($BW_{channel}$)	MHz	10	
UTRA RF Channel Number		1	One UTRA FDD carrier frequency is used.
Inter-RAT (UTRA FDD) measurement quantity		CPICH Ec/Io	
b1-Threshold-UTRA	dB	-18	CPICH Ec/Io threshold for event B1.
Hysteresis	dB	0	
Time To Trigger	ms	0	
Filter coefficient		0	L3 filtering is not used.
DRX		OFF	
Monitored UTRA FDD cell list size		12	UTRA cells on UTRA RF channel 1 provided in the cell list.
T1	s	5	
T2	s	6	

8.20.3.4.2 Test procedure

The test consists of one active E-UTRA Cell 1 and one UTRA neighbour cell 2 and one configured active SCell Cell 3. In the measurement control information it is indicated to the UE that event-triggered reporting with Event B1 is used. The test consists of two successive time periods, with time durations of T1 and T2 respectively. During time duration T1, the UE shall not have any timing information of Cell 2.

1. Ensure the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.
2. Configure SCC according to Annex C.0, C.1 for all downlink physical channels except PHICH.

3. The SS shall configure the SCell (Cell 3) on the SCC as per TS 36.508 [7] clause 5.2A.4 with the message content exceptions defined in clause 8.20.3.4.3.

4. The SS activates SCC by sending the activation MAC-CE (Refer TS 36.321 [13], clauses 5.13, 6.1.3.8). Wait for at least 2 seconds (Refer TS 36.133, clauses 8.3.3.2).

5. Set the parameters according to T1 in Table's 8.20.3.5-1 and 8.20.3.5-2. Propagation conditions are set according to Annex B clauses B.1.1 and B.2.2. T1 starts.

6. SS shall transmit an RRCConnectionReconfiguration message with Event B1 configured.

7. The UE shall transmit RRCConnectionReconfigurationComplete message.

8. When T1 expires, the SS shall switch the power setting from T1 to T2 as specified in Table's 8.20.3.5-1 and 8.20.3.5-2.

9. The UE shall transmit a MeasurementReport message triggered by Event B1. If the overall delay measured from the beginning of time period T2 is less than 4802 ms then the number of successful tests is increased by one. If the UE fails to report the event within the overall delays measured requirement then the number of failure tests is increased by one.

10. After the SS receives the MeasurementReport message in step 9) or when T2 expires, the SS shall transmit RRCConnectionRelease message to release the RRC connection which includes the release of the established radio bearers as well as all radio resources.

11. The SS shall set Cell 2 primary scrambling code = ((current cell 2 primary scrambling code - 50) mod 200 + 100) for the next iteration of the test procedure loop.

12. After the RRC connection release, the SS:
    - transmits in Cell 1 a Paging message (including PagingRecord with ue-Identity) for the UE and ensures the UE is in State 3A according to TS 36.508 [7] clause 4.5.3A (if the paging fails, switches off and on the UE and ensures the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3),
    or
    - switches off and on the UE and ensures the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.

13. Repeat steps 2-12 until the confidence level according to Tables G.2.3-1 in Annex G clause G.2 is achieved.

8.20.3.4.3 Message contents

Message contents are according to TS 36.508 [7] clause 4.6 with the following exceptions:

Table 8.20.3.4.3-1: Common Exception messages for E-UTRAN FDD - UTRAN FDD event triggered reporting under fading propagation conditions

Default Message Contents	
Common contents of system information blocks exceptions	
Default RRC messages and information elements contents exceptions	Table H.3.1-1 Table H.3.1-7

Table 8.20.3.4.3-2: *MeasConfig-DEFAULT*: E-UTRAN FDD - UTRAN FDD event triggered reporting under fading propagation conditions

Derivation Path: TS 36.508 [7] clause 4.6.6, Table 4.6.6-1 MeasConfig-DEFAULT:			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasConfig-DEFAULT ::= SEQUENCE {			
measObjectToRemoveList	Not present		
measObjectToAddModList SEQUENCE (SIZE (1..maxObjectId)) OF SEQUENCE {	3 entries		
measObjectId[1]	IdMeasObject-f1	f1 is the frequency of the serving cell (E-UTRA Cell)	
measObject[1]	MeasObjectEUTRA-GENERIC(f1)	E-UTRA Cell	
measObjectId[2]	IdMeasObject-f2	f2 is the frequency of the configured SCell (E-UTRA Cell)	
measObject[2]	MeasObjectEUTRA-GENERIC(f2)	E-UTRA Cell	
measObjectId[3]	IdMeasObject-f10	f10 is the frequency of the neighbouring cell(UTRA Cell)	
measObject[3]	MeasObjectUTRA-GENERIC(f10)	UTRA Cell	
}			
reportConfigToRemoveList	Not present		
reportConfigToAddModList SEQUENCE (SIZE (1..maxReportConfigId))OF SEQUENCE {	1 entry		
reportConfigId	idReportConfig-B1		
reportConfig	ReportConfigInterRAT-B1-UTRA		
}			
measIdToRemoveList	Not present		
measIdToAddModList SEQUENCE (SIZE (1..maxMeasId)) of SEQUENCE {	1 entry		
measId	1		
measObjectId	IdMeasObject-f10		
reportConfigId	idReportConfig-B1		
}			
quantityConfig	QuantityConfig-DEFAULT		UTRAN
measGapConfig	MeasGapConfig-GP2		Gap Pattern Id = 1
s-Measure	Not present		
preRegistrationInfoHRPD	Not present		
speedStatePars	Not present		
}			

Table 8.20.3.4.3-3: *ReportConfigInterRAT-B1-UTRA*: Additional E-UTRAN FDD - UTRAN FDD event triggered reporting under fading propagation conditions

Derivation Path: TS 36.508 [7] clause 4.6.6, Table 4.6.6-7B ReportConfigInterRAT-B1(EUTRA-Thres)			
Information Element	**Value/remark**	**Comment**	**Condition**
ReportConfigInterRAT-B1-UTRA(UTRA-Thres) ::= SEQUENCE {			
triggerType CHOICE {			
event SEQUENCE {			
eventId CHOICE {			
eventB1 SEQUENCE {			
b1-Threshold CHOICE {			
b1-ThresholdUTRA CHOICE {			
utra-EcN0	13 (-18 dB)	-18 dB is actual EcNO value in dB ((13 - 49)/2 dB)	
}			
}			
}			
}			
hysteresis	0 (0 dB)	0 is actual value in dB (0 * 0.5 dB)	
}			
}			
}			

Table 8.20.3.4.3-4: *MeasResults*: Additional E-UTRAN FDD - UTRAN FDD event triggered reporting under fading propagation conditions

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResults ::= SEQUENCE {			
measId	1	Identifies the measurement id for the reporting being performed	
measResultPCell SEQUENCE {			
rsrpResult		Set according to specific test	
rsrqResult		Set according to specific test	
}			
measResultNeighCells CHOICE {			
measResultListUTRA	MeasResultListUTRA		
}			
measResultForECID-r9	Not present		
locationInfo-r10	Not present		
measResultServFreqList-r10 SEQUENCE (SIZE (1..maxServCell-r10)) OF SEQUENCE {			
servFreqId-r10	1		
measResultSCell-r10 SEQUENCE {		Cell 3	
rsrpResultSCell-r10	(0..97)		
rsrqResultSCell-r10	(0..34)		
}			
}			
}			

Table 8.5.1.4.3-5: *MeasResultListUTRA*: Additional E-UTRAN FDD - UTRAN FDD event triggered reporting under fading propagation conditions

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResultListUTRA ::= SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {			
physCellId CHOICE {			
fdd	250	PhysCellIdUTRA-FDD INTEGER (0..511)	
}			
measResult SEQUENCE {			
utra-EcN0		Set according to specific test	
}			
}			

8.20.3.5 Test requirement

Tables 8.20.3.4.1-1, 8.20.3.5-1 and 8.20.3.5-2 define the primary level settings including test tolerances for event triggered reporting under fading propagation conditions in asynchronous inter frequency cells test in CA mode.

Table 8.20.3.5-1: Cell specific test parameters for E-UTRAN FDD (cell # 1, cell # 3) for event triggered reporting of UTRAN FDD cell under fading propagation conditions

Parameter	Unit	Cell 1		Cell 3	
		T1	T2	T1	T2
E-UTRA RF Channel Number		1		2	
$BW_{channel}$	MHz	10		10	
OCNG Pattern defined in D.1.1 (OP.1 FDD)		OP.1 FDD		OP.1 FDD	
PBCH_RA	dB	0		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	4 + TT	4+ TT	4+ TT	
$\hat{E}_s/N_{oc}$	dB	4+ TT	4+ TT	4+ TT	
N_{oc}	dBm/15 kHz	-98			
RSRP	dBm/15 kHz	-94+ TT	-94+ TT	-94+ TT	
SCH_RP	dBm/15 kHz	-94+ TT	-94+ TT	-94+ TT	
Propagation Condition		ETU70			
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: The resources for uplink transmission are assigned to the UE prior to the start of time period T2.					

Table 8.20.3.5-2: Cell specific test parameters for UTRAN FDD (cell # 2) for event triggered reporting of UTRAN FDD cell under fading propagation conditions

Parameter	Unit	Cell 2	
		T1	T2
UTRA RF Channel Number		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	N/A	
OCNS		-0.941	
$\hat{I}_{or}/I_{oc}$	dB	-Infinity	-3.35 + TT
I_{oc}	dBm/3.84 MHz	-70	
CPICH_Ec/Io	dB	-Infinity	-15+ TT
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}.			

The overall delays measured is defined as the time from the beginning of time period T2, to the moment the UE send one Event B1 triggered measurement report to Cell 2.

The overall delays measured in the test may be up to 2xTTI_{DCCH} higher than the measurement reporting delays because of TTI insertion uncertainty of the measurement report in DCCH.

The overall delays measured test requirement is expressed as:

Overall delays measured = measurement reporting delay + TTI insertion uncertainty

Measurement reporting delay = $T_{identify, UTRA\_FDD}$

$$T_{identify,\ UTRA\_FDD} = T_{basic\_identify\_UTRA\_FDD} \cdot \frac{480}{T_{inter1}} \cdot N_{Freq} \quad ms$$

$T_{basic\_identify\_UTRA\_FDD}$ = 300 ms

T_{Inter1} = 30 ms

N_{Freq} = 1

TTI insertion uncertainty = 2 ms

The overall delays measured shall be less than a total of 4802 ms in this test case (note: this gives a total of 4800 ms for measurement reporting delay plus 2 ms for TTI insertion uncertainty).

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%.

8.20.4 E-UTRAN TDD to UTRAN TDD cell search under fading propagation conditions

Editor's note: This test case is incomplete. The following aspects are either missing or not yet determined:

- The Test Tolerances are undefined

8.20.4.1 Test purpose

To verify the UE's ability to make a correct reporting of an event under fading propagation conditions within the E-UTRA TDD - UTRA TDD cell search requirements in CA mode.

8.20.4.2 Test applicability

This test applies to all types of E-UTRA TDD UE release 10 and forward that support CA and UTRA TDD. Applicability requires support for FGI bit 15.

8.20.4.3 Minimum conformance requirements

The measurement reporting delay shall be less than $T_{identify,\, UTRA\_TDD}$ in RRC_CONNECTED state.

When explicit neighbour list is provided and no DRX is used the UE shall be able to identify a new detectable cell belonging to the monitored set within

$$T_{identify,\ UTRA\_TDD} = Max\left\{5000, T_{basic\ identify\ UTRA\_TDD} \cdot \frac{480}{T_{inter1}} \cdot N_{Freq}\right\} ms$$

If the UE does not require transmit gap to perform inter-RAT UTRA TDD measurements, the UE shall be able to identify a new detectable inter-RAT UTRA TDD cell belonging to the monitored set within 5000 ms.

A cell shall be considered detectable when

- P-CCPCH Ec/Io $\geq$ -8 dB,
- DwPCH_Ec/Io $\geq$ -5 dB.

When L3 filtering is used an additional delay can be expected.

When measurement gaps are scheduled for UTRA TDD inter RAT measurements the UE physical layer shall be capable of reporting measurements to higher layers with measurement accuracy as specified in TS 36.133 [4] clause 9.3 with measurement period given by

$$T_{measurement\ \ UTRA\_TDD} = Max\left\{T_{Measurement\_Period\ \ UTRA\_TDD}, T_{basic\ measurement\ UTRA\_TDD} \cdot \frac{480}{T_{inter1}} \cdot N_{Freq}\right\} ms$$

If the UE does not need measurement gaps to perform UTRA TDD measurements, the measurement period for UTRA TDD measurements is 480 ms.

The UE shall be capable of performing UTRA TDD P-CCPCH RSCP measurements for $X_{basic\ measurementUTRA\_TDD}$ inter-frequency 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 $T_{Measurement\_UTRA\_TDD}$.

$X_{basic\ measurementUTRA\_TDD} = 6$

$T_{Measurement\_Period\ UTRA\_TDD}$ = 480 ms is the period used for calculating the measurement period $T_{measurement\_UTRA\_TDD}$ for UTRA TDD P-CCPCH RSCP measurements.

$T_{basic\_identify\_UTRA\_TDD}$ = 800 ms is the time period used in the inter RAT equation where the maximum allowed time for the UE to identify a new UTRA TDD cell is defined.

$T_{basic\_measurement\_UTRA\_TDD}$ = 50 ms is the time period used in the equation for defining the measurement period for inter RAT P-CCPCH RSCP measurements.

N_{freq} and T_{inter1} are defined in TS 36.133 [4] section 8.1.2.1.1

Reported measurements in event triggered measurement reports shall meet the requirements in TS 36.133 [4] section 9.

The UE shall not send any event triggered measurement reports, as long as the reporting criteria is 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 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. This measurement reporting delay excludes a delay which caused by no UL resources for UE to send the measurement report.

The event triggered measurement reporting delay, measured without L3 filtering shall be less than $T_{identify, UTRA\_TDD}$ defined in TS 36.133 [4] Section 8.1.2.4.3.1.1 When L3 filtering is used an additional delay can be expected.

The normative reference for this requirement is TS 36.133 [4] clause 8.1.2.4.3 and A.8.20.4.

8.20.4.4 Test description

8.20.4.4.1 Initial conditions

Test Environment: Normal, as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1 for different CA bandwidth classes.

Channel Bandwidth to be tested: 10 MHz as defined in TS 36.508 [7] clause 4.3.1 for different CA configurations as defined in TS36.521-1[10] clause 5.4.2A.

1. Connect the SS (node B emulator) and faders and AWGN noise sources to the UE antenna connectors as shown in TS 36.508 [7], Figure group A.44 as appropriate.
2. The general test parameter settings are set up according to Table 8.20.4.4.1-1.
3. Propagation conditions are set according to Annex B clauses B.0.
4. Message contents are defined in clause 8.20.4.4.3.
5. There is one E-UTRA TDD Cell 1 for PCC, one E-UTRA TDD Cell 3 for SCC and one UTRA TDD Cell 2 specified in the test. Cell 1 (E-UTRA TDD cell for PCC) is the cell used for connection setup with the power level set according to Annex C.0 and C.1 for this test. Cell 2 and Cell 3 shall be powered OFF.

Table 8.20.4.4.1-1: General test parameters for E-UTRA TDD to UTRA(1.28 Mcps TDD OPTION) cell search in fading propagation conditions

Parameter	Unit	Value	Comment
PDSCH parameters		DL Reference Measurement Channel R.0 TDD	As specified in section A.1.2
PCFICH/PDCCH/PHICH parameters		DL Reference Measurement Channel R.6 TDD	As specified in section A.2.2
E-UTRA RF Channel Number		1	One E-UTRA TDD carrier frequency is used.
E-UTRA RF Channel Number for SCell		2	One E-UTRA TDD carrier frequency is used.
Active cell		Cell 1	E-UTRA TDD cell
Neighbour cell		Cell 2	UTRA 1.28Mcps TDD Cell
Configured active SCell		Cell 3	E-UTRA TDD cell
Gap Pattern Id		0	As specified in 3GPP TS 36.133 section 8.1.2.1.
Uplink-downlink configuration of cell 1		1	As specified in table 4.2.2 in TS 36.211
Special subframe configuration of cell 1		6	As specified in table 4.2.1 in TS 36.211
CP length of cell 1		normal	
Hysteresis	dB	0	
TimeToTrigger	s	0	
Filter coefficient		0	L3 filtering is not used
DRX		OFF	
Time offset between cells		3 ms	Asynchronous cells
Ofn	dB	0	
Thresh	dBm	-87	
T1	s	5	
T2	s	10	

8.20.4.4.2 Test procedure

This test scenario comprised of 1 E-UTRA TDD PCell, 1 E-UTRA TDD SCell and 1 UTRA TDD cell to be searched. In the measurement control information it is indicated to the UE that event-triggered reporting with Event B1 is used. The test consists of two successive time periods, with time durations of T1 and T2 respectively. During time duration T1, the UE shall not have any timing information of Cell 2.

1. Ensure the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.
2. Configure SCC according to Annex C.0, C.1 for all downlink physical channels except PHICH.
3. The SS shall configure the SCell (Cell 3) on the SCC as per TS 36.508 [7] clause 5.2A.4 with the message content exceptions defined in clause 8.20.4.4.3.
4. The SS activates SCC by sending the activation MAC-CE (Refer TS 36.321 [13], clauses 5.13, 6.1.3.8). Wait for at least 2 seconds (Refer TS 36.133, clauses 8.3.3.2).
5. Set the parameters according to T1 in Table's 8.20.4.5-1 and 8.20.4.5-2. Propagation conditions are set according to Annex B clause B.1.1 and B.2.2. T1 starts.
6. SS shall transmit an RRCConnectionReconfiguration message with Event B1 configured.
7. The UE shall transmit RRCConnectionReconfigurationComplete message.
8. When T1 expires, the SS shall switch the power setting from T1 to T2 as specified in Table's 8.20.4.5-1 and 8.20.4.5-2.
9. The UE shall transmit a MeasurementReport message triggered by Event B1. If the overall delay measured from the beginning of time period T2 is less than 6402 ms then the number of successful tests is increased by one. If the UE fails to report the event within the overall delays measured requirement then the number of failure tests is increased by one.
10. After the SS receives the MeasurementReport message in step 6) or when T2 expires, the SS shall transmit RRCConnectionRelease message to release the RRC connection which includes the release of the established radio bearers as well as all radio resources.
11. SS shall change to set cell 2 cell parameter id = (current cell 2 cell parameter id +4) mod 16.
12. After the RRC connection release, the SS:
    - transmits in Cell 1 a Paging message (including PagingRecord with ue-Identity) for the UE and ensures the UE is in State 3A according to TS 36.508 [7] clause 4.5.3A (if the paging fails, switches off and on the UE and ensures the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3),
    or
    - switches off and on the UE and ensures the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.
13. Repeat step 2-12 until the confidence level according to Tables G.2.3-1 in Annex G clause G.2 is achieved.

8.20.4.4.3 Message contents

Message contents are according to TS 36.508 [7] clause 4.6 with the following exceptions:

Table 8.20.4.4.3-1: Common Exception messages for E-UTRAN TDD - UTRAN TDD event triggered reporting under fading propagation conditions

Default Message Contents	
Common contents of system information blocks exceptions	
Default RRC messages and information elements contents exceptions	Table H.3.1-1 Table H.3.1-7

Table 8.20.4.4.3-2: *MeasConfig-DEFAULT*: E-UTRAN FDD - UTRAN FDD event triggered reporting under fading propagation conditions

Derivation Path: TS 36.508 [7] clause 4.6.6, Table 4.6.6-1 MeasConfig-DEFAULT:			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasConfig-DEFAULT ::= SEQUENCE {			
measObjectToRemoveList	Not present		
measObjectToAddModList SEQUENCE (SIZE (1..maxObjectId)) OF SEQUENCE {	3 entries		
measObjectId[1]	IdMeasObject-f1	f1 is the frequency of the serving cell (E-UTRA Cell)	
measObject[1]	MeasObjectEUTRA-GENERIC(f1)	E-UTRA Cell	
measObjectId[2]	IdMeasObject-f2	f2 is the frequency of the configured SCell (E-UTRA Cell)	
measObject[2]	MeasObjectEUTRA-GENERIC(f2)	E-UTRA Cell	
measObjectId[3]	IdMeasObject-f9	f9 is the frequency of the neighbouring cell(UTRA Cell)	
measObject[3]	MeasObjectUTRA-GENERIC(f9)	UTRA Cell	
}			
reportConfigToRemoveList	Not present		
reportConfigToAddModList SEQUENCE (SIZE (1..maxReportConfigId))OF SEQUENCE {	1 entry		
reportConfigId	idReportConfig-B1		
reportConfig	ReportConfigInterRAT-B1-UTRA		
}			
measIdToRemoveList	Not present		
measIdToAddModList SEQUENCE (SIZE (1..maxMeasId)) of SEQUENCE {	1 entry		
measId	1		
measObjectId	IdMeasObject-f9		
reportConfigId	idReportConfig-B1		
}			
quantityConfig	QuantityConfig-DEFAULT		UTRAN
measGapConfig	MeasGapConfig-GP1		Gap Pattern Id = 0
s-Measure	Not present		
preRegistrationInfoHRPD	Not present		
speedStatePars	Not present		
}			

Table 8.20.4.4.3-3: *ReportConfigInterRAT-B1-UTRA*: Additional E-UTRAN TDD - UTRAN TDD event triggered reporting under fading propagation conditions

Derivation Path: 36.508 clause 4.6.6 Table 4.6.6-7B			
Information Element	**Value/remark**	**Comment**	**Condition**
ReportConfigInterRAT-B1-UTRA(UTRA-Thres) ::= SEQUENCE {			
triggerType CHOICE {			
event SEQUENCE {			
eventId CHOICE {			
eventB1 SEQUENCE {			
b1-Threshold CHOICE {			
b1-ThresholdUTRA CHOICE {			
utra-RSCP	28	UTRA-Thres is actual RSCP value in dBm UTRA-Thres + 115	UTRA-TDD
}			
}			
}			
}			
hysteresis	0 (0dB)	The actual value is IE value * 0.5 dB.	
timeToTrigger	ms0		
}			
}			
}			

Table 8.20.4.4.3-4: *MeasResults*: Additional E-UTRAN TDD - UTRAN TDD event triggered reporting under fading propagation conditions

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResults ::= SEQUENCE {			
measId	1	Identifies the measurement id for the reporting being performed	
measResultPCell SEQUENCE {			
rsrpResult		Set according to specific test	
rsrqResult		Set according to specific test	
}			
measResultNeighCells CHOICE {			
measResultListUTRA	MeasResultListUTRA		
}			
measResultForECID-r9	Not present		
locationInfo-r10	Not present		
measResultServFreqList-r10 SEQUENCE (SIZE (1..maxServCell-r10)) OF SEQUENCE {			
servFreqId-r10	1		
measResultSCell-r10 SEQUENCE {		Cell 3	
rsrpResultSCell-r10	(0..97)		
rsrqResultSCell-r10	(0..34)		
}			
}			
}			

Table 8.20.4.4.3-4: *MeasResultListUTRA*: Additional E-UTRAN TDD - UTRAN TDD event triggered reporting under fading propagation conditions

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResultListUTRA ::= SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {			
physCellId CHOICE {			
tdd	PhysCellIdUTRA-TDD	INTEGER (0..127)	
}			
measResult SEQUENCE {			
utra-RSCP		Set according to specific test INTEGER (-5..91)	
}			
}			

8.20.4.5 Test requirement

Tables 8.20.4.4.1-1, 8.20.4.5-1 and 8.20.4.5-2 define the primary level settings including test tolerances for E-UTRAN TDD - UTRAN TDD event triggered reporting under fading propagation conditions in synchronous cells test in CA mode.

Table 8.20.4.5-1: Cell specific test parameters for cell search E-UTRA TDD to UTRA TDD test case (cell 1, cell3)

Parameter	Unit	Cell 1		Cell 3	
		T1	T2	T1	T2
E-UTRA RF Channel Number		1		2	
$BW_{channel}$	MHz	10		10	
OCNG Pattern defined in D.2.1 (OP.1 TDD)		OP.1 TDD		OP.1 TDD	
PBCH_RA	dB	0	0	0	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[Note1]	dB				
$\hat{E}_s/I_{ot}$	dB	9 + TT	9 + TT	9 + TT	9 + TT
$\hat{E}_s/N_{oc}$	dB	9 + TT	9 + TT	9 + TT	9 + TT
N_{oc}	dBm/15kHz	-98			
RSRP	dBm/15kHz	-89 + TT	-89 + TT	-89 + TT	-89 + TT
SCH_RP	dBm/15kHz	-89 + TT	-89 + TT	-89 + TT	-89 + TT
Propagation Condition		ETU70			
Note 1: OCNG shall be used such that cell is fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols. Note 2: The resources for uplink transmission are assigned to the UE prior to the start of time period T2.					

Table 8.20.4.5-2: Cell specific test parameters for cell search E-UTRA TDD to UTRA TDD test case (cell 2)

Parameter	Unit	Cell 2 (UTRA)			
Timeslot Number		0		DwPTS	
		T1	T2	T1	T2
UTRA RF Channel Number NOTE1		Channel 2			
PCCPCH_Ec/Ior	dB	-3	-3		
DwPCH_Ec/Ior	dB			0	0
OCNS_Ec/Ior NOTE2	dB	-3	-3		
$\hat{I}_{or}/I_{oc}$	dB	-inf	5 + TT	-inf	5 + TT
I_{oc}	dBm/1.28 MHz	-80			
PCCPCH RSCP	dBm	-inf	-78 + TT	n.a.	n.a.
Propagation Condition		Case 3 NOTE3			
Note 1: In the case of multi-frequency cell, the UTRA RF Channel Number is the primary frequency's channel number. 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 3 propagation conditions are defined in Annex B of 3GPP TS 25.102					

The overall delays measured is defined as the time from the beginning of time period T2, to the moment the UE send one Event B1 triggered measurement report to Cell 2.

The overall delays measured in the test may be up to 2xTTI$_{DCCH}$ higher than the measurement reporting delays because of TTI insertion uncertainty of the measurement report in DCCH.

The overall delays measured test requirement is expressed as:

Overall delays measured = measurement reporting delay + TTI insertion uncertainty

Measurement reporting delay = $T_{identify,\ UTRA\_TDD}$

$$T_{identify,\ UTRA\_TDD} = Max\left\{5000, T_{basic identify UTRA\_TDD} \cdot \frac{480}{T_{inter1}} \cdot N_{Freq}\right\} ms$$

$T_{basic\_identify\_UTRA\_TDD}$ = 800 ms

T_{Inter1} = 60 ms

N_{Freq} = 1

TTI insertion uncertainty = 2 ms

The overall delays measured shall be less than a total of 6402 ms in this test case (note: this gives a total of 6400 ms for measurement reporting delay plus 2 ms for TTI insertion uncertainty).

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%.

9 Measurement Performance Requirements

When the UE is in RRC_CONNECTED state on a cell, physical layer measurements as defined in TS 36.214 [12] clause 5 are initiated and reported to higher layers. To initiate a specific measurement, the System Simulator sends a 'RRC Connection Reconfiguration message' to the UE including a measurement ID and type, a command (setup, modify, release), the measurement objects, the measurement quantity, the reporting quantities and the reporting criteria (periodical/event-triggered), the physical layer measurement process takes place. In this process when the reporting criteria are fulfilled the UE sends a 'Measurement Report message' to the System Simulator including the measurement ID and the results. The reporting criteria that trigger the UE to send a 'Measurement Report message' to the System

Simulator is periodical as defined in TS 36.331 [5] clause 5.5.4. The physical layer measurements succeed only if the performance results in terms of accuracy are within the specified limits.

Since the UE reference sensitivity requirements are different depending on supported band, this is noted in each case with definition of the range Io for each frequency band.

The accuracy requirements in this clause are applicable for AWGN radio propagation conditions and assume independent interference (noise) at each receiver antenna port.

The reported measurement results after layer 1 filtering shall be an estimate of the average value of the measured quantity over the measurement period.

The accuracy requirements are valid for the reported measurement results after layer 1 filtering.

Unless explicitly stated:

- In state RRC_CONNECTED
- Reported measurements shall be within defined range in 90 % of the cases.
- Measurement channel is as defined in Annex A. This measurement channel is used both in active cell and cells to be measured.
- The reference channels assume transmission of PDSCH with a maximum number of 5 HARQ transmissions unless otherwise specified.
- SS transmits PDSCH via PDCCH DCI format 1A for C_RNTI to transmit the DL RMC according to Annex A1. The SS sends downlink MAC padding bits on the DL RMC.
- Uplink is configured according to Annex A.3.
- Propagation condition is AWGN as defined in Annex B.
- Physical channels used as defined in Annex C.
- Cell 1 is the active cell.
- Single task reporting.
- Power control is active.

NOTE: For Band 26, the tests shall be performed with the assigned E-UTRA channel bandwidth within 865-894 MHz.

9.1 RSRP

9.1.1 FDD Intra frequency RSRP Accuracy

9.1.1.1 FDD Intra Frequency Absolute RSRP Accuracy

9.1.1.1.1 Test purpose

To verify that the FDD intra-frequency absolute RSRP measurement accuracy is within the specified limit for all bands.

9.1.1.1.2 Test applicability

This test applies to all types of E-UTRA FDD UE release 8 and forward. Applicability requires support for FGI bit 16.

9.1.1.1.3 Minimum conformance requirements

The absolute accuracy of RSRP is defined as the RSRP measured from a cell on the same frequency as that of the serving cell.

The accuracy requirements in table 9.1.1.1.3-1 are valid under the following conditions:

Cell specific reference signals are transmitted either from one, two or four antenna ports.

Conditions defined in 36.101 Section 7.3 for reference sensitivity are fulfilled.

$RSRP|_{dBm}$ according to Annex I.3.1 for a corresponding Band.

Table 9.1.1.1.3-1: RSRP FDD Intra frequency absolute accuracy

Accuracy		Conditions				
Normal condition	Extreme condition	Ês/Iot	Io Note 1 range			
			E-UTRA operating bands	Minimum Io		Maximum Io
dB	dB	dB		dBm/15kHz Note 5	$dBm/BW_{Channel}$	$dBm/BW_{Channel}$
±6	±9	≥-6 dB	1, 4, 6, 10, 11, 18, 19, 21, 23, 24, 33, 34, 35, 36, 37, 38, 39, 40	-121	N/A	-70
			9, 42, 43	-120	N/A	-70
			28	-119.5	N/A	-70
			2, 5, 7, 27, 41, 44	-119	N/A	-70
			26	-118.5 Note 2	N/A	-70
			3, 8, 12, 13, 14, 17, 20, 22, 29 Note 4	-118	N/A	-70
			25	-117.5	N/A	-70
±8	±11	≥-6 dB	Note 3	N/A	-70	-50

NOTE 1: Io is assumed to have constant EPRE across the bandwidth.
NOTE 2: The condition has the minimum Io of -119 dBm/15kHz when the carrier frequency of the assigned E-UTRA channel bandwidth is within 865-894 MHz.
NOTE 3: The same bands apply for this requirement as for the corresponding highest accuracy requirement.
NOTE 4: Band 29 is used only for E-UTRA carrier aggregation with other E-UTRA bands.
NOTE 5: The condition level is increased by Δ>0, when applicable, as described in TS 36.133 [4] Sections B.4.2 and B.4.3.

The reporting range of RSRP is defined from -140 dBm to -44 dBm with 1 dB resolution.

The mapping of measured quantity is defined in Table 9.1.1.1.3-2. The range in the signalling may be larger than the guaranteed accuracy range.

Table 9.1.1.1.3-2: RSRP measurement report mapping

Reported value	Measured quantity value	Unit
RSRP_00	RSRP < -140	dBm
RSRP_01	-140 ≤ RSRP < -139	dBm
RSRP_02	-139 ≤ RSRP < -138	dBm
…	…	…
RSRP_95	-46 ≤ RSRP < -45	dBm
RSRP_96	-45 ≤ RSRP < -44	dBm
RSRP_97	-44 ≤ RSRP	dBm

The normative reference for this requirement is TS 36.133 [4] clause 9.1.2.1, clause 9.1.4 and A.9.1.1.

9.1.1.1.4 Test description

9.1.1.1.4.1 Initial conditions

Test Environment: Normal, TL/VL, TL/VH, TH/VL, TH/VH; as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1.

Channel Bandwidth to be tested: 10MHz as defined in TS 36.508 [7] clause 4.3.1.

1. Connect the SS (node B emulator) and AWGN noise sources to the UE antenna connectors as shown in TS 36.508 [7] Annex A figure A.20.

2. Propagation conditions are set according to Annex B clause B.0.

3. Message contents are defined in clause 9.1.1.1.4.3.

4. All cells are in the same carrier frequency. Cell 1 is the serving cell and Cell 2 is the target cell. Cell 1 is the cell used for connection setup with the power levels set according to Annex C.0 and C.1 for this test.

9.1.1.1.4.2 Test procedure

1. Ensure that the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.

2. Set the parameters according to Table 9.1.1.1.5-2 as appropriate. Propagation conditions are set according to Annex B clause B.1.1.

3. SS shall transmit an RRCConnectionReconfiguration message on Cell 1.

4. The UE shall transmit RRCConnectionReconfigurationComplete message.

5. UE shall transmit periodically MeasurementReport messages.

6. SS shall check RSRP reported value in Measurement Report messages. The RSRP value of Cell 2 reported by the UE is compared to the actual RSRP value according to Table 9.1.1.1.5-3.

7. SS shall check the MeasurementReport messages transmitted by the UE until the confidence level according to Tables G.2.3-1 in Annex G.2 is achieved.

8. Repeat step 1-7 for each sub-test in Table 9.1.1.1.5-2 as appropriate.

9.1.1.1.4.3 Message contents

Message contents are according to TS 36.508 [7] clause 4.6 with the following exceptions:

Table 9.1.1.1.4.3-1: Common Exception messages for RSRP FDD Intra frequency absolute accuracy test requirement

Default Message Contents	
Common contents of system information blocks exceptions	
Default RRC messages and information elements contents exceptions	Table H.3.1-1 Table H.3.5-1 Table H.3.5-3

Table 9.1.1.1.4.3-2: *MeasResults*: Additional RSRP FDD Intra frequency absolute accuracy test requirement

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResults ::= SEQUENCE {			
measId	1	Identifies the measurement id for the reporting being performed	
measResultServCell SEQUENCE {			
rsrpResult		Set according to specific test	
rsrqResult		Set according to specific test	
}			
measResultNeighCells CHOICE {			
measResultListEUTRA	MeasResultListEUTRA		
}			
}			

Table 9.1.1.1.4.3-3: *MeasResultListEUTRA*: Additional RSRP FDD Intra frequency absolute accuracy test requirement

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResultListEUTRA::= SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {			
physCellId	PhysicalCellIdentity		
measResult SEQUENCE {			
rsrpResult		Set according to specific test	
rsrqResult	Not present		
}			
}			

9.1.1.1.5 Test requirement

Table 9.1.1.1.5-2 defines the primary level settings including test tolerances for all tests.

Each RSRP FDD intra-frequency relative accuracy test shall meet the reported values test requirements in table 9.1.1.1.5-3.

Table 9.1.1.1.5-1: Void

Table 9.1.1.1.5-2: RSRP FDD Intra frequency absolute accuracy test parameters

Parameter		Unit	Test 1		Test 2		Test 3	
			Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
E-UTRA RF Channel Number			1		1		1	
$BW_{channel}$		MHz	10		10		10	
Measurement bandwidth		n_{PRB}	22—27		22—27		22—27	
PDSCH Reference measurement channel defined in A.1.1			R.0 FDD	-	R.0 FDD	-	R.0 FDD	-
PDSCH allocation		n_{PRB}	13—36	-	13—36	-	13—36	-
PDCCH/PCFICH/PHICH Reference measurement channel defined in A.2.1			R.6 FDD		R.6 FDD		R.6 FDD	
OCNG Patterns defined in D.1.1 (OP.1 FDD) and D.1.2 (OP.2 FDD)			OP.1 FDD	OP.2 FDD	OP.1 FDD	OP.2 FDD	OP.1 FDD	OP.2 FDD
PBCH_RA		dB	0	0	0	0	0	0
PBCH_RB								
PSS_RA								
SSS_RA								
PCFICH_RB								
PHICH_RA								
PHICH_RB								
PDCCH_RA								
PDCCH_RB								
PDSCH_RA								
PDSCH_RB								
OCNG_RA Note1								
OCNG_RB Note1								
N_{oc} Note2	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23, 24	dBm/15 kHz	-107.0		-88.0		-116.0	
	Band 9						-115.0	
	Band 28						-114.5	
	Bands 2, 5, 7, 26 Note 5, 27						-114.0	
	Bands 3, 8, 12, 13, 14, 17, 20, 22, 29 Note 6						-113.0	
	Band 25						-112.5	
$\hat{E}_s/I_{ot}$		dB	1.88	-4.97	1.88	-4.97	0.09	-4.96
RSRP Note3	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23, 24	dBm/15 kHz	-101.0	-105.0	-82.0	-86.0	-113.0	-116.2
	Band 9						-112.0	-115.2
	Band 28						-111.5	-114.7
	Bands 2, 5, 7, 26 Note 5, 27						-111.0	-114.2
	Bands 3, 8, 12, 13, 14, 17, 20, 22, 29 Note 6						-110.0	-113.2
	Band 25						-109.5	-112.7
Io Note3	Bands 1, 4, 6,10, 11, 18, 19, 21, 23, 24	dBm/9 MHz	-71.05		-52.05		-82.25	
	Band 9						-81.25	
	Band 28						-80.75	
	Bands 2, 5, 7, 26 Note 5, 27						-80.25	
	Bands 3, 8, 12, 13, 14, 17, 20, 22, 29 Note 6						-79.25	
	Band 25						-78.75	

$\hat{E}_s/N_{oc}$	dB	6.0	2.0	6.0	2.0	3.0	-0.2
Propagation condition	-	AWGN		AWGN		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. Note 4: RSRP minimum requirements are specified assuming independent interference and noise at each receiver antenna port. Note 5: For Band 26, the tests shall be performed with the carrier frequency of the assigned E-UTRA channel bandwidth within 865-894 MHz. Note 6: Band 29 is used only for E-UTRA carrier aggregation with other E-UTRA bands.							

Table 9.1.1.1.5-3: RSRP FDD Intra frequency absolute accuracy requirements for the reported values

Normal Conditions	Test 1 All bands	Test 2 All bands	Test 3	
Lowest reported value (Cell 2)	RSRP_28	RSRP_45	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24	RSRP_17
			Band 9	RSRP_18
			Band 28	RSRP_18
			Bands 2, 5, 7, 26 and 27	RSRP_19
			Bands 3, 8, 12, 13, 14, 17, 20 and 22	RSRP_20
			Band 25	RSRP_20
Highest reported value (Cell 2)	RSRP_43	RSRP_64	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24	RSRP_32
			Band 9	RSRP_33
			Band 28	RSRP_33
			Bands 2, 5, 7, 26 and 27	RSRP_34
			Bands 3, 8, 12, 13, 14, 17, 20 and 22	RSRP_35
			Band 25	RSRP_35
Extreme Conditions	**Test 1 All bands**	**Test 2 All bands**	**Test 3**	
Lowest reported value (Cell 2)	RSRP_25	RSRP_42	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24	RSRP_14
			Band 9	RSRP_15
			Band 28	RSRP_15
			Bands 2, 5, 7, 26 and 27	RSRP_16
			Bands 3, 8, 12, 13, 14, 17, 20 and 22	RSRP_17
			Band 25	RSRP_17
Highest reported value (Cell 2)	RSRP_46	RSRP_67	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24	RSRP_35
			Band 9	RSRP_36
			Band 28	RSRP_36
			Bands 2, 5, 7, 26 and 27	RSRP_37
			Bands 3, 8, 12, 13, 14, 17, 20 and 22	RSRP_38
			Band 25	RSRP_38

For the test to pass, the ratio of successful reported values in each test shall be more than 90% with a confidence level of 95%.

9.1.1.2 FDD Intra Frequency Relative Accuracy of RSRP

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

9.1.1.2.1 Test purpose

To verify that the FDD intra-frequency relative accuracy measurement of RSRP is within the specified limit for all bands.

9.1.1.2.2 Test applicability

This test applies to all types of E-UTRA FDD UE release 8 and forward. Applicability requires support for FGI bit 16.

9.1.1.2.3 Minimum conformance requirements

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

The accuracy requirements in table 9.1.1.2.3-1 are valid under the following conditions:

Cell specific reference signals are transmitted either from one, two or four antenna ports.

Conditions defined in 36.101 Section 7.3 for reference sensitivity are fulfilled.

$RSRP1,2|_{dBm}$ according to Annex I.3.8 for a corresponding Band.

Table 9.1.1.2.3-1: RSRP FDD Intra frequency relative accuracy

Accuracy		Conditions			
Normal condition	Extreme condition	Ês/Iot Note 2	Io Note 1 range		
			E-UTRA operating bands	Minimum Io	Maximum Io
dB	dB	dB		dBm/15kHz Note 6	$dBm/BW_{Channel}$
±2	±3	≥-3 dB	1, 4, 6, 10, 11, 18, 19, 21, 23, 24, 33, 34, 35, 36, 37, 38, 39, 40	-121	-50
			9, 42, 43	-120	-50
			28	-119.5	-50
			2, 5, 7, 27, 41, [44]	-119	-50
			26	-118.5 Note 3	-50
			3, 8, 12, 13, 14, 17, 20, 22	-118	-50
			29 Note 5	-118	-50
			25	-117.5	-50
±3	±3	≥-6 dB	Note 4	Note 4	Note 4

NOTE 1: Io is assumed to have constant EPRE across the bandwidth.
NOTE 2: The parameter Ês/Iot is the minimum Ês/Iot of the pair of cells to which the requirement applies.
NOTE 3: The condition has the minimum Io of -119 dBm/15kHz when the carrier frequency of the assigned E-UTRA channel bandwidth is within 865-894 MHz.
NOTE 4: The same bands and the same Io conditions for each band apply for this requirement as for the corresponding highest accuracy requirement.
NOTE 5: This band is used only for E-UTRA carrier aggregation with other E-UTRA bands.

The reporting range of RSRP is defined from -140 dBm to -44 dBm with 1 dB resolution.

The mapping of measured quantity is defined in Table 9.1.1.1.3-2. The range in the signalling may be larger than the guaranteed accuracy range.

The normative reference for this requirement is TS 36.133 [4] clause 9.1.2.2, clause 9.1.4 and A.9.1.1.

9.1.1.2.4 Test description

9.1.1.2.4.1 Initial conditions

Test Environment: Normal, TL/VL, TL/VH, TH/VL, TH/VH; as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1.

Channel Bandwidth to be tested: 10MHz as defined in TS 36.508 [7] clause 4.3.1.

1. Connect the SS and AWGN noise source to the UE antenna connectors as shown in TS 36.508 [7] Annex A figure A.20 .

2. Propagation conditions are set according to Annex B clause B.0.

3. Message contents are defined in clause 9.1.1.2.4.3.

4. All cells are in the same carrier frequency. Cell 1 is the serving cell and Cell 2 is the target cell. Cell 1 is the cell used for connection setup with the power levels set according to Annex C.0 and C.1 for this test.

9.1.1.2.4.2 Test procedure

1. Ensure the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.

2. Set the parameters according to Table 9.1.1.2.5-2 as appropriate. Propagation conditions are set according to Annex B clause B.1.1.

3. SS shall transmit an RRCConnectionReconfiguration message on cell.

4. The UE shall transmit RRCConnectionReconfigurationComplete message.

5. UE shall transmit periodically MeasurementReport messages.

6. SS shall check the RSRP value of Cell 1 and Cell 2 in MeasurementReport messages. The reported RSRP value for Cell 2 is compared to the reported RSRP value for Cell 1 for each MeasurementReport message according to Table 9.1.1.2.5-3.

7. SS shall check the MeasurementReport messages transmitted by the UE until the confidence level according to Tables G.2.3-1 in Annex G.2 is achieved.

8. Repeat step 1-7 for each sub-test in Table 9.1.1.2.5-2 as appropriate.

9.1.1.2.4.3 Message contents

Message contents are according to TS 36.508 [7] clause 4.6 with the following exceptions:

Table 9.1.1.2.4.3-1: Common Exception messages for RSRP FDD Intra frequency relative accuracy test requirement

Default Message Contents	
Common contents of system information blocks exceptions	
Default RRC messages and information elements contents exceptions	Table H.3.1-1 Table H.3.5-1 Table H.3.5-3

Table 9.1.1.2.4.3-2: *MeasResults*: Additional RSRP FDD intra frequency relative accuracy test requirement

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResults ::= SEQUENCE {			
measId	1	Identifies the measurement id for the reporting being performed	
measResultServCell SEQUENCE {			
rsrpResult		Set according to specific test	
rsrqResult		Set according to specific test	
}			
measResultNeighCells CHOICE {			
measResultListEUTRA	MeasResultListEUTRA		
}			
}			

Table 9.1.1.2.4.3-3: *MeasResultListEUTRA*: Additional RSRP FDD intra frequency relative accuracy test requirement

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResultListEUTRA::= SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {			
physCellId	PhysicalCellIdentity		
measResult SEQUENCE {			
rsrpResult		Set according to specific test	
rsrqResult	Not present		
}			
}			

9.1.1.2.5 Test requirement

Table 9.1.1.2.5-2 defines the primary level settings including test tolerances for all tests.

Each RSRP FDD intra-frequency relative accuracy test shall meet the RSRP accuracy requirements in table 9.1.1.2.5-3.

Table 9.1.1.2.5-1: Void

Table 9.1.1.2.5-2: RSRP FDD Intra frequency relative accuracy test parameters

Parameter	Unit	Test 1		Test 2		Test 3	
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2

E-UTRA RF Channel Number			1		1		1	
$BW_{channel}$		MHz	10		10		10	
Measurement bandwidth		n_{PRB}	22—27		22—27		22—27	
PDSCH Reference measurement channel defined in A.1.1			R.0 FDD	-	R.0 FDD	-	R.0 FDD	-
PDSCH allocation		n_{PRB}	13—36	-	13—36	-	13—36	-
PDCCH/PCFICH/PHICH Reference measurement channel defined in A.1.2.1			R.6 FDD		R.6 FDD		R.6 FDD	
OCNG Patterns defined in D.1.1 (OP.1 FDD) and D.1.2 (OP.2 FDD)			OP.1 FDD	OP.2 FDD	OP.1 FDD	OP.2 FDD	OP.1 FDD	OP.2 FDD
PBCH_RA		dB	0	0	0	0	0	0
PBCH_RB								
PSS_RA								
SSS_RA								
PCFICH_RB								
PHICH_RA								
PHICH_RB								
PDCCH_RA								
PDCCH_RB								
PDSCH_RA								
PDSCH_RB								
OCNG_RA Note1								
OCNG_RB Note1								
N_{oc} Note2	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23, 24	dBm/15 kHz	-106.00	-106.00	-88.00	-88.00	-116.00	
	Bands 2, 5, 7, 26 Note 5, 27						-114.00	
	Band 25						-112.50	
	Band 28						-114.5	
	Bands 3, 8, 12, 13, 14, 17, 20, 22						-113.00	
	Band 9						-115.00	
$\hat{E}_s/I_{ot}$		dB	1.88	-4.97	1.88	-4.97	-0.01	-4.76
RSRP Note3	Bands 1, 4, 6,10, 11, 18, 19, 21, 23 and 24	dBm/15 kHz	-100.00	-104.00	-82.00	-86.00	-113.00	-116.00
	Bands 2, 5, 7, 26 Note 5, 27						-111.00	-114.00
	Band 25						-109.50	-112.50
	Band 28						-111.5	-114.5
	Bands 3, 8, 12, 13, 14, 17, 20, 22						-110.00	-113.00
	Band 9						-112.00	-115.00
Io Note3	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23, 24	dBm/9 MHz	-70.05	-70.05	-52.05	-52.05	-82.20	
	Bands 2, 5, 7, 26 Note 5, 27						-80.20	
	Band 25						-78.70	
	Band 28						-80.70	
	Bands 3, 8, 12, 13, 14, 17, 20, 22						-79.20	
	Band 9						-81.20	
$\hat{E}_s/N_{oc}$		dB	6.00	2.00	6.00	2.00	3.00	0.00
Propagation condition		-	AWGN		AWGN		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.
Note 4:	RSRP minimum requirements are specified assuming independent interference and noise at each receiver antenna port.
Note 5:	For Band 26, the tests shall be performed with the carrier frequency of the assigned E-UTRA channel bandwidth within 865-894 MHz

Table 9.1.1.2.5-3: RSRP FDD Intra frequency relative accuracy requirements for the reported values

	Test 1	**Test 2**	**Test 3**
	All bands	All bands	All bands
Normal Conditions			
Lowest reported value (Cell 2)	RSRP_x - 9	RSRP_x - 9	RSRP_x - 8
Highest reported value (Cell 2)	RSRP_x + 1	RSRP_x + 1	RSRP_x + 2
Extreme Conditions			
Lowest reported value (Cell 2)	RSRP_x - 9	RSRP_x - 9	RSRP_x - 8
Highest reported value (Cell 2)	RSRP_x + 1	RSRP_x + 1	RSRP_x + 2
RSRP_x is the reported value of Cell 1			

For the test to pass, the ratio of successful reported values in each test shall be more than 90% with a confidence level of 95%.

9.1.2 TDD Intra frequency RSRP Accuracy

9.1.2.1 TDD Intra Frequency Absolute RSRP Accuracy

9.1.2.1.1 Test purpose

To verify that the TDD intra-frequency absolute RSRP measurement accuracy is within the specified limit for all bands.

9.1.2.1.2 Test applicability

This test applies to all types of E-UTRA TDD UE release 8 and forward. Applicability requires support for FGI bit 16.

9.1.2.1.3 Minimum conformance requirements

The absolute accuracy of RSRP is defined as the RSRP measured from a cell on the same frequency as that of the serving cell.

The accuracy requirements in Table 9.1.2.1-1 are valid under the following conditions:

Cell specific reference signals are transmitted either from one, two or four antenna ports.

Conditions defined in 36.101 Section 7.3 for reference sensitivity are fulfilled.

$RSRP|_{dBm}$ according to Annex I.3.1 for a corresponding Band.

Table 9.1.2.1.3-1: RSRP TDD Intra frequency absolute accuracy

Accuracy		Conditions				
Normal condition	Extreme condition	Ês/Iot	Io Note 1 range			
			E-UTRA operating bands	Minimum Io		Maximum Io
dB	dB	dB		dBm/15kHz Note 5	$dBm/BW_{Channel}$	$dBm/BW_{Channel}$
±6	±9	≥-6 dB	1, 4, 6, 10, 11, 18, 19, 21, 23, 24, 33, 34, 35, 36, 37, 38, 39, 40	-121	N/A	-70
			9, 42, 43	-120	N/A	-70
			28	-119.5	N/A	-70
			2, 5, 7, 27, 41, 44	-119	N/A	-70
			26	-118.5 Note 2	N/A	-70
			3, 8, 12, 13, 14, 17, 20, 22, 29 Note 4	-118	N/A	-70
			25	-117.5	N/A	-70
±8	±11	≥-6 dB	Note 3	N/A	-70	-50

NOTE 1: Io is assumed to have constant EPRE across the bandwidth.
NOTE 2: The condition has the minimum Io of -119 dBm/15kHz when the carrier frequency of the assigned E-UTRA channel bandwidth is within 865-894 MHz.
NOTE 3: The same bands apply for this requirement as for the corresponding highest accuracy requirement.
NOTE 4: Band 29 is used only for E-UTRA carrier aggregation with other E-UTRA bands.
NOTE 5: The condition level is increased by Δ>0, when applicable, as described in TS 36.133 [4] Sections B.4.2 and B.4.3.

The reporting range of RSRP is defined from -140 dBm to -44 dBm with 1 dB resolution.

The mapping of measured quantity is defined in Table 9.1.2.1.3-2. The range in the signalling may be larger than the guaranteed accuracy range.

Table 9.1.2.1.3-2: RSRP measurement report mapping

Reported value	Measured quantity value	Unit
RSRP_00	RSRP < -140	dBm
RSRP_01	-140 ≤ RSRP < -139	dBm
RSRP_02	-139 ≤ RSRP < -138	dBm
…	…	…
RSRP_95	-46 ≤ RSRP < -45	dBm
RSRP_96	-45 ≤ RSRP < -44	dBm
RSRP_97	-44 ≤ RSRP	dBm

The normative reference for this requirement is TS 36.133 [4] clause 9.1.2.1, clause 9.1.4 and A.9.1.2.

9.1.2.1.4 Test description

9.1.2.1.4.1 Initial conditions

Test Environment: Normal, TL/VL, TL/VH, TH/VL, TH/VH; as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1.

Channel Bandwidth to be tested: 10MHz as defined in TS 36.508 [7] clause 4.3.1.

1. Connect the SS (node B emulator) and AWGN noise sources to the UE antenna connectors as shown in TS 36.508 [7] Annex A figure A.20.

2. Propagation conditions are set according to Annex B clause B.0.

3. Message contents are defined in clause 9.1.2.1.4.3.

4. All cells are in the same carrier frequency. Cell 1 is the serving cell and Cell 2 is the target cell. Cell 1 is the cell used for connection setup with the power levels set according to Annex C.0 and C.1 for this test.

9.1.2.1.4.2 Test procedure

1. Ensure that the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.
2. Set the parameters according to Table 9.1.2.1.5-2 as appropriate. Propagation conditions are set according to Annex B clause B.1.1.
3. SS shall transmit an RRCConnectionReconfiguration message on cell 1.
4. The UE shall transmit RRCConnectionReconfigurationComplete message.
5. UE shall transmit periodically MeasurementReport messages.
6. SS shall check RSRP reported value in MeasurementReport messages. The RSRP value of Cell 2 reported by the UE is compared to actual RSRP value according to Table 9.1.2.1.5-3.
7. SS shall check the MeasurementReport message transmitted by the UE until the confidence level according to Tables G.2.3-1 in Annex G.2 is achieved.
8. Repeat step 1-7 for each sub-test in Table 9.1.2.1.5-2 as appropriate.

9.1.2.1.4.3 Message contents

Message contents are according to TS 36.508 [7] values 4.6 with the following exceptions:

Table 9.1.2.1.4.3-1: Common Exception message for RSRP TDD intra frequency absolute accuracy test requirement

Default Message Contents	
Common contents of system information blocks exceptions	
Default RRC messages and information elements contents exceptions	Table H.3.1-1 Table H.3.5-1 Table H.3.5-3

Table 9.1.2.1.4.3-2: *MeasResults*: Additional RSRP TDD intra frequency absolute accuracy test requirement

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResults ::= SEQUENCE {			
measId	1		
measResultServCell SEQUENCE {			
rsrpResult	INTEGER(0..97)		
rsrqResult	INTEGER(0..34)		
}			
measResultNeighCells CHOICE {			
measResultListEUTRA	MeasResultListEUTRA		
}			
}			

Table 9.1.2.1.4.3-3: *MeasResultListEUTRA*: Additional RSRP TDD intra frequency absolute accuracy test requirement

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResultsLIstEUTRA ::= SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {			
physCellId	PhysCellId of Cell 2	INTEGER (0..503)	
measResult SEQUENCE {			
rsrpResult			
rsrqResult	Not present		
}			
}			

9.1.2.1.5 Test requirement

Table 9.1.2.1.5-2 defines the primary level settings including test tolerances for all tests.

Each RSRP TDD intra-frequency absolute accuracy test shall meet the reported values test requirements in table 9.1.2.1.5-3.

Table 9.1.2.1.5-1: Void

Table 9.1.2.1.5-2: RSRP TDD Intra frequency absolute accuracy test parameters

Parameter		Unit	Test 1		Test 2		Test 3	
			Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
E-UTRA RF Channel Number			1		1		1	
$BW_{channel}$		MHz	10		10		10	
Special subframe configuration[Note1]			6		6		6	
Uplink/downlink configuration[Note1]			1		1		1	
Measurement bandwidth		n_{PRB}	22—27		22—27		22—27	
PDSCH Reference measurement channel defined in A.1.2			R.0 TDD	-	R.0 TDD	-	R.0 TDD	-
PDSCH allocation		n_{PRB}	13—36	-	13—36	-	13—36	-
PDCCH/PCFICH/PHICH Reference measurement channel defined in A.2.2			R.6 TDD		R.6 TDD		R.6 TDD	
OCNG Patterns defined in D.2.1 (OP.1 TDD) and D.2.2 (OP.2 TDD)			OP.1 TDD	OP.2 TDD	OP.1 TDD	OP.2 TDD	OP.1 TDD	OP.2 TDD
PBCH_RA PBCH_RB PSS_RA SSS_RA PCFICH_RB PHICH_RA PHICH_RB PDCCH_RA PDCCH_RB PDSCH_RA PDSCH_RB OCNG_RA[Note2] OCNG_RB[Note2]		dB	0	0	0	0	0	0
N_{oc} [Note3]	Bands 33, 34, 35, 36, 37, 38, 39, 40	dBm/15 kHz	-107.0		-88.0		-116.0	
	Band 42, 43						-115.0	
	Band 41, [44]						-114.0	
$\hat{E}_s/I_{ot}$		dB	1.88	-4.97	1.88	-4.97	0.09	-4.96
RSRP[Note4]	Bands 33, 34, 35, 36, 37, 38, 39, 40	dBm/15 kHz	-101.0	-105.0	-82.0	-86.0	-113	-116.2
	Band 42, 43						-112	-115.2
	Band 41, [44]						-111	-114.2
Io[Note4]	Bands 33, 34, 35, 36, 37, 38, 39, 40	dBm/9 MHz	-71.05		-52.05		-82.25	
	Band 42, 43						-81.25	
	Band 41, [44]						-80.25	
$\hat{E}_s/N_{oc}$		dB	6.0	2.0	6.0	2.0	3.0	-0.20
Propagation condition		-	AWGN		AWGN		AWGN	

Note 1: For special subframe and uplink-downlink configurations see Tables 4.2-1 and 4.2-2 in 3GPP TS 36.211.
Note 2: 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 3: 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 4: RSRP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves.
Note 5: RSRP minimum requirements are specified assuming independent interference and noise at each receiver antenna port.

Table 9.1.2.1.5-3: RSRP TDD Intra frequency absolute accuracy requirements for the reported values

Normal Conditions	Test 1 All bands	Test 2 All bands	Test 3	
Lowest reported value (Cell 2)	RSRP_28	RSRP_45	Bands 33, 34, 35, 36, 37, 38, 39, 40	RSRP_17
			Bands 42, 43	RSRP_18
			Bands 41, 44	RSRP_19
Highest reported value (Cell 2)	RSRP_43	RSRP_64	Bands 33, 34, 35, 36, 37, 38, 39, 40	RSRP_32
			Bands 42, 43	RSRP_33
			Bands 41, 44	RSRP_34
Extreme Conditions	**Test 1 All bands**	**Test 2 All bands**	**Test 3**	
Lowest reported value (Cell 2)	RSRP_25	RSRP_42	Bands 33, 34, 35, 36, 37, 38, 39, 40	RSRP_14
			Bands 42, 43	RSRP_15
			Bands 41, 44	RSRP_16
Highest reported value (Cell 2)	RSRP_46	RSRP_67	Bands 33, 34, 35, 36, 37, 38, 39, 40	RSRP_35
			Bands 42, 43	RSRP_36
			Bands 41, 44	RSRP_37

For the test to pass, the ratio of successful reported values in each test shall be more than 90% with a confidence level of 95%.

9.1.2.2 TDD Intra Frequency Relative Accuracy of RSRP

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

9.1.2.2.1 Test purpose

To verify that the TDD intra-frequency relative accuracy measurement of RSRP is within the specified limit for all bands.

9.1.2.2.2 Test applicability

This test applies to all types of E-UTRA TDD UE release 8 and forward. Applicability requires support for FGI bit 16.

9.1.2.2.3 Minimum conformance requirements

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

The accuracy requirements in Table 9.1.2.2.3-1 are valid under the following conditions:

Cell specific reference signals are transmitted either from one, two or four antenna ports.

Conditions defined in 36.101 Section 7.3 for reference sensitivity are fulfilled.

RSRP1,2$|_{dBm}$ according to Annex I.3.8 for a corresponding Band.

Table 9.1.2.2.3-1: RSRP TDD Intra frequency relative accuracy

Accuracy		Conditions			
Normal condition	Extreme condition	Ês/Iot Note 2	Io Note 1 range		
			E-UTRA operating bands	Minimum Io	Maximum Io
dB	dB	dB		dBm/15kHz	dBm/BW Channel
±2	±3	≥-3 dB	1, 4, 6, 10, 11, 18, 19, 21, 23, 24, 33, 34, 35, 36, 37, 38, 39, 40	-121	-50
			9, 42, 43	-120	-50
			28	-119.5	-50
			2, 5, 7, 27, 41, [44]	-119	-50
			26	-118.5 Note 3	-50
			3, 8, 12, 13, 14, 17, 20, 22	-118	-50
			29 Note 5	-118	-50
			25	-117.5	-50
±3	±3	≥-6 dB	Note 4	Note 4	Note 4

NOTE 1: Io is assumed to have constant EPRE across the bandwidth.
NOTE 2: The parameter Ês/Iot is the minimum Ês/Iot of the pair of cells to which the requirement applies.
NOTE 3: The condition has the minimum Io of -119 dBm/15kHz when the carrier frequency of the assigned E-UTRA channel bandwidth is within 865-894 MHz.
NOTE 4: The same bands and the same Io conditions for each band apply for this requirement as for the corresponding highest accuracy requirement.
NOTE 5: This band is used only for E-UTRA carrier aggregation with other E-UTRA bands.

The reporting range of RSRP is defined from -140 dBm to -44 dBm with 1 dB resolution.

The mapping of measured quantity is defined in Table 9.1.2.1.3-2. The range in the signalling may be larger than the guaranteed accuracy range.

The normative reference for this requirement is TS 36.133 [4] clause 9.1.2.2, clause 9.1.4 and A.9.1.2.

9.1.2.2.4 Test description

9.1.2.2.4.1 Initial conditions

Test Environment: Normal, TL/VL, TL/VH, TH/VL, TH/VH; as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1.

Channel Bandwidth to be tested: 10MHz as defined in TS 36.508 [7] clause 4.3.1.

1. Connect the SS and AWGN noise source to the UE antenna connectors as shown in TS 36.508 [7] Annex A Figure A. 20.
2. Propagation conditions are set according to Annex B clause B.0.
3. Message contents are defined in clause 9.1.2.2.4.3.
4. All cells are in the same carrier frequency. Cell 1 is the serving cell and Cell 2 is the target cell. Cell 1 is the cell used for connection setup with the power levels set according to Annex C.0 and C.1 for this test.

9.1.2.2.4.2 Test procedure

1. Ensure that the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.
2. Set the parameters according to Table 9.1.2.2.5-2 as appropriate. Propagation conditions are set according to Annex B clause B.1.1.
3. SS shall transmit an RRCConnectionReconfiguration message on Cell 1.
4. The UE shall transmit RRCConnectionReconfigurationComplete message.
5. UE shall transmit periodically MeasurementReport messages.

6. SS shall check the reported RSRP value of Cell 1 and Cell 2 in MeasurementReport messages. The reported RSRP measurement value for Cell 2 is compared to the reported RSRP measurement value for Cell 1 for each MeasurementReport message according to Table 9.1.2.2.5-3.

7. SS shall check the MeasurementReport messages transmitted by the UE until the confidence level according to Tables G.2.3-1 in Annex G.2 is achieved.

8. Repeat step 1-7 for each sub-test in Table 9.1.2.2.5-2 as appropriate.

9.1.2.2.4.3 Message contents

Message contents are according to TS 36.508 [7] values 4.6 with the following exceptions:

Table 9.1.2.2.4.3-1: Common Exception messages for RSRP TDD intra frequency relative accuracy test requirement

Default Message Contents	
Common contents of system information blocks exceptions	
Default RRC messages and information elements contents exceptions	Table H.3.1-1 Table H.3.5-1 Table H.3.5-3

Table 9.1.2.2.4.3-2: *MeasResults*: Additional RSRP TDD intra frequency relative accuracy test requirement

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResults ::= SEQUENCE {			
measId	1		
measResultServCell SEQUENCE {			
rsrpResult	INTEGER(0..97)		
rsrqResult	INTEGER(0..34)		
}			
measResultNeighCells CHOICE {			
measResultListEUTRA	MeasResultListEUTRA		
}			
}			

Table 9.1.2.2.4.3-3: *MeasResultListEUTRA*: Additional RSRP TDD intra frequency relative accuracy test requirement

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResultsLIstEUTRA ::= SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {			
physCellId	physCellId of Cell2		
measResult SEQUENCE {			
rsrpResult		According to specific test	
rsrqResult	Not present		
}			
}			

9.1.2.2.5 Test requirement

Table 9.1.2.2.5-2 defines the primary level settings including test tolerances for all tests.

Each RSRP TDD intra-frequency relative accuracy test shall meet the reported values test requirements in table 9.1.2.2.5-3. The mapping of measured quantity is defined in Table 9.1.2.2.5-3. The range in the signalling may be larger than the guaranteed accuracy range.

Table 9.1.2.2.5-1: Void

Table 9.1.2.2.5-2: RSRP TDD Intra frequency relative accuracy test parameters

Parameter		Unit	Test 1		Test 2		Test 3	
			Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
E-UTRA RF Channel Number			1		1		1	
$BW_{channel}$		MHz	10		10		10	
Special subframe configuration[Note1]			6		6		6	
Uplink/downlink configuration[Note1]			1		1		1	
Measurement bandwidth		n_{PRB}	22—27		22—27		22—27	
PDSCH Reference measurement channel defined in A.1.2			R.0 TDD	-	R.0 TDD	-	R.0 TDD	-
PDSCH allocation		n_{PRB}	13—36	-	13—36	-	13—36	-
PDCCH/PCFICH/PHICH Reference measurement channel defined in A.2.2			R.6 TDD		R.6 TDD		R.6 TDD	
OCNG Patterns defined in D.2.1 (OP.1 TDD) and D.2.2 (OP.2 TDD)			OP.1 TDD	OP.2 TDD	OP.1 TDD	OP.2 TDD	OP.1 TDD	OP.2 TDD
PBCH_RA		dB	0	0	0	0	0	0
PBCH_RB								
PSS_RA								
SSS_RA								
PCFICH_RB								
PHICH_RA								
PHICH_RB								
PDCCH_RA								
PDCCH_RB								
PDSCH_RA								
PDSCH_RB								
OCNG_RA[Note2]								
OCNG_RB[Note2]								
N_{oc} [Note3]	Bands 33, 34, 35, 36, 37, 38, 39, 40	dBm/15 kHz	-106.0	-106.0	-88.0	-88.0	-116.0	
	Band 42, 43						-115.00	
	Band 41, [44]						-114.00	
$\hat{E}_s/I_{ot}$		dB	1.88	-4.97	1.88	-4.97	-0.01	-4.76
RSRP[Note4]	Bands 33, 34, 35, 36, 37, 38, 39, 40	dBm/15 kHz	-100.0	-104.0	-82.0	-86.0	-113.0	-116.0
	Band 42, 43						-112.00	-115.00
	Band 41, [44]						-111.00	-114.00
Io[Note4]	Bands 33, 34, 35, 36, 37, 38, 39, 40	dBm/9 MHz	-70.05	-70.05	-52.05	-52.05	-82.20	
	Band 42, 43						-81.20	
	Band 41, [44]						-80.20	
$\hat{E}_s/N_{oc}$		dB	6.0	2.0	6.0	2.0	3.0	0.0
Propagation condition		-	AWGN		AWGN		AWGN	

Note 1: For special subframe and uplink-downlink configurations see Tables 4.2-1 and 4.2-2 in 3GPP TS 36.211.
Note 2: 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 3: 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 4: RSRP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves.
Note 5: RSRP minimum requirements are specified assuming independent interference and noise at each receiver antenna port.

Table 9.1.2.2.5-3: RSRP TDD Intra frequency relative accuracy requirements for the reported values

	Test 1	Test 2	Test 3		
	All bands	All bands	Bands 33, 34, 35, 36, 37, 38, 39, 40	Band 42, 43	Band 41
Normal Conditions					
Lowest reported value (Cell 2)	RSRP_x - 9	RSRP_x - 9	RSRP_x - 8	RSRP_x - 8	RSRP_x - 8
Highest reported value (Cell 2)	RSRP_x + 1	RSRP_x + 1	RSRP_x + 2	RSRP_x + 2	RSRP_x + 2
Extreme Conditions					
Lowest reported value (Cell 2)	RSRP_x - 9	RSRP_x - 9	RSRP_x - 8	RSRP_x - 8	RSRP_x - 8
Highest reported value (Cell 2)	RSRP_x + 1	RSRP_x + 1	RSRP_x + 2	RSRP_x + 2	RSRP_x + 2
RSRP_x is the reported value of Cell 1					

For the test to pass, the ratio of successful reported values in each test shall be more than 90% with a confidence level of 95%.

9.1.3 FDD Inter frequency RSRP Accuracy

9.1.3.1 FDD - FDD Inter Frequency Absolute RSRP Accuracy

9.1.3.1.1 Test purpose

To verify that the FDD inter-frequency absolute RSRP measurement accuracy is within the specified limit for all bands.

9.1.3.1.2 Test applicability

This test applies to all types of E-UTRA FDD UE release 8 and forward. Applicability requires support for FGI bits 16 and 25.

9.1.3.1.3 Minimum conformance requirements

The absolute accuracy of RSRP is defined as the RSRP measured from a cell that has different carrier frequency from the serving cell.

The accuracy requirements in table 9.1.3.1.3-1 are valid under the following conditions:

Cell specific reference signals are transmitted either from one, two or four antenna ports.

Conditions defined in 36.101 Section 7.3 for reference sensitivity are fulfilled.

$RSRP|_{dBm}$ according to Annex I.3.3 for a corresponding Band.

Table 9.1.3.1.3-1: RSRP FDD Inter frequency absolute accuracy

Accuracy		Conditions				
Normal condition	Extreme condition	Ês/Iot	Io Note 1 range			
			E-UTRA operating bands	Minimum Io		Maximum Io
dB	dB	dB		dBm/15kHz Note 5	dBm/BW Channel	dBm/BW Channel
±6	±9	≥-6 dB	1, 4, 6, 10, 11, 18, 19, 21, 23, 24, 33, 34, 35, 36, 37, 38, 39, 40	-121	N/A	-70
			9, 42, 43	-120	N/A	-70
			28	-119.5	N/A	-70
			2, 5, 7, 27, 41, 44	-119	N/A	-70
			26	-118.5 Note 2	N/A	-70
			3, 8, 12, 13, 14, 17, 20, 22, 29 Note 4	-118	N/A	-70
			25	-117.5	N/A	-70
±8	±11	≥-6 dB	Note 3	N/A	-70	-50

NOTE 1: Io is assumed to have constant EPRE across the bandwidth.
NOTE 2: The condition has the minimum Io of -119 dBm/15kHz when the carrier frequency of the assigned E-UTRA channel bandwidth is within 865-894 MHz.
NOTE 3: The same bands apply for this requirement as for the corresponding highest accuracy requirement.
NOTE 4: Band 29 is used only for E-UTRA carrier aggregation with other E-UTRA bands.
NOTE 5: The condition level is increased by Δ>0, when applicable, as described in TS 36.133 [4] Sections B.4.2 and B.4.3.

The reporting range of RSRP is defined from -140 dBm to -44 dBm with 1 dB resolution.

The mapping of measured quantity is defined in Table 9.1.1.1.3-2. The range in the signalling may be larger than the guaranteed accuracy range.

The normative reference for this requirement is TS 36.133 [4] clause 9.1.3.1, clause 9.1.4 and A.9.1.3.

9.1.3.1.4 Test description

9.1.3.1.4.1 Initial conditions

Test Environment: Normal, TL/VL, TL/VH, TH/VL, TH/VH; as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1.

Channel Bandwidth to be tested: 10MHz as defined in TS 36.508 [7] clause 4.3.1.

1. Connect the SS (node B emulator) and AWGN noise sources to the UE antenna connectors as shown in TS 36.508 [7] Annex A figure A.14.

2. Propagation conditions are set according to Annex B clause B.0.

3. Message contents are defined in clause 9.1.3.1.4.3.

4. Cell 1 and Cell 2 are on the different carrier frequencies. Cell 1 is the serving cell and Cell 2 is the target cell. Cell 1 is the cell used for connection setup with the power levels set according to Annex C.0 and C.1 for this test.

9.1.3.1.4.2 Test procedure

1. Ensure the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.

2. Set the parameters according to Table 9.1.3.1.5-2 for the test interval as appropriate. Propagation conditions are set according to Annex B clause B.1.1

3. SS shall transmit an RRCConnectionReconfiguration message on cell.

4. The UE shall transmit RRCConnectionReconfigurationComplete message.

5. UE shall transmit periodically MeasurementReport messages.

6. SS shall check RSRP reported value in MeasurementReport messages. The RSRP value of Cell 2 reported by the UE is compared to the actual RSRP according to Table 9.1.3.1.5-3.

7. SS shall check the MeasurementReport message transmitted by the UE until the confidence level according to Tables G.2.3-1 in Annex G.2 is achieved.

8. Repeat step 1-7 for each sub-test in Table 9.1.3.1.5-2 as appropriate.

9.1.3.1.4.3 Message contents

Message contents are according to TS 36.508 [7] clause 4.6 with the following exceptions:

Table 9.1.3.1.4.3-1: Common Exception messages for RSRP FDD Inter frequency absolute accuracy test requirement

Default Message Contents	
Common contents of system information blocks exceptions	
Default RRC messages and information elements contents exceptions	Table H.3.1-1 Table H.3.5-2 Table H.3.5-3

Table 9.1.3.1.4.3-2: *MeasResults*: Additional RSRP FDD Inter frequency absolute accuracy test requirement

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResults ::= SEQUENCE {			
measId	1	Identifies the measurement id for the reporting being performed	
measResultServCell SEQUENCE {			
rsrpResult		Set according to specific test	
rsrqResult		Set according to specific test	
}			
measResultNeighCells CHOICE {			
measResultListEUTRA	MeasResultListEUTRA		
}			
}			

Table 9.1.3.1.4.3-3: *MeasResultListEUTRA*: Additional RSRP FDD Inter frequency absolute accuracy test requirement

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResultListEUTRA::= SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {			
physCellId	PhysicalCellIdentity		
measResult SEQUENCE {			
rsrpResult		Set according to specific test	
rsrqResult	Not present		
}			
}			

9.1.3.1.5 Test requirement

Table 9.1.3.1.5-2 defines the primary level settings including test tolerances for all tests.

Each RSRP FDD inter-frequency absolute accuracy test shall meet the reported values test requirements in table 9.1.3.1.5-3.

Table 9.1.3.1.5-1: Void

Table 9.1.3.1.5-2: RSRP FDD - FDD Inter frequency absolute accuracy test parameters

Parameter		Unit	Test 1		Test 2	
			Cell 1	Cell 2	Cell 1	Cell 2
E-UTRA RF Channel Number			1	2	1	2
$BW_{channel}$		MHz	10	10	10	10
Gap Pattern Id			0	-	0	-
Measurement bandwidth		n_{PRB}	22—27		22—27	
PDSCH Reference measurement channel defined in A.1.1			R.0 FDD	-	R.0 FDD	-
PDSCH allocation		n_{PRB}	13—36	-	13—36	-
PDCCH/PCFICH/PHICH Reference measurement channel defined in A.2.1			R.6 FDD		R.6 FDD	
OCNG Patterns defined in D.1.1 (OP.1 FDD) and D.1.2 (OP.2 FDD)			OP.1 FDD	OP.2 FDD	OP.1 FDD	OP.2 FDD
PBCH_RA		dB	0	0	0	0
PBCH_RB						
PSS_RA						
SSS_RA						
PCFICH_RB						
PHICH_RA						
PHICH_RB						
PDCCH_RA						
PDCCH_RB						
PDSCH_RA						
PDSCH_RB						
OCNG_RA Note1						
OCNG_RB Note1						
N_{oc} Note2	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24	dBm/15 kHz	-89.25	-89.25	(N_{oc} for Channel 2 +8dB)	-117
	Band 9					-116
	Band 28					-115.5
	Bands 2, 5, 7, 26 and 27 Note 5					-115
	Bands 3, 8, 12, 13, 14, 17, 20, 22 and 29 Note 6					-114
	Band 25					-113.5
$\hat{E}_s/I_{ot}$		dB	10.00	10.00	13.00	-3.20
RSRP Note3	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24	dBm/15 kHz	-79.25	-79.25	(RSRP for Cell 2 +24.2dB)	-120.20
	Band 9					-119.20
	Band 28					-118.70
	Bands 2, 5, 7, 26 and 27 Note 5					-118.20
	Bands 3, 8, 12, 13, 14, 17, 20, 22 and 29 Note 6					-117.20
	Band 25					-116.70
Io Note3	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24	dBm/9 MHz	-51.05	-51.05	(Io for Channel 2 +19.51dB)	-87.52
	Band 9					-86.52
	Band 28					-86.02
	Bands 2, 5, 7, 26 and 27 Note 5					-85.52
	Bands 3, 8, 12, 13, 14, 17, 20, 22 and 29 Note 6					-84.52
	Band 25					-84.02
$\hat{E}_s/N_{oc}$		dB	10	10	13	-3.2

Propagation condition	-	AWGN	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. Note 4: RSRP minimum requirements are specified assuming independent interference and noise at each receiver antenna port. Note 5: For Band 26, the tests shall be performed with the carrier frequency of the assigned E-UTRA channel bandwidth within 865-894 MHz. Note 6: Band 29 is used only for E-UTRA carrier aggregation with other E-UTRA bands.			

Table 9.1.3.1.5-3: RSRP FDD Inter frequency absolute accuracy requirements for the reported values

Normal Conditions	**Test 1 All bands**	**Test 2**	
Lowest reported value (Cell 2)	RSRP_52	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24	RSRP_13
		Band 9	RSRP_14
		Band 28	RSRP_14
		Bands 2, 5, 7, 26 and 27	RSRP_15
		Bands 3, 8, 12, 13, 14, 17, 20 and 22	RSRP_16
		Band 25	RSRP_16
Highest reported value (Cell 2)	RSRP_71	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24	RSRP_28
		Band 9	RSRP_29
		Band 28	RSRP_29
		Bands 2, 5, 7, 26 and 27	RSRP_30
		Bands 3, 8, 12, 13, 14, 17, 20 and 22	RSRP_31
		Band 25	RSRP_31
Extreme Conditions	**Test 1 All bands**	**Test 2**	
Lowest reported value (Cell 2)	RSRP_49	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24	RSRP_10
		Band 9	RSRP_11
		Band 28	RSRP_11
		Bands 2, 5, 7, 26 and 27	RSRP_12
		Bands 3, 8, 12, 13, 14, 17, 20 and 22	RSRP_13
		Band 25	RSRP_13
Highest reported value (Cell 2)	RSRP_74	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24	RSRP_31
		Band 9	RSRP_32
		Band 28	RSRP_32
		Bands 2, 5, 7, 26 and 27	RSRP_33
		Bands 3, 8, 12, 13, 14, 17, 20 and 22	RSRP_34
		Band 25	RSRP_34

For the test to pass, the ratio of successful reported values in each test shall be more than 90% with a confidence level of 95%.

9.1.3.2 FDD - FDD Inter Frequency Relative Accuracy of RSRP

9.1.3.2.1 Test purpose

To verify that the FDD inter-frequency relative accuracy measurement of RSRP is within the specified limit for all bands.

9.1.3.2.2 Test applicability

This test applies to all types of E-UTRA FDD UE release 8 and forward. Applicability requires support for FGI bits 16 and 25.

9.1.3.2.3 Minimum conformance requirements

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

The accuracy requirements in table 9.1.3.2.3-1 are valid under the following conditions:

Cell specific reference signals are transmitted either from one, two or four antenna ports.

Conditions defined in 36.101 Section 7.3 for reference sensitivity are fulfilled.

$RSRP1,2|_{dBm}$ according to Annex I.3.4 for a corresponding Band.

$$\left| RSRP1|_{dBm} - RSRP2|_{dBm} \right| \le 27dB$$

| Channel 1_Io -Channel 2_Io | ≤ 20 dB

Table 9.1.3.2.3-1: RSRP FDD Inter frequency relative accuracy

Accuracy		Conditions			
Normal condition	Extreme condition	Ês/Iot Note 2	Io Note 1 range		
			E-UTRA operating bands	Minimum Io	Maximum Io
dB	dB	dB		dBm/15kHz Note 5	dBm/BW Channel
±6	±6	≥-6 dB	1, 4, 6, 10, 11, 18, 19, 21, 23, 24, 33, 34, 35, 36, 37, 38, 39, 40	-121	-50
			9, 42, 43	-120	-50
			28	-119.5	-50
			2, 5, 7, 27, 41, 44	-119	-50
			26	-118.5 Note 3	-50
			3, 8, 12, 13, 14, 17, 20, 22, 29 Note 4	-118	-50
			25	-117.5	-50

NOTE 1: Io is assumed to have constant EPRE across the bandwidth.
NOTE 2: The parameter Ês/Iot is the minimum Ês/Iot of the pair of cells to which the requirement applies.
NOTE 3: The condition has the minimum Io of -119 dBm/15kHz when the carrier frequency of the assigned E-UTRA channel bandwidth is within 865-894 MHz.
NOTE 4: Band 29 is used only for E-UTRA carrier aggregation with other E-UTRA bands.
NOTE 5: The condition level is increased by Δ>0, when applicable, as described in TS 36.133 [4] Sections B.4.2 and B.4.3.

The reporting range of RSRP is defined from -140 dBm to -44 dBm with 1 dB resolution.

The mapping of measured quantity is defined in Table 9.1.1.1.3-2. The range in the signalling may be larger than the guaranteed accuracy range.

The normative reference for this requirement is TS 36.133 [4] clause 9.1.3.2, clause 9.1.4 and A.9.1.3.

9.1.3.2.4 Test description

9.1.3.2.4.1 Initial conditions

Test Environment: Normal, TL/VL, TL/VH, TH/VL, TH/VH; as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1.

Channel Bandwidth to be tested: 10MHz as defined in TS 36.508 [7] clause 4.3.1.

1. Connect the SS (node B emulator) and AWGN noise sources to the UE antenna connectors as shown in TS 36.508 [7] Annex A figure A.14.

2. Propagation conditions are set according to Annex B clause B.0.

3. Message contents are defined in clause 9.1.3.2.4.3.

4. Cell 1 and Cell 2 are on the different carrier frequencies. Cell 1 is the serving cell and Cell 2 is the target cell. Cell 1 is the cell used for connection setup with the power levels set according to Annex C.0 and C.1 for this test.

9.1.3.2.4.2 Test procedure

1. Ensure the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.

2. Set the parameters according to Table 9.1.3.2.5-2 for the test interval as appropriate. Propagation conditions are set according to Annex B clause B.1.1.

3. SS shall transmit an RRCConnectionReconfiguration message on cell.

4. The UE shall transmit RRCConnectionReconfigurationComplete message.

5. UE shall transmit periodically MeasurementReport messages.

6. SS shall check the RSRP value of Cell 1 and Cell 2 in MeasurementReport messages. The reported RSRP value for Cell 2 is compared to the reported RSRP value for Cell 1 for each MeasurementReport message according to Table 9.1.3.2.5-3.

7. SS shall check the MeasurementReport messages transmitted by the UE until the confidence level according to Tables G.2.3-1 in Annex G.2 is achieved.

8. Repeat step 1-7 for each sub-test in Table 9.1.3.2.5-2 as appropriate.

9.1.3.2.4.3 Message contents

Message contents are according to TS 36.508 [7] clause 4.6 with the following exceptions:

Table 9.1.3.2.4.3-1: Common Exception messages for RSRP FDD Inter frequency relative accuracy test requirement

Default Message Contents	
Common contents of system information blocks exceptions	
Default RRC messages and information elements contents exceptions	Table H.3.1-1 Table H.3.5-2 Table H.3.5-3

Table 9.1.3.2.4.3-2: *MeasResults*: Additional RSRP FDD Inter frequency relative accuracy test requirement

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResults ::= SEQUENCE {			
measId	1	Identifies the measurement id for the reporting being performed	
measResultServCell SEQUENCE {			
rsrpResult		Set according to specific test	
rsrqResult		Set according to specific test	
}			
measResultNeighCells CHOICE {			
measResultListEUTRA	MeasResultListEUTRA		
}			
}			

Table 9.1.3.2.4.3-3: *MeasResultListEUTRA*: Additional RSRP FDD Inter frequency relative accuracy test requirement

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResultListEUTRA::= SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {			
physCellId	PhysicalCellIdentity		
measResult SEQUENCE {			
rsrpResult		Set according to specific test	
rsrqResult	Not present		
}			
}			

9.1.3.2.5 Test requirement

Table 9.1.3.2.5-2 defines the primary level settings including test tolerances for all tests.

Each RSRP FDD inter-frequency relative accuracy test shall meet the reported values test requirements in table 9.1.3.2.5-3.

Table 9.1.3.2.5-1: Void

Table 9.1.3.2.5-2: RSRP FDD - FDD Inter frequency relative accuracy test parameters

Parameter		Unit	Test 1		Test 2	
			Cell 1	Cell 2	Cell 1	Cell 2
E-UTRA RF Channel Number			1	2	1	2
$BW_{channel}$		MHz	10	10	10	10
Gap Pattern Id			0	-	0	-
Measurement bandwidth		n_{PRB}	22—27		22—27	
PDSCH Reference measurement channel defined in A.1.1			R.0 FDD	-	R.0 FDD	-
PDSCH allocation		n_{PRB}	13—36	-	13—36	-
PDCCH/PCFICH/PHICH Reference measurement channel defined in A.2.1			R.6 FDD		R.6 FDD	
OCNG Patterns defined in D.1.1 (OP.1 FDD) and D.1.2 (OP.2 FDD)			OP.1 FDD	OP.2 FDD	OP.1 FDD	OP.2 FDD
PBCH_RA PBCH_RB PSS_RA SSS_RA PCFICH_RB PHICH_RA PHICH_RB PDCCH_RA PDCCH_RB PDSCH_RA PDSCH_RB OCNG_RA Note1 OCNG_RB Note1		dB	0	0	0	0
N_{oc} Note2	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24	dBm/15 kHz	-89.25	-89.25	(N_{oc} for Channel 2 +7dB)	-117
	Band 9					-116
	Band 28					-115.5
	Bands 2, 5, 7, 26 and 27 Note 5					-115
	Bands 3, 8, 12, 13, 14, 17, 20, 22 and 29 Note 6					-114
	Band 25					-113.5
$\hat{E}_s/I_{ot}$		dB	10.00	10.00	13.00	-3.20
RSRP Note3	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24	dBm/15 kHz	-79.25	-79.25	(RSRP for Cell 2 +23.2dB)	-120.20
	Band 9					-119.20
	Band 28					-118.70
	Bands 2, 5, 7, 26 and 27 Note 5					-118.20
	Bands 3, 8, 12, 13, 14, 17, 20, 22 and 29 Note 6					-117.20
	Band 25					-116.70
Io Note3	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24	dBm/9 MHz	-51.05	-51.05	(Io for Channel 2 +18.51dB)	-87.52
	Band 9					-86.52
	Band 28					-86.02
	Bands 2, 5, 7, 26 and 27 Note 5					-85.52

	Bands 3, 8, 12, 13, 14, 17, 20, 22 and 29 Note 6					-84.52
	Band 25					-84.02
$\hat{E}_s/N_{oc}$		dB	10	10	13	-3.2
Propagation condition		-	AWGN		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. Note 4: RSRP minimum requirements are specified assuming independent interference and noise at each receiver antenna port. Note 5: For Band 26, the tests shall be performed with the carrier frequency of the assigned E-UTRA channel bandwidth within 865-894 MHz. Note 6: Band 29 is used only for E-UTRA carrier aggregation with other E-UTRA bands.						

Table 9.1.3.2.5-3: RSRP FDD Inter frequency relative accuracy requirements for the reported values

	Test 1 All bands	Test 2 All bands
Normal Conditions		
Lowest reported value (Cell 2)	RSRP_(x - 9)	RSRP_(x - 32)
Highest reported value (Cell 2)	RSRP_(x + 9)	RSRP_(x - 16)
Extreme Conditions		
Lowest reported value (Cell 2)	RSRP_(x - 9)	RSRP_(x - 32)
Highest reported value (Cell 2)	RSRP_(x + 9)	RSRP_(x - 16)
RSRP_x is the reported value of Cell 1		

For the test to pass, the ratio of successful reported values in each test shall be more than 90% with a confidence level of 95%.

9.1.4 TDD Inter frequency RSRP Accuracy

9.1.4.1 TDD - TDD Inter Frequency Absolute RSRP Accuracy

9.1.4.1.1 Test purpose

To verify that the TDD inter-frequency absolute RSRP measurement accuracy is within the specified limit for all bands.

9.1.4.1.2 Test applicability

This test applies to all types of E-UTRA TDD UE release 8 and forward. Applicability requires support for FGI bits 16 25.

9.1.4.1.3 Minimum conformance requirements

The absolute accuracy of RSRP is defined as the RSRP measured from a cell that has different carrier frequency from the serving cell.

The accuracy requirements in Table 9.1.4.1.3-1 are valid under the following conditions:

Cell specific reference signals are transmitted either from one, two or four antenna ports.

Conditions defined in 36.101 Section 7.3 for reference sensitivity are fulfilled.

RSRP|dBm according to Annex I.3.3 for a corresponding Band.

Table 9.1.4.1.3-1: RSRP TDD-TDD Inter frequency absolute accuracy

Accuracy		Conditions				
Normal condition	Extreme condition	Ês/Iot	Io Note 1 range			
			E-UTRA operating bands	Minimum Io		Maximum Io
dB	dB	dB		dBm/15kHz Note 5	dBm/BW Channel	dBm/BW Channel
±6	±9	≥-6 dB	1, 4, 6, 10, 11, 18, 19, 21, 23, 24, 33, 34, 35, 36, 37, 38, 39, 40	-121	N/A	-70
			9, 42, 43	-120	N/A	-70
			28	-119.5	N/A	-70
			2, 5, 7, 27, 41, 44	-119	N/A	-70
			26	-118.5 Note 2	N/A	-70
			3, 8, 12, 13, 14, 17, 20, 22, 29 Note 4	-118	N/A	-70
			25	-117.5	N/A	-70
±8	±11	≥-6 dB	Note 3	N/A	-70	-50

NOTE 1: Io is assumed to have constant EPRE across the bandwidth.
NOTE 2: The condition has the minimum Io of -119 dBm/15kHz when the carrier frequency of the assigned E-UTRA channel bandwidth is within 865-894 MHz.
NOTE 3: The same bands apply for this requirement as for the corresponding highest accuracy requirement.
NOTE 4: Band 29 is used only for E-UTRA carrier aggregation with other E-UTRA bands.
NOTE 5: The condition level is increased by Δ>0, when applicable, as described in TS 36.133 [4] Sections B.4.2 and B.4.3.

The reporting range of RSRP is defined from -140 dBm to -44 dBm with 1 dB resolution.

The mapping of measured quantity is defined in Table9.1.2.1.3-2. The range in the signalling may be larger than the guaranteed accuracy range.

The normative reference for this requirement is TS 36.133 [4] clause 9.1.3.1 , clause 9.1.4 and A.9.1.4.

9.1.4.1.4 Test description

9.1.4.1.4.1 Initial conditions

Test Environment: Normal, TL/VL, TL/VH, TH/VL, TH/VH; as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1.

Channel Bandwidth to be tested: 10MHz as defined in TS 36.508 [7] clause 4.3.1.

1. Connect the SS (node B emulator) and AWGN noise sources to the UE antenna connectors as shown in TS 36.508 [7] Annex A figure A.14.
2. Propagation conditions are set according to Annex B clause B.0.
3. Message contents are defined in clause 9.1.4.1.4.3.
4. Cell 1 and Cell 2 are on the different carrier frequencies. Cell 1 is the serving cell and Cell 2 is the target cell. Cell 1 is the cell used for connection setup with the power levels set according to Annex C.0 and C.1 for this test.

9.1.4.1.4.2 Test procedure

1. Ensure that the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.
2. Set the parameters according to Table 9.1.4.1.5-2 for the test interval as appropriate. Propagation conditions are set according to Annex B clause B.1.1
3. SS shall transmit an RRCConnectionReconfiguration message on cell.
4. The UE shall transmit RRCConnectionReconfigurationComplete message.
5. UE shall transmit periodically MeasurementReport messages.

6. SS shall check the reported RSRP value in MeasurementReport messages. The RSRP value of Cell 2 reported by the UE is compared to the actual RSRP value according to Table 9.1.4.1.5-3.

7. SS shall check the MeasurementReport message transmitted by the UE until the confidence level according to Tables G.2.3-1 in Annex G.2 is achieved.

8. Repeat step 1-7 for each sub-test in Table 9.1.4.1.5-2 as appropriate.

9.1.4.1.4.3 Message contents

Message contents are according to TS 36.508 [7] values 4.6 with the following exceptions:

Table 9.1.4.1.4.3-1: Common Exception messages for RSRP TDD - TDD Inter frequency absolute accuracy test requirement

Default Message Contents	
Common contents of system information blocks exceptions	
Default RRC messages and information elements contents exceptions	Table H.3.1-1 Table H.3.5-2 Table H.3.5-3

Table 9.1.4.1.4.3-2: *MeasResults*: Additional RSRP TDD - TDD Inter frequency absolute accuracy test requirement

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResults ::= SEQUENCE {			
measId	1		
measResultServCell SEQUENCE {			
rsrpResult		Set according to specific test	
rsrqResult		Set according to specific test	
}			
measResultNeighCells CHOICE {			
measResultListEUTRA	MeasResultListEUTRA		
}			
}			

Table 9.1.4.1.4.3-3: *MeasResultListEUTRA*: Additional RSRP TDD - TDD Inter frequency absolute accuracy test requirement

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResultsListEUTRA ::= SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {			
physCellId	PhysCellId	INTEGER (0..503)	
measResult SEQUENCE {			
rsrpResult		According to specific test	
rsrqResult	Not present		
}			
}			

9.1.4.1.5 Test requirement

Table 9.1.4.1.5-2 defines the primary level settings including test tolerances for all tests.

Each RSRP TDD inter-frequency absolute accuracy test shall meet the reported values test requirements in table 9.1.4.1.5-3.

Table 9.1.4.1.5-1: Void

Table 9.1.4.1.5-2: RSRP TDD-TDD Inter frequency absolute accuracy test parameters

Parameter		Unit	Test 1		Test 2	
			Cell 1	Cell 2	Cell 1	Cell 2
E-UTRA RF Channel Number			1	2	1	2
$BW_{channel}$		MHz	10	10	10	10
Special subframe configuration[Note1]			6		6	
Uplink-downlink configuration[Note1]			1		1	
Gap Pattern Id			0	-	0	-
Measurement bandwidth		n_{PRB}	22—27		22—27	
PDSCH Reference measurement channel defined in A.1.2			R.0 TDD	-	R.0 TDD	-
PDSCH allocation		n_{PRB}	13—36	-	13—36	-
PDCCH/PCFICH/PHICH Reference measurement channel defined in A.2.2			R.6 TDD		R.6 TDD	
OCNG Patterns defined in D.2.1 (OP.1 TDD) and D.2.2 (OP.2 TDD)			OP.1 TDD	OP.2 TDD	OP.1 TDD	OP.2 TDD
PBCH_RA PBCH_RB PSS_RA SSS_RA PCFICH_RB PHICH_RA PHICH_RB PDCCH_RA PDCCH_RB PDSCH_RA PDSCH_RB OCNG_RA [Note2] OCNG_RB [Note2]		dB	0	0	0	0
N_{oc} [Note3]	Bands 33, 34, 35, 36, 37, 38, 39, 40	dBm/15 kHz	-89.25	-89.25	(N_{oc} for Channel 2 +8dB)	-117
	Bands 42, 43					-116
	Bands 41, 44					-115
$\hat{E}_s/I_{ot}$		dB	10.00	10.00	13.00	-3.20
RSRP[Note4]	Bands 33, 34, 35, 36, 37, 38, 39, 40	dBm/15 kHz	-79.25	-79.25	(RSRP for Cell 2 +24.2dB)	-120.20
	Bands 42, 43					-119.20
	Bands 41, 44					-118.20
Io[Note4]	Bands 33, 34, 35, 36, 37, 38, 39, 40	dBm/9 MHz	-51.05	-51.05	(Io for Channel 2 +19.51dB)	-87.52
	Bands 42, 43					-86.52
	Bands 41, 44					-85.52
$\hat{E}_s/N_{oc}$		dB	10	10	13	-3.2
Propagation condition		-	AWGN		AWGN	

Note 1: For special subframe and uplink-downlink configurations see Tables 4.2-1 and 4.2-2 in TS 36.211.

Note 2: 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 3: 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 4: RSRP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves.

Note 5: RSRP minimum requirements are specified assuming independent interference and noise at each receiver antenna port.

Table 9.1.4.1.5-3: RSRP TDD-TDD Inter frequency absolute accuracy requirements for the reported values

Normal Conditions	Test 1 All bands	Test 2	
Lowest reported value (Cell 2)	RSRP_52	Bands 33, 34, 35, 36, 37, 38, 39, 40	RSRP_13
		Bands 42, 43	RSRP_14
		Bands 41, 44	RSRP_15
Highest reported value (Cell 2)	RSRP_71	Bands 33, 34, 35, 36, 37, 38, 39, 40	RSRP_28
		Bands 42, 43	RSRP_29
		Bands 41, 44	RSRP_30
Extreme Conditions	**Test 1 All bands**	**Test 2**	
Lowest reported value (Cell 2)	RSRP_49	Bands 33, 34, 35, 36, 37, 38, 39, 40	RSRP_10
		Bands 42, 43	RSRP_11
		Bands 41, 44	RSRP_12
Highest reported value (Cell 2)	RSRP_74	Bands 33, 34, 35, 36, 37, 38, 39, 40	RSRP_31
		Bands 42, 43	RSRP_32
		Bands 41, 44	RSRP_33

For the test to pass, the ratio of successful reported values in each test shall be more than 90% with a confidence level of 95%.

9.1.4.2 TDD - TDD Inter Frequency Relative Accuracy of RSRP

9.1.4.2.1 Test purpose

To verify that the TDD inter-frequency relative accuracy measurement of RSRP is within the specified limit for all bands.

9.1.4.2.2 Test applicability

This test applies to all types of E-UTRA TDD UE release 8 and forward. Applicability requires support for FGI bits 16 and 25.

9.1.4.2.3 Minimum conformance requirements

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

The accuracy requirements in Table 9.1.4.2.3-1 are valid under the following conditions:

Cell specific reference signals are transmitted either from one, two or four antenna ports.

Conditions defined in 36.101 Section 7.3 for reference sensitivity are fulfilled.

$RSRP1,2|_{dBm}$ according to Annex I.3.4 for a corresponding Band.

$$\left| RSRP1|_{dBm} - RSRP2|_{dBm} \right| \leq 27dB$$

| Channel 1_Io -Channel 2_Io | ≤ 20 dB

Table 9.1.4.2.3-1: RSRP TDD-TDD Inter frequency relative accuracy

Accuracy		Conditions			
Normal condition	Extreme condition	Ês/Iot Note 2	Io Note 1 range		
			E-UTRA operating bands	Minimum Io	Maximum Io
dB	dB	dB		dBm/15kHz Note 5	dBm/BW Channel
±6	±6	≥-6 dB	1, 4, 6, 10, 11, 18, 19, 21, 23, 24, 33, 34, 35, 36, 37, 38, 39, 40	-121	-50
			9, 42, 43	-120	-50
			28	-119.5	-50
			2, 5, 7, 27, 41, 44	-119	-50
			26	-118.5 Note 3	-50
			3, 8, 12, 13, 14, 17, 20, 22, 29 Note 4	-118	-50
			25	-117.5	-50

NOTE 1: Io is assumed to have constant EPRE across the bandwidth.
NOTE 2: The parameter Ês/Iot is the minimum Ês/Iot of the pair of cells to which the requirement applies.
NOTE 3: The condition has the minimum Io of -119 dBm/15kHz when the carrier frequency of the assigned E-UTRA channel bandwidth is within 865-894 MHz.
NOTE 4: Band 29 is used only for E-UTRA carrier aggregation with other E-UTRA bands.
NOTE 5: The condition level is increased by Δ>0, when applicable, as described in TS 36.133 [4] Sections B.4.2 and B.4.3.

The reporting range of RSRP is defined from -140 dBm to -44 dBm with 1 dB resolution.

The mapping of measured quantity is defined in Table9.1.2.1.3-2. The range in the signalling may be larger than the guaranteed accuracy range.

The normative reference for this requirement is TS 36.133 [4] clause 9.1.3.2, clause 9.1.4 and A.9.1.4.

9.1.4.2.4 Test description

9.1.4.2.4.1 Initial conditions

Test Environment: Normal, TL/VL, TL/VH, TH/VL, TH/VH; as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1.

Channel Bandwidth to be tested: 10MHz as defined in TS 36.508 [7] clause 4.3.1.

1. Connect the SS (node B emulator) and AWGN noise sources to the UE antenna connectors as shown in TS 36.508 [7] Annex A figure A.14.
2. Propagation conditions are set according to Annex B clause B.0.
3. Message contents are defined in clause 9.1.4.2.4.3.
4. Cell 1 and Cell 2 are on the different carrier frequencies. Cell 1 is the serving cell and Cell 2 is the target cell. Cell 1 is the cell used for connection setup with the power levels set according to Annex C.0 and C.1 for this test.

9.1.4.2.4.2 Test procedure

1. Ensure the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.
2. Set the parameters according to Table 9.1.4.2.5-2 for the test interval as appropriate. Propagation conditions are set according to Annex B clause B.1.1.
3. SS shall transmit an RRCConnectionReconfiguration message on cell.
4. The UE shall transmit RRCConnectionReconfigurationComplete message.
5. UE shall transmit periodically MeasurementReport messages.

6. SS shall check the reported RSRP value of Cell 1 and Cell 2 in MeasurementReport messages. The reported RSRP value for Cell 2 is compared to the reported RSRP value for Cell 1 for each MeasurementReport message according to Table 9.1.4.2.5-3.

7. SS shall check the MeasurementReport messages transmitted by the UE until the confidence level according to Tables G.2.3-1 in Annex G.2 is achieved.

8. Repeat step 1-7 for each sub-test in Table 9.1.4.2.5-2 as appropriate.

9.1.4.2.4.3 Message contents

Message contents are according to TS 36.508 [7] values 4.6 with the following exceptions:

Table 9.1.4.2.4.3-1: Common Exception messages for RSRP TDD - TDD Inter frequency relative accuracy test requirement

Default Message Contents	
Common contents of system information blocks exceptions	
Default RRC messages and information elements contents exceptions	Table H.3.1-1 Table H.3.5-2 Table H.3.5-3

Table 9.1.4.2.4.3-2: *MeasResults*: Additional RSRP TDD - TDD Inter frequency relative accuracy test requirement

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResults ::= SEQUENCE {			
measId	1		
measResultServCell SEQUENCE {			
rsrpResult		According to specific test	
rsrqResult		Set according to specific test	
}			
measResultNeighCells CHOICE {			
measResultListEUTRA	MeasResultListEUTRA		
}			
}			

Table 9.1.4.2.4.3-3: *MeasResultListEUTRA*: Additional RSRP TDD - TDD Inter frequency absolute accuracy test requirement

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResultLIstEUTRA ::= SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {			
physCellId	PhysCellId	INTEGER (0..503)	
measResult SEQUENCE {			
rsrpResult		According to specific test	
rsrqResult	Not present		
}			
}			

9.1.4.2.5 Test requirement

Table 9.1.4.2.5-2 defines the primary level settings including test tolerances for all tests.

Each RSRP TDD inter-frequency relative accuracy test shall meet the reported values test requirements in table 9.1.4.2.5-3. The mapping of measured quantity is defined in Table 9.1.4.2.5-3. The range in the signalling may be larger than the guaranteed accuracy range.

Table 9.1.4.2.5-1: Void

Table 9.1.4.2.5-2: RSRP TDD-TDD Inter frequency relative accuracy test parameters

Parameter		Unit	Test 1		Test 2	
			Cell 1	Cell 2	Cell 1	Cell 2
E-UTRA RF Channel Number			1	2	1	2
$BW_{channel}$		MHz	10	10	10	10
Special subframe configuration[Note1]			6		6	
Uplink-downlink configuration[Note1]			1		1	
Gap Pattern Id			0	-	0	-
Measurement bandwidth		n_{PRB}	22—27		22—27	
PDSCH Reference measurement channel defined in A.1.2			R.0 TDD	-	R.0 TDD	-
PDSCH allocation		n_{PRB}	13—36	-	13—36	-
PDCCH/PCFICH/PHICH Reference measurement channel defined in A.2.2			R.6 TDD		R.6 TDD	
OCNG Patterns defined in D.2.1 (OP.1 TDD) and D.2.2 (OP.2 TDD)			OP.1 TDD	OP.2 TDD	OP.1 TDD	OP.2 TDD
PBCH_RA		dB	0	0	0	0
PBCH_RB						
PSS_RA						
SSS_RA						
PCFICH_RB						
PHICH_RA						
PHICH_RB						
PDCCH_RA						
PDCCH_RB						
PDSCH_RA						
PDSCH_RB						
OCNG_RA [Note2]						
OCNG_RB [Note2]						
N_{oc} [Note3]	Bands 33, 34, 35, 36, 37, 38, 39, 40	dBm/15 kHz	-89.25	-89.25	(N_{oc} for Channel 2 +7dB)	-117
	Bands 42, 43					-116
	Bands 41, 44					-115
$\hat{E}_s/I_{ot}$		dB	10.00	10.00	13.00	-3.20
RSRP[Note4]	Bands 33, 34, 35, 36, 37, 38, 39, 40	dBm/15 kHz	-79.25	-79.25	(RSRP for Cell 2 +23.2dB)	-120.20
	Bands 42, 43					-119.20
	Bands 41, 44					-118.20
Io[Note4]	Bands 33, 34, 35, 36, 37, 38, 39, 40	dBm/9 MHz	-51.05	-51.05	(Io for Channel 2 +18.51dB)	-87.52
	Bands 42, 43					-86.52
	Bands 41, 44					-85.52
$\hat{E}_s/N_{oc}$		dB	10	10	13	-3.2
Propagation condition		-	AWGN		AWGN	

Note 1: For special subframe and uplink-downlink configurations see Tables 4.2-1 and 4.2-2 in TS 36.211.
Note 2: 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 3: 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 4: RSRP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves.
Note 5: RSRP minimum requirements are specified assuming independent interference and noise at each receiver antenna port.

Table 9.1.4.2.5-3: RSRP TDD-TDD Inter frequency relative accuracy requirements for the reported values

	Test 1	Test 2
	All bands	All bands
Normal Conditions		
Lowest reported value (Cell 2)	RSRP_(x - 9)	RSRP_(x - 32)
Highest reported value (Cell 2)	RSRP_(x + 9)	RSRP_(x - 16)
Extreme Conditions		
Lowest reported value (Cell 2)	RSRP_(x - 9)	RSRP_(x - 32)
Highest reported value (Cell 2)	RSRP_(x + 9)	RSRP_(x - 16)
RSRP_x is the reported value of Cell 1		

For the test to pass, the ratio of successful reported values in each test shall be more than 90% with a confidence level of 95%.

9.1.5 FDD - TDD Inter frequency RSRP Accuracy

9.1.5.1 FDD - TDD Inter Frequency Absolute RSRP Accuracy

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

9.1.5.1.1 Test purpose

To verify that the FDD - TDD inter-frequency absolute RSRP measurement accuracy is within the specified limit for all bands.

9.1.5.1.2 Test applicability

This test applies to all types of E-UTRA UE supporting FDD and TDD release 9 and forward. Applicability requires support for FGI bit 25.

9.1.5.1.3 Minimum conformance requirements

The absolute accuracy of RSRP is defined as the RSRP measured from a cell that has different carrier frequency from the serving cell.

The accuracy requirements in table 9.1.5.1.3-1 are valid under the following conditions:

Cell specific reference signals are transmitted either from one, two or four antenna ports.

Conditions defined in 36.101 Section 7.3 for reference sensitivity are fulfilled.

$RSRP|_{dBm}$ according to Annex I.3.3 for a corresponding Band.

Table 9.1.5.1.3-1: RSRP FDD - TDD Inter frequency absolute accuracy

Accuracy		Conditions				
Normal condition	Extreme condition	Ês/Iot	Io Note 1 range			
			E-UTRA operating bands	Minimum Io		Maximum Io
dB	dB	dB		dBm/15kHz	dBm/$BW_{Channel}$	dBm/$BW_{Channel}$
±6	±9	≥-6 dB	1, 4, 6, 10, 11, 18, 19, 21, 23, 24, 33, 34, 35, 36, 37, 38, 39, 40	-121	N/A	-70
			9, 42, 43	-120	N/A	-70
			28	-119.5	N/A	-70
			2, 5, 7, 27, 41, [44]	-119	N/A	-70
			26	-118.5 Note 2	N/A	-70
			3, 8, 12, 13, 14, 17, 20, 22	-118	N/A	-70
			29 Note 4	-118	N/A	-70
			25	-117.5	N/A	-70
±8	±11	≥-6 dB	Note 3	N/A	-70	-50

NOTE 1: Io is assumed to have constant EPRE across the bandwidth.
NOTE 2: The condition has the minimum Io of -119 dBm/15kHz when the carrier frequency of the assigned E-UTRA channel bandwidth is within 865-894 MHz.
NOTE 3: The same bands apply for this requirement as for the corresponding highest accuracy requirement.
NOTE 4: This band is used only for E-UTRA carrier aggregation with other E-UTRA bands.

The reporting range of RSRP is defined from -140 dBm to -44 dBm with 1 dB resolution.

The mapping of measured quantity is defined in Table 9.1.5.1.3-2. The range in the signalling may be larger than the guaranteed accuracy range.

Table 9.1.5.1.3-2: RSRP measurement report mapping

Reported value	Measured quantity value	Unit
RSRP_00	RSRP < -140	dBm
RSRP_01	-140 ≤ RSRP < -139	dBm
RSRP_02	-139 ≤ RSRP < -138	dBm
…	…	…
RSRP_95	-46 ≤ RSRP < -45	dBm
RSRP_96	-45 ≤ RSRP < -44	dBm
RSRP_97	-44 ≤ RSRP	dBm

The normative reference for this requirement is TS 36.133 [4] clause 9.1.3.1, clause 9.1.4 and A.9.1.5.

9.1.5.1.4 Test description

9.1.5.1.4.1 Initial conditions

Test Environment: Normal, TL/VL, TL/VH, TH/VL, TH/VH; as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1.

Channel Bandwidth to be tested: 10MHz as defined in TS 36.508 [7] clause 4.3.1.

1. Connect the SS (node B emulator) and AWGN noise sources to the UE antenna connectors as shown in TS 36.508 [7] Annex A figure A.14.
2. Propagation conditions are set according to Annex B clause B.0.
3. Message contents are defined in clause 9.1.5.1.4.3.
4. Cell 1 and Cell 2 are on the different carrier frequencies. Cell 1 is the serving cell and Cell 2 is the target cell. Cell 1 is FDD cell and Cell 2 is TDD cell. Cell 1 is the cell used for connection setup with the power levels set according to Annex C.0 and C.1 for this test.

9.1.5.1.4.2 Test procedure

1. Ensure the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.
2. Set the parameters according to Table 9.1.5.1.5-1 and Table 9.1.5.1.5-2 for the test interval as appropriate. Propagation conditions are set according to Annex B clause B.1.1
3. SS shall transmit an RRCConnectionReconfiguration message on Cell 1.
4. The UE shall transmit RRCConnectionReconfigurationComplete message.
5. UE shall transmit periodically MeasurementReport messages.
6. SS shall check RSRP reported value in MeasurementReport messages. The RSRP value of Cell 2 reported by the UE is compared to the actual RSRP according to Table 9.1.5.1.5-3.
7. SS shall check the MeasurementReport message transmitted by the UE until the confidence level according to Tables G.2.3-1 in Annex G.2 is achieved.
8. Repeat step 1-7 for each sub-test in Table 9.1.5.1.5-1 and Table 9.1.5.1.5-2 as appropriate.

9.1.5.1.4.3 Message contents

Message contents are according to TS 36.508 [7] clause 4.6 with the following exceptions:

Table 9.1.5.1.4.3-1: Common Exception messages for RSRP FDD-TDD Inter frequency absolute accuracy test requirement

Default Message Contents	
Common contents of system information blocks exceptions	
Default RRC messages and information elements contents exceptions	Table H.3.1-1 Table H.3.5-2 Table H.3.5-3

Table 9.1.5.1.4.3-2: *MeasResults*: Additional RSRP FDD-TDD Inter frequency absolute accuracy test requirement

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResults ::= SEQUENCE {			
measId	1	Identifies the measurement id for the reporting being performed	
measResultServCell SEQUENCE {			
rsrpResult		Set according to specific test	
rsrqResult		Set according to specific test	
}			
measResultNeighCells CHOICE {			
measResultListEUTRA	MeasResultListEUTRA		
}			
}			

Table 9.1.5.1.4.3-3: *MeasResultListEUTRA*: Additional RSRP FDD-TDD Inter frequency absolute accuracy test requirement

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResultListEUTRA::= SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {			
physCellId	PhysicalCellIdentity	Cell 2	
measResult SEQUENCE {			
rsrpResult		Set according to specific test	
rsrqResult	Not present		
}			
}			

9.1.5.1.5 Test requirement

Table 9.1.5.1.5-1 and Table 9.1.5.1.5-2 define the primary level settings including test tolerances for all tests.

Each RSRP FDD-TDD inter-frequency absolute accuracy test shall meet the reported values test requirements in table 9.1.5.1.5-3.

Table 9.1.5.1.5-1: RSRP FDD—TDD Inter frequency test parameters (FDD Cell1)

<table>
<tr><th rowspan="2">Parameter</th><th rowspan="2">Unit</th><th colspan="2">Test 1</th><th colspan="2">Test 2</th></tr>
<tr><th colspan="2">Cell 1</th><th colspan="2">Cell 1</th></tr>
<tr><td>E-UTRA RF Channel Number</td><td></td><td colspan="2">1</td><td colspan="2">1</td></tr>
<tr><td>$BW_{channel}$</td><td>MHz</td><td colspan="2">10</td><td colspan="2">10</td></tr>
<tr><td>Gap Pattern Id</td><td></td><td colspan="2">0</td><td colspan="2">0</td></tr>
<tr><td>Measurement bandwidth</td><td>n_{PRB}</td><td colspan="2">22—27</td><td colspan="2">22—27</td></tr>
<tr><td>PDSCH Reference measurement channel defined in A.3.1.1.1</td><td></td><td colspan="2">R.0 FDD</td><td colspan="2">R.0 FDD</td></tr>
<tr><td>PDSCH allocation</td><td>n_{PRB}</td><td colspan="2">13—36</td><td colspan="2">13—36</td></tr>
<tr><td>PDCCH/PCFICH/PHICH Reference measurement channel defined in A.3.1.2.1</td><td></td><td colspan="2">R.6 FDD</td><td colspan="2">R.6 FDD</td></tr>
<tr><td>OCNG Patterns defined in A.3.2.1.1 (OP.1 FDD) and A.3.2.1.2 (OP.2 FDD)</td><td></td><td colspan="2">OP.1 FDD</td><td colspan="2">OP.1 FDD</td></tr>
<tr><td>PBCH_RA</td><td rowspan="13">dB</td><td rowspan="13">0</td><td rowspan="13">0</td><td rowspan="13">0</td><td rowspan="13">0</td></tr>
<tr><td>PBCH_RB</td></tr>
<tr><td>PSS_RA</td></tr>
<tr><td>SSS_RA</td></tr>
<tr><td>PCFICH_RB</td></tr>
<tr><td>PHICH_RA</td></tr>
<tr><td>PHICH_RB</td></tr>
<tr><td>PDCCH_RA</td></tr>
<tr><td>PDCCH_RB</td></tr>
<tr><td>PDSCH_RA</td></tr>
<tr><td>PDSCH_RB</td></tr>
<tr><td>OCNG_RANote1</td></tr>
<tr><td>OCNG_RBNote</td></tr>
<tr><td>N_{oc} Note2</td><td>dBm/15 kHz</td><td colspan="2">-88.95</td><td colspan="2">-104</td></tr>
<tr><td>$\hat{E}_s/I_{ot}$</td><td>dB</td><td colspan="2">10</td><td colspan="2">13</td></tr>
<tr><td>RSRP Note3</td><td>dBm/15 kHz</td><td colspan="2">-78.95</td><td colspan="2">-91</td></tr>
<tr><td>Io Note3</td><td>dBm/9 MHz</td><td colspan="2">-50.75</td><td colspan="2">-63.01</td></tr>
<tr><td>$\hat{E}_s/N_{oc}$</td><td>dB</td><td colspan="2">10</td><td colspan="2">13</td></tr>
<tr><td>Propagation condition</td><td>-</td><td colspan="2">AWGN</td><td colspan="2">AWGN</td></tr>
<tr><td colspan="6">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.
Note 4: RSRP minimum requirements are specified assuming independent interference and noise at each receiver antenna port.</td></tr>
</table>

Table 9.1.5.1.5-2: RSRP FDD—TDD Inter frequency test parameters (TDD cell2)

Parameter	Unit	Test 1	Test 2
		Cell 2	Cell 2
E-UTRA RF Channel Number		2	2
$BW_{channel}$	MHz	10	10
Special subframe configuration Note1		6	6
Uplink-downlink configuration Note1		1	1
Gap Pattern Id		-	-
Measurement bandwidth	n_{PRB}	22—27	22—27
PDSCH Reference measurement channel defined in A.3.1.1.2		-	-
PDSCH allocation	n_{PRB}	-	-
PDCCH/PCFICH/PHICH Reference measurement channel defined in A.3.1.2.2		R.6 TDD	R.6 TDD
OCNG Patterns defined in A.3.2.2.1 (OP.1 TDD) and A.3.2.2.2 (OP.2 TDD)		OP.2 TDD	OP.2 TDD
PBCH_RA	dB	0	0
PBCH_RB			
PSS_RA			
SSS_RA			
PCFICH_RB			
PHICH_RA			
PHICH_RB			
PDCCH_RA			
PDCCH_RB			
PDSCH_RA			
PDSCH_RB			
OCNG_RA Note2			
OCNG_RB Note2			
N_{oc} Note3	dBm/15 kHz	-88.95	-112
$\hat{E}_s/I_{ot}$	dB	10	-3.2
RSRP Note4	dBm/15 kHz	-78.95	-115.2
Io Note4	dBm/9 MHz	-50.75	-82.52
$\hat{E}_s/N_{oc}$	dB	10	-3.2
Propagation condition	-	AWGN	AWGN

Note 1: For special subframe and uplink-downlink configurations see Tables 4.2-1 and 4.2-2 in 3GPP TS 36.211.

Note 2: 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 3: 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 4: RSRP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves.

Note 5: RSRP minimum requirements are specified assuming independent interference and noise at each receiver antenna port.

Table 9.1.5.1.5-3: RSRP FDD-TDD Inter frequency absolute accuracy requirements for the reported values

	Test 1	Test 2
Normal Conditions		
Lowest reported value (Cell 2)	RSRP_52	RSRP_18
Highest reported value (Cell 2)	RSRP_71	RSRP_33
Extreme Conditions		
Lowest reported value (Cell 2)	RSRP_49	RSRP_15
Highest reported value (Cell 2)	RSRP_74	RSRP_36

For the test to pass, the ratio of successful reported values in each test shall be more than 90% with a confidence level of 95%.

9.1.5.2 FDD - TDD Inter Frequency Relative Accuracy of RSRP

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

9.1.5.2.1 Test purpose

To verify that the FDD-TDD inter-frequency relative accuracy measurement of RSRP is within the specified limit for all bands.

9.1.5.2.2 Test applicability

This test applies to all types of E-UTRA UE supporting FDD and TDD release 9 and forward. Applicability requires support for FGI bit 25.

9.1.5.2.3 Minimum conformance requirements

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

The accuracy requirements in table 9.1.5.2.3-1 are valid under the following conditions:

Cell specific reference signals are transmitted either from one, two or four antenna ports.

Conditions defined in TS 36.101 Section 7.3 for reference sensitivity are fulfilled.

$RSRP1,2|_{dBm}$ according to Annex I.3.4 for a corresponding Band.

$$\left| RSRP1|_{dBm} - RSRP2|_{dBm} \right| \leq 27dB$$

| Channel 1_Io -Channel 2_Io | ≤ 20 dB

Table 9.1.5.2.3-1: RSRP FDD Inter frequency relative accuracy

Accuracy		Conditions			
Normal condition	Extreme condition	Ês/Iot Note 2	Io Note 1 range		
			E-UTRA operating bands	Minimum Io	Maximum Io
dB	dB	dB		dBm/15kHz	dBm/BW$_{Channel}$
±6	±6	≥-6 dB	1, 4, 6, 10, 11, 18, 19, 21, 23, 24, 33, 34, 35, 36, 37, 38, 39, 40	-121	-50
			9, 42, 43	-120	-50
			28	-119.5	-50
			2, 5, 7, 27, 41, [44]	-119	-50
			26	-118.5 Note 3	-50
			3, 8, 12, 13, 14, 17, 20, 22	-118	-50
			29 Note 4	-118	-50
			25	-117.5	-50
NOTE 1: Io is assumed to have constant EPRE across the bandwidth. NOTE 2: The parameter Ês/Iot is the minimum Ês/Iot of the pair of cells to which the requirement applies. NOTE 3: The condition has the minimum Io of -119 dBm/15kHz when the carrier frequency of the assigned E-UTRA channel bandwidth is within 865-894 MHz. NOTE 4: This band is used only for E-UTRA carrier aggregation with other E-UTRA bands.					

The reporting range of RSRP is defined from -140 dBm to -44 dBm with 1 dB resolution.

The mapping of measured quantity is defined in Table 9.1.1.1.3-2. The range in the signalling may be larger than the guaranteed accuracy range.

The normative reference for this requirement is TS 36.133 [4] clause 9.1.3.2, clause 9.1.4 and A.9.1.5.

9.1.5.2.4 Test description

9.1.5.2.4.1 Initial conditions

Test Environment: Normal, TL/VL, TL/VH, TH/VL, TH/VH; as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1.

Channel Bandwidth to be tested: 10MHz as defined in TS 36.508 [7] clause 4.3.1.

1. Connect the SS (node B emulator) and AWGN noise sources to the UE antenna connectors as shown in TS 36.508 [7] Annex A figure A.14.
2. Propagation conditions are set according to Annex B clause B.0.
3. Message contents are defined in clause 9.1.5.2.4.3.
4. Cell 1 and Cell 2 are on the different carrier frequencies. Cell 1 is the serving cell and Cell 2 is the target cell. Cell 1 is FDD cell and Cell 2 is TDD cell. Cell 1 is the cell used for connection setup with the power levels set according to Annex C.0 and C.1 for this test.

9.1.5.2.4.2 Test procedure

1. Ensure the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.
2. Set the parameters according to Table 9.1.5.2.5-1 and Table 9.1.5.2.5-2 for the test interval as appropriate. Propagation conditions are set according to Annex B clause B.1.1.
3. SS shall transmit an RRCConnectionReconfiguration message on Cell 1.
4. The UE shall transmit RRCConnectionReconfigurationComplete message.
5. UE shall transmit periodically MeasurementReport messages.

6. SS shall check the RSRP value of Cell 1 and Cell 2 in MeasurementReport messages. The reported RSRP value for Cell 2 is compared to the reported RSRP value for Cell 1 for each MeasurementReport message according to Table 9.1.5.2.5-3.

7. SS shall check the MeasurementReport messages transmitted by the UE until the confidence level according to Tables G.2.3-1 in Annex G.2 is achieved.

8. Repeat step 1-7 for each sub-test in Table 9.1.5.2.5-1 and Table 9.1.5.2.5-2 as appropriate.

9.1.5.2.4.3 Message contents

Message contents are according to TS 36.508 [7] clause 4.6 with the following exceptions:

Table 9.1.5.2.4.3-1: Common Exception messages for RSRP FDD-TDD Inter frequency relative accuracy test requirement

Default Message Contents	
Common contents of system information blocks exceptions	
Default RRC messages and information elements contents exceptions	Table H.3.1-1 Table H.3.5-2 Table H.3.5-3

Table 9.1.5.2.4.3-2: *MeasResults*: Additional RSRP FDD-TDD Inter frequency relative accuracy test requirement

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResults ::= SEQUENCE {			
measId	1	Identifies the measurement id for the reporting being performed	
measResultServCell SEQUENCE {			
rsrpResult		Set according to specific test	
rsrqResult		Set according to specific test	
}			
measResultNeighCells CHOICE {			
measResultListEUTRA	MeasResultListEUTRA		
}			
}			

Table 9.1.5.2.4.3-3: *MeasResultListEUTRA*: Additional RSRP FDD-TDD Inter frequency relative accuracy test requirement

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResultListEUTRA::= SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {			
physCellId	PhysicalCellIdentity	Cell 2	
measResult SEQUENCE {			
rsrpResult		Set according to specific test	
rsrqResult	Not present		
}			
}			

9.1.5.2.5 Test requirement

Table 9.1.5.2.5-1 and Table 9.1.5.2.5-2 define the primary level settings including test tolerances for all tests.

Each RSRP FDD-TDD inter-frequency relative accuracy test shall meet the reported values test requirements in table 9.1.5.2.5-3.

Table 9.1.5.2.5-1: RSRP FDD—TDD Inter frequency test parameters (FDD Cell1)

Parameter	Unit	Test 1		Test 2	
		Cell 1		Cell 1	
E-UTRA RF Channel Number		1		1	
$BW_{channel}$	MHz	10		10	
Gap Pattern Id		0		0	
Measurement bandwidth	n_{PRB}	22—27		22—27	
PDSCH Reference measurement channel defined in A.3.1.1.1		R.0 FDD		R.0 FDD	
PDSCH allocation	n_{PRB}	13—36		13—36	
PDCCH/PCFICH/PHICH Reference measurement channel defined in A.3.1.2.1		R.6 FDD		R.6 FDD	
OCNG Patterns defined in A.3.2.1.1 (OP.1 FDD) and A.3.2.1.2 (OP.2 FDD)		OP.1 FDD		OP.1 FDD	
PBCH_RA PBCH_RB PSS_RA SSS_RA PCFICH_RB PHICH_RA PHICH_RB PDCCH_RA PDCCH_RB PDSCH_RA PDSCH_RB OCNG_RANote1 OCNG_RBNote	dB	0	0	0	0
N_{oc} Note2	dBm/15 kHz	-88.95		-104.60	
$\hat{E}_s/I_{ot}$	dB	10.00		13.00	
RSRP Note3	dBm/15 kHz	-78.95		-91.60	
Io Note3	dBm/9 MHz	-50.75		-63.61	
$\hat{E}_s/N_{oc}$	dB	10.00		13.00	
Propagation condition	-	AWGN		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.
Note 4: RSRP minimum requirements are specified assuming independent interference and noise at each receiver antenna port.

Table 9.1.5.2.5-2: RSRP FDD—TDD Inter frequency test parameters (TDD cell2)

Parameter	Unit	Test 1	Test 2
		Cell 2	Cell 2
E-UTRA RF Channel Number		2	2
$BW_{channel}$	MHz	10	10
Special subframe configuration[Note1]		6	6
Uplink-downlink configuration[Note1]		1	1
Gap Pattern Id		-	-
Measurement bandwidth	n_{PRB}	22—27	22—27
PDSCH Reference measurement channel defined in A.3.1.1.2		-	-
PDSCH allocation	n_{PRB}	-	-
PDCCH/PCFICH/PHICH Reference measurement channel defined in A.3.1.2.2		R.6 TDD	R.6 TDD
OCNG Patterns defined in A.3.2.2.1 (OP.1 TDD) and A.3.2.2.2 (OP.2 TDD)		OP.2 TDD	OP.2 TDD
PBCH_RA PBCH_RB PSS_RA SSS_RA PCFICH_RB PHICH_RA PHICH_RB PDCCH_RA PDCCH_RB PDSCH_RA PDSCH_RB OCNG_RA[Note2] OCNG_RB[Note2]	dB	0	0
N_{oc} [Note3]	dBm/15 kHz	-88.95	-112.00
$\hat{E}_s/I_{ot}$	dB	10.00	-3.20
RSRP[Note4]	dBm/15 kHz	-78.95	-115.20
Io[Note4]	dBm/9 MHz	-50.75	-82.52
$\hat{E}_s/N_{oc}$	dB	10.00	-3.20
Propagation condition	-	AWGN	AWGN

Note 1: For special subframe and uplink-downlink configurations see Tables 4.2-1 and 4.2-2 in 3GPP TS 36.211.
Note 2: 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 3: 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 4: RSRP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves.
Note 5: RSRP minimum requirements are specified assuming independent interference and noise at each receiver antenna port.

Table 9.1.5.2.5-3: RSRP FDD-TDD Inter frequency relative accuracy requirements for the reported values

	Test 1	Test 2
Normal Conditions		
Lowest reported value (Cell 2)	RSRP_(x - 8)	RSRP_(x - 32)
Highest reported value (Cell 2)	RSRP_(x + 8)	RSRP_(x - 16)
Extreme Conditions		
Lowest reported value (Cell 2)	RSRP_(x -8)	RSRP_(x - 32)
Highest reported value (Cell 2)	RSRP_(x + 8)	RSRP_(x - 16)
RSRP_x is the reported value of Cell 1		

For the test to pass, the ratio of successful reported values in each test shall be more than 90% with a confidence level of 95%.

9.1.6 FDD RSRP Accuracy E-UTRA for Carrier Aggregation

9.1.6.1 FDD Absolute RSRP Accuracy E-UTRA for Carrier Aggregation

9.1.6.1.1 Test purpose

To verify that FDD absolute RSRP measurement accuracy in carrier aggregation is within the specified limits under AWGN propagation conditions. This test will verify the FDD absolute RSRP accuracy requirements of cells on the primary component carrier and the secondary component carrier.

9.1.6.1.2 Test applicability

This test applies to all types of E-UTRA FDD UE release 10 and forward supporting CA.

9.1.6.1.3 Minimum conformance requirements

The FDD RSRP measurements of cells on the primary component carrier shall meet the intra frequency absolute accuracy requirements defined in TS 36.133 [4] clause 9.1.2.1. The FDD RSRP measurements of cells on the secondary component carrier shall meet the intra frequency absolute accuracy requirements defined in TS 36.133 [4] clause 9.1.2.1.

The accuracy requirements in table 9.1.6.1.3-1 are valid under the following conditions:

Cell specific reference signals are transmitted either from one, two or four antenna ports.

Conditions defined in 36.101 Section 7.3 for reference sensitivity are fulfilled.

$RSRP|_{dBm}$ according to Annex I.3.1 for a corresponding Band.

Table 9.1.6.1.3-1: RSRP FDD Intra frequency absolute accuracy

Accuracy		Conditions				
Normal condition	Extreme condition	Ês/Iot	Io [Note 1] range			
			E-UTRA operating bands	Minimum Io		Maximum Io
dB	dB	dB		dBm/15kHz	dBm/$BW_{Channel}$	dBm/$BW_{Channel}$
±6	±9	≥-6 dB	1, 4, 6, 10, 11, 18, 19, 21, 23, 24, 33, 34, 35, 36, 37, 38, 39, 40	-121	N/A	-70
			9, 42, 43	-120	N/A	-70
			28	-119.5	N/A	-70
			2, 5, 7, 27, 41, [44]	-119	N/A	-70
			26	-118.5 [Note 2]	N/A	-70
			3, 8, 12, 13, 14, 17, 20, 22	-118	N/A	-70
			29 [Note 4]	-118	N/A	-70
			25	-117.5	N/A	-70
±8	±11	≥-6 dB	Note 3	N/A	-70	-50

NOTE 1: Io is assumed to have constant EPRE across the bandwidth.
NOTE 2: The condition has the minimum Io of -119 dBm/15kHz when the carrier frequency of the assigned E-UTRA channel bandwidth is within 865-894 MHz.
NOTE 3: The same bands apply for this requirement as for the corresponding highest accuracy requirement.
NOTE 4: This band is used only for E-UTRA carrier aggregation with other E-UTRA bands.

The reporting range of RSRP is defined from -140 dBm to -44 dBm with 1 dB resolution.

The mapping of measured quantity is defined in Table 9.1.6.1.3-2. The range in the signalling may be larger than the guaranteed accuracy range.

Table 9.1.6.1.3-2: RSRP measurement report mapping

Reported value	Measured quantity value	Unit
RSRP_00	RSRP < -140	dBm
RSRP_01	-140 ≤ RSRP < -139	dBm
RSRP_02	-139 ≤ RSRP < -138	dBm
…	…	…
RSRP_95	-46 ≤ RSRP < -45	dBm
RSRP_96	-45 ≤ RSRP < -44	dBm
RSRP_97	-44 ≤ RSRP	dBm

The normative reference for this requirement is TS 36.133 [4] clause 9.1.11.1, clause 9.1.11.2, clause 9.1.4, and A.9.1.6

9.1.6.1.4 Test description

9.1.6.1.4.1 Initial conditions

Test Environment: Normal, TL/VL, TL/VH, TH/VL, TH/VH; as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1 for different CA bandwidth classes.

Channel Bandwidth to be tested: 10 MHz as defined in TS 36.508 [7] clause 4.3.1 for different CA configurations as defined in TS 36.521-1[10] clause 5.4.2A.

1. Connect the SS (node B emulator) and AWGN noise sources to the UE antenna connectors as shown in TS 36.508 [7] Annex A, Figure group A.41 as appropriate.

2. Propagation conditions are set according to Annex B clause B.0.

3. Message contents are defined in clause 9.1.6.1.4.3.

4. Cell 1 is PCell on the primary component carrier, Cell 2 is SCell on the secondary component carrier and Cell 3 is the neighbouring cell on the secondary component carrier. Cell 1 is the cell used for connection setup with the power levels set according to Annex C.0 and C.1 for this test. Cell 2 and Cell 3 shall be powered OFF.

9.1.6.1.4.2 Test procedure

1. Ensure the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.
2. Configure SCell according to Annex C.0, C.1 [and C.2] for all downlink physical channels except PHICH.
3. The SS shall configure SCell (Cell 2) on the SCC as per TS 36.508 [7] clause 5.2A.4.
4. SS activates SCC by sending the activation MAC-CE (Refer TS 36.321 [11], clauses 5.13, 6.1.3.8). Wait for at least 2 seconds (Refer TS 36.133 [4], clauses 8.3.3.2).
5. Set the parameters according to Table 9.1.6.1.5-2 as appropriate. Propagation conditions are set according to Annex B clause B.1.
6. SS shall transmit an RRCConnectionReconfiguration message on Cell 1.
7. The UE shall transmit RRCConnectionReconfigurationComplete message.
8. UE shall transmit periodically MeasurementReport messages.
9. SS shall check the reported RSRP values in MeasurementReport messages. The reported RSRP values for Cell 1 and Cell 2 are compared to the actual RSRP values according to Table 9.1.6.1.5-3. This counts respectively as a Pass or Fail for the events "Cell 1" and "Cell 2".
10. SS shall check the MeasurementReport messages transmitted by the UE until a test verdict has been achieved.
11. Repeat steps 1-10 for switched PCell/SCell scenario.

Each of the events "Cell 1" and "Cell 2" is evaluated independently for the statistic, resulting in an event verdict: pass or fail. Each event is evaluated only until the confidence level according to Table G.2.3-1 in Annex G.2 is achieved. Different events may require different times for a verdict.
If both events ("Cell 1" and "Cell 2") pass for each configuration (without and with switched PCell/SCell scenario), the test passes. If one event fails, the test fails.

9.1.6.1.4.3 Message contents

Message contents are according to TS 36.508 [7] clause 4.6 with the following exceptions:

Table 9.1.6.1.4.3-1: Common Exception messages for FDD Absolute RSRP Accuracy E-UTRA for Carrier Aggregation test requirement

Default Message Contents	
Common contents of system information blocks exceptions	
Default RRC messages and information elements contents exceptions	Table H.3.1-1 Table H.4.2-1 Table H.4.2-2 Table H.4.2-4

9.1.6.1.5 Test requirement

Table 9.1.6.1.5-2 defines the primary level settings including test tolerances for all tests.

The RSRP FDD absolute accuracy test shall meet the reported values test requirements in table 9.1.6.1.5-3.

Table 9.1.6.1.5-1: Void

Table 9.1.6.1.5-2: RSRP FDD absolute accuracy carrier aggregation test parameters

<table>
<tr><th colspan="2" rowspan="2">Parameter</th><th rowspan="2">Unit</th><th colspan="3">Test 1</th></tr>
<tr><th>Cell 1</th><th>Cell 2</th><th>Cell3</th></tr>
<tr><td colspan="2">E-UTRA RF Channel Number</td><td></td><td>1</td><td>2</td><td>2</td></tr>
<tr><td colspan="2">$BW_{channel}$</td><td>MHz</td><td>10</td><td>10</td><td>10</td></tr>
<tr><td colspan="2">Timing offset to cell1</td><td>μs</td><td>-</td><td>0</td><td>3μs or 92*Ts</td></tr>
<tr><td colspan="2">Time alignment error between cell 2 and cell 1</td><td></td><td>-</td><td>≤ Time alignment error as specified in 3GPP TS 36.104 [29] clause 6.5.3.1.</td><td>-</td></tr>
<tr><td colspan="2">Measurement bandwidth</td><td>n_{PRB}</td><td colspan="3">22—27</td></tr>
<tr><td colspan="2">PDSCH Reference measurement channel defined in A.1.1</td><td></td><td>R.0 FDD</td><td>R.0 FDD</td><td>-</td></tr>
<tr><td colspan="2">PDSCH allocation</td><td>n_{PRB}</td><td>13—36</td><td>13—36</td><td>-</td></tr>
<tr><td colspan="2">PDCCH/PCFICH/PHICH Reference measurement channel defined in A.2.1</td><td></td><td colspan="3">R.6 FDD</td></tr>
<tr><td colspan="2">OCNG Patterns defined in D.1.1 (OP.1 FDD) and D.1.2 (OP.2 FDD)</td><td></td><td>OP.1 FDD</td><td>OP.1 FDD</td><td>OP.2 FDD</td></tr>
<tr><td colspan="2">PBCH_RA</td><td rowspan="13">dB</td><td rowspan="13">0</td><td rowspan="13">0</td><td rowspan="13">0</td></tr>
<tr><td colspan="2">PBCH_RB</td></tr>
<tr><td colspan="2">PSS_RA</td></tr>
<tr><td colspan="2">SSS_RA</td></tr>
<tr><td colspan="2">PCFICH_RB</td></tr>
<tr><td colspan="2">PHICH_RA</td></tr>
<tr><td colspan="2">PHICH_RB</td></tr>
<tr><td colspan="2">PDCCH_RA</td></tr>
<tr><td colspan="2">PDCCH_RB</td></tr>
<tr><td colspan="2">PDSCH_RA</td></tr>
<tr><td colspan="2">PDSCH_RB</td></tr>
<tr><td colspan="2">OCNG_RANote1</td></tr>
<tr><td colspan="2">OCNG_RBNote</td></tr>
<tr><td rowspan="6">N_{oc} Note2</td><td>Bands 1, 4, 6, 10, 11, 18, 19, 21,23 and 24</td><td rowspan="6">dBm/15 kHz</td><td>-117</td><td colspan="2" rowspan="6">(N_{oc} for Channel 1 +1dB)</td></tr>
<tr><td>Band 9</td><td>-116</td></tr>
<tr><td>Band 28</td><td>-115.5</td></tr>
<tr><td>Bands 2, 5, 7, 26 Note 6 and 27</td><td>-115</td></tr>
<tr><td>Bands 3, 8, 12, 13, 14, 17, 20, 22 and 29Note 7</td><td>-114</td></tr>
<tr><td>Band 25</td><td>-113.5</td></tr>
<tr><td colspan="2">$\hat{E}_s/I_{ot}$</td><td>dB</td><td>-4.00</td><td>0.46</td><td>-5.76</td></tr>
<tr><td rowspan="6">RSRPNote3</td><td>Bands 1, 4, 6, 10, 11, 18 , 19, 21, 23 and 24</td><td rowspan="6">dBm/15 kHz</td><td>-121</td><td rowspan="6">(RSRP for Cell 1 +8dB)</td><td rowspan="6">(RSRP for Cell 1 +4dB)</td></tr>
<tr><td>Band 9</td><td>-120</td></tr>
<tr><td>Band 28</td><td>-119.5</td></tr>
<tr><td>Bands 2, 5, 7, 26 Note 6 and 27</td><td>-119</td></tr>
<tr><td>Bands 3, 8, 12, 13, 14, 17, 20, 22 and 29Note 7</td><td>-118</td></tr>
<tr><td>Band 25</td><td>-117.5</td></tr>
</table>

Io[Note3]	Bands 1, 4, 6, 10, 11, 18, 19, 21,23 and 24	dBm/9 MHz	-87.76	(Io for Channel 1 +5.33dB)	
	Band 9		-86.76		
	Band 28		-86.26		
	Bands 2, 5, 7, 26 [Note 6] and 27		-85.76		
	Bands 3, 8, 12, 13, 14, 17, 20, 22 and 29[Note 7]		-84.76		
	Band 25		-84.26		
$\hat{E}_s/N_{oc}$		dB	-4	3	-1
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.
Note 4: RSRP minimum requirements are specified assuming independent interference and noise at each receiver antenna port.
Note 5: The selection of the bands for testing depends on the configuration of the carrier aggregations supported by the UEs.
Note 6: For Band 26, the tests shall be performed with the carrier frequency of the assigned E-UTRA channel bandwidth within 865-894 MHz.
Note 7: Band 29 is used only for E-UTRA carrier aggregation with other E-UTRA bands.
Note 8: The frequencies of PCell and SCell shall be switched and tested for each configuration.

Table 9.1.6.1.5-3: RSRP FDD Carrier Aggregation absolute accuracy requirements for the reported values

	Test 1					
Band of Cell 1 on Primary Component Carrier	**Bands 1, 4, 6, 10, 11, 18, 19, 21, 23, 24**	**Bands 2, 5, 7, 26, 27**	**Band 25**	**Bands 28**	**Bands 3, 8, 12, 13, 14, 17, 20, 22**	**Band 9**
Normal Conditions						
Lowest reported value (Cell 1)	RSRP_12	RSRP_14	RSRP_15	RSRP_13	RSRP_15	RSRP_13
Highest reported value (Cell 1)	RSRP_27	RSRP_29	RSRP_31	RSRP_29	RSRP_30	RSRP_28
Lowest reported value (Cell 2)	RSRP_20	RSRP_22	RSRP_23	RSRP_21	RSRP_23	RSRP_21
Highest reported value (Cell 2)	RSRP_35	RSRP_37	RSRP_39	RSRP_37	RSRP_38	RSRP_36
Extreme Conditions						
Lowest reported value (Cell 1)	RSRP_9	RSRP_11	RSRP_12	RSRP_10	RSRP_12	RSRP_10
Highest reported value (Cell 1)	RSRP_30	RSRP_32	RSRP_34	RSRP_32	RSRP_33	RSRP_31
Lowest reported value (Cell 2)	RSRP_17	RSRP_19	RSRP_20	RSRP_18	RSRP_20	RSRP_18
Highest reported value (Cell 2)	RSRP_38	RSRP_40	RSRP_42	RSRP_40	RSRP_41	RSRP_39
Note: The band of Cell 1 determines the levels for both Cell 1 and Cell 2, so the reported RSRP values depend only on the band of Cell 1, and are not dependent on the band of Cell 2.						

For the test to pass, the ratio of successful reported values in each test shall be more than 90% with a confidence level of 95%.

9.1.6.2 FDD Relative RSRP Accuracy E-UTRA for Carrier Aggregation

9.1.6.2.1 Test purpose

To verify that FDD relative RSRP measurement accuracy in carrier aggregation is within the specified limits under AWGN propagation conditions. This test will verify the FDD relative RSRP accuracy requirements of cells between the primary and secondary component carrier and FDD relative RSRP accuracy between the secondary component carriers.

9.1.6.2.2 Test applicability

This test applies to all types of E-UTRA FDD UE release 10 and forward supporting CA.

9.1.6.2.3 Minimum conformance requirements

The FDD RSRP relative measurements of cells on PCC and SCC shall meet relative accuracy requirements defined in TS 36.133 [4] clause 9.1.3.2. The FDD RSRP relative measurements of cells on the SCC shall meet relative accuracy requirements defined in TS 36.133 [4] clause 9.1.2.2.

The accuracy requirements in Table 9.1.6.2.3-1 for PCC-SCC relative accuracy requirements are valid under the following conditions:

Cell specific reference signals are transmitted either from one, two or four antenna ports.

Conditions defined in TS 36.101 [2] Section 7.3 for reference sensitivity are fulfilled.

$RSRP1,2|_{dBm}$ according to Annex I.3.4 for a corresponding Band

$$\left| RSRP1|_{dBm} - RSRP2|_{dBm} \right| \le 27dB$$

| Channel 1_Io -Channel 2_Io | ≤ 20 dB

Table 9.1.6.2.3-1: FDD RSRP relative accuracy for PCC and SCC

Accuracy		Conditions			
Normal condition	Extreme condition	Ês/Iot Note 2	Io Note 1 range		
			E-UTRA operating bands	Minimum Io	Maximum Io
dB	dB	dB		dBm/15kHz	dBm/BW Channel
±2	±3	≥-3 dB	1, 4, 6, 10, 11, 18, 19, 21, 23, 24, 33, 34, 35, 36, 37, 38, 39, 40	-121	-50
			9, 42, 43	-120	-50
			28	-119.5	-50
			2, 5, 7, 27, 41, 44	-119	-50
			26	-118.5 Note 3	-50
			3, 8, 12, 13, 14, 17, 20, 22	-118	-50
			29 Note 5	-118	-50
			25	-117.5	-50
±3	±3	≥-6 dB	Note 4	Note 4	Note 4

NOTE 1: Io is assumed to have constant EPRE across the bandwidth.
NOTE 2: The parameter Ês/Iot is the minimum Ês/Iot of the pair of cells to which the requirement applies.
NOTE 3: The condition has the minimum Io of -119 dBm/15kHz when the carrier frequency of the assigned E-UTRA channel bandwidth is within 865-894 MHz.
NOTE 4: The same bands and the same Io conditions for each band apply for this requirement as for the corresponding highest accuracy requirement.
NOTE 5: This band is used only for E-UTRA carrier aggregation with other E-UTRA bands.

The requirements in Table 9.1.6.2.3-2 for SCC relative accuracy are valid under the following conditions:

Cell specific reference signals are transmitted either from one, two or four antenna ports.

Conditions defined in TS 36.101 [2] Section 7.3 for reference sensitivity are fulfilled.

$RSRP1,2|_{dBm}$ according to Annex I.3.8 for a corresponding Band.

Table 9.1.6.2.3-2: FDD RSRP relative accuracy for SCCs

Accuracy		Conditions			
Normal condition	Extreme condition	Ês/Iot Note 2	Io Note 1 range		
			E-UTRA operating bands	Minimum Io	Maximum Io
dB	dB	dB		dBm/15kHz	dBm/BW Channel
±2	±3	≥-3 dB	1, 4, 6, 10, 11, 18, 19, 21, 23, 24, 33, 34, 35, 36, 37, 38, 39, 40	-121	-50
			9, 42, 43	-120	-50
			28	-119.5	-50
			2, 5, 7, 27, 41, [44]	-119	-50
			26	-118.5 Note 3	-50
			3, 8, 12, 13, 14, 17, 20, 22	-118	-50
			29 Note 5	-118	-50
			25	-117.5	-50
±3	±3	≥-6 dB	Note 4	Note 4	Note 4

NOTE 1: Io is assumed to have constant EPRE across the bandwidth.
NOTE 2: The parameter Ês/Iot is the minimum Ês/Iot of the pair of cells to which the requirement applies.
NOTE 3: The condition has the minimum Io of -119 dBm/15kHz when the carrier frequency of the assigned E-UTRA channel bandwidth is within 865-894 MHz.
NOTE 4: The same bands and the same Io conditions for each band apply for this requirement as for the corresponding highest accuracy requirement.
NOTE 5: This band is used only for E-UTRA carrier aggregation with other E-UTRA bands.

The normative reference for this requirement is TS 36.133 [4] clause 9.1.11.2, clause 9.1.11.3, clause 9.1.4, and A.9.1.6.

9.1.6.2.4 Test description

9.1.6.2.4.1 Initial conditions

Test Environment: Normal, TL/VL, TL/VH, TH/VL, TH/VH; as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1 for different CA bandwidth classes.

Channel Bandwidth to be tested: 10 MHz as defined in TS 36.508 [7] clause 4.3.1 for different CA configurations as defined in TS 36.521-1[10] clause 5.4.2A.

1. Connect the SS (node B emulator) and AWGN noise source to the UE antenna connectors as shown in TS 36.508 [7] Annex A, Figure group A.41 as appropriate.
2. Propagation conditions are set according to Annex B clause B.0.
3. Message contents are defined in clause 9.1.6.2.4.3.
4. Cell1 is PCell on the primary component carrier, Cell 2 is SCell on the secondary component carrier and Cell 3 is the neighbouring cell on the secondary component carrier. Cell 1 is the cell used for connection setup with the power levels set according to Annex C.0 and C.1 for this test. Cell 2 and Cell 3 shall be powered OFF.

9.1.6.2.4.2 Test procedure

1. Ensure the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.
2. Configure SCell according to Annex C.0, C.1 [and C.2] for all downlink physical channels except PHICH.
3. The SS shall configure SCell (Cell 2) on the SCC as per TS 36.508 [7] clause 5.2A.4.
4. SS activates SCC by sending the activation MAC-CE (Refer TS 36.321 [11], clauses 5.13, 6.1.3.8). Wait for at least 2 seconds (Refer TS 36.133 [4], clauses 8.3.3.2).
5. Set the parameters according to Table 9.1.6.2.5-2 as appropriate. Propagation conditions are set according to Annex B clause B.1.
6. SS shall transmit an RRCConnectionReconfiguration message on Cell 1.

7. The UE shall transmit RRCConnectionReconfigurationComplete message.

8. UE shall transmit periodically MeasurementReport messages.

9. SS shall check the reported RSRP values in MeasurementReport messages. The reported RSRP value for Cell 2 is compared to the reported RSRP value for Cell 1 for each MeasurementReport message according to Table 9.1.6.2.5-3. Also the reported RSRP value for Cell 3 is compared to the reported RSRP value for Cell 2 for each MeasurementReport message according to Table 9.1.6.2.5-3. This counts respectively as a Pass or Fail for the events "Cell 1-2" and "Cell 2-3".

10. SS shall check the MeasurementReport messages transmitted by the UE until a test verdict has been achieved.

11. Repeat steps 1-10 for switched PCell/SCell scenario.

Each of the events "Cell 1-2" and "Cell 2-3" is evaluated independently for the statistic, resulting in an event verdict: pass or fail. Each event is evaluated only until the confidence level according to Table G.2.3-1 in Annex G.2 is achieved. Different events may require different times for a verdict.
If both events ("Cell 1-2" and "Cell 2-3") pass for each configuration (without and with switched PCell/SCell scenario), the test passes. If one event fails, the test fails.

9.1.6.2.4.3 Message contents

Message contents are according to TS 36.508 [7] clause 4.6 with the following exceptions:

Table 9.1.6.2.4.3-1: Common Exception messages for FDD Relative RSRP Accuracy E-UTRA for Carrier Aggregation test requirement

Default Message Contents	
Common contents of system information blocks exceptions	
Default RRC messages and information elements contents exceptions	Table H.3.1-1 Table H.4.2-1 Table H.4.2-2 Table H.4.2-4

9.1.6.2.5 Test requirement

Table 9.1.6.2.5-2 defines the primary level settings including test tolerances for all tests.

The RSRP FDD relative accuracy test shall meet the RSRP accuracy requirements in table 9.1.6.2.5-3.

Table 9.1.6.2.5-1: Void

Table 9.1.6.2.5-2: RSRP FDD relative accuracy carrier aggregation test parameters

Parameter		Unit	Test 1		
			Cell 1	Cell 2	Cell3
E-UTRA RF Channel Number			1	2	2
$BW_{channel}$		MHz	10	10	10
Timing offset to cell1		μs	-	0	3μs or 92*Ts
Time alignment error between cell 2 and cell 1			-	≤ Time alignment error as specified in 3GPP TS 36.104 [29] clause 6.5.3.1.	-
Measurement bandwidth		n_{PRB}	22—27		
PDSCH Reference measurement channel defined in A.1.1			R.0 FDD	R.0 FDD	-
PDSCH allocation		n_{PRB}	13—36	13—36	-
PDCCH/PCFICH/PHICH Reference measurement channel defined in A.3.1.2.1			R.6 FDD		
OCNG Patterns defined in D.1.1 (OP.1 FDD) and D.1.2 (OP.2 FDD)			OP.1 FDD	OP.1 FDD	OP.2 FDD
PBCH_RA		dB	0	0	0
PBCH_RB					
PSS_RA					
SSS_RA					
PCFICH_RB					
PHICH_RA					
PHICH_RB					
PDCCH_RA					
PDCCH_RB					
PDSCH_RA					
PDSCH_RB					
OCNG_RANote1					
OCNG_RBNote					
N_{oc} Note2	Bands 1, 4, 6, 10, 11, 18, 19, 21,23 and 24	dBm/15 kHz	-117	(N_{oc} for Channel 1 +1dB)	
	Band 9		-116		
	Band 28		-115.5		
	Bands 2, 5, 7, 26 Note 6 and 27		-115		
	Bands 3, 8, 12, 13, 14, 17, 20, 22 and 29 Note 7		-114		
	Band 25		-113.5		
$\hat{E}_s/I_{ot}$		dB	-4.00	0.09	-4.96
RSRP Note3	Bands 1, 4, 6, 10, 11, 18 , 19, 21, 23 and 24	dBm/15 kHz	-121	(RSRP for Cell 1 +8dB)	(RSRP for Cell 1 +4.8dB)
	Band 9		-120		
	Band 28		-119.5		
	Bands 2, 5, 7, 26 Note 6 and 27		-119		
	Bands 3, 8, 12, 13, 14, 17, 20, 22 and 29 Note 7		-118		
	Band 25		-117.5		
Io Note3	Bands 1, 4, 6, 10, 11, 18, 19, 21,23 and 24	dBm/9 MHz	-87.76	(Io for Channel 1 +5.51dB)	
	Band 9		-86.76		

	Bands 28		-86.26		
	Bands 2, 5, 7, 26 Note 6 and 27		-85.76		
	Bands 3, 8, 12, 13, 14, 17, 20, 22 and 29 Note 7		-84.76		
	Band 25		-84.26		
$\hat{E}_s/N_{oc}$		dB	-4	3	-1
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.
Note 4: RSRP minimum requirements are specified assuming independent interference and noise at each receiver antenna port.
Note 5: The selection of the bands for testing depends on the configuration of the carrier aggregations supported by the UEs.
Note 6: For Band 26, the tests shall be performed with the carrier frequency of the assigned E-UTRA channel bandwidth within 865-894 MHz
Note 7: This band is used only for E-UTRA carrier aggregation with other E-UTRA bands.
Note 8: The frequencies of PCell and SCell shall be switched and tested for each configuration.

Table 9.1.6.2.5-3: RSRP FDD Carrier Aggregation relative accuracy requirements for the reported values

	Test 1
	All bands
Normal and Extreme Conditions	
Lowest reported value (Cell 2)	RSRP_x – 1
Highest reported value (Cell 2)	RSRP_x + 17
Lowest reported value (Cell 3)	RSRP_y – 8
Highest reported value (Cell 3)	RSRP_y + 1
RSRP_x is the reported value of Cell 1 RSRP_y is the reported value of Cell 2	

For the test to pass, the ratio of successful reported values in each test shall be more than 90% with a confidence level of 95%.

9.1.7 TDD RSRP Accuracy E-UTRA for Carrier Aggregation

9.1.7.1 TDD Absolute RSRP Accuracy E-UTRA for Carrier Aggregation

9.1.7.1.1 Test purpose

To verify that TDD absolute RSRP measurement accuracy in carrier aggregation is within the specified limits under AWGN propagation conditions. This test will verify the TDD absolute RSRP accuracy requirements of cells on the primary component carrier and the secondary component carrier.

9.1.7.1.2 Test applicability

This test applies to all types of E-UTRA TDD UE release 10 and forward supporting CA.

9.1.7.1.3 Minimum conformance requirements

The TDD RSRP measurements of cells on the primary component carrier shall meet the absolute accuracy requirements defined in TS 36.133 [4] clause 9.1.2.1. The TDD RSRP measurements of cells on the secondary component carrier shall meet the absolute accuracy requirements defined in TS 36.133 [4] clause 9.1.2.1.

The accuracy requirements in table 9.1.7.1.3-1 are valid under the following conditions:

Cell specific reference signals are transmitted either from one, two or four antenna ports.

Conditions defined in 36.101 Section 7.3 for reference sensitivity are fulfilled.

$RSRP|_{dBm}$ according to Annex I.3.1 for a corresponding Band.

Table 9.1.7.1.3-1: RSRP TDD absolute accuracy

Accuracy		Conditions				
Normal condition	Extreme condition	Ês/Iot	Io Note 1 range			
			E-UTRA operating bands	Minimum Io		Maximum Io
dB	dB	dB		dBm/15kHz	$dBm/BW_{Channel}$	$dBm/BW_{Channel}$
±6	±9	≥-6 dB	1, 4, 6, 10, 11, 18, 19, 21, 23, 24, 33, 34, 35, 36, 37, 38, 39, 40	-121	N/A	-70
			9, 42, 43	-120	N/A	-70
			28	-119.5	N/A	-70
			2, 5, 7, 27, 41, 44	-119	N/A	-70
			26	-118.5 Note 2	N/A	-70
			3, 8, 12, 13, 14, 17, 20, 22	-118	N/A	-70
			29 Note 4	-118	N/A	-70
			25	-117.5	N/A	-70
±8	±11	≥-6 dB	Note 3	N/A	-70	-50

NOTE 1: Io is assumed to have constant EPRE across the bandwidth.
NOTE 2: The condition has the minimum Io of -119 dBm/15kHz when the carrier frequency of the assigned E-UTRA channel bandwidth is within 865-894 MHz.
NOTE 3: The same bands apply for this requirement as for the corresponding highest accuracy requirement.
NOTE 4: This band is used only for E-UTRA carrier aggregation with other E-UTRA bands.

The reporting range of RSRP is defined from -140 dBm to -44 dBm with 1 dB resolution.

The mapping of measured quantity is defined in Table 9.1.7.1.3-2. The range in the signalling may be larger than the guaranteed accuracy range.

Table 9.1.7.1.3-2: RSRP measurement report mapping

Reported value	Measured quantity value	Unit
RSRP_00	RSRP < -140	dBm
RSRP_01	-140 ≤ RSRP < -139	dBm
RSRP_02	-139 ≤ RSRP < -138	dBm
…	…	…
RSRP_95	-46 ≤ RSRP < -45	dBm
RSRP_96	-45 ≤ RSRP < -44	dBm
RSRP_97	-44 ≤ RSRP	dBm

The normative reference for this requirement is TS 36.133 [4] clause 9.1.11.1, clause 9.1.11.2, clause 9.1.4, and A.9.1.7.

9.1.7.1.4 Test description

9.1.7.1.4.1 Initial conditions

Test Environment: Normal, TL/VL, TL/VH, TH/VL, TH/VH; as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1 for different CA bandwidth classes.

Channel Bandwidth to be tested: 10 MHz as defined in TS 36.508 [7] clause 4.3.1 for different CA configurations as defined in TS 36.521-1[10] clause 5.4.2A.

1. Connect the SS (node B emulator) and AWGN noise sources to the UE antenna connectors as shown in TS 36.508 [7] Annex A, Figure group A.41 as appropriate.

2. Propagation conditions are set according to Annex B clause B.0.

3. Message contents are defined in clause 9.1.7.1.4.3.

4. There are two E-UTRA TDD carriers with one cell on one E-UTRA TDD carrier and two cells on the other E-UTRA TDD carrier specified in the test. PCell (Cell 1) is the cell used for connection setup with the power level set according to Annex C.0 and C.1 for this test. Cell 2 and Cell 3 shall be powered OFF.

9.1.7.1.4.2 Test procedure

The test consists of Cell 1 the PCell, Cell 2 the SCell on the Secondary Component Carrier (SCC), and Cell 3 the neighbouring cell on the SCC. The SCC is configured and activated. The absolute accuracy of RSRP is defined as the RSRP measured from the primary component carrier (Cell 1) and the RSRP measured from the secondary component carrier (Cell 2 and Cell 3).

1. Ensure the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.

2. Configure SCC according to Annex C.0 and C.1 for all downlink physical channels except PHICH.

3. The SS shall configure SCell (Cell 2) on the SCC as per TS 36.508 [7] clause 5.2A.4.

4. The SS activates SCC by sending the activation MAC-CE (Refer TS 36.321 [13], clauses 5.13, 6.1.3.8). Wait for at least 2 seconds as per TS 36.133 [4] clause 8.3.3.2.

5. Set the parameters according to Table 9.1.7.1.5-1 as appropriate. Propagation conditions are set according to Annex B clause B.1.1.

6. The SS shall transmit an RRCConnectionReconfiguration message.

7. The UE shall transmit RRCConnectionReconfigurationComplete message.

8. The UE shall transmit periodically MeasurementReport messages.

9. The SS shall check the reported RSRP values in MeasurementReport messages. The reported RSRP values for Cell 1 and Cell 2 are compared to the actual RSRP values according to Table 9.1.7.1.5-2. This counts respectively as a Pass or Fail for the events “Cell 1” and “Cell 2”.

10. The SS shall check the MeasurementReport messages transmitted by the UE until a test verdict has been achieved.

11. Repeat steps 1-10 for switched PCell/SCell scenario.

Each of the events “Cell 1” and “Cell 2” is evaluated independently for the statistic, resulting in an event verdict: pass or fail. Each event is evaluated only until the confidence level according to Table G.2.3-1 in Annex G.2 is achieved. Different events may require different times for a verdict.
If both events (“Cell 1” and “Cell 2”) pass for each configuration (without and with switched PCell/SCell scenario), the test passes. If one event fails, the test fails.

9.1.7.1.4.3 Message contents

Message contents are according to TS 36.508 [7] clause 4.6 with the following exceptions:

Table 9.1.7.1.4.3-1: Common Exception messages for TDD Absolute RSRP Accuracy E-UTRA for Carrier Aggregation test requirement

Default Message Contents	
Common contents of system information blocks exceptions	
Default RRC messages and information elements contents exceptions	Table H.3.1-1 Table H.4.2-1 Table H.4.2-2 Table H.4.2-4

9.1.7.1.5 Test requirement

Table 9.1.7.1.5-1 defines the primary level settings including test tolerances for all tests.

Each RSRP TDD absolute accuracy test shall meet the reported values test requirements in table 9.1.7.1.5-2.

Table 9.1.7.1.5-1: RSRP TDD absolute accuracy carrier aggregation test parameters

Parameter		Unit	Test 1		
			Cell 1	Cell 2	Cell 3
E-UTRA RF Channel Number			1	2	
$BW_{channel}$		MHz	10		
Special subframe configuration[Note1]			6		
Uplink/downlink configuration[Note1]			1		
Timing offset to Cell 1		μs	-	0	3μs or 92*Ts
Time alignment error between cell 2 and cell 1			-	≤ Time alignment error as specified in 3GPP TS 36.104 [29] clause 6.5.3.1.	-
Measurement bandwidth		n_{PRB}	22—27		
PDSCH Reference measurement channel defined in A.3.1.1.2			R.0 TDD	R.0 TDD	-
PDSCH allocation		n_{PRB}	13—36	13—36	-
PDCCH/PCFICH/PHICH Reference measurement channel defined in A.3.1.2.2			R.6 TDD		
OCNG Patterns defined in A.3.2.2.1 (OP.1 TDD) and A.3.2.2.2 (OP.2 TDD)			OP.1 TDD	OP.1 TDD	OP.2 TDD
PBCH_RA		dB	0	0	0
PBCH_RB					
PSS_RA					
SSS_RA					
PCFICH_RB					
PHICH_RA					
PHICH_RB					
PDCCH_RA					
PDCCH_RB					
PDSCH_RA					
PDSCH_RB					
OCNG_RA[Note2]					
OCNG_RB[Note2]					
N_{oc} [Note3]	Bands 33, 34, 35, 36, 37, 38, 39, 40	dBm/15 kHz	-117	(N_{oc} for Channel 1 +1dB)	
	Bands 42, 43		-116		
	Band 41, [44]		-115		
$\hat{E}_s/I_{ot}$		dB	-4.00	0.46	-5.76
RSRP[Note4]	Bands 33, 34, 35, 36, 37, 38, 39, 40	dBm/15 kHz	-121	(RSRP for Cell 1 +8dB)	(RSRP for Cell 1 +4dB)
	Bands 42, 43		-120		
	Band 41, [44]		-119		
Io[Note4]	Bands 33, 34, 35, 36, 37, 38, 39, 40	dBm/9 MHz	-87.76	(Io for Channel 1 +5.33dB)	
	Bands 42, 43		-86.76		
	Band 41, [44]		-85.76		
$\hat{E}_s/N_{oc}$		dB	-4	3	-1
Propagation condition		-	AWGN		

Note 1: For special subframe and uplink-downlink configurations see Tables 4.2-1 and 4.2-2 in 3GPP TS 36.211.
Note 2: 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 3: 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 4:	RSRP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves.
Note 5:	RSRP minimum requirements are specified assuming independent interference and noise at each receiver antenna port.
Note 6:	The selection of the bands for testing depends on the configuration of the carrier aggregations supported by the UEs.
Note 7:	The frequencies of PCell and SCell shall be switched and tested for each configuration.

Table 9.1.7.1.5-2: RSRP TDD Carrier Aggregation absolute accuracy requirements for the reported values

Parameter	**Test 1**		
Band of Cell 1 on Primary Component Carrier	**Bands 33, 34, 35, 36, 37, 38, 39, 40**	**Bands42, 43**	**Band 41**
Normal Conditions			
Lowest reported value (Cell 1)	RSRP_12	RSRP_13	RSRP_14
Highest reported value (Cell 1)	RSRP_27	RSRP_28	RSRP_29
Lowest reported value (Cell 2)	RSRP_20	RSRP_21	RSRP_22
Highest reported value (Cell 2)	RSRP_35	RSRP_36	RSRP_37
Extreme Conditions			
Lowest reported value (Cell 1)	RSRP_9	RSRP_19	RSRP_11
Highest reported value (Cell 1)	RSRP_30	RSRP_31	RSRP_32
Lowest reported value (Cell 2)	RSRP_17	RSRP_18	RSRP_19
Highest reported value (Cell 2)	RSRP_38	RSRP_39	RSRP_40
Note: The band of Cell 1 determines the levels for both Cell 1 and Cell 2, so the reported RSRP values depend only on the band of Cell 1, and are not dependent on the band of Cell 2.			

For the test to pass, the ratio of successful reported values in each test shall be more than 90% with a confidence level of 95%.

9.1.7.2 TDD Relative RSRP Accuracy E-UTRA for Carrier Aggregation

9.1.7.2.1 Test purpose

To verify that TDD relative RSRP measurement accuracy in carrier aggregation is within the specified limits under AWGN propagation conditions. This test will verify the TDD relative RSRP accuracy requirements of cells between the primary and secondary component carrier and TDD relative RSRP accuracy of cells on the secondary component carriers.

9.1.7.2.2 Test applicability

This test applies to all types of E-UTRA TDD UE release 10 and forward supporting CA.

9.1.7.2.3 Minimum conformance requirements

The TDD RSRP relative measurements of cells on PCC and SCC shall meet relative accuracy requirements defined in TS 36.133 clause 9.1.3.2. The TDD RSRP relative measurements of cells on the SCC shall meet relative accuracy requirements defined in TS 36.133 clause 9.1.2.2.

The accuracy requirements in Table 9.1.7.2.3-1 for PCC-SCC relative accuracy requirements are valid under the following conditions:

Cell specific reference signals are transmitted either from one, two or four antenna ports.

Conditions defined in TS 36.101 [2] Section 7.3 for reference sensitivity are fulfilled.

$RSRP1,2|_{dBm}$ according to Annex I.3.8 for a corresponding Band

$$\left| RSRP1|_{dBm} - RSRP2|_{dBm} \right| \leq 27dB$$

| Channel 1_Io -Channel 2_Io | ≤ 20 dB

Table 9.1.7.2.3-1: TDD RSRP relative accuracy for PCC and SCC

Accuracy		Conditions			
Normal condition	Extreme condition	Ês/Iot Note 2	Io Note 1 range		
			E-UTRA operating bands	Minimum Io	Maximum Io
dB	dB	dB		dBm/15kHz	dBm/BW Channel
±6	±6	≥-6 dB	1, 4, 6, 10, 11, 18, 19, 21, 23, 24, 33, 34, 35, 36, 37, 38, 39, 40	-121	-50
			9, 42, 43	-120	-50
			28	-119.5	-50
			2, 5, 7, 27, 41, 44	-119	-50
			26	-118.5 Note 3	-50
			3, 8, 12, 13, 14, 17, 20, 22	-118	-50
			29 Note 4	-118	-50
			25	-117.5	-50

NOTE 1: Io is assumed to have constant EPRE across the bandwidth.
NOTE 2: The parameter Ês/Iot is the minimum Ês/Iot of the pair of cells to which the requirement applies.
NOTE 3: The condition has the minimum Io of -119 dBm/15kHz when the carrier frequency of the assigned E-UTRA channel bandwidth is within 865-894 MHz.
NOTE 4: This band is used only for E-UTRA carrier aggregation with other E-UTRA bands.

The normative reference for this requirement is TS 36.133 [4] clause 9.1.11.3, clause 9.1.4, and A.9.1.7.

The TDD RSRP relative measurements of cells on SCCs shall meet relative accuracy requirements defined in TS 36.133 clause 9.1.2.2.

The accuracy requirements in Table 9.1.7.2.3-2 for SCCs relative accuracy requirements are valid under the following conditions:

Cell specific reference signals are transmitted either from one, two or four antenna ports.

Conditions defined in TS 36.101 [2] Section 7.3 for reference sensitivity are fulfilled.

$RSRP1,2|_{dBm}$ according to Annex I.3.8 for a corresponding Band.

Table 9.1.7.2.3-2: TDD RSRP relative accuracy for SCCs

Accuracy		Conditions			
Normal condition	Extreme condition	Ês/Iot Note 2	Io Note 1 range		
			E-UTRA operating bands	Minimum Io	Maximum Io
dB	dB	dB		dBm/15kHz	dBm/BW Channel
±2	±3	≥-3 dB	1, 4, 6, 10, 11, 18, 19, 21, 23, 24, 33, 34, 35, 36, 37, 38, 39, 40	-121	-50
			9, 42, 43	-120	-50
			28	-119.5	-50
			2, 5, 7, 27, 41, 44	-119	-50
			26	-118.5 Note 3	-50
			3, 8, 12, 13, 14, 17, 20, 22	-118	-50
			29 Note 5	-118	-50
			25	-117.5	-50
±3	±3	≥-6 dB	Note 4	Note 4	Note 4

NOTE 1: Io is assumed to have constant EPRE across the bandwidth.
NOTE 2: The parameter Ês/Iot is the minimum Ês/Iot of the pair of cells to which the requirement applies.
NOTE 3: The condition has the minimum Io of -119 dBm/15kHz when the carrier frequency of the assigned E-UTRA channel bandwidth is within 865-894 MHz.
NOTE 4: The same bands and the same Io conditions for each band apply for this requirement as for the corresponding highest accuracy requirement.
NOTE 5: This band is used only for E-UTRA carrier aggregation with other E-UTRA bands.

The normative reference for this requirement is TS 36.133 [4] clause 9.1.11.2, clause 9.1.11.3, clause 9.1.4, and A.9.1.7.

9.1.7.2.4 Test description

9.1.7.2.4.1 Initial conditions

Test Environment: Normal, TL/VL, TL/VH, TH/VL, TH/VH; as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1 for different CA bandwidth classes.

Channel Bandwidth to be tested: 10 MHz as defined in TS 36.508 [7] clause 4.3.1 for different CA configurations as defined in TS 36.521-1[10] clause 5.4.2A.

1. Connect the SS and AWGN noise source to the UE antenna connectors as shown in TS 36.508 [7] Annex A, Figure group A.41 as appropriate.
2. Propagation conditions are set according to Annex B clause B.0.
3. Message contents are defined in clause 9.1.7.2.4.3.
4. There are two E-UTRA TDD carriers with one cell on one E-UTRA TDD carrier and two cells on the other E-UTRA TDD carrier specified in the test. PCell (Cell 1) is the cell used for connection setup with the power level set according to Annex C.0 and C.1 for this test. Cell 2 and Cell 3 shall be powered OFF.

9.1.7.2.4.2 Test procedure

1. Ensure the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.
2. Configure SCC according to Annex C.0 and C.1 for all downlink physical channels except PHICH.
3. The SS shall configure SCell (Cell 2) on the SCC as per TS 36.508 [7] clause 5.2A.4.
4. SS activates SCC by sending the activation MAC-CE (Refer TS 36.321 [13], clauses 5.13, 6.1.3.8). Wait for at least 2 seconds as per TS 36.133 [4] clause 8.3.3.2.
5. Set the parameters according to Table 9.1.7.2.5-1 as appropriate. Propagation conditions are set according to Annex B clause B.1.1.
6. SS shall transmit an RRCConnectionReconfiguration message.
7. The UE shall transmit RRCConnectionReconfigurationComplete message.
8. UE shall transmit periodically MeasurementReport messages.
9. SS shall check the reported RSRP values in MeasurementReport messages. The reported RSRP value for Cell 2 is compared to the reported RSRP value for Cell 1 for each MeasurementReport message according to Table 9.1.7.2.5-2. Also the reported RSRP value for Cell 3 is compared to the reported RSRP value for Cell 2 for each MeasurementReport message according to Table 9.1.7.2.5-2. This counts respectively as a Pass or Fail for the events “Cell 1-2” and “Cell 2-3”.
10. SS shall check the MeasurementReport messages transmitted by the UE until a test verdict has been achieved.
11. Repeat steps 1-10 for switched PCell/SCell scenario.

Each of the events “Cell 1-2” and “Cell 2-3” is evaluated independently for the statistic, resulting in an event verdict: pass or fail. Each event is evaluated only until the confidence level according to Table G.2.3-1 in Annex G.2 is achieved. Different events may require different times for a verdict.
If both events (“Cell 1-2” and “Cell 2-3”) pass for each configuration (without and with switched PCell/SCell scenario), the test passes. If one event fails, the test fails.

9.1.7.2.4.3 Message contents

Message contents are according to TS 36.508 [7] clause 4.6 with the following exceptions:

Table 9.1.7.2.4.3-1: Common Exception messages for TDD Relative RSRP Accuracy E-UTRA for Carrier Aggregation test requirement

Default Message Contents	
Common contents of system information blocks exceptions	
Default RRC messages and information elements contents exceptions	Table H.3.1-1 Table H.4.2-1 Table H.4.2-2 Table H.4.2-4

9.1.7.2.5 Test requirement

Table 9.1.7.2.5-1 defines the primary level settings including test tolerances for all tests.

Each RSRP TDD relative accuracy test shall meet the RSRP accuracy requirements in table 9.1.7.2.5-2.

Table 9.1.7.2.5-1: RSRP TDD relative accuracy carrier aggregation test parameters

Parameter		Unit	Test 1		
			Cell 1	Cell 2	Cell 3
E-UTRA RF Channel Number			1	2	
$BW_{channel}$		MHz	10		
Special subframe configuration[Note1]			6		
Uplink/downlink configuration[Note1]			1		
Time alignment error between cell 2 and cell 1			-	≤ Time alignment error as specified in 3GPP TS 36.104 [29] clause 6.5.3.1.	-
Timing offset to Cell 1		μs	-	0	3μs or 92*Ts
Measurement bandwidth		n_{PRB}	22—27		
PDSCH Reference measurement channel defined in A.3.1.1.2			R.0 TDD	R.0 TDD	-
PDSCH allocation		n_{PRB}	13—36	13—36	-
PDCCH/PCFICH/PHICH Reference measurement channel defined in A.3.1.2.2			R.6 TDD		
OCNG Patterns defined in A.3.2.2.1 (OP.1 TDD) and A.3.2.2.2 (OP.2 TDD)			OP.1 TDD	OP.1 TDD	OP.2 TDD
PBCH_RA		dB	0	0	0
PBCH_RB					
PSS_RA					
SSS_RA					
PCFICH_RB					
PHICH_RA					
PHICH_RB					
PDCCH_RA					
PDCCH_RB					
PDSCH_RA					
PDSCH_RB					
OCNG_RA[Note2]					
OCNG_RB[Note2]					
N_{oc} Note3	Bands 33, 34, 35, 36, 37, 38, 39, 40	dBm/15 kHz	-117	(N_{oc} for Channel 1 +1dB)	
	Bands 42, 43		-116		
	Band 41, [44]		-115		
$\hat{E}_s/I_{ot}$		dB	-4.00	0.09	-4.96
RSRP[Note4]	Bands 33, 34, 35, 36, 37, 38, 39, 40	dBm/15 kHz	-121	(RSRP for Cell 1 +8dB)	(RSRP for Cell 1 +4.8dB)
	Bands 42, 43		-120		
	Band 41, [44]		-119		
Io[Note4]	Bands 33, 34, 35, 36, 37, 38, 39, 40	dBm/9 MHz	-87.76	(Io for Channel 1 +5.51dB)	
	Bands 42, 43		-86.76		
	Band 41, [44]		-85.76		
$\hat{E}_s/N_{oc}$		dB	-4	3	-1
Propagation condition		-	AWGN		

Note 1: For special subframe and uplink-downlink configurations see Tables 4.2-1 and 4.2-2 in 3GPP TS 36.211.
Note 2: 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 3: 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 4:	RSRP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves.
Note 5:	RSRP minimum requirements are specified assuming independent interference and noise at each receiver antenna port.
Note 6:	The selection of the bands for testing depends on the configuration of the carrier aggregations supported by the UEs.
Note 7:	The frequencies of PCell and SCell shall be switched and tested for each configuration.

Table 9.1.7.2.5-2: RSRP TDD Carrier Aggregation relative accuracy requirements for the reported values

	Test 1
	All bands
Normal and Extreme Conditions	
Lowest reported value (Cell 2)	RSRP_x – 1
Highest reported value (Cell 2)	RSRP_x + 17
Lowest reported value (Cell 3)	RSRP_y – 8
Highest reported value (Cell 3)	RSRP_y + 1
RSRP_x is the reported value of Cell 1 RSRP_y is the reported value of Cell 2	

For the test to pass, the ratio of successful reported values in each test shall be more than 90% with a confidence level of 95%.

9.1.8 FDD RSRP Accuracy E-UTRA under Time-Domain Measurement Resource Restriction with Non-MBSFN ABS (eICIC)

9.1.8.1 FDD Absolute RSRP Accuracy under Time-Domain Measurement Resource Restriction with Non-MBSFN ABS (eICIC)

9.1.8.1.1 Test purpose

To verify that FDD absolute RSRP measurement accuracy measurements under time-domain measurement resource restriction with Non-MBSFN ABS configured in the aggressor cell is within the specified limits under AWGN propagation conditions.

9.1.8.1.2 Test applicability

This test applies to all types of E-UTRA FDD UE release 10 and forward. Applicability requires support for FGI bit 115.

9.1.8.1.3 Minimum conformance requirements

The FDD RSRP measurements of cells shall meet the intra frequency absolute accuracy requirements defined in TS 36.133 [4] clause 9.1.2.3.

The accuracy requirements in table 9.1.8.1.3-1 are valid under the following conditions:

Cell specific reference signals in the measured cell are transmitted either from one, two or four antenna ports,

Conditions defined in TS 36.101 [2] Section 7.3 for reference sensitivity are fulfilled.

$RSRP|_{dBm}$ according to Annex I.3.9 for a corresponding Band.

The time domain measurement resource restriction pattern configured for the measured cell indicates at least one subframe per radio frame for performing the RSRP measurement,

Four symbols containing CRS are available in all subframes indicated by the time domain measurement resource restriction pattern.

Table 9.1.8.1.3-1: RSRP Intra frequency absolute accuracy under time domain measurement resource restriction

Accuracy		Conditions				
Normal condition	Extreme condition	Ês/Iot	Io Note 2 range			
			E-UTRA operating bands	Minimum Io		Maximum Io
dB	dB	dB		dBm/ 15kHz Note 1, 6	dBm/BW Channel	dBm/BW Channel
±6	±9	≥-4 dB	1, 4, 6, 10, 11, 18, 19, 21, 23, 24, 33, 34, 35, 36, 37, 38, 39, 40	-121	N/A	-70
			9, 42, 43	-120	N/A	-70
			28	-119.5	N/A	-70
			2, 5, 7, 27, 41, 44	-119	N/A	-70
			26	-118.5 Note 3	N/A	-70
			3, 8, 12, 13, 14, 17, 20, 22, 29 Note 5	-118	N/A	-70
			25	-117.5	N/A	-70
±8	±11	≥-4 dB	Note 4	N/A	-70	-50

NOTE 1: This minimum Io condition is expressed as the average Io per RE over all REs in that symbol.
NOTE 2: Io is defined in subframes indicated by the time domain measurement resource restriction pattern configured for performing RSRP measurements of this cell. The Io range defined by the minimum and the maximum Io levels applies to CRS and non-CRS symbols. Io may be different in different symbols within a subframe.
NOTE 3: The condition has the minimum Io of -119 dBm/15kHz when the carrier frequency of the assigned E-UTRA channel bandwidth is within 865-894 MHz.
NOTE 4: The same bands apply for this requirement as for the corresponding highest accuracy requirement.
NOTE 5: Band 29 is used only for E-UTRA carrier aggregation with other E-UTRA bands.
NOTE 6: The condition level is increased by Δ>0, when applicable, as described in TS 36.133 [4] sections B.4.2 and B.4.3.

The reporting range of RSRP is defined from -140 dBm to -44 dBm with 1 dB resolution.

The mapping of measured quantity is defined in Table 9.1.8.1.3-2. The range in the signalling may be larger than the guaranteed accuracy range.

Table 9.1.8.1.3-2: RSRP measurement report mapping

Reported value	Measured quantity value	Unit
RSRP_00	RSRP < -140	dBm
RSRP_01	-140 ≤ RSRP < -139	dBm
RSRP_02	-139 ≤ RSRP < -138	dBm
…	…	…
RSRP_95	-46 ≤ RSRP < -45	dBm
RSRP_96	-45 ≤ RSRP < -44	dBm
RSRP_97	-44 ≤ RSRP	dBm

The normative reference for this requirement is TS 36.133 [4] clause 9.1.2.3, clause 9.1.4 and A.9.1.8

9.1.8.1.4 Test description

9.1.8.1.4.1 Initial conditions

Test Environment: Normal, TL/VL, TL/VH, TH/VL, TH/VH; as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1.

Channel Bandwidth to be tested: 10 MHz as defined in TS 36.508 [7] clause 4.3.1.

1. Connect the SS (node B emulator) and AWGN noise sources to the UE antenna connectors as shown in TS 36.508 [7] Annex A figure A.20.

2. The general test parameter settings are set up according to Table 9.1.8.1.4.1-1.

3. Propagation conditions are set according to Annex B clause B.0.

4. Message contents are defined in clause 9.1.8.1.4.3.

5. Cell 1 is the serving cell as well as aggressor cell to Cell 2, Cell 2 is the neighbouring cell. Cell 1 is the cell used for connection setup with the power levels set according to Annex C.0 and C.1 for this test.

Table 9.1.8.1.4.1-1: General test parameters for E-UTRAN FDD RSRP intra frequency test parameters under time-domain measurement resource restriction with non-MBSFN ABS

Parameter	Unit	Value	Comment
Serving cell (PCell)		Cell 1	The aggressor cell to Cell 2
Neighbour cell		Cell 2	Cell to be measured
PCell ABS configuration		Non-MBSFN ABS	As defined in Table C.3.1.1.1-1
CP length		Normal	For both cells in the test
DRX			OFF
Time offset between cells		3 μs	Synchronous cells
Physical cell ID PCI		$(PCI_{cell1} - PCI_{cell2})$mod6 !=0	Cell PCIs for Cell 1 and Cell 2 are selected randomly so that the condition is met
ABS pattern		'1000000010000000100000001000000010000000'	Non-MBSFN ABS. FDD ABS Pattern Info IE, as defined in TS 36.423 [28], clause 9.2.54. Configured in Cell 1. The first/leftmost bit corresponds to the subframe #0 of a radio frame satisfying SFN mod 40 = 0. No MBSFN subframes are configured in the ABS subframes in Cell 1.
Time-domain measurement resource restriction pattern for neighbour cell measurements on RF Channel 1		'1000000010000000100000001000000010000000'	Configured for Cell 2 measurements by measSubframePattern-Neigh IE in measSubframePatternConfig-Neigh, as defined in TS 36.331 [5], clause 6.3.5. measSubframeCellList contains Cell 2.
Time-domain measurement resource restriction pattern for serving cell measurements		'0100000001000000010000000100000001000000'	Configured for measurements on Cell 1.

9.1.8.1.4.2 Test procedure

In this test case all cells are on the same carrier frequency. The absolute accuracy of RSRP intra frequency measurements under time domain measurement resource restriction is tested by using the parameters in Tables 9.1.8.1.4.1-1 and Table 9.1.8.1.5-1 for non-MBSFN ABS with non-colliding CRS. Cell 1 is the serving cell and also the aggressor cell to Cell 2. Cell 2 is the target cell to be measured for RSRP.

The UE is configured by higher layers via Cell 1 with a time-domain measurement resource restriction pattern for performing E-UTRAN FDD intra-frequency measurements on neighbour cells and provided with a neighbour cell list associated with the pattern, where the cell list includes Cell 2. The UE is also configured with a time-domain measurement resource restriction pattern for the serving cell measurements. The information for both patterns shall be provided to the UE before the measurements start.

1. Ensure the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.

2. Set the parameters according to Tables 9.1.8.1.4.1-1 and Table 9.1.8.1.5-1. Propagation conditions are set according to Annex B clause B.1.

3. SS shall transmit an RRCConnectionReconfiguration message on Cell 1.

4. The UE shall transmit RRCConnectionReconfigurationComplete message.

5. UE shall transmit periodically MeasurementReport messages.

6. SS shall check the reported RSRP values in MeasurementReport messages. The reported RSRP values for Cell 2 are compared to the actual RSRP values according to Table 9.1.8.1.5-2.

7. SS shall check the MeasurementReport messages transmitted by the UE until the confidence level according to Table G.2.3-1 in Annex G.2 is achieved.

8. Repeat step 1-7 for each sub-test in Table 9.1.8.1.5-1 as appropriate.

9.1.8.1.4.3 Message contents

Message contents are according to TS 36.508 [7] clause 4.6 with the following exceptions:

Table 9.1.8.1.4.3-1: Common Exception messages for RSRP FDD Intra frequency under time domain measurement resource restriction with non-MBSFN ABS absolute accuracy test requirement

Default Message Contents	
Common contents of system information blocks exceptions	
Default RRC messages and information elements contents exceptions	Table H.3.1-1 Table H.3.5-1 Table H.3.5-3

Table 9.1.8.1.4.3-2: *MeasResults*: Additional RSRP FDD Intra frequency under time domain measurement resource restriction with non-MBSFN ABS absolute accuracy test requirement

Derivation Path: TS 36.331 [5] clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResults ::= SEQUENCE {			
measId	1	Identifies the measurement id for the reporting being performed	
measResultServCell SEQUENCE {			
rsrpResult		Set according to specific test	
rsrqResult		Set according to specific test	
}			
measResultNeighCells CHOICE {			
measResultListEUTRA	MeasResultListEUTRA		
}			
}			

Table 9.1.8.1.4.3-3: *MeasResultListEUTRA*: Additional RSRP FDD Intra frequency under time domain measurement resource restriction with non-MBSFN ABS absolute accuracy test requirement

Derivation Path: TS 36.331 [5] clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResultListEUTRA::= SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {			
physCellId	PhysicalCellIdentity		
measResult SEQUENCE {			
rsrpResult		Set according to specific test	
rsrqResult	Not present		
}			
}			

Table 9.1.8.1.4.3-4: *RadioResourceConfigDedicated-SRB2-DRB(n,m)*: Additional RSRP FDD Intra frequency under time domain measurement resource restriction with non-MBSFN ABS absolute accuracy test requirement

Derivation Path: TS 36.508 [7] clause 4.6.3, Table 4.6.3-16 RadioResourceConfigDedicated-SRB2-DRB(n,m)			
Information Element	**Value/remark**	**Comment**	**Condition**
RadioResourceConfigDedicated-SRB2-DRB(n, m) ::= SEQUENCE {			
MeasSubframePatternPCell-r10 CHOICE {			
setup SEQUENCE {			
subframePatternFDD-r10	‘0100000001000000010000000100000001000000’	BIT STRING (SIZE (40))	
}			
}			
}			

Table 9.1.8.1.4.3-5: *MeasObjectEUTRA-GENERIC(Freq)*: Additional RSRP FDD Intra frequency under time domain measurement resource restriction with non-MBSFN ABS absolute accuracy test requirement

Derivation Path: TS 36.508 [7] clause 4.6.6, Table 4.6.6-2 MeasObjectEUTRA-GENERIC			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasObjectEUTRA-GENERIC(Freq) ::= SEQUENCE {			
measSubframePatternConfigNeigh-r10 CHOICE {			
setup SEQUENCE {			
measSubframePatternNeigh-r10 CHOICE {			
subframePatternFDD-r10	‘1000000010000000100000001000000010000000’	BIT STRING (SIZE (40))	
}			
measSubframeCellList-r10 SEQUENCE {			
start	Physical Cell ID of Cell 2		
range	Not present		
}			
}			
}			
}			

9.1.8.1.5 Test requirement

Table 9.1.8.1.5-1 defines the primary level settings including test tolerances for all tests.

Each RSRP FDD absolute accuracy test shall meet the reported values test requirements in table 9.1.8.1.5-2.

Table 9.1.8.1.5-1: Cell Specific test parameters for E-UTRAN RSRP FDD absolute accuracy under time-domain measurement resource restriction with non-MBSFN ABS

Parameter		Unit	Test 1		Test 2		Test 3	
			Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
E-UTRA RF Channel Number			1		1		1	
$BW_{channel}$		MHz	10		10		10	
Measurement bandwidth		n_{PRB}	22—27		22—27		22—27	
PDSCH Reference measurement channel defined in A.1.1			R.0 FDD	-	R.0 FDD	-	R.0 FDD	-
PDSCH allocation		n_{PRB}	13—36	-	13—36	-	13—36	-
PDCCH/PCFICH/PHICH Reference measurement channel defined in A.2.1			R.6 FDD		R.6 FDD		R.6 FDD	
OCNG Patterns defined in D.1.5 (OP.5 FDD) and D.1.6 (OP.6 FDD)			OP.5 FDD	OP.6 FDD	OP.5 FDD	OP.6 FDD	OP.5 FDD	OP.6 FDD
PBCH_RA PBCH_RB PSS_RA SSS_RA PCFICH_RB PHICH_RA PHICH_RB PDCCH_RA PDCCH_RB PDSCH_RA PDSCH_RB OCNG_RA Note1 OCNG_RB Note1		dB	Note 6	0	Note 6	0	Note 6	0
N_{oc} Note2	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24	dBm/15 kHz	-106		-88		-116	
	Band 9						-115	
	Band 28						-114.5	
	Bands 2, 5, 7, 26 Note 7 and 27						-114	
	Bands 3, 8, 12, 13, 14, 17, 20 and 22						-113	
	Band 25						-112.5	
CRS $\hat{E}_s / N_{oc}$		dB	5	-2	5	-3.2	5	-3.2
CRS $\left(\hat{E}_s / I_{ot}\right)_{meas}$ Note 5		dB	2.88	-2.00	3. 30	-3.20	3. 30	-3.20
RSRP Note3,4,5	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24	dBm/15 kHz	-101	-108	-83	-91.2	-111	-119.2
	Band 9						-110	-118.2
	Band 28						-109.5	-117.7
	Bands 2, 5, 7, 26 Note 7 and 27						-109	-117.2
	Bands 3, 8, 12, 13, 14, 17, 20 and 22						-108	-116.2
	Band 25						-107.5	-115.7
$(\mathrm{Io})_{meas}$ Note 3	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24	dBm/9 MHz	-71.41	-74.88	-53. 55	-57. 20	-81. 55	-85.20
	Band 9						-80.55	-84.20
	Band 28						-80.05	-83.70
	Bands 2, 5, 7, 26 Note 7 and 27						-79.55	-83.20
	Bands 3, 8, 12, 13, 14, 17, 20 and 22						-78.55	-82.20
	Band 25						-78.05	-81.70
Propagation condition			AWGN		AWGN		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. Applies to all subframes.
Note 3: RSRP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves. Io levels are calculated in CRS symbols of measurement restricted subframes.
Note 4: RSRP minimum requirements are specified assuming independent interference and noise at each receiver antenna port.
Note 5: Applies to restricted measurement subframes of the respective cell.
Note 6: Non-ABS and ABS subframe channel powers defined in Table C.3.1.1.1-1.
Note 7: For Band 26, the tests shall be performed with the carrier frequency of the assigned E-UTRA channel bandwidth within 865-894 MHz.

Table 9.1.8.1.5-2: E-UTRAN RSRP FDD absolute accuracy under time-domain measurement resource restriction with non-MBSFN ABS requirements for the reported values

Normal Conditions	**Test 1 All bands**	**Test 2 All bands**	**Test 3**	
Lowest reported value (Cell 2)	RSRP_25	RSRP_40	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24	RSRP_14
			Band 9	RSRP_15
			Band 28	RSRP_15
			Bands 2, 5, 7, 26 and 27	RSRP_16
			Bands 3, 8, 12, 13, 14, 17, 20 and 22	RSRP_17
			Band 25	RSRP_17
Highest reported value (Cell 2)	RSRP_40	RSRP_59	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24	RSRP_29
			Band 9	RSRP_30
			Band 28	RSRP_30
			Bands 2, 5, 7, 26 and 27	RSRP_31
			Bands 3, 8, 12, 13, 14, 17, 20 and 22	RSRP_32
			Band 25	RSRP_32
Extreme Conditions	**Test 1 All bands**	**Test 2 All bands**	**Test 3**	
Lowest reported value (Cell 2)	RSRP_22	RSRP_37	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24	RSRP_11
			Band 9	RSRP_12
			Band 28	RSRP_12
			Bands 2, 5, 7, 26 and 27	RSRP_13
			Bands 3, 8, 12, 13, 14, 17, 20 and 22	RSRP_14
			Band 25	RSRP_14
Highest reported value (Cell 2)	RSRP_43	RSRP_62	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24	RSRP_32
			Band 9	RSRP_33
			Band 28	RSRP_33
			Bands 2, 5, 7, 26 and 27	RSRP_34
			Bands 3, 8, 12, 13, 14, 17, 20 and 22	RSRP_35
			Band 25	RSRP_35

For the test to pass, the ratio of successful reported values in each test shall be more than 90% with a confidence level of 95%.

9.1.8.2 FDD Relative RSRP Accuracy under Time-Domain Measurement Resource Restriction with Non-MBSFN ABS (eICIC)

9.1.8.2.1 Test purpose

To verify that FDD relative RSRP measurement accuracy measurements under time-domain measurement resource restriction with Non-MBSFN ABS configured in the aggressor cell is within the specified limits under AWGN propagation condition.

9.1.8.2.2 Test applicability

This test applies to all types of E-UTRA FDD UE release 10 and forward. Applicability requires support for FGI bit 115.

9.1.8.2.3 Minimum conformance requirements

The FDD RSRP measurements of cells shall meet the intra frequency relative accuracy requirements defined in TS 36.133 [4] clause 9.1.2.4.

The accuracy requirements in table 9.1.8.2.3-1 are valid under the following conditions:

Cell specific reference signals in the measured cell are transmitted either from one, two or four antenna ports,

Conditions defined in TS 36.101 [2] Section 7.3 for reference sensitivity are fulfilled.

$RSRP|_{dBm}$ according to Annex I.3.10 for a corresponding Band.

The time domain measurement resource restriction pattern configured for the measured cell indicates at least one subframe per radio frame for performing the RSRP measurement,

Four symbols containing CRS are available in all subframes indicated by the time domain measurement resource restriction pattern.

Table 9.1.8.2.3-1: RSRP Intra frequency relative accuracy under time domain measurement resource restriction

Accuracy		Conditions			
Normal condition	**Extreme condition**	**Ês/Iot Note 2**	**Io Note 3 range**		
			E-UTRA operating bands	**Minimum Io**	**Maximum Io**
dB	**dB**	**dB**		**dBm/15kHz Note 1, 7**	**dBm/BW$_{Channel}$**
±2	±3	≥-2 dB	1, 4, 6, 10, 11, 18, 19, 21, 23, 24, 33, 34, 35, 36, 37, 38, 39, 40	-121	-50
			9, 42, 43	-120	-50
			28	-119.5	-50
			2, 5, 7, 27, 41, 44	-119	-50
			26	-118.5 Note 4	-50
			3, 8, 12, 13, 14, 17, 20, 22, 29 Note 6	-118	-50
			25	-117.5	-50
±3	±3	≥-4 dB	Note 5	Note 5	Note 5

NOTE 1: This minimum Io condition is expressed as the average Io per RE over all REs in that symbol.
NOTE 2: The parameter Ês/Iot is the minimum Ês/Iot of the pair of cells to which the requirement applies.
NOTE 3: Io is defined in subframes indicated by the time domain measurement resource restriction pattern configured for performing RSRP measurements of this cell. The Io range defined by the minimum and the maximum Io levels applies to CRS and non-CRS symbols. Io may be different in different symbols within a subframe.
NOTE 4: The condition has the minimum Io of -119 dBm/15kHz when the carrier frequency of the assigned E-UTRA channel bandwidth is within 865-894 MHz.
NOTE 5: The same bands and the same Io conditions for each band apply for this requirement as for the corresponding highest accuracy requirement.
NOTE 6: This band is used only for E-UTRA carrier aggregation with other E-UTRA bands.
NOTE 7: The condition level is increased by Δ>0, when applicable, as described in TS 36.133 [4] sections B.4.2 and B.4.3.

The reporting range of RSRP is defined from -140 dBm to -44 dBm with 1 dB resolution.

The mapping of measured quantity is defined in Table 9.1.8.2.3-2. The range in the signalling may be larger than the guaranteed accuracy range.

Table 9.1.8.2.3-2: RSRP measurement report mapping

Reported value	Measured quantity value	Unit
RSRP_00	RSRP < -140	dBm
RSRP_01	-140 ≤ RSRP < -139	dBm
RSRP_02	-139 ≤ RSRP < -138	dBm
…	…	…
RSRP_95	-46 ≤ RSRP < -45	dBm
RSRP_96	-45 ≤ RSRP < -44	dBm
RSRP_97	-44 ≤ RSRP	dBm

The normative reference for this requirement is TS 36.133 [4] clause 9.1.2.4 , clause 9.1.4 and A.9.1.8

9.1.8.2.4 Test description

9.1.8.2.4.1 Initial conditions

Test Environment: Normal, TL/VL, TL/VH, TH/VL, TH/VH; as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1.

Channel Bandwidth to be tested: 10 MHz as defined in TS 36.508 [7] clause 4.3.1.

1. Connect the SS (node B emulator) and AWGN noise sources to the UE antenna connectors as shown in TS 36.508 [7] Annex A figure A.20.

2. The general test parameter settings are set up according to Table 9.1.8.2.4.1-1.

3. Propagation conditions are set according to Annex B clause B.0.

4. Message contents are defined in clause 9.1.8.2.4.3.

5. Cell 1 is the serving cell as well as aggressor cell to Cell 2, Cell 2 is the neighbouring cell. Cell 1 is the cell used for connection setup with the power levels set according to Annex C.0 and C.1 for this test.

Table 9.1.8.2.4.1-1: General test parameters for E-UTRAN FDD RSRP intra frequency test parameters under time-domain measurement resource restriction with non-MBSFN ABS

Parameter	Unit	Value	Comment
Serving cell (PCell)		Cell 1	The aggressor cell to Cell 2
Neighbour cell		Cell 2	Cell to be measured
PCell ABS configuration		Non-MBSFN ABS	As defined in Table C.3.1.1.1-1
CP length		Normal	For both cells in the test
DRX			OFF
Time offset between cells		3 μs	Synchronous cells
Physical cell ID PCI		$(PCI_{cell1} - PCI_{cell2})mod6$!=0	Cell PCIs for Cell 1 and Cell 2 are selected randomly so that the condition is met
ABS pattern		'10000000100000001000 00001000000010000000'	Non-MBSFN ABS. FDD ABS Pattern Info IE, as defined in TS 36.423 [28], clause 9.2.54. Configured in Cell 1. The first/leftmost bit corresponds to the subframe #0 of a radio frame satisfying SFN mod 40 = 0. No MBSFN subframes are configured in the ABS subframes in Cell 1.
Time-domain measurement resource restriction pattern for neighbour cell measurements on RF Channel 1		'10000000100000001000 00001000000010000000'	Configured for Cell 2 measurements by measSubframePattern-Neigh IE in measSubframePatternConfig-Neigh, as defined in TS 36.331 [5], clause 6.3.5. measSubframeCellList contains Cell 2.
Time-domain measurement resource restriction pattern for serving cell measurements		'01000000010000000100 00000100000001000000'	Configured for measurements on Cell 1.

9.1.8.2.4.2 Test procedure

In this test case all cells are on the same carrier frequency. The relative accuracy of RSRP intra frequency measurements under time domain measurement resource restriction is tested by using the parameters in Tables 9.1.8.2.4.1-1 and Table 9.1.8.2.5-1 for non-MBSFN ABS with non-colliding CRS. Cell 1 is the serving cell and also the aggressor cell to Cell 2. Cell 1 and Cell 2 are both measured.

The UE is configured by higher layers via Cell 1 with a time-domain measurement resource restriction pattern for performing E-UTRAN FDD intra-frequency measurements on neighbour cells and provided with a neighbour cell list associated with the pattern, where the cell list includes Cell 2. The UE is also configured with a time-domain measurement resource restriction pattern for the serving cell measurements. The information for both patterns shall be provided to the UE before the measurements start.

1. Ensure the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.
2. Set the parameters according to Tables 9.1.8.2.4.1-1 and Table 9.1.8.2.5-1. Propagation conditions are set according to Annex B clause B.1.
3. SS shall transmit an RRCConnectionReconfiguration message on Cell 1.
4. The UE shall transmit RRCConnectionReconfigurationComplete message.
5. UE shall transmit periodically MeasurementReport messages.
6. SS shall check the reported RSRP values in MeasurementReport messages. The reported RSRP value for Cell 2 is compared to the reported RSRP value for Cell 1 for each MeasurementReport message according to Table 9.1.8.2.5-2.
7. SS shall check the MeasurementReport messages transmitted by the UE until the confidence level according to Table G.2.3-1 in Annex G.2 is achieved.
8. Repeat step 1-7 for each sub-test in Table 9.1.8.2.5-1 as appropriate.

9.1.8.2.4.3 Message contents

Message contents are according to TS 36.508 [7] clause 4.6 with the following exceptions:

Table 9.1.8.2.4.3-1: Common Exception messages for RSRP FDD Intra frequency under time domain measurement resource restriction with non-MBSFN ABS relative accuracy test requirement

Default Message Contents	
Common contents of system information blocks exceptions	
Default RRC messages and information elements contents exceptions	Table H.3.1-1 Table H.3.5-1 Table H.3.5-3

Table 9.1.8.2.4.3-2: *MeasResults*: Additional RSRP FDD Intra frequency under time domain measurement resource restriction with non-MBSFN ABS relative accuracy test requirement

Derivation Path: TS 36.331 [5] clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResults ::= SEQUENCE {			
measId	1	Identifies the measurement id for the reporting being performed	
measResultServCell SEQUENCE {			
rsrpResult		Set according to specific test	
rsrqResult		Set according to specific test	
}			
measResultNeighCells CHOICE {			
measResultListEUTRA	MeasResultListEUTRA		
}			
}			

Table 9.1.8.2.4.3-3: *MeasResultListEUTRA*: Additional RSRP FDD Intra frequency under time domain measurement resource restriction with non-MBSFN ABS relative accuracy test requirement

Derivation Path: TS 36.331 [5] clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResultListEUTRA::= SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {			
physCellId	PhysicalCellIdentity		
measResult SEQUENCE {			
rsrpResult		Set according to specific test	
rsrqResult	Not present		
}			
}			

Table 9.1.8.2.4.3-4: *RadioResourceConfigDedicated-SRB2-DRB(n,m)*: Additional RSRP FDD Intra frequency under time domain measurement resource restriction with non-MBSFN ABS relative accuracy test requirement

Derivation Path: TS 36.508 [7] clause 4.6.3, Table 4.6.3-16 RadioResourceConfigDedicated-SRB2-DRB(n,m)			
Information Element	**Value/remark**	**Comment**	**Condition**
RadioResourceConfigDedicated-SRB2-DRB(n, m) ::= SEQUENCE {			
MeasSubframePatternPCell-r10 CHOICE {			
setup SEQUENCE {			
subframePatternFDD-r10	'0100000001000000010000000100000001000000'	BIT STRING (SIZE (40))	
}			
}			
}			

Table 9.1.8.2.4.3-5: *MeasObjectEUTRA-GENERIC(Freq)*: Additional RSRP FDD Intra frequency under time domain measurement resource restriction with non-MBSFN ABS relative accuracy test requirement

Derivation Path: TS 36.508 [7] clause 4.6.6, Table 4.6.6-2 MeasObjectEUTRA-GENERIC			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasObjectEUTRA-GENERIC(Freq) ::= SEQUENCE {			
measSubframePatternConfigNeigh-r10 CHOICE {			
setup SEQUENCE {			
measSubframePatternNeigh-r10 CHOICE {			
subframePatternFDD-r10	'1000000010000000100000001000000010000000'	BIT STRING (SIZE (40))	
}			
measSubframeCellList-r10 SEQUENCE {			
start	Physical Cell ID of Cell 2		
range	Not present		
}			
}			
}			
}			

9.1.8.2.5 Test requirement

Table 9.1.8.2.5-1 defines the primary level settings including test tolerances for all tests.

Each RSRP FDD relative accuracy test shall meet the reported values test requirements in table 9.1.8.2.5-2.

Table 9.1.8.2.5-1: Cell Specific test parameters for E-UTRAN RSRP FDD relative accuracy under time-domain measurement resource restriction with non-MBSFN ABS

Parameter		Unit	Test 1		Test 2		Test 3	
			Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
E-UTRA RF Channel Number			1		1		1	
$BW_{channel}$		MHz	10		10		10	
Measurement bandwidth		n_{PRB}	22—27		22—27		22—27	
PDSCH Reference measurement channel defined in A.1.1			R.0 FDD	-	R.0 FDD	-	R.0 FDD	-
PDSCH allocation		n_{PRB}	13—36	-	13—36	-	13—36	-
PDCCH/PCFICH/PHICH Reference measurement channel defined in A.2.1			R.6 FDD		R.6 FDD		R.6 FDD	
OCNG Patterns defined in D.1.5 (OP.5 FDD) and D.1.6 (OP.6 FDD)			OP.5 FDD	OP.6 FDD	OP.5 FDD	OP.6 FDD	OP.5 FDD	OP.6 FDD
PBCH_RA		dB	Note 6	0	Note 6	0	Note 6	0
PBCH_RB								
PSS_RA								
SSS_RA								
PCFICH_RB								
PHICH_RA								
PHICH_RB								
PDCCH_RA								
PDCCH_RB								
PDSCH_RA								
PDSCH_RB								
OCNG_RA Note1								
OCNG_RB Note1								
N_{oc} Note2	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24	dBm/15 kHz	-106		-88		-116	
	Band 9						-115	
	Band 28						-114.5	
	Bands 2, 5, 7, 26 Note 7 and 27						-114	
	Bands 3, 8, 12, 13, 14, 17, 20 and 22						-113	
	Band 25						-112.5	
CRS $\hat{E}_s / N_{oc}$		dB	5	-1.2	5	-3.2	5	-3.2
CRS $\left(\hat{E}_s / I_{ot}\right)_{meas}$ Note 5		dB	2.55	-1.20	3.30	-3.20	3.30	-3.20
RSRP Note3, 4,5	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24	dBm/15 kHz	-101	-107.2	-83	-91.2	-111	-119.2
	Band 9						-110	-118.2
	Band 28						-109.5	-117.7
	Bands 2, 5, 7, 26 Note 7 and 27						-109	-117.2
	Bands 3, 8, 12, 13, 14, 17, 20 and 22						-108	-116.2
	Band 25						-107.5	-115.7
$(\mathrm{Io})_{meas}$ Note 3	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24	dBm/9 MHz	-71.30	-74.63	-53.55	-57.20	-81.55	-85.20
	Band 9						-80.55	-84.20
	Band 28						-80.05	-83.70
	Bands 2, 5, 7, 26 Note 7 and 27						-79.55	-83.20
	Bands 3, 8, 12, 13, 14, 17, 20 and 22						-78.55	-82.20
	Band 25						-78.05	-81.70
Propagation condition			AWGN		AWGN		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. Applies to all subframes.
Note 3:	RSRP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves. Io levels are calculated in CRS symbols of measurement restricted subframes.
Note 4:	RSRP minimum requirements are specified assuming independent interference and noise at each receiver antenna port.
Note 5:	Applies to restricted measurement subframes of the respective cell.
Note 6:	Non-ABS and ABS subframe channel powers defined in Table C.3.1.1.1-1.
Note 7:	For Band 26, the tests shall be performed with the carrier frequency of the assigned E-UTRA channel bandwidth within 865-894 MHz.

Table 9.1.8.2.5-2: E-UTRAN RSRP FDD relative accuracy under time-domain measurement resource restriction with non-MBSFN ABS requirements for the reported values

Normal Conditions	**Test 1 All bands**	**Test 2 All bands**	**Test 3 All bands**
Lowest reported value (Cell 2)	RSRP_x-10	RSRP_x-13	RSRP_x-13
Highest reported value (Cell 2)	RSRP_x-3	RSRP_x-4	RSRP_x-4
Extreme Conditions	**Test 1 All bands**	**Test 2 All bands**	**Test 3 All bands**
Lowest reported value (Cell 2)	RSRP_x-11	RSRP_x-13	RSRP_x-13
Highest reported value (Cell 2)	RSRP_x-2	RSRP_x-4	RSRP_x-4
RSRP_x is the reported value of Cell 1			

For the test to pass, the ratio of successful reported values in each test shall be more than 90% with a confidence level of 95%.

9.1.9 TDD RSRP Accuracy E-UTRA under Time-Domain Measurement Resource Restriction with Non-MBSFN ABS (eICIC)

9.1.9.1 TDD Absolute RSRP Accuracy under Time-Domain Measurement Resource Restriction with Non-MBSFN ABS (eICIC)

9.1.9.1.1 Test purpose

To verify that TDD absolute RSRP measurement accuracy measurements under time-domain measurement resource restriction with Non-MBSFN ABS configured in the aggressor cell is within the specified limits under AWGN propagation conditions.

9.1.9.1.2 Test applicability

This test applies to all types of E-UTRA TDD UE release 10 and forward. Applicability requires support for FGI bit 115.

9.1.9.1.3 Minimum conformance requirements

The TDD RSRP measurements of cells shall meet the intra frequency absolute accuracy requirements defined in TS 36.133 [4] clause 9.1.2.3.

The accuracy requirements in table 9.1.9.1.3-1 are valid under the following conditions:

Cell specific reference signals in the measured cell are transmitted either from one, two or four antenna ports,

Conditions defined in TS 36.101 [2] Section 7.3 for reference sensitivity are fulfilled.

$RSRP|_{dBm}$ according to Annex I.3.9 for a corresponding Band.

The time domain measurement resource restriction pattern configured for the measured cell indicates at least one subframe per radio frame for performing the RSRP measurement,

Four symbols containing CRS are available in all subframes indicated by the time domain measurement resource restriction pattern.

Table 9.1.9.1.3-1: RSRP Intra frequency absolute accuracy under time domain measurement resource restriction

Accuracy		Conditions				
Normal condition	Extreme condition	Ês/Iot	Io Note 2 range			
			E-UTRA operating bands	Minimum Io		Maximum Io
dB	dB	dB		dBm/15kHz Note 1, 5	dBm/BW Channel	dBm/BW Channel
±6	±9	≥-4 dB	1, 4, 6, 10, 11, 18, 19, 21, 23, 24, 33, 34, 35, 36, 37, 38, 39, 40	-121	N/A	-70
			9, 42, 43	-120	N/A	-70
			28	-119.5	N/A	-70
			2, 5, 7, 27, 41, 44	-119	N/A	-70
			26	-118.5 Note 3	N/A	-70
			3, 8, 12, 13, 14, 17, 20, 22, 29 Note 5	-118	N/A	-70
			25	-117.5	N/A	-70
±8	±11	≥-4 dB	Note 4	N/A	-70	-50

NOTE 1: This minimum Io condition is expressed as the average Io per RE over all REs in that symbol.
NOTE 2: Io is defined in subframes indicated by the time domain measurement resource restriction pattern configured for performing RSRP measurements of this cell. The Io range defined by the minimum and the maximum Io levels applies to CRS and non-CRS symbols. Io may be different in different symbols within a subframe.
NOTE 3: The condition has the minimum Io of -119 dBm/15kHz when the carrier frequency of the assigned E-UTRA channel bandwidth is within 865-894 MHz.
NOTE 4: The same bands apply for this requirement as for the corresponding highest accuracy requirement.
NOTE 5: Band 29 is used only for E-UTRA carrier aggregation with other E-UTRA bands.
NOTE 6: The condition level is increased by Δ>0, when applicable, as described in TS 36.133 [4] sections B.4.2 and B.4.3.

The reporting range of RSRP is defined from -140 dBm to -44 dBm with 1 dB resolution.

The mapping of measured quantity is defined in Table 9.1.9.1.3-2. The range in the signalling may be larger than the guaranteed accuracy range.

Table 9.1.9.1.3-2: RSRP measurement report mapping

Reported value	Measured quantity value	Unit
RSRP_00	RSRP < -140	dBm
RSRP_01	-140 ≤ RSRP < -139	dBm
RSRP_02	-139 ≤ RSRP < -138	dBm
…	…	…
RSRP_95	-46 ≤ RSRP < -45	dBm
RSRP_96	-45 ≤ RSRP < -44	dBm
RSRP_97	-44 ≤ RSRP	dBm

The normative reference for this requirement is TS 36.133 [4] clause 9.1.2.3 , clause 9.1.4 and A.9.1.9

9.1.9.1.4 Test description

9.1.9.1.4.1 Initial conditions

Test Environment: Normal, TL/VL, TL/VH, TH/VL, TH/VH; as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1.

Channel Bandwidth to be tested: 10 MHz as defined in TS 36.508 [7] clause 4.3.1.

1. Connect the SS (node B emulator) and AWGN noise sources to the UE antenna connectors as shown in TS 36.508 [7] Annex A figure A.20.

2. The general test parameter settings are set up according to Table 9.1.9.1.4.1-1.

3. Propagation conditions are set according to Annex B clause B.0.

4. Message contents are defined in clause 9.1.9.1.4.3.

5. Cell 1 is the serving cell as well as aggressor cell to Cell 2, Cell 2 is the neighbouring cell. Cell 1 is the cell used for connection setup with the power levels set according to Annex C.0 and C.1 for this test.

Table 9.1.9.1.4.1-1: General test parameters for E-UTRAN TDD RSRP intra frequency test parameters under time-domain measurement resource restriction with non-MBSFN ABS

Parameter	Unit	Value	Comment
Serving cell (PCell)		Cell 1	Also the aggressor cell.
Neighbour cell		Cell 2	Cell to be measured
PCell ABS configuration		Non-MBSFN ABS	As defined in Table C.3.1.1.1-1
Special subframe configuration		6	For Cell 1 and Cell 2. For special subframe configurations see Table 4.2-1 in [16].
Uplink/downlink subframe configuration		1	For Cell 1 and Cell 2. For uplink-downlink subframe configurations see Table 4.2-2 in [16].
CP length		Normal	For both cells in the test
DRX			OFF
Time offset between cells		3 μs	Synchronous cells
Physical cell ID PCI		$(PCI_{cell1} - PCI_{cell2})mod6$!=0	Cell PCIs for Cell 1 and Cell 2 are randomly selected so that the condition is met
ABS pattern		'00000000010000000001'	Non-MBSFN ABS. TDD ABS Pattern Info IE, as defined in TS 36.423 [28], clause 9.2.54. Configured in Cell 1. The first/leftmost bit corresponds to the subframe #0 of a radio frame satisfying SFN mod 20 = 0. No MBSFN subframes are configured in the ABS subframes in Cell 1.
Time-domain measurement resource restriction pattern for neighbour cell measurements on RF Channel 1		'00000000010000000001'	Configured for Cell 2 measurements by measSubframePattern-Neigh IE in measSubframePatternConfig-Neigh, as defined in TS 36.331 [2], clause 6.3.5. measSubframeCellList contains Cell 2.
Time-domain measurement resource restriction pattern for serving cell measurements		'10000000001000000000'	Configured for Cell 1 measurements.

9.1.9.1.4.2 Test procedure

In this test case all cells are on the same carrier frequency. The absolute accuracy of RSRP intra frequency measurements under time domain measurement resource restriction is tested by using the parameters in Tables 9.1.9.1.4.1-1 and Table 9.1.9.1.5-1 for non-MBSFN ABS with non-colliding CRS. Cell 1 is the serving cell and also the aggressor cell to Cell 2. Cell 2 is the target cell to be measured for RSRP.

The UE is configured by higher layers via Cell 1 with a time-domain measurement resource restriction pattern for performing E-UTRAN TDD intra-frequency measurements on neighbour cells and provided with a neighbour cell list associated with the pattern, where the cell list includes Cell 2. The UE is also configured with a time-domain measurement resource restriction pattern for the serving cell measurements. The information for both patterns shall be provided to the UE before the measurements start.

1. Ensure the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.

2. Set the parameters according to Tables 9.1.9.1.4.1-1 and Table 9.1.9.1.5-1. Propagation conditions are set according to Annex B clause B.1.

3. SS shall transmit an RRCConnectionReconfiguration message on Cell 1.

4. The UE shall transmit RRCConnectionReconfigurationComplete message.

5. UE shall transmit periodically MeasurementReport messages.

6. SS shall check the reported RSRP values in MeasurementReport messages. The reported RSRP values for Cell 2 are compared to the actual RSRP values according to Table 9.1.9.1.5-2.

7. SS shall check the MeasurementReport messages transmitted by the UE until the confidence level according to Table G.2.3-1 in Annex G.2 is achieved.

8. Repeat step 1-7 for each sub-test in Table 9.1.9.1.5-1 as appropriate.

9.1.9.1.4.3 Message contents

Message contents are according to TS 36.508 [7] clause 4.6 with the following exceptions:

Table 9.1.9.1.4.3-1: Common Exception message for RSRP TDD Intra frequency under time domain measurement resource restriction with non-MBSFN ABS absolute accuracy test requirement

Default Message Contents	
Common contents of system information blocks exceptions	
Default RRC messages and information elements contents exceptions	Table H.3.1-1 Table H.3.5-1 Table H.3.5-3

Table 9.1.9.1.4.3-2: *MeasResults*: Additional RSRP TDD Intra frequency under time domain measurement resource restriction with non-MBSFN ABS absolute accuracy test requirement

Derivation Path: TS 36.331 [5] clause 6.3.5			
Information Element	Value/remark	Comment	Condition
MeasResults ::= SEQUENCE {			
measId	1		
measResultServCell SEQUENCE {			
rsrpResult	INTEGER(0..97)		
rsrqResult	INTEGER(0..34)		
}			
measResultNeighCells CHOICE {			
measResultListEUTRA	MeasResultListEUTRA		
}			
}			

Table 9.1.9.1.4.3-3: *MeasResultListEUTRA*: Additional RSRP TDD Intra frequency under time domain measurement resource restriction with non-MBSFN ABS absolute accuracy test requirement

Derivation Path: TS 36.331 [5] clause 6.3.5			
Information Element	Value/remark	Comment	Condition
MeasResultsLIstEUTRA ::= SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {			
physCellId	PhysCellId of Cell 2	INTEGER (0..503)	
measResult SEQUENCE {			
rsrpResult			
rsrqResult	Not present		
}			
}			

Table 9.1.9.1.4.3-4: *RadioResourceConfigDedicated-SRB2-DRB(n,m)*: Additional RSRP TDD Intra frequency under time domain measurement resource restriction with non-MBSFN ABS absolute accuracy test requirement

Derivation Path: TS 36.508 [7] clause 4.6.3, Table 4.6.3-16 RadioResourceConfigDedicated-SRB2-DRB(n,m)			
Information Element	**Value/remark**	**Comment**	**Condition**
RadioResourceConfigDedicated-SRB2-DRB(n, m) ::= SEQUENCE {			
MeasSubframePatternPCell-r10 CHOICE {			
setup SEQUENCE {			
subframePatternTDD-r10 CHOICE {			
subframeConfig1-5-r10	‘10000000001000000000’	BIT STRING (SIZE (20))	
}			
}			
}			
}			

Table 9.1.9.1.4.3-5: *MeasObjectEUTRA-GENERIC(Freq)*: Additional RSRP TDD Intra frequency under time domain measurement resource restriction with non-MBSFN ABS absolute accuracy test requirement

Derivation Path: TS 36.508 [7] clause 4.6.6, Table 4.6.6-2 MeasObjectEUTRA-GENERIC			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasObjectEUTRA-GENERIC(Freq) ::= SEQUENCE {			
measSubframePatternConfigNeigh-r10 CHOICE {			
setup SEQUENCE {			
measSubframePatternNeigh-r10 CHOICE {			
subframePatternTDD-r10 CHOICE {			
subframeConfig1-5-r10	‘00000000010000000001’	BIT STRING (SIZE (20))	
}			
}			
measSubframeCellList-r10 SEQUENCE {			
start	Physical Cell ID of Cell 2		
range	Not present		
}			
}			
}			
}			

9.1.9.1.5 Test requirement

Table 9.1.9.1.5-1 defines the primary level settings including test tolerances for all tests.

Each RSRP TDD absolute accuracy test shall meet the reported values test requirements in table 9.1.9.1.5-2.

Table 9.1.9.1.5-1: Cell Specific test parameters for E-UTRAN RSRP TDD absolute accuracy under time-domain measurement resource restriction with non-MBSFN ABS

Parameter		Unit	Test 1		Test 2		Test 3	
			Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
E-UTRA RF Channel Number			1		1		1	
$BW_{channel}$		MHz	10		10		10	
Measurement bandwidth		n_{PRB}	22—27		22—27		22—27	
PDSCH Reference measurement channel defined in A.1.2			R.0 TDD	-	R.0 TDD	-	R.0 TDD	-
PDSCH allocation		n_{PRB}	13—36	-	13—36	-	13—36	-
PDCCH/PCFICH/PHICH Reference measurement channel defined in A.2.2			R.6 TDD		R.6 TDD		R.6 TDD	
OCNG Patterns defined in D.2.1 (OP.1 TDD) and D.2.2 (OP.2 TDD)			OP.1 TDD	OP.2 TDD	OP.1 TDD	OP.2 TDD	OP.1 TDD	OP.2 TDD
PBCH_RA PBCH_RB PSS_RA SSS_RA PCFICH_RB PHICH_RA PHICH_RB PDCCH_RA PDCCH_RB PDSCH_RA PDSCH_RB OCNG_RA Note1 OCNG_RB Note1		dB	Note 6	0	Note 6	0	Note 6	0
N_{oc} Note2	Bands 33, 34, 35, 36, 37, 38, 39, 40	dBm/15 kHz	-106		-88		-116	
	Bands 42, 43						-115	
	Band 41, 44						-114	
CRS $\hat{E}_s / N_{oc}$		dB	5	-2	5	-3.2	5	-3.2
CRS $\left(\hat{E}_s / I_{ot}\right)_{meas}$ Note 5		dB	2.88	-2.00	3.30	-3.20	3.30	-3.20
RSRP Note3, 4,5	Bands 33, 34, 35, 36, 37, 38, 39, 40	dBm/15 kHz	-101	-108	-83	-91.2	-111	-119.2
	Bands 42, 43						-110	-118.2
	Band 41, 44						-109	-117.2
$(\text{Io})_{meas}$ Note 3	Bands 33, 34, 35, 36, 37, 38, 39, 40	dBm/9 MHz	-71.41	-74.88	-53.55	-57.20	-81.55	-85.20
	Bands 42, 43						-80.55	-84.20
	Band 41, 44						-79.55	-83.20
Propagation condition			AWGN		AWGN		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. Applies to all subframes.
Note 3: RSRP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves. Io levels are calculated in CRS symbols of measurement restricted subframes.
Note 4: RSRP minimum requirements are specified assuming independent interference and noise at each receiver antenna port.
Note 5: Applies to restricted measurement subframes of the respective cell.
Note 6: Non-ABS and ABS subframe channel powers defined in Table C.3.1.1.1-1.

Table 9.1.9.1.5-2: E-UTRAN RSRP TDD absolute accuracy under time-domain measurement resource restriction with non-MBSFN ABS requirements for the reported values

Normal Conditions	**Test 1 All bands**	**Test 2 All bands**	**Test 3**	
Lowest reported value (Cell 2)	RSRP_25	RSRP_40	Bands 33, 34, 35, 36, 37, 38, 39, 40	RSRP_14
			Bands 42, 43	RSRP_15
			Band 41, 44	RSRP_16
Highest reported value (Cell 2)	RSRP_40	RSRP_59	Bands 33, 34, 35, 36, 37, 38, 39, 40	RSRP_29
			Bands 42, 43	RSRP_30
			Band 41, 44	RSRP_31
Extreme Conditions	**Test 1 All bands**	**Test 2 All bands**	**Test 3**	
Lowest reported value (Cell 2)	RSRP_22	RSRP_37	Bands 33, 34, 35, 36, 37, 38, 39, 40	RSRP_11
			Bands 42, 43	RSRP_12
			Band 41, 44	RSRP_13
Highest reported value (Cell 2)	RSRP_43	RSRP_62	Bands 33, 34, 35, 36, 37, 38, 39, 40	RSRP_32
			Bands 42, 43	RSRP_33
			Band 41, 44	RSRP_34

For the test to pass, the ratio of successful reported values in each test shall be more than 90% with a confidence level of 95%.

9.1.9.2 TDD Relative RSRP Accuracy under Time-Domain Measurement Resource Restriction with Non-MBSFN ABS (eICIC)

9.1.9.2.1 Test purpose

To verify that TDD relative RSRP measurement accuracy measurements under time-domain measurement resource restriction with Non-MBSFN ABS configured in the aggressor cell is within the specified limits under AWGN propagation condition.

9.1.9.2.2 Test applicability

This test applies to all types of E-UTRA TDD UE release 10 and forward. Applicability requires support for FGI bit 115.

9.1.9.2.3 Minimum conformance requirements

The TDD RSRP measurements of cells shall meet the intra frequency relative accuracy requirements defined in TS 36.133 [4] clause 9.1.2.4.

The accuracy requirements in table 9.1.9.2.3-1 are valid under the following conditions:

Cell specific reference signals in the measured cell are transmitted either from one, two or four antenna ports,

Conditions defined in TS 36.101 [2] Section 7.3 for reference sensitivity are fulfilled.

$RSRP|_{dBm}$ according to Annex I.3.10 for a corresponding Band.

The time domain measurement resource restriction pattern configured for the measured cell indicates at least one subframe per radio frame for performing the RSRP measurement,

Four symbols containing CRS are available in all subframes indicated by the time domain measurement resource restriction pattern.

Table 9.1.9.2.3-1: RSRP Intra frequency relative accuracy under time domain measurement resource restriction

Accuracy		Conditions			
Normal condition	Extreme condition	Ês/Iot Note 2	Io Note 3 range		
			E-UTRA operating bands	Minimum Io	Maximum Io
dB	dB	dB		dBm/15kHz Note 1, 7	dBm/$BW_{Channel}$
±2	±3	≥-2 dB	1, 4, 6, 10, 11, 18, 19, 21, 23, 24, 33, 34, 35, 36, 37, 38, 39, 40	-121	-50
			9, 42, 43	-120	-50
			28	-119.5	-50
			2, 5, 7, 27, 41, 44	-119	-50
			26	-118.5 Note 4	-50
			3, 8, 12, 13, 14, 17, 20, 22, 29 Note 6	-118	-50
			25	-117.5	-50
±3	±3	≥-4 dB	Note 5	Note 5	Note 5

NOTE 1: This minimum Io condition is expressed as the average Io per RE over all REs in that symbol.
NOTE 2: The parameter Ês/Iot is the minimum Ês/Iot of the pair of cells to which the requirement applies.
NOTE 3: Io is defined in subframes indicated by the time domain measurement resource restriction pattern configured for performing RSRP measurements of this cell. The Io range defined by the minimum and the maximum Io levels applies to CRS and non-CRS symbols. Io may be different in different symbols within a subframe.
NOTE 4: The condition has the minimum Io of -119 dBm/15kHz when the carrier frequency of the assigned E-UTRA channel bandwidth is within 865-894 MHz.
NOTE 5: The same bands and the same Io conditions for each band apply for this requirement as for the corresponding highest accuracy requirement.
NOTE 6: This band is used only for E-UTRA carrier aggregation with other E-UTRA bands.
NOTE 7: The condition level is increased by Δ>0, when applicable, as described in TS 36.133 [4] sections B.4.2 and B.4.3.

The reporting range of RSRP is defined from -140 dBm to -44 dBm with 1 dB resolution.

The mapping of measured quantity is defined in Table 9.1.9.2.3-2. The range in the signalling may be larger than the guaranteed accuracy range.

Table 9.1.9.2.3-2: RSRP measurement report mapping

Reported value	Measured quantity value	Unit
RSRP_00	RSRP < -140	dBm
RSRP_01	-140 ≤ RSRP < -139	dBm
RSRP_02	-139 ≤ RSRP < -138	dBm
…	…	…
RSRP_95	-46 ≤ RSRP < -45	dBm
RSRP_96	-45 ≤ RSRP < -44	dBm
RSRP_97	-44 ≤ RSRP	dBm

The normative reference for this requirement is TS 36.133 [4] clause 9.1.2.4 , clause 9.1.4 and A.9.1.9

9.1.9.2.4 Test description

9.1.9.2.4.1 Initial conditions

Test Environment: Normal, TL/VL, TL/VH, TH/VL, TH/VH; as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1.

Channel Bandwidth to be tested: 10 MHz as defined in TS 36.508 [7] clause 4.3.1.

1. Connect the SS (node B emulator) and AWGN noise sources to the UE antenna connectors as shown in TS 36.508 [7] Annex A figure A.20.

2. The general test parameter settings are set up according to Table 9.1.9.2.4.1-1.

3. Propagation conditions are set according to Annex B clause B.0.

4. Message contents are defined in clause 9.1.9.2.4.3.

5. Cell 1 is the serving cell as well as aggressor cell to Cell 2, Cell 2 is the neighbouring cell. Cell 1 is the cell used for connection setup with the power levels set according to Annex C.0 and C.1 for this test.

Table 9.1.9.2.4.1-1: General test parameters for E-UTRAN TDD RSRP intra frequency test parameters under time-domain measurement resource restriction with non-MBSFN ABS

Parameter	Unit	Value	Comment
Serving cell (PCell)		Cell 1	Also the aggressor cell.
Neighbour cell		Cell 2	Cell to be measured
PCell ABS configuration		Non-MBSFN ABS	As defined in Table C.3.1.1.1-1
Special subframe configuration		6	For Cell 1 and Cell 2. For special subframe configurations see Table 4.2-1 in [16].
Uplink/downlink subframe configuration		1	For Cell 1 and Cell 2. For uplink-downlink subframe configurations see Table 4.2-2 in [16].
CP length		Normal	For both cells in the test
DRX			OFF
Time offset between cells		3 μs	Synchronous cells
Physical cell ID PCI		$(PCI_{cell1} - PCI_{cell2})$mod6 !=0	Cell PCIs for Cell 1 and Cell 2 are randomly selected so that the condition is met
ABS pattern		'00000000010000000001'	Non-MBSFN ABS. TDD ABS Pattern Info IE, as defined in TS 36.423 [28], clause 9.2.54. Configured in Cell 1. The first/leftmost bit corresponds to the subframe #0 of a radio frame satisfying SFN mod 20 = 0. No MBSFN subframes are configured in the ABS subframes in Cell 1.
Time-domain measurement resource restriction pattern for neighbour cell measurements on RF Channel 1		'00000000010000000001'	Configured for Cell 2 measurements by measSubframePattern-Neigh IE in measSubframePatternConfig-Neigh, as defined in TS 36.331 [2], clause 6.3.5. measSubframeCellList contains Cell 2.
Time-domain measurement resource restriction pattern for serving cell measurements		'10000000001000000000'	Configured for Cell 1 measurements.

9.1.9.2.4.2 Test procedure

In this test case all cells are on the same carrier frequency. The relative accuracy of RSRP intra frequency measurements under time domain measurement resource restriction is tested by using the parameters in Tables 9.1.9.2.4.1-1 and Table 9.1.9.2.5-1 for non-MBSFN ABS with non-colliding CRS. Cell 1 is the serving cell and also the aggressor cell to Cell 2. Cell 1 and Cell 2 are both measured.

The UE is configured by higher layers via Cell 1 with a time-domain measurement resource restriction pattern for performing E-UTRAN TDD intra-frequency measurements on neighbour cells and provided with a neighbour cell list associated with the pattern, where the cell list includes Cell 2. The UE is also configured with a time-domain measurement resource restriction pattern for the serving cell measurements. The information for both patterns shall be provided to the UE before the measurements start.

1. Ensure the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.

2. Set the parameters according to Tables 9.1.9.2.4.1-1 and Table 9.1.9.2.5-1. Propagation conditions are set according to Annex B clause B.1.

3. SS shall transmit an RRCConnectionReconfiguration message on Cell 1.

4. The UE shall transmit RRCConnectionReconfigurationComplete message.

5. UE shall transmit periodically MeasurementReport messages.

6. SS shall check the reported RSRP values in MeasurementReport messages. The reported RSRP value for Cell 2 is compared to the reported RSRP value for Cell 1 for each MeasurementReport message according to Table 9.1.9.2.5-2.

7. SS shall check the MeasurementReport messages transmitted by the UE until the confidence level according to Table G.2.3-1 in Annex G.2 is achieved.

8. Repeat step 1-7 for each sub-test in Table 9.1.9.2.5-1 as appropriate.

9.1.9.2.4.3 Message contents

Message contents are according to TS 36.508 [7] clause 4.6 with the following exceptions:

Table 9.1.9.2.4.3-1: Common Exception message for RSRP TDD Intra frequency under time domain measurement resource restriction with non-MBSFN ABS absolute accuracy test requirement

Default Message Contents	
Common contents of system information blocks exceptions	
Default RRC messages and information elements contents exceptions	Table H.3.1-1 Table H.3.5-1 Table H.3.5-3

Table 9.1.9.2.4.3-2: *MeasResults*: Additional RSRP TDD Intra frequency under time domain measurement resource restriction with non-MBSFN ABS relative accuracy test requirement

Derivation Path: TS 36.331 [5] clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResults ::= SEQUENCE {			
measId	1		
measResultServCell SEQUENCE {			
rsrpResult	INTEGER(0..97)		
rsrqResult	INTEGER(0..34)		
}			
measResultNeighCells CHOICE {			
measResultListEUTRA	MeasResultListEUTRA		
}			
}			

Table 9.1.9.2.4.3-3: *MeasResultListEUTRA*: Additional RSRP TDD Intra frequency under time domain measurement resource restriction with non-MBSFN ABS relative accuracy test requirement

Derivation Path: TS 36.331 [5] clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResultsListEUTRA ::= SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {			
physCellId	PhysCellId of Cell 2	INTEGER (0..503)	
measResult SEQUENCE {			
rsrpResult			
rsrqResult	Not present		
}			
}			

Table 9.1.9.2.4.3-4: *RadioResourceConfigDedicated-SRB2-DRB(n,m)*: Additional RSRP TDD Intra frequency under time domain measurement resource restriction with non-MBSFN ABS relative accuracy test requirement

Derivation Path: TS 36.508 [7] clause 4.6.3, Table 4.6.3-16 RadioResourceConfigDedicated-SRB2-DRB(n,m)			
Information Element	**Value/remark**	**Comment**	**Condition**
RadioResourceConfigDedicated-SRB2-DRB(n, m) ::= SEQUENCE {			
MeasSubframePatternPCell-r10 CHOICE {			
setup SEQUENCE {			
subframePatternTDD-r10 CHOICE {			
subframeConfig1-5-r10	'10000000001000000000'	BIT STRING (SIZE (20))	
}			
}			
}			
}			

Table 9.1.9.2.4.3-5: *MeasObjectEUTRA-GENERIC(Freq)*: Additional RSRP TDD Intra frequency under time domain measurement resource restriction with non-MBSFN ABS relative accuracy test requirement

Derivation Path: TS 36.508 [7] clause 4.6.6, Table 4.6.6-2 MeasObjectEUTRA-GENERIC			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasObjectEUTRA-GENERIC(Freq) ::= SEQUENCE {			
measSubframePatternConfigNeigh-r10 CHOICE {			
setup SEQUENCE {			
measSubframePatternNeigh-r10 CHOICE {			
subframePatternTDD-r10 CHOICE {			
subframeConfig1-5-r10	'00000000010000000001'	BIT STRING (SIZE (20))	
}			
}			
measSubframeCellList-r10 SEQUENCE {			
start	Physical Cell ID of Cell 2		
range	Not present		
}			
}			
}			
}			

9.1.9.2.5 Test requirement

Table 9.1.9.2.5-1 defines the primary level settings including test tolerances for all tests.

Each RSRP TDD relative accuracy test shall meet the reported values test requirements in table 9.1.9.2.5-2.

Table 9.1.9.2.5-1: Cell Specific test parameters for E-UTRAN RSRP TDD relative accuracy under time-domain measurement resource restriction with non-MBSFN ABS

Parameter		Unit	Test 1		Test 2		Test 3	
			Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
E-UTRA RF Channel Number			1		1		1	
$BW_{channel}$		MHz	10		10		10	
Measurement bandwidth		n_{PRB}	22—27		22—27		22—27	
PDSCH Reference measurement channel defined in A.1.2			R.0 TDD	-	R.0 TDD	-	R.0 TDD	-
PDSCH allocation		n_{PRB}	13—36	-	13—36	-	13—36	-
PDCCH/PCFICH/PHICH Reference measurement channel defined in A.2.2			R.6 TDD		R.6 TDD		R.6 TDD	
OCNG Patterns defined in D.2.1 (OP.1 TDD) and D.2.2 (OP.2 TDD)			OP.1 TDD	OP.2 TDD	OP.1 TDD	OP.2 TDD	OP.1 TDD	OP.2 TDD
PBCH_RA PBCH_RB PSS_RA SSS_RA PCFICH_RB PHICH_RA PHICH_RB PDCCH_RA PDCCH_RB PDSCH_RA PDSCH_RB OCNG_RA Note1 OCNG_RB Note1		dB	Note 6	0	Note 6	0	Note 6	0
N_{oc} Note2	Bands 33, 34, 35, 36, 37, 38, 39, 40	dBm/15 kHz	-106		-88		-116	
	Bands 42, 43						-115	
	Band 41, 44						-114	
CRS $\hat{E}_s / N_{oc}$		dB	5	-1.2	5	-3.2	5	-3.2
CRS $\left(\hat{E}_s / I_{ot}\right)_{meas}$ Note 5		dB	2.55	-1.2	3.30	-3.20	3.30	-3.20
RSRP Note3, 4,5	Bands 33, 34, 35, 36, 37, 38, 39, 40	dBm/15 kHz	-101	-107.2	-83	-91.2	-111	-119.2
	Bands 42, 43						-110	-118.2
	Band 41, 44						-109	-117.2
$(\mathrm{Io})_{meas}$ Note 3	Bands 33, 34, 35, 36, 37, 38, 39, 40	dBm/9 MHz	-71.30	-74.63	-53.55	-57.20	-81.55	-85.20
	Bands 42, 43						-80.55	-84.20
	Band 41, 44						-79.55	-83.20
Propagation condition			AWGN		AWGN		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. Applies to all subframes.
Note 3: RSRP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves. Io levels are calculated in CRS symbols of measurement restricted subframes.
Note 4: RSRP minimum requirements are specified assuming independent interference and noise at each receiver antenna port.
Note 5: Applies to restricted measurement subframes of the respective cell.
Note 6: Non-ABS and ABS subframe channel powers defined in Table C.3.1.1.1-1.

Table 9.1.9.2.5-2: E-UTRAN RSRP TDD relative accuracy under time-domain measurement resource restriction with non-MBSFN ABS requirements for the reported values

Normal Conditions	**Test 1 All bands**	**Test 2 All bands**	**Test 3 All bands**
Lowest reported value (Cell 2)	RSRP_x-10	RSRP_x-13	RSRP_x-13
Highest reported value (Cell 2)	RSRP_x-3	RSRP_x-4	RSRP_x-4
Extreme Conditions	**Test 1 All bands**	**Test 2 All bands**	**Test 3 All bands**
Lowest reported value (Cell 2)	RSRP_x-11	RSRP_x-13	RSRP_x-13
Highest reported value (Cell 2)	RSRP_x-2	RSRP_x-4	RSRP_x-4
RSRP_x is the reported value of Cell 1			

For the test to pass, the ratio of successful reported values in each test shall be more than 90% with a confidence level of 95%.

9.1.10 FDD RSRP Accuracy E-UTRA under Time-Domain Measurement Resource Restriction with MBSFN ABS (eICIC)

9.1.10.1 FDD Absolute RSRP under Time-Domain Measurement Resource Restriction with MBSFN ABS (eICIC)

Editor's note: This test case is incomplete. The following aspects are either missing or not yet determined:

- Connection diagram for this test is undefined.
- Message Contents for this test are undefined.
- The Test Tolerances applicable to this test are undefined.
- Cell specific parameters table is incomplete

9.1.10.1.1 Test purpose

To verify that FDD absolute RSRP measurement accuracy measurements under time-domain measurement resource restriction with MBSFN ABS configured in the aggressor cell is within the specified limits under AWGN propagation conditions. This test will verify the FDD absolute RSRP accuracy.

9.1.10.1.2 Test applicability

This test applies to all types of E-UTRA FDD UE release 10 and forward supporting eICIC. Applicability requires support for FGI bit 115.

9.1.10.1.3 Minimum conformance requirements

The FDD RSRP measurements of cells shall meet the intra frequency absolute accuracy requirements defined in TS 36.133 [4] clause 9.1.2.3.

The accuracy requirements in table 9.1.10.1.3-1 are valid under the following conditions:

Cell specific reference signals are transmitted either from one, two or four antenna ports.

Conditions defined in 36.101 Section 7.3 for reference sensitivity are fulfilled.

$RSRP|_{dBm}$ according to Annex I.3.1 for a corresponding Band.

The time domain measurement resource restriction pattern configured for the measured cell indicates at least one subframe per radio frame for performing the RSRP measurement,

Four symbols containing CRS are available in all subframes indicated by the time domain measurement resource restriction pattern.

Table 9.1.10.1.3-1: RSRP Intra frequency absolute accuracy under time domain measurement resource restriction

Parameter	Unit	Accuracy [dB]		Conditions[1,2]						
		Normal condition	Extreme condition	Bands 1, 4, 6, 10, 11, 18, 19, 21, 24, 33, 34, 35, 36, 37, 38, 39, 40, 42, 43	Bands 2, 5, 7, 27, 41, [44]	Band 25	Band 26	Band 28	Bands 3, 8, 12, 13, 14, 17, 20, 22	Bands 9
				Io	Io	Io	Io	Io	Io	Io
RSRP for Ês/Iot ≥ -4 dB	dBm	±6	±9	-121dBm/15kHz … -70dBm/ $BW_{Channel}$	-119dBm/15kHz … -70dBm/ $BW_{Channel}$	-117.5dBm/15kHz … -70dBm/ $BW_{Channel}$	-118.5dBm/15kHz … -70dBm/ $BW_{Channel}$[3]	-119.5dBm/15kHz … -70dBm/ $BW_{Channel}$	-118dBm/15kHz … -70dBm/ $BW_{Channel}$	-120dBm/15kHz … -70dBm/ $BW_{Channel}$
RSRP for Ês/Iot ≥ -4 dB	dBm	±8	±11	-70dBm/ $BW_{Channel}$ … -50dBm/ $BW_{Channel}$	-70dBm/ $BW_{Channel}$ … -50dBm/ $BW_{Channel}$	-70dBm/ $BW_{Channel}$ … -50dBm/ $BW_{Channel}$	-70dBm/ $BW_{Channel}$ … -50dBm/ $BW_{Channel}$	-70dBm/ $BW_{Channel}$ … -50dBm/ $BW_{Channel}$	-70dBm/ $BW_{Channel}$ … -50dBm/ $BW_{Channel}$	-70dBm/ $BW_{Channel}$ … -50dBm/ $BW_{Channel}$

Io is assumed to have constant EPRE across the bandwidth.
Io is defined over REs in subframes indicated by the time domain measurement resource restriction pattern configured for performing RSRP measurements of this cell.
The condition is -119dBm/15kHz … -70dBm/ $BW_{Channel}$ when the carrier frequency of the assigned E-UTRA channel bandwidth is within 865-894 MHz

The reporting range of RSRP is defined from -140 dBm to -44 dBm with 1 dB resolution.

The mapping of measured quantity is defined in Table 9.1.10.1.3-2. The range in the signalling may be larger than the guaranteed accuracy range.

Table 9.1.10.1.3-2: RSRP measurement report mapping

Reported value	Measured quantity value	Unit
RSRP_00	RSRP < -140	dBm
RSRP_01	-140 ≤ RSRP < -139	dBm
RSRP_02	-139 ≤ RSRP < -138	dBm
…	…	…
RSRP_95	-46 ≤ RSRP < -45	dBm
RSRP_96	-45 ≤ RSRP < -44	dBm
RSRP_97	-44 ≤ RSRP	dBm

The normative reference for this requirement is TS 36.133 [4] clause 9.1.2.3 , clause 9.1.4 and A.9.1.10

9.1.10.1.4 Test description

9.1.10.1.4.1 Initial conditions

Test Environment: Normal, TL/VL, TL/VH, TH/VL, TH/VH; as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: FFS.

Channel Bandwidth to be tested: FFS.

1. Connect the SS (node B emulator) and AWGN noise sources to the UE antenna connectors as shown in TS 36.508 [7] Annex A figure FFS.

2. Propagation conditions are set according to Annex B clause B.0.

3. Message contents are defined in clause 9.1.10.1.4.3.

4. Cell 1 is the serving cell as well as aggressor cell to Cell 2, Cell 2 is the neighbouring cell. Cell 1 is the cell used for connection setup with the power levels set according to Annex C.0 and C.1 for this test.

9.1.10.1.4.2 Test procedure

1. Ensure the UE is in State 3A-RF according to TS 36.508 [7] clause 5.2.A2.
2. Set the parameters according to Table 9.1.10.1.5-1 and 9.1.10.1.5-2 as appropriate. Propagation conditions are set according to Annex B clause B.1.
3. SS shall transmit an RRCConnectionReconfiguration message on Cell 1.
4. The UE shall transmit RRCConnectionReconfigurationComplete message.
5. UE shall transmit periodically MeasurementReport messages.
6. SS shall check the reported RSRP values in MeasurementReport messages. The reported RSRP values for Cell 1 and Cell 2 are compared to the actual RSRP values according to Table 9.1.10.1.5-3.
7. SS shall check the MeasurementReport messages transmitted by the UE until the confidence level according to Table G.2.3-1 in Annex G.2 is achieved.

9.1.10.1.4.3 Message contents

Message contents are according to TS 36.508 [7] clause FFS with the following exceptions:

FFS

9.1.10.1.5 Test requirement

Table 9.1.10.1.5-2 defines the primary level settings including test tolerances for all tests.

The RSRP FDD absolute accuracy test shall meet the reported values test requirements in table 9.1.10.1.5-3.

Table 9.1.10.1.5-1: General test parameters for E-UTRAN RSRP FDD absolute accuracy under time-domain measurement resource restriction with MBSFN ABS

Parameter	Unit	Value	Comment
Serving cell (PCell)		Cell 1	The aggressor cell to Cell 2
Neighbour cell		Cell 2	Cell to be measured
E-UTRA RF Channel Number		1	One FDD carrier frequency is used
Channel Bandwidth ($BW_{channel}$)	MHz	10	For both cells in the test
CP length		Normal	For both cells in the test
DRX			OFF
Time offset between cells		3 µs	Synchronous cells
Physical cell ID PCI		$(PCI_{cell1} - PCI_{cell2})mod6 =0$, PCI_{cell1} not equal to PCI_{cell2}	Cell PCIs for Cell 1 and Cell 2 are selected randomly so that the condition is met
ABS pattern		'0100000010000000100000000010000001000000'	MBSFN ABS pattern. FDD ABS Pattern Info IE, as defined in TS 36.423, clause 9.2.54. Configured in Cell 1. The first/leftmost bit corresponds to the subframe #0 of a radio frame satisfying SFN mod 40 = 0. All ABS subframes are MBSFN subframes.
Time-domain measurement resource restriction pattern for neighbour cell measurements on RF Channel 1		'0100000010000000100000000010000001000000'	Configured for Cell 2 measurements by measSubframePatternNeigh IE in measSubframePatternConfigNeigh, as defined in TS 36.331, clause 6.3.5. measSubframeCellList contains Cell 2.
Time-domain measurement resource restriction pattern for serving cell measurements		'0001000000010000000100000000100000010000'	Configured for measurements on Cell 1.

Table 9.1.10.1.5-2: Cell Specific test parameters for E-UTRAN RSRP FDD absolute accuracy under time-domain measurement resource restriction with MBSFN ABS

Parameter		Unit	Test 1		Test 2		Test 3	
			Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
Measurement bandwidth		n_{PRB}	22—27		22—27		22—27	
PDSCH Reference measurement channel defined in A.1.1			R.0 FDD	-	R.0 FDD	-	R.0 FDD	-
PDSCH allocation		n_{PRB}	13—36	-	13—36	-	13—36	-
PDCCH/PCFICH/PHICH Reference measurement channel defined in A.2.1			R.6 FDD		R.6 FDD		R.6 FDD	
OCNG Patterns defined in FFS and FFS			OP.8 FDD	OP.6 FDD	OP.8 FDD	OP.6 FDD	OP.8 FDD	OP.6 FDD
PBCH_RA PBCH_RB PSS_RA SSS_RA PCFICH_RB PHICH_RA PHICH_RB PDCCH_RA PDCCH_RB PDSCH_RA PDSCH_RB OCNG_RA Note 1 OCNG_RB Note1		dB	0	0	0	0	0	0
N_{oc} Note 2	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24	dBm/15 kHz	-106	-106	-88	-88	-116	
	Bands 2, 5, 7, 26 Note 7 and 27						-114	
	Band 25						-112.5	
	Bands 3, 8, 12, 13, 14, 17, 20 and 22						-113	
	Band 9						-115	
CRS $\hat{E}_s/N_{oc}$		dB	[5]	[-2]	[5]	[-4]	[5]	[-4]
RSRP Note 3,4	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24	dBm/15 kHz	[-101]	[-108]	[-83]	[-92]	[-111]	[-120]
	Bands 2, 5, 7, 26 Note 7 and 27						[-109]	[-118]
	Band 25						[-107.5]	[-116.5]
	Bands 3, 8, 12, 13, 14, 17, 20 and 22						[-108]	[-117]
	Band 9						[-110]	[-119]
$(\mathrm{Io})_{meas}$ Note 3 in the 1st OFDM symbol	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24	dBm/9 MHz	[-71.41]	[-74.88]	[-53.63]	[-57.37]	[-81.63]	[-85.37]
	Bands 2, 5, 7, 26 Note 7 and 27						[-79.63]	[-83.37]
	Band 25						[-78.13]	[-81.87]
	Bands 3, 8, 12, 13, 14, 17, 20 and 22						[-78.63]	[-82.37]
	Band 9						[-80.63]	[-84.37]
$(\mathrm{Io})_{meas}$ Note 3 in OFDM symbols other than the 1st	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24	dBm/9 MHz	[-71.41]	[-76.09]	[-53.63]	[-58.76]	[-81.63]	[-86.76]
	Bands 2, 5, 7, 26 Note 7 and 27						[-79.63]	[-84.76]

one	Band 25						[-78.13]	[-83.26]
	Bands 3, 8, 12, 13, 14, 17, 20 and 22						[-78.63]	[-83.76]
	Band 9						[-80.63]	[-85.76]
Propagation condition			AWGN		AWGN		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. Applies to all subframes.
Note 3: RSRP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves. Io levels are calculated in CRS symbols of measurement restricted subframes.
Note 4: RSRP minimum requirements are specified assuming independent interference and noise at each receiver antenna port.
Note 5: Applies to restricted measurement subframes of the respective cell.
Note 6: Non-ABS and ABS subframe channel powers defined in Table A.3.4.2.1-1.
Note 7: For Band 26, the tests shall be performed with the carrier frequency of the assigned E-UTRA channel bandwidth within 865-894 MHz.

Table 9.1.10.1.5-3: RSRP FDD Carrier Aggregation absolute accuracy requirements for the reported values

	Test 1	**Test 2**	**Test 3**				
	All bands	**All bands**	**Bands 1, 4, 6, 10, 11, 18, 19, 21, 23, 24**	**Bands 2, 5, 7, 26, 27**	**Band 25**	**Bands 3, 8, 12, 13, 14, 17, 20, 22**	**Band 9**
Normal Conditions							
Lowest reported value (Cell 2)	RSRP_48 +TT	RSRP_35 +TT	RSRP_14 +TT	RSRP_16 +TT	RSRP_17 +TT	RSRP_17 +TT	RSRP_15 +TT
Highest reported value (Cell 2)	RSRP_60 +TT	RSRP_47 +TT	RSRP_26 +TT	RSRP_28 +TT	RSRP_29 +TT	RSRP_29 +TT	RSRP_27 +TT
Extreme Conditions							
Lowest reported value (Cell 2)	RSRP_46 +TT	RSRP_33 +TT	RSRP_12 +TT	RSRP_14 +TT	RSRP_15 +TT	RSRP_15 +TT	RSRP_13 +TT
Highest reported value (Cell 2)	RSRP_62 +TT	RSRP_49 +TT	RSRP_28 +TT	RSRP_30 +TT	RSRP_31 +TT	RSRP_31 +TT	RSRP_29 +TT

For the test to pass, the ratio of successful reported values in each test shall be more than 90% with a confidence level of 95%.

9.1.10.2 FDD Relative RSRP under Time-Domain Measurement Resource Restriction with MBSFN ABS (eICIC)

Editor's note: This test case is incomplete. The following aspects are either missing or not yet determined:

- Connection diagram for this test is undefined.
- Message Contents for this test are undefined
- The Test Tolerances applicable to this test are undefined
- Cell specific parameters table is incomplete

9.1.10.2.1 Test purpose

To verify that FDD relative RSRP measurement accuracy under time-domain measurement resource restriction with MBSFN ABS configured in the aggressor cell is within the specified limits under AWGN propagation conditions. This test will verify the FDD relative RSRP accuracy requirements.

9.1.10.2.2 Test applicability

This test applies to all types of E-UTRA FDD UE release 10 and forward supporting eICIC. Applicability requires support for FGI bit 115.

9.1.10.2.3 Minimum conformance requirements

The FDD RSRP relative measurements of cells shall meet relative accuracy requirements defined in TS 36.133 clause 9.1.2.4.

The accuracy requirements in Table 9.1.10.2.3-1 for relative accuracy requirements are valid under the following conditions:

Cell specific reference signals are transmitted either from one, two or four antenna ports.

Conditions defined in 36.101 Section 7.3 for reference sensitivity are fulfilled.

RSRP1,2|dBm according to Annex I.3.1 for a corresponding Band

The time domain measurement resource restriction pattern configured for the measured cell indicates at least one subframe per radio frame for performing the RSRP measurement,

Four symbols containing CRS are available in all subframes indicated by the time domain measurement resource restriction pattern.

Table 9.1.10.2.3-1: RSRP Intra frequency relative accuracy under time domain measurement resource restriction

Parameter	Unit	Accuracy [dB]		Conditions[1,2,3]						
		Normal condition	Extreme condition	Bands 1, 4, 6, 10, 11, 18, 19, 21, 24, 33, 34, 35, 36, 37, 38, 39, 40	Bands 2, 5, 7, 27, 41, [44]	Band 25	Band 26	Band 28	Bands 3, 8, 12, 13, 14, 17, 20, 22	Band 9, 42, 43
				Io	Io		Io	Io	Io	Io
RSRP for Ês/Iot ≥ -2 dB	dBm	±2	±3	-121dBm/15kHz … -50dBm/ $BW_{Channel}$	-119dBm/15kHz … -50dBm/ $BW_{Channel}$	-117.5dBm/15kHz … -50dBm/ $BW_{Channel}$	-118.5dBm/15kHz … -50dBm/ $BW_{Channel}$[4]	-119.5dBm/15kHz … -50dBm/ $BW_{Channel}$	-118dBm/15kHz … -50dBm/ $BW_{Channel}$	-120dBm/15kHz … -50dBm/ $BW_{Channel}$
RSRP for Ês/Iot ≥ -4 dB	dBm	±3	±3	-121dBm/15kHz … -50dBm/ $BW_{Channel}$	-119dBm/15kHz … -50dBm/ $BW_{Channel}$	-117.5dBm/15kHz … -50dBm/ $BW_{Channel}$	-118.5dBm/15kHz … -50dBm/ $BW_{Channel}$[4]	-119.5dBm/ $BW_{Channel}$ … -50dBm/ $BW_{Channel}$	-118dBm/15kHz … -50dBm/ $BW_{Channel}$	-120dBm/15kHz … -50dBm/ $BW_{Channel}$

Note 1: Io is assumed to have constant EPRE across the bandwidth.
Note 2: The parameter Ês/Iot is the minimum Ês/Iot of the pair of cells to which the requirement applies.
Note 3: Io is defined over REs in subframes indicated by the time domain measurement resource restriction pattern configured for performing RSRP measurements of this cell.
Note 4: The condition is -119dBm/15kHz … -50dBm/ $BW_{Channel}$ when the carrier frequency of the assigned E-UTRA channel bandwidth is within 865-894 MHz

The normative reference for this requirement is TS 36.133 [4] clause 9.1.2.4, clause 9.1.4 and A.9.1.10.

9.1.10.2.4 Test description

9.1.10.2.4.1 Initial conditions

Test Environment: Normal, TL/VL, TL/VH, TH/VL, TH/VH; as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: FFS.

Channel Bandwidth to be tested: FFS.

1. Connect the SS (node B emulator) and AWGN noise source to the UE antenna connectors as shown in TS 36.508 [7] Annex A figure FFS.

2. Propagation conditions are set according to Annex B clause B.0.

3. Message contents are defined in clause 9.1.10.2.4.3.

4. Cell 1 is the serving cell as well as aggressor cell to Cell 2, Cell 2 is the neighbouring cell. Cell 1 is the cell used for connection setup with the power levels set according to Annex C.0 and C.1 for this test.

9.1.10.2.4.2 Test procedure

1. Ensure the UE is in State 3A-RF according to TS 36.508 [7] clause 5.2.A2.

2. Set the parameters according to Table 9.1.10.2.5-1 and 9.1.10.2.5-2 as appropriate. Propagation conditions are set according to Annex B clause B.1.

3. SS shall transmit an RRCConnectionReconfiguration message on Cell 1.

4. The UE shall transmit RRCConnectionReconfigurationComplete message.

5. UE shall transmit periodically MeasurementReport messages.

6. SS shall check the reported RSRP values in MeasurementReport messages. The reported RSRP value for Cell 2 is compared to the reported RSRP value for Cell 1 for each MeasurementReport message according to Table 9.1.10.2.5-2.

7. SS shall check the MeasurementReport messages transmitted by the UE until the confidence level according to Table G.2.3-1 in Annex G.2 is achieved.

9.1.10.2.4.3 Message contents

Message contents are according to TS 36.508 [7] clause FFS with the following exceptions:

FFS

9.1.10.2.5 Test requirement

Table 9.1.10.2.5-2 defines the primary level settings including test tolerances for all tests.

The RSRP FDD relative accuracy test shall meet the RSRP accuracy requirements in table 9.1.10.2.5-3.

Table 9.1.10.2.5-1: General test parameters for E-UTRAN RSRP FDD relative accuracy under time-domain measurement resource restriction with MBSFN ABS

Parameter	Unit	Value	Comment
Serving cell (PCell)		Cell 1	The aggressor cell to Cell 2
Neighbour cell		Cell 2	Cell to be measured
E-UTRA RF Channel Number		1	One FDD carrier frequency is used
Channel Bandwidth ($BW_{channel}$)	MHz	10	For both cells in the test
CP length		Normal	For both cells in the test
DRX			OFF
Time offset between cells		3 μs	Synchronous cells
Physical cell ID PCI		(PCI_{cell1} - PCI_{cell2})mod6 =0, PCI_{cell1} not equal to PCI_{cell2}	Cell PCIs for Cell 1 and Cell 2 are selected randomly so that the condition is met
ABS pattern		'0100000010000000100000000010000001000000'	MBSFN ABS pattern. FDD ABS Pattern Info IE, as defined in TS 36.423, clause 9.2.54. Configured in Cell 1. The first/leftmost bit corresponds to the subframe #0 of a radio frame satisfying SFN mod 40 = 0. All ABS subframes are MBSFN subframes.
Time-domain measurement resource restriction pattern for neighbour cell measurements on RF Channel 1		'0100000010000000100000000010000001000000'	Configured for Cell 2 measurements by measSubframePatternNeigh IE in measSubframePatternConfigNeigh, as defined in TS 36.331, clause 6.3.5. measSubframeCellList contains Cell 2.
Time-domain measurement resource restriction pattern for serving cell measurements		'0001000000010000000100000000100000010000'	Configured for measurements on Cell 1.

Table 9.1.10.2.5-2: Cell Specific test parameters for E-UTRAN RSRP FDD relative accuracy under time-domain measurement resource restriction with MBSFN ABS

Parameter		Unit	Test 1		Test 2		Test 3	
			Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
Measurement bandwidth		n_{PRB}	22—27		22—27		22—27	
PDSCH Reference measurement channel defined in A.1.1			R.0 FDD	-	R.0 FDD	-	R.0 FDD	-
PDSCH allocation		n_{PRB}	13—36	-	13—36	-	13—36	-
PDCCH/PCFICH/PHICH Reference measurement channel defined in A.2.1			R.6 FDD		R.6 FDD		R.6 FDD	
OCNG Patterns defined in FFS and FFS			OP.8 FDD	OP.6 FDD	OP.8 FDD	OP.6 FDD	OP.8 FDD	OP.6 FDD
PBCH_RA		dB	0	0	0	0	0	0
PBCH_RB								
PSS_RA								
SSS_RA								
PCFICH_RB								
PHICH_RA								
PHICH_RB								
PDCCH_RA								
PDCCH_RB								
PDSCH_RA								
PDSCH_RB								
OCNG_RA Note1								
OCNG_RB Note1								
N_{oc} Note 2	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24	dBm/15 kHz	-106	-106	-88	-88	-116	
	Bands 2, 5 and 7						-114	
	Band 25						-112.5	
	Bands 3, 8, 12, 13, 14, 17, 20 and 22						-113	
	Band 9						-115	
CRS $\hat{E}_s/N_{oc}$		dB	[5]	[-2]	[5]	[-4]	[5]	[-4]
RSRP Note 3,4	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24	dBm/15 kHz	[-101]	[-108]	[-83]	[-92]	[-111]	[-120]
	Bands 2, 5 and 7						[-109]	[-118]
	Band 25						[-107.5]	[-116.5]
	Bands 3, 8, 12, 13, 14, 17, 20 and 22						[-108]	[-117]
	Band 9						[-110]	[-119]
$(\mathrm{Io})_{meas}$ Note 3 in the 1st OFDM symbol	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24	dBm/9 MHz	[-71.41]	[-74.88]	[-53.63]	[-57.37]	[-81.63]	[-85.37]
	Bands 2, 5 and 7						[-79.63]	[-83.37]
	Band 25						[-78.13]	[-81.87]
	Bands 3, 8, 12, 13, 14, 17, 20 and 22						[-78.63]	[-82.37]
	Band 9						[-80.63]	[-84.37]
$(\mathrm{Io})_{meas}$ Note 3 in OFDM symbols other than the 1st one	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24	dBm/9 MHz	[-71.41]	[-76.09]	[-53.63]	[-58.76]	[-81.63]	[-86.76]
	Bands 2, 5 and 7						[-79.63]	[-84.76]
	Band 25						[-78.13]	[-83.26]
	Bands 3, 8, 12, 13, 14, 17, 20 and 22						[-78.63]	[-83.76]
	Band 9						[-80.63]	[-85.76]

Propagation condition		AWGN	AWGN	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. Applies to all subframes. Note 3: RSRP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves. Io levels are calculated in CRS symbols of measurement restricted subframes. Note 4: Applies to restricted measurement subframes of the respective cell.				

Table 9.1.10.2.5-3: RSRP FDD Carrier Aggregation relative accuracy requirements for the reported values

	Test 1	Test 2	Test 3				
	All bands	All bands	Bands 1, 4, 6, 10, 11, 18, 19,21, 23, 24	Bands 2, 5, 7, 26, 27	Band 25	Bands 3, 8, 12,13, 14, 17, 20, 22	Band 9
Normal Conditions							
Lowest reported value (Cell 2)	RSRP_x-10+TT	RSRP_x-12+TT	RSRP_x-12+TT	RSRP_x-12+TT	RSRP_x-12+TT	RSRP_x-12+TT	RSRP_x-12+TT
Highest reported value (Cell 2)	RSRP_x-4+TT	RSRP_x-6+TT	RSRP_x-6+TT	RSRP_x-6+TT	RSRP_x-6+TT	RSRP_x-6+TT	RSRP_x-6+TT
Extreme Conditions							
Lowest reported value (Cell 2)	RSRP_x-12+TT	RSRP_x-14+TT	RSRP_x-14+TT	RSRP_x-14+TT	RSRP_x-14+TT	RSRP_x-14+TT	RSRP_x-14+TT
Highest reported value (Cell 2)	RSRP_x-2+TT	RSRP_x-4+TT	RSRP_x-4+TT	RSRP_x-4+TT	RSRP_x-4+TT	RSRP_x-4+TT	RSRP_x-4+TT
RSRP_x is the reported value of Cell 1							

For the test to pass, the ratio of successful reported values in each test shall be more than 90% with a confidence level of 95%.

9.1.11 TDD RSRP Accuracy E-UTRA under Time-Domain Measurement Resource Restriction with MBSFN ABS (eICIC)

9.1.11.1 TDD Absolute RSRP under Time-Domain Measurement Resource Restriction with MBSFN ABS (eICIC)

Editor's note: This test case is incomplete. The following aspects are either missing or not yet determined:

- Connection diagram for this test is undefined.
- Message Contents for this test are undefined
- The Test Tolerances applicable to this test are undefined.
- Cell specific parameters table is FFS.

9.1.11.1.1 Test purpose

To verify that TDD absolute RSRP measurement accuracy measurements under time-domain measurement resource restriction with MBSFN ABS configured in the aggressor cell is within the specified limits under AWGN propagation conditions. This test will verify the TDD absolute RSRP accuracy.

9.1.11.1.2 Test applicability

This test applies to all types of E-UTRA TDD UE release 10 and forward supporting eICIC. Applicability requires support for FGI bit 115.

9.1.11.1.3 Minimum conformance requirements

The TDD RSRP measurements of cells shall meet the intra frequency absolute accuracy requirements defined in TS 36.133 [4] clause 9.1.2.3.

The accuracy requirements in table 9.1.11.1.3-1 are valid under the following conditions:

Cell specific reference signals are transmitted either from one, two or four antenna ports.

Conditions defined in 36.101 Section 7.3 for reference sensitivity are fulfilled.

$RSRP|_{dBm}$ according to Annex I.3.1 for a corresponding Band.

The time domain measurement resource restriction pattern configured for the measured cell indicates at least one subframe per radio frame for performing the RSRP measurement,

Four symbols containing CRS are available in all subframes indicated by the time domain measurement resource restriction pattern.

Table 9.1.11.1.3-1: RSRP Intra frequency absolute accuracy under time domain measurement resource restriction

Parameter	Unit	Accuracy [dB]		Conditions [1,2]						
		Normal condition	Extreme condition	Bands 1, 4, 6, 10, 11, 18, 19, 21, 24, 33, 34, 35, 36, 37, 38, 39, 40, 42, 43	Bands 2, 5, 7, 27, 41, [44]	Band 25	Band 26	Band 28	Bands 3, 8, 12, 13, 14, 17, 20, 22	Bands 9
				Io	Io	Io	Io	Io	Io	Io
RSRP for Ês/Iot ≥ -4 dB	dBm	±6	±9	-121dBm/15kHz … -70dBm/ $BW_{Channel}$	-119dBm/15kHz … -70dBm/ $BW_{Channel}$	-117.5dBm/15kHz … -70dBm/ $BW_{Channel}$	-118.5dBm/15kHz … -70dBm/ $BW_{Channel}$ [3]	-119.5dBm/15kHz … -70dBm/ $BW_{Channel}$	-118dBm/15kHz … -70dBm/ $BW_{Channel}$	-120dBm/15kHz … -70dBm/ $BW_{Channel}$
RSRP for Ês/Iot ≥ -4 dB	dBm	±8	±11	-70dBm/ $BW_{Channel}$ … -50dBm/ $BW_{Channel}$	-70dBm/ $BW_{Channel}$ … -50dBm/ $BW_{Channel}$	-70dBm/ $BW_{Channel}$ … -50dBm/ $BW_{Channel}$	-70dBm/ $BW_{Channel}$ … -50dBm/ $BW_{Channel}$	-70dBm/ $BW_{Channel}$ … -50dBm/ $BW_{Channel}$	-70dBm/ $BW_{Channel}$ … -50dBm/ $BW_{Channel}$	-70dBm/ $BW_{Channel}$ … -50dBm/ $BW_{Channel}$

Note 1: Io is assumed to have constant EPRE across the bandwidth.
Note 2: Io is defined over REs in subframes indicated by the time domain measurement resource restriction pattern configured for performing RSRP measurements of this cell.
Note 3: The condition is -119dBm/15kHz … -70dBm/ $BW_{Channel}$ when the carrier frequency of the assigned E-UTRA channel bandwidth is within 865-894 MHz

The reporting range of RSRP is defined from -140 dBm to -44 dBm with 1 dB resolution.

The mapping of measured quantity is defined in Table 9.1.11.1.3-2. The range in the signalling may be larger than the guaranteed accuracy range.

Table 9.1.11.1.3-2: RSRP measurement report mapping

Reported value	Measured quantity value	Unit
RSRP_00	RSRP < -140	dBm
RSRP_01	-140 ≤ RSRP < -139	dBm
RSRP_02	-139 ≤ RSRP < -138	dBm
…	…	…
RSRP_95	-46 ≤ RSRP < -45	dBm
RSRP_96	-45 ≤ RSRP < -44	dBm
RSRP_97	-44 ≤ RSRP	dBm

The normative reference for this requirement is TS 36.133 [4] clause 9.1.2.3 , clause 9.1.4 and A.9.1.11

9.1.11.1.4 Test description

9.1.11.1.4.1 Initial conditions

Test Environment: Normal, TL/VL, TL/VH, TH/VL, TH/VH; as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: FFS.

Channel Bandwidth to be tested: FFS.

1. Connect the SS (node B emulator) and AWGN noise sources to the UE antenna connectors as shown in TS 36.508 [7] Annex A figure FFS.

2. Propagation conditions are set according to Annex B clause B.0.

3. Message contents are defined in clause 9.1.11.1.4.3.

4. Cell 1 is the serving cell as well as aggressor cell to Cell 2, Cell 2 is the neighbouring cell. Cell 1 is the cell used for connection setup with the power levels set according to Annex C.0 and C.1 for this test.

9.1.11.1.4.2 Test procedure

1. Ensure the UE is in State 3A-RF according to TS 36.508 [7] clause 5.2.A2.

2. Set the parameters according to Table 9.1.11.1.5-1 and 9.1.11.1.5-2 as appropriate. Propagation conditions are set according to Annex B clause B.1.

3. SS shall transmit an RRCConnectionReconfiguration message on Cell 1.

4. The UE shall transmit RRCConnectionReconfigurationComplete message.

5. UE shall transmit periodically MeasurementReport messages.

6. SS shall check the reported RSRP values in MeasurementReport messages. The reported RSRP values for Cell 1 and Cell 2 are compared to the actual RSRP values according to Table 9.1.11.1.5-3.

7. SS shall check the MeasurementReport messages transmitted by the UE until the confidence level according to Table G.2.3-1 in Annex G.2 is achieved.

9.1.11.1.4.3 Message contents

Message contents are according to TS 36.508 [7] clause FFS with the following exceptions:

FFS

9.1.11.1.5 Test requirement

Table 9.1.11.1.5-2 defines the primary level settings including test tolerances for all tests.

The RSRP TDD absolute accuracy test shall meet the reported values test requirements in table 9.1.11.1.5-3.

Table 9.1.11.1.5-1: General test parameters for E-UTRAN TDD RSRP intra-frequency test parameters under time-domain measurement resource restriction with MBSFN ABS

Parameter	Unit	Value	Comment
Serving cell (PCell)		Cell 1	The aggressor cell to Cell 2
Neighbour cell		Cell 2	Cell to be measured
E-UTRA RF Channel Number		1	One TDD carrier frequency is used
Channel Bandwidth ($BW_{channel}$)	MHz	10	For both cells in the test
Special subframe configuration		6	For Cell 1 and Cell 2. For special subframe configurations see Table 4.2-1 in [9].
Uplink/downlink subframe configuration		1	For Cell 1 and Cell 2. For uplink-downlink subframe configurations see Table 4.2-2 in [9].
CP length		Normal	For both cells in the test
DRX			OFF
Time offset between cells		3 μs	Synchronous cells
Physical cell ID PCI		(PCI_{cell1} - PCI_{cell2})mod6 =0, PCI_{cell1} not equal to PCI_{cell2}	Cell PCIs for Cell 1 and Cell 2 are selected randomly so that the condition is met
ABS pattern		'00001000000000100000'	MBSFN ABS pattern. TDD ABS Pattern Info IE, as defined in TS 36.423, clause 9.2.54. Configured in Cell 1. The first/leftmost bit corresponds to the subframe #0 of a radio frame satisfying SFN mod 20 = 0. All ABS subframes are MBSFN subframes.
Time-domain measurement resource restriction pattern for neighbour cell measurements on RF Channel 1		'00001000000000100000'	Configured for Cell 2 measurements by measSubframePatternNeigh IE in measSubframePatternConfigNeigh, as defined in TS 36.331 clause 6.3.5. measSubframeCellList contains Cell 2.
Time-domain measurement resource restriction pattern for serving cell measurements		'10000000001000000000'	Configured for measurements on Cell 1.

Table 9.1.11.1.5-2: Cell-specific test parameters for E-UTRAN TDD RSRP intra-frequency test parameters under time-domain measurement resource restriction with MBSFN ABS

Parameter		Unit	Test 1		Test 2		Test 3	
			Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
Measurement bandwidth		n_{PRB}	22—27		22—27		22—27	
PDSCH Reference measurement channel defined in A.1.2			R.0 TDD	-	R.0 TDD	-	R.0 TDD	-
PDSCH allocation		n_{PRB}	13—36	-	13—36	-	13—36	-
PDCCH/PCFICH/PHICH Reference measurement channel defined in A.2.2			R.6 TDD		R.6 TDD		R.6 TDD	
OCNG Patterns defined in FFS and FFS			OP.5 TDD	OP.2 TDD	OP.5 TDD	OP.2 TDD	OP.5 TDD	OP.2 TDD
PBCH_RA		dB	0	0	0	0	0	0
PBCH_RB								
PSS_RA								
SSS_RA								
PCFICH_RB								
PHICH_RA								
PHICH_RB								
PDCCH_RA								
PDCCH_RB								
PDSCH_RA								
PDSCH_RB								
OCNG_RA Note1								
OCNG_RB Note1								
N_{oc} Note 2	Bands 33, 34, 35, 36, 37, 38, 39, 40	dBm/15 kHz	-106	-106	-88	-88	-116	
	Bands 42, 43						-115	
	Band 41						-114	
CRS $\hat{E}_s/N_{oc}$		dB	[5]+TT	[-2]+TT	[5]+TT	[-4]+TT	[5]+TT	[-4]+TT
RSRP Note 3,4	Bands 33, 34, 35, 36, 37, 38, 39, 40	dBm/15 kHz	[-101]+TT	[-108]+TT	[-83]+TT	[-92]+TT	[-111]+TT	[-120]+TT
	Bands 42, 43						[-110]+TT	[-119]+TT
	Band 41						[-109]+TT	[-118]+TT
$(\text{Io})_{meas}$ Note 3 in the 1st OFDM symbol	Bands 33, 34, 35, 36, 37, 38, 39, 40	dBm/9 MHz	[-71.41]+TT	[-74.88]+TT	[-53.63]+TT	[-57.37]+TT	[-81.63]+TT	[-85.37]+TT
	Bands 42, 43						[-80.63]+TT	[-84.37]+TT
	Band 41						[-79.63]+TT	[-83.37]+TT
$(\text{Io})_{meas}$ Note 3 in OFDM symbols other than the 1st one	Bands 33, 34, 35, 36, 37, 38, 39, 40	dBm/9 MHz	[-71.41]+TT	[-76.09]+TT	[-53.63]+TT	[-58.76]+TT	[-81.63]+TT	[-86.76]+TT
	Bands 42, 43						[-80.63]+TT	[-85.76]+TT
	Band 41						[-79.63]+TT	[-84.76]+TT
Propagation condition			AWGN		AWGN		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. Applies to all subframes.
Note 3:	RSRP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves. Io levels are calculated in CRS symbols of measurement restricted subframes.
Note 4:	Applies to restricted measurement subframes of the respective cell.

Table 9.1.11.1.5-3: RSRP TDD Carrier Aggregation absolute accuracy requirements for the reported values

	Test 1	Test 2	Test 3		
	All bands	All bands	Bands 33, 34, 35, 36, 37, 38, 39, 40	Bands 42, 43	Band 41
Normal Conditions					
Lowest reported value (Cell 2)	RSRP_24 +TT	RSRP_40 +TT	RSRP_12 +TT	RSRP_13 +TT	RSRP_14 +TT
Highest reported value (Cell 2)	RSRP_40 +TT	RSRP_56 +TT	RSRP_28 +TT	RSRP_29 +TT	RSRP_30 +TT
Extreme Conditions					
Lowest reported value (Cell 2)	RSRP_22 +TT	RSRP_38 +TT	RSRP_10 +TT	RSRP_11 +TT	RSRP_12 +TT
Highest reported value (Cell 2)	RSRP_42 +TT	RSRP_58 +TT	RSRP_30 +TT	RSRP_31 +TT	RSRP_32 +TT

For the test to pass, the ratio of successful reported values in each test shall be more than 90% with a confidence level of 95%.

9.1.11.2 TDD Relative RSRP under Time-Domain Measurement Resource Restriction with MBSFN ABS (eICIC)

Editor's note: This test case is incomplete. The following aspects are either missing or not yet determined:

- Connection diagram for this test is undefined.
- Message Contents for this test are undefined.
- The Test Tolerances applicable to this test are undefined.
- Cell specific parameters table is FFS.

9.1.11.2.1 Test purpose

To verify that TDD relative RSRP measurement accuracy under time-domain measurement resource restriction with MBSFN ABS configured in the aggressor cell is within the specified limits under AWGN propagation conditions. This test will verify the TDD relative RSRP accuracy requirements.

9.1.11.2.2 Test applicability

This test applies to all types of E-UTRA TDD UE release 10 and forward supporting eICIC. Applicability requires support for FGI bit 115.

9.1.11.2.3 Minimum conformance requirements

The TDD RSRP relative measurements of cells shall meet relative accuracy requirements defined in TS 36.133 clause 9.1.2.4.

The accuracy requirements in Table 9.1.11.2.3-1 for relative accuracy requirements are valid under the following conditions:

Cell specific reference signals are transmitted either from one, two or four antenna ports.

Conditions defined in 36.101 Section 7.3 for reference sensitivity are fulfilled.

RSRP1,2|dBm according to Annex B.3.4 for a corresponding Band

The time domain measurement resource restriction pattern configured for the measured cell indicates at least one subframe per radio frame for performing the RSRP measurement,

Four symbols containing CRS are available in all subframes indicated by the time domain measurement resource restriction pattern.

Table 9.1.11.2.3-1: RSRP Intra frequency relative accuracy under time domain measurement resource restriction

Parameter	Unit	Accuracy [dB]		Conditions[1,2,3]						
		Normal condition	Extreme condition	Bands 1, 4, 6, 10, 11, 18, 19, 21, 24, 33, 34, 35, 36, 37, 38, 39, 40	Bands 2, 5, 7, 27, 41, [44]	Band 25	Band 26	Band 28	Bands 3, 8, 12, 13, 14, 17, 20, 22	Band 9, 42, 43
				Io	Io		Io	Io	Io	Io
RSRP for Ês/Iot ≥ -2 dB	dBm	±2	±3	-121dBm/15kHz … -50dBm/ $BW_{Channel}$	-119dBm/15kHz … -50dBm/ $BW_{Channel}$	-117.5dBm/15kHz … -50dBm/ $BW_{Channel}$	-118.5dBm/15kHz … -50dBm/ $BW_{Channel}$ [4]	-119.5dBm/15kHz … -50dBm/ $BW_{Channel}$	-118dBm/15kHz … -50dBm/ $BW_{Channel}$	-120dBm/15kHz … -50dBm/ $BW_{Channel}$
RSRP for Ês/Iot ≥ -4 dB	dBm	±3	±3	-121dBm/15kHz … -50dBm/ $BW_{Channel}$	-119dBm/15kHz … -50dBm/ $BW_{Channel}$	-117.5dBm/15kHz … -50dBm/ $BW_{Channel}$	-118.5dBm/15kHz … -50dBm/ $BW_{Channel}$ [4]	-119.5dBm/ $BW_{Channel}$ … -50dBm/ $BW_{Channel}$	-118dBm/15kHz … -50dBm/ $BW_{Channel}$	-120dBm/15kHz … -50dBm/ $BW_{Channel}$

Note 1: Io is assumed to have constant EPRE across the bandwidth.
Note 2: The parameter Ês/Iot is the minimum Ês/Iot of the pair of cells to which the requirement applies.
Note 3: Io is defined over REs in subframes indicated by the time domain measurement resource restriction pattern configured for performing RSRP measurements of this cell.
Note 4: The condition is -119dBm/15kHz … -50dBm/ $BW_{Channel}$ when the carrier frequency of the assigned E-UTRA channel bandwidth is within 865-894 MHz

The normative reference for this requirement is TS 36.133 [4] clause 9.1.2.4, clause 9.1.4 and A.9.1.11.

9.1.11.2.4 Test description

9.1.11.2.4.1 Initial conditions

Test Environment: Normal, TL/VL, TL/VH, TH/VL, TH/VH; as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: FFS.

Channel Bandwidth to be tested: FFS.

1. Connect the SS (node B emulator) and AWGN noise source to the UE antenna connectors as shown in TS 36.508 [7] Annex A figure FFS.

2. Propagation conditions are set according to Annex B clause B.0.

3. Message contents are defined in clause 9.1.11.2.4.3.

4. Cell 1 is the serving cell as well as aggressor cell to Cell 2, Cell 2 is the neighbouring cell. Cell 1 is the cell used for connection setup with the power levels set according to Annex C.0 and C.1 for this test.

9.1.11.2.4.2 Test procedure

1. Ensure the UE is in State 3A-RF according to TS 36.508 [7] clause 5.2.A2.
2. Set the parameters according to Table 9.1.11.2.5-1 and 9.1.11.2.5-2 as appropriate. Propagation conditions are set according to Annex B clause B.1.
3. SS shall transmit an RRCConnectionReconfiguration message on Cell 1.
4. The UE shall transmit RRCConnectionReconfigurationComplete message.
5. UE shall transmit periodically MeasurementReport messages.
6. SS shall check the reported RSRP values in MeasurementReport messages. The reported RSRP value for Cell 2 is compared to the reported RSRP value for Cell 1 for each MeasurementReport message according to Table 9.1.11.2.5-2.
7. SS shall check the MeasurementReport messages transmitted by the UE until the confidence level according to Table G.2.3-1 in Annex G.2 is achieved.

9.1.11.2.4.3 Message contents

Message contents are according to TS 36.508 [7] clause FFS with the following exceptions:

FFS

9.1.11.2.5 Test requirement

Table 9.1.11.2.5-2 defines the primary level settings including test tolerances for all tests.

The RSRP TDD relative accuracy test shall meet the RSRP accuracy requirements in table 9.1.11.2.5-3.

Table 9.1.11.2.5-1: General test parameters for E-UTRAN RSRP TDD relative accuracy under time-domain measurement resource restriction with MBSFN ABS

Parameter	Unit	Value	Comment
Serving cell (PCell)		Cell 1	The aggressor cell to Cell 2
Neighbour cell		Cell 2	Cell to be measured
E-UTRA RF Channel Number		1	One TDD carrier frequency is used
Channel Bandwidth ($BW_{channel}$)	MHz	10	For both cells in the test
Special subframe configuration		6	For Cell 1 and Cell 2. For special subframe configurations see Table 4.2-1 in [16].
Uplink/downlink subframe configuration		1	For Cell 1 and Cell 2. For uplink-downlink subframe configurations see Table 4.2-2 in [9].
CP length		Normal	For both cells in the test
DRX			OFF
Time offset between cells		3 μs	Synchronous cells
Physical cell ID PCI		$(PCI_{cell1} - PCI_{cell2})mod6 =0$, PCI_{cell1} not equal to PCI_{cell2}	Cell PCIs for Cell 1 and Cell 2 are selected randomly so that the condition is met
ABS pattern		'00001000000000100000'	MBSFN ABS pattern. TDD ABS Pattern Info IE, as defined in TS 36.423, clause 9.2.54. Configured in Cell 1. The first/leftmost bit corresponds to the subframe #0 of a radio frame satisfying SFN mod 20 = 0. All ABS subframes are MBSFN subframes.
Time-domain measurement resource restriction pattern for neighbour cell measurements on RF Channel 1		'00001000000000100000'	Configured for Cell 2 measurements by measSubframePatternNeigh IE in measSubframePatternConfigNeigh, as defined in TS 36.331 ,clause 6.3.5. measSubframeCellList contains Cell 2.
Time-domain measurement resource restriction pattern for serving cell measurements		'10000000001000000000'	Configured for measurements on Cell 1.

Table 9.1.11.2.5-2: Cell-specific test parameters for E-UTRAN TDD RSRP intra-frequency test parameters under time-domain measurement resource restriction with MBSFN ABS

Parameter		Unit	Test 1		Test 2		Test 3	
			Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
Measurement bandwidth		n_{PRB}	22—27		22—27		22—27	
PDSCH Reference measurement channel defined in A.3.1.1.2			R.0 TDD	-	R.0 TDD	-	R.0 TDD	-
PDSCH allocation		n_{PRB}	13—36	-	13—36	-	13—36	-
PDCCH/PCFICH/PHICH Reference measurement channel defined in A.3.1.2.2			R.6 TDD		R.6 TDD		R.6 TDD	
OCNG Patterns defined in A.3.2.2.5 (OP.5 TDD) and A.3.2.2.2 (OP.2 TDD)			OP.5 TDD	OP.2 TDD	OP.5 TDD	OP.2 TDD	OP.5 TDD	OP.2 TDD
PBCH_RA PBCH_RB PSS_RA SSS_RA PCFICH_RB PHICH_RA PHICH_RB PDCCH_RA PDCCH_RB PDSCH_RA PDSCH_RB OCNG_RA Note1 OCNG_RB Note1		dB	0	0	0	0	0	0
N_{oc} Note 2	Bands 33, 34, 35, 36, 37, 38, 39, 40	dBm/15 kHz	-106	-106	-88	-88	-116	
	Bands 42, 43						-115	
	Band 41						-114	
CRS $\hat{E}_s/N_{oc}$		dB	[5]	[-2]	[5]	[-4]	[5]	[-4]
RSRP Note 3,4	Bands 33, 34, 35, 36, 37, 38, 39, 40	dBm/15 kHz	[-101]	[-108]	[-83]	[-92]	[-111]	[-120]
	Bands 42, 43						[-110]	[-119]
	Band 41						[-109]	[-118]
$(\mathrm{Io})_{meas}$ Note 3 in the 1st OFDM symbol	Bands 33, 34, 35, 36, 37, 38, 39, 40	dBm/9 MHz	[-71.41]	[-74.88]	[-53.63]	[-57.37]	[-81.63]	[-85.37]
	Bands 42, 43						[-80.63]	[-84.37]
	Band 41						[-79.63]	[-83.37]
$(\mathrm{Io})_{meas}$ Note 3 in OFDM symbols other than the 1st one	Bands 33, 34, 35, 36, 37, 38, 39, 40	dBm/9 MHz	[-71.41]	[-76.09]	[-53.63]	[-58.76]	[-81.63]	[-86.76]
	Bands 42, 43						[-80.63]	[-85.76]
	Band 41						[-79.63]	[-84.76]
Propagation condition			AWGN		AWGN		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. Applies to all subframes.

Note 3: RSRP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves. Io levels are calculated in CRS symbols of measurement restricted subframes.

Note 4: Applies to restricted measurement subframes of the respective cell.

Table 9.1.11.2.5-3: RSRP TDD Carrier Aggregation relative accuracy requirements for the reported values

	Test 1	Test 2	Test 3		
	All bands	**All bands**	**Bands 33, 34, 35, 36, 37, 38, 39, 40**	**Bands 42, 43**	**Band 41**
Normal Conditions					
Lowest reported value (Cell 2)	RSRP_x-10+TT	RSRP_x-12+TT	RSRP_x-12+TT	RSRP_x-12+TT	RSRP_x-12+TT
Highest reported value (Cell 2)	RSRP_x-4+TT	RSRP_x-6+TT	RSRP_x-6+TT	RSRP_x-6+TT	RSRP_x-6+TT
Extreme Conditions					
Lowest reported value (Cell 2)	RSRP_x-12+TT	RSRP_x-14+TT	RSRP_x-14+TT	RSRP_x-14+TT	RSRP_x-14+TT
Highest reported value (Cell 2)	RSRP_x-2+TT	RSRP_x-4+TT	RSRP_x-4+TT	RSRP_x-4+TT	RSRP_x-4+TT
RSRP_x is the reported value of Cell 1					

For the test to pass, the ratio of successful reported values in each test shall be more than 90% with a confidence level of 95%.9.2 RSRQ.

9.1.12

9.1.13

9.1.13.1 TDD Absolute RSRP Accuracy for E-UTRA Carrier Aggregation for 20 MHz

Editor's note: This test case is incomplete. The following aspects are either missing or not yet determined:

- *The Test Tolerances applicable to this test are undefined.*

9.1.13.1.1 Test purpose

To verify that TDD absolute RSRP measurement accuracy in carrier aggregation is within the specified limits under AWGN propagation conditions. This test will verify the TDD absolute RSRP accuracy requirements of cells on the primary component carrier and the secondary component carrier under bandwidth of 20MHz.

9.1.13.1.2 Test applicability

This test applies to all types of E-UTRA TDD UE release 10 and forward supporting CA.

9.1.13.1.3 Minimum conformance requirements

The TDD RSRP measurements of cells on the primary component carrier shall meet the absolute accuracy requirements defined in TS 36.133 [4] clause 9.1.2.1. The TDD RSRP measurements of cells on the secondary component carrier shall meet the absolute accuracy requirements defined in TS 36.133 [4] clause 9.1.2.1.

The accuracy requirements in table 9.1.13.1.3-1 are valid under the following conditions:

Cell specific reference signals are transmitted either from one, two or four antenna ports.

Conditions defined in 36.101 Section 7.3 for reference sensitivity are fulfilled.

RSRP$|_{dBm}$ according to Annex I.3.1 for a corresponding Band.

Table 9.1.13.1.3-1: RSRP TDD absolute accuracy

Accuracy		Conditions				
Normal condition	Extreme condition	Ês/Iot	Io Note 1 range			
			E-UTRA operating bands	Minimum Io		Maximum Io
dB	dB	dB		dBm/15kHz	dBm/$BW_{Channel}$	dBm/$BW_{Channel}$
±6	±9	≥-6 dB	1, 4, 6, 10, 11, 18, 19, 21, 23, 24, 33, 34, 35, 36, 37, 38, 39, 40	-121	N/A	-70
			9, 42, 43	-120	N/A	-70
			28	-119.5	N/A	-70
			2, 5, 7, 27, 41, [44]	-119	N/A	-70
			26	-118.5 Note 2	N/A	-70
			3, 8, 12, 13, 14, 17, 20, 22	-118	N/A	-70
			29 Note 4	-118	N/A	-70
			25	-117.5	N/A	-70
±8	±11	≥-6 dB	Note 3	N/A	-70	-50

Note 1: Io is assumed to have constant EPRE across the bandwidth.
Note 2: The condition has the minimum Io of -119 dBm/15kHz when the carrier frequency of the assigned E-UTRA channel bandwidth is within 865-894 MHz.
Note 3: The same bands apply for this requirement as for the corresponding highest accuracy requirement.
Note 4: This band is used only for E-UTRA carrier aggregation with other E-UTRA bands.

The reporting range of RSRP is defined from -140 dBm to -44 dBm with 1 dB resolution.

The mapping of measured quantity is defined in Table 9.1.13.1.3-2. The range in the signalling may be larger than the guaranteed accuracy range.

Table 9.1.13.1.3-2: RSRP measurement report mapping

Reported value	Measured quantity value	Unit
RSRP_00	RSRP < -140	dBm
RSRP_01	-140 ≤ RSRP < -139	dBm
RSRP_02	-139 ≤ RSRP < -138	dBm
…	…	…
RSRP_95	-46 ≤ RSRP < -45	dBm
RSRP_96	-45 ≤ RSRP < -44	dBm
RSRP_97	-44 ≤ RSRP	dBm

The normative reference for this requirement is TS 36.133 [4] clause 9.1.11.1,clause 9.1.11.2 clause 9.1.4 and A.9.1.13.

9.1.13.1.4 Test description

9.1.13.1.4.1 Initial conditions

Test Environment: Normal, TL/VL, TL/VH, TH/VL, TH/VH; as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1 for different CA bandwidth classes.

Channel Bandwidth to be tested: 20 MHz as defined in TS 36.508 [7] clause 4.3.1 for different CA configurations as defined in TS 36.521-1[10] clause 5.4.2A.

1. Connect the SS (node B emulator) and AWGN noise sources to the UE antenna connectors as shown in TS 36.508 [7] Annex A, Figure group A.41 as appropriate.

2. Propagation conditions are set according to Annex B clause B.0.

3. Message contents are defined in clause 9.1.13.1.4.3.

4. There are two E-UTRA TDD carriers with one cell on one E-UTRA TDD carrier and two cells on the other E-UTRA TDD carrier specified in the test. PCell (Cell 1) is the cell used for connection setup with the power level set according to Annex C.0 and C.1 for this test. Cell 2 and Cell 3 shall be powered OFF.

9.1.13.1.4.2 Test procedure

The test consists of Cell 1 the PCell, Cell 2 the SCell on the Secondary Component Carrier (SCC), and Cell 3 the neighbouring cell on the SCC. The SCC is configured and activated. The absolute accuracy of RSRP is defined as the RSRP measured from the primary component carrier (Cell 1) and the RSRP measured from the secondary component carrier (Cell 2 and Cell 3).

1. Ensure the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.
2. Configure SCC according to Annex C.0 and C.1 for all downlink physical channels except PHICH.
3. The SS shall configure SCell (Cell 2) on the SCC as per TS 36.508 [7] clause 5.2A.4.
4. The SS activates SCC by sending the activation MAC-CE (Refer TS 36.321 [13], clauses 5.13, 6.1.3.8). Wait for at least 2 seconds as per TS 36.133 [4] clause 8.3.3.2.
5. Set the parameters according to Table 9.1.13.1.5-1 as appropriate. Propagation conditions are set according to Annex B clause B.1.1.
6. The SS shall transmit an RRCConnectionReconfiguration message.
7. The UE shall transmit RRCConnectionReconfigurationComplete message.
8. The UE shall transmit periodically MeasurementReport messages.
9. The SS shall check the reported RSRP values in MeasurementReport messages. The reported RSRP values for Cell 1 and Cell 2 are compared to the actual RSRP values according to Table 9.1.13.1.5-2. This counts respectively as a Pass or Fail for the events "Cell 1" and "Cell 2".
10. The SS shall check the MeasurementReport messages transmitted by the UE until a test verdict has been achieved.

Each of the events "Cell 1" and "Cell 2" is evaluated independently for the statistic, resulting in an event verdict: pass or fail. Each event is evaluated only until the confidence level according to Table G.2.3-1 in Annex G.2 is achieved. Different events may require different times for a verdict.
If both events pass, the test passes. If one event fails, the test fails.

9.1.13.1.4.3 Message contents

Message contents are according to TS 36.508 [7] clause 4.6 with the following exceptions:

Table 9.1.13.1.4.3-1: Common Exception messages for TDD Absolute RSRP Accuracy E-UTRA for Carrier Aggregation test requirement

Default Message Contents	
Common contents of system information blocks exceptions	
Default RRC messages and information elements contents exceptions	Table H.3.1-1 Table H.3.5-3 Table H.4.2-1 Table H.4.1-5

9.1.13.1.5 Test requirement

Table 9.1.13.1.5-1 defines the primary level settings including test tolerances for all tests.

Each RSRP TDD absolute accuracy test shall meet the reported values test requirements in table 9.1.13.1.5-2.

Table 9.1.13.1.5-1: RSRP TDD absolute accuracy carrier aggregation test parameters

<table>
<tr><th colspan="2" rowspan="2">Parameter</th><th rowspan="2">Unit</th><th colspan="3">Test 1</th></tr>
<tr><th>Cell 1</th><th>Cell 2</th><th>Cell 3</th></tr>
<tr><td colspan="2">BW_{channel} Note 1</td><td>MHz</td><td colspan="3">20</td></tr>
<tr><td colspan="2">Measurement bandwidth</td><td>n_{PRB}</td><td colspan="3">47—52</td></tr>
<tr><td colspan="2">PDSCH Reference measurement channel defined in A.1.2</td><td></td><td>R.3 TDD</td><td>R.3 TDD</td><td>N/A</td></tr>
<tr><td colspan="2">PDSCH allocation</td><td>n_{PRB}</td><td>38—61</td><td>38—61</td><td>N/A</td></tr>
<tr><td colspan="2">PDCCH/PCFICH/PHICH Reference measurement channel defined in A.2.2</td><td></td><td colspan="3">R.10 TDD</td></tr>
<tr><td colspan="2">OCNG Patterns defined in D.2.7 (OP.7 TDD) and D.2.8 (OP.8 TDD)</td><td></td><td>OP.7 TDD</td><td>OP.7 TDD</td><td>OP.8 TDD</td></tr>
<tr><td rowspan="3">Io Note2</td><td>Bands 33, 34, 35, 36, 37, 38, 39, 40</td><td rowspan="3">dBm/9 MHz</td><td>-84.75</td><td colspan="2" rowspan="3">(Io for Channel 1 +5.33dB)</td></tr>
<tr><td>Bands 42, 43</td><td>-83.75</td></tr>
<tr><td>Band 41</td><td>-82.75</td></tr>
<tr><td colspan="6">[Note 1: This test verifies the RRM requirement which is independent of channel bandwidth and is performed according to the principle defined in TS 36.133 [4] section A.3.6.1.]
Note 2: Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves.
Note 3: See Table 9.1.7.1.5-1 for the other parameters.</td></tr>
</table>

Table 9.1.13.1.5-2: RSRP TDD Carrier Aggregation absolute accuracy requirements for the reported values

<table>
<tr><th>Parameter</th><th colspan="3">Test 1</th></tr>
<tr><td>**Band of Cell 1 on Primary Component Carrier**</td><td>**Bands 33, 34, 35, 36, 37, 38, 39, 40**</td><td>**Bands42, 43**</td><td>**Band 41**</td></tr>
<tr><td colspan="4">Normal Conditions</td></tr>
<tr><td>Lowest reported value (Cell 1)</td><td>RSRP_12</td><td>RSRP_13</td><td>RSRP_14</td></tr>
<tr><td>Highest reported value (Cell 1)</td><td>RSRP_27</td><td>RSRP_28</td><td>RSRP_29</td></tr>
<tr><td>Lowest reported value (Cell 2)</td><td>RSRP_20</td><td>RSRP_21</td><td>RSRP_22</td></tr>
<tr><td>Highest reported value (Cell 2)</td><td>RSRP_35</td><td>RSRP_36</td><td>RSRP_37</td></tr>
<tr><td colspan="4">Extreme Conditions</td></tr>
<tr><td>Lowest reported value (Cell 1)</td><td>RSRP_9</td><td>RSRP_19</td><td>RSRP_11</td></tr>
<tr><td>Highest reported value (Cell 1)</td><td>RSRP_30</td><td>RSRP_31</td><td>RSRP_32</td></tr>
<tr><td>Lowest reported value (Cell 2)</td><td>RSRP_17</td><td>RSRP_18</td><td>RSRP_19</td></tr>
<tr><td>Highest reported value (Cell 2)</td><td>RSRP_38</td><td>RSRP_39</td><td>RSRP_40</td></tr>
<tr><td colspan="4">Note: The band of Cell 1 determines the levels for both Cell 1 and Cell 2, so the reported RSRP values depend only on the band of Cell 1, and are not dependent on the band of Cell 2.</td></tr>
</table>

For the test to pass, the ratio of successful reported values in each test shall be more than 90% with a confidence level of 95%.

9.1.13.2 TDD Relative RSRP Accuracy for E-UTRA Carrier Aggregation for 20 MHz

Editor's note: This test case is incomplete. The following aspects are either missing or not yet determined:

- *The Test Tolerances applicable to this test are undefined.*

9.1.13.2.1 Test purpose

To verify that TDD relative RSRP measurement accuracy in carrier aggregation is within the specified limits under AWGN propagation conditions. This test will verify the TDD relative RSRP accuracy requirements of cells between the primary and secondary component carrier and TDD relative RSRP accuracy of cells on the secondary component carriers.

9.1.13.2.2 Test applicability

This test applies to all types of E-UTRA TDD UE release 10 and forward supporting CA.

9.1.13.2.3 Minimum conformance requirements

The TDD RSRP relative measurements of cells on PCC and SCC shall meet relative accuracy requirements defined in TS 36.133 clause 9.1.3.2. The TDD RSRP relative measurements of cells on the SCC shall meet relative accuracy requirements defined in TS 36.133 clause 9.1.2.2.

The accuracy requirements in Table 9.1.13.2.3-1 for PCC-SCC relative accuracy requirements are valid under the following conditions:

Cell specific reference signals are transmitted either from one, two or four antenna ports.

Conditions defined in TS 36.101 [2] Section 7.3 for reference sensitivity are fulfilled.

$RSRP1,2|_{dBm}$ according to Annex I.3.8 for a corresponding Band

$$\left| RSRP1|_{dBm} - RSRP2|_{dBm} \right| \le 27dB$$

| Channel 1_Io -Channel 2_Io | ≤ 20 dB

Table 9.1.13.2.3-1: TDD RSRP relative accuracy for PCC and SCC

Accuracy		Conditions			
Normal condition	Extreme condition	Ês/Iot Note 2	Io Note 1 range		
			E-UTRA operating bands	Minimum Io	Maximum Io
dB	dB	dB		dBm/15kHz	dBm/BW$_{Channel}$
±6	±6	≥-6 dB	1, 4, 6, 10, 11, 18, 19, 21, 23, 24, 33, 34, 35, 36, 37, 38, 39, 40	-121	-50
			9, 42, 43	-120	-50
			28	-119.5	-50
			2, 5, 7, 27, 41, [44]	-119	-50
			26	-118.5 Note 3	-50
			3, 8, 12, 13, 14, 17, 20, 22	-118	-50
			29 Note 4	-118	-50
			25	-117.5	-50

Note 1: Io is assumed to have constant EPRE across the bandwidth.
Note 2: The parameter Ês/Iot is the minimum Ês/Iot of the pair of cells to which the requirement applies.
Note 3: The condition has the minimum Io of -119 dBm/15kHz when the carrier frequency of the assigned E-UTRA channel bandwidth is within 865-894 MHz.
Note 4: This band is used only for E-UTRA carrier aggregation with other E-UTRA bands.

The normative reference for this requirement is TS 36.133 [4] clause 9.1.11.3, clause 9.1.4 and A.9.1.13.

The TDD RSRP relative measurements of cells on SCCs shall meet relative accuracy requirements defined in TS 36.133 clause 9.1.2.2.

The accuracy requirements in Table 9.1.13.2.3-2 for SCCs relative accuracy requirements are valid under the following conditions:

Cell specific reference signals are transmitted either from one, two or four antenna ports.

Conditions defined in TS 36.101 [2] Section 7.3 for reference sensitivity are fulfilled.

$RSRP1,2|_{dBm}$ according to Annex I.3.8 for a corresponding Band.

Table 9.1.13.2.3-2: TDD RSRP relative accuracy for SCCs

Accuracy		Conditions			
Normal condition	Extreme condition	Ês/Iot Note 2	Io Note 1 range		
			E-UTRA operating bands	Minimum Io	Maximum Io
dB	dB	dB		dBm/15kHz	$dBm/BW_{Channel}$
±2	±3	≥-3 dB	1, 4, 6, 10, 11, 18, 19, 21, 23, 24, 33, 34, 35, 36, 37, 38, 39, 40	-121	-50
			9, 42, 43	-120	-50
			28	-119.5	-50
			2, 5, 7, 27, 41, [44]	-119	-50
			26	-118.5 Note 3	-50
			3, 8, 12, 13, 14, 17, 20, 22	-118	-50
			29 Note 5	-118	-50
			25	-117.5	-50
±3	±3	≥-6 dB	Note 4	Note 4	Note 4

Note 1: Io is assumed to have constant EPRE across the bandwidth.
Note 2: The parameter Ês/Iot is the minimum Ês/Iot of the pair of cells to which the requirement applies.
Note 3: The condition has the minimum Io of -119 dBm/15kHz when the carrier frequency of the assigned E-UTRA channel bandwidth is within 865-894 MHz.
Note 4: The same bands and the same Io conditions for each band apply for this requirement as for the corresponding highest accuracy requirement.
Note 5: This band is used only for E-UTRA carrier aggregation with other E-UTRA bands.

The normative reference for this requirement is TS 36.133 [4] clause 9.1.11.2, 9.1.11.3, clause 9.1.4 and A.9.1.13.

9.1.13.2.4 Test description

9.1.13.2.4.1 Initial conditions

Test Environment: Normal, TL/VL, TL/VH, TH/VL, TH/VH; as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1 for different CA bandwidth classes.

Channel Bandwidth to be tested: 20 MHz as defined in TS 36.508 [7] clause 4.3.1 for different CA configurations as defined in TS 36.521-1[10] clause 5.4.2A.

1. Connect the SS and AWGN noise source to the UE antenna connectors as shown in TS 36.508 [7] Annex A, Figure group A.41 as appropriate.
2. Propagation conditions are set according to Annex B clause B.0.
3. Message contents are defined in clause 9.1.13.2.4.3.
4. There are two E-UTRA TDD carriers with one cell on one E-UTRA TDD carrier and two cells on the other E-UTRA TDD carrier specified in the test. PCell (Cell 1) is the cell used for connection setup with the power level set according to Annex C.0 and C.1 for this test. Cell 2 and Cell 3 shall be powered OFF.

9.1.13.2.4.2 Test procedure

1. Ensure the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.
2. Configure SCC according to Annex C.0 and C.1 for all downlink physical channels except PHICH.
3. The SS shall configure SCell (Cell 2) on the SCC as per TS 36.508 [7] clause 5.2A.4.
4. SS activates SCC by sending the activation MAC-CE (Refer TS 36.321 [13], clauses 5.13, 6.1.3.8). Wait for at least 2 seconds as per TS 36.133 [4] clause 8.3.3.2.
5. Set the parameters according to Table 9.1.13.2.5-1 as appropriate. Propagation conditions are set according to Annex B clause B.1.1.
6. SS shall transmit an RRCConnectionReconfiguration message.

7. The UE shall transmit RRCConnectionReconfigurationComplete message.

8. UE shall transmit periodically MeasurementReport messages.

9. SS shall check the reported RSRP values in MeasurementReport messages. The reported RSRP value for Cell 2 is compared to the reported RSRP value for Cell 1 for each MeasurementReport message according to Table 9.1.13.2.5-2. Also the reported RSRP value for Cell 3 is compared to the reported RSRP value for Cell 2 for each MeasurementReport message according to Table 9.1.13.2.5-2. This counts respectively as a Pass or Fail for the events “Cell 1-2” and “Cell 2-3”.

10. SS shall check the MeasurementReport messages transmitted by the UE until a test verdict has been achieved.

Each of the events “Cell 1-2” and “Cell 2-3” is evaluated independently for the statistic, resulting in an event verdict: pass or fail. Each event is evaluated only until the confidence level according to Table G.2.3-1 in Annex G.2 is achieved. Different events may require different times for a verdict.
If both events pass, the test passes. If one event fails, the test fails.

9.1.13.2.4.3 Message contents

Message contents are according to TS 36.508 [7] clause 4.6 with the following exceptions:

Table 9.1.13.2.4.3-1: Common Exception messages for TDD Relative RSRP Accuracy E-UTRA for Carrier Aggregation test requirement

Default Message Contents	
Common contents of system information blocks exceptions	
Default RRC messages and information elements contents exceptions	Table H.3.1-1 Table H.3.5-3 Table H.4.2-1 Table H.4.1-5

9.1.13.2.5 Test requirement

Table 9.1.13.2.5-1 defines the primary level settings including test tolerances for all tests.

Each RSRP TDD relative accuracy test shall meet the RSRP accuracy requirements in table 9.1.13.2.5-2.

Table 9.1.13.2.5-1: RSRP TDD relative accuracy carrier aggregation test parameters

Parameter		Unit	Test 1		
			Cell 1	Cell 2	Cell 3
$BW_{channel}$ Note 1		MHz	20		
Measurement bandwidth		n_{PRB}	47—52		
PDSCH Reference measurement channel defined in A.1.2			R.3 TDD	R.3 TDD	N/A
PDSCH allocation		n_{PRB}	38—61	38—61	N/A
PDCCH/PCFICH/PHICH Reference measurement channel defined in A.2.2			R.10 TDD		
OCNG Patterns defined in D.2.7 (OP.7 TDD) and D.2.8 (OP.8 TDD)			OP.7 TDD	OP.7 TDD	OP.8 TDD
Io Note2	Bands 33, 34, 35, 36, 37, 38, 39, 40	dBm/9 MHz	-84.75	(Io for Channel 1 +5.33dB)	
	Bands 42, 43		-83.75		
	Band 41		-82.75		
[Note 1: This test verifies the RRM requirement which is independent of channel bandwidth and is performed according to the principle defined in TS 36.133 [4] section A.3.6.1.] Note 2: Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves. Note 3: See Table 9.1.7.2.5-1 for the other parameters.					

Table 9.1.13.2.5-2: RSRP TDD Carrier Aggregation relative accuracy requirements for the reported values

	Test 1
	All bands
Normal and Extreme Conditions	
Lowest reported value (Cell 2)	RSRP_x – 1
Highest reported value (Cell 2)	RSRP_x + 17
Lowest reported value (Cell 3)	RSRP_y – 8
Highest reported value (Cell 3)	RSRP_y + 1
RSRP_x is the reported value of Cell 1 RSRP_y is the reported value of Cell 2	

For the test to pass, the ratio of successful reported values in each test shall be more than 90% with a confidence level of 95%.

9.2.1 FDD Intra frequency RSRQ Accuracy

9.2.1.1 FDD Intra Frequency Absolute RSRQ Accuracy

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

9.2.1.1.1 Test purpose

To verify that the FDD intra frequency absolute RSRQ measurement accuracy is within the specified limit for all bands.

9.2.1.1.2 Test applicability

This test applies to all types of E-UTRA FDD UE release 8 and forward. Applicability requires support for FGI bit 16.

9.2.1.1.3 Minimum conformance requirements

The absolute accuracy of RSRQ is defined as the RSRQ measured from a cell on the same frequency as that of the serving cell.

The accuracy requirements in table 9.2.1.1.3-1 are valid under the following conditions:

Cell specific reference signals are transmitted either from one, two or four antenna ports.

Conditions defined in 36.101 Section 7.3 for reference sensitivity are fulfilled.

RSRP|dBm according to Annex I.3.1 for a corresponding Band.

Table 9.2.1.1.3-1: RSRQ FDD intra frequency absolute accuracy

Accuracy		Conditions			
Normal condition	Extreme condition	Ês/Iot	Io Note 1 range		
			E-UTRA operating bands	Minimum Io	Maximum Io
dB	dB	dB		dBm/15kHz	dBm/BW Channel
±2.5	±4	≥-3 dB	1, 4, 6, 10, 11, 18, 19, 21, 23, 24, 33, 34, 35, 36, 37, 38, 39, 40	-121	-50
			9, 42, 43	-120	-50
			28	-119.5	-50
			2, 5, 7, 27, 41, [44]	-119	-50
			26	-118.5 Note 2	-50
			3, 8, 12, 13, 14, 17, 20, 22	-118	-50
			29 Note 4	-118	-50
			25	-117.5	-50
±3.5	±4	≥-6 dB	Note 3	Note 3	Note 3

NOTE 1: Io is assumed to have constant EPRE across the bandwidth.
NOTE 2: The condition has the minimum Io of -119 dBm/15kHz when the carrier frequency of the assigned E-UTRA channel bandwidth is within 865-894 MHz.
NOTE 3: The same bands and the same Io conditions for each band apply for this requirement as for the corresponding highest accuracy requirement.
NOTE 4: This band is used only for E-UTRA carrier aggregation with other E-UTRA bands.

The reporting range of RSRQ is defined from -19.5 dB to -3 with 0.5 dB resolution. The mapping of measured quantity is defined in Table 9.2.1.1.3-2.

Table 9.2.1.1.3-2: RSRQ FDD Intra frequency absolute accuracy measurement report mapping

Reported value	Measured quantity value	Unit
RSRQ_00	RSRQ < -19.5	dB
RSRQ_01	-19.5 ≤ RSRQ < -19	dB
RSRQ_02	-19 ≤ RSRQ < -18.5	dB
…	…	…
RSRQ_32	-4 ≤ RSRQ < -3.5	dB
RSRQ_33	-3.5 ≤ RSRQ < -3	dB
RSRQ_34	-3 ≤ RSRQ	dB

The normative reference for this requirement is TS 36.133 [4] clause 9.1.5.1 and A.9.2.1.

9.2.1.1.4 Test description

9.2.1.1.4.1 Initial conditions

Test Environment: Normal, TL/VL, TL/VH, TH/VL, TH/VH; as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1.

Channel Bandwidth to be tested: 10 MHz as defined in TS 36.508 [7] clause 4.3.1.

1. Connect the SS (node B emulator) and AWGN noise sources to the UE antenna connectors as shown in TS 36.508 [7] Annex A figure A.20.

2. Propagation conditions are set according to Annex B clause B.0.

3. Message contents are defined in clause 9.2.1.1.4.3.

4. There is one E-UTRA FDD carrier and two cells specified in each test. Cell 1 is the cell used for connection setup with the power level set according to Annex C.0 and C.1 for this test.

9.2.1.1.4.2 Test procedure

The three tests consist of Cell 1, serving cell and Cell 2, target cell. The absolute accuracy of RSRQ is defined as the RSRQ measured from a cell on the same frequency as that of the serving cell, Cell 1.

1. Ensure the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.
2. Set the parameters according to Table 9.2.1.1.5-2 as appropriate. Propagation conditions are set according to Annex B clause B.1.1.
3. SS shall transmit an RRCConnectionReconfiguration message.
4. The UE shall transmit RRCConnectionReconfigurationComplete message.
5. UE shall transmit periodically MeasurementReport messages.
6. SS shall check the RSRQ value in MeasurementReport messages. The RSRQ value of Cell 2 reported by the UE is compared to the actual RSRQ value according to Table 9.2.1.1.5-3.
7. The SS shall check MeasurementReport messages transmitted by the UE until the confidence level according to G.2.3-1 in Annex G.2 is achieved.
8. Repeat step 1-7 for each sub-test in Table 9.2.1.1.5-2 as appropriate.

9.2.1.1.4.3 Message contents

Message contents are according to TS 36.508 [7] values 4.6 with the following exceptions:

Table 9.2.1.1.4.3-1: Common Exception messages for RSRQ FDD intra frequency absolute accuracy test requirement

Default Message Contents	
Common contents of system information blocks exceptions	
Default RRC messages and information elements contents exceptions	Table H.3.1-1 Table H.3.5-1 Table H.3.5-4

Table 9.2.1.1.4.3-2: *MeasResults*: Additional RSRQ FDD intra frequency absolute accuracy test requirement

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResults ::= SEQUENCE {			
measId	1	Identifies the measurement id for the reporting being performed	
measResultServCell SEQUENCE {			
rsrpResult		Set according to specific test	
rsrqResult		Set according to specific test	
}			
measResultNeighCells CHOICE {			
measResultListEUTRA	MeasResultListEUTRA		
}			
}			

Table 9.2.1.1.4.3-3: *MeasResultListEUTRA*: Additional RSRQ FDD intra frequency absolute accuracy test requirement

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResultListEUTRA::= SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {			
physCellId	PhysicalCellIdentity		
measResult SEQUENCE {			
rsrpResult	Not present		
rsrqResult		Set according to specific test	
}			
}			

9.2.1.1.5 Test requirement

Table 9.2.1.1.5-2 defines the primary level settings including test tolerances for all tests.

Each RSRQ FDD intra frequency absolute accuracy test shall meet the reported values test requirements in Table 9.2.1.1.5-3.

Table 9.2.1.1.5-1: Void

Table 9.2.1.1.5-2: Cell Specific Test requirement Parameters for RSRQ FDD intra frequency absolute accuracy

Parameter		Unit	Test 1		Test 2		Test 3	
			Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
E-UTRA RF Channel Number			1		1		1	
$BW_{channel}$		MHz	10		10		10	
Measurement bandwidth		n_{PRB}	22—27		22—27		22—27	
PDSCH Reference measurement channel defined in A.1.1			R.0 FDD	-	R.0 FDD	-	R.0 FDD	-
PDSCH allocation		n_{PRB}	13—36	-	13—36	-	13—36	-
PDCCH/PCFICH/PHICH Reference measurement channel defined in A.2.1			R.6 FDD		R.6 FDD		R.6 FDD	
OCNG Patterns defined in D.1.1 (OP.1 FDD) and D.1.2 (OP.2 FDD)			OP.1 FDD	OP.2 FDD	OP.1 FDD	OP.2 FDD	OP.1 FDD	OP.2 FDD
PBCH_RA		dB	0	0	0	0	0	0
PBCH_RB								
PSS_RA								
SSS_RA								
PCFICH_RB								
PHICH_RA								
PHICH_RB								
PDCCH_RA								
PDCCH_RB								
PDSCH_RA								
PDSCH_RB								
OCNG_RA^Note1								
OCNG_RB^Note1								
N_{oc} Note2	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23, 24	dBm/15 kHz	-85.51	-85.51	-103.85	-103.85	-116	
	Bands 2, 5, 7, 26 Note 5, 27						-114	
	Band 25						-112.5	
	Band 28						-114.5	
	Bands 3, 8, 12, 13, 14, 17, 20, 22						-113	
	Band 9						-115	
$\hat{E}_s/I_{ot}$		dB	-1.76	-1.76	-4.7	-4.7	-5.17	-5.17
RSRP^Note3	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23, 24	dBm/15 kHz	-82.51	-82.51	-106.75	-106.75	-119.60	-119.60
	Bands 2, 5, 7, 26 Note 5, 27						-117.60	-117.60
	Band 25						-116.10	-116.10
	Band 28						-118.10	-118.10
	Bands 3, 8, 12, 13, 14, 17, 20, 22						-116.60	-116.60
	Band 9						-118.60	-118.60
RSRQ^Note3	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23, 24	dB	-14.77	-14.77	-16.76	-16.76	-17. 12	-17. 12
	Bands 2, 5, 7, 26 Note 5, 27							
	Band 25							
	Band 28							
	Bands 3, 8, 12, 13, 14, 17, 20, 22							
	Band 9							

Io[Note3]	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23, 24	dBm/9 MHz	-50.75	-50.75	-73	-73	-85.49	
	Bands 2, 5, 7, 26 [Note 5], 27						-83.49	
	Band 25						-81.99	
	Band 28						-83.99	
	Bands 3, 8, 12, 13, 14, 17, 20, 22						-82.49	
	Band 9						-84.49	
$\hat{E}_s/N_{oc}$		dB	3	3	-2.9	-2.9	-3.6	-3.6
Propagation condition		-	AWGN		AWGN		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: RSRQ, RSRP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves.
Note 4: RSRP and RSRQ minimum requirements are specified assuming independent interference and noise at each receiver antenna port.
Note 5: For Band 26, the tests shall be performed with the carrier frequency of the assigned E-UTRA channel bandwidth within 865-894 MHz

Table 9.2.1.1.5-3: RSRQ FDD Intra frequency absolute accuracy requirements for the reported values

	Test 1	**Test 2**	**Test 3**
	All bands	All bands	All bands
Normal Conditions			
Lowest reported value (Cell 2)	RSRQ_04	RSRQ_00	RSRQ_00
Highest reported value (Cell 2)	RSRQ_16	RSRQ_14	RSRQ_14
Extreme Conditions			
Lowest reported value (Cell 2)	RSRQ_01	RSRQ_00	RSRQ_00
Highest reported value (Cell 2)	RSRQ_19	RSRQ_15	RSRQ_15

For the test to pass, the ratio of successful reported values in each test shall be more than 90% with a confidence level of 95%.

9.2.2 TDD Intra frequency RSRQ Accuracy

9.2.2.1 TDD Intra Frequency Absolute RSRQ Accuracy

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

9.2.2.1.1 Test purpose

To verify that the TDD intra frequency absolute RSRQ measurement accuracy is within the specified limit for all TDD bands.

9.2.2.1.2 Test applicability

This test applies to all types of E-UTRA TDD UE release 8 and forward. Applicability requires support for FGI bit 16.

9.2.2.1.3 Minimum conformance requirements

The absolute accuracy of RSRQ is defined as the RSRQ measured from a cell on the same frequency as that of the serving cell.

The accuracy requirements in table 9.2.2.1.3-1 are valid under the following conditions:

Cell specific reference signals are transmitted either from one, two or four antenna ports.

Conditions defined in 36.101 Section 7.3 for reference sensitivity are fulfilled.

RSRP|dBm according to Annex I.3.1 for a corresponding Band.

Table 9.2.2.1.3-1: RSRQ TDD intra frequency absolute accuracy

Accuracy		Conditions			
Normal condition	Extreme condition	Ês/Iot	Io Note 1 range		
			E-UTRA operating bands	Minimum Io	Maximum Io
dB	dB	dB		dBm/15kHz	dBm/$BW_{Channel}$
±2.5	±4	≥-3 dB	1, 4, 6, 10, 11, 18, 19, 21, 23, 24, 33, 34, 35, 36, 37, 38, 39, 40	-121	-50
			9, 42, 43	-120	-50
			28	-119.5	-50
			2, 5, 7, 27, 41, [44]	-119	-50
			26	-118.5 Note 2	-50
			3, 8, 12, 13, 14, 17, 20, 22	-118	-50
			29 Note 4	-118	-50
			25	-117.5	-50
±3.5	±4	≥-6 dB	Note 3	Note 3	Note 3
NOTE 1: Io is assumed to have constant EPRE across the bandwidth. NOTE 2: The condition has the minimum Io of -119 dBm/15kHz when the carrier frequency of the assigned E-UTRA channel bandwidth is within 865-894 MHz. NOTE 3: The same bands and the same Io conditions for each band apply for this requirement as for the corresponding highest accuracy requirement. NOTE 4: This band is used only for E-UTRA carrier aggregation with other E-UTRA bands.					

The reporting range of RSRQ is defined from -19.5 dB to -3 with 0.5 dB resolution.

The mapping of measured quantity is defined in Table 9.2.2.1.3-2. The range in the signalling may be larger than the guaranteed accuracy range.

Table 9.2.2.1.3-2: RSRQ TDD Intra frequency absolute accuracy measurement report mapping

Reported value	Measured quantity value	Unit
RSRQ_00	RSRQ < -19.5	dB
RSRQ_01	-19.5 ≤ RSRQ < -19	dB
RSRQ_02	-19 ≤ RSRQ < -18.5	dB
…	…	…
RSRQ_32	-4 ≤ RSRQ < -3.5	dB
RSRQ_33	-3.5 ≤ RSRQ < -3	dB
RSRQ_34	-3 ≤ RSRQ	dB

The normative reference for this requirement is TS 36.133 [4] clause 9.1.5.1, 9.1.7 and A.9.2.2.

9.2.2.1.4 Test description

9.2.2.1.4.1 Initial conditions

Test Environment: Normal, TL/VL, TL/VH, TH/VL, TH/VH; as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1.

Channel Bandwidth to be tested: 10 MHz as defined in TS 36.508 [7] clause 4.3.1.

1. Connect the SS (node B emulator) and AWGN noise sources to the UE antenna connectors as shown in TS 36.508 [7] Annex A figure A.20.

2. Propagation conditions are set according to Annex B clause B.0.

3. Message contents are defined in clause 9.2.2.1.4.3.

4. There is one E-UTRA TDD carrier and two cells specified in each test. Cell 1 is the cell used for call setup with the power level set according to clause C.0 and C.1 for this test.

9.2.2.1.4.2 Test procedure

The three tests consist of Cell 1, serving cell and Cell 2, target cell. The absolute accuracy of RSRQ is defined as the RSRQ measured from a cell on the same frequency as that of the serving cell, Cell 1.

1. Ensure the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.

2. Set the parameters according to Table 9.2.2.1.5-2 as appropriate. Propagation conditions are set according to Annex B clause B.1.1.

3. SS shall transmit an RRCConnectionReconfiguration message.

4. The UE shall transmit RRCConnectionReconfigurationComplete message.

5. UE shall transmit periodically MeasurementReport messages.

6. SS shall check the RSRQ value in MeasurementReport messages. The RSRQ value of Cell 2 reported by the UE is compared to the actual RSRQ according to Table 9.2.2.1.5-3.

7. The SS shall check MeasurementReport messages transmitted by the UE until the confidence level according to Tables G.2.3-1 in Annex G.2 is achieved.

8. Repeat step 1-7 for each sub-test in Table 9.2.2.1.5-2 as appropriate.

9.2.2.1.4.3 Message contents

Message contents are according to TS 36.508 [7] values 4.6 with the following exceptions:

Table 9.2.2.1.4.3-1: Common Exception messages for RSRQ TDD intra frequency absolute accuracy test requirement

Default Message Contents	
Common contents of system information blocks exceptions	
Default RRC messages and information elements contents exceptions	Table H.3.1-1 Table H.3.5-1 Table H.3.5-4

Table 9.2.2.1.4.3-2: *MeasResults*: Additional RSRQ TDD intra frequency absolute accuracy test requirement

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResults ::= SEQUENCE {			
measId	1		
meaResuCellItsServCell SEQUENCE {			
rsrpResult		Set according to specific test	
rsrqResult		Set according to specific test	
}			
measResultNeighCells CHOICE {			
measResultListEUTRA	MeasResultListEUTRA		
}			
}			

Table 9.2.2.1.4.3-3: *MeasResultListEUTRA*: Additional RSRQ TDD intra frequency absolute accuracy test requirement

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
measResultListEUTRA ::= SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {			
physCellId	PhysCellId of Cell 2		
measResult SEQUENCE {			
rsrpResult	Not present		
rsrqResult		Set according to specific test	
}			
}			

9.2.2.1.5 Test requirement

Table 9.2.2.1.5-2 defines the primary level settings including test tolerances for all tests.

Each RSRQ TDD intra frequency absolute accuracy test shall meet the reported values test requirements in Table 9.2.2.1.5-3.

Table 9.2.2.1.5-1: Void

Table 9.2.2.1.5-2: Cell Specific Test requirement Parameters for RSRQ TDD intra frequency absolute accuracy

Parameter		Unit	Test 1		Test 2		Test 3	
			Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
E-UTRA RF Channel Number			1		1		1	
$BW_{channel}$		MHz	10		10		10	
Special subframe configuration Note1			6		6		6	
Uplink-downlink configuration Note1			1		1		1	
Measurement bandwidth		n_{PRB}	22—27		22—27		22—27	
PDSCH Reference measurement channel defined in A.1.2			R.0 TDD	-	R.0 TDD	-	R.0 TDD	-
PDSCH allocation		n_{PRB}	13—36	-	13—36	-	13—36	-
PDCCH/PCFICH/PHICH Reference measurement channel defined in A.2.2			R.6 TDD		R.6 TDD		R.6 TDD	
OCNG Patterns defined in D.2.1 (OP.1 TDD) and D.2.2 (OP.2 TDD)			OP.1 TDD	OP.2 TDD	OP.1 TDD	OP.2 TDD	OP.1 TDD	OP.2 TDD
PBCH_RA PBCH_RB PSS_RA SSS_RA PCFICH_RB PHICH_RA PHICH_RB PDCCH_RA PDCCH_RB PDSCH_RA PDSCH_RB OCNG_RA Note2 OCNG_RB Note2		dB	0	0	0	0	0	0
N_{oc} Note3	Bands 33, 34, 35, 36, 37, 38, 39, 40	dBm/15 kHz	-85.51	-85.51	-103.85	-103.85	-116	
	Band 42, 43						-115	
	Band 41, [44]						-114	
$\hat{E}_s/I_{ot}$		dB	-1.76	-1.76	-4.7	-4.7	-5. 17	-5. 17
RSRP Note4	Bands 33, 34, 35, 36, 37, 38, 39, 40	dBm/15 kHz	-82.51	-82.51	-106.75	-106.75	-119.60	-119.60
	Band 42, 43						-118.60	-118.60
	Band 41, [44]						-117.60	-117.60
RSRQ Note4	Bands 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43	dB	-14.77	-14.77	-16.76	-16.76	-17. 12	-17. 12
Io Note4	Bands 33, 34, 35, 36, 37, 38, 39, 40	dBm/9 MHz	-50.75	-50.75	-73	-73	-85.49	
	Band 42, 43						-84.49	
	Band 41, [44]						-83.49	
$\hat{E}_s/N_{oc}$		dB	3	3	-2.9	-2.9	-3.6	-3.6
Propagation condition		-	AWGN		AWGN		AWGN	

Note 1: For special subframe and uplink-downlink configurations see Tables 4.2-1 and 4.2-2 in 3GPP TS 36.211.
Note 2: 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 3: 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 4: RSRQ, RSRP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves.
Note 5: RSRP and RSRQ minimum requirements are specified assuming independent interference and noise at each receiver antenna port.

Table 9.2.2.1.5-3: RSRQ TDD Intra frequency absolute accuracy requirements for the reported values

	Test 1	Test 2	Test 3
	All bands	All bands	All bands
Normal Conditions			
Lowest reported value (Cell 2)	RSRQ_04	RSRQ_00	RSRQ_00
Highest reported value (Cell 2)	RSRQ_16	RSRQ_14	RSRQ_14
Extreme Conditions			
Lowest reported value (Cell 2)	RSRQ_01	RSRQ_00	RSRQ_00
Highest reported value (Cell 2)	RSRQ_19	RSRQ_15	RSRQ_15

For the test to pass, the ratio of successful reported values in each test shall be more than 90% with a confidence level of 95%.

9.2.3 FDD - FDD Inter frequency RSRQ Accuracy

9.2.3.1 FDD - FDD Inter Frequency Absolute RSRQ Accuracy

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

9.2.3.1.1 Test purpose

To verify that the FDD - FDD inter frequency absolute RSRQ measurement accuracy is within the specified limit for all bands.

9.2.3.1.2 Test applicability

This test applies to all types of E-UTRA FDD UE release 8 and forward. Applicability requires support for FGI bits 16 and 25.

9.2.3.1.3 Minimum conformance requirements

The absolute accuracy of RSRQ is defined as the RSRQ measured from a cell that has different carrier frequency from the serving cell.

The accuracy requirements in table 9.2.3.1.3-1 are valid under the following conditions:

Cell specific reference signals are transmitted either from one, two or four antenna ports.

Conditions defined in TS 36.101 [2] clause 7.3 for reference sensitivity are fulfilled.

RSRP|dBm according to Annex I.3.3 for a corresponding Band.

Table 9.2.3.1.3-1: RSRQ FDD - FDD inter frequency absolute accuracy

Accuracy		Conditions			
Normal condition	Extreme condition	Ês/Iot	Io Note 1 range		
			E-UTRA operating bands	Minimum Io	Maximum Io
dB	dB	dB		dBm/15kHz	$dBm/BW_{Channel}$
±2.5	±4	≥-3 dB	1, 4, 6, 10, 11, 18, 19, 21, 23, 24, 33, 34, 35, 36, 37, 38, 39, 40	-121	-50
			9, 42, 43	-120	-50
			28	-119.5	-50
			2, 5, 7, 27, 41, [44]	-119	-50
			26	-118.5 Note 2	-50
			3, 8, 12, 13, 14, 17, 20, 22	-118	-50
			29 Note 4	-118	-50
			25	-117.5	-50
±3.5	±4	≥-6 dB	Note 3	Note 3	Note 3

NOTE 1: Io is assumed to have constant EPRE across the bandwidth.
NOTE 2: The condition has the minimum Io of -119 dBm/15kHz when the carrier frequency of the assigned E-UTRA channel bandwidth is within 865-894 MHz.
NOTE 3: The same bands and the same Io conditions for each band apply for this requirement as for the corresponding highest accuracy requirement.
NOTE 4: This band is used only for E-UTRA carrier aggregation with other E-UTRA bands.

The reporting range of RSRQ is defined from -19.5 dB to -3 with 0.5 dB resolution. The mapping of measured quantity is defined in Table 9.2.3.1.3-2.

Table 9.2.3.1.3-2: RSRQ FDD - FDD Inter frequency absolute accuracy measurement report mapping

Reported value	Measured quantity value	Unit
RSRQ_00	RSRQ < -19.5	dB
RSRQ_01	-19.5 ≤ RSRQ < -19	dB
RSRQ_02	-19 ≤ RSRQ < -18.5	dB
…	…	…
RSRQ_32	-4 ≤ RSRQ < -3.5	dB
RSRQ_33	-3.5 ≤ RSRQ < -3	dB
RSRQ_34	-3 ≤ RSRQ	dB

The normative reference for this requirement is TS 36.133 [4] clause 9.1.6.1 and A.9.2.3.

9.2.3.1.4 Test description

9.2.3.1.4.1 Initial conditions

Test Environment: Normal, TL/VL, TL/VH, TH/VL, TH/VH; as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1.1.

Channel Bandwidth to be tested: 10 MHz as defined in TS 36.508 [7] clause 4.3.1.1.

1. Connect the SS (node B emulator) and AWGN noise sources to the UE antenna connectors as shown in TS 36.508 [7] Annex A figure A.14.

2. Propagation conditions are set according to Annex B clause B.0.

3. Message contents are defined in clause 9.2.3.1.4.3.

4. There are two E-UTRA FDD carriers and one cell on each carrier specified in each test. Cell 1 is the cell used for connection setup with the power level set according to Annex C.0 and C.1 for this test.

9.2.3.1.4.2 Test procedure

The three tests consist of Cell 1, serving cell and Cell 2, target cell. The absolute accuracy of RSRQ is defined as the RSRQ measured from a cell that has different carrier frequency from the serving cell, Cell 1.

1. Ensure the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.
2. Set the parameters according to Table 9.2.3.1.5-2 for the test interval as appropriate. Propagation conditions are set according to Annex B clause B.1.1.
3. SS shall transmit an RRCConnectionReconfiguration message.
4. The UE shall transmit RRCConnectionReconfigurationComplete message.
5. UE shall transmit periodically MeasurementReport messages.
6. SS shall check the RSRQ value in MeasurementReport messages. The RSRQ value of Cell 2 reported by the UE is compared to the actual RSRQ value according to Table 9.2.3.1.5-3.
7. The SS shall check MeasurementReport messages transmitted by the UE until the confidence level according to table G.2.3-1 in Annex G.2 is achieved.
8. Repeat step 1-7 for each test interval in Table 9.2.3.1.5-2 as appropriate.

9.2.3.1.4.3 Message contents

Message contents are according to TS 36.508 [7] values 4.6 with the following exceptions:

Table 9.2.3.1.4.3-1: Common Exception messages for RSRQ FDD - FDD inter frequency absolute accuracy test requirement

Default Message Contents	
Common contents of system information blocks exceptions	
Default RRC messages and information elements contents exceptions	Table H.3. 1-1 Table H.3.5-2 Table H.3.5-4

Table 9.2.3.1.4.3-2: *MeasResults*: Additional RSRQ FDD - FDD inter frequency absolute accuracy test requirement

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResults ::= SEQUENCE {			
measId	1	Identifies the measurement id for the reporting being performed	
measResultServCell SEQUENCE {			
rsrpResult		Set according to specific test	
rsrqResult		Set according to specific test	
}			
measResultNeighCells CHOICE {			
measResultListEUTRA	MeasResultListEUTRA		
}			
}			

Table 9.2.3.1.4.3-3: *MeasResultListEUTRA*: Additional RSRQ FDD - FDD inter frequency absolute accuracy test requirement

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResultListEUTRA::= SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {			
physCellId	PhysCellId		
measResult SEQUENCE {			
rsrpResult	Not present		
rsrqResult		Set according to specific test	
}			
}			

9.2.3.1.5 Test requirement

Table 9.2.3.1.5-2 defines the primary level settings including test tolerances for all tests.

Each RSRQ FDD - FDD inter frequency absolute accuracy test shall meet the reported values test requirements in Table 9.2.3. 1.5-3.

Table 9.2.3.1.5-1: Void

Table 9.2.3.1.5-2: Cell Specific Test requirement Parameters for RSRQ FDD - FDD inter frequency absolute accuracy

Parameter		Unit	Test 1		Test 2		Test 3	
			Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
E-UTRA RF Channel Number			1	2	1	2	1	2
$BW_{channel}$		MHz	10	10	10	10	10	10
Measurement gap configuration			0	-	0	-	0	-
Measurement bandwidth		n_{PRB}	22—27		22—27		22—27	
PDSCH Reference measurement channel defined in A.1.1			R.0 FDD	-	R.0 FDD	-	R.0 FDD	-
PDSCH allocation		n_{PRB}	13—36	-	13—36	-	13—36	-
PDCCH/PCFICH/PHICH Reference measurement channel defined in A.2.1			R.6 FDD		R.6 FDD		R.6 FDD	
OCNG Patterns defined in D.1.1 (OP.1 FDD) and D.1.2 (OP.2 FDD)			OP.1 FDD	OP.2 FDD	OP.1 FDD	OP.2 FDD	OP.1 FDD	OP.2 FDD
PBCH_RA PBCH_RB PSS_RA SSS_RA PCFICH_RB PHICH_RA PHICH_RB PDCCH_RA PDCCH_RB PDSCH_RA PDSCH_RB OCNG_RA Note1 OCNG_RB Note1		dB	0	0	0	0	0	0
N_{oc} Note2	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23, 24	dBm/15 kHz	-80.0	-80.8	-104.7	-104.7	-119.5	-119.5
	Bands 2, 5, 7, 26 Note 5, 27						-117.5	-117.5
	Band 25						-116	-116
	Band 28						-118	-118
	Bands 3, 8, 12, 13, 14, 17, 20, 22						-116.5	-116.5
	Band 9						-118.5	-118.5
$\hat{E}_s/I_{ot}$		dB	-1.75	-1.75	-4	-3.20	-4	-3.20
RSRP Note3	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23, 24	dBm/15 kHz	-81.75	-82.55	-108.70	-107.90	-123.50	-122.70
	Bands 2, 5, 7, 26 Note 5, 27						-121.50	-120.70
	Band 25						-120.00	-119.20
	Band 28						-122.0	-122.0
	Bands 3, 8, 12, 13, 14, 17, 20, 22						-120.50	-119.70
	Band 9						-122.50	-121.70
RSRQ Note3	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23, 24	dB	-14.76	-14.76	-16.25	-15.69	-16.25	-15.69
	Bands 2, 5, 7, 26 Note 5, 27							
	Band 25							
	Band 28							
	Bands 3, 8, 12, 13, 14, 17, 20, 22							
	Band 9							

Io[Note3]	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23, 24	dBm/9 MHz	-50.0	-50.8	-75.46	-75.22	-90.26	-90.02
	Bands 2, 5, 7, 26 [Note 5], 27						-88.26	-88.02
	Band 25						-86.76	-86.52
	Band 28						-88.76	-88.52
	Bands 3, 8, 12, 13, 14, 17, 20, 22						-87.26	-87.02
	Band 9						-89.26	-89.02
$\hat{E}_s/N_{oc}$		dB	-1.75	-1.75	-4	-3.20	-4	-3.20
Propagation condition		-	AWGN		AWGN		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: RSRQ, RSRP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves.

Note 4: RSRP and RSRQ minimum requirements are specified assuming independent interference and noise at each receiver antenna port.

Note 5: For Band 26, the tests shall be performed with the carrier frequency of the assigned E-UTRA channel bandwidth within 865-894 MHz

Table 9.2.3.1.5-3: RSRQ FDD - FDD inter frequency absolute accuracy requirements for the reported values

	Test 1	Test 2	Test 3
Normal Conditions			
Lowest reported value (Cell 2)	RSRQ_04	RSRQ_00	RSRQ_00
Highest reported value (Cell 2)	RSRQ_16	RSRQ_16	RSRQ_16
Extreme Conditions			
Lowest reported value (Cell 2)	RSRQ_01	RSRQ_00	RSRQ_00
Highest reported value (Cell 2)	RSRQ_19	RSRQ_17	RSRQ_17

For the test to pass, the ratio of successful reported values in each test shall be more than 90% with a confidence level of 95%.

9.2.3.2 FDD - FDD Inter Frequency Relative Accuracy of RSRQ

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

9.2.3.2.1 Test purpose

To verify that the FDD - FDD inter frequency relative accuracy measurement of RSRQ is within the specified limit for all bands.

9.2.3.2.2 Test applicability

This test applies to all types of E-UTRA FDD UE release 8 and forward. Applicability requires support for FGI bits 16 and 25.

9.2.3.2.3 Minimum conformance requirements

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

The accuracy requirements in table 9.2.3.2.3-1 are valid under the following conditions:

Cell specific reference signals are transmitted either from one, two or four antenna ports.

Conditions defined in 36.101 [2] clause 7.3 for reference sensitivity are fulfilled.

$RSRP1,2|_{dBm}$ according to Annex I.3.4 for a corresponding Band

$$\left| RSRP1|_{dBm} - RSRP2|_{dBm} \right| \le [27] dB$$

| Channel 1_Io -Channel 2_Io | ≤ 20 dB

Table 9.2.3.2.3-1: RSRQ FDD - FDD inter frequency relative accuracy

Accuracy		Conditions			
Normal condition	Extreme condition	Ês/Iot Note 2	Io Note 1 range		
			E-UTRA operating bands	Minimum Io	Maximum Io
dB	dB	dB		dBm/15kHz	dBm/BW$_{Channel}$
±3	±4	≥-3 dB	1, 4, 6, 10, 11, 18, 19, 21, 23, 24, 33, 34, 35, 36, 37, 38, 39, 40	-121	-50
			9, 42, 43	-120	-50
			28	-119.5	-50
			2, 5, 7, 27, 41, [44]	-119	-50
			26	-118.5 Note 3	-50
			3, 8, 12, 13, 14, 17, 20, 22	-118	-50
			29 Note 5	-118	-50
			25	-117.5	-50
±4	±4	≥-6 dB	Note 4	Note 4	Note 4

NOTE 1: Io is assumed to have constant EPRE across the bandwidth.
NOTE 2: The parameter Ês/Iot is the minimum Ês/Iot of the pair of cells to which the requirement applies.
NOTE 3: The condition has the minimum Io of -119 dBm/15kHz when the carrier frequency of the assigned E-UTRA channel bandwidth is within 865-894 MHz.
NOTE 4: The same bands and the same Io conditions for each band apply for this requirement as for the corresponding highest accuracy requirement.
NOTE 5: This band is used only for E-UTRA carrier aggregation with other E-UTRA bands.

The reporting range of RSRQ is defined from -19.5 dB to -3 with 0.5 dB resolution. The mapping of measured quantity is defined in Table 9.2.3.2.3-2.

Table 9.2.3.2.3-2: RSRQ FDD - FDD Inter frequency relative accuracy measurement report mapping

Reported value	Measured quantity value	Unit
RSRQ_00	RSRQ < -19.5	dB
RSRQ_01	-19.5 ≤ RSRQ < -19	dB
RSRQ_02	-19 ≤ RSRQ < -18.5	dB
…	…	…
RSRQ_32	-4 ≤ RSRQ < -3.5	dB
RSRQ_33	-3.5 ≤ RSRQ < -3	dB
RSRQ_34	-3 ≤ RSRQ	dB

The normative reference for this requirement is TS 36.133 [4] clause 9.1.6.2 and A.9.2.3.

9.2.3.2.4 Test description

9.2.3.2.4.1 Initial conditions

Test Environment: Normal, TL/VL, TL/VH, TH/VL, TH/VH; as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1.

Channel Bandwidth to be tested: 10 MHz as defined in TS 36.508 [7] clause 4.3.1.

1. Connect the SS (node B emulator) and AWGN noise sources to the UE antenna connectors as shown in TS 36.508 [7] Annex A figure A.14.

2. Propagation conditions are set according to Annex B clause B.0.

3. Message contents are defined in clause 9.2.3.2.4.3.

4. There are two E-UTRA FDD carriers and one cell on each carrier specified in the test. Cell 1 is the cell used for connection setup with the power level set according to Annex C.0 and C.1 for this test.

9.2.3.2.4.2 Test procedure

The three tests consist of Cell 1, serving cell and Cell 2, target cell. The relative accuracy of RSRQ is defined as the RSRQ measured from one cell compared to the RSRQ measured from another cell on a different frequency.

1. Ensure the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.

2. Set the parameters according to Table 9.2.3.2.5-2 for the test interval as appropriate. Propagation conditions are set according to Annex B clause B.1.1.

3. SS shall transmit an RRCConnectionReconfiguration message.

4. The UE shall transmit RRCConnectionReconfigurationComplete message.

5. UE shall transmit periodically MeasurementReport messages.

6. SS shall check the RSRQ value of Cell 1 and Cell 2 in MeasurementReport messages. The reported RSRQ value for Cell 2 is compared to the reported RSRQ value for Cell 1 for each MeasurementReport message.

7. The SS shall check MeasurementReport messages transmitted by the UE until the confidence level according to G.2.3-1 in Annex G.2 is achieved.

8. Repeat step 1-7 for each test interval in Table 9.2.3.2.5-2 as appropriate.

9.2.3.2.4.3 Message contents

Message contents are according to TS 36.508 [7] values 4.6 with the following exceptions:

Table 9.2.3.2.4.3-1: Common Exception messages for RSRQ FDD - FDD inter frequency relative accuracy test requirement

Default Message Contents	
Common contents of system information blocks exceptions	
Default RRC messages and information elements contents exceptions	Table H.3. 1-1 Table H.3.5-2 Table H.3.5-4

Table 9.2.3.2.4.3-2: *MeasResults*: Additional RSRQ FDD - FDD inter frequency relative accuracy test requirement

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResults ::= SEQUENCE {			
measId	1	Identifies the measurement id for the reporting being performed	
measResultServCell SEQUENCE {			
rsrpResult		Set according to specific test	
rsrqResult		Set according to specific test	
}			
measResultNeighCells CHOICE {			
measResultListEUTRA	MeasResultListEUTRA		
}			
}			

Table 9.2.3.2.4.3-3: *MeasResultListEUTRA*: Additional RSRQ FDD - FDD inter frequency absolute accuracy test requirement

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResultListEUTRA::= SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {			
physCellId	PhysicalCellIdentity		
measResult SEQUENCE {			
rsrpResult	Not present		
rsrqResult		Set according to specific test	
}			
}			

9.2.3.2.5 Test requirement

Table 9.2.3.2.5-2 defines the primary level settings including test tolerances for all tests.

Each RSRQ FDD - FDD inter frequency relative accuracy test shall meet the reported values test requirements in Table 9.2.3.2.5-3.

Table 9.2.3.2.5-1: Void

Table 9.2.3.2.5-2: Cell Specific Test requirement Parameters for RSRQ FDD - FDD inter frequency relative accuracy

Parameter		Unit	Test 1		Test 2		Test 3	
			Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
E-UTRA RF Channel Number			1	2	1	2	1	2
$BW_{channel}$		MHz	10	10	10	10	10	10
Gap Pattern Id			0	-	0	-	0	-
Measurement bandwidth		n_{PRB}	22—27		22—27		22—27	
PDSCH Reference measurement channel defined in A.1.1			R.0 FDD	-	R.0 FDD	-	R.0 FDD	-
PDSCH allocation		n_{PRB}	13—36	-	13—36	-	13—36	-
PDCCH/PCFICH/PHICH Reference measurement channel defined in A.2.1			R.6 FDD		R.6 FDD		R.6 FDD	
OCNG Patterns defined in D.1.1 (OP.1 FDD) and D.1.2 (OP.2 FDD)			OP.1 FDD	OP.2 FDD	OP.1 FDD	OP.2 FDD	OP.1 FDD	OP.2 FDD
PBCH_RA		dB	0	0	0	0	0	0
PBCH_RB								
PSS_RA								
SSS_RA								
PCFICH_RB								
PHICH_RA								
PHICH_RB								
PDCCH_RA								
PDCCH_RB								
PDSCH_RA								
PDSCH_RB								
OCNG_RA[Note1]								
OCNG_RB[Note1]								
N_{oc} [Note2]	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23, 24	dBm/15 kHz	-80.8	-80.8	-104.7	-104.7	-119.5	-119.5
	Bands 2, 5, 7, 26 [Note 5], 27						-117.5	-117.5
	Band 25						-116	-116
	Band 28						-118	-118
	Bands 3, 8, 12, 13, 14, 17, 20, 22						-116.5	-116.5
	Band 9						-118.5	-118.5
$\hat{E}_s/I_{ot}$		dB	-1.75	-1.75	-4.0	-3.2	-4.0	-3.2
RSRP[Note3]	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23, 24	dBm/15 kHz	-82.55	-82.55	-108.70	-107.90	-123.50	-122.7
	Bands 2, 5, 7, 26 [Note 5], 27						-121.50	-120.7
	Band 25						-120.0	-119.2
	Band 28						-122.0	-121.20
	Bands 3, 8, 12, 13, 14, 17, 20, 22						-120.50	-119.7
	Band 9						-122.50	-121.7
RSRQ[Note3]	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23, 24	dB	-14.76	-14.76	-16.25	-15.69	-16.25	-15.69
	Bands 2, 5, 7, 26 [Note 5], 27							
	Band 25							
	Band 28							
	Bands 3, 8, 12, 13, 14, 17, 20, 22							
	Band 9							

Io[Note3]	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23, 24	dBm/9 MHz	-50.8	-50.8	-75.46	-75.22	-90.26	-90.02
	Bands 2, 5, 7, 26[Note 5], 27						-88.26	-88.02
	Band 25						-86.76	-86.52
	Band 28						-88.76	-88.52
	Bands 3, 8, 12, 13, 14, 17, 20, 22						-87.26	-87.02
	Band 9						-89.26	-89.02
$\hat{E}_s/N_{oc}$		dB	-1.75	-1.75	-4.0	-3.2	-4.0	-3.2
Propagation condition		-	AWGN		AWGN		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: RSRQ, RSRP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves. Note 4: RSRP and RSRQ minimum requirements are specified assuming independent interference and noise at each receiver antenna port. Note 5: For Band 26, the tests shall be performed with the carrier frequency of the assigned E-UTRA channel bandwidth within 865-894 MHz								

Table 9.2.3.2.5-3: RSRQ FDD inter frequency relative accuracy requirements for the reported values

	Test 1	Test 2	Test 3
Normal Conditions			
Lowest reported value (Cell 2)	RSRQ_x - 8	RSRQ_x - 10	RSRQ_x - 10
Highest reported value (Cell 2)	RSRQ_x +8	RSRQ_x +10	RSRQ_x +10
Extreme Conditions			
Lowest reported value (Cell 2)	RSRQ_x - 10	RSRQ_x - 10	RSRQ_x - 10
Highest reported value (Cell 2)	RSRQ_x + 10	RSRQ_x + 10	RSRQ_x + 10
RSRQ_x is the reported value of Cell 1			

For the test to pass, the ratio of successful reported values in each test shall be more than 90% with a confidence level of 95%.

9.2.4 TDD - TDD Inter frequency RSRQ Accuracy

9.2.4.1 TDD - TDD Inter Frequency Absolute RSRQ Accuracy

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

9.2.4.1.1 Test purpose

To verify that the TDD - TDD inter frequency absolute RSRQ measurement accuracy is within the specified limit for all bands.

9.2.4.1.2 Test applicability

This test applies to all types of E-UTRA TDD UE release 8 and forward. Applicability requires support for FGI bits 16 and 25.

9.2.4.1.3 Minimum conformance requirements

The absolute accuracy of RSRQ is defined as the RSRQ measured from a cell that has different carrier frequency from the serving cell.

The accuracy requirements in table 9.2.4.1.3-1 are valid under the following conditions:

Cell specific reference signals are transmitted either from one, two or RSRQ value of Cell 2 reported by the UE four antenna ports.

Conditions defined in TS 36.101 [2] clause 7.3 for reference sensitivity are fulfilled.

RSRP|dBm according to Annex I.3.3 for a corresponding Band.

Table 9.2.4.1.3-1: RSRQ TDD - TDD inter frequency absolute accuracy

Accuracy		Conditions			
Normal condition	Extreme condition	Ês/Iot	Io Note 1 range		
			E-UTRA operating bands	Minimum Io	Maximum Io
dB	dB	dB		dBm/15kHz	dBm/$BW_{Channel}$
±2.5	±4	≥-3 dB	1, 4, 6, 10, 11, 18, 19, 21, 23, 24, 33, 34, 35, 36, 37, 38, 39, 40	-121	-50
			9, 42, 43	-120	-50
			28	-119.5	-50
			2, 5, 7, 27, 41, [44]	-119	-50
			26	-118.5 Note 2	-50
			3, 8, 12, 13, 14, 17, 20, 22	-118	-50
			29 Note 4	-118	-50
			25	-117.5	-50
±3.5	±4	≥-6 dB	Note 3	Note 3	Note 3
NOTE 1: Io is assumed to have constant EPRE across the bandwidth. NOTE 2: The condition has the minimum Io of -119 dBm/15kHz when the carrier frequency of the assigned E-UTRA channel bandwidth is within 865-894 MHz. NOTE 3: The same bands and the same Io conditions for each band apply for this requirement as for the corresponding highest accuracy requirement. NOTE 4: This band is used only for E-UTRA carrier aggregation with other E-UTRA bands.					

The reporting range of RSRQ is defined from -19.5 dB to -3 with 0.5 dB resolution. The mapping of measured quantity is defined in Table 9.2.2.1.3-2.

The normative reference for this requirement is TS 36.133 [4] clause 9.1.6.1 and A.9.2.4.

9.2.4.1.4 Test description

9.2.4.1.4.1 Initial conditions

Test Environment: Normal, TL/VL, TL/VH, TH/VL, TH/VH; as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1.

Channel Bandwidth to be tested: 10 MHz as defined in TS 36.508 [7] clause 4.3.1.

1. Connect the SS (node B emulator) and AWGN noise sources to the UE antenna connectors as shown in TS 36.508 [7] Annex A figure A.14.

2. Propagation conditions are set according to Annex B clause B.0.

3. Message contents are defined in clause 9.2.4.1.4.3.

4. There are two E-UTRA TDD carriers and one cell on each carrier specified in each test. Cell 1 is the cell used for call setup with the power level set according to clause C.0 and C.1 for this test.

9.2.4.1.4.2 Test procedure

The three tests consist of Cell 1, serving cell and Cell 2, target cell. The absolute accuracy of RSRQ is defined as the RSRQ measured from a cell that has different carrier frequency from the serving cell, Cell 1. The Gap pattern configuration is with id#0 as defined in TS 36.133 clause 8.1.2.1.

1. Ensure the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.
2. Set the parameters according to Table 9.2.4.1.5-2 for the test interval as appropriate. Propagation conditions are set according to Annex B clause B.1.1.
3. SS shall transmit an RRCConnectionReconfiguration message.
4. The UE shall transmit RRCConnectionReconfigurationComplete message.
5. UE shall transmit periodically MeasurementReport messages.
6. SS shall check the RSRQ value in MeasurementReport messages. The RSRQ value of Cell 2 reported by the UE is compared to the actual RSRQ value according to Table 9.2.4.1.5-3.
7. The SS shall check MeasurementReport messages transmitted by the UE until the confidence level according to Tables G.2.3-1 in Annex G.2 is achieved.
8. Repeat step 1-7 for each test interval in Table 9.2.4.1.5-2 as appropriate.

9.2.4.1.4.3 Message contents

Message contents are according to TS 36.508 [7] values 4.6 with the following exceptions:

Table 9.2.4.1.4.3-1: Common Exception messages for RSRQ TDD - TDD inter frequency absolute accuracy test requirement

Default Message Contents	
Common contents of system information blocks exceptions	
Default RRC messages and information elements contents exceptions	Table H.3.1-1 Table H.3.5-2 Table H.3.5-4

Table 9.2.4.1.4.3-2: *MeasResults*: Additional RSRQ TDD - TDD inter frequency absolute accuracy test requirement

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResults ::= SEQUENCE {			
measId	1		
measResultServCell	SEQUENCE {		
rsrpResult		Set according to specific test	
rsrqResult		Set according to specific test	
}			
measResultNeighCells CHOICE {			
measResultListEUTRA	MeasResultListEUTRA		
}			
}			

Table 9.2.4.1.4.3-3: *MeasResultListEUTRA*: Additional RSRQ TDD - TDD inter frequency absolute accuracy test requirement

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResultListEUTRA ::= SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {			
physCellId	PhysicalCellIdentity		
measResult SEQUENCE {			
rsrpResult	Not present		
rsrqResult		Set according to specific test	
}			
}			

9.2.4.1.5 Test requirement

Table 9.2.4.1.5-2 defines the primary level settings including test tolerances for all tests.

Each RSRQ TDD inter frequency absolute accuracy test shall meet the reported values test requirements in Table 9.2.4.2.5-3.

Table 9.2.4.1.5-1: Void

Table 9.2.4.1.5-2: Cell Specific Test requirement Parameters for RSRQ TDD - TDD inter frequency absolute accuracy

Parameter		Unit	Test 1		Test 2		Test 3	
			Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
E-UTRA RF Channel Number			1	2	1	2	1	2
$BW_{channel}$		MHz	10	10	10	10	10	10
Gap Pattern Id			0	-	0	-	0	-
Special subframe configuration Note1			6		6		6	
Uplink-downlink configuration Note1			1		1		1	
Measurement bandwidth		n_{PRB}	22—27		22—27		22—27	
PDSCH Reference measurement channel defined in A.1.2			R.0 TDD	-	R.0 TDD	-	R.0 TDD	-
PDSCH allocation		n_{PRB}	13—36	-	13—36	-	13—36	-
PDCCH/PCFICH/PHICH Reference measurement channel defined in A.2.2			R.6 TDD		R.6 TDD		R.6 TDD	
OCNG Patterns defined in D.2.1 (OP.1 TDD) and D.2.2 (OP.2 TDD)			OP.1 TDD	OP.2 TDD	OP.1 TDD	OP.2 TDD	OP.1 TDD	OP.2 TDD
PBCH_RA		dB	0	0	0	0	0	0
PBCH_RB								
PSS_RA								
SSS_RA								
PCFICH_RB								
PHICH_RA								
PHICH_RB								
PDCCH_RA								
PDCCH_RB								
PDSCH_RA								
PDSCH_RB								
OCNG_RA Note2								
OCNG_RB Note2								
N_{oc} Note3	Bands 33, 34, 35, 36, 37, 38, 39, 40	dBm/15 kHz	-80.0	-80.8	-104.7	-104.7	-119.5	-119.5
	Band 42, 43						-118.5	-118.5
	Band 41, [44]						-117.5	-117.5
Ês/Iot		dB	-1.75	-1.75	-4	-3.2	-4	-3.2
RSRP Note4	Bands 33, 34, 35, 36, 37, 38, 39, 40	dBm/15 kHz	-81.75	-82.55	-108.70	-107.9	-123.50	-122.7
	Band 42, 43						-122.50	-121.7
	Band 41, [44]						-121.50	-120.7
RSRQ Note4	Bands 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43	dB	-14.76	-14.76	-16.25	-15.69	-16.25	-15.69
Io Note4	Bands 33, 34, 35, 36, 37, 38, 39, 40	dBm/9 MHz	-50.0	-50. 8	-75.46	-75.22	-90.26	-90.02
	Band 42, 43						-89.26	-89.02
	Band 41, [44]						-88.26	-88.02
$\hat{E}_s/N_{oc}$		dB	-1.75	-1.75	-4	-3.2	-4	-3.2

Propagation condition	-	AWGN	AWGN	AWGN
Note 1: For special subframe and uplink-downlink configurations see Tables 4.2-1 and 4.2-2 in 3GPP TS 36.211. Note 2: 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 3: 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 4: RSRQ, RSRP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves. Note 5: RSRP and RSRQ minimum requirements are specified assuming independent interference and noise at each receiver antenna port.				

Table 9.2.4.1.5-3: RSRQ TDD - TDD inter frequency absolute accuracy requirements for the reported values

	Test 1	Test 2	Test 3
Normal Conditions			
Lowest reported value (Cell 2)	RSRQ_04	RSRQ_00	RSRQ_00
Highest reported value (Cell 2)	RSRQ_16	RSRQ_16	RSRQ_16
Extreme Conditions			
Lowest reported value (Cell 2)	RSRQ_01	RSRQ_00	RSRQ_00
Highest reported value (Cell 2)	RSRQ_19	RSRQ_17	RSRQ_17

For the test to pass, the ratio of successful reported values in each test shall be more than 90% with a confidence level of 95%.

9.2.4.2 TDD - TDD Inter Frequency Relative Accuracy of RSRQ

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

9.2.4.2.1 Test purpose

To verify that the TDD - TDDinter frequency relative accuracy measurement of RSRQ is within the specified limit for all bands.

9.2.4.2.2 Test applicability

This test applies to all types of E-UTRA TDD UE release 8 and forward. Applicability requires support for FGI bits 16 and 25.

9.2.4.2.3 Minimum conformance requirements

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

The accuracy requirements in table 9.2.4.2.3-1 are valid under the following conditions:

Cell specific reference signals are transmitted either from one, two or four antenna ports.

Conditions defined in 36.101 [2] clause 7.3 for reference sensitivity are fulfilled.

$RSRP1,2|_{dBm}$ according to Annex I.3.4 for a corresponding Band.

$$\left| RSRP1|_{dBm} - RSRP2|_{dBm} \right| \leq [27] dB$$

| Channel 1_Io -Channel 2_Io | ≤ 20 dB

Table 9.2.4.2.3-1: RSRQ TDD - TDD Inter frequency relative accuracy

Accuracy		Conditions			
Normal condition	Extreme condition	Ês/Iot Note 2	Io Note 1 range		
			E-UTRA operating bands	Minimum Io	Maximum Io
dB	dB	dB		dBm/15kHz	$dBm/BW_{Channel}$
±3	±4	≥-3 dB	1, 4, 6, 10, 11, 18, 19, 21, 23, 24, 33, 34, 35, 36, 37, 38, 39, 40	-121	-50
			9, 42, 43	-120	-50
			28	-119.5	-50
			2, 5, 7, 27, 41, [44]	-119	-50
			26	-118.5 Note 3	-50
			3, 8, 12, 13, 14, 17, 20, 22	-118	-50
			29 Note 5	-118	-50
			25	-117.5	-50
±4	±4	≥-6 dB	Note 4	Note 4	Note 4

NOTE 1: Io is assumed to have constant EPRE across the bandwidth.
NOTE 2: The parameter Ês/Iot is the minimum Ês/Iot of the pair of cells to which the requirement applies.
NOTE 3: The condition has the minimum Io of -119 dBm/15kHz when the carrier frequency of the assigned E-UTRA channel bandwidth is within 865-894 MHz.
NOTE 4: The same bands and the same Io conditions for each band apply for this requirement as for the corresponding highest accuracy requirement.
NOTE 5: This band is used only for E-UTRA carrier aggregation with other E-UTRA bands.

The reporting range of RSRQ is defined from -19.5 dB to -3 with 0.5 dB resolution. The mapping of measured quantity is defined in Table 9.2.2.1.3-2.

The normative reference for this requirement is TS 36.133 [4] clause 9.1.6.2 and A.9.2.4.

9.2.4.2.4 Test description

9.2.4.2.4.1 Initial conditions

Test Environment: Normal, TL/VL, TL/VH, TH/VL, TH/VH; as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1.

Channel Bandwidth to be tested: 10 MHz as defined in TS 36.508 [7] clause 4.3.1.

1. Connect the SS (node B emulator) and AWGN noise sources to the UE antenna connectors as shown in TS 36.508 [7] Annex A figure A.14.
2. Propagation conditions are set according to Annex B clause B.0.
3. Message contents are defined in clause 9.2.4.2.4.3.
4. There are two E-UTRA TDD carriers and one cell on each carrier specified in the test. Cell 1 is the cell used for call setup with the power level set according to clause C.0 and C.1 for this test.

9.2.4.2.4.2 Test procedure

The three tests consist of Cell 1, serving cell and Cell 2, target cell. The relative accuracy of RSRQ is defined as the RSRQ measured from one cell compared to the RSRQ measured from another cell on a different frequency. The Gap pattern configuration is with id#0 as defined in TS 36.133 clause 8.1.2.1.

1. Ensure the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.
2. Set the parameters according to Table 9.2.4.2.5-2 for the test interval as appropriate. Propagation conditions are set according to Annex B clause B.1.1.
3. SS shall transmit an RRCConnectionReconfiguration message.
4. The UE shall transmit RRCConnectionReconfigurationComplete message.

5. UE shall transmit periodically MeasurementReport messages.

6. SS shall check the RSRQ value of Cell 1 and Cell 2 in MeasurementReport messages. The reported RSRQ value for Cell 2 is compared to the reported RSRQ value for Cell 1 for each MeasurementReport message according to Table 9.2.4.2.5-3.

7. The SS shall check MeasurementReport messages transmitted by the UE until the confidence level according to Tables G.2.3-1 in Annex G.2 is achieved.

8. Repeat step 1-7 for each test interval in Table 9.2.4.1.5-2 as appropriate.

9.2.4.2.4.3 Message contents

Message contents are according to TS 36.508 [7] values 4.6 with the following exceptions:

Table 9.2.4.2.4.3-1: Common Exception messages for RSRQ TDD - TDD inter frequency relative accuracy test requirement

Default Message Contents	
Common contents of system information blocks exceptions	
Default RRC messages and information elements contents exceptions	Table H.3.1-1 Table H.3.5-2 Table H.3.5-4

Table 9.2.4.1.4.3-2: *MeasResults*: Additional RSRQ TDD - TDD inter frequency relative accuracy test requirement

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResults ::= SEQUENCE {			
measId	1		
measResultServCell SEQUENCE {			
rsrpResult		Set according to specific test	
rsrqResult		Set according to specific test	
}			
measResultNeighCells CHOICE {			
measResultListEUTRA	MeasResultListEUTRA		
}			
}			

Table 9.2.4.1.4.3-3: *MeasResultListEUTRA*: Additional RSRQ TDD - TDD inter frequency relative accuracy test requirement

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResultListEUTRA ::= SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {			
physCellId	PhysicalCellIdentity		
measResult SEQUENCE {			
rsrpResult	Not present		
rsrqResult		Set according to specific test	
}			
}			

9.2.4.2.5 Test requirement

Table 9.2.4.2.5-2 defines the primary level settings including test tolerances for all tests.

Each RSRQ TDD inter frequency relative accuracy test shall meet the reported values test requirements in Table 9.2.4.2.5-3.

Table 9.2.4.2.5-1: Void

Table 9.2.4.2.5-2: Cell Specific Test requirement Parameters for RSRQ TDD - TDD inter frequency relative accuracy

Parameter		Unit	Test 1		Test 2		Test 3	
			Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
E-UTRA RF Channel Number			1	2	1	2	1	2
$BW_{channel}$		MHz	10	10	10	10	10	10
Gap Pattern Id			0	-	0	-	0	-
Special subframe configuration Note1			6		6		6	
Uplink-downlink configuration Note1			1		1		1	
Measurement bandwidth		n_{PRB}	22—27		22—27		22—27	
PDSCH Reference measurement channel defined in A.1.2			R.0 TDD	-	R.0 TDD	-	R.0 TDD	-
PDSCH allocation		n_{PRB}	13—36	-	13—36	-	13—36	-
PDCCH/PCFICH/PHICH Reference measurement channel defined in A.2.2			R.6 TDD		R.6 TDD		R.6 TDD	
OCNG Patterns defined in D.2.1 (OP.1 TDD) and D.2.2 (OP.2 TDD)			OP.1 TDD	OP.2 TDD	OP.1 TDD	OP.2 TDD	OP.1 TDD	OP.2 TDD
PBCH_RA PBCH_RB PSS_RA SSS_RA PCFICH_RB PHICH_RA PHICH_RB PDCCH_RA PDCCH_RB PDSCH_RA PDSCH_RB OCNG_RA Note2 OCNG_RB Note2		dB	0	0	0	0	0	0
N_{oc} Note3	Bands 33, 34, 35, 36, 37, 38, 39, 40	dBm/15 kHz	-80.8	-80.8	-104.7	-104.7	-119.5	-119.5
	Band 42, 43						-118.5	-118.5
	Band 41, [44]						-117.5	-117.5
Es/Iot		dB	-1.75	-1.75	-4.0	-3.2	-4.0	-3.2
RSRP Note4	Bands 33, 34, 35, 36, 37, 38, 39, 4	dBm/15 kHz	-82. 55	-82. 55	-108.70	-107.9	-123.50	-122.7
	Band 42, 43						-122.50	-121.7
	Band 41, [44]						-121.50	-120.7
RSRQ Note4	Bands 33, 34, 35, 36, 37, 38, 39, 40, 42, 43	dB	-14.76	-14.76	-16.25	-15.69	-16.25	-15.69
	Band 41, [44]							
Io Note4	Bands 33, 34, 35, 36, 37, 38, 39, 40	dBm/9 MHz	-50.8	-50.8	-75.46	-75.22	-90.26	-90.02
	Band 42, 43						-89.26	-89.02
	Band 41, [44]						-88.26	-88.02
$\hat{E}_s/N_{oc}$		dB	-1.75	-1.75	-4.0	-3.2	-4.0	-3.2

Propagation condition	-	AWGN	AWGN	AWGN
Note 1: For special subframe and uplink-downlink configurations see Tables 4.2-1 and 4.2-2 in 3GPP TS 36.211. Note 2: 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 3: 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 4: RSRQ, RSRP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves. Note 5: RSRP and RSRQ minimum requirements are specified assuming independent interference and noise at each receiver antenna port.				

Table 9.2.4.2.5-3: RSRQ TDD - TDD inter frequency relative accuracy requirements for the reported values

	Test 1	Test 2	Test 3
Normal Conditions			
Lowest reported value (Cell 2)	RSRQ_x - 8	RSRQ_x -10	RSRQ_x -10
Highest reported value (Cell 2)	RSRQ_x + 8	RSRQ_x + 10	RSRQ_x + 10
Extreme Conditions			
Lowest reported value (Cell 2)	RSRQ_x - 10	RSRQ_x - 10	RSRQ_x - 10
Highest reported value (Cell 2)	RSRQ_x + 10	RSRQ_x + 10	RSRQ_x + 10
RSRQ_x is the reported value of Cell 1			

For the test to pass, the ratio of successful reported values in each test shall be more than 90% with a confidence level of 95%.

9.2.4A FDD - TDD Inter frequency RSRQ Accuracy

9.2.4A.1 FDD - TDD Inter Frequency Absolute RSRQ Accuracy

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

9.2.4A.1.1 Test purpose

To verify that the FDD - TDD inter frequency absolute RSRQ measurement accuracy is within the specified limit for all bands.

9.2.4A.1.2 Test applicability

This test applies to all types of E-UTRA UE supporting FDD and TDD release 9 and forward. Applicability requires support for FGI bits 16 and 25.

9.2.4A.1.3 Minimum conformance requirements

The absolute accuracy of RSRQ is defined as the RSRQ measured from a cell that has different carrier frequency from the serving cell.

The accuracy requirements in table 9.2.4A.1.3-1 are valid under the following conditions:

Cell specific reference signals are transmitted either from one, two or four antenna ports.

Conditions defined in TS 36.101 [2] clause 7.3 for reference sensitivity are fulfilled.

RSRP|dBm according to Annex I.3.3 for a corresponding Band.

Table 9.2.4A.1.3-1: RSRQ FDD - TDD inter frequency absolute accuracy

Accuracy		Conditions			
Normal condition	Extreme condition	Ês/Iot	Io Note 1 range		
			E-UTRA operating bands	Minimum Io	Maximum Io
dB	dB	dB		dBm/15kHz	dBm/$BW_{Channel}$
±2.5	±4	≥-3 dB	1, 4, 6, 10, 11, 18, 19, 21, 23, 24, 33, 34, 35, 36, 37, 38, 39, 40	-121	-50
			9, 42, 43	-120	-50
			28	-119.5	-50
			2, 5, 7, 27, 41, [44]	-119	-50
			26	-118.5 Note 2	-50
			3, 8, 12, 13, 14, 17, 20, 22	-118	-50
			29 Note 4	-118	-50
			25	-117.5	-50
±3.5	±4	≥-6 dB	Note 3	Note 3	Note 3

NOTE 1: Io is assumed to have constant EPRE across the bandwidth.
NOTE 2: The condition has the minimum Io of -119 dBm/15kHz when the carrier frequency of the assigned E-UTRA channel bandwidth is within 865-894 MHz.
NOTE 3: The same bands and the same Io conditions for each band apply for this requirement as for the corresponding highest accuracy requirement.
NOTE 4: This band is used only for E-UTRA carrier aggregation with other E-UTRA bands.

The reporting range of RSRQ is defined from -19.5 dB to -3 with 0.5 dB resolution. The mapping of measured quantity is defined in Table 9.2.4A.1.3-2.

Table 9.2.4A.1.3-2: RSRQ FDD - TDD Inter frequency absolute accuracy measurement report mapping

Reported value	Measured quantity value	Unit
RSRQ_00	RSRQ < -19.5	dB
RSRQ_01	-19.5 ≤ RSRQ < -19	dB
RSRQ_02	-19 ≤ RSRQ < -18.5	dB
…	…	…
RSRQ_32	-4 ≤ RSRQ < -3.5	dB
RSRQ_33	-3.5 ≤ RSRQ < -3	dB
RSRQ_34	-3 ≤ RSRQ	dB

The normative reference for this requirement is TS 36.133 [4] clause 9.1.6.1 and A.9.2.4A.

9.2.4A.1.4 Test description

9.2.4A.1.4.1 Initial conditions

Test Environment: Normal, TL/VL, TL/VH, TH/VL, TH/VH; as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1.

Channel Bandwidth to be tested: 10 MHz as defined in TS 36.508 [7] clause 4.3.1.

1. Connect the SS (node B emulator) and AWGN noise sources to the UE antenna connectors as shown in TS 36.508 [7] Annex A figure A.14.

2. Propagation conditions are set according to Annex B clause B.0.

3. Message contents are defined in clause 9.2.4A.1.4.3.

4. Cell 1 and Cell 2 are on the different carrier frequencies. Cell 1 is the serving cell and Cell 2 is the target cell. Cell 1 is FDD cell and Cell 2 is TDD cell. Cell 1 is the cell used for connection setup with the power levels set according to Annex C.0 and C.1 for this test.

9.2.4A.1.4.2 Test procedure

The three tests consist of Cell 1, serving cell and Cell 2, target cell. The absolute accuracy of RSRQ is defined as the RSRQ measured from a cell that has different carrier frequency from the serving cell, Cell 1.

1. Ensure the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.
2. Set the parameters according to Table 9.2.4A.1.5-1 and 9.2.4A.1.5-2 for the test interval as appropriate. Propagation conditions are set according to Annex B clause B.1.1.
3. The SS shall transmit an RRCConnectionReconfiguration message.
4. The UE shall transmit RRCConnectionReconfigurationComplete message.
5. The UE shall transmit periodically MeasurementReport messages.
6. The SS shall check the RSRQ value in MeasurementReport messages. The RSRQ value of Cell 2 reported by the UE is compared to the actual RSRQ value according to Table 9.2.4A.1.5-3.
7. The SS shall check MeasurementReport messages transmitted by the UE until the confidence level according to table G.2.3-1 in Annex G.2 is achieved.
8. Repeat step 1-7 for each sub-test in Table 9.2.4A.1.5-1 and 9.2.4A.1.5-2 as appropriate.

9.2.4A.1.4.3 Message contents

Message contents are according to TS 36.508 [7] values 4.6 with the following exceptions:

Table 9.2.4A.1.4.3-1: Common Exception messages for RSRQ FDD - TDD inter frequency absolute accuracy test requirement

Default Message Contents	
Common contents of system information blocks exceptions	
Default RRC messages and information elements contents exceptions	Table H.3.1-1 Table H.3.5-2 Table H.3.5-4

Table 9.2.4A.1.4.3-2: *MeasResults*: Additional RSRQ FDD - TDD inter frequency absolute accuracy test requirement

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResults ::= SEQUENCE {			
measId	1	Identifies the measurement id for the reporting being performed	
measResultPCell SEQUENCE {			
rsrpResult		Set according to specific test	
rsrqResult		Set according to specific test	
}			
measResultNeighCells CHOICE {			
measResultListEUTRA	MeasResultListEUTRA		
}			
}			

Table 9.2.4A.1.4.3-3: *MeasResultListEUTRA*: Additional RSRQ FDD - TDD inter frequency absolute accuracy test requirement

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResultListEUTRA::= SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {			
physCellId	PhysCellId		
measResult SEQUENCE {			
rsrpResult	Not present		
rsrqResult		Set according to specific test	
}			
}			

9.2.4A.1.5 Test requirement

Table 9.2.4A.1.5-1 and 9.2.4A.1.5-2 define the primary level settings including test tolerances for all tests.

Each RSRQ FDD - TDD inter frequency absolute accuracy test shall meet the reported values test requirements in Table 9.2.4A.1.5-3.

Table 9.2.4A.1.5-1: Cell Specific Test requirement Parameters for RSRQ FDD - TDD inter frequency absolute accuracy (FDD Cell1)

Parameter	Unit	Test 1	Test 2	Test 3
		Cell 1	Cell 1	Cell 1
E-UTRA RF Channel Number		1	1	1
$BW_{channel}$	MHz	10	10	10
Gap Pattern Id		0	0	0
Measurement bandwidth	n_{PRB}	22—27	22—27	22—27
PDSCH Reference measurement channel defined in A.1.1		R.0 FDD	R.0 FDD	R.0 FDD
PDSCH allocation	n_{PRB}	13—36	13—36	13—36
PDCCH/PCFICH/PHICH Reference measurement channel defined in A.2.1		R.6 FDD	R.6 FDD	R.6 FDD
OCNG Patterns defined in D.1.1 (OP.1 FDD) and D.1.2 (OP.2 FDD)		OP.1 FDD	OP.1 FDD	OP.1 FDD
PBCH_RA	dB	0	0	0
PBCH_RB				
PSS_RA				
SSS_RA				
PCFICH_RB				
PHICH_RA				
PHICH_RB				
PDCCH_RA				
PDCCH_RB				
PDSCH_RA				
PDSCH_RB				
OCNG_RA Note1				
OCNG_RB Note1				
N_{oc} Note2	dBm/15 kHz	-80	-104.70	-114.5
$\hat{E}_s/I_{ot}$	dB	-1.75	-4.0	-4.0
RSRP Note3	dBm/15 kHz	-81.75	-108.70	-118.5
RSRQ Note3	dB	-14.76	-16.25	-16.25
Io Note3	dBm/9 MHz	-50	-75.46	-85.26
$\hat{E}_s/N_{oc}$	dB	-1.75	-4.0	-4.0
Propagation condition	-	AWGN	AWGN	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: RSRQ, RSRP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves.

Note 4: RSRP and RSRQ minimum requirements are specified assuming independent interference and noise at each receiver antenna port.

Table 9.2.4A.1.5-2: Cell Specific Test requirement Parameters for RSRQ FDD - TDD inter frequency absolute accuracy (TDD cell2)

Parameter	Unit	Test 1	Test 2	Test 3
		Cell 2	Cell 2	Cell 2
E-UTRA RF Channel Number		2	2	2
$BW_{channel}$	MHz	10	10	10
Gap Pattern Id		-	-	-
Special subframe configuration Note1		6	6	6
Uplink-downlink configuration Note1		1	1	1
Measurement bandwidth	n_{PRB}	22—27	22—27	22—27
PDSCH Reference measurement channel defined in A.1.2		-	-	-
PDSCH allocation	n_{PRB}	-	-	-
PDCCH/PCFICH/PHICH Reference measurement channel defined in A.2.2		R.6 TDD	R.6 TDD	R.6 TDD
OCNG Patterns defined in D.2.1 (OP.1 TDD) and D.2.2 (OP.2 TDD)		OP.2 TDD	OP.2 TDD	OP.2 TDD
PBCH_RA PBCH_RB PSS_RA SSS_RA PCFICH_RB PHICH_RA PHICH_RB PDCCH_RA PDCCH_RB PDSCH_RA PDSCH_RB OCNG_RA Note2 OCNG_RB Note2	dB	0	0	0
N_{oc} Note3	dBm/15 kHz	-80.80	-104.70	-114.50
$\hat{E}_s/I_{ot}$	dB	-1.75	-3.20	-3.20
RSRP Note4	dBm/15 kHz	-82.55	-107.9	-117.70
RSRQ Note4	dB	-14.76	-15.69	-15.69
Io Note4	dBm/9 MHz	-50.80	-75.22	-85.02
$\hat{E}_s/N_{oc}$	dB	-1.75	-3.20	-3.20
Propagation condition	-	AWGN	AWGN	AWGN

Note 1: For special subframe and uplink-downlink configurations see Tables 4.2-1 and 4.2-2 in 3GPP TS 36.211.
Note 2: 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 3: 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 4: RSRQ, RSRP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves.
Note 5: RSRP and RSRQ minimum requirements are specified assuming independent interference and noise at each receiver antenna port.

Table 9.2.4A.1.5-3: RSRQ FDD - TDD inter frequency absolute accuracy requirements for the reported values

	Test 1	Test 2	Test 3
Normal Conditions			
Lowest reported value (Cell 2)	RSRQ_04	RSRQ_00	RSRQ_00
Highest reported value (Cell 2)	RSRQ_16	RSRQ_16	RSRQ_16
Extreme Conditions			
Lowest reported value (Cell 2)	RSRQ_01	RSRQ_00	RSRQ_00
Highest reported value (Cell 2)	RSRQ_19	RSRQ_17	RSRQ_17

For the test to pass, the ratio of successful reported values in each test shall be more than 90% with a confidence level of 95%.

9.2.4A.2 FDD - TDD Inter Frequency Relative Accuracy of RSRQ

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

9.2.4A.2.1 Test purpose

To verify that the FDD - TDD inter frequency relative accuracy measurement of RSRQ is within the specified limit for all bands.

9.2.4A.2.2 Test applicability

This test applies to all types of E-UTRA UE supporting FDD and TDD release 9 and forward. Applicability requires support for FGI bits 16 and 25.

9.2.4A.2.3 Minimum conformance requirements

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

The accuracy requirements in table 9.2.4A.2.3-1 are valid under the following conditions:

Cell specific reference signals are transmitted either from one, two or four antenna ports.

Conditions defined in 36.101 [2] clause 7.3 for reference sensitivity are fulfilled.

$RSRP1,2|_{dBm}$ according to Annex I.3.4 for a corresponding Band

$$\left| RSRP1|_{dBm} - RSRP2|_{dBm} \right| \leq [27] dB$$

| Channel 1_Io -Channel 2_Io | ≤ 20 dB

Table 9.2.4A.2.3-1: RSRQ FDD - TDD inter frequency relative accuracy

Accuracy		Conditions			
Normal condition	Extreme condition	Ês/Iot Note 2	Io Note 1 range		
			E-UTRA operating bands	Minimum Io	Maximum Io
dB	dB	dB		dBm/15kHz	$dBm/BW_{Channel}$
±3	±4	≥-3 dB	1, 4, 6, 10, 11, 18, 19, 21, 23, 24, 33, 34, 35, 36, 37, 38, 39, 40	-121	-50
			9, 42, 43	-120	-50
			28	-119.5	-50
			2, 5, 7, 27, 41, [44]	-119	-50
			26	-118.5 Note 3	-50
			3, 8, 12, 13, 14, 17, 20, 22	-118	-50
			29 Note 5	-118	-50
			25	-117.5	-50
±4	±4	≥-6 dB	Note 4	Note 4	Note 4

NOTE 1: Io is assumed to have constant EPRE across the bandwidth.
NOTE 2: The parameter Ês/Iot is the minimum Ês/Iot of the pair of cells to which the requirement applies.
NOTE 3: The condition has the minimum Io of -119 dBm/15kHz when the carrier frequency of the assigned E-UTRA channel bandwidth is within 865-894 MHz.
NOTE 4: The same bands and the same Io conditions for each band apply for this requirement as for the corresponding highest accuracy requirement.
NOTE 5: This band is used only for E-UTRA carrier aggregation with other E-UTRA bands.

The reporting range of RSRQ is defined from -19.5 dB to -3 with 0.5 dB resolution. The mapping of measured quantity is defined in Table 9.2.4A.2.3-2.

Table 9.2.4A.2.3-2: RSRQ FDD - TDD Inter frequency relative accuracy measurement report mapping

Reported value	Measured quantity value	Unit
RSRQ_00	RSRQ < -19.5	dB
RSRQ_01	-19.5 ≤ RSRQ < -19	dB
RSRQ_02	-19 ≤ RSRQ < -18.5	dB
…	…	…
RSRQ_32	-4 ≤ RSRQ < -3.5	dB
RSRQ_33	-3.5 ≤ RSRQ < -3	dB
RSRQ_34	-3 ≤ RSRQ	dB

The normative reference for this requirement is TS 36.133 [4] clause 9.1.6.2 and A.9.2.4A.

9.2.4A.2.4 Test description

9.2.4A.2.4.1 Initial conditions

Test Environment: Normal, TL/VL, TL/VH, TH/VL, TH/VH; as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1.

Channel Bandwidth to be tested: 10 MHz as defined in TS 36.508 [7] clause 4.3.1.

1. Connect the SS (node B emulator) and AWGN noise sources to the UE antenna connectors as shown in TS 36.508 [7] Annex A figure A.14.

2. Propagation conditions are set according to Annex B clause B.0.

3. Message contents are defined in clause 9.2.4A.2.4.3.

4. Cell 1 and Cell 2 are on the different carrier frequencies. Cell 1 is the serving cell and Cell 2 is the target cell. Cell 1 is FDD cell and Cell 2 is TDD cell. Cell 1 is the cell used for connection setup with the power levels set according to Annex C.0 and C.1 for this test.

9.2.4A.2.4.2 Test procedure

The three tests consist of Cell 1, serving cell and Cell 2, target cell. The relative accuracy of RSRQ is defined as the RSRQ measured from one cell compared to the RSRQ measured from another cell on a different frequency.

1. Ensure the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.

2. Set the parameters according to Table 9.2.4A.2.5-1 and 9.2.4A.2.5-2 for the test interval as appropriate. Propagation conditions are set according to Annex B clause B.1.1.

3. The SS shall transmit an RRCConnectionReconfiguration message.

4. The UE shall transmit RRCConnectionReconfigurationComplete message.

5. The UE shall transmit periodically MeasurementReport messages.

6. The SS shall check the RSRQ value of Cell 1 and Cell 2 in MeasurementReport messages. The reported RSRQ value for Cell 2 is compared to the reported RSRQ value for Cell 1 for each MeasurementReport message.

7. The SS shall check MeasurementReport messages transmitted by the UE until the confidence level according to G.2.3-1 in Annex G.2 is achieved.

8. Repeat step 1-7 for each sub-test in Table 9.2.4A.2.5-1 and 9.2.4A.2.5-2 as appropriate.

9.2.4A.2.4.3 Message contents

Message contents are according to TS 36.508 [7] values 4.6 with the following exceptions:

Table 9.2.4A.2.4.3-1: Common Exception messages for RSRQ FDD - TDD inter frequency relative accuracy test requirement

Default Message Contents	
Common contents of system information blocks exceptions	
Default RRC messages and information elements contents exceptions	Table H.3.1-1 Table H.3.5-2 Table H.3.5-4

Table 9.2.4A.2.4.3-2: *MeasResults*: Additional RSRQ FDD - TDD inter frequency relative accuracy test requirement

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResults ::= SEQUENCE {			
measId	1	Identifies the measurement id for the reporting being performed	
measResultPCell SEQUENCE {			
rsrpResult		Set according to specific test	
rsrqResult		Set according to specific test	
}			
measResultNeighCells CHOICE {			
measResultListEUTRA	MeasResultListEUTRA		
}			
}			

Table 9.2.4A.2.4.3-3: *MeasResultListEUTRA*: Additional RSRQ FDD - TDD inter frequency relative accuracy test requirement

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResultListEUTRA::= SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {			
physCellId	PhysicalCellIdentity		
measResult SEQUENCE {			
rsrpResult	Not present		
rsrqResult		Set according to specific test	
}			
}			

9.2.4A.2.5 Test requirement

Table 9.2.4A.2.5-1 and 9.2.4A.2.5-2 defines the primary level settings including test tolerances for all tests.

Each RSRQ FDD - TDD inter frequency relative accuracy test shall meet the reported values test requirements in Table 9.2.4A.2.5-3.

Table 9.2.4A.2.5-1: Cell Specific Test requirement Parameters for RSRQ FDD - TDD inter frequency relative accuracy (FDD Cell1)

Parameter	Unit	Test 1	Test 2	Test 3
		Cell 1	Cell 1	Cell 1
E-UTRA RF Channel Number		1	1	1
$BW_{channel}$	MHz	10	10	10
Gap Pattern Id		0	0	0
Measurement bandwidth	n_{PRB}	22—27	22—27	22—27
PDSCH Reference measurement channel defined in A.1.1		R.0 FDD	R.0 FDD	R.0 FDD
PDSCH allocation	n_{PRB}	13—36	13—36	13—36
PDCCH/PCFICH/PHICH Reference measurement channel defined in A.2.1		R.6 FDD	R.6 FDD	R.6 FDD
OCNG Patterns defined in D.1.1 (OP.1 FDD) and D.1.2 (OP.2 FDD)		OP.1 FDD	OP.1 FDD	OP.1 FDD
PBCH_RA PBCH_RB PSS_RA SSS_RA PCFICH_RB PHICH_RA PHICH_RB PDCCH_RA PDCCH_RB PDSCH_RA PDSCH_RB OCNG_RA Note1 OCNG_RB Note1	dB	0	0	0
N_{oc} Note2	dBm/15 kHz	-80.80	-104.70	-114.5
$\hat{E}_s/I_{ot}$	dB	-1.75	-4.0	-4.0
RSRP Note3	dBm/15 kHz	-82.55	-108.70	-118.5
RSRQ Note3	dB	-14.76	-16.25	-16.25
Io Note3	dBm/9 MHz	-50.80	-75.46	-85.26
$\hat{E}_s/N_{oc}$	dB	-1.75	-4.0	-4.0
Propagation condition	-	AWGN	AWGN	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: RSRQ, RSRP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves.
Note 4: RSRP and RSRQ minimum requirements are specified assuming independent interference and noise at each receiver antenna port.

Table 9.2.4A.2.5-2: Cell Specific Test requirement Parameters for RSRQ FDD - TDD inter frequency relative accuracy (TDD cell2)

Parameter	Unit	Test 1	Test 2	Test 3
		Cell 2	Cell 2	Cell 2
E-UTRA RF Channel Number		2	2	2
$BW_{channel}$	MHz	10	10	10
Gap Pattern Id		-	-	-
Special subframe configuration Note1		6	6	6
Uplink-downlink configuration Note1		1	1	1
Measurement bandwidth	n_{PRB}	22—27	22—27	22—27
PDSCH Reference measurement channel defined in A.1.2		-	-	-
PDSCH allocation	n_{PRB}	-	-	-
PDCCH/PCFICH/PHICH Reference measurement channel defined in A.2.2		R.6 TDD	R.6 TDD	R.6 TDD
OCNG Patterns defined in D.2.1 (OP.1 TDD) and D.2.2 (OP.2 TDD)		OP.2 TDD	OP.2 TDD	OP.2 TDD
PBCH_RA PBCH_RB PSS_RA SSS_RA PCFICH_RB PHICH_RA PHICH_RB PDCCH_RA PDCCH_RB PDSCH_RA PDSCH_RB OCNG_RA Note2 OCNG_RB Note2	dB	0	0	0
N_{oc} Note3	dBm/15 kHz	-80.80	-104.70	-114.50
$\hat{E}_s/I_{ot}$	dB	-1.75	-3.20	-3.20
RSRP Note4	dBm/15 kHz	-82.55	-107.90	-117.70
RSRQ Note4	dB	-14.76	-15.69	-15.69
Io Note4	dBm/9 MHz	-50.80	-75.22	-85.02
$\hat{E}_s/N_{oc}$	dB	-1.75	-3.20	-3.20
Propagation condition	-	AWGN	AWGN	AWGN

Note 1: For special subframe and uplink-downlink configurations see Tables 4.2-1 and 4.2-2 in 3GPP TS 36.211.
Note 2: 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 3: 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 4: RSRQ, RSRP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves.
Note 5: RSRP and RSRQ minimum requirements are specified assuming independent interference and noise at each receiver antenna port.

Table 9.2.4A.2.5-3: RSRQ FDD-TDD inter frequency relative accuracy requirements for the reported values

	Test 1	Test 2	Test 3
Normal Conditions			
Lowest reported value (Cell 2)	RSRQ_ x-8	RSRQ_ x-10	RSRQ_ x-10
Highest reported value (Cell 2)	RSRQ_ x+8	RSRQ_ x+10	RSRQ_ x+10
Extreme Conditions			
Lowest reported value (Cell 2)	RSRQ_ x-10	RSRQ_ x-10	RSRQ_ x-10
Highest reported value (Cell 2)	RSRQ_ x+10	RSRQ_ x+10	RSRQ_ x+10
RSRQ_x is the reported value of Cell 1			

For the test to pass, the ratio of successful reported values in each test shall be more than 90% with a confidence level of 95%.

9.2.5 FDD RSRQ for E-UTRA Carrier Aggregation

9.2.5.1 FDD Absolute RSRQ Accuracy for E-UTRA Carrier Aggregation

9.2.5.1.1 Test purpose

To verify that FDD absolute RSRQ measurement accuracy in carrier aggregation is within the specified limits under AWGN propagation conditions. This test will verify the FDD absolute RSRQ accuracy requirements of the primary component carrier and the secondary component carrier.

9.2.5.1.2 Test applicability

This test case applies to all types of E-UTRA UE release 10 and forward that support CA.

9.2.5.1.3 Minimum conformance requirements

The FDD RSRQ measurements of cells on the primary component carrier shall meet the intra frequency absolute accuracy requirements defined in TS 36.133 [4] clause 9.1.5.1. The FDD RSRQ measurements of cells on the secondary component carrier shall meet the intra frequency absolute accuracy requirements defined in TS 36.133 [4] clause 9.1.5.1.

The accuracy requirements in Table 9.2.5.1.3-1 are valid under the following conditions:

Cell specific reference signals are transmitted either from one, two or four antenna ports.

Conditions defined in TS 36.101 [2] clause 7.3 for reference sensitivity are fulfilled.

RSRP|dBm according to Annex I.3.1 for a corresponding Band.

Table 9.2.5.1.3-1: FDD RSRQ absolute accuracy for Carrier Aggregation

Accuracy		Conditions			
Normal condition	Extreme condition	Ês/Iot	Io Note 1 range		
			E-UTRA operating bands	Minimum Io	Maximum Io
dB	dB	dB		dBm/15kHz	dBm/$BW_{Channel}$
±2.5	±4	≥-3 dB	1, 4, 6, 10, 11, 18, 19, 21, 23, 24, 33, 34, 35, 36, 37, 38, 39, 40	-121	-50
			9, 42, 43	-120	-50
			28	-119.5	-50
			2, 5, 7, 27, 41, [44]	-119	-50
			26	-118.5 Note 2	-50
			3, 8, 12, 13, 14, 17, 20, 22	-118	-50
			29 Note 4	-118	-50
			25	-117.5	-50
±3.5	±4	≥-6 dB	Note 3	Note 3	Note 3

NOTE 1: Io is assumed to have constant EPRE across the bandwidth.
NOTE 2: The condition has the minimum Io of -119 dBm/15kHz when the carrier frequency of the assigned E-UTRA channel bandwidth is within 865-894 MHz.
NOTE 3: The same bands and the same Io conditions for each band apply for this requirement as for the corresponding highest accuracy requirement.
NOTE 4: This band is used only for E-UTRA carrier aggregation with other E-UTRA bands.

The reporting range of RSRQ is defined from -19.5 dB to -3 with 0.5 dB resolution. The mapping of measured quantity is defined in Table 9.2.5.1.3-2.

Table 9.2.5.1.3-2: FDD RSRQ absolute accuracy measurement report mapping for Carrier Aggregation

Reported value	Measured quantity value	Unit
RSRQ_00	RSRQ < -19.5	dB
RSRQ_01	-19.5 ≤ RSRQ < -19	dB
RSRQ_02	-19 ≤ RSRQ < -18.5	dB
…	…	…
RSRQ_32	-4 ≤ RSRQ < -3.5	dB
RSRQ_33	-3.5 ≤ RSRQ < -3	dB
RSRQ_34	-3 ≤ RSRQ	dB

The normative reference for this requirement is TS 36.133 [4] clause 9.1.11.1, clause 9.1.11.2, clause 9.1.5.1 and A.9.2.5.

9.2.5.1.4 Test description

9.2.5.1.4.1 Initial conditions

Test Environment: Normal, TL/VL, TL/VH, TH/VL, TH/VH; as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1 for different CA bandwidth classes.

Channel Bandwidth to be tested: 10 MHz as defined in TS 36.508 [7] clause 4.3.1 for different CA configurations as defined in TS 36.521-1[10] clause 5.4.2A.

1. Connect the SS (node B emulator) and AWGN noise sources to the UE antenna connectors as shown in TS 36.508 [7] Annex A, Figure group A.41 as appropriate.
2. Propagation conditions are set according to Annex B clause B.0.
3. Message contents are defined in clause 9.2.5.1.4.3.
4. There are two E-UTRA FDD carriers with one cell on one E-UTRA FDD carrier and two cells on the other E-UTRA FDD carrier specified in the test. Cell 1 is PCell on the PCC, Cell 2 is the SCell on the Secondary Component Carrier (SCC), and Cell 3 is a neighbour cell on the SCC. PCell (Cell 1) is the cell used for connection setup with the power level set according to Annex C.0 and C.1 for this test. Cell 2 and Cell 3 shall be powered OFF.

9.2.5.1.4.2 Test procedure

The test consists of Cell 1 the PCell, Cell 2 the SCell on the Secondary Component Carrier (SCC), and Cell 3 the neighbouring cell on the SCC. The SCell (Cell 2) and neighbouring cell (Cell 3) on the SCC are configured. The SCell (Cell 2) on the SCC is activated. The absolute accuracy of RSRQ is defined as the RSRQ measured from the primary component carrier (Cell 1) and the RSRQ measured from the secondary component carrier (Cell 2).

1. Ensure the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.
2. Configure SCC according to Annex C.0 and C.1 for all downlink physical channels except PHICH.
3. The SS shall configure the SCell (Cell 2) on the SCC as per TS 36.508 [7] clause 5.2A.4.
4. SS activates SCC by sending the MAC-CE according to TS 36.321 [11] clauses 5.13 and 6.1.3.8. Wait for at least 2 seconds as per TS 36.133 [4] clause 8.3.3.2.
5. Set the parameters according to Table 9.2.5.1.5-1 as appropriate. Propagation conditions are set according to Annex B clause B.1.1.
6. SS shall transmit an RRCConnectionReconfiguration message.
7. The UE shall transmit RRCConnectionReconfigurationComplete message.
8. UE shall transmit periodically MeasurementReport messages.

9. SS shall check the reported RSRQ values in MeasurementReport messages. The reported RSRQ values for Cell 1 and Cell 2 by the UE are compared to the actual RSRQ values according to Table 9.2.5.1.5-2. This counts respectively as a Pass or Fail for the events “Cell 1” and “Cell 2”.

10. The SS shall check MeasurementReport messages transmitted by the UE until a test verdict has been achieved.

Each of the events “Cell 1” and “Cell 2” is evaluated independently for the statistic, resulting in an event verdict: pass or fail. Each event is evaluated only until the confidence level according to Table G.2.3-1 in Annex G.2 is achieved. Different events may require different times for a verdict.
If both events pass, the test passes. If one event fails, the test fails.

9.2.5.1.4.3 Message contents

Message contents are according to TS 36.508 [7] values 4.6 with the following exceptions:

Table 9.2.5.1.4.3-1: Common Exception messages for FDD RSRQ absolute accuracy for Carrier Aggregation test requirement

Default Message Contents	
Common contents of system information blocks exceptions	
Default RRC messages and information elements contents exceptions	Table H.3.1-1 Table H.4.2-1 Table H.4.2-3 Table H.4.2-4

9.2.5.1.5 Test requirement

Table 9.2.5.1.5-1 defines the primary level settings including test tolerances for all tests.

The FDD RSRQ absolute accuracy for carrier aggregation test shall meet the reported values test requirements in Table 9.2.5.1.5-2.

Table 9.2.5.1.5-1: Cell Specific Test requirement Parameters for FDD RSRQ absolute accuracy for Carrier Aggregation

Parameters		Test 1			
		Units	Cell 1	Cell 2	Cell 3
E-UTRA RF Channel Number			1	2	2
$BW_{channel\_CA}$		MHz	10	10	10
Time offset to Cell 1		μs	-	0	3μs or 92*Ts
Time alignment error between cell 2 and cell 1			-	≤ Time alignment error as specified in 3GPP TS 36.104 [29] clause 6.5.3.1.	-
Measurement bandwidth		n_{PRB}	22—27	22—27	22—27
PDSCH Reference measurement channel defined in A.1.1			R.0 FDD	R.0 FDD	-
PDSCH allocation		n_{PRB}	13—36	13—36	-
PDCCH/PCFICH/PHICH Reference measurement channel defined in A.2.1			R.6 FDD	R.6 FDD	R.6 FDD
OCNG Patterns defined in D.1.1 (OP.1 FDD) and D.1.2 (OP.2 FDD)			OP.1 FDD	OP.1 FDD	OP.2 FDD
PBCH_RA PHICH_RA PHICH_RB PDCCH_RA PDCCH_RB PDSCH_RA PDSCH_RB OCNG_RA Note1 OCNG_RB Note1		dB	0	0	0
N_{oc} Note2	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24	dBm/15 kHz	-119.5	-116	
	Band 9		-118.5	-115	
	Band 28		-118	-114.5	
	Bands 2, 5, 7, 26 Note 6 and 27		-117.5	-114	
	Bands 3, 8, 12, 13, 14, 17, 20, 22 and 29 Note 7		-116.5	-113	
	Band 25		-116	-112.5	
$\hat{E}_s/I_{ot}$		dB	-4.0	-5.16	-5.54
RSRP Note3	Bands 1, 4, 6, 10, 11, 18 ,19, 21, 23 and 24	dBm/15 kHz	-123.5	-119.7	-120
	Band 9		-122.5	-118.7	-119

	Band 28		-122	-118.2	-118.5
	Bands 2, 5, 7, 26 Note 6 and 27		-121.5	-117.7	-118
	Bands 3, 8, 12, 13, 14, 17, 20, 22, and 29 Note 7		-120.5	-116.7	-117
	Band 25		-120	-116.2	-116.5
RSRQ Note3	Bands 1, 4, 6, 10, 11, 18 ,19, 21, 23 and 24	dB	-16.25	-17.10	-17.40
	Band 9				
	Band 28				
	Bands 2, 5, 7, 26 Note 6 and 27				
	Bands 3, 8, 12, 13, 14, 17, 20, 22 and 29 Note 7				
	Band 25				
Io Note3	Bands 1, 4, 6, 10, 11, 18 ,19, 21, 23 and 24	dBm/9 MHz	-90.26	-85.61	
	Band 9		-89.26	-84.61	
	Band 28		-88.76	-84.11	
	Bands 2, 5, 7, 26 Note 6 and 27		-88.26	-83.67	
	Bands 3, 8, 12, 13, 14, 17, 20, 22 and 29 Note 7		-87.26	-82.61	
	Band 25		-86.76	-82.11	
$\hat{E}_s/N_{oc}$		dB	-4.0	-3.7	-4.0
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: RSRQ, RSRP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves.

NOTE 4: RSRP and RSRQ minimum requirements are specified assuming independent interference and noise at each receiver antenna port.

NOTE 5: The selection of the bands for testing depends on the configuration

	of the carrier aggregation supported by the UEs
NOTE 6:	For Band 26, the tests shall be performed with the carrier frequency of the assigned E-UTRA channel bandwidth within 865-894 MHz
NOTE 7:	This band is used only for E-UTRA carrier aggregation with other E-UTRA bands.

Table 9.2.5.1.5-2: FDD RSRQ absolute accuracy requirements for the reported values for Carrier Aggregation

	Test 1
	All bands
Normal Conditions	
Lowest reported value (Cell 1)	RSRQ_00
Highest reported value Cell 1)	RSRQ_15
Lowest reported value (Cell 2)	RSRQ_00
Highest reported value (Cell 2)	RSRQ_14
Extreme Conditions	
Lowest reported value (Cell 1)	RSRQ_00
Highest reported value Cell 1)	RSRQ_16
Lowest reported value (Cell 2)	RSRQ_00
Highest reported value (Cell 2)	RSRQ_15

For the test to pass, the ratio of successful reported values in each test shall be more than 90% with a confidence level of 95%.

9.2.5.2 FDD Relative RSRQ Accuracy E-UTRA for Carrier Aggregation

9.2.5.2.1 Test purpose

To verify that FDD relative RSRQ measurement accuracy in carrier aggregation is within the specified limits under AWGN propagation conditions. This test will verify the FDD relative RSRQ accuracy requirements between the primary and secondary component carriers.

9.2.5.2.2 Test applicability

This test case applies to all types of E-UTRA UE release 10 and forward that support CA.

9.2.5.2.3 Minimum conformance requirements

The FDD RSRQ measurements of cells on the primary component carrier are compared with measurements of cells on the secondary component carrier defined in TS 36.133 [4] clause 9.1.6.2. The applicable relative accuracy requirements are the RSRQ inter-frequency accuracy requirements as defined in TS 36.133 [4] clause 9.1.6.2.

The accuracy requirements in Table 9.2.5.2.3-1 are valid under the following conditions:

Cell specific reference signals are transmitted either from one, two or four antenna ports.

Conditions defined in TS 36.101 [2] clause 7.3 for reference sensitivity are fulfilled.

$RSRP1,2|_{dBm}$ according to Annex I.3.4 for a corresponding Band.

$$\left| RSRP1|_{dBm} - RSRP2|_{dBm} \right| \le [27] dB$$

|Channel 1_Io -Channel 2_Io | ≤ 20 dB

Table 9.2.5.2.3-1: FDD RSRQ relative accuracy for Carrier Aggregation

<table>
<tr><th colspan="2">Accuracy</th><th colspan="4">Conditions</th></tr>
<tr><th rowspan="2">Normal condition</th><th rowspan="2">Extreme condition</th><th rowspan="2">Ês/Iot Note 2</th><th colspan="3">Io Note 1 range</th></tr>
<tr><th>E-UTRA operating bands</th><th>Minimum Io</th><th>Maximum Io</th></tr>
<tr><th>dB</th><th>dB</th><th>dB</th><th></th><th>dBm/15kHz</th><th>$dBm/BW_{Channel}$</th></tr>
<tr><td rowspan="8">±3</td><td rowspan="8">±4</td><td rowspan="8">≥-3 dB</td><td>1, 4, 6, 10, 11, 18, 19, 21, 23, 24, 33, 34, 35, 36, 37, 38, 39, 40</td><td>-121</td><td>-50</td></tr>
<tr><td>9, 42, 43</td><td>-120</td><td>-50</td></tr>
<tr><td>28</td><td>-119.5</td><td>-50</td></tr>
<tr><td>2, 5, 7, 27, 41, [44]</td><td>-119</td><td>-50</td></tr>
<tr><td>26</td><td>-118.5 Note 3</td><td>-50</td></tr>
<tr><td>3, 8, 12, 13, 14, 17, 20, 22</td><td>-118</td><td>-50</td></tr>
<tr><td>29 Note 5</td><td>-118</td><td>-50</td></tr>
<tr><td>25</td><td>-117.5</td><td>-50</td></tr>
<tr><td>±4</td><td>±4</td><td>≥-6 dB</td><td>Note 4</td><td>Note 4</td><td>Note 4</td></tr>
<tr><td colspan="6">NOTE 1: Io is assumed to have constant EPRE across the bandwidth.
NOTE 2: The parameter Ês/Iot is the minimum Ês/Iot of the pair of cells to which the requirement applies.
NOTE 3: The condition has the minimum Io of -119 dBm/15kHz when the carrier frequency of the assigned E-UTRA channel bandwidth is within 865-894 MHz.
NOTE 4: The same bands and the same Io conditions for each band apply for this requirement as for the corresponding highest accuracy requirement.
NOTE 5: This band is used only for E-UTRA carrier aggregation with other E-UTRA bands.</td></tr>
</table>

The reporting range of RSRQ is defined from -19.5 dB to -3 with 0.5 dB resolution. The mapping of measured quantity is defined in Table 9.2.5.2.3-2.

Table 9.2.5.2.3-2: FDD RSRQ relative accuracy measurement report mapping for Carrier Aggregation

Reported value	Measured quantity value	Unit
RSRQ_00	RSRQ < -19.5	dB
RSRQ_01	-19.5 ≤ RSRQ < -19	dB
RSRQ_02	-19 ≤ RSRQ < -18.5	dB
…	…	…
RSRQ_32	-4 ≤ RSRQ < -3.5	dB
RSRQ_33	-3.5 ≤ RSRQ < -3	dB
RSRQ_34	-3 ≤ RSRQ	dB

The normative reference for this requirement is TS 36.133 [4] clause 9.1.11.3, clause 9.1.6.2 and A.9.2.5.

9.2.5.2.4 Test description

9.2.5.2.4.1 Initial conditions

Test Environment: Normal, TL/VL, TL/VH, TH/VL, TH/VH; as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1 for different CA bandwidth classes.

Channel Bandwidth to be tested: 10 MHz as defined in TS 36.508 [7] clause 4.3.1 for different CA configurations as defined in TS 36.521-1[10] clause 5.4.2A.

1. Connect the SS (node B emulator) and AWGN noise sources to the UE antenna connectors as shown in TS 36.508 [7] Annex A, Figure group A.41 as appropriate.

2. Propagation conditions are set according to Annex B clause B.0.

3. Message contents are defined in clause 9.2.5.2.4.3.

4. There are two E-UTRA FDD carriers with one cell on one E-UTRA FDD carrier and two cells on the other E-UTRA FDD carrier specified in the test. Cell 1 is PCell on the PCC, Cell 2 is the SCell on the Secondary Component Carrier (SCC), and Cell 3 is a neighbour cell on the SCC. PCell (Cell 1) is the cell used for

connection setup with the power level set according to Annex C.0 and C.1 for this test. Cell 2 and Cell 3 shall be powered OFF.

9.2.5.2.4.2 Test procedure

The test consists of Cell 1 the PCell, Cell 2 the SCell on the Secondary Component Carrier (SCC), and Cell 3 the neighbouring cell on the SCC. The SCell (Cell 2) and neighbouring cell (Cell 3) on the SCC are configured. The SCell (Cell 2) on the SCC is activated. The relative accuracy of RSRQ is defined as the RSRQ measured cells on the primary component carrier compared with measurements of cells on the secondary component carrier,

1. Ensure the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.
2. Configure SCC according to Annex C.0 and C.1 for all downlink physical channels except PHICH.
3. The SS shall configure the SCell (Cell 2) on the SCC as per TS 36.508 [7] clause 5.2A.4.
4. SS activates SCC by sending the MAC-CE according to TS 36.321 [11] clauses 5.13 and 6.1.3.8. Wait for at least 2 seconds as per TS 36.133 [4] clause 8.3.3.2.
5. Set the parameters according to Table 9.2.5.2.5-1 as appropriate. Propagation conditions are set according to Annex B clause B.1.1.
6. SS shall transmit an RRCConnectionReconfiguration message.
7. The UE shall transmit RRCConnectionReconfigurationComplete message.
8. UE shall transmit periodically MeasurementReport messages.
9. SS shall check the reported RSRQ values in MeasurementReport messages. The reported RSRQ value for Cell 2 is compared to the reported RSRQ value for Cell 1 for each MeasurementReport message according to Table 9.2.5.2.5-2.
10. The SS shall check MeasurementReport messages transmitted by the UE until the confidence level according to table G.2.3-1 in Annex G.2 is achieved.

9.2.5.2.4.3 Message contents

Message contents are according to TS 36.508 [7] values 4.6 with the following exceptions:

Table 9.2.5.2.4.3-1: Common Exception messages for FDD RSRQ relative accuracy for Carrier Aggregation test requirement

Default Message Contents	
Common contents of system information blocks exceptions	
Default RRC messages and information elements contents exceptions	Table H.3.1-1 Table H.4.2-1 Table H.4.2-3 Table H.4.2-4

9.2.5.2.5 Test requirement

Table 9.2.5.2.5-1 defines the primary level settings including test tolerances for all tests.

The FDD RSRQ relative accuracy for carrier aggregation test shall meet the reported values test requirements in Table 9.2.5.2.5-2.

Table 9.2.5.2.5-1: Cell Specific Test requirement Parameters for FDD RSRQ relative accuracy for Carrier Aggregation

Parameters		Units	Test 1 Cell 1	Cell 2	Cell 3
E-UTRA RF Channel Number			1	2	2
$BW_{channel\_CA}$		MHz	10	10	10
Time offset to Cell 1		μs	-	0	3μs or 92*Ts
Time alignment error between cell 2 and cell 1			-	≤ Time alignment error as specified in 3GPP TS 36.104 [29] clause 6.5.3.1.	-
Measurement bandwidth		n_{PRB}	22—27	22—27	22—27
PDSCH Reference measurement channel defined in A.1.1			R.0 FDD	R.0 FDD	-
PDSCH allocation		n_{PRB}	13—36	13—36	-
PDCCH/PCFICH/PHICH Reference measurement channel defined in A.2.1			R.6 FDD	R.6 FDD	R.6 FDD
OCNG Patterns defined in D.1.1 (OP.1 FDD) and D.1.2 (OP.2 FDD)			OP.1 FDD	OP.1 FDD	OP.2 FDD
PBCH_RA PHICH_RA PHICH_RB PDCCH_RA PDCCH_RB PDSCH_RA PDSCH_RB OCNG_RA Note1 OCNG_RB Note1		dB	0	0	0
N_{oc} Note2	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24	dBm/15 kHz	-119.5	-116	
	Band 9		-118.5	-115	
	Band 28		-118	-114.5	
	Bands 2, 5, 7, 26 Note 6 and 27		-117.5	-114	
	Bands 3, 8, 12, 13, 14, 17, 20, 22 and 29 Note 7		-116.5	-113	
	Band 25		-116	-112.5	
$\hat{E}_s/I_{ot}$		dB	-4.0	-5.16	-5.54
RSRP Note3	Bands 1, 4, 6, 10, 11, 18 ,19, 21, 23 and 24	dBm/15 kHz	-123.5	-119.7	-120
	Band 9		-122.5	-118.7	-119
	Band 28		-122	-118.2	-118.5

	Bands 2, 5, 7, 26 [Note 6] and 27		-121.5	-117.7	-118
	Bands 3, 8, 12, 13, 14, 17, 20, 22 and 29[Note 7]		-120.5	-116.7	-117
	Band 25		-120	-116.2	-116.5
RSRQ[Note3]	Bands 1, 4, 6, 10, 11, 18 ,19, 21, 23 and 24	dB	-16.25	-17.10	-17.40
	Band 9				
	Band 28				
	Bands 2, 5, 7, 26 [Note 6] and 27				
	Bands 3, 8, 12, 13, 14, 17, 20, 22 and 29[Note 7]				
	Band 25				
Io[Note3]	Bands 1, 4, 6, 10, 11, 18 ,19, 21, 23 and 24	dBm/9 MHz	-90.26	-85.61	
	Band 9		-89.26	-84.61	
	Band 28		-88.76	-84.11	
	Bands 2, 5, 7, 26 [Note 6] and 27		-88.26	-83.61	
	Bands 3, 8, 12, 13, 14, 17, 20, 22 and 29[Note 7]		-87.26	-82.61	
	Band 25		-86.76	-82.11	
$\hat{E}_s/N_{oc}$		dB	-4.0	-3.7	-4.0
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: RSRQ, RSRP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves.

NOTE 4: RSRP and RSRQ minimum requirements are specified assuming independent interference and noise at each receiver antenna port.

NOTE 5: The selection of the bands for testing depends on the configuration of the carrier aggregation supported by the UEs

NOTE 6: For Band 26, the tests shall be perfomed with the carrier frequency of the assigned E-UTRA channel bandwidth within 865-894 MHz

NOTE 7: This band is used only for E-UTRA carrier aggregation with other E-UTRA bands.

Table 9.2.5.2.5-2: FDD RSRQ relative accuracy requirements for the reported values for Carrier Aggregation

	Test 1
	All bands
Normal Conditions	
Lowest reported value (Cell 2)	RSRQ_x - 12
Highest reported value (Cell 2)	RSRQ_x + 9
Extreme Conditions	
Lowest reported value (Cell 2)	RSRQ_x - 12
Highest reported value (Cell 2)	RSRQ_x + 9
RSRQ_x is the reported value of Cell 1	

For the test to pass, the ratio of successful reported values in each test shall be more than 90% with a confidence level of 95%.

9.2.6 TDD RSRQ for E-UTRA Carrier Aggregation

9.2.6.1 TDD Absolute RSRQ Accuracy for E-UTRA Carrier Aggregation

9.2.6.1.1 Test purpose

To verify that TDD absolute RSRQ measurement accuracy in carrier aggregation is within the specified limits under AWGN propagation conditions. This test will verify the TDD absolute RSRQ accuracy requirements of the primary component carrier and the secondary component carrier.

9.2.6.1.2 Test applicability

This test case applies to all types of E-UTRA UE release 10 and forward that support CA.

9.2.6.1.3 Minimum conformance requirements

The TDD RSRQ measurements of cells on the primary component carrier shall meet the intra frequency absolute accuracy requirements defined in TS 36.133 [4] clause 9.1.5.1. The TDD RSRQ measurements of cells on the secondary component carrier shall meet the intra frequency absolute accuracy requirements defined in TS 36.133 [4] clause 9.1.5.1.

The accuracy requirements in Table 9.2.5.1.3-1 are valid under the following conditions:

Cell specific reference signals are transmitted either from one, two or four antenna ports.

Conditions defined in TS 36.101 [2] clause 7.3 for reference sensitivity are fulfilled.

RSRP|dBm according to Annex I.3.1 for a corresponding Band.

Table 9.2.6.1.3-1: FDD RSRQ absolute accuracy for Carrier Aggregation

Accuracy		Conditions			
Normal condition	Extreme condition	Ês/Iot	Io Note 1 range		
			E-UTRA operating bands	Minimum Io	Maximum Io
dB	dB	dB		dBm/15kHz	dBm/$BW_{Channel}$
±2.5	±4	≥-3 dB	1, 4, 6, 10, 11, 18, 19, 21, 23, 24, 33, 34, 35, 36, 37, 38, 39, 40	-121	-50
			9, 42, 43	-120	-50
			28	-119.5	-50
			2, 5, 7, 27, 41, [44]	-119	-50
			26	-118.5 Note 2	-50
			3, 8, 12, 13, 14, 17, 20, 22	-118	-50
			29 Note 4	-118	-50
			25	-117.5	-50
±3.5	±4	≥-6 dB	Note 3	Note 3	Note 3

NOTE 1: Io is assumed to have constant EPRE across the bandwidth.
NOTE 2: The condition has the minimum Io of -119 dBm/15kHz when the carrier frequency of the assigned E-UTRA channel bandwidth is within 865-894 MHz.
NOTE 3: The same bands and the same Io conditions for each band apply for this requirement as for the corresponding highest accuracy requirement.
NOTE 4: This band is used only for E-UTRA carrier aggregation with other E-UTRA bands.

The reporting range of RSRQ is defined from -19.5 dB to -3 with 0.5 dB resolution. The mapping of measured quantity is defined in Table 9.2.6.1.3-2.

Table 9.2.6.1.3-2: TDD RSRQ absolute accuracy measurement report mapping for Carrier Aggregation

Reported value	Measured quantity value	Unit
RSRQ_00	RSRQ < -19.5	dB
RSRQ_01	-19.5 ≤ RSRQ < -19	dB
RSRQ_02	-19 ≤ RSRQ < -18.5	dB
…	…	…
RSRQ_32	-4 ≤ RSRQ < -3.5	dB
RSRQ_33	-3.5 ≤ RSRQ < -3	dB
RSRQ_34	-3 ≤ RSRQ	dB

The normative reference for this requirement is TS 36.133 [4] clause 9.1.11.1, clause 9.1.11.2, clause 9.1.5.1 and A.9.2.6.

9.2.6.1.4 Test description

9.2.6.1.4.1 Initial conditions

Test Environment: Normal, TL/VL, TL/VH, TH/VL, TH/VH; as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1 for different CA bandwidth classes.

Channel Bandwidth to be tested: 10 MHz as defined in TS 36.508 [7] clause 4.3.1 for different CA configurations as defined in TS 36.521-1[10] clause 5.4.2A.

1. Connect the SS (node B emulator) and AWGN noise sources to the UE antenna connectors as shown in TS 36.508 [7] Annex A, Figure group A.41 as appropriate.

2. Propagation conditions are set according to Annex B clause B.0.

3. Message contents are defined in clause 9.2.6.1.4.3.

4. There are two E-UTRA TDD carriers with one cell on one E-UTRA TDD carrier and two cells on the other E-UTRA TDD carrier specified in the test. Cell 1 is PCell on the PCC, Cell 2 is the SCell on the Secondary

Component Carrier (SCC), and Cell 3 is a neighbour cell on the SCC. PCell (Cell 1) is the cell used for connection setup with the power level set according to Annex C.0 and C.1 for this test. Cell 2 and Cell 3 shall be powered OFF.

9.2.6.1.4.2 Test procedure

The test consists of Cell 1 the PCell, Cell 2 the SCell on the Secondary Component Carrier (SCC), and Cell 3 the neighbouring cell on the SCC. The SCell (Cell 2) and neighbouring cell (Cell 3) on the SCC are configured. The SCell (Cell 2) on the SCC is activated. The absolute accuracy of RSRQ is defined as the RSRQ measured from the primary component carrier (Cell 1) and the RSRQ measured from the secondary component carrier (Cell 2) [and (Cell 3)].

1. Ensure the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.
2. Configure SCC according to Annex C.0 and C.1 for all downlink physical channels except PHICH.
3. The SS shall configure the SCell (Cell 2) on the SCC as per TS 36.508 [7] clause 5.2A.4.
4. SS activates SCC by sending the MAC-CE according to TS 36.321 [11] clauses 5.13 and 6.1.3.8. Wait for at least 2 seconds as per TS 36.133 [4] clause 8.3.3.2.
5. Set the parameters according to Table 9.2.6.1.5-1 as appropriate. Propagation conditions are set according to Annex B clause B.1.1.
6. SS shall transmit an RRCConnectionReconfiguration message.
7. The UE shall transmit RRCConnectionReconfigurationComplete message.
8. UE shall transmit periodically MeasurementReport messages.
9. SS shall check the reported RSRQ values in MeasurementReport messages. The reported RSRQ values for Cell 1 and Cell 2 by the UE are compared to the actual RSRQ values according to Table 9.2.6.1.5-2. This counts respectively as a Pass or Fail for the events “Cell 1” and “Cell 2”.
10. The SS shall check MeasurementReport messages transmitted by the UE until a test verdict has been achieved.

Each of the events “Cell 1” and “Cell 2” is evaluated independently for the statistic, resulting in an event verdict: pass or fail. Each event is evaluated only until the confidence level according to Table G.2.3-1 in Annex G.2 is achieved. Different events may require different times for a verdict.
If both events pass, the test passes. If one event fails, the test fails.

9.2.6.1.4.3 Message contents

Message contents are according to TS 36.508 [7] values 4.6 with the following exceptions:

Table 9.2.6.1.4.3-1: Common Exception messages for TDD RSRQ absolute accuracy for Carrier Aggregation test requirement

Default Message Contents	
Common contents of system information blocks exceptions	
Default RRC messages and information elements contents exceptions	Table H.3.1-1 Table H.4.2-1 Table H.4.2-3 Table H.4.2-4

9.2.6.1.5 Test requirement

Table 9.2.6.1.5-1 defines the primary level settings including test tolerances for all tests.

The TDD RSRQ absolute accuracy for carrier aggregation test shall meet the reported values test requirements in Table 9.2.6.1.5-2.

Table 9.2.6.1.5-1: Cell Specific Test requirement Parameters for TDD RSRQ absolute accuracy for Carrier Aggregation

Parameter		Unit	Test 1		
			Cell 1	Cell 2	Cell 3
E-UTRA RF Channel Number			1	2	2
$BW_{channel}$		MHz	10		
Timing offset to cell1		μs	-	0	3μs or 92*Ts
Time alignment error between cell 2 and cell 1			-	≤ Time alignment error as specified in 3GPP TS 36.104 [29] clause 6.5.3.1.	-
Special subframe configuration Note1			6		
Uplink-downlink configuration Note1			1		
Measurement bandwidth		n_{PRB}	22—27		
PDSCH Reference measurement channel defined in A.1.2			R.0 TDD	R.0 TDD	-
PDSCH allocation		n_{PRB}	13—36	13—36	-
PDCCH/PCFICH/PHICH Reference measurement channel defined in A.2.2			R.6 TDD	R.6 TDD	R.6 TDD
OCNG Patterns defined in D.2.1 (OP.1 TDD) and D.2.2 (OP.2 TDD)			OP.1 TDD	OP.1 TDD	OP.2 TDD
PBCH_RA PBCH_RB PSS_RA SSS_RA PCFICH_RB PHICH_RA PHICH_RB PDCCH_RA PDCCH_RB PDSCH_RA PDSCH_RB OCNG_RA Note2 OCNG_RB Note2		dB	0	0	0
N_{oc} Note3	Bands 33, 34, 35, 36, 37, 38, 39, 40	dBm/15 kHz	-119.5	-116	
	Band 42, 43		-118.5	-115	
	Band 41, [44]		-117.5	-114	
$\hat{E}_s/I_{ot}$		dB	-4.0	-5.16	-5.54
RSRP Note4	Bands 33, 34, 35, 36, 37, 38, 39, 40	dBm/15 kHz	-123.50	-119.7	-120
	Band 42, 43		-122.50	-118.7	-119
	Band 41, [44]		-121.50	-117.7	-118
RSRQ Note4	Bands 33, 34, 35, 36, 37, 38, 39, 40 Band 41, 42, 43	dB	-16.25	-17.10	-17.40
Io Note4	Bands 33, 34, 35, 36, 37, 38, 39, 40	dBm/9 MHz	-90.26	-85.61	
	Band 42, 43		-89.26	-84.61	
	Band 41, [44]		-88.26	-83.61	
$\hat{E}_s/N_{oc}$		dB	-4.0	-3.70	-4.0
Propagation condition		-	AWGN		

NOTE 1:	For special subframe and uplink-downlink configurations see Tables 4.2-1 and 4.2-2 in 3GPP TS 36.211.
NOTE 2:	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 3:	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 4:	RSRQ, RSRP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves.
NOTE 5:	RSRP and RSRQ minimum requirements are specified assuming independent interference and noise at each receiver antenna port.
NOTE 6:	The selection of the bands for testing depends on the configuration of the carrier aggregations supported by the UEs.

Table 9.2.6.1.5-2: TDD RSRQ absolute accuracy requirements for the reported values for Carrier Aggregation

	Test 1
	All bands
Normal Conditions	
Lowest reported value (Cell 1)	RSRQ_00
Highest reported value Cell 1)	RSRQ_15
Lowest reported value (Cell 2)	RSRQ_00
Highest reported value Cell 2)	RSRQ_14
Extreme Conditions	
Lowest reported value (Cell 1)	RSRQ_00
Highest reported value Cell 1)	RSRQ_16
Lowest reported value (Cell 2)	RSRQ_00
Highest reported value Cell 2)	RSRQ_15

For the test to pass, the ratio of successful reported values in each test shall be more than 90% with a confidence level of 95%.

9.2.6.2 TDD Relative RSRQ Accuracy for E-UTRA Carrier Aggregation

9.2.6.2.1 Test purpose

To verify that TDD relative RSRQ measurement accuracy in carrier aggregation is within the specified limits under AWGN propagation conditions. This test will verify the TDD relative RSRQ accuracy requirements between the primary and secondary component carriers.

9.2.6.2.2 Test applicability

This test case applies to all types of E-UTRA UE release 10 and forward that support CA.

9.2.6.2.3 Minimum conformance requirements

The TDD RSRQ measurements of cells on the primary component carrier are compared with measurements of cells on the secondary component carrier defined in TS 36.133 [4] clause 9.1.6.2. The applicable relative accuracy requirements are the RSRQ inter-frequency accuracy requirements as defined in TS 36.133 [4] clause 9.1.6.2.

The accuracy requirements in Table 9.2.6.2.3-1 are valid under the following conditions:

Cell specific reference signals are transmitted either from one, two or four antenna ports.

Conditions defined in TS 36.101 [2] clause 7.3 for reference sensitivity are fulfilled.

$RSRP1,2|_{dBm}$ according to Annex I.3.4 for a corresponding Band.

$$\left|RSRP1\right|_{dBm} - RSRP2|_{dBm}\right| \leq [27]dB$$

|Channel 1_Io -Channel 2_Io | ≤ 20 dB

Table 9.2.6.2.3-1: TDD RSRQ relative accuracy for Carrier Aggregation

Accuracy		Conditions			
Normal condition	Extreme condition	Ês/Iot Note 2	Io Note 1 range		
			E-UTRA operating bands	Minimum Io	Maximum Io
dB	dB	dB		dBm/15kHz	dBm/$BW_{Channel}$
±3	±4	≥-3 dB	1, 4, 6, 10, 11, 18, 19, 21, 23, 24, 33, 34, 35, 36, 37, 38, 39, 40	-121	-50
			9, 42, 43	-120	-50
			28	-119.5	-50
			2, 5, 7, 27, 41, [44]	-119	-50
			26	-118.5 Note 3	-50
			3, 8, 12, 13, 14, 17, 20, 22	-118	-50
			29 Note 5	-118	-50
			25	-117.5	-50
±4	±4	≥-6 dB	Note 4	Note 4	Note 4

NOTE 1: Io is assumed to have constant EPRE across the bandwidth.
NOTE 2: The parameter Ês/Iot is the minimum Ês/Iot of the pair of cells to which the requirement applies.
NOTE 3: The condition has the minimum Io of -119 dBm/15kHz when the carrier frequency of the assigned E-UTRA channel bandwidth is within 865-894 MHz.
NOTE 4: The same bands and the same Io conditions for each band apply for this requirement as for the corresponding highest accuracy requirement.
NOTE 5: This band is used only for E-UTRA carrier aggregation with other E-UTRA bands.

The reporting range of RSRQ is defined from -19.5 dB to -3 with 0.5 dB resolution. The mapping of measured quantity is defined in Table 9.2.6.2.3-2.

Table 9.2.6.2.3-2: TDD RSRQ relative accuracy measurement report mapping for Carrier Aggregation

Reported value	Measured quantity value	Unit
RSRQ_00	RSRQ < -19.5	dB
RSRQ_01	-19.5 ≤ RSRQ < -19	dB
RSRQ_02	-19 ≤ RSRQ < -18.5	dB
…	…	…
RSRQ_32	-4 ≤ RSRQ < -3.5	dB
RSRQ_33	-3.5 ≤ RSRQ < -3	dB
RSRQ_34	-3 ≤ RSRQ	dB

The normative reference for this requirement is TS 36.133 [4] clause 9.1.11.3, clause 9.1.6.2 and A.9.2.6.

9.2.6.2.4 Test description

9.2.6.2.4.1 Initial conditions

Test Environment: Normal, TL/VL, TL/VH, TH/VL, TH/VH; as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1 for different CA bandwidth classes.

Channel Bandwidth to be tested: 10 MHz as defined in TS 36.508 [7] clause 4.3.1 for different CA configurations as defined in TS 36.521-1[10] clause 5.4.2A.

1. Connect the SS (node B emulator) and AWGN noise sources to the UE antenna connectors as shown in TS 36.508 [7] Annex A, Figure group A.41 as appropriate.

2. Propagation conditions are set according to Annex B clause B.0.

3. Message contents are defined in clause 9.2.6.2.4.3.

4. There are two E-UTRA TDD carriers with one cell on one E-UTRA TDD carrier and two cells on the other E-UTRA TDD carrier specified in the test. Cell 1 is PCell on the PCC, Cell 2 is the SCell on the Secondary Component Carrier (SCC), and Cell 3 is a neighbour cell on the SCC. PCell (Cell 1) is the cell used for connection setup with the power level set according to Annex C.0 and C.1 for this test. Cell 2 and Cell 3 shall be powered OFF.

9.2.6.2.4.2 Test procedure

The test consists of Cell 1 the PCell, Cell 2 the SCell on the Secondary Component Carrier (SCC), and Cell 3 the neighbouring cell on the SCC. The SCell (Cell 2) and neighbouring cell (Cell 3) on the SCC are configured. The SCell (Cell 2) on the SCC is activated. The relative accuracy of RSRQ is defined as the RSRQ measured cells on the primary component carrier compared with measurements of cells on the secondary component carrier,

1. Ensure the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.
2. Configure SCC according to Annex C.0 and C.1 for all downlink physical channels except PHICH.
3. The SS shall configure the SCell (Cell 2) on the SCC as per TS 36.508 [7] clause 5.2A.4.
4. SS activates SCC by sending the MAC-CE according to TS 36.321 [11] clauses 5.13 and 6.1.3.8. Wait for at least 2 seconds as per TS 36.133 [4] clause 8.3.3.2.
5. Set the parameters according to Table 9.2.6.2.5-1 as appropriate. Propagation conditions are set according to Annex B clause B.1.1.
6. SS shall transmit an RRCConnectionReconfiguration message.
7. The UE shall transmit RRCConnectionReconfigurationComplete message.
8. UE shall transmit periodically MeasurementReport messages.
9. SS shall check the reported RSRQ values in MeasurementReport messages. The reported RSRQ value for Cell 2 is compared to the reported RSRQ value for Cell 1 for each MeasurementReport message according to Table 9.2.6.2.5-2.
10. The SS shall check MeasurementReport messages transmitted by the UE until the confidence level according to table G.2.3-1 in Annex G.2 is achieved.

9.2.6.2.4.3 Message contents

Message contents are according to TS 36.508 [7] values 4.6 with the following exceptions:

Table 9.2.6.2.4.3-1: Common Exception messages for TDD RSRQ relative accuracy for Carrier Aggregation test requirement

Default Message Contents	
Common contents of system information blocks exceptions	
Default RRC messages and information elements contents exceptions	Table H.3.1-1 Table H.4.2-1 Table H.4.2-3 Table H.4.2-4

9.2.6.2.5 Test requirement

Table 9.2.6.2.5-1 defines the primary level settings including test tolerances for all tests.

The TDD RSRQ relative accuracy for carrier aggregation test shall meet the reported values test requirements in Table 9.2.5.2.5-2.

Table 9.2.6.2.5-1: Cell Specific Test requirement Parameters for TDD RSRQ relative accuracy for Carrier Aggregation

Parameter		Unit	Test 1		
			Cell 1	Cell 2	Cell 3
E-UTRA RF Channel Number			1	2	2
$BW_{channel}$		MHz	10		
Timing offset to cell1		μs	-	0	3μs or 92*Ts
Time alignment error between cell 2 and cell 1			-	≤ Time alignment error as specified in 3GPP TS 36.104 [29] clause 6.5.3.1.	-
Special subframe configuration[Note1]			6		
Uplink-downlink configuration[Note1]			1		
Measurement bandwidth		n_{PRB}	22—27		
PDSCH Reference measurement channel defined in A.1.2			R.0 TDD	R.0 TDD	-
PDSCH allocation		n_{PRB}	13—36	13—36	-
PDCCH/PCFICH/PHICH Reference measurement channel defined in A.2.2			R.6 TDD	R.6 TDD	R.6 TDD
OCNG Patterns defined in D.2.1 (OP.1 TDD) and D.2.2 (OP.2 TDD)			OP.1 TDD	OP.1 TDD	OP.2 TDD
PBCH_RA		dB	0	0	0
PBCH_RB					
PSS_RA					
SSS_RA					
PCFICH_RB					
PHICH_RA					
PHICH_RB					
PDCCH_RA					
PDCCH_RB					
PDSCH_RA					
PDSCH_RB					
OCNG_RA[Note2]					
OCNG_RB[Note2]					
N_{oc} Note3	Bands 33, 34, 35, 36, 37, 38, 39, 40	dBm/15 kHz	-119.5	-116	
	Band 42, 43		-118.5	-115	
	Band 41, [44]		-117.5	-114	
$\hat{E}_s/I_{ot}$		dB	-4.0	-5.16	-5.54
RSRP[Note4]	Bands 33, 34, 35, 36, 37, 38, 39, 40	dBm/15 kHz	-123.50	-119.7	-120
	Band 42, 43		-122.50	-118.7	-119
	Band 41, [44]		-121.5	-117.7	-118
RSRQ[Note4]	Bands 33, 34, 35, 36, 37, 38, 39, 40 Band 41, 42, 43	dB	-16.25	-17.10	-17.40
Io[Note4]	Bands 33, 34, 35, 36, 37, 38, 39, 40	dBm/9 MHz	-90.26	-85.61	
	Band 42, 43		-89.26	-84.61	
	Band 41, [44]		-88.26	-83.61	
$\hat{E}_s/N_{oc}$		dB	-4.0	-3.7	-4.0
Propagation condition		-	AWGN		
NOTE 1: For special subframe and uplink-downlink configurations see Tables 4.2-1					

	and 4.2-2 in 3GPP TS 36.211.
NOTE 2:	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 3:	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 4:	RSRQ, RSRP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves.
NOTE 5:	RSRP and RSRQ minimum requirements are specified assuming independent interference and noise at each receiver antenna port.
NOTE 6:	The selection of the bands for testing depends on the configuration of the carrier aggregations supported by the UEs.

Table 9.2.6.2.5-2: TDD RSRQ relative accuracy requirements for the reported values for Carrier Aggregation

	Test 1
	All bands
Normal Conditions	
Lowest reported value (Cell 2)	RSRQ_x - 12
Highest reported value (Cell 2)	RSRQ_x + 9
Extreme Conditions	
Lowest reported value (Cell 2)	RSRQ_x - 12
Highest reported value (Cell 2)	RSRQ_x + 9
RSRQ_x is the reported value of Cell 1	

For the test to pass, the ratio of successful reported values in each test shall be more than 90% with a confidence level of 95%.

9.2.7 FDD RSRQ Accuracy under Time Domain Measurement Resource Restriction with Non-MBSFN ABS

9.2.7.1 FDD RSRQ under Time Domain Measurement Resource Restriction with Non-MBSFN ABS

9.2.7.1.1 Test purpose

The purpose of this test is to verify that the RSRQ measurement accuracy under time domain measurement resource restriction is within the specified limits for all bands.

9.2.7.1.2 Test applicability

This test applies to all types of E-UTRA FDD UE release 10 and forward. Applicability requires support for FGI bit 115.

9.2.7.1.3 Minimum conformance requirements

The requirements for absolute accuracy of RSRQ in this section shall apply to a cell on the same frequency as that of the serving cell when a time domain measurement resource restriction pattern for performing RSRQ measurements of this cell is configured by higher layers according to TS 36.331 [5].

The accuracy requirements in Table 9.2.7.1.3-1 are valid under the following conditions:

Cell specific reference signals in the measured cell are transmitted either from one, two or four antenna ports,

Conditions defined in TS 36.101 [2] Section 7.3 for reference sensitivity are fulfilled,

$RSRP|_{dBm}$ according to Annex I.3.9 for a corresponding Band, The time domain measurement resource restriction pattern configured for the measured cell indicates at least one subframe per radio frame for performing the RSRQ measurement,

The RSRQ measurement is not performed in any subframe other than those indicated by the time domain measurement resource restriction pattern configured for the measured cell,

Four symbols containing CRS are available in all subframes indicated by the time domain measurement resource restriction pattern.

Table 9.2.7.1.3-1: RSRQ Intra frequency absolute accuracy under time domain measurement resource restriction

Accuracy		Conditions			
Normal condition	Extreme condition	Ês/Iot	Io Note 2 range		
			E-UTRA operating bands	Minimum Io	Maximum Io
dB	dB	dB		dBm/15kHz Note 1, 6	dBm/BW Channel
±2.5	±4	≥-2 dB	1, 4, 6, 10, 11, 18, 19, 21, 23, 24, 33, 34, 35, 36, 37, 38, 39, 40	-121	-50
			9, 42, 43	-120	-50
			28	-119.5	-50
			2, 5, 7, 27, 41, [44]	-119	-50
			26	-118.5 Note 3	-50
			3, 8, 12, 13, 14, 17, 20, 22, 29 Note 5	-118	-50
			25	-117.5	-50
±3.5	±4	≥-4 dB	Note 4	Note 4	Note 4

NOTE 1: This minimum Io condition is expressed as the average Io per RE over all REs in that symbol.
NOTE 2: Io is defined in subframes indicated by the time domain measurement resource restriction pattern configured for performing RSRQ measurements of this cell. The Io range defined by the minimum and the maximum Io levels applies to CRS and non-CRS symbols. Io may be different in different symbols within a subframe.
NOTE 3: The condition has the minimum Io of -119 dBm/15kHz when the carrier frequency of the assigned E-UTRA channel bandwidth is within 865-894 MHz.
NOTE 4: The same bands and the same Io conditions for each band apply for this requirement as for the corresponding highest accuracy requirement.
NOTE 5: Band 29 is used only for E-UTRA carrier aggregation with other E-UTRA bands.
NOTE 6: The condition level is increased by Δ>0, when applicable, as described in TS 36.133 [4] sections B.4.2 and B.4.3.

The reporting range of RSRQ is defined from -19.5 dB to -3 with 0.5 dB resolution. The mapping of measured quantity is defined in Table 9.2.7.1.3-2.

Table 9.2.7.1.3-2: RSRQ FDD Intra frequency absolute accuracy measurement report mapping

Reported value	Measured quantity value	Unit
RSRQ_00	RSRQ < -19.5	dB
RSRQ_01	-19.5 ≤ RSRQ < -19	dB
RSRQ_02	-19 ≤ RSRQ < -18.5	dB
…	…	…
RSRQ_32	-4 ≤ RSRQ < -3.5	dB
RSRQ_33	-3.5 ≤ RSRQ < -3	dB
RSRQ_34	-3 ≤ RSRQ	dB

The normative reference for this requirement is TS 36.133 [4] clauses 9.1.5.2 and A.9.2.7.

9.2.7.1.4 Test description

9.2.7.1.4.1 Initial conditions

Test Environment: Normal, TL/VL, TL/VH, TH/VL, TH/VH; as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1.

Channel Bandwidth to be tested: 10 MHz as defined in TS 36.508 [7] clause 4.3.1.

1. Connect the SS (node B emulator) and AWGN noise sources to the UE antenna connectors as shown in TS 36.508 [7] Annex A figure A.20.

2. The general test parameter settings are set up according to Table 9.2.7.1.4.1-1.

3. Propagation conditions are set according to Annex B clause B.0.

4. Message contents are defined in clause 9.2.7.1.4.3.

5. There is one E-UTRA FDD carrier and two cells specified in each test. Cell 1 is the cell used for connection setup with the power level set according to Annex C.0 and C.1 for this test.

Table 9.2.7.1.4.1-1: General test parameters for E-UTRAN FDD RSRQ intra frequency test parameters under time-domain measurement resource restriction with non-MBSFN ABS

Parameter	Unit	Value	Comment
Serving cell (PCell)		Cell 1	The aggressor cell to Cell 2
Neighbour cell		Cell 2	Cell to be measured
PCell ABS configuration		Non-MBSFN ABS	As defined in Table C.3.1.1.1-1
CP length		Normal	For both cells in the test
DRX			OFF
Time offset between cells		3 µs	Synchronous cells 3µs or 92*Ts
Physical cell ID PCI		$(PCI_{cell1} - PCI_{cell2})$mod6 !=0	Cell PCIs for Cell 1 and Cell 2 are selected randomly so that the condition is met.
ABS pattern		'1000000010000000100000001000000010000000'	Non-MBSFN ABS. FDD ABS Pattern Info IE, as defined in TS 36.423 [28], clause 9.2.54. Configured in Cell 1. The first/leftmost bit corresponds to the subframe #0 of a radio frame satisfying SFN mod 40 = 0. No MBSFN subframes are configured in the ABS subframes in Cell 1.
Time-domain measurement resource restriction pattern for neighbour cell measurements on RF Channel 1		'1000000010000000100000001000000010000000'	Configured for Cell 2 measurements by measSubframePattern-Neigh IE in measSubframePatternConfig-Neigh, as defined in TS 36.331 [5], clause 6.3.5. measSubframeCellList contains Cell 2.
Time-domain measurement resource restriction pattern for serving cell measurements		'0100000001000000010000000100000001000000'	Configured for measurements on Cell 1.

9.2.7.1.4.2 Test procedure

In this test case all cells are on the same carrier frequency. The absolute accuracy of RSRQ intra frequency measurements under time domain measurement resource restriction is tested by using the parameters in Table 9.2.7.1.4.1-1 and Table 9.2.7.1.5-1 for non-MBSFN ABS with non-colliding CRS. In all test cases, Cell 1 is the serving cell and also the aggressor cell to Cell 2. Cell 2 is the target cell to be measured for RSRQ.

The UE is configured by higher layers via Cell 1 with a time-domain measurement resource restriction pattern for performing E-UTRAN FDD intra-frequency measurements on neighbour cells and provided with a neighbour cell list associated with the pattern, where the cell list includes Cell 2. The UE is also configured with a time-domain measurement resource restriction pattern for the serving cell measurements. The information for both patterns shall be provided to the UE before the measurements start.

1. Ensure the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.

2. Set the parameters according to Table 9.2.7.1.5-1 as appropriate. Propagation conditions are set according to Annex B clause B.1.1.

3. SS shall transmit an RRCConnectionReconfiguration message.
4. The UE shall transmit RRCConnectionReconfigurationComplete message.
5. UE shall transmit periodically MeasurementReport messages.
6. SS shall check the RSRQ value in MeasurementReport messages. The RSRQ value of Cell 2 reported by the UE is compared to the actual RSRQ value according to Table 9.2.7.1.5-2.
7. The SS shall check MeasurementReport messages transmitted by the UE until the confidence level according to G.2.3-1 in Annex G.2 is achieved.
8. Repeat step 1-7 for each sub-test in Table 9.2.7.1.5-1 as appropriate.

9.2.7.1.4.3 Message contents

Message contents are according to TS 36.508 [7] clause 4.6 with the following exceptions:

Table 9.2.7.1.4.3-1: Common Exception messages for RSRQ FDD Intra frequency under time domain measurement resource restriction with non-MBSFN ABS absolute accuracy test requirement

Default Message Contents	
Common contents of system information blocks exceptions	
Default RRC messages and information elements contents exceptions	Table H.3.1-1 Table H.3.5-1 Table H.3.5-4

Table 9.2.7.1.4.3-2: *MeasResults*: Additional RSRQ FDD Intra frequency under time domain measurement resource restriction with non-MBSFN ABS absolute accuracy test requirement

Derivation Path: TS 36.331 [5] clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResults ::= SEQUENCE {			
measId	1	Identifies the measurement id for the reporting being performed	
measResultServCell SEQUENCE {			
rsrpResult		Set according to specific test	
rsrqResult		Set according to specific test	
}			
measResultNeighCells CHOICE {			
measResultListEUTRA	MeasResultListEUTRA		
}			
}			

Table 9.2.7.1.4.3-3: *MeasResultListEUTRA*: Additional RSRQ FDD Intra frequency under time domain measurement resource restriction with non-MBSFN ABS absolute accuracy test requirement

Derivation Path: TS 36.331 [5] clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResultListEUTRA::= SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {			
physCellId	PhysicalCellIdentity		
measResult SEQUENCE {			
rsrpResult	Not present		
rsrqResult		Set according to specific test	
}			
}			

Table 9.2.7.1.4.3-4: *RadioResourceConfigDedicated-SRB2-DRB(n,m)*: Additional RSRQ FDD Intra frequency under time domain measurement resource restriction with non-MBSFN ABS absolute accuracy test requirement

Derivation Path: TS 36.508 [7] clause 4.6.3, Table 4.6.3-16 RadioResourceConfigDedicated-SRB2-DRB(n,m)			
Information Element	**Value/remark**	**Comment**	**Condition**
RadioResourceConfigDedicated-SRB2-DRB(n, m) ::= SEQUENCE {			
MeasSubframePatternPCell-r10 CHOICE {			
setup SEQUENCE {			
subframePatternFDD-r10	'0100000001000000010000000100000001000000'	BIT STRING (SIZE (40))	
}			
}			
}			

Table 9.2.7.1.4.3-5: *MeasObjectEUTRA-GENERIC(Freq)*: Additional RSRQ FDD Intra frequency under time domain measurement resource restriction with non-MBSFN ABS absolute accuracy test requirement

Derivation Path: TS 36.508 [7] clause 4.6.6, Table 4.6.6-2 MeasObjectEUTRA-GENERIC			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasObjectEUTRA-GENERIC(Freq) ::= SEQUENCE {			
measSubframePatternConfigNeigh-r10 CHOICE {			
setup SEQUENCE {			
measSubframePatternNeigh-r10 CHOICE {			
subframePatternFDD-r10	'1000000010000000100000001000000010000000'	BIT STRING (SIZE (40))	
}			
measSubframeCellList-r10 SEQUENCE {			
start	Physical Cell ID of Cell 2		
range	Not present		
}			
}			
}			
}			

9.2.7.1.5 Test requirement

Table 9.2.7.1.5-1 defines the primary level settings including test tolerances for all tests.

Each RSRQ FDD intra frequency absolute accuracy test shall meet the reported values test requirements in Table 9.2.7.1.5-2.

Table 9.2.7.1.5-1: Cell Specific Test requirement Parameters for E-UTRAN FDD RSRQ intra frequency test parameters under time domain measurement resource restriction with non-MBSFN ABS

Parameter		Unit	Test 1		Test 2		Test 3	
			Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
E-UTRA RF Channel Number			1		1		1	
$BW_{channel}$		MHz	10		10		10	
Measurement bandwidth		n_{PRB}	22—27		22—27		22—27	
PDSCH Reference measurement channel defined in A.1.1			R.0 FDD	-	R.0 FDD	-	R.0 FDD	-
PDSCH allocation		n_{PRB}	13—36	-	13—36	-	13—36	-
PDCCH/PCFICH/PHICH Reference measurement channel defined in A.3.1.2.1			R.6 FDD		R.6 FDD		R.6 FDD	
OCNG Patterns defined in D.1.5 (OP.5 FDD) and D.1.6 (OP.6 FDD)			OP.5 FDD	OP.6 FDD	OP.5 FDD	OP.6 FDD	OP.5 FDD	OP.6 FDD
PBCH_RA PBCH_RB PSS_RA SSS_RA PCFICH_RB PHICH_RA PHICH_RB PDCCH_RA PDCCH_RB PDSCH_RA PDSCH_RB OCNG_RA Note1 OCNG_RB Note1		dB	Note 6	0	Note 6	0	Note 6	0
N_{oc} Note2	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24	dBm/15 kHz	-85.76		-103.85		-116	
	Bands 9						-115	
	Band 28						-114.5	
	Bands 2, 5, 7, 26 Note 7 and 27						-114	
	Bands 3, 8, 12, 13, 14, 17, 20 and 22						-113	
	Band 25						-112.5	
CRS $\hat{E}_s/N_{oc}$		dB	5	-1.2	5	-1.2	5	-3.2
CRS $(\hat{E}_s/I_{ot})_{meas}$ Note 5		dB	2.55	-1.20	2.55	-1.20	3.30	-3.20
RSRP Note3,4,5	Bands 1, 4, 6, 10, 11, 18, 19, 21 , 23and 24	dBm/15 kHz	-80.7	-86.96	-98.85	-105.05	-111	-119.2
	Bands 9						-100	-118.2
	Band 28						-109.5	-117.7
	Bands 2, 5, 7, 26 Note 7 and 27						-109	-117.2
	Bands 3, 8, 12, 13, 14, 17, 20 and 22						-108	-116.2
	Band 25						-107.5	-115.7
$(\mathrm{RSRQ})_{meas}$ Note3,4,5	Bands 1, 2, 3, 4, 5, 6 ,7, 8, 9, 10, 11, 12, 13, 14, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28	dB	-12.71	-14.80	-12.71	-14.80	-12.46	-16.11

$(\mathrm{Io})_{meas}$ Note3	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24	dBm/9 MHz	-51.06	-54.39	-69.15	-72.48	-81.55	-85.20
	Bands 9						-80.55	-84.20
	Band 28						-80.05	-83.70
	Bands 2, 5, 7, 26 Note 7 and 27						-79.55	-83.20
	Bands 3, 8, 12, 13, 14, 17, 20 and 22						-78.55	-82.20
	Band 15						-78.05	-81.70
Propagation condition		-	AWGN		AWGN		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. Applies to all subframes.
Note 3: RSRQ, RSRP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves. Io levels are calculated in CRS symbols of measurement restricted subframes.
Note 4: RSRP and RSRQ minimum requirements are specified assuming independent interference and noise at each receiver antenna port.
Note 5: Applies to restricted measurement subframes of the respective cell.
Note 6: Non-ABS and ABS subframe channel powers defined in Table C.3.1.1.1-1
Note 7: For Band 26, the tests shall be performed with the carrier frequency of the assigned E-UTRA channel bandwidth within 865-894 MHz.

Table 9.2.7.1.5-2: RSRQ FDD Intra frequency under time domain measurement resource restriction with non-MBSFN ABS absolute accuracy requirements for the reported values

	Test 1	Test 2	Test 3
	All bands	All bands	All bands
Normal Conditions			
Lowest reported value (Cell 2)	RSRQ_04	RSRQ_04	RSRQ_00
Highest reported value (Cell 2)	RSRQ_16	RSRQ_16	RSRQ_15
Extreme Conditions			
Lowest reported value (Cell 2)	RSRQ_01	RSRQ_01	RSRQ_00
Highest reported value (Cell 2)	RSRQ_19	RSRQ_19	RSRQ_16

For the test to pass, the ratio of successful reported values in each test shall be more than 90% with a confidence level of 95%.

9.2.8 TDD RSRQ Accuracy under Time Domain Measurement Resource Restriction with Non-MBSFN ABS

9.2.8.1 TDD RSRQ under Time Domain Measurement Resource Restriction with Non-MBSFN ABS

9.2.8.1.1 Test purpose

The purpose of this test is to verify that the RSRQ measurement accuracy under time domain measurement resource restriction is within the specified limits for all bands.

9.2.8.1.2 Test applicability

This test applies to all types of E-UTRA TDD UE release 10 and forward. Applicability requires support for FGI bit 115.

Accuracy		Conditions			
Normal condition	Extreme condition	Ês/Iot	Io Note 2 range		
			E-UTRA operating bands	Minimum Io	Maximum Io
dB	dB	dB		dBm/15kHz Note 1, 6	dBm/$BW_{Channel}$
±2.5	±4	≥-2 dB	1, 4, 6, 10, 11, 18, 19, 21, 23, 24, 33, 34, 35, 36, 37, 38, 39, 40	-121	-50
			9, 42, 43	-120	-50
			28	-119.5	-50
			2, 5, 7, 27, 41, [44]	-119	-50
			26	-118.5 Note 3	-50
			3, 8, 12, 13, 14, 17, 20, 22, 29 Note 5	-118	-50
			25	-117.5	-50
±3.5	±4	≥-4 dB	Note 4	Note 4	Note 4

NOTE 1: This minimum Io condition is expressed as the average Io per RE over all REs in that symbol.
NOTE 2: Io is defined in subframes indicated by the time domain measurement resource restriction pattern configured for performing RSRQ measurements of this cell. The Io range defined by the minimum and the maximum Io levels applies to CRS and non-CRS symbols. Io may be different in different symbols within a subframe.
NOTE 3: The condition has the minimum Io of -119 dBm/15kHz when the carrier frequency of the assigned E-UTRA channel bandwidth is within 865-894 MHz.
NOTE 4: The same bands and the same Io conditions for each band apply for this requirement as for the corresponding highest accuracy requirement.
NOTE 5: Band 29 is used only for E-UTRA carrier aggregation with other E-UTRA bands
NOTE 6: The condition level is increased by Δ>0, when applicable, as described in TS 36.133 [4] sections B.4.2 and B.4.3.

9.2.8.1.3 Minimum conformance requirements

The requirements for absolute accuracy of RSRQ in this section shall apply to a cell on the same frequency as that of the serving cell when a time domain measurement resource restriction pattern for performing RSRQ measurements of this cell is configured by higher layers according to TS 36.331 [5].

The accuracy requirements in Table 9.2.8.1.3-1 are valid under the following conditions:

Cell specific reference signals in the measured cell are transmitted either from one, two or four antenna ports,

Conditions defined in TS 36.101 [2] Section 7.3 for reference sensitivity are fulfilled,

$RSRP|_{dBm}$ according to Annex I.3.9 for a corresponding Band,

The time domain measurement resource restriction pattern configured for the measured cell indicates at least one subframe per radio frame for performing the RSRQ measurement,

The RSRQ measurement is not performed in any subframe other than those indicated by the time domain measurement resource restriction pattern configured for the measured cell,

Four symbols containing CRS are available in all subframes indicated by the time domain measurement resource restriction pattern.

Table 9.2.8.1.3-1: RSRQ Intra frequency absolute accuracy under time domain measurement resource restriction

The reporting range of RSRQ is defined from -19.5 dB to -3 with 0.5 dB resolution. The mapping of measured quantity is defined in Table 9.2.8.1.3-2.

Table 9.2.8.1.3-2: RSRQ TDD Intra frequency absolute accuracy measurement report mapping

Reported value	Measured quantity value	Unit
RSRQ_00	RSRQ < -19.5	dB
RSRQ_01	-19.5 ≤ RSRQ < -19	dB
RSRQ_02	-19 ≤ RSRQ < -18.5	dB
…	…	…
RSRQ_32	-4 ≤ RSRQ < -3.5	dB
RSRQ_33	-3.5 ≤ RSRQ < -3	dB
RSRQ_34	-3 ≤ RSRQ	dB

The normative reference for this requirement is TS 36.133 [4] clauses 9.1.5.2 and A.9.2.8.

9.2.8.1.4 Test description

9.2.8.1.4.1 Initial conditions

Test Environment: Normal, TL/VL, TL/VH, TH/VL, TH/VH; as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1.

Channel Bandwidth to be tested: 10 MHz as defined in TS 36.508 [7] clause 4.3.1.

1. Connect the SS (node B emulator) and AWGN noise sources to the UE antenna connectors as shown in TS 36.508 [7] Annex A figure A.20.

2. The general test parameter settings are set up according to Table 9.2.8.1.4.1-1.

3. Propagation conditions are set according to Annex B clause B.0.

4. Message contents are defined in clause 9.2.8.1.4.3.

5. There is one E-UTRA TDD carrier and two cells specified in each test. Cell 1 is the cell used for connection setup with the power level set according to Annex C.0 and C.1 for this test.

Table 9.2.8.1.4.1-1: General test parameters for E-UTRAN TDD RSRQ intra frequency test parameters under time-domain measurement resource restriction with non-MBSFN ABS

Parameter	Unit	Value	Comment
Serving cell (PCell)		Cell 1	Also the aggressor cell.
Neighbour cell		Cell 2	Cell to be measured
PCell ABS configuration		Non-MBSFN ABS	As defined in Table C.3.1.1.1-1
Special subframe configuration		6	For Cell 1 and Cell 2. For special subframe configurations see Table 4.2-1 in [9].
Uplink/downlink subframe configuration		1	For Cell 1 and Cell 2. For uplink-downlink subframe configurations see Table 4.2-2 in [9].
CP length		Normal	For both cells in the test
DRX			OFF
Time offset between cells		3 μs	Synchronous cells 3μs or 92*Ts
Physical cell ID PCI		$(PCI_{cell1} - PCI_{cell2})mod6$!=0	Cell PCIs for Cell 1 and Cell 2 are randomly selected so that the condition is met
ABS pattern		'00000000010000000001'	Non-MBSFN ABS. TDD ABS Pattern Info IE, as defined in TS 36.423 [28], clause 9.2.54. Configured in Cell 1. The first/leftmost bit corresponds to the subframe #0 of a radio frame satisfying SFN mod 20 = 0. No MBSFN subframes are configured in the ABS subframes in Cell 1.
Time-domain measurement resource restriction pattern for neighbour cell measurements on RF Channel 1		'00000000010000000001'	Configured for Cell 2 measurements by measSubframePattern-Neigh IE in measSubframePatternConfig-Neigh, as defined in TS 36.331 [5], clause 6.3.5. measSubframeCellList contains Cell 2.
Time-domain measurement resource restriction pattern for serving cell measurements		'10000000001000000000'	Configured for Cell 1 measurements.

9.2.8.1.4.2 Test procedure

In this test case all cells are on the same carrier frequency. The absolute accuracy of RSRQ intra frequency measurements under time domain measurement resource restriction is tested by using the parameters in Table 9.2.8.1.4.1-1 and Table 9.2.8.1.5-1 for non-MBSFN ABS with non-colliding CRS. In all test cases, Cell 1 is the serving cell and also the aggressor cell to Cell 2. Cell 2 is the target cell to be measured for RSRQ.

The UE is configured by higher layers via Cell 1 with a time-domain measurement resource restriction pattern for performing E-UTRAN TDD intra-frequency measurements on neighbour cells and provided with a neighbour cell list associated with the pattern, where the cell list includes Cell 2. The UE is also configured with a time-domain measurement resource restriction pattern for the serving cell measurements. The information for both patterns shall be provided to the UE before the measurements start.

1. Ensure the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.
2. Set the parameters according to Table 9.2.8.1.5-1 as appropriate. Propagation conditions are set according to Annex B clause B.1.1.
3. SS shall transmit an RRCConnectionReconfiguration message.
4. The UE shall transmit RRCConnectionReconfigurationComplete message.
5. UE shall transmit periodically MeasurementReport messages.
6. SS shall check the RSRQ value in MeasurementReport messages. The RSRQ value of Cell 2 reported by the UE is compared to the actual RSRQ value according to Table 9.2.8.1.5-2.
7. The SS shall check MeasurementReport messages transmitted by the UE until the confidence level according to G.2.3-1 in Annex G.2 is achieved.

8. Repeat step 1-7 for each sub-test in Table 9.2.8.1.5-1 as appropriate.

9.2.8.1.4.3 Message contents

Message contents are according to TS 36.508 [7] clause 4.6 with the following exceptions:

Table 9.2.8.1.4.3-1: Common Exception messages for RSRQ TDD Intra frequency under time domain measurement resource restriction with non-MBSFN ABS absolute accuracy test requirement

Default Message Contents	
Common contents of system information blocks exceptions	
Default RRC messages and information elements contents exceptions	Table H.3.1-1 Table H.3.5-1 Table H.3.5-4

Table 9.2.8.1.4.3-2: *MeasResults*: Additional RSRQ TDD Intra frequency under time domain measurement resource restriction with non-MBSFN ABS absolute accuracy test requirement

Derivation Path: TS 36.331 [5] clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResults ::= SEQUENCE {			
measId	1	Identifies the measurement id for the reporting being performed	
measResultServCell SEQUENCE {			
rsrpResult		Set according to specific test	
rsrqResult		Set according to specific test	
}			
measResultNeighCells CHOICE {			
measResultListEUTRA	MeasResultListEUTRA		
}			
}			

Table 9.2.8.1.4.3-3: *MeasResultListEUTRA*: Additional RSRQ TDD Intra frequency under time domain measurement resource restriction with non-MBSFN ABS absolute accuracy test requirement

Derivation Path: TS 36.331 [5] clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResultListEUTRA::= SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {			
physCellId	PhysicalCellIdentity		
measResult SEQUENCE {			
rsrpResult	Not present		
rsrqResult		Set according to specific test	
}			
}			

Table 9.2.8.1.4.3-4: *RadioResourceConfigDedicated-SRB2-DRB(n,m)*: Additional RSRQ TDD Intra frequency under time domain measurement resource restriction with non-MBSFN ABS absolute accuracy test requirement

Derivation Path: TS 36.508 [7] clause 4.6.3, Table 4.6.3-16 RadioResourceConfigDedicated-SRB2-DRB(n,m)			
Information Element	**Value/remark**	**Comment**	**Condition**
RadioResourceConfigDedicated-SRB2-DRB(n, m) ::= SEQUENCE {			
MeasSubframePatternPCell-r10 CHOICE {			
setup SEQUENCE {			
subframePatternTDD-r10 CHOICE {			
subframeConfig1-5-r10	‘10000000001000000000’	BIT STRING (SIZE (20))	
}			
}			
}			
}			

Table 9.2.8.1.4.3-5: *MeasObjectEUTRA-GENERIC(Freq)*: Additional RSRQ TDD Intra frequency under time domain measurement resource restriction with non-MBSFN ABS absolute accuracy test requirement

Derivation Path: TS 36.508 [7] clause 4.6.6, Table 4.6.6-2 MeasObjectEUTRA-GENERIC			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasObjectEUTRA-GENERIC(Freq) ::= SEQUENCE {			
measSubframePatternConfigNeigh-r10 CHOICE {			
setup SEQUENCE {			
measSubframePatternNeigh-r10 CHOICE {			
subframePatternTDD-r10 CHOICE {			
subframeConfig1-5-r10	‘00000000010000000001’	BIT STRING (SIZE (20))	
}			
}			
measSubframeCellList-r10 SEQUENCE {			
start	Physical Cell ID of Cell 2		
range	Not present		
}			
}			
}			
}			

9.2.8.1.5 Test requirement

Table 9.2.8.1.5-1 defines the primary level settings including test tolerances for all tests.

Each RSRQ TDD intra frequency absolute accuracy test shall meet the reported values test requirements in Table 9.2.8.1.5-2.

Table 9.2.8.1.5-1: Cell Specific Test requirement Parameters for E-UTRAN TDD RSRQ intra frequency test parameters under time domain measurement resource restriction with non-MBSFN ABS

Parameter		Unit	Test 1 Cell 1	Test 1 Cell 2	Test 2 Cell 1	Test 2 Cell 2	Test 3 Cell 1	Test 3 Cell 2
E-UTRA RF Channel Number			1		1		1	
$BW_{channel}$		MHz	10		10		10	
Measurement bandwidth		n_{PRB}	22—27		22—27		22—27	
PDSCH Reference measurement channel defined in A.3.1.1.2			R.0 TDD	-	R.0 TDD	-	R.0 TDD	-
PDSCH allocation		n_{PRB}	13—36	-	13—36	-	13—36	-
PDCCH/PCFICH/PHICH Reference measurement channel defined in A.3.1.2.2			R.6 TDD		R.6 TDD		R.6 TDD	
OCNG Patterns defined in A.3.2.2.1 (OP.1 TDD) and A.3.2.2.2 (OP.2 TDD)			OP.1 TDD	OP.2 TDD	OP.1 TDD	OP.2 TDD	OP.1 TDD	OP.2 TDD
PBCH_RA		dB	Note 6	0	Note 6	0	Note 6	0
PBCH_RB								
PSS_RA								
SSS_RA								
PCFICH_RB								
PHICH_RA								
PHICH_RB								
PDCCH_RA								
PDCCH_RB								
PDSCH_RA								
PDSCH_RB								
OCNG_RA Note1								
OCNG_RB Note1								
N_{oc} Note2	Bands 33, 34, 35, 36, 37, 38, 39, 40	dBm/15 kHz	-85.76		-103.85		-116	
	Bands 42, 43						-115	
	Band 41						-114	
CRS $\hat{E}_s/N_{oc}$		dB	5	-1.2	5	-1.2	5	-3.2
CRS $(\hat{E}_s/I_{ot})_{meas}$ Note 5		dB	2.55	-1.20	2.55	-1/20	3.30	-3/20
RSRP Note3,4,5	Bands 33, 34, 35, 36, 37, 38, 39, 40	dBm/15 kHz	-80.76	-86.96	-98.85	-105.05	-111	-119.2
	Bands 42, 43						-110	-118.2
	Band 41						-109	-117.2
$(\text{RSRQ})_{meas}$ Note3,4,5	Bands 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43	dB	-12.71	-14.80	-12.71	-14.80	-12.46	-16.11
$(\text{Io})_{meas}$ Note3	Bands 33, 34, 35, 36, 37, 38, 39, 40	dBm/9 MHz	-51.06	-54.39	-69.15	-72.48	-81.55	-85.20
	Bands 42, 43						-80.55	-84.20
	Band 41						79.55	-83.20
Propagation condition		-	AWGN		AWGN		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. Applies to all subframes.
Note 3: RSRQ, RSRP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves. Io levels are calculated in CRS symbols of measurement restricted subframes.
Note 4: RSRP and RSRQ minimum requirements are specified assuming independent interference and noise at each receiver antenna port.
Note 5: Applies to restricted measurement subframes of the respective cell.
Note 6: Non-ABS and ABS subframe channel powers defined in Table A.3.4.1.1-1.

Table 9.2.8.1.5-2: RSRQ TDD Intra frequency under time domain measurement resource restriction with non-MBSFN ABS absolute accuracy requirements for the reported values

	Test 1	Test 2	Test 3
	All bands	All bands	All bands
Normal Conditions			
Lowest reported value (Cell 2)	RSRQ_04	RSRQ_04	RSRQ_00
Highest reported value (Cell 2)	RSRQ_16	RSRQ_16	RSRQ_15
Extreme Conditions			
Lowest reported value (Cell 2)	RSRQ_01	RSRQ_01	RSRQ_00
Highest reported value (Cell 2)	RSRQ_19	RSRQ_19	RSRQ_16

For the test to pass, the ratio of successful reported values in each test shall be more than 90% with a confidence level of 95%.

9.2.9 FDD RSRQ Accuracy under Time Domain Measurement Resource Restriction with MBSFN ABS

9.2.9.1 FDD Absolute RSRQ under Time Domain Measurement Resource Restriction with MBSFN ABS (eICIC)

Editor's note: This test case is incomplete. The following aspects are either missing or not yet determined:

- The connection diagram is FFS
- The Message contents are FFS
- The Test system Uncertainties are FFS
- The Test Tolerances are FFS

9.2.9.1.1 Test purpose

The purpose of this test is to verify that the RSRQ measurement accuracy under time domain measurement resource restriction with MBSFN ABS is within the specified limits for all bands.

9.2.9.1.2 Test applicability

This test applies to all types of E-UTRA FDD UE release 10 and forward. Applicability requires support of FGI bit 115.

9.2.9.1.3 Minimum conformance requirements

The requirements for absolute accuracy of RSRQ in this section shall apply to a cell on the same frequency as that of the serving cell when a time domain measurement resource restriction pattern for performing RSRQ measurements of this cell is configured by higher layers according to TS 36.331 [5].

The accuracy requirements in Table 9.2.9.1.3-1 are valid under the following conditions:

Cell specific reference signals in the measured cell are transmitted either from one, two or four antenna ports,

Conditions defined in TS 36.101 [2] Section 7.3 for reference sensitivity are fulfilled,

$RSRP|_{dBm}$ according to Annex I.3.9 for a corresponding Band,

The time domain measurement resource restriction pattern configured for the measured cell indicates at least one subframe per radio frame for performing the RSRQ measurement,

The RSRQ measurement is not performed in any subframe other than those indicated by the time domain measurement resource restriction pattern configured for the measured cell,

Four symbols containing CRS are available in all subframes indicated by the time domain measurement resource restriction pattern.

Table 9.2.9.1.3-1: RSRQ Intra frequency absolute accuracy under time domain measurement resource restriction with MBSFN ABS

Accuracy		Conditions			
Normal condition	Extreme condition	Ês/Iot	Io Note 2 range		
			E-UTRA operating bands	Minimum Io	Maximum Io
dB	dB	dB		dBm/15kHz Note 1	dBm/BW$_{Channel}$
±2.5	±4	≥-2 dB	1, 4, 6, 10, 11, 18, 19, 21, 23, 24, 33, 34, 35, 36, 37, 38, 39, 40	-121	-50
			9, 42, 43	-120	-50
			28	-119.5	-50
			2, 5, 7, 27, 41, [44]	-119	-50
			26	-118.5 Note 3	-50
			3, 8, 12, 13, 14, 17, 20, 22, 29 Note 5	-118	-50
			25	-117.5	-50
±3.5	±4	≥-4 dB	Note 4	Note 4	Note 4

NOTE 1: This minimum Io condition is expressed as the average Io per RE over all REs in that symbol.
NOTE 2: Io is defined in subframes indicated by the time domain measurement resource restriction pattern configured for performing RSRQ measurements of this cell. The Io range defined by the minimum and the maximum Io levels applies to CRS and non-CRS symbols. Io may be different in different symbols within a subframe.
NOTE 3: The condition has the minimum Io of -119 dBm/15kHz when the carrier frequency of the assigned E-UTRA channel bandwidth is within 865-894 MHz.
NOTE 4: The same bands and the same Io conditions for each band apply for this requirement as for the corresponding highest accuracy requirement.
NOTE 5: Band 29 is used only for E-UTRA carrier aggregation with other E-UTRA bands.

The reporting range of RSRQ is defined from -19.5 dB to -3 with 0.5 dB resolution. The mapping of measured quantity is defined in Table 9.2.9.1.3-2.

Table 9.2.9.1.3-2: RSRQ FDD Intra frequency absolute accuracy measurement report mapping

Reported value	Measured quantity value	Unit
RSRQ_00	RSRQ < -19.5	dB
RSRQ_01	-19.5 ≤ RSRQ < -19	dB
RSRQ_02	-19 ≤ RSRQ < -18.5	dB
…	…	…
RSRQ_32	-4 ≤ RSRQ < -3.5	dB
RSRQ_33	-3.5 ≤ RSRQ < -3	dB
RSRQ_34	-3 ≤ RSRQ	dB

The normative reference for this requirement is TS 36.133 [4] clauses 9.1.5.2 and A.9.2.9.

9.2.9.1.4 Test description

9.2.9.1.4.1 Initial conditions

Test Environment: Normal, TL/VL, TL/VH, TH/VL, TH/VH; as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1.

Channel Bandwidth to be tested: 10 MHz as defined in TS 36.508 [7] clause 4.3.1.

1. Connect the SS (node B emulator) and AWGN noise sources to the UE antenna connectors as shown in TS 36.508 [7] Annex A figure [FFS].

2. Propagation conditions are set according to Annex B clause B.0.

3. Message contents are defined in clause 9.2.9.1.4.3.

4.. Cell 1 is the serving cell as well as aggressor cell to Cell 2, Cell 2 is the neighbouring cell. Cell 1 is the cell used for connection setup with the power levels set according to Annex C.0 and C.1 for this test.

Table 9.2.9.1.4.1-1: General test parameters for E-UTRAN FDD RSRQ intra frequency test parameters under time-domain measurement resource restriction with MBSFN ABS

Parameter	Unit	Value	Comment
PDSCH parameters Note 1		DL Reference Measurement Channel R.0 FDD	As specified in section A.1.1
PCFICH/PDCCH/PHICH parameters Note 1		DL Reference Measurement Channel R.6 FDD	As specified in section A.2.1
Serving cell (PCell)		Cell 1	Also the aggressor cell on E-UTRA RF channel number 1
Neighbour cell		Cell 2	Cell to be identified on E-UTRA RF channel number 1
E-UTRA RF Channel Number		1	One E-UTRA FDD carrier frequency is used
Channel Bandwidth ($BW_{channel}$)	MHz	10	For all cells in the test
CP length		Normal	
DRX		OFF	
Time offset between cells		3 μs	Synchronous cells
Physical cell ID PCI		(PCI_{cell1} - PCI_{cell2}) mod 6 = 0, PCI_{cell1} not equal to PCI_{cell2}	Cell PCIs are selected so that the condition is met (colliding CRS)
Cell 1 MBSFN ABS pattern		'0100000010000000100000000001000000100000 0'	ABS subframe is only MBSFN subframe. FDD ABS Pattern Info IE, as defined in TS 36.423 [28], clause 9.2.54. The first/leftmost bit corresponds to the subframe #0 of the radio frame satisfying SFN mod x = 0, where x is the size of the bit string (40) divided by 10. Configured in Cell 1.
Time domain measurement resource restriction pattern for PCell (Cell 1) measurements on RF Channel 1		'0001000000010000000100000000100000000010000'	Time domain measurement resource restriction pattern for PCell measurement signalled to the UE in measSubframePatternPCell. The IE MeasSubframePattern is used to specify the time domain measurement resource restriction as defined in TS 36.331 [5], clause 6.3.6. Configured for Cell 1 measurements.
Time domain measurement resource restriction pattern for neighbour cell (Cell 2) measurements on RF Channel 1		'0100000010000000100000000001000000100000 0'	Time domain measurement resource restriction pattern for neighbour cell measurement signalled to the UE in measSubframePatternNeigh The IE MeasSubframePattern is used to specify the time domain measurement resource restriction as defined in TS 36.331 [5], clause 6.3.6. Configured for Cell 2 measurements.
Note 1: Applies to restricted measurement subframes of the respective cell.			

9.2.9.1.4.2 Test procedure

1. Ensure the UE is in State 3A-RF according to TS 36.508 [7] clause 5.2.A2.

2. Set the parameters according to Table 9.2.9.1.5-1 and 9.2.9.1.5-2 as appropriate. Propagation conditions are set according to Annex B clause B.1.

3. SS shall transmit an RRCConnectionReconfiguration message on Cell 1.

4. The UE shall transmit RRCConnectionReconfigurationComplete message.

5. UE shall transmit periodically MeasurementReport messages.

6. SS shall check the reported RSRQ values in MeasurementReport messages. The reported RSRQ values for Cell 1 and Cell 2 are compared to the actual RSRQ values according to Table 9.2.9.1.5-3.

7. SS shall check the MeasurementReport messages transmitted by the UE until the confidence level according to Table G.2.3-1 in Annex G.2 is achieved.

9.2.9.1.4.3 Message contents

[FFS]

9.2.9.1.5 Test requirement

Table 9.2.9.1.5-1 defines the primary level settings including test tolerances for all tests.

Each RSRQ FDD intra frequency absolute accuracy test shall meet the reported values test requirements in Table 9.2.9.1.5-2.

Table 9.2.9.1.5-1: Cell Specific Test requirement Parameters for E-UTRAN FDD RSRQ intra frequency test parameters under time domain measurement resource restriction with MBSFN ABS

Parameter		Unit	Test 1		Test 2		Test 3	
			Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
E-UTRA RF Channel Number			1		1		1	
$BW_{channel}$		MHz	10		10		10	
OCNG Patterns defined in D.1.8 (OP.8 FDD) and D.1.6 (OP.6 FDD) Note5			OP.8 FDD	OP.6 FDD	OP.8 FDD	OP.6 FDD	OP.8 FDD	OP.6 FDD
Measurement bandwidth		n_{PRB}	22—27		22—27		22—27	
PDSCH allocation Note5		n_{PRB}	13—36	-	13—36	-	13—36	-
PBCH_RA PBCH_RB PSS_RA SSS_RA PCFICH_RB PHICH_RA PHICH_RB PDCCH_RA PDCCH_RB PDSCH_RA PDSCH_RB OCNG_RA Note1 OCNG_RB Note1		dB	0	0	0	0	0	0
N_{oc} Note2	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24	dBm/15 kHz	-84.76	-84.76	-103.85	-103.85	-116	
	Bands 2, 5 and 7						-114	
	Band 25						-112.5	
	Bands 3, 8, 12, 13, 14, 17, 20 and 22						-113	
	Band 9						-115	
RSRP Note3,4,5	Bands 1, 4, 6, 10, 11, 18, 19, 21 , 23and 24	dBm/15 kHz	[-79.76]	[-86.76]	[-98.85]	[-105.85]	[-111]	[-120]
	Bands 2, 5 and 7						[-109]	[-118]
	Band 25						[-107.5]	[-116.5]
	Bands 3, 8, 12, 13, 14, 17, 20 and 22						[-108]	[-117]
	Band 9						[-110]	[-119]
(RSRQ) $_{meas}$ Note3,4,5	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24	dB	[-12.60]	[-15.02]	[-12.60]	[-15.02]	[-12.38]	[-16.36]
	Bands 2, 5 and 7							
	Band 25							
	Bands 3, 8, 12, 13, 14, 17, 20 and 22							
	Band 9							
(Io) $_{meas}$ Note3 1st OFDM symbol	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24	dBm/9 MHz	[-50.17]	[-53.64]	[-69.26]	[-72.73]	[-81.63]	[-85.37]
	Bands 2, 5 and 7						[-79.63]	[-83.37]
	Band 25						[-78.13]	[-81.87]
	Bands 3, 8, 12, 13, 14, 17, 20 and 22						[-78.63]	[-82.37]
	Band 9						[-80.63]	[-84.37]
(Io) $_{meas}$ Note3 OFDM symbols other than the 1st	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24	dBm/9 MHz	[-50.17]	[-54.85]	[-69.26]	[-73.94]	[-81.63]	[-86.76]
	Bands 2, 5 and 7						[-79.63]	[-84.76]

one	Band 25						[-78.13]	[-83.26]
	Bands 3, 8, 12, 13, 14, 17, 20 and 22						[-78.63]	[-83.76]
	Band 9						[-80.63]	[-85.76]
CRS $\hat{E}_s/N_{oc}$		dB	[5]	[-2]	[5]	[-2]	[5]	[-4]
CRS $\left(\hat{E}_s/I_{ot}\right)_{meas}$ Note5 1st OFDM symbol		dB	[2.88]	[-8.19]	[2.88]	[-8.19]	[3.54]	[-10.19]
Propagation condition		-	AWGN		AWGN		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. Applies to all subframes. Note 3: RSRQ, RSRP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves. Io levels are calculated in CRS symbols of measurement restricted subframes Note 4: RSRP and RSRQ minimum requirements are specified assuming independent interference and noise at each receiver antenna port. Note 5: Applies to restricted measurement subframes of the respective cell.								

Table 9.2.9.1.5-2: RSRQ FDD Intra frequency under time domain measurement resource restriction with MBSFN ABS absolute accuracy requirements for the reported values

	Test 1	Test 2	Test 3
	All bands	All bands	All bands
Normal Conditions			
Lowest reported value (Cell 2)	RSRQ_[FFS]	RSRQ_[FFS]	RSRQ_[FFS]
Highest reported value (Cell 2)	RSRQ_[FFS]	RSRQ_[FFS]	RSRQ_[FFS]
Extreme Conditions			
Lowest reported value (Cell 2)	RSRQ_[FFS]	RSRQ_[FFS]	RSRQ_[FFS]
Highest reported value (Cell 2)	RSRQ_[FFS]	RSRQ_[FFS]	RSRQ_[FFS]

For the test to pass, the ratio of successful reported values in each test shall be more than 90% with a confidence level of 95%.

9.2.10 TDD RSRQ Accuracy under Time Domain Measurement Resource Restriction with MBSFN ABS

9.2.10.1 TDD RSRQ under Time Domain Measurement Resource Restriction with MBSFN ABS (eICIC)

Editor's note: This test case is incomplete. The following aspects are either missing or not yet determined:

- The connection diagram is FFS
- The Message contents are FFS
- The Test system Uncertainties are FFS
- The Test Tolerances are FFS

9.2.10.1.1 Test purpose

The purpose of this test is to verify that the RSRQ measurement accuracy under time domain measurement resource restriction with MBSFN ABS is within the specified limits for all bands.

9.2.10.1.2 Test applicability

This test applies to all types of E-UTRA FDD UE release 10. Applicability requires support of FGI bit 115

9.2.10.1.3 Minimum conformance requirements

The requirements for absolute accuracy of RSRQ in this section shall apply to a cell on the same frequency as that of the serving cell when a time domain measurement resource restriction pattern for performing RSRQ measurements of this cell is configured by higher layers according to TS 36.331 [5].

The accuracy requirements in Table 9.2.10.1.3-1 are valid under the following conditions:

Cell specific reference signals in the measured cell are transmitted either from one, two or four antenna ports,

Conditions defined in TS 36.101 [2] Section 7.3 for reference sensitivity are fulfilled,

$RSRP|_{dBm}$ according to Annex I.3.9 for a corresponding Band,

The time domain measurement resource restriction pattern configured for the measured cell indicates at least one subframe per radio frame for performing the RSRQ measurement,

The RSRQ measurement is not performed in any subframe other than those indicated by the time domain measurement resource restriction pattern configured for the measured cell,

Four symbols containing CRS are available in all subframes indicated by the time domain measurement resource restriction pattern.

Table 9.2.10.1.3-1: RSRQ Intra frequency absolute accuracy under time domain measurement resource restriction with MBSFN ABS

Accuracy		Conditions			
Normal condition	Extreme condition	Ês/Iot	Io Note 2 range		
			E-UTRA operating bands	Minimum Io	Maximum Io
dB	dB	dB		dBm/ 15kHz Note 1	dBm/BW Channel
±2.5	±4	≥-2 dB	1, 4, 6, 10, 11, 18, 19, 21, 23, 24, 33, 34, 35, 36, 37, 38, 39, 40	-121	-50
			9, 42, 43	-120	-50
			28	-119.5	-50
			2, 5, 7, 27, 41, [44]	-119	-50
			26	-118.5 Note 3	-50
			3, 8, 12, 13, 14, 17, 20, 22, 29 Note 5	-118	-50
			25	-117.5	-50
±3.5	±4	≥-4 dB	Note 4	Note 4	Note 4

NOTE 1: This minimum Io condition is expressed as the average Io per RE over all REs in that symbol.
NOTE 2: Io is defined in subframes indicated by the time domain measurement resource restriction pattern configured for performing RSRQ measurements of this cell. The Io range defined by the minimum and the maximum Io levels applies to CRS and non-CRS symbols. Io may be different in different symbols within a subframe.
NOTE 3: The condition has the minimum Io of -119 dBm/15kHz when the carrier frequency of the assigned E-UTRA channel bandwidth is within 865-894 MHz.
NOTE 4: The same bands and the same Io conditions for each band apply for this requirement as for the corresponding highest accuracy requirement.
NOTE 5: Band 29 is used only for E-UTRA carrier aggregation with other E-UTRA bands.

The reporting range of RSRQ is defined from -19.5 dB to -3 with 0.5 dB resolution. The mapping of measured quantity is defined in Table 9.2.10.1.3-2.

Table 9.2.10.1.3-2: RSRQ TDD Intra frequency absolute accuracy measurement report mapping

Reported value	Measured quantity value	Unit
RSRQ_00	RSRQ < -19.5	dB
RSRQ_01	-19.5 ≤ RSRQ < -19	dB
RSRQ_02	-19 ≤ RSRQ < -18.5	dB
…	…	…
RSRQ_32	-4 ≤ RSRQ < -3.5	dB
RSRQ_33	-3.5 ≤ RSRQ < -3	dB
RSRQ_34	-3 ≤ RSRQ	dB

The normative reference for this requirement is TS 36.133 [4] clauses 9.1.5.2 and A.9.2.10.

9.2.10.1.4 Test description

9.2.10.1.4.1 Initial conditions

Test Environment: Normal, TL/VL, TL/VH, TH/VL, TH/VH; as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1.

Channel Bandwidth to be tested: 10 MHz as defined in TS 36.508 [7] clause 4.3.1.

1. Connect the SS (node B emulator) and AWGN noise sources to the UE antenna connectors as shown in TS 36.508 [7] Annex A figure [FFS].

2. Propagation conditions are set according to Annex B clause B.0.

3. Message contents are defined in clause 9.2.9.1.4.3.

4. Cell 1 is the serving cell as well as aggressor cell to Cell 2, Cell 2 is the neighbouring cell. Cell 1 is the cell used for connection setup with the power levels set according to Annex C.0 and C.1 for this test.

Table 9.2.10.1.4.1-1: General test parameters for E-UTRAN TDD RSRQ intra frequency test parameters under time-domain measurement resource restriction with MBSFN ABS

Parameter	Unit	Value	Comment
Serving cell (PCell)		Cell 1	The aggressor cell to Cell 2
Neighbour cell		Cell 2	Cell to be measured
E-UTRA RF Channel Number		1	One TDD carrier frequency is used
Channel Bandwidth ($BW_{channel}$)	MHz	10	For both cells in the test
Special subframe configuration		6	For Cell 1 and Cell 2. For special subframe configurations see Table 4.2-1 in [16].
Uplink/downlink subframe configuration		1	For Cell 1 and Cell 2. For uplink-downlink subframe configurations see Table 4.2-2 in [16].
CP length		Normal	For both cells in the test
DRX			OFF
Time offset between cells		3 µs	Synchronous cells
Physical cell ID PCI		(PCI_{cell1} - PCI_{cell2})mod6 =0 PCI_{cell1} not equal to PCI_{cell2}	Cell PCIs for Cell 1 and Cell 2 are selected randomly so that the condition is met
ABS pattern		'00001000000000100000'	MBSFN ABS pattern. TDD ABS Pattern Info IE, as defined in TS 36.423 [28], clause 9.2.54. Configured in Cell 1. The first/leftmost bit corresponds to the subframe #0 of a radio frame satisfying SFN mod 20 = 0. All ABS subframes are MBSFN subframes.
Time-domain measurement resource restriction pattern for neighbour cell measurements on RF Channel 1		'00001000000000100000'	Configured for Cell 2 measurements by measSubframePattern-Neigh IE in measSubframePatternConfig-Neigh, as defined in TS 36.331 [5], clause 6.3.5. measSubframeCellList contains Cell 2.
Time-domain measurement resource restriction pattern for serving cell measurements		'10000000001000000000'	Configured for measurements on Cell 1.

9.2.10.1.4.2 Test procedure

1. Ensure the UE is in State 3A-RF according to TS 36.508 [7] clause 5.2.A2.
2. Set the parameters according to Table 9.2.9.1.5-1 and 9.2.9.1.5-2 as appropriate. Propagation conditions are set according to Annex B clause B.1.
3. SS shall transmit an RRCConnectionReconfiguration message on Cell 1.
4. The UE shall transmit RRCConnectionReconfigurationComplete message.
5. UE shall transmit periodically MeasurementReport messages.
6. SS shall check the reported RSRQ values in MeasurementReport messages. The reported RSRQ values for Cell 1 and Cell 2 are compared to the actual RSRQ values according to Table 9.2.9.1.5-3.
7. SS shall check the MeasurementReport messages transmitted by the UE until the confidence level according to Table G.2.3-1 in Annex G.2 is achieved.

9.2.10.1.4.3 Message contents

[FFS]

9.2.10.1.5 Test requirement

Table 9.2.10.1.5-1 defines the primary level settings including test tolerances for all tests.

Each RSRQ TDD intra frequency absolute accuracy test shall meet the reported values test requirements in Table 9.2.10.1.5-2.

Table 9.2.10.1.5-1: Cell Specific Test requirement Parameters for E-UTRAN TDD RSRQ intra frequency test parameters under time domain measurement resource restriction with MBSFN ABS

Parameter		Unit	Test 1		Test 2		Test 3	
			Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
Measurement bandwidth		n_{PRB}	22—27		22—27		22—27	
PDSCH Reference measurement channel defined in A.3.1.1.2			R.0 TDD	-	R.0 TDD	-	R.0 TDD	-
PDSCH allocation		n_{PRB}	13—36	-	13—36	-	13—36	-
PDCCH/PCFICH/PHICH Reference measurement channel defined in A.3.1.2.2			R.6 TDD		R.6 TDD		R.6 TDD	
OCNG Patterns defined in D.2.5 (OP.5 TDD) and D.2.2 (OP.2 TDD)			OP.5 TDD	OP.2 TDD	OP.5 TDD	OP.2 TDD	OP.5 TDD	OP.2 TDD
PBCH_RA		dB	0	0	0	0	0	0
PBCH_RB								
PSS_RA								
SSS_RA								
PCFICH_RB								
PHICH_RA								
PHICH_RB								
PDCCH_RA								
PDCCH_RB								
PDSCH_RA								
PDSCH_RB								
OCNG_RA Note2								
OCNG_RB Note2								
N_{oc} Note3	Bands 33, 34, 35, 36, 37, 38, 39, 40	dBm/15 kHz	-84.76	-84.76	-103.85	-103.85	-116	
	Bands 42, 43						-115	
	Band 41						-114	
CRS $\hat{E}_s/N_{oc}$		dB	[5]	[-2]	[5]	[-2]	[5]	[-4]
CRS $\left(\hat{E}_s/Iot\right)_{meas}$ Note 6	1st symbol	dB	[2.88]	[-8.19]	[2.88]	[-8.19]	[3.54]	[-10.19]
RSRP Note4,5,6	Bands 33, 34, 35, 36, 37, 38, 39, 40	dBm/15 kHz	[-79.76]	[-86.76]	[-98.85]	[-105.85]	[-111]	[-120]
	Bands 42, 43						[-110]	[-119]
	Band 41						[-109]	[-118]
$(\mathrm{RSRQ})_{meas}$ Note4,5,6	Bands 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43	dB	[-12.60]	[-15.02]	[-12.60]	[-15.02]	[-12.38]	[-16.36]
$(\mathrm{Io})_{meas}$ Note4 in the 1st OFDM symbol	Bands 33, 34, 35, 36, 37, 38, 39, 40	dBm/9 MHz	[-50.17]	[-53.64]	[-69.26]	[-72.73]	[-81.63]	[-85.37]
	Bands 42, 43						[-80.63]	[-84.37]
	Band 41						[-79.63]	[-83.37]
$(\mathrm{Io})_{meas}$ Note 4 in OFDM symbols other than the 1st one	Bands 33, 34, 35, 36, 37, 38, 39, 40	dBm/9 MHz	[-50.17]	[-54.85]	[-69.26]	[-73.94]	[-81.63]	[-86.76]
	Bands 42, 43						[-80.63]	[-85.76]
	Band 41						[-79.63]	[-84.76]

Propagation condition	-	AWGN	AWGN	AWGN
Note 1: For special subframe and uplink-downlink configurations see Tables 4.2-1 and 4.2-2 in 3GPP TS 36.211. Note 2: 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 3: 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. Applies to all subframes. Note 4: RSRQ, RSRP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves. Io levels are calculated in CRS symbols of measurement restricted subframes. Note 5: RSRP and RSRQ minimum requirements are specified assuming independent interference and noise at each receiver antenna port. Note 6: Applies to restricted measurement subframes of the respective cell.				

Table 9.2.10.1.5-2: RSRQ TDD Intra frequency under time domain measurement resource restriction with MBSFN ABS absolute accuracy requirements for the reported values

	Test 1	Test 2	Test 3
	All bands	All bands	All bands
Normal Conditions			
Lowest reported value (Cell 2)	RSRQ_[FFS]	RSRQ_[FFS]	RSRQ_[FFS]
Highest reported value (Cell 2)	RSRQ_[FFS]	RSRQ_[FFS]	RSRQ_[FFS]
Extreme Conditions			
Lowest reported value (Cell 2)	RSRQ_[FFS]	RSRQ_[FFS]	RSRQ_[FFS]
Highest reported value (Cell 2)	RSRQ_[FFS]	RSRQ_[FFS]	RSRQ_[FFS]

For the test to pass, the ratio of successful reported values in each test shall be more than 90% with a confidence level of 95%

9.2.11

9.2.12 TDD RSRQ for E-UTRA Carrier Aggregation for 20MHz

Editor's note: This test case is incomplete. The following aspects are either missing or not yet determined:

- *The Test Tolerances applicable to this test are undefined*

9.2.12.1 TDD Absolute RSRQ Accuracy for E-UTRA Carrier Aggregation for 20MHz

9.2.12.1.1 Test purpose

To verify that TDD absolute RSRQ measurement accuracy in carrier aggregation is within the specified limits under AWGN propagation conditions for 20MHz. This test will verify the TDD absolute RSRQ accuracy requirements of the primary component carrier and the secondary component carrier.

9.2.12.1.2 Test applicability

This test case applies to all types of E-UTRA TDD UE release 10 and forward that support CA.

9.2.12.1.3 Minimum conformance requirements

The TDD RSRQ measurements of cells on the primary component carrier shall meet the intra frequency absolute accuracy requirements defined in TS 36.133 [4] clause 9.1.5.1. The TDD RSRQ measurements of cells on the secondary component carrier shall meet the intra frequency absolute accuracy requirements defined in TS 36.133 [4] clause 9.1.5.1.

The accuracy requirements in Table 9.2.12.1.3-1 are valid under the following conditions:

Cell specific reference signals are transmitted either from one, two or four antenna ports.

Conditions defined in TS 36.101 [2] clause 7.3 for reference sensitivity are fulfilled.

RSRP|dBm according to Annex I.3.1 for a corresponding Band.

Table 9.2.12.1.3-1: FDD RSRQ absolute accuracy for Carrier Aggregation

Accuracy		Conditions			
Normal condition	Extreme condition	Ês/Iot	Io Note 1 range		
			E-UTRA operating bands	Minimum Io	Maximum Io
dB	dB	dB		dBm/15kHz Note 5	dBm/BW$_{Channel}$
±2.5	±4	≥-3 dB	1, 4, 6, 10, 11, 18, 19, 21, 23, 24, 33, 34, 35, 36, 37, 38, 39, 40	-121	-50
			9, 42, 43	-120	-50
			28	-119.5	-50
			2, 5, 7, 27, 41, 44	-119	-50
			26	-118.5 Note 2	-50
			3, 8, 12, 13, 14, 17, 20, 22, 29 Note 4	-118	-50
			25	-117.5	-50
±3.5	±4	≥-6 dB	Note 3	Note 3	Note 3

NOTE 1: Io is assumed to have constant EPRE across the bandwidth.
NOTE 2: The condition has the minimum Io of -119 dBm/15kHz when the carrier frequency of the assigned E-UTRA channel bandwidth is within 865-894 MHz.
NOTE 3: The same bands and the same Io conditions for each band apply for this requirement as for the corresponding highest accuracy requirement.
NOTE 4: Band 29 is used only for E-UTRA carrier aggregation with other E-UTRA bands.
NOTE 5: The condition level is increased by Δ>0, when applicable, as described in I.4.2 and I.4.3.

The reporting range of RSRQ is defined from -19.5 dB to -3 with 0.5 dB resolution. The mapping of measured quantity is defined in Table 9.2.12.1.3-2.

Table 9.2.12.1.3-2: TDD RSRQ absolute accuracy measurement report mapping for Carrier Aggregation

Reported value	Measured quantity value	Unit
RSRQ_00	RSRQ < -19.5	dB
RSRQ_01	-19.5 ≤ RSRQ < -19	dB
RSRQ_02	-19 ≤ RSRQ < -18.5	dB
…	…	…
RSRQ_32	-4 ≤ RSRQ < -3.5	dB
RSRQ_33	-3.5 ≤ RSRQ < -3	dB
RSRQ_34	-3 ≤ RSRQ	dB

The normative reference for this requirement is TS 36.133 [4] clause 9.1.11.1, clause 9.1.11.2, clause 9.1.5.1 and A.9.2.12.

9.2.12.1.4 Test description

9.2.12.1.4.1 Initial conditions

Test Environment: Normal, TL/VL, TL/VH, TH/VL, TH/VH; as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1 for different CA bandwidth classes.

Channel Bandwidth to be tested: 20 MHz as defined in TS 36.508 [7] clause 4.3.1 for different CA configurations as defined in TS 36.521-1[10] clause 5.4.2A.

1. Connect the SS (node B emulator) and AWGN noise sources to the UE antenna connectors as shown in TS 36.508 [7] Annex A, Figure group A.41 as appropriate.

2. Propagation conditions are set according to Annex B clause B.0.
3. Message contents are defined in clause 9.2.12.1.4.3.
4. There are two E-UTRA TDD carriers with one cell on one E-UTRA TDD carrier and two cells on the other E-UTRA TDD carrier specified in the test. Cell 1 is PCell on the PCC, Cell 2 is the SCell on the Secondary Component Carrier (SCC), and Cell 3 is a neighbour cell on the SCC. PCell (Cell 1) is the cell used for connection setup with the power level set according to Annex C.0 and C.1 for this test. Cell 2 and Cell 3 shall be powered OFF.

9.2.12.1.4.2 Test procedure

The test consists of Cell 1 the PCell, Cell 2 the SCell on the Secondary Component Carrier (SCC), and Cell 3 the neighbouring cell on the SCC. The SCell (Cell 2) and neighbouring cell (Cell 3) on the SCC are configured. The SCell (Cell 2) on the SCC is activated. The absolute accuracy of RSRQ is defined as the RSRQ measured from the primary component carrier (Cell 1) and the RSRQ measured from the secondary component carrier (Cell 2).

1. Ensure the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.
2. Configure SCC according to Annex C.0 and C.1 for all downlink physical channels except PHICH.
3. The SS shall configure the SCell (Cell 2) on the SCC as per TS 36.508 [7] clause 5.2A.4.
4. The SS activates SCC by sending the MAC-CE according to TS 36.321 [11] clauses 5.13 and 6.1.3.8. Wait for at least 2 seconds as per TS 36.133 [4] clause 8.3.3.2.
5. Set the parameters according to Table 9.2.12.1.5-1 as appropriate. Propagation conditions are set according to Annex B clause B.1.1.
6. The SS shall transmit an RRCConnectionReconfiguration message.
7. The UE shall transmit RRCConnectionReconfigurationComplete message.
8. UE shall transmit periodically MeasurementReport messages.
9. The SS shall check the reported RSRQ values in MeasurementReport messages. The reported RSRQ values for Cell 1 and Cell 2 by the UE are compared to the actual RSRQ values according to Table 9.2.12.1.5-2. This counts respectively as a Pass or Fail for the events “Cell 1” and “Cell 2”.
10. The SS shall check MeasurementReport messages transmitted by the UE until a test verdict has been achieved.

Each of the events “Cell 1” and “Cell 2” is evaluated independently for the statistic, resulting in an event verdict: pass or fail. Each event is evaluated only until the confidence level according to Table G.2.3-1 in Annex G.2 is achieved. Different events may require different times for a verdict.
If both events pass, the test passes. If one event fails, the test fails.

9.2.12.1.4.3 Message contents

Message contents are according to TS 36.508 [7] values 4.6 with the following exceptions:

Table 9.2.12.1.4.3-1: Common Exception messages for TDD RSRQ absolute accuracy for Carrier Aggregation for 20MHz test requirement

Default Message Contents	
Common contents of system information blocks exceptions	
Default RRC messages and information elements contents exceptions	Table H.3.1-1 Table H.3.5-4 Table H.4.1-5 Table H.4.2-1

9.2.12.1.5 Test requirement

Table 9.2.12.1.5-1 defines the primary level settings including test tolerances for all tests.

The TDD RSRQ absolute accuracy for carrier aggregation for 20MHz test shall meet the reported values test requirements in Table 9.2.12.1.5-2.

Table 9.2.12.1.5-1: Cell Specific Test requirement Parameters for TDD RSRQ absolute accuracy for Carrier Aggregation for 20MHz

Parameters		Test 1			
		Units	Cell 1	Cell 2	Cell 3
$BW_{channel\_CA}$ Note1		MHz	20	20	20
Measurement bandwidth		n_{PRB}	47-52	47-52	47-52
PDSCH Reference measurement channel defined in A.1.2			R.3 TDD	R.3 TDD	-
PDSCH allocation		n_{PRB}	38-61	38-61	-
PDCCH/PCFICH/PHICH Reference measurement channel defined in A.2.2			R.10 TDD	R.10 TDD	R.10 TDD
OCNG Patterns defined in D.2.7 (OP.7 TDD) and D.2.8 (OP.8 TDD)			OP.7 TDD	OP.7 TDD	OP.8 TDD
Io Note2	Bands 33, 34, 35, 36, 37, 38, 39, 40	dBm/18 MHz	-87.26+TT	-82.67+TT	
	Bands 42, 43		-86.26+TT	-81.67+TT	
	Band 41		-85.26+TT	-80.17+TT	
[Note 1: This test verifies the RRM requirement which is independent of channel bandwidth and is performed according to the principle defined in TS 36.133 [4] section A.3.6.1.] Note 2: Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves. Note 3: See Table 9.2.6.1.5-1 for the other parameters.					

Table 9.2.12.1.5-2: TDD RSRQ absolute accuracy requirements for the reported values for Carrier Aggregation for 20MHz

	Test 1
	All bands
Normal Conditions	
Lowest reported value (Cell 1)	RSRQ_00+xx
Highest reported value Cell 1)	RSRQ_15+xx
Lowest reported value (Cell 2)	RSRQ_00+xx
Highest reported value Cell 2)	RSRQ_14+xx
Extreme Conditions	
Lowest reported value (Cell 1)	RSRQ_00+xx
Highest reported value Cell 1)	RSRQ_16+xx
Lowest reported value (Cell 2)	RSRQ_00+xx
Highest reported value Cell 2)	RSRQ_15+xx

For the test to pass, the ratio of successful reported values in each test shall be more than 90% with a confidence level of 95%.

9.2.12.2 TDD Relative RSRQ Accuracy for E-UTRA Carrier Aggregation for 20MHz

Editor's note: This test case is incomplete. The following aspects are either missing or not yet determined:

- *The Test Tolerances applicable to this test are undefined*

9.2.12.2.1 Test purpose

To verify that TDD relative RSRQ measurement accuracy in carrier aggregation for 20MHz is within the specified limits under AWGN propagation conditions. This test will verify the TDD relative RSRQ accuracy requirements between the primary and secondary component carriers.

9.2.12.2.2 Test applicability

This test case applies to all types of E-UTRA UE release 10 and forward that support CA.

9.2.12.2.3 Minimum conformance requirements

The TDD RSRQ measurements of cells on the primary component carrier are compared with measurements of cells on the secondary component carrier defined in TS 36.133 [4] clause 9.1.6.2. The applicable relative accuracy requirements are the RSRQ inter-frequency accuracy requirements as defined in TS 36.133 [4] clause 9.1.6.2.

The accuracy requirements in Table 9.2.12.2.3-1 are valid under the following conditions:

Cell specific reference signals are transmitted either from one, two or four antenna ports.

Conditions defined in TS 36.101 [2] clause 7.3 for reference sensitivity are fulfilled.

$RSRP1,2|_{dBm}$ according to Annex I.3.4 for a corresponding Band.

$$\left| RSRP1|_{dBm} - RSRP2|_{dBm} \right| \leq [27] dB$$

|Channel 1_Io -Channel 2_Io | ≤ 20 dB

Table 9.2.12.2.3-1: TDD RSRQ relative accuracy for Carrier Aggregation

Accuracy		Conditions			
Normal condition	Extreme condition	Ês/Iot Note 2	Io Note 1 range		
			E-UTRA operating bands	Minimum Io	Maximum Io
dB	dB	dB		dBm/15kHz Note 6	$dBm/BW_{Channel}$
±3	±4	≥-3 dB	1, 4, 6, 10, 11, 18, 19, 21, 23, 24, 33, 34, 35, 36, 37, 38, 39, 40	-121	-50
			9, 42, 43	-120	-50
			28	-119.5	-50
			2, 5, 7, 27, 41, 44	-119	-50
			26	-118.5 Note 3	-50
			3, 8, 12, 13, 14, 17, 20, 22, 29 Note 5	-118	-50
			25	-117.5	-50
±4	±4	≥-6 dB	Note 4	Note 4	Note 4

NOTE 1: Io is assumed to have constant EPRE across the bandwidth.
NOTE 2: The parameter Ês/Iot is the minimum Ês/Iot of the pair of cells to which the requirement applies.
NOTE 3: The condition has the minimum Io of -119 dBm/15kHz when the carrier frequency of the assigned E-UTRA channel bandwidth is within 865-894 MHz.
NOTE 4: The same bands and the same Io conditions for each band apply for this requirement as for the corresponding highest accuracy requirement.
NOTE 5: Band 29 is used only for E-UTRA carrier aggregation with other E-UTRA bands.
NOTE 6: The condition level is increased by Δ>0, when applicable, as described in I.4.2 and I.4.3.

The reporting range of RSRQ is defined from -19.5 dB to -3 with 0.5 dB resolution. The mapping of measured quantity is defined in Table 9.2.12.2.3-2.

Table 9.2.12.2.3-2: TDD RSRQ relative accuracy measurement report mapping for Carrier Aggregation

Reported value	Measured quantity value	Unit
RSRQ_00	RSRQ < -19.5	dB
RSRQ_01	-19.5 ≤ RSRQ < -19	dB
RSRQ_02	-19 ≤ RSRQ < -18.5	dB
…	…	…
RSRQ_32	-4 ≤ RSRQ < -3.5	dB
RSRQ_33	-3.5 ≤ RSRQ < -3	dB
RSRQ_34	-3 ≤ RSRQ	dB

The normative reference for this requirement is TS 36.133 [4] clause 9.1.11.3, clause 9.1.6.2 and A.9.2.12.

9.2.12.2.4 Test description

9.2.12.2.4.1 Initial conditions

Test Environment: Normal, TL/VL, TL/VH, TH/VL, TH/VH; as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1 for different CA bandwidth classes.

Channel Bandwidth to be tested: 20 MHz as defined in TS 36.508 [7] clause 4.3.1 for different CA configurations as defined in TS 36.521-1[10] clause 5.4.2A.

1. Connect the SS (node B emulator) and AWGN noise sources to the UE antenna connectors as shown in TS 36.508 [7] Annex A, Figure group A.41 as appropriate.
2. Propagation conditions are set according to Annex B clause B.0.
3. Message contents are defined in clause 9.2.12.2.4.3.
4. There are two E-UTRA TDD carriers with one cell on one E-UTRA TDD carrier and two cells on the other E-UTRA TDD carrier specified in the test. Cell 1 is PCell on the PCC, Cell 2 is the SCell on the Secondary Component Carrier (SCC), and Cell 3 is a neighbour cell on the SCC. PCell (Cell 1) is the cell used for connection setup with the power level set according to Annex C.0 and C.1 for this test. Cell 2 and Cell 3 shall be powered OFF.

9.2.12.2.4.2 Test procedure

The test consists of Cell 1 the PCell, Cell 2 the SCell on the Secondary Component Carrier (SCC), and Cell 3 the neighbouring cell on the SCC. The SCell (Cell 2) and neighbouring cell (Cell 3) on the SCC are configured. The SCell (Cell 2) on the SCC is activated. The relative accuracy of RSRQ is defined as the RSRQ measured cells on the primary component carrier compared with measurements of cells on the secondary component carrier,

1. Ensure the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.
2. Configure SCC according to Annex C.0 and C.1 for all downlink physical channels except PHICH.
3. The SS shall configure the SCell (Cell 2) on the SCC as per TS 36.508 [7] clause 5.2A.4.
4. The SS activates SCC by sending the MAC-CE according to TS 36.321 [11] clauses 5.13 and 6.1.3.8. Wait for at least 2 seconds as per TS 36.133 [4] clause 8.3.3.2.
5. Set the parameters according to Table 9.2.12.2.5-1 as appropriate. Propagation conditions are set according to Annex B clause B.1.1.
6. The SS shall transmit an RRCConnectionReconfiguration message.
7. The UE shall transmit RRCConnectionReconfigurationComplete message.
8. The UE shall transmit periodically MeasurementReport messages.

9. The SS shall check the reported RSRQ values in MeasurementReport messages. The reported RSRQ value for Cell 2 is compared to the reported RSRQ value for Cell 1 for each MeasurementReport message according to Table 9.2.12.2.5-2.

10. The SS shall check MeasurementReport messages transmitted by the UE until the confidence level according to table G.2.3-1 in Annex G.2 is achieved.

9.2.12.2.4.3 Message contents

Message contents are according to TS 36.508 [7] values 4.6 with the following exceptions:

Table 9.2.12.2.4.3-1: Common Exception messages for TDD RSRQ relative accuracy for Carrier Aggregation for 20MHz test requirement

Default Message Contents	
Common contents of system information blocks exceptions	
Default RRC messages and information elements contents exceptions	Table H.3.1-1 Table H.3.5-4 Table H.4.1-5 Table H.4.2-1

9.2.12.2.5 Test requirement

Table 9.2.12.2.5-1 defines the primary level settings including test tolerances for all tests.

The TDD RSRQ relative accuracy for carrier aggregation for 20MHz test shall meet the reported values test requirements in Table 9.2.12.2.5-2.

Table 9.2.12.2.5-1: Cell Specific Test requirement Parameters for TDD RSRQ relative accuracy for Carrier Aggregation

Parameters		Test 1			
		Units	Cell 1	Cell 2	Cell 3
$BW_{channel\_CA}$ Note1		MHz	20	20	20
Measurement bandwidth		n_{PRB}	47-52	47-52	47-52
PDSCH Reference measurement channel defined in A.1.2			R.3 TDD	R.3 TDD	-
PDSCH allocation		n_{PRB}	38-61	38-61	-
PDCCH/PCFICH/PHICH Reference measurement channel defined in A.2.2			R.10 TDD	R.10 TDD	R.10 TDD
OCNG Patterns defined in D.2.7 (OP.7 TDD) and D.2.8 (OP.8 TDD)			OP.7 TDD	OP.7 TDD	OP.8 TDD
Io Note2	Bands 33, 34, 35, 36, 37, 38, 39, 40	dBm/18 MHz	-87.26+TT	-82.67+TT	
	Bands 42, 43		-86.26+TT	-81.67+TT	
	Band 41		-85.26+TT	-80.17+TT	
[Note 1: This test verifies the RRM requirement which is independent of channel bandwidth and is performed according to the principle defined in TS 36.133 [4] section A.3.6.1.] Note 2: Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves. Note 3: See Table 9.2.5.1.5-1 for the other parameters.					

Table 9.2.12.2.5-2: TDD RSRQ relative accuracy requirements for the reported values for Carrier Aggregation for 20MHz

	Test 1
	All bands
Normal Conditions	
Lowest reported value (Cell 2)	RSRQ_x - 12+xx
Highest reported value (Cell 2)	RSRQ_x + 9+xx
Extreme Conditions	
Lowest reported value (Cell 2)	RSRQ_x - 12+xx
Highest reported value (Cell 2)	RSRQ_x + 9+xx
RSRQ_x is the reported value of Cell 1	

For the test to pass, the ratio of successful reported values in each test shall be more than 90% with a confidence level of 95%.

9.3 UTRA FDD CPICH RSCP

9.3.1 E-UTRAN FDD - UTRA FDD CPICH RSCP absolute accuracy

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

9.3.1.1 Test purpose

To verify that the CPICH RSCP absolute measurement accuracy is within the specified limits.

9.3.1.2 Test applicability

This test applies to all types of E-UTRA FDD UE release 9 and forward that support UTRA FDD.

9.3.1.3 Minimum conformance requirements

The accuracy requirements shall be the same as the inter-frequency measurement accuracy requirements for FDD CPICH RSCP.

In RRC_CONNECTED state the accuracy requirements shall meet the absolute accuracy requirements in table 9.3.1.3-1.

Table 9.3.1.3-1: UTRAN FDD CPICH_RSCP absolute accuracy

Parameter	Unit	Accuracy [dB]		Conditions				
		Normal condition	Extreme condition	Band I, IV, VI, X, XI, XIX and XXI	Band II, V and VII	Band XXV and XXVI	Band III, VIII, XII, XIII, XIV, XX and XXII	Band IX
				Io [dBm/3,84 MHz]	Io [dBm/3,84 MHz]	Io [dBm/3,84 MHz]	Io [dBm/3,84 MHz]	Io [dBm/3,84 MHz]
CPICH_RSCP	dBm	± 6	± 9	-94...-70	-92…-70	-90.5...-70 Note 1	-91…-70	-93...-70
	dBm	± 8	± 11	-70...-50	-70…-50	-70...-50	-70…-50	-70...-50
Note 1: The condition is -92…-70 dBm/3.84 MHz when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.								

If the UE, in RRC_CONNECTED state, needs measurement gaps to perform UTRAN FDD measurements, the UTRAN FDD measurement procedure and measurement gap pattern stated in TS 36.133 [4] clause 8.1.2.4.1 shall apply.

The reporting range and mapping specified for FDD CPICH RSCP is defined in Table 9.3.1.3-2. The range in the signalling may be larger than the guaranteed accuracy range.

Table 9.3.1.3-2: CPICH RSCP measurement report mapping

Reported value	Measured quantity value	Unit
CPICH_RSCP_LEV _-05	CPICH RSCP <-120	dBm
CPICH_RSCP_LEV _-04	-120 ≤ CPICH RSCP < -119	dBm
CPICH_RSCP_LEV _-03	-119 ≤ CPICH RSCP < -118	dBm
…	…	…
CPICH_RSCP_LEV _89	-27 ≤ CPICH RSCP < -26	dBm
CPICH_RSCP_LEV _90	-26 ≤ CPICH RSCP < -25	dBm
CPICH_RSCP_LEV _91	-25 ≤ CPICH RSCP	dBm

The normative reference for this requirement is TS 25.133 [21] clauses 9.1.1.2 and 9.1.1.3 and TS 36.133 [4] clause 9.2.1 and A.9.3.1.

9.3.1.4 Test description

9.3.1.4.1 Initial conditions

Test Environment: Normal, TL/VL, TL/VH, TH/VL, TH/VH; as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1.

Channel Bandwidth to be tested: 10MHz as defined in TS 36.508 [7] clause 4.3.1.

1. Connect the SS (node B emulator) and AWGN noise sources to the UE antenna connectors as shown in TS 36.508 [7] Annex A figure A.22.
2. The general test parameter settings are set up according to Table 9.3.1.4.1-1.
3. Propagation conditions are set according to Annex B clause B.0.
4. Message contents are defined in clause 9.3.1.4.3.
5. Cell 1 is the serving E-UTRAN FDD cell and Cell 2 is the target UTRAN FDD cell. Cell 1 is the cell used for connection setup with the power levels set according to Annex C.0 and C.1 for this test.

Table 9.3.1.4.1-1: General test parameters for UTRAN FDD CPICH RSCP absolute measurement accuracy test in E-UTRAN FDD

Parameter	Unit	Value	Comment
PDSCH parameters		DL Reference Measurement Channel R.0 FDD	As specified in section A.1.1
PCFICH/PDCCH/PHICH parameters		DL Reference Measurement Channel R.6 FDD	As specified in section A.2.1
E-UTRAN RF Channel Number		1	One E-UTRAN FDD carrier frequency is used.
UTRAN RF Channel Number		1	One UTRAN FDD carrier frequency is used.
E-UTRAN Channel Bandwidth ($BW_{channel}$)	MHz	10	
Active cell		Cell 1	E-UTRAN cell 1 on RF channel number 1
Neighbour cells		Cell 2	UTRAN cell 2 on RF channel number 1
Gap Pattern Id		0	As specified in 3GPP TS 36.133 section 8.1.2.1.
Inter-RAT (UTRAN FDD) measurement quantity		CPICH RSCP	
Monitored UTRA FDD cell list size		12	UTRA cells on UTRA RF channel 1 provided in the cell list.
CP length		Normal	
Filter coefficient		0	L3 filtering is not used
DRX		OFF	OFF

9.3.1.4.2 Test procedure

1. Ensure the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.
2. Set the parameters according to Table 9.3.1.5-1 as appropriate. Propagation conditions are set according to Annex B clause B.1.1.
3. SS shall transmit an RRCConnectionReconfiguration message on Cell 1.
4. The UE shall transmit RRCConnectionReconfigurationComplete message.
5. UE shall transmit periodically MeasurementReport messages.
6. SS shall check CPICH_RSCP reported values of Cell 2 in MeasurementReport messages according to Table 9.3.1.5-3.
7. SS shall check the MeasurementReport message transmitted by the UE until the confidence level according to Tables G.2.3-1 in Annex G.2 is achieved.
8. Repeat step 1-7 for each sub-test in Table 9.3.1.5-1 as appropriate.

9.3.1.4.3 Message contents

Message contents are according to TS 36.508 [7] clause 4.6 with the following exceptions:

Table 9.3.1.4.3-1: *MeasConfig- DEFAULT:* Additional E-UTRAN FDD - UTRA FDD CPICH RSCP absolute accuracy test requirement

Derivation Path: TS 36.508 [7] clause 4.6.6, Table 4.6.6-1 MeasConfig-DEFAULT:			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasConfig-DEFAULT ::= SEQUENCE {			
measObjectToRemoveList	Not present		
measObjectToAddModList SEQUENCE (SIZE (1..maxObjectId)) OF SEQUENCE {	2 entry		
MeasObjectToAddMod SEQUENCE {			
measObjectId	IdMeasObject-f1		
measObject CHOICE {			
measObject EUTRA	MeasObjectEUTRA-GENERIC(f1)	E-UTRA Cell	
}			
}			
MeasObjectToAddMod SEQUENCE {			
measObjectId	IdMeasObject-f2		
measObject CHOICE {			
measObjectUTRA	MeasObjectUTRA-GENERIC(f2)	UTRA Cell	
}			
}			
}			
reportConfigToRemoveList	Not present		
reportConfigToAddModList SEQUENCE (SIZE (1..maxReportConfigId))OF SEQUENCE {	1 entry		
reportConfigId	idReportConfig-P		
reportConfig	ReportConfigInterRAT-PERIODICAL		
}			
measIdToRemoveList	Not present		
measIdToAddModList SEQUENCE (SIZE (1..maxMeasId)) of SEQUENCE {	1 entry		
measId	1		
measObjectId	IdMeasObject-f2		
reportConfigId	idReportConfig-P		
}			
quantityConfig	QuantityConfig-DEFAULT		
measGapConfig	MeasGapConfig-GP1		
s-Measure	Not present		
preRegistrationInfoHRPD	Not present		
speedStatePars	Not present		
}			

Table 9.3.1.4.3-2: *MeasResults*: Additional E-UTRAN FDD - UTRA FDD CPICH RSCP absolute accuracy test requirement

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResults ::= SEQUENCE {			
measId	1		
measResultServCell			
rsrpResult	INTEGER(0..97)		
rsrqResult	INTEGER(0..34)		
}			
measResultNeighCells CHOICE {			
measResultListUTRA	MeasResultListUTRA		
}			
}			

Table 9.3.1.4.3-3: *MeasResultListUTRA*: Additional E-UTRAN FDD - UTRA FDD CPICH RSCP absolute accuracy test requirement

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResultsListUTRA ::= SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {			
physCellId CHOICE {			
fdd	PhysCellIdUTRA-FDD		
tdd	Not Present		
}			
measResult SEQUENCE {			
utra-RSCP	Set according to specific test INTEGER (-5..91)		
}			
}			

Table 9.3.1.4.3-4: *QuantityConfig-DEFAULT*: Additional E-UTRAN FDD - UTRA FDD CPICH RSCP absolute accuracy test requirement

Derivation Path: TS 36.508 [7] clause 4.6.6, Table 4.6.6-3A: QuantityConfig-DEFAULT			
Information Element	**Value/remark**	**Comment**	**Condition**
QuantityConfig-DEFAULT ::= SEQUENCE {			
quantityConfigEUTRA SEQUENCE {			
filterCoefficientRSRP	fc0		
filterCoefficientRSRQ	fc0		
}			
quantityConfigUTRA SEQUENCE {			
measQuantityUTRA-FDD	cpich-RSCP		
filterCoefficient	fc0		
}			

9.3.1.5 Test requirement

The test parameters are given in Tables 9.3.1.4.1-1, 9.3.1.5-1 and 9.3.1.5-2 as below. Table 9.3.1.5-2 and 9.3.1.5-3 define the primary level settings including test tolerances for all tests.

Table 9.3.1.5-1: E-UTRAN FDD cell specific test parameters for UTRAN FDD CPICH RSCP absolute measurement accuracy test in E-UTRAN FDD

Parameter	Unit	Test 1	Test 2
E-UTRAN RF Channel Number		1	
$BW_{channel}$	MHz	10	
OCNG Patterns defined in D.1.1 (OP.1 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	
N_{oc} Note 2	dBm/15 kHz	-98
RSRP Note 3	dBm/15 kHz	-94
$\hat{E}_s/I_{ot}$	dB	4
SCH_RP Note 3	dBm/15 kHz	-94
$\hat{E}_s/N_{oc}$	dB	4
Propagation Condition		AWGN
Note 1: OCNG shall be used such that all 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 SCH_RP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.		

Table 9.3.1.5-2: UTRAN FDD cell specific test parameters for UTRAN FDD CPICH RSCP absolute measurement accuracy test in E-UTRAN FDD

Parameter		Unit	Test 1	Test 2
			Cell 2	Cell 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	-	-
OCNS_Ec/Ior		dB	-0.94	-0.94
Ioc	Band I, IV, VI, X, XI, XIX, XXI	dBm/3.84 MHz	-60.75	-93.76
	Band II, V, VII			-91.76
	Band XXV, XXVI			-90.26 (Note 3)
	Band III, VIII, XII, XIII, XIV, XX, XXII			-90.76
	Band IX (Note 2)			-92.76
Îor/Ioc		dB	9.54	-9. 19
CPICH RSCP, Note 1	Band I, IV, VI, X, XI, XIX, XXI	dBm	-61.21	-112.95
	Band II, V, VII			-110.95
	Band XXV, XXVI			-109.45 (Note 3)
	Band III, VIII, XII, XIII, XIV, XX, XXII			-109.95
	Band IX (Note 2)			-111.95
Io, Note 1	Band I, IV, VI, X, XI, XIX, XXI	dBm/3.84 MHz	-50.75	-93.27
	Band II, V, VII			-91.27
	Band XXV, XXVI			-89.77 (Note 3)
	Band III, VIII, XII, XIII, XIV, XX, XXII			-90.27
	Band IX (Note 2)			-92.27
Propagation condition		-	AWGN	AWGN
NOTE 1: CPICH RSCP and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves. NOTE 2: For the UE which supports both Band III and Band IX operating frequencies, the measurement performance requirements for Band III shall apply to the multi-band UE. NOTE 3: The test parameter is modified by -1.5 dB when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.				
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for test 2 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.				

Each UTRAN FDD CPICH RSCP absolute measurement accuracy test shall meet the reported values test requirements in table 9.3.1.5-3.

Table 9.3.1.5-3: UTRAN FDD CPICH RSCP absolute measurement accuracy requirements for the reported values

	Test 1	Test 2				
	All bands	Band I, IV, VI, X, XI, XIX, XXI	Band II, V, VII	Band XXV, XXVI (Note 2)	Band III, VIII, XII, XIII, XIV, XX, XXII	Band IX (Note 1)
Normal Conditions						
Lowest reported value (Cell 2)	CPICH_RSCP_46	CPICH_RSCP_-04	CPICH_RSCP_-02	CPICH_RSCP_-01	CPICH_RSCP_-01	CPICH_RSCP_-03
Highest reported value (Cell 2)	CPICH_RSCP_63	CPICH_RSCP_9	CPICH_RSCP_11	CPICH_RSCP_13	CPICH_RSCP_12	CPICH_RSCP_10
Extreme Conditions						
Lowest reported value (Cell 2)	CPICH_RSCP_43	CPICH_RSCP_-05	CPICH_RSCP_-05	CPICH_RSCP_-04	CPICH_RSCP_-04	CPICH_RSCP_-05
Highest reported value (Cell 2)	CPICH_RSCP_66	CPICH_RSCP_12	CPICH_RSCP_14	CPICH_RSCP_16	CPICH_RSCP_15	CPICH_RSCP_13
NOTE 1: For a multiband UE supporting both Band III and Band IX, for Band IX apply the test requirements of Band III. (Reference Table 9.3.1.5-2, Note 2). NOTE 2: For a multiband UE supporting both Band V and Band XXVI, for Band XXVI when the carrier frequency of the assigned UTRA channel in is within 869-894 MHz apply the test requirements of Band V. (Reference Table 9.3.1.5-2, Note 3).						

9.3.2 E-UTRAN TDD - UTRA FDD CPICH RSCP absolute accuracy

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

9.3.2.1 Test purpose

To verify that the E-UTRAN TDD - UTRA FDD CPICH RSCP absolute measurement accuracy is within the specified limits.

9.3.2.2 Test applicability

This test applies to all types of E-UTRA TDD UE release 10 and forward that support UTRA FDD.

9.3.2.3 Minimum conformance requirements

The accuracy requirements shall be the same as the inter-frequency measurement accuracy requirements for FDD CPICH RSCP.

In RRC_CONNECTED state the accuracy requirements shall meet the absolute accuracy requirements in table 9.3.2.3-1.

Table 9.3.2.3-1: UTRAN FDD CPICH_RSCP absolute accuracy

Parameter	Unit	Accuracy [dB]		Conditions				
		Normal condition	Extreme condition	Band I, IV, VI, X XI, XIX and XXI	Band II, V and VII	Band XXV, XXVI	Band III, VIII, XII, XIII, XIV , XX and XXII	Band I
				Io [dBm/3,84 MHz]	Io [dBm/3,84 MHz]	Io [dBm/3,84 MHz]	Io [dBm/3,84 MHz]	Io [dBm/3,84
CPICH_RSCP	dBm	±6	±9	-94...-70	-92…-70	-90.5…-70 Note 1	-91…-70	-93...-7
	dBm	±8	±11	-70...-50	-70...-50	-70...-50	-70...-50	-70...-5
Note 1: For Band XXVI, the condition is -92…-70 dBm/3,84 MHz when the carrier frequency of the assigned UTRA channel is within 894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.								

If the UE, in RRC_CONNECTED state, needs measurement gaps to perform UTRAN FDD measurements, the UTRAN FDD measurement procedure and measurement gap pattern stated in TS 36.133 [4] clause 8.1.2.4.1 shall apply.

The reporting range and mapping specified for FDD CPICH RSCP is defined in Table 9.3.2.3-2. The range in the signalling may be larger than the guaranteed accuracy range.

Table 9.3.2.3-2: CPICH RSCP measurement report mapping

Reported value	Measured quantity value	Unit
CPICH_RSCP_LEV _-05	CPICH RSCP <-120	dBm
CPICH_RSCP_LEV _-04	-120 ≤ CPICH RSCP < -119	dBm
CPICH_RSCP_LEV _-03	-119 ≤ CPICH RSCP < -118	dBm
…	…	…
CPICH_RSCP_LEV _89	-27 ≤ CPICH RSCP < -26	dBm
CPICH_RSCP_LEV _90	-26 ≤ CPICH RSCP < -25	dBm
CPICH_RSCP_LEV _91	-25 ≤ CPICH RSCP	dBm

The normative reference for this requirement is TS 25.133 [21] clauses 9.1.1.2 and 9.1.1.3 and TS 36.133 [4] clause 9.2.1 and A.9.3.2.

9.3.2.4 Test description

9.3.2.4.1 Initial conditions

Test Environment: Normal, TL/VL, TL/VH, TH/VL, TH/VH; as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1.

Channel Bandwidth to be tested: 10MHz as defined in TS 36.508 [7] clause 4.3.1.

1. Connect the SS (node B emulator) and AWGN noise sources to the UE antenna connectors as shown in TS 36.508 [7] Annex A figure A.22.
2. The general test parameter settings are set up according to Table 9.3.2.4.1-1.
3. Propagation conditions are set according to Annex B clause B.0.
4. Message contents are defined in clause 9.3.2.4.3.
5. Cell 1 is the serving E-UTRAN TDD cell and Cell 2 is the target UTRAN FDD cell. Cell 1 is the cell used for connection setup with the power levels set according to Annex C.0 and C.1 for this test.

Table 9.3.2.4.1-1: General test parameters for UTRAN FDD CPICH RSCP absolute measurement accuracy test in E-UTRAN TDD

Parameter	Unit	Value	Comment
PDSCH parameters		DL Reference Measurement Channel R.0 TDD	As specified in section A.1.2
PCFICH/PDCCH/PHICH parameters		DL Reference Measurement Channel R.6 TDD	As specified in section A.2.1
E-UTRAN RF Channel Number		1	One E-UTRAN TDD carrier frequency is used.
UTRAN RF Channel Number		1	One UTRAN FDD carrier frequency is used.
E-UTRAN Channel Bandwidth ($BW_{channel}$)	MHz	10	
Active cell		Cell 1	E-UTRAN cell 1 on RF channel number 1
Neighbour cells		Cell 2	UTRAN cell 2 on RF channel number 1
Gap Pattern Id		1	As specified in 3GPP TS 36.133 section 8.1.2.1.
Inter-RAT (UTRAN FDD) measurement quantity		CPICH RSCP	
Monitored UTRA FDD cell list size		12	UTRA cells on UTRA RF channel 1 provided in the cell list.
CP length		Normal	
Filter coefficient		0	L3 filtering is not used
DRX		OFF	OFF

9.3.2.4.2 Test procedure

1. Ensure the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.
2. Set the parameters according to Table 9.3.2.5-1 as appropriate. Propagation conditions are set according to Annex B clause B.1.1.
3. SS shall transmit an RRCConnectionReconfiguration message on Cell 1.
4. The UE shall transmit RRCConnectionReconfigurationComplete message.
5. UE shall transmit periodically MeasurementReport messages.
6. SS shall check CPICH_RSCP reported values of Cell 2 in MeasurementReport messages according to Table 9.3.2.5-3.
7. SS shall check the MeasurementReport message transmitted by the UE until the confidence level according to Tables G.2.3-1 in Annex G.2 is achieved.
8. Repeat step 1-7 for each sub-test in Table 9.3.2.5-1 as appropriate.

9.3.2.4.3 Message contents

Message contents are according to TS 36.508 [7] values 4.6 with the following exceptions:

Table 9.3.2.4.3-1: *MeasConfig- DEFAULT:* Additional E-UTRAN TDD - UTRA FDD CPICH RSCP absolute accuracy test requirement

Derivation Path: TS 36.508 [7] clause 4.6.6, Table 4.6.6-1 MeasConfig-DEFAULT:			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasConfig-DEFAULT ::= SEQUENCE {			
measObjectToRemoveList	Not present		
measObjectToAddModList SEQUENCE (SIZE (1..maxObjectId)) OF SEQUENCE {	2 entry		
MeasObjectToAddMod SEQUENCE {			
measObjectId	IdMeasObject-f1		
measObject CHOICE {			
measObject EUTRA	MeasObjectEUTRA-GENERIC(f1)	E-UTRA Cell	
}			
}			
MeasObjectToAddMod SEQUENCE {			
measObjectId	IdMeasObject-f8		
measObject CHOICE {			
measObjectUTRA	MeasObjectUTRA-GENERIC(f8)	UTRA Cell	
}			
}			
}			
reportConfigToRemoveList	Not present		
reportConfigToAddModList SEQUENCE (SIZE (1..maxReportConfigId))OF SEQUENCE {	1 entry		
reportConfigId	idReportConfig-P		
reportConfig	ReportConfigEUTRA-PERIODICAL		
}			
measIdToRemoveList	Not present		
measIdToAddModList SEQUENCE (SIZE (1..maxMeasId)) of SEQUENCE {	1 entry		
measId	1		
measObjectId	IdMeasObject-f8		
reportConfigId	idReportConfig-P		
}			
quantityConfig	QuantityConfig-DEFAULT		
measGapConfig	MeasGapConfig-GP2		
s-Measure	Not present		
preRegistrationInfoHRPD	Not present		
speedStatePars	Not present		
}			

Table 9.3.2.4.3-2: *MeasResults*: Additional E-UTRAN TDD - UTRA FDD CPICH RSCP absolute accuracy test requirement

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResults ::= SEQUENCE {			
measId	1		
measResultServCell			
rsrpResult	INTEGER(0..97)		
rsrqResult	INTEGER(0..34)		
}			
measResultNeighCells CHOICE {			
measResultListUTRA	MeasResultListUTRA		
}			
}			

Table 9.3.2.4.3-3: MeasResultListUTRA: Additional E-UTRAN TDD - UTRA FDD CPICH RSCP absolute accuracy test requirement

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResultsLIstEUTRA ::= SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {			
physCellId CHOICE {			
fdd	PhysCellIdUTRA-FDD		
tdd	Not Present		
}			
cgi-Info SEQUENCE {			
cellGlobalId	CellGlobalIdUTRA		
locationAreaCode	LocationAreaCode		
routingAreaCode	RoutingAreaCode		
plmn-IdentityList	Not present		
}			
measResult SEQUENCE {			
utra-RSCP	According to specific test		
}			
}			

9.3.2.5 Test requirement

The test parameters are given in Tables 9.3.2.4.1-1, 9.3.2.5-1 and 9.3.2.5-2 as below. Table 9.3.2.5-2 and 9.3.2.5-3 define the primary level settings including test tolerances for all tests.

Each UTRAN FDD CPICH RSCP absolute measurement accuracy test shall meet the reported values test requirements in table 9.3.2.5-3.

Table 9.3.2.5-1: E-UTRAN TDD cell specific test parameters for UTRAN FDD CPICH RSCP absolute measurement accuracy test in E-UTRAN TDD

Parameter	Unit	Test 1	Test 2
E-UTRAN RF Channel Number		1	
$BW_{channel}$	MHz	10	
Special subframe configuration Note1		6	
Uplink-downlink configuration Note1		1	
OCNG Patterns defined in D.2.1 (OP.1 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 2	dB		
OCNG_RB Note 2	dB		
N_{oc} Note 3	dBm/15 kHz	-98	
RSRP Note 4	dBm/15 kHz	-94	
$\hat{E}_s/I_{ot}$	dB	4	
SCH_RP Note 4	dBm/15 kHz	-94	
$\hat{E}_s/N_{oc}$	dB	4	
Propagation Condition		AWGN	
Note 1: For special subframe and uplink-downlink configurations see Tables 4.2-1 and 4.2-2 in 3GPP TS 36.211. Note 2: OCNG shall be used such that all cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols. Note 3: 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 4: RSRP and SCH_RP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.			

Table 9.3.2.5-2: UTRAN FDD cell specific test parameters for UTRAN FDD CPICH RSCP absolute measurement accuracy test in E-UTRAN TDD

Parameter		Unit	Test 1	Test 2
			Cell 2	Cell 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	-	-
OCNS_Ec/Ior		dB	-0.94	-0.94
Ioc	Band I, IV, VI, X, XI, XIX, XXI	dBm/3.84 MHz	-60. 75	-93.76
	Band II, V, VII			-91.76
	Band XXV, XXVI			-90.26 (Note 3)
	Band III, VIII, XII, XIII, XIV, XXII			-90.76
	Band IX (Note 2)			-92.76
Îor/Ioc		dB	9.54	-9.19
CPICH RSCP, Note 1	Band I, IV, VI, X, XI, XIX, XXI	dBm	-61.21	-112.95
	Band II, V, VII			-110.95
	Band XXV, XXVI			-109.45 (Note 3)
	Band III, VIII, XII, XIII, XIV, XXII			-109.95
	Band IX (Note 2)			-111.95
Io, Note 1	Band I, IV, VI, X, XI, XIX, XXI	dBm/3.84 MHz	-50. 75	-93.27
	Band II, V, VII			-91.27
	Band XXV, XXVI			-89.77 (Note 3)
	Band III, VIII, XII, XIII, XIV, XXII			-90.27
	Band IX (Note 2)			-92.27
Propagation condition		-	AWGN	AWGN
NOTE 1: CPICH RSCP and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves. NOTE 2: For the UE which supports both Band III and Band IX operating frequencies, the measurement performance requirements for Band III shall apply to the multi-band UE. NOTE 3: The test parameter is modified by -1.5 dB when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.				
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for test 2 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.				

Table 9.3.2.5-3: UTRAN FDD CPICH RSCP absolute measurement accuracy requirements for the reported values

	Test 1	Test 2				
	All bands	Band I, IV, VI, X, XI, XIX, XXI	Band II, V, VII	Band XXV, XXVI	Band III, VIII, XII, XIII, XIV, XX, XXII	Band IX
Normal Conditions						
Lowest reported value (Cell 2)	CPICH_RSCP_46	CPICH_RSCP_-04	CPICH_RSCP_-02	CPICH_RSCP_-01	CPICH_RSCP_-01	CPICH_RSCP_-03
Highest reported value (Cell 2)	CPICH_RSCP_63	CPICH_RSCP_9	CPICH_RSCP_11	CPICH_RSCP_13	CPICH_RSCP_12	CPICH_RSCP_10
Extreme Conditions						
Lowest reported value (Cell 2)	CPICH_RSCP_43	CPICH_RSCP_-05	CPICH_RSCP_-05	CPICH_RSCP_-04	CPICH_RSCP_-04	CPICH_RSCP_-05
Highest reported value (Cell 2)	CPICH_RSCP_66	CPICH_RSCP_12	CPICH_RSCP_14	CPICH_RSCP_16	CPICH_RSCP_15	CPICH_RSCP_13

9.4 UTRAN FDD CPICH Ec/No

9.4.1 E-UTRAN FDD - UTRA FDD CPICH Ec/No absolute accuracy

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

9.4.1.1 Test purpose

To verify that the E-UTRAN FDD - UTRA FDD CPICH Ec/No absolute measurement accuracy is within the specified limits.

9.4.1.2 Test applicability

This test applies to all types of E-UTRA FDD UE release 9 and forward that support UTRA FDD.

9.4.1.3 Minimum conformance requirements

The accuracy requirements shall be the same as the inter-frequency measurement accuracy requirements for FDD CPICH Ec/No

The accuracy requirements in table 9.4.1.3-1 are valid under the following conditions:

$CPICH\_RSCP|_{dBm} \geq -114$ dBm for Bands I, IV, VI, X, XI, XIX and XXI

$CPICH\_RSCP|_{dBm} \geq -113$ dBm for Band IX,

$CPICH\_RSCP|_{dBm} \geq -112$ dBm for Bands II, V and VII,

$CPICH\_RSCP|_{dBm} \geq -111$ dBm for Band III, VIII, XII, XIII, XIV, XX and XXII

$CPICH\_RSCP|_{dBm} \geq -110.5$ dBm for Band XXV.

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

Table 9.4.1.3-1: UTRA FDD CPICH_Ec/Io absolute accuracy

Parameter	Unit	Accuracy [dB]		Conditions				
		Normal condition	Extreme condition	Band I, IV VI, X, XI, XIX and XXI	Band II, V and VII	Band XXV and XXVI	Band III, VIII, XII, XIII, XIV, XX and XXII	Band IX
				Io [dBm/3,84 MHz]	Io [dBm/3,84 MHz]	Io [dBm/3,84 MHz]	Io [dBm/3,84 MHz]	Io [dBm/3,84 MHz]
CPICH_Ec/Io	dB	± 1.5 for -14 ≤ CPICH Ec/Io ± 2 for -16 ≤ CPICH Ec/Io < -14 ± 3 for -20 ≤ CPICH Ec/Io < -16	± 3	-94...-50	-92…-50	-90.5…-50 (Note 1)	-91…-50	-93...-50
NOTE 1: The condition is -92…-50 dBm/3.84 MHz when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.								

If the UE, in RRC_CONNECTED state, needs measurement gaps to perform UTRAN FDD measurements, the UTRAN FDD measurement procedure and measurement gap pattern stated in TS 36.133 [4] clause 8.1.2.4.1 shall apply.

The reporting range is for *CPICH Ec/Io* is from -24 ...0 dB.

In table 9.4.1.3-2 the mapping of measured quantity is defined.

The range in the signalling may be larger than the guaranteed accuracy range.

Table 9.4.1.3-2: UTRA FDD CPICH_Ec/Io measurement report mapping

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

The normative reference for this requirement is TS 25.133 [21] clauses 9.1.2.2.1 and 9.1.2.3 and TS 36.133 [4] clause 9.2.3 and A.9.4.1.

9.4.1.4 Test description

9.4.1.4.1 Initial conditions

Test Environment: Normal, TL/VL, TL/VH, TH/VL, TH/VH; as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1.

Channel Bandwidth to be tested: 10MHz as defined in TS 36.508 [7] clause 4.3.1.

1. Connect the SS (node B emulator) and AWGN noise sources to the UE antenna connectors as shown in TS 36.508 [7] Annex A figure A.22.
2. Propagation conditions are set according to Annex B clause B.0.
3. Message contents are defined in clause 9.4.1.4.3.
4. Cell 1 is the serving cell and Cell 2 is the target cell. Cell 1 is the cell used for connection setup with the power levels set according to Annex C.0 and C.1 for this test.

9.4.1.4.2 Test procedure

1. Ensure the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.
2. Set the parameters according to Table 9.4.1.5-2 as appropriate. Propagation conditions are set according to Annex B clause B.1.1.
3. SS shall transmit an RRCConnectionReconfiguration message on cell1.
4. The UE shall transmit RRCConnectionReconfigurationComplete message.
5. UE shall transmit periodically MeasurementReport messages.
6. SS shall check UTRA FDD CPICH Ec/Io reported values of Cell 2 in MeasurementReport messages according to Table 9.4.1.5-4.
7. SS shall check the MeasurementReport message transmitted by the UE until the confidence level according to Tables G.2.3-1 in Annex G.2 is achieved.
8. Repeat step 1-7 for each sub-test in Table 9.4.1.5-2 as appropriate.

9.4.1.4.3 Message contents

Message contents are according to TS 36.508 [7] clause 4.6 with the following exceptions:

Table 9.4.1.4.3-1: CPICH_Ec/Io measurement configuration

Default Message Contents	
Common contents of system information blocks exceptions	
Default RRC messages and information elements contents exceptions	Table H.3.1-7

Table 9.4.1.4.3-2: *MeasConfig- DEFAULT:* CPICH_Ec/Io measurement configuration

Derivation Path: TS 36.508 [7] clause 4.6.6, Table 4.6.6-1 MeasConfig-DEFAULT:			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasConfig-DEFAULT ::= SEQUENCE {			
measObjectToRemoveList	Not present		
measObjectToAddModList SEQUENCE (SIZE (1..maxObjectId)) OF SEQUENCE {	2 entry		
MeasObjectToAddMod SEQUENCE {			
measObjectId	IdMeasObject-f1		
measObject CHOICE {			
measObject EUTRA	MeasObjectEUTRA-GENERIC(f1)	E-UTRA Cell	
}			
}			
MeasObjectToAddMod SEQUENCE {			
measObjectId	IdMeasObject-f2		
measObject CHOICE {			
measObjectUTRA	MeasObjectUTRA-GENERIC(f2)	UTRA Cell	
}			
}			
}			
reportConfigToRemoveList	Not present		
reportConfigToAddModList SEQUENCE (SIZE (1..maxReportConfigId))OF SEQUENCE {	1 entry		
reportConfigId	idReportConfig-P		
reportConfig	ReportConfigInterRAT-PERIODICAL		
}			
measIdToRemoveList	Not present		
measIdToAddModList SEQUENCE (SIZE (1..maxMeasId)) of SEQUENCE {	1 entry		
measId	1		
measObjectId	IdMeasObject-f2		
reportConfigId	idReportConfig-P		
}			
quantityConfig	QuantityConfig-DEFAULT		
measGapConfig	MeasGapConfig-GP1		
s-Measure	Not present		
preRegistrationInfoHRPD	Not present		
speedStatePars	Not present		
}			

Table 9.4.1.4.3-3: *MeasResults*: CPICH_Ec/Io measurement configuration

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResults ::= SEQUENCE {			
measId	1		
measResultServCell			
rsrpResult	INTEGER(0..97)		
rsrqResult	INTEGER(0..34)		
}			
measResultNeighCells CHOICE {			
measResultListUTRA	MeasResultListUTRA		
}			
}			

Table 9.4.1.4.3-4: MeasResultListUTRA: CPICH_Ec/Io measurement configuration

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResultsListUTRA ::= SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {			
physCellId CHOICE {			
fdd	PhysCellIdUTRA-FDD		
tdd	Not Present		
}			
measResult SEQUENCE {			
utra-EcN0	According to specific test		
}			
}			

9.4.1.5 Test requirement

The test parameters are given in Tables 9.4.1.5-1, 9.4.1.5-2 and 9.4.1.5-3 as below. Table, 9.4.1.5-2 and 9.4.1.5-3 define the primary level settings including test tolerances for all tests.

Table 9.4.1.5-1: General test parameters for UTRAN FDD CPICH Ec/No absolute measurement accuracy test in E-UTRAN FDD

Parameter	Unit	Value	Comment
PDSCH parameters		DL Reference Measurement Channel R.0 FDD	As specified in section A.1.1
PCFICH/PDCCH/PHICH parameters		DL Reference Measurement Channel R.6 FDD	As specified in section A. 2.1
E-UTRAN RF Channel Number		1	One E-UTRAN FDD carrier frequency is used.
UTRAN RF Channel Number		1	One UTRAN FDD carrier frequency is used.
E-UTRAN Channel Bandwidth ($BW_{channel}$)	MHz	10	
Active cell		Cell 1	E-UTRAN cell 1 on RF channel number 1
Neighbour cells		Cell 2	UTRAN cell 2 on RF channel number 1
Gap Pattern Id		0	As specified in 3GPP TS 36.133[4] section 8.1.2.1.
Inter-RAT (UTRAN FDD) measurement quantity		CPICH Ec/N0	
Monitored UTRA FDD cell list size		12	UTRA cells on UTRA RF channel 1 provided in the cell list.
CP length		Normal	
Filter coefficient		0	L3 filtering is not used
DRX		OFF	OFF

Table 9.4.1.5-2: E-UTRAN FDD cell specific test parameters for UTRAN FDD CPICH Ec/No absolute measurement accuracy test in E-UTRAN FDD

Parameter	Unit	Test 1	Test 2	Test 3
E-UTRAN RF Channel Number		1		
$BW_{channel}$	MHz	10		
OCNG Patterns defined in D.1.1 (OP.1 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			
N_{oc} Note 2	dBm/15 kHz	-98		
RSRP Note 3	dBm/15 kHz	-94		
$\hat{E}_s/I_{ot}$	dB	4		
SCH_RP Note 3	dBm/15 kHz	-94		
$\hat{E}_s/N_{oc}$	dB	4		
Propagation Condition		AWGN		

Note 1: OCNG shall be used such that all 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 SCH_RP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.

Table 9.4.1.5-3: UTRAN FDD cell specific test parameters for UTRAN FDD CPICH Ec/No absolute measurement accuracy test in E-UTRAN FDD

Parameter		Unit	Test 1	Test 2	Test 3
			Cell 2	Cell 2	Cell 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	-	-	-
OCNS_Ec/Ior		dB	-0.94	-0.94	-0.94
Ioc	Band I, IV, VI, X, XI, XIX, XXI	dBm/ 3.84 MHz	-53.12	-87.27	-93.76
	Band II, V, VII				-91.76
	Band XXV, XXVI				-90.26 (Note 3)
	Band III, VIII, XII, XIII, XIV, XX, XXII				-90.76
	Band IX (Note 2)				-92.76
Îor/Ioc		dB	-1.45	-4.4	-9.14
CPICH Ec/Io, Note 1		dBm	-13.8	-15.75	-19.64
Io, Note 1	Band I, IV, VI, X, XI, XIX, XXI	dBm/ 3.84 MHz	-50.77	-85.92	-93.26
	Band II, V, VII				-91.26
	Band XXV, XXVI				-89.76 (Note 3)
	Band III, VIII, XII, XIII, XIV, XX, XXII				-90.26
	Band IX (Note 2)				-92.26
Propagation condition		-	AWGN	AWGN	AWGN

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

NOTE 2: For the UE which supports both Band III and Band IX operating frequencies, the measurement performance requirements for Band III shall apply to the multi-band UE.

NOTE 3: The test parameter is modified by -1.5 dB when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.

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

Each UTRAN FDD CPICH Ec/No absolute measurement accuracy test shall meet the reported values test requirements in table 9.4.1.5-4.

Table 9.4.1.5-4: UTRAN FDD CPICH Ec/No absolute measurement accuracy requirements for the reported values

	Test 1	Test 2	Test 3
Normal Conditions			
Lowest reported value	CPICH_Ec/No_17	CPICH_Ec/No_13	CPICH_Ec/No_3
Highest reported value	CPICH_Ec/No_24	CPICH_Ec/No_22	CPICH_Ec/No_16
Extreme Conditions			
Lowest reported value	CPICH_Ec/No_X14	CPICH_Ec/No_11	CPICH_Ec/No_3
Highest reported value	CPICH_Ec/No_27	CPICH_Ec/No_24	CPICH_Ec/No_16

9.4.2 E-UTRAN TDD - UTRA FDD CPICH Ec/No absolute accuracy

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

9.4.2.1 Test purpose

To verify that the E-UTRAN TDD - UTRA FDD CPICH Ec/No absolute measurement accuracy is within the specified limits.

9.4.2.2 Test applicability

This test applies to all types of E-UTRA TDD UE release 10 and forward that support UTRA FDD.

9.4.2.3 Minimum conformance requirements

The accuracy requirements shall be the same as the inter-frequency measurement accuracy requirements for FDD CPICH Ec/No.

The accuracy requirements in table 9.4.2.3-1 are valid under the following conditions:

$CPICH\_RSCP|_{dBm} \geq -114$ dBm for Bands I, IV, VI, X, XI, XIX and XXI,

$CPICH\_RSCP|_{dBm} \geq -113$ dBm for Band IX

$CPICH\_RSCP|_{dBm} \geq -112$ dBm for Bands II, V and VII,

$CPICH\_RSCP|_{dBm} \geq -111$ dBm for Band III, VIII, XII, XIII, XIV and XX,

$CPICH\_RSCP|_{dBm} \geq -110.5$ dBm for Band XXV.

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

Table 9.4.2.3-1: UTRAN FDD CPICH_Ec/Io absolute accuracy

Parameter	Unit	Accuracy [dB]		Conditions				
		Normal condition	Extreme condition	Band I, IV, VI, X, XI, XIX and XXI	Band II, V and VII	Band XXV and XXVI	Band III, VIII, XII, XIII, XIV, XX and XXII	Band IX
				Io [dBm/3,84 MHz]	Io [dBm/3,84 MHz]	Io [dBm/3,84 MHz]	Io [dBm/3,84 MHz]	Io [dBm/3,84 MHz]
CPICH_Ec/Io	dB	± 1.5 for -14 ≤ CPICH Ec/Io ± 2 for -16 ≤ CPICH Ec/Io < -14 ± 3 for -20 ≤ CPICH Ec/Io < -16	± 3	-94...-50	-92…-50	-90.5...-50 (Note 1)	-91…-50	-93...-50
NOTE 1: The condition is -92…-50 dBm/3.84 MHz when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.								

If the UE, in RRC_CONNECTED state, needs measurement gaps to perform UTRAN FDD measurements, the UTRAN FDD measurement procedure and measurement gap pattern stated in TS 36.133 [4] clause 8.1.2.4.1 shall apply.

The reporting range is for *CPICH Ec/Io* is from -24 ...0 dB.

In table 9.4.2.3-2 the mapping of measured quantity is defined. The range in the signalling may be larger than the guaranteed accuracy range.

Table 9.4.2.3-2: UTRAN FDD CPICH_Ec/Io measurement report mapping

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

The normative reference for this requirement is TS 25.133 [21] clauses 9.1.2.2.1 and 9.1.2.3 and TS 36.133 [4] clause 9.2.3 and A.9.4.2.

9.4.2.4 Test description

9.4.2.4.1 Initial conditions

Test Environment: Normal, TL/VL, TL/VH, TH/VL, TH/VH; as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1.

Channel Bandwidth to be tested: 10MHz as defined in TS 36.508 [7] clause 4.3.1.

1. Connect the SS (node B emulator) and AWGN noise sources to the UE antenna connectors as shown in TS 36.508 [7] Annex A figure A.22.
2. The general test parameter settings are set up according to Table 9.4.2.4.1-1.
3. Propagation conditions are set according to Annex B clause B.0.
4. Message contents are defined in clause 9.4.2.4.3.
5. Cell 1 is the serving E-UTRAN TDD cell and Cell 2 is the target UTRAN FDD cell. Cell 1 is the cell used for connection setup with the power levels set according to Annex C.0 and C.1 for this test.

Table 9.4.2.4.1-1: General test parameters for UTRAN FDD CPICH Ec/No absolute measurement accuracy test in E-UTRAN TDD

Parameter	Unit	Value	Comment
PDSCH parameters		DL Reference Measurement Channel R.0 TDD	As specified in section A.1.2
PCFICH/PDCCH/PHICH parameters		DL Reference Measurement Channel R.6 TDD	As specified in section A.2.2
E-UTRAN RF Channel Number		1	One E-UTRAN TDD carrier frequency is used.
UTRAN RF Channel Number		1	One UTRAN FDD carrier frequency is used.
E-UTRAN Channel Bandwidth ($BW_{channel}$)	MHz	10	
Active cell		Cell 1	E-UTRAN cell 1 on RF channel number 1
Neighbour cells		Cell 2	UTRAN cell 2 on RF channel number 1
Gap Pattern Id		0	As specified in 3GPP TS 36.133 section 8.1.2.1.
Inter-RAT (UTRAN FDD) measurement quantity		CPICH Ec/N0	
Monitored UTRA FDD cell list size		12	UTRA cells on UTRA RF channel 1 provided in the cell list.
CP length		Normal	
Filter coefficient		0	L3 filtering is not used
DRX		OFF	OFF

9.4.2.4.2 Test procedure

1. Ensure the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.
2. Set the parameters according to Table 9.4.2.5-1 as appropriate. Propagation conditions are set according to Annex B clause B.1.1.
3. SS shall transmit an RRCConnectionReconfiguration message on Cell 1.
4. The UE shall transmit RRCConnectionReconfigurationComplete message.
5. UE shall transmit periodically MeasurementReport messages.
6. SS shall check CPICH_Ec/Io reported values of Cell 2 in MeasurementReport messages according to Table 9.4.2.5-3.
7. SS shall check the MeasurementReport message transmitted by the UE until the confidence level according to Tables G.2.3-1 in Annex G.2 is achieved.
8. Repeat step 1-7 for each sub-test in Table 9.4.2.5-1 as appropriate.

9.4.2.4.3 Message contents

Message contents are according to TS 36.508 [7] values 4.6 with the following exceptions:

Table 9.4.2.4.3-1: *MeasConfig- DEFAULT:* Additional E-UTRAN TDD - UTRA FDD CPICH Ec/No absolute accuracy test requirement

Derivation Path: TS 36.508 [7] clause 4.6.6, Table 4.6.6-1 MeasConfig-DEFAULT:			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasConfig-DEFAULT ::= SEQUENCE {			
measObjectToRemoveList	Not present		
measObjectToAddModList SEQUENCE (SIZE (1..maxObjectId)) OF SEQUENCE {	2 entry		
MeasObjectToAddMod SEQUENCE {			
measObjectId	IdMeasObject-f1		
measObject CHOICE {			
measObject EUTRA	MeasObjectEUTRA-GENERIC(f1)	E-UTRA Cell	
}			
}			
MeasObjectToAddMod SEQUENCE {			
measObjectId	IdMeasObject-f8		
measObject CHOICE {			
measObjectUTRA	MeasObjectUTRA-GENERIC(f8)	UTRA Cell	
}			
}			
}			
reportConfigToRemoveList	Not present		
reportConfigToAddModList SEQUENCE (SIZE (1..maxReportConfigId))OF SEQUENCE {	1 entry		
reportConfigId	idReportConfig-P		
reportConfig	ReportConfigEUTRA-PERIODICAL		
}			
measIdToRemoveList	Not present		
measIdToAddModList SEQUENCE (SIZE (1..maxMeasId)) of SEQUENCE {	1 entry		
measId	1		
measObjectId	IdMeasObject-f8		
reportConfigId	idReportConfig-P		
}			
quantityConfig	QuantityConfig-DEFAULT		
measGapConfig	MeasGapConfig-GP1		
s-Measure	Not present		
preRegistrationInfoHRPD	Not present		
speedStatePars	Not present		
}			

Table 9.4.2.4.3-2: *MeasResults*: Additional E-UTRAN TDD - UTRA FDD CPICH Ec/No absolute accuracy test requirement

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResults ::= SEQUENCE {			
measId	1		
measResultServCell			
rsrpResult	INTEGER(0..97)		
rsrqResult	INTEGER(0..34)		
}			
measResultNeighCells CHOICE {			
measResultListUTRA	MeasResultListUTRA		
}			
}			

Table 9.4.2.4.3-3: MeasResultListUTRA: Additional E-UTRAN TDD - UTRA FDD CPICH Ec/No absolute accuracy test requirement

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResultsLIstEUTRA ::= SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {			
physCellId CHOICE {			
fdd	PhysCellIdUTRA-FDD		
tdd	Not Present		
}			
measResult SEQUENCE {			
utra-EcN0	According to specific test		
}			
}			

9.4.2.5 Test requirement

The test parameters are given in Tables 9.4.2.4.1-1, 9.4.2.5-1 and 9.4.2.5-2 as below. Table 9.4.2.5-1 and 9.4.2.5-2 define the primary level settings including test tolerances for all tests.

Each UTRAN FDD CPICH Ec/No absolute measurement accuracy test shall meet the reported values test requirements in table 9.4.2.5-3.

Table 9.4.2.5-1: E-UTRAN TDD cell specific test parameters for UTRAN FDD CPICH Ec/No absolute measurement accuracy test in E-UTRAN TDD

Parameter	Unit	Test 1	Test 2	Test 3
E-UTRAN RF Channel Number		1		
$BW_{channel}$	MHz	10		
Special subframe configuration Note1		6		
Uplink-downlink configuration Note1		1		
OCNG Patterns defined in D.2.1 (OP.1 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 2	dB			
OCNG_RB Note 2	dB			
N_{oc} Note 3	dBm/15 kHz	-98		
RSRP Note 4	dBm/15 kHz	-94		
$\hat{E}_s/I_{ot}$	dB	4		
SCH_RP Note 4	dBm/15 kHz	-94		
$\hat{E}_s/N_{oc}$	dB	4		
Propagation Condition		AWGN		

Note 1: For special subframe and uplink-downlink configurations see Tables 4.2-1 and 4.2-2 in 3GPP TS 36.211.
Note 2: OCNG shall be used such that all cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols.
Note 3: 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 4: RSRP and SCH_RP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.

Table 9.4.2.5-2: UTRAN FDD cell specific test parameters for UTRAN FDD CPICH Ec/No absolute measurement accuracy test in E-UTRAN TDD

Parameter		Unit	Test 1	Test 2	Test 3
			Cell 2	Cell 2	Cell 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	-	-	-
OCNS_Ec/Ior		dB	-0.94	-0.94	-0.94
Ioc	Band I, IV, VI, X, XIX	dBm/ 3.84 MHz	-53.12	-87.27	-93.76
	Band II, V, VII, XI				-91.76
	Band XXV, XXVI				-90.26 (Note 3)
	Band III, VIII, XII, XIII, XIV, XXII				-90.76
	Band IX (Note 2)				-92.76
Îor/Ioc		dB	-1.45	-4.4	-9.14
CPICH Ec/Io, Note 1		dBm	-13.8	-15.75	-19.64
Io, Note 1	Band I, IV, VI, X, XIX	dBm/ 3.84 MHz	-50.77	-85.92	-93.26
	Band II, V, VII, XI				-91.26
	Band XXV, XXVI				-89.76 (Note 3)
	Band III, VIII, XII, XIII, XIV, XXII				-90.26
	Band IX (Note 2)				-92.26
Propagation condition		-	AWGN	AWGN	AWGN

NOTE 1: CPICH Ec/Io and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.
NOTE 2: For the UE which supports both Band III and Band IX operating frequencies, the measurement performance requirements for Band III shall apply to the multi-band UE.
NOTE 3: The test parameter is modified by -1.5 dB when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.

Table 9.4.2.5-3: UTRAN FDD CPICH Ec/No absolute measurement accuracy requirements for the reported values

	Test 1	Test 2	Test 3
Normal Conditions			
Lowest reported value	CPICH_Ec/No_17	CPICH_Ec/No_13	CPICH_Ec/No_3
Highest reported value	CPICH_Ec/No_24	CPICH_Ec/No_22	CPICH_Ec/No_16
Extreme Conditions			
Lowest reported value	CPICH_Ec/No_14	CPICH_Ec/No_11	CPICH_Ec/No_3
Highest reported value	CPICH_Ec/No_27	CPICH_Ec/No_24	CPICH_Ec/No_16

9.5 UTRAN TDD P-CCPCH RSCP

9.5.1 E-UTRAN FDD – UTRA TDD P-CCPCH RSCP absolute accuracy

9.5.1.1 Test purpose

To verify that the UTRAN TDD P-CCPCH RSCP absolute measurement accuracy is within the specified limits.

9.5.1.2 Test applicability

This test applies to all types of E-UTRA FDD UE release 9 and forward that support UTRA TDD.

9.5.1.3 Minimum conformance requirements

In RRC_CONNECTED state the accuracy requirements shall be the same as the inter-frequency measurement accuracy requirements for URAN TDD P-CCPCH RSCP in 3GPP TS 25.123 [22].

The accuracy requirements in table 9.5.1.3-1 are valid under the following conditions:

P-CCPCH RSCP ≥ -102 dBm

P-CCPCH Ec/Io ≥ -8 dB

DwPCH_Ec/Io ≥ -5 dB

Table 9.5.1.3-1: UTRAN TDD P-CCPCH absolute accuracy

Parameter	Unit	Accuracy [dB]		Conditions
		Normal condition	Extreme condition	Io [dBm/ 1.28 MHz]
P-CCPCH_RSCP	dBm	± 6	± 9	-94...-70
	dBm	± 8	± 11	-70...-50

If the UE, in RRC_CONNECTED state, needs measurement gaps to perform UTRAN TDD measurements, the UTRAN TDD measurement procedure and measurement gap pattern stated in TS 36.133 [4] clause 8.1.2.4.3 shall apply.

The reporting range is for URAN TDD P-CCPCH RSCP is from -115 …-25 dBm.

In table 9.5.1.3-2 the mapping of measured quantity is defined.

The range in the signalling may be larger than the guaranteed accuracy range.

Table 9.5.1.3-2: UTRAN TDD P-CCPCH absolute accuracy measurement report mapping

Reported value	Measured quantity value	Unit
P-CCPCH RSCP_LEV _-05	P-CCPCH RSCP <-120	dBm
P-CCPCH RSCP_LEV _-04	-120 ≤ P-CCPCH RSCP < -119	dBm
P-CCPCH RSCP_LEV _-03	-119 ≤ P-CCPCH RSCP < -118	dBm
…	…	…
PCCPCH_RSCP_LEV _89	-27 ≤ PCCPCH RSCP< -26	dBm
PCCPCH_RSCP_LEV _90	-26 ≤ PCCPCH RSCP< -25	dBm
PCCPCH_RSCP_LEV _91	-25 ≤ PCCPCH RSCP	dBm

The normative reference for this requirement is TS 25.123 [22] clause 9.1.1.1.1.2, clause 9.1.1.1.3 and TS 36.133 [4] clause 9.3.1 and A.9.5.1.

9.5.1.4 Test description

9.5.1.4.1 Initial conditions

Test Environment: Normal, TL/VL, TL/VH, TH/VL, TH/VH; as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1.

Channel Bandwidth to be tested: 10MHz as defined in TS 36.508 [7] clause 4.3.1.

1. Connect the SS (node B emulator) and AWGN noise sources to the UE antenna connectors as shown in TS 36.508 [7] Annex A figure A.22.

2. The general test parameter settings are set up according to Table 9.5.1.4.1-1.

3. Propagation conditions are set according to Annex B clause B.0.

4. Message contents are defined in clause 9.5.1.4.3.

5. Cell 1 is the serving E-UTRAN FDD cell and Cell 2 is the target UTRAN TDD cell. Cell 1 is the cell used for connection setup with the power levels set according to Annex C.0 and C.1 for this test.

Table 9.5.1.4.1-1: General test parameters for UTRAN TDD P-CCPCH RSCP absolute measurement accuracy test in E-UTRAN FDD

Parameter	Unit	Value	Comment
PDSCH parameters		DL Reference Measurement Channel R.0 FDD	As specified in section A.1.1
PCFICH/PDCCH/PHICH parameters		DL Reference Measurement Channel R.6 FDD	As specified in section A.2.1
E-UTRAN RF Channel Number		1	One E-UTRAN FDD carrier frequency is used.
UTRAN RF Channel Number		2	One UTRAN TDD carrier frequency is used.
E-UTRAN Channel Bandwidth (BWchannel)	MHz	10	
Active cell		Cell 1	E-UTRA FDD cell1 on RF channel number 1
Neighbour cell		Cell 2	1.28Mcps UTRA TDD Cell2 on RF channel number 2
Gap Pattern Id		1	As specified in 3GPP TS 36.133 [4] section 8.1.2.1.
CP length of cell 1		Normal	
Filter coefficient		0	L3 filtering is not used
DRX		OFF	
Inter-RAT (UTRAN TDD) measurement quantity		P-CCPCH RSCP	

9.5.1.4.2 Test procedure

1. Ensure the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.

2. Set the parameters according to Table 9.5.1.5-1 as appropriate. Propagation conditions are set according to Annex B clause B.1.1.

3. SS shall transmit an RRCConnectionReconfiguration message on Cell 1.

4. The UE shall transmit RRCConnectionReconfigurationComplete message.

5. UE shall transmit periodically MeasurementReport messages.

6. SS shall check P-CCPCH RSCP reported values of Cell 2 in MeasurementReport messages according to Table 9.5.1.5-3.

7. SS shall check the MeasurementReport message transmitted by the UE until the confidence level according to Tables G.2.3-1 in Annex G.2 is achieved.

8. Repeat step 1-7 for each sub-test in Table 9.5.1.5-1 as appropriate.

9.5.1.4.3 Message contents

Message contents are according to TS 36.508 [7] clause 4.6 with the following exceptions:

Table 9.5.1.4.3-1: Common Exception messages for E-UTRAN FDD - UTRA TDD P-CCPCH RSCP absolute accuracy test requirement

Default Message Contents	
Common contents of system information blocks exceptions	
Default RRC messages and information elements contents exceptions	Table H.3.1-1 Table H.3.1-7

Table 9.5.1.4.3-2: *MeasConfig- DEFAULT:* Additional E-UTRAN FDD - UTRA TDD P-CCPCH RSCP absolute accuracy test requirement

Derivation Path: TS 36.508 [7] clause 4.6.6, Table 4.6.6-1 MeasConfig-DEFAULT:			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasConfig-DEFAULT ::= SEQUENCE {			
measObjectToRemoveList	Not present		
measObjectToAddModList SEQUENCE (SIZE (1..maxObjectId)) OF SEQUENCE {	2 entry		
MeasObjectToAddMod SEQUENCE {			
measObjectId	IdMeasObject-f1		
measObject CHOICE {			
measObject EUTRA	MeasObjectEUTRA-GENERIC(f1)	E-UTRA Cell	
}			
}			
MeasObjectToAddMod SEQUENCE {			
measObjectId	IdMeasObject-f2		
measObject CHOICE {			
measObjectUTRA	MeasObjectUTRA-GENERIC(f2)	UTRA Cell	
}			
}			
}			
reportConfigToRemoveList	Not present		
reportConfigToAddModList SEQUENCE (SIZE (1..maxReportConfigId))OF SEQUENCE {	1 entry		
reportConfigId	idReportConfig-P		
reportConfig	ReportConfigInterRAT-PERIODICAL		
}			
measIdToRemoveList	Not present		
measIdToAddModList SEQUENCE (SIZE (1..maxMeasId)) of SEQUENCE {	1 entry		
measId	1		
measObjectId	IdMeasObject-f2		
reportConfigId	idReportConfig-P		
}			
quantityConfig SEQUENCE {			
quantityConfigUTRA SEQUENCE {			UTRAN
measQuantityUTRA-TDD	pccpch-RSCP		
}			
}			
measGapConfig	MeasGapConfig-GP2		
s-Measure	Not present		
preRegistrationInfoHRPD	Not present		
speedStatePars	Not present		
}			

Table 9.5.1.4.3-3: *MeasResults*: Additional E-UTRAN FDD - UTRA TDD P-CCPCH RSCP absolute accuracy test requirement

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResults ::= SEQUENCE {			
measId	1		
measResultServCell			
rsrpResult	INTEGER(0..97)		
rsrqResult	INTEGER(0..34)		
}			
measResultNeighCells CHOICE {			
measResultListUTRA	MeasResultListUTRA		
}			
}			

Table 9.5.1.4.3-4: MeasResultListUTRA: Additional E-UTRAN FDD - UTRA TDD P-CCPCH RSCP absolute accuracy test requirement

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResultsListUTRA ::= SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {			
physCellId CHOICE {			
fdd	Not Present		
tdd	PhysCellIdUTRA-TDD		
}			
measResult SEQUENCE {			
utra-RSCP	Set according to specific test INTEGER (-5..91)		
}			
}			

9.5.1.5 Test requirement

The test parameters are given in Tables 9.5.1.4.1-1, 9.5.1.5-1 and 9.5.1.5-2 as below. Table 9.5.1.5-2 and 9.5.1.5-3 define the primary level settings including test tolerances for all tests.

Table 9.5.1.5-1: E-UTRAN FDD cell specific test parameters for UTRAN TDD P-CCPCH RSCP absolute measurement accuracy test in E-UTRAN TDD

Parameter	Unit	Test 1	Test 2	Test 3
E-UTRA RF Channel Number		1		
BWchannel	MHz	10		
OCNG Patterns defined in D.1.1 (OP.1 FDD)		OP.1 FDD		
PBCH_RA	dB	0		
PBCH_RB				
PSS_RA				
SSS_RA				
PCFICH_RB				
PHICH_RA				
PHICH_RB				
PDCCH_RA				
PDCCH_RB				
PDSCH_RA				
PDSCH_RB				
OCNG_RA Note1				
OCNG_RB Note1				
N_{oc} Note2	dBm/15 kHz	-98		
$\hat{E}_s / I_{ot}$	dB	4		
RSRP Note3	dBm/15 kHz	-94		
Io Note3	dBm/9 MHz	-64.76		
$\hat{E}_s / N_{oc}$	dB	4		
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. Note 4: RSRP minimum requirements are specified assuming independent interference and noise at each receiver antenna port.				

Table 9.5.1.5-2: UTRAN TDD cell specific test parameters for UTRAN TDD P-CCPCH RSCP absolute measurement accuracy test in E-UTRAN FDD

Parameter	Unit	Test 1		Test 2		Test 3	
DL timeslot number		0	DwPTS	0	DwPTS	0	DwPTS
UTRA RF Channel number Note2		Channel 2		Channel 2		Channel 2	
PCCPCH_Ec/Ior	dB	-3		-3		-3	
DwPCH_Ec/Ior	dB		0		0		0
OCNS_Ec/Ior	dB	-3		-3		-3	
Ioc	dBm/1.28MHz	-54.9		-75.2		-96.8	
Îor/Ioc	dB	2		5		0	
PCCPCH RSCP Note1	dBm	-55.9		-73.2		-99.2	
Io Note1	dBm/1.28MHz	-50.78		-69.01		-93.19	
Propagation condition		AWGN					
Note 1: PCCPCH RSCP and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves. Note 2: In the case of multi-frequency network of 1.28 Mcps TDD, the UTRA RF Channel Number can be set for the primary frequency in this test.							

Each UTRAN TDD P-CCPCH RSCP absolute measurement accuracy test shall meet the reported values test requirements in table 9.5.1.5-3.

Table 9.5.1.5-3: UTRAN TDD P-CCPCH RSCP absolute measurement accuracy requirements for the reported values

	Test 1	Test 2	Test 3
Normal Conditions			
Lowest reported value (Cell 2)	P-CCPCH RSCP_LEV_51	P-CCPCH RSCP_LEV 34	P-CCPCH RSCP_LEV 10
Highest reported value (Cell 2)	P-CCPCH RSCP_LEV_68	P-CCPCH RSCP_LEV 51	P-CCPCH RSCP_LEV 23
Extreme Conditions			
Lowest reported value (Cell 2)	P-CCPCH RSCP_LEV_48	P-CCPCH RSCP_LEV 31	P-CCPCH RSCP_LEV 07
Highest reported value (Cell 2)	P-CCPCH RSCP_LEV_71	P-CCPCH RSCP_LEV 54	P-CCPCH RSCP_LEV 26

For the test to pass, the ratio of successful reported values in each test shall be more than 90% with a confidence level of 95%.

9.5.2 E-UTRAN TDD – UTRA TDD P-CCPCH RSCP absolute accuracy

9.5.2.1 Test purpose

To verify that the UTRAN TDD P-CCPCH RSCP absolute measurement accuracy is within the specified limits.

9.5.2.2 Test applicability

This test applies to all types of E-UTRA TDD UE release 9 and forward that support UTRA TDD.

9.5.2.3 Minimum conformance requirements

In RRC_CONNECTED state the accuracy requirements shall be the same as the inter-frequency measurement accuracy requirements for URAN TDD P-CCPCH RSCP in 3GPP TS 25.123 [22].

The accuracy requirements in table 9.5.2.3-1 are valid under the following conditions:

P-CCPCH RSCP ≥ -102 dBm

P-CCPCH Ec/Io ≥ -8 dB

DwPCH_Ec/Io ≥ -5 dB

Table 9.5.2.3-1: UTRAN TDD P-CCPCH absolute accuracy

Parameter	Unit	Accuracy [dB]		Conditions
		Normal condition	Extreme condition	Io [dBm/ 1.28 MHz]
P-CCPCH_RSCP	dBm	± 6	± 9	-94...-70
	dBm	± 8	± 11	-70...-50

If the UE, in RRC_CONNECTED state, needs measurement gaps to perform UTRAN TDD measurements, the UTRAN TDD measurement procedure and measurement gap pattern stated in TS 36.133 [4] clause 8.1.2.4.3 shall apply.

The reporting range is for URAN TDD P-CCPCH RSCP is from -115 …-25 dBm.

In table 9.5.2.3-2 the mapping of measured quantity is defined.

The range in the signalling may be larger than the guaranteed accuracy range.

Table 9.5.2.3-2: UTRAN TDD P-CCPCH absolute accuracy measurement report mapping

Reported value	Measured quantity value	Unit
PCCPCH_RSCP_LEV -05	P-CCPCH RSCP <-120	dBm
PCCPCH_RSCP_LEV -04	-120 ≤ P-CCPCH RSCP < -119	dBm
PCCPCH_RSCP_LEV -03	-119 ≤ P-CCPCH RSCP < -118	dBm
…	…	…
PCCPCH_RSCP_LEV _89	-27 ≤ PCCPCH RSCP< -26	dBm
PCCPCH_RSCP_LEV _90	-26 ≤ PCCPCH RSCP< -25	dBm
PCCPCH_RSCP_LEV _91	-25 ≤ PCCPCH RSCP	dBm

The normative reference for this requirement is TS 25.123 [22] clause 9.1.1.1.1.2, clause 9.1.1.1.3 and TS 36.133 [4] clause 9.3.1 and A.9.5.2.

9.5.2.4 Test description

9.5.2.4.1 Initial conditions

Test Environment: Normal, TL/VL, TL/VH, TH/VL, TH/VH; as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1.

Channel Bandwidth to be tested: 10MHz as defined in TS 36.508 [7] clause 4.3.1.

1. Connect the SS (node B emulator) and AWGN noise sources to the UE antenna connectors as shown in TS 36.508 [7] Annex A figure A.22.

2. The general test parameter settings are set up according to Table 9.5.2.4.1-1.

3. Propagation conditions are set according to Annex B clause B.0.

4. Message contents are defined in clause 9.5.2.4.3.

5. Cell 1 is the serving E-UTRAN TDD cell and Cell 2 is the target UTRAN TDD cell. Cell 1 is the cell used for connection setup with the power levels set according to Annex C.0 and C.1 for this test.

Table 9.5.2.4.1-1: General test parameters for UTRAN TDD P-CCPCH RSCP absolute measurement accuracy test in E-UTRAN TDD

Parameter	Unit	Value	Comment
PDSCH parameters		DL Reference Measurement Channel R.0 TDD	As specified in section A.1.2
PCFICH/PDCCH/PHICH parameters		DL Reference Measurement Channel R.6 TDD	As specified in section A.2.2
E-UTRAN RF Channel Number		1	One E-UTRAN TDD carrier frequency is used.
UTRAN RF Channel Number		2	One UTRAN TDD carrier frequency is used.
E-UTRAN Channel Bandwidth (BWchannel)	MHz	10	
Active cell		Cell 1	E-UTRA TDD cell1 on RF channel number 1
Neighbour cell		Cell 2	1.28Mcps UTRA TDD Cell2 on RF channel number 2
Gap Pattern Id		1	As specified in 3GPP TS 36.133 [4] section 8.1.2.1.
Uplink-downlink configuration of cell 1		1	As specified in table 4.2.2 in TS 36.211 [9]
Special subframe configuration of cell 1		6	As specified in table 4.2.1 in TS 36.211 [9]
CP length of cell 1		Normal	
Filter coefficient		0	L3 filtering is not used
DRX		OFF	
Time offset between cells	ms	3	Asynchronous cells
Inter-RAT (UTRAN TDD) measurement quantity		P-CCPCH RSCP	

9.5.2.4.2 Test procedure

1. Ensure the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.
2. Set the parameters according to Table 9.5.2.5-1 as appropriate. Propagation conditions are set according to Annex B clause B.1.1.
3. SS shall transmit an RRCConnectionReconfiguration message on Cell 1.
4. The UE shall transmit RRCConnectionReconfigurationComplete message.
5. UE shall transmit periodically MeasurementReport messages.
6. SS shall check P-CCPCH RSCP reported values of Cell 2 in MeasurementReport messages according to Table 9.5.2.5-3.
7. SS shall check the MeasurementReport message transmitted by the UE until the confidence level according to Tables G.2.3-1 in Annex G.2 is achieved.
8. Repeat step 1-7 for each sub-test in Table 9.5.2.5-1 as appropriate.

9.5.2.4.3 Message contents

Message contents are according to TS 36.508 [7] clause 4.6 with the following exceptions:

Table 9.5.2.4.3-1: Common Exception messages for E-UTRAN TDD - UTRA TDD P-CCPCH RSCP absolute accuracy test requirement

Default Message Contents	
Common contents of system information blocks exceptions	
Default RRC messages and information elements contents exceptions	Table H.3.1-1 Table H.3.1-7

Table 9.5.2.4.3-2: *MeasConfig- DEFAULT:* Additional E-UTRAN TDD - UTRA TDD P-CCPCH RSCP absolute accuracy test requirement

Derivation Path: TS 36.508 [7] clause 4.6.6, Table 4.6.6-1 MeasConfig-DEFAULT:			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasConfig-DEFAULT ::= SEQUENCE {			
measObjectToRemoveList	Not present		
measObjectToAddModList SEQUENCE (SIZE (1..maxObjectId)) OF SEQUENCE {	2 entry		
MeasObjectToAddMod SEQUENCE {			
measObjectId	IdMeasObject-f1		
measObject CHOICE {			
measObject EUTRA	MeasObjectEUTRA-GENERIC(f1)	E-UTRA Cell	
}			
}			
MeasObjectToAddMod SEQUENCE {			
measObjectId	IdMeasObject-f2		
measObject CHOICE {			
measObjectUTRA	MeasObjectUTRA-GENERIC(f2)	UTRA Cell	
}			
}			
}			
reportConfigToRemoveList	Not present		
reportConfigToAddModList SEQUENCE (SIZE (1..maxReportConfigId))OF SEQUENCE {	1 entry		
reportConfigId	idReportConfig-P		
reportConfig	ReportConfigInterRAT-PERIODICAL		
}			
measIdToRemoveList	Not present		
measIdToAddModList SEQUENCE (SIZE (1..maxMeasId)) of SEQUENCE {	1 entry		
measId	1		
measObjectId	IdMeasObject-f2		
reportConfigId	idReportConfig-P		
}			
quantityConfig SEQUENCE {			
quantityConfigUTRA SEQUENCE {			UTRAN
measQuantityUTRA-TDD	pccpch-RSCP		
}			
}			
measGapConfig	MeasGapConfig-GP2		
s-Measure	Not present		
preRegistrationInfoHRPD	Not present		
speedStatePars	Not present		
}			

Table 9.5.2.4.3-3: *MeasResults*: Additional E-UTRAN TDD - UTRA TDD P-CCPCH RSCP absolute accuracy test requirement

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResults ::= SEQUENCE {			
measId	1		
measResultServCell			
rsrpResult	INTEGER(0..97)		
rsrqResult	INTEGER(0..34)		
}			
measResultNeighCells CHOICE {			
measResultListUTRA	MeasResultListUTRA		
}			
}			

Table 9.5.2.4.3-4: MeasResultListUTRA: Additional E-UTRAN TDD - UTRA TDD P-CCPCH RSCP absolute accuracy test requirement

Derivation Path: 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResultsListUTRA ::= SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {			
physCellId CHOICE {			
fdd	Not Present		
tdd	PhysCellIdUTRA-TDD		
}			
measResult SEQUENCE {			
utra-RSCP	Set according to specific test INTEGER (-5..91)		
}			
}			

9.5.2.5 Test requirement

The test parameters are given in Tables 9.5.2.4.1-1, 9.5.2.5-1 and 9.5.2.5-2 as below. Table 9.5.2.5-2 and 9.5.2.5-3 define the primary level settings including test tolerances for all tests.

Table 9.5.2.5-1: E-UTRAN TDD cell specific test parameters for UTRAN TDD P-CCPCH RSCP absolute measurement accuracy test in E-UTRAN TDD

Parameter	Unit	Test 1	Test 2	Test 3
E-UTRA RF Channel Number		1		
BWchannel	MHz	10		
OCNG Patterns defined in D.2.1 (OP.1 TDD)		OP.1 TDD		
PBCH_RA	dB	0		
PBCH_RB				
PSS_RA				
SSS_RA				
PCFICH_RB				
PHICH_RA				
PHICH_RB				
PDCCH_RA				
PDCCH_RB				
PDSCH_RA				
PDSCH_RB				
OCNG_RA Note1				
OCNG_RB Note1				
N_{oc} Note2	dBm/15 kHz	-98		
$\hat{E}_s / I_{ot}$	dB	4		
RSRP Note3	dBm/15 kHz	-94		
Io Note3	dBm/9 MHz	-64.76		
$\hat{E}_s / N_{oc}$	dB	4		
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.
Note 4: RSRP minimum requirements are specified assuming independent interference and noise at each receiver antenna port.

Table 9.5.2.5-2: UTRAN TDD cell specific test parameters for UTRAN TDD P-CCPCH RSCP absolute measurement accuracy test in E-UTRAN TDD

Parameter	Unit	Test 1		Test 2		Test 3	
DL timeslot number		0	DwPTS	0	DwPTS	0	DwPTS
UTRA RF Channel number Note2		Channel 2		Channel 2		Channel 2	
PCCPCH_Ec/Ior	dB	-3		-3		-3	
DwPCH_Ec/Ior	dB		0		0		0
OCNS_Ec/Ior	dB	-3		-3		-3	
Ioc	dBm/1.28MHz	-54.9		-75.2		-96.2	
Îor/Ioc	dB	2		5		0	
PCCPCH RSCP Note1	dBm	-55.9		-73.2		-99.2	
Io Note1	dBm/1.28MHz	-50.78		-69.01		-93.19	
Propagation condition		AWGN					

Note 1: PCCPCH RSCP and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.
Note 2: In the case of multi-frequency network of 1.28 Mcps TDD, the UTRA RF Channel Number can be set for the primary frequency in this test.

Each UTRAN TDD P-CCPCH RSCP absolute measurement accuracy test shall meet the reported values test requirements in table 9.5.2.5-3.

Table 9.5.2.5-3: UTRAN TDD P-CCPCH RSCP absolute measurement accuracy requirements for the reported values

	Test 1	Test 2	Test 3
Normal Conditions			
Lowest reported value (Cell 2)	P-CCPCH RSCP_LEV_51	P-CCPCH RSCP_LEV 34	P-CCPCH RSCP_LEV 10
Highest reported value (Cell 2)	P-CCPCH RSCP_LEV_68	P-CCPCH RSCP_LEV 51	P-CCPCH RSCP_LEV 23
Extreme Conditions			
Lowest reported value (Cell 2)	P-CCPCH RSCP_LEV_48	P-CCPCH RSCP_LEV 31	P-CCPCH RSCP_LEV 07
Highest reported value (Cell 2)	P-CCPCH RSCP_LEV_71	P-CCPCH RSCP_LEV 54	P-CCPCH RSCP_LEV 26

For the test to pass, the ratio of successful reported values in each test shall be more than 90% with a confidence level of 95%.

9.6 GSM carrier RSSI

9.6.1 GSM RSSI accuracy for E-UTRAN FDD

9.6.1.1 Test purpose

To verify that the GSM RSSI measurement accuracy is within the specified limits.

9.6.1.2 Test applicability

This test applies all the types of E-UTRA FDD UE release 9 and forward that support GSM. Applicability requires support for FGI 16 and bit 23.

9.6.1.3 Minimum conformance requirements

Absolute accuracy

The R.M.S received signal level at the receiver input shall be measured by the MS and the BSS over the full range of -110 dBm to -48 dBm with an absolute accuracy of ±4 dB from -110 dBm to -70 dBm under normal conditions and ±6 dB over the full range under both normal and extreme conditions. The R.M.S received signal level at the receiver input shall be measured by the MS above -48 dBm up to -38 dBm with an absolute accuracy of ± 9 dB under both normal and extreme conditions.

This requirement is summarized in Table 9.6.1.3-1.

Table 9.6.1.3-1: GSM RXLEV absolute accuracy

Parameter	Unit	Accuracy [dB]		Conditions
		Normal condition	Extreme condition	Input level dBm
RXLEV	dBm	± 4	± 6	-110…-70
	dBm	± 6	± 6	-70…-48
	dBm	± 9	± 9	-48..-38

The reporting range and mapping for RXLEV is summarized in Table 9.6.1.3-2.

Table 9.6.1.3-2: GSM RSSI measurement report mapping

Reported value	Measured quantity value	Unit
RXLEV_00	RXLEV < -110	dBm
RXLEV_01	-110 ≤ RXLEV < -109	dBm
RXLEV_02	-109 ≤ RXLEV < -108	dBm
…	…	…
RXLEV_61	-50≤ RXLEV < -49	dBm
RXLEV_62	-49 ≤ RXLEV < -48	dBm
RXLEV_63	-48 ≤ RXLEV	dBm

Relative accuracy

The relative accuracy shall be as follows:

If signals of level x1 and x2 dBm are received (where x1 ≤ x2) and levels y1 and y2 dBm respectively are measured, if x2 - x1 < 20 dB and x1 is not below the reference sensitivity level, then y1 and y2 shall be such that:

(x2 - x1) - a ≤ y2 - y1 ≤ (x2 - x1 + b) if the measurements are on the same or on different RF channel within the same frequency band;

and

(x2 - x1) - c ≤ y2 - y1 ≤(x2 - x1 + d) if the measurements are on different frequency bands:

a, b, c and d are in dB and depend on the value of x1 as follows:

	a	b	c	d
x1 ≥ s+14, x2< -48 dBm	2	2	4	4
s+14 > x1 ≥ s+1	3	2	5	4
s+1 > x1	4	2	6	4

For single band MS and measurements between ARFCN in the same band for a multiband MS:

s = reference sensitivity level as specified in Table 9.6.1.3-3 (normative reference 3GPP TS 45.005 [16] Table 6.2-1a)

For measurements between ARFCN in different bands:

s = the reference sensitivity level as specified in Table 9.6.1.3-3 (normative reference 3GPP TS 45.005 [16] Table 6.2-1a) for the band including x1.

Table 9.6.1.3-3: Reference sensitivity level for MS

GSM 400 MS	for GSM 400 small MS	-102 dBm
	for other GSM 400 MS	-104 dBm
GSM 900 MS	for GSM 900 small MS	-102 dBm
	for other GSM 900 MS	-104 dBm
GSM 850 MS	for GSM 850 small MS	-102 dBm
	for other GSM 850 MS	-104 dBm
GSM 700 MS	for GSM 700 small MS	-102 dBm
	for other GSM 700 MS	-104 dBm
DCS 1 800 MS	for DCS 1 800 class 1 or class 2 MS	-100 / -102 dBm *
	for DCS 1 800 class 3 MS	-102 dBm
PCS 1 900 MS	for PCS 1 900 class 1 or class 2 MS	-102 dBm
	for other PCS 1 900 MS	-104 dBm
Note: For DCS 1 800 class 1 and class 2 MS, the 102 dBm level shall apply for the reference sensitivity performance as specified in table 1 for the normal conditions defined in TS 45.005 [16] Annex D and 100 dBm level shall be used to determine all other MS performances.		

The normative reference for this requirement is:

For E-UTRA: TS 36.133 [4] clause 9.4.1 and A.9.6.1

For GSM: TS 45.008 [15] clause 8.1.2 and 8.1.4 and TS 45.005 [16].

9.6.1.4 Test description

9.6.1.4.1 Initial conditions

Test Environment: Normal, TL/VL, TL/VH, TH/VL, TH/VH; as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1.

Channel Bandwidth to be tested: 10 MHz as defined in TS 36.508 [7] clause 4.3.1.

1. Connect the SS (node B emulator) and AWGN noise sources to the UE antenna connectors as shown in TS 36.508 [7] Annex A figure A.14.
2. The general test parameter settings are set up according to Table 9.6.1.4.1-1.
3. Propagation conditions are set according to Annex B clause B.0.
4. Message contents are defined in clause 9.6.1.4.3.
5. There is one E-UTRA TDD cell (Cell 1) and two GSM cells (Cell 2 and Cell 3) specified in each test. Cell 1 is the cell used for call setup with the power level set according to Annex C.0 and C.1 for this test. Cell 2 (BCCH1) and Cell 3 (BCCH other than BCCH1 according to sub-test) are measured and reported by the UE.

Table 9.6.1.4.1-1: General GSM Carrier RSSI test parameters

Parameter	Unit	Value	Comment
PDSCH parameters (E-UTRAN FDD)		DL Reference Measurement Channel R.0 FDD	As specified in section A.1.1.
PCFICH/PDCCH/PHICH parameters (E-UTRAN FDD)		DL Reference Measurement Channel R.6 FDD	As specified in section A.2.1.
Active cell	-	Cell 1	
DRX	-	OFF	
Gap pattern Id		1	As specified in 3GPP TS 36.133 [4] section 8.1.2.1.
Filtering coefficient	-	0	L3 filtering is not used.
Inter-RAT measurement quantity		GSM Carrier RSSI	
Monitored cell list size		6 GSM neighbours including ARFCN 1	Included in the Measurement control information

9.6.1.4.2 Test procedure

1. Ensure the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.
2. Set the parameters according to Table 9.6.1.5-1, 9.6 1.5-2 and 9.6 1.5-3 as appropriate. Propagation conditions for the E-UTRA cell are set according to Annex B clause B.1.
3. SS shall transmit an RRCConnectionReconfiguration message.
4. The UE shall transmit RRCConnectionReconfigurationComplete message.
5. UE shall transmit periodically MeasurementReport messages.
6. SS shall check the reported GSM RSSI values in MeasurementReport messages. The reported RSSI value for Cell 2 is compared to the actual RSSI value according to Table 9.6.1.5-4. This counts as a Pass or Fail for the event “Absolute”. Also the reported RSSI value for Cell 3 is compared to the reported RSSI value for Cell 2 for each MeasurementReport message according to Table 9.6.1.5-5. This counts as a Pass or Fail for the event “Relative”.

7. The SS shall check the MeasurementReport messages transmitted by the UE until the confidence level according to Table G.2.3-1 in Annex G.2 is achieved for each of the events "Absolute" and "Relative". Each event is evaluated only until the confidence level is achieved. Different events may require different times for a verdict.

8. Repeat step 1-7 for each sub-test in Table 9.6.1.5-2 as appropriate.

9.6.1.4.3 Message contents

Message contents are according to TS 36.508 [7] values 4.6 with the following exceptions:

Table 9.6.1.4.3-1: Common Exception messages for GSM RSSI measurement accuracy test requirement

Default Message Contents	
Common contents of system information blocks exceptions	
Default RRC messages and information elements contents exceptions	Table H.3.1-1 Table H.3.1-7 Table H.3.1-11

Table 9.6.1.4.3-2: MeasuredResults: Additional GSM RSSI measurement accuracy test requirement

Derivation Path: TS 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResults ::= SEQUENCE {			
measId	1	Identifies the measurement id for the reporting being performed	
measResultServCell SEQUENCE {			
rsrpResult	RSRP-Range	Set according to specific test	
rsrqResult	RSRQ-Range	Set according to specific test	
}			
measResultNeighCells CHOICE {			
MeasResultListGERAN	MeasResultListGERAN		
}			
}			

Table 9.6.1.4.3-3: MeasResultListGERAN: Additional GSM measurement accuracy test requirement

Derivation Path: TS 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResultListGERAN::= SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {			
carrierFreq	CarrierFreqGERAN		
physCellId	physCellId GERAN		
Cgi-Info	Not present		
measResult SEQUENCE {			
Rssi	INTEGER (0..63)	Set according to specific test	
}			
}			

Table 9.6.1.4.3-4: ReportConfigInterRAT-PERIODICAL: Additional GSM measurement accuracy test requirement

Derivation Path: TS 36.508 [7] clause 4.6.6, Table 4.6.6-9 ReportConfigInterRAT-PERIODICAL			
Information Element	**Value/remark**	**Comment**	**Condition**
ReportConfigInterRAT-PERIODICAL ::= SEQUENCE {			
maxReportCells	6		
}			

9.6.1.5 Test requirement

Table 9.6.1.5-1, 9.6.1.5-2 and 9.6.1.5-3 define the primary level settings including test tolerances for all tests.

The GSM RSSI measurement accuracy test for the reported values shall meet the requirements in Table 9.6.1.5-4 and Table 9.6.1.5-5.

Table 9.6.1.5-1: E-UTRAN FDD Cell specific test parameters for GSM Carrier RSSI accuracy test in E-UTRAN TDD

Parameter	Unit	Tests 1-12
E-UTRAN RF Channel Number		1
$BW_{channel}$	MHz	10
OCNG Patterns defined in D.1.1 (OP.1 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	
N_{oc} Note 2	dBm/15 kHz	-98
RSRP Note 3	dBm/15 kHz	-94
$\hat{E}_s/I_{ot}$	dB	4
SCH_RP Note 3	dBm/15 kHz	-94
$\hat{E}_s/N_{oc}$	dB	4
Propagation Condition		AWGN
Note 1: OCNG shall be used such that all 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 SCH_RP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.		

Table 9.6.1.5-2: BCCH signal levels at receiver input in dBm

Sub-test	BCCH1	BCCH2	BCCH3	BCCH4	BCCH5	BCCH6
1	-38.7	-38.5	NA	NA	NA	NA
2	-48.7	-50.0	NA	NA	NA	NA
3	-70.7	-70.5	NA	NA	NA	NA
4	-109.3	-109.5	NA	NA	NA	NA
5	-57.5	NA	-54.5	NA	NA	NA
6	-64.5	NA	-59.5	NA	NA	NA
7	-71.5	NA	NA	-64.5	NA	NA
8	-78.5	NA	NA	-69.5	NA	NA
9	-85.5	NA	NA	NA	-74.5	NA
10	-92.5	NA	NA	NA	-79.5	NA
11	-99.5	NA	NA	NA	NA	-84.5
12	-106.5	NA	NA	NA	NA	-89.5

Table 9.6.1.5-3: ARFCN numbers for GSM cells

GSM band	BCCH1	BCCH2	BCCH3	BCCH4	BCCH5	BCCH6
GSM 450	276	293	264	269	281	288
GSM 480	323	340	311	316	328	335
GSM 750	475	511	440	455	485	500
GSM 850	189	251	150	170	210	230
GSM 900	62	124	20	40	80	100
DCS 1800	700	885	585	660	790	835
PCS 1900	700	805	585	660	790	550
Note: As defined in clause 3A.1, the test shall run without frequency overlapping between E-UTRA and GSM cells. The ARFCN numbers defined here, can be updated accordingly (even E-UTRA band specific) to avoid possible overlapping.						

Table 9.6.1.5-4: GSM Carrier RSSI absolute accuracy requirements for the reported values

Sub-test	Normal		TL/VL & TH/VH	
	Lowest reported value for BCCH1	Highest reported value for BCCH1	Lowest reported value for BCCH1	Highest reported value for BCCH1
1	RXLEV_62	RXLEV_63	RXLEV_62	RXLEV_63
2	RXLEV_55	RXLEV_63	RXLEV_55	RXLEV_63
3	RXLEV_35	RXLEV_45	RXLEV_33	RXLEV_47
4	RXLEV_00	RXLEV_06	RXLEV_00	RXLEV_08
5	RXLEV_46	RXLEV_60	RXLEV_46	RXLEV_60
6	RXLEV_39	RXLEV_53	RXLEV_39	RXLEV_53
7	RXLEV_34	RXLEV_44	RXLEV_32	RXLEV_46
8	RXLEV_27	RXLEV_37	RXLEV_25	RXLEV_39
9	RXLEV_20	RXLEV_30	RXLEV_18	RXLEV_32
10	RXLEV_13	RXLEV_23	RXLEV_11	RXLEV_25
11	RXLEV_06	RXLEV_16	RXLEV_04	RXLEV_18
12	RXLEV_00	RXLEV_09	RXLEV_00	RXLEV_11
Note: It is not mandatory for the UE to report BCCH1 in step 12. In case of no BCCH1 report in step 12, the absolute accuracy for step 12 is not tested.				

Table 9.6.1.5-5: GSM Carrier RSSI Relative accuracy requirements for the reported values

Sub-test	Normal & TL/VL & TH/VH	
	Lowest reported value for BCCH2	Highest reported value for BCCH2
1	N/A (Note3)	N/A(Note3)
2	RXLEV = x-6	RXLEV = x+3
3	RXLEV = x-4	RXLEV = x+5
4	N/A (Note3)	N/A (Note3)
	Lowest reported value for BCCH3	Highest reported value for BCCH3
5	RXLEV = x-2	RXLEV = x+8
6	RXLEV = x+1	RXLEV = x+10
	Lowest reported value for BCCH4	Highest reported value for BCCH4
7	RXLEV = x+3	RXLEV = x+12
8	RXLEV = x+5	RXLEV = x+14
	Lowest reported value for BCCH5	Highest reported value for BCCH5
9	RXLEV = x+7	RXLEV = x+16
10	RXLEV = x+8	RXLEV = x+18
	Lowest reported value for BCCH6	Highest reported value for BCCH6
11	RXLEV = x+10	RXLEV = x+20
12	N/A (Note3)	N/A (Note3)
Note 1: x is the reported value RXLEV for BCCH1. Note 2: It is not mandatory for the UE to report BCCH1 in step 12. In case of no BCCH1 report in step 12, the relative accuracy for step 12 is not tested. Note 3: Sub-tests 1, 4 and 12 are not applicable for relative accuracy as they would be testing the UE outside the side conditions.		

For the test to pass, the ratio of successful reported values in each sub-test for absolute and relative accuracy shall be more than 90% with a confidence level of 95%.

9.6.2 GSM RSSI accuracy for E-UTRAN TDD

9.6.2.1 Test purpose

To verify that the GSM RSSI measurement accuracy is within the specified limits.

9.6.2.2 Test applicability

This test applies all the types of E-UTRA TDD UE release 9 and forward that support GSM. Applicability requires support for FGI bit 16 and 23.

9.6.2.3 Minimum conformance requirements

Absolute accuracy

The R.M.S received signal level at the receiver input shall be measured by the MS and the BSS over the full range of -110 dBm to -48 dBm with an absolute accuracy of ±4 dB from -110 dBm to -70 dBm under normal conditions and ±6 dB over the full range under both normal and extreme conditions. The R.M.S received signal level at the receiver input shall be measured by the MS above -48 dBm up to -38 dBm with an absolute accuracy of ± 9 dB under both normal and extreme conditions.

This requirement is summarized in Table 9.6.2.3-1.

Table 9.6.2.3-1: GSM RXLEV absolute accuracy

Parameter	Unit	Accuracy [dB]		Conditions
		Normal condition	Extreme condition	Input level dBm
RXLEV	dBm	± 4	± 6	-110…-70
	dBm	± 6	± 6	-70…-48
	dBm	± 9	± 9	-48..-38

The reporting range and mapping for RXLEV is summarized in Table 9.6.2.3-2.

Table 9.6.2.3-2: GSM RSSI measurement report mapping

Reported value	Measured quantity value	Unit
RXLEV_00	RXLEV < -110	dBm
RXLEV_01	-110 ≤ RXLEV < -109	dBm
RXLEV_02	-109 ≤ RXLEV < -108	dBm
…	…	…
RXLEV_61	-50 ≤ RXLEV < -49	dBm
RXLEV_62	-49 ≤ RXLEV < -48	dBm
RXLEV_63	-48 ≤ RXLEV	dBm

Relative accuracy

The relative accuracy shall be as follows:

If signals of level x1 and x2 dBm are received (where x1 ≤ x2) and levels y1 and y2 dBm respectively are measured, if x2 - x1 < 20 dB and x1 is not below the reference sensitivity level, then y1 and y2 shall be such that:

(x2 - x1) - a ≤ y2 - y1 ≤ (x2 - x1 + b) if the measurements are on the same or on different RF channel within the same frequency band;

and

(x2 - x1) - c ≤ y2 - y1 ≤(x2 - x1 + d) if the measurements are on different frequency bands:

a, b, c and d are in dB and depend on the value of x1 as follows:

	a	b	c	d
x1 ≥ s+14, x2< -48 dBm	2	2	4	4
s+14 > x1 ≥ s+1	3	2	5	4
s+1 > x1	4	2	6	4

For single band MS and measurements between ARFCN in the same band for a multiband MS:

s = reference sensitivity level as specified in Table 9.6.2.3-3 (normative reference 3GPP TS 45.005 [16] Table 6.2-1a)

For measurements between ARFCN in different bands:

s = the reference sensitivity level as specified in Table 9.6.2.3-3 (normative reference 3GPP TS 45.005 [16] Table 6.2-1a) for the band including x1.

Table 9.6.2.3-3: Reference sensitivity level for MS

GSM 400 MS	for GSM 400 small MS	-102 dBm
	for other GSM 400 MS	-104 dBm
GSM 900 MS	for GSM 900 small MS	-102 dBm
	for other GSM 900 MS	-104 dBm
GSM 850 MS	for GSM 850 small MS	-102 dBm
	for other GSM 850 MS	-104 dBm
GSM 700 MS	for GSM 700 small MS	-102 dBm
	for other GSM 700 MS	-104 dBm
DCS 1 800 MS	for DCS 1 800 class 1 or class 2 MS	-100 / -102 dBm *
	for DCS 1 800 class 3 MS	-102 dBm
PCS 1 900 MS	for PCS 1 900 class 1 or class 2 MS	-102 dBm
	for other PCS 1 900 MS	-104 dBm
Note: For DCS 1 800 class 1 and class 2 MS, the 102 dBm level shall apply for the reference sensitivity performance as specified in table 1 for the normal conditions defined in TS 45.005 [16] Annex D and 100 dBm level shall be used to determine all other MS performances.		

The normative reference for this requirement is:

For E-UTRA: TS 36.133 [4] clause 9.4.1 and A.9.6.2

For GSM: TS 45.008 [15] clause 8.1.2 and 8.1.4 and TS 45.005 [16].

9.6.2.4 Test description

9.6.2.4.1 Initial conditions

Test Environment: Normal, TL/VL, TL/VH, TH/VL, TH/VH; as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: According to Annex E table E-1 and TS 36.508 [7] clauses 4.4.2 and 4.3.1.

Channel Bandwidth to be tested: 10 MHz as defined in TS 36.508 [7] clause 4.3.1.

1. Connect the SS (node B emulator) and AWGN noise sources to the UE antenna connectors as shown in TS 36.508 [7] Annex A figure A.14.
2. The general test parameter settings are set up according to Table 9.6.2.4.1-1.
3. Propagation conditions are set according to Annex B clause B.0.
4. Message contents are defined in clause 9.6.2.4.3.
5. There is one E-UTRA TDD cell (Cell 1) and two GSM cells (Cell 2 and Cell 3) specified in each test. Cell 1 is the cell used for call setup with the power level set according to Annexes C.0 and C.1 for this test. Cell 2 (BCCH1) and Cell 3 (BCCH other than BCCH1 according to sub-test) are measured and reported by the UE.

Table 9.6.2.4.1-1: General GSM Carrier RSSI test parameters

Parameter	Unit	Value	Comment
PDSCH parameters (E-UTRAN TDD)		DL Reference Measurement Channel R.0 TDD	As specified in section A.1.2.
PCFICH/PDCCH/PHICH parameters (E-UTRAN TDD)		DL Reference Measurement Channel R.6 TDD	As specified in section A.2.2.
Active cell	-	Cell 1	
DRX	-	OFF	
Uplink-downlink configuration of cell 1		1	As specified in table 4.2.2 in TS 36.211 [9]
Special subframe configuration of cell 1		6	As specifi [9]ed in table 4.2.1 in TS 36.211
Gap pattern Id		1	As specified in 3GPP TS 36.133 [4] section 8.1.2.1.
Filtering coefficient	-	0	L3 filtering is not used.
Inter-RAT measurement quantity		GSM Carrier RSSI	
Monitored cell list size		6 GSM neighbours including ARFCN 1	Included in the Measurement control information

9.6.2.4.2 Test procedure

1. Ensure the UE is in State 3A-RF according to TS 36.508 [7] clause 7.2A.3.
2. Set the parameters according to Table 9.6.2.5-1, 9.6 2.5-2 and 9.6 2.5-3 as appropriate. Propagation conditions for the E-UTRA cell are set according to Annex B clause B.1.
3. SS shall transmit an RRCConnectionReconfiguration message.
4. The UE shall transmit RRCConnectionReconfigurationComplete message.
5. UE shall transmit periodically MeasurementReport messages.

6. SS shall check the reported GSM RSSI value in MeasurementReport messages. The reported RSSI value for Cell 2 is compared to the actual RSSI value according to Table 9.6.2.5-4. This counts as a Pass or Fail for the event "Absolute". Also the reported RSSI value for Cell 3 is compared to the reported RSSI value for Cell 2 for each MeasurementReport message according to Table 9.6.2.5-5. This counts as a Pass or Fail for the event "Relative".

7. The SS shall check the MeasurementReport messages transmitted by the UE until the confidence level according to Table G.2.3-1 in Annex G.2 is achieved for each of the events "Absolute" and "Relative". Each event is evaluated only until the confidence level is achieved. Different events may require different times for a verdict.

8. Repeat step 1-7 for each sub-test in Table 9.6.2.5-2 as appropriate.

9.6.2.4.3 Message contents

Message contents are according to TS 36.508 [7] values 4.6 with the following exceptions:

Table 9.6.2.4.3-1: Common Exception messages for GSM RSSI measurement accuracy test requirement

Default Message Contents	
Common contents of system information blocks exceptions	
Default RRC messages and information elements contents exceptions	Table H.3.1-1 Table H.3.1-7 Table H.3.1-11

Table 9.6.2.4.3-2: MeasuredResults: Additional GSM RSSI measurement accuracy test requirement

Derivation Path: TS 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResults ::= SEQUENCE {			
measId	1	Identifies the measurement id for the reporting being performed	
measResultServCell SEQUENCE {			
rsrpResult	RSRP-Range	Set according to specific test	
rsrqResult	RSRQ-Range	Set according to specific test	
}			
measResultNeighCells CHOICE {			
MeasResultListGERAN	MeasResultListGERAN		
}			
}			

Table 9.6.2.4.3-3: MeasResultListGERAN: Additional GSM measurement accuracy test requirement

Derivation Path: TS 36.331 clause 6.3.5			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasResultListGERAN::= SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {			
carrierFreq	CarrierFreqGERAN		
physCellId	physCellId GERAN		
Cgi-Info	Not present		
measResult SEQUENCE {			
Rssi	INTEGER (0..63)	Set according to specific test	
}			
}			

Table 9.6.2.4.3-4: ReportConfigInterRAT-PERIODICAL: Additional GSM measurement accuracy test requirement

Derivation Path: TS 36.508 [7] clause 4.6.6, Table 4.6.6-9 ReportConfigInterRAT-PERIODICAL			
Information Element	**Value/remark**	**Comment**	**Condition**
ReportConfigInterRAT-PERIODICAL ::= SEQUENCE {			
maxReportCells	6		
}			

9.6.2.5 Test requirement

Tables 9.6.2.5-1, 9.6.2.5-2 and 9.6.2.5-3 define the primary level settings including test tolerances for all tests.

The GSM RSSI measurement accuracy test for the reported values shall meet the requirements in Table 9.6.2.5-4 and Table 9.6.2.5-5.

Table 9.6.2.5-1: E-UTRAN TDD Cell specific test parameters for GSM Carrier RSSI accuracy test in E-UTRAN TDD

Parameter	Unit	Tests 1 - 12
E-UTRAN RF Channel Number		1
$BW_{channel}$	MHz	10
OCNG Patterns defined in D.2.1 (OP.1 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	
N_{oc} Note 2	dBm/15 kHz	-98
RSRP Note 3	dBm/15 kHz	-94
$\hat{E}_s/I_{ot}$	dB	4
SCH_RP Note 3	dBm/15 kHz	-94
$\hat{E}_s/N_{oc}$	dB	4
Propagation Condition		AWGN
NOTE 1: OCNG shall be used such that all 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 SCH_RP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.		

Table 9.6.2.5-2: BCCH signal levels at receiver input in dBm

Sub-test	BCCH1	BCCH2	BCCH3	BCCH4	BCCH5	BCCH6
1	-38.7	-38.5	NA	NA	NA	NA
2	-48.7	-50.0	NA	NA	NA	NA
3	-70.7	-70.5	NA	NA	NA	NA
4	-109.3	-109.5	NA	NA	NA	NA
5	-57.5	NA	-54.5	NA	NA	NA
6	-64.5	NA	-59.5	NA	NA	NA
7	-71.5	NA	NA	-64.5	NA	NA
8	-78.5	NA	NA	-69.5	NA	NA
9	-85.5	NA	NA	NA	-74.5	NA
10	-92.5	NA	NA	NA	-79.5	NA
11	-99.5	NA	NA	NA	NA	-84.5
12	-106.5	NA	NA	NA	NA	-89.5

Table 9.6.2.5-3: ARFCN numbers for GSM cells

GSM band	BCCH1	BCCH2	BCCH3	BCCH4	BCCH5	BCCH6
GSM 450	276	293	264	269	281	288
GSM 480	323	340	311	316	328	335
GSM 750	475	511	440	455	485	500
GSM 850	189	251	150	170	210	230
GSM 900	62	124	20	40	80	100
DCS 1800	700	885	585	660	790	835
PCS 1900	700	805	585	660	790	550
Note: As defined in clause 3A.1, the test shall run without frequency overlapping between E-UTRA and GSM cells. The ARFCN numbers defined here, can be updated accordingly (even E-UTRA band specific) to avoid possible overlapping.						

Table 9.6.2.5-4: GSM Carrier RSSI absolute accuracy requirements for the reported values

Sub-test	Normal		TL/VL & TH/VH	
	Lowest reported value for BCCH1	Highest reported value for BCCH1	Lowest reported value for BCCH1	Highest reported value for BCCH1
1	RXLEV_62	RXLEV_63	RXLEV_62	RXLEV_63
2	RXLEV_55	RXLEV_63	RXLEV_55	RXLEV_63
3	RXLEV_35	RXLEV_45	RXLEV_33	RXLEV_47
4	RXLEV_0	RXLEV_6	RXLEV_0	RXLEV_8
5	RXLEV_46	RXLEV_60	RXLEV_44	RXLEV_60
6	RXLEV_39	RXLEV_53	RXLEV_37	RXLEV_53
7	RXLEV_34	RXLEV_44	RXLEV_32	RXLEV_46
8	RXLEV_27	RXLEV_37	RXLEV_25	RXLEV_39
9	RXLEV_20	RXLEV_30	RXLEV_18	RXLEV_32
10	RXLEV_13	RXLEV_23	RXLEV_11	RXLEV_25
11	RXLEV_6	RXLEV_16	RXLEV_4	RXLEV_18
12	RXLEV_0	RXLEV_9	RXLEV_0	RXLEV_11
Note: It is not mandatory for the UE to report BCCH1 in step 12. In case of no BCCH1 report in step 12, the absolute accuracy for step 12 is not tested.				

Table 9.6.2.5-5: GSM Carrier RSSI Relative accuracy requirements for the reported values

Sub-test	Normal & TL/VL & TH/VH	
	Lowest reported value for BCCH2	Highest reported value for BCCH2
1	N/A (Note3)	N/A (Note3)
2	RXLEV = x-6	RXLEV = x+3
3	RXLEV = x-4	RXLEV = x+5
4	N/A (Note3)	N/A (Note3)
	Lowest reported value for BCCH3	Highest reported value for BCCH3
5	RXLEV = x-2	RXLEV = x+8
6	RXLEV = x+1	RXLEV = x+10
	Lowest reported value for BCCH4	Highest reported value for BCCH4
7	RXLEV = x+3	RXLEV = x+12
8	RXLEV = x+5	RXLEV = x+14
	Lowest reported value for BCCH5	Highest reported value for BCCH5
9	RXLEV = x+7	RXLEV = x+16
10	RXLEV = x+8	RXLEV = x+18
	Lowest reported value for BCCH6	Highest reported value for BCCH6
11	RXLEV = x+10	RXLEV = x+20
12	N/A (Note3)	N/A (Note3)
Note 1: x is the reported value RXLEV for BCCH1. Note 2: It is not mandatory for the UE to report BCCH1 in step 12. In case of no BCCH1 report in step 12, the relative accuracy for step 12 is not tested. Note 3: Sub-tests 1, 4 and 12 are not applicable for relative accuracy as they would be testing the UE outside the side conditions.		

For the test to pass, the ratio of successful reported values in each sub-test for absolute and relative accuracy shall be more than 90% with a confidence level of 95%.

9.7 UE Rx – Tx Time Difference

Editor's note: The UE Rx – Tx Time difference test cases can be found in TS 37.571-1 [27].

9.8 RSTD Measurements Accuracy

Editor's note: The RSTD Time difference test cases can be found in TS 37.571-1 [27].

Annex A (normative): Measurement Channels

A.1 PDSCH

A.1.1 FDD

Table A.1.1-1: PDSCH Reference Measurement Channels for FDD

Parameter	Unit		Value					
Reference channel		R.2 FDD			R.0 FDD	R.1 FDD	R.3 FDD	R.4 FDD
Channel bandwidth	MHz	1.4	3	5	10	10	10	20
Number of transmitter antennas		1			1	2	1	1
Allocated resource blocks (Note 4)		2			24	24	24	24
Allocated subframes per Radio Frame		10			10	10	10	10
Modulation		QPSK			QPSK	QPSK	QPSK	QPSK
Target Coding Rate		1/3			1/3	1/3	1/3	1/3
Information Bit Payload								
For Sub-Frames 4, 9	Bits	120			2088	2088	2088	2088
For Sub-Frame 5	Bits	104			2088	1736	2088	2088
For Sub-Frame 0	Bits	32			1736	1736	1736	1736
For Sub-Frame 1, 2, 3, 6, 7, 8	Bits	0			0	0	2088	0
Number of Code Blocks per Sub-Frame (Note 5)								1
For Sub-Frames 4, 9		1			1	1	1	1
For Sub-Frame 5		1			1	1	1	1
For Sub-Frame 0		1			1	1	1	1
For Sub-Frame 1, 2, 3, 6, 7, 8		0			0	0	1	0
Binary Channel Bits Per Sub-Frame								
For Sub-Frames 4, 9	Bits	456			6624	6336	6624	6624
For Sub-Frame 5	Bits	360			6336	6048	6336	6336
For Sub-Frame 0	Bits	176			5784	5520	5784	5784
For Sub-Frame 1, 2, 3, 6, 7, 8	Bits	0			0	0	6624	0
Max. Throughput averaged over 1 frame	kbps	37.6			800	765	2053	800

Note 1: 2 symbols allocated to PDCCH for 10 MHz channel BW. 4 symbols allocated to PDCCH for 1.4 MHz channel BW.
Note 2: Reference signal, synchronization signals and PBCH allocated as defined in 3GPP TS 36.211 [9].
Note 3: If necessary the information bit payload size can be adjusted to facilitate the test implementation. The payload sizes are defined in 3GPP TS 36.213 [8].
Note 4: Allocation is located in the middle of bandwidth.
Note 5: If more than one Code Block is present, an additional CRC sequence of L = 24 Bits is attached to each Code Block (otherwise L = 0 Bit).
Note 6: PDSCH allocation applies only to subframes not configured as PRS subframes.

A.1.2 TDD

Table A.1.2-1: PDSCH Reference Measurement Channels for TDD

Parameter	Unit	Value					
Reference channel		R.2 TDD			R.0 TDD	R.1 TDD	R.3 TDD
Channel bandwidth	MHz	1.4	3	5	10	10	20
Number of transmitter antennas		1			1	2	1
Allocated resource blocks (Note 4)		2			24	24	24
Uplink-Downlink Configuration (Note 5)		1			1	1	1
Special Subframe Configuration (Note 6)		6			6	6	6
Allocated subframes per Radio Frame		6			6	6	6
Modulation		QPSK			QPSK	QPSK	QPSK
Target Coding Rate		1/3			1/3	1/3	1/3
Information Bit Payload							
For Sub-Frames 4,9	Bits	120			2088	2088	2088
For Sub-Frame 5	Bits	104			2088	2088	2088
For Sub-Frame 0	Bits	56			2088	1736	2088
For Sub-Frame 1, 6 (DwPTS)	Bits	56			1032	1032	1032
Number of Code Blocks per Sub-Frame (Note 7)							1
For Sub-Frames 4,9		1			1	1	1
For Sub-Frame 5		1			1	1	1
For Sub-Frame 0		1			1	1	1
For Sub-Frame 1, 6 (DwPTS)		1			1	1	1
Binary Channel Bits Per Sub-Frame							
For Sub-Frames 4,9	Bits	456			6624	6336	6624
For Sub-Frame 5	Bits	408			6480	6192	6480
For Sub-Frame 0	Bits	224			5928	5664	5928
For Sub-Frame 1, 6 (DwPTS)	Bits	272			3696	3504	3696
Max. Throughput averaged over 1 frame	Mbps	0.05612			1.0416	1.0064	1.0416

Note 1: 2 symbols allocated to PDCCH for 10 MHz channel BW. 4 symbols allocated to PDCCH for 1.4 MHz channel BW. For special subframe (1 & 6) only 2 OFDM symbols are allocated to PDCCH for all bandwidths.
Note 2: Reference signal, synchronization signals and PBCH allocated as defined in 3GPP TS 36.211 [9].4 symbols allocated to PDCCH for 1.4 MHz channel BW
Note 3: If necessary the information bit payload size can be adjusted to facilitate the test implementation. The payload sizes are defined in 3GPP TS 36.213 [8].Reference signal, synchronization signals and PBCH allocated as defined in 3GPP TS 36.211 [9].
Note 4: Allocation is located in the middle of bandwidth. If necessary the information bit payload size can be adjusted to facilitate the test implementation. The payload sizes are defined in 3GPP TS 36.213 [8].
Note 5: As per Table 4.2-2 in TS 36.211 [16].
Note 6: As per Table 4.2-1 in TS 36.211 [16].
Note 7: f more than one Code Block is present, an additional CRC sequence of L = 24 Bits is attached to each Code Block (otherwise L = 0 Bit).
Note 8: PDSCH allocation applies only to subframes not configured as PRS subframes.

A.2 PCFICH/PDCCH/PHICH

A.2.1 FDD

Table A.2.1-1: PCFICH/PDCCH/PHICH Reference Channel for FDD

Parameter	Unit	Value					
Reference channel		R.8 FDD		R.10 FDD	R.6 FDD	R.7 FDD	R.9 FDD
Channel bandwidth	MHz	1.4		20	10	10	10
Number of transmitter antennas		1		1	1	2	2
Control region OFDM symbolsNote1	symbols	4		2	2	2	3
Aggregation level	CCE	2 (Note 6)		8	8	8	8
DCI Format		Note 3		Note 3	Note 3	Note 3	Note 3
Cell ID		Note 4		Note 4	Note 4	Note 4	Note 4
Payload (without CRC)	Bits	Note 5		Note 5	Note 5	Note 5	Note 5
Note 1: The control region consists of PCFICH, PHICH and PDCCH. Note 2: DCI formats are defined in 3GPP TS 36.212. Note 3: DCI format shall depend upon the test configuration. Note 4: Cell ID shall depend upon the test configuration. Note 5: Payload size shall depend upon the test configuration. Note 6: For PDCCH using SI/RA/P-RNTI, Aggregation level 4 is used.							

A.2.2 TDD

Table A.2.2-1: PCFICH/PDCCH/PHICH Reference Channel for TDD

Parameter	Unit	Value					
Reference channel		R.8 TDD		R.10 TDD	R.6 TDD	R.7 TDD	R.9 TDD
Channel bandwidth	MHz	1.4		20	10	10	10
Number of transmitter antennas		1		1	1	2	2
Control region OFDM symbols Note1	symbols	4 (Note 6)		2	2	2	3
Aggregation level	CCE	2 (Note 7)		8	8	8	8
DCI Format		Note 3		Note 3	Note 3	Note 3	Note 3
Cell ID		Note 4		Note 4	Note 4	Note 4	Note 4
Payload (without CRC)	Bits	Note 5		Note 5	Note 5	Note 5	Note 5
Note 1: The control region consists of PCFICH, PHICH and PDCCH. Note 2: DCI formats are defined in 3GPP TS 36.212. Note 3: DCI format shall depend upon the test configuration. Note 4: Cell ID shall depend upon the test configuration. Note 5: Payload size shall depend upon the test configuration. Note 6: Only 2 OFDM symbols for special subframes 1 and 6. Note 7: For PDCCH using SI/RA/P-RNTI, Aggregation level 4 is used.							

A.3 PUSCH

This rule applies to E-UTRA cell(s), which the UE is connected to. The UE is in RRC-CONNECTED mode.

When signalling or data payloads are expected to be sent on the PUSCH, the UE may be provided in advance with PUSCH resources by the SS. For sake of simplicity the PUSCH scheduling may also occur continuously over many consecutive subframes. These options shall not be used if:
1) stated otherwise in the test description, or
2) the transmission of PUSCH and UL scheduling information affects the test purpose (e.g. DRX, PUCCH reception etc.)

For handover test cases, after RRC Connection reconfiguration message implying handover is sent, the UE shall be provided continuously with PUSCH resources by the SS in the source cell. This is done in order to make the requirement UE implementation agnostic, w.r.t. different delays caused by different handling of positive RLC acknowledgements, which are not mandatory and of lower priority than the handover procedure progress (Subclause 5.3.5.4 [5]).

If a PUSCH scheduling occurs, the SS sends uplink scheduling information via PDCCH DCI format 0 for C-RNTI to the UE. The UE sends uplink MAC padding bits on the PUSCH.

Annex B (normative): Propagation Conditions

B.0 No interference

See TS 36.521-1[10] Annex B. 0.

B.1 Static propagation condition

See TS 36.521-1[10] Annex B.1 and B.1.1

B.2 Multi-path fading Propagation Conditions

See TS 36.521-1[10] Annex B.2,B.2.1 and B.2.2

Annex C (normative): Downlink Physical Channels

C.0 Downlink signal

See TS 36.521-1[10] Annex C.0.

C.1 General

See TS 36.521-1[10] Annex C.1.

C.2 Set-up

.See TS 36.521-1[10] Annex C.2.

C.3 Test specific scenarios

C.3.1 ABS Transmission Configurations

C.3.1.1 Non-MBSFN ABS Transmission Configurations

C.3.1.1.1 Non-MBSFN ABS Transmission, 1x2 antenna with PBCH

Table C.3.1.1.1-1: Transmission configuration with non-MBSFN ABS, 1x2 with PBCH

Physical Channels and Signals	Parameters	EPRE, [dB]	
		Non-ABS	ABS
PBCH	PBCH_RA	0	0
	PBCH_RB	0	0
PSS	PSS_RA	0	0
SSS	SSS_RA	0	0
PCFICH	PCFICH_RB	0	0 (Note 1)
PHICH	PHICH_RA	0	-Inf
	PHICH_RB	0	-Inf
PDCCH	PDCCH_RA	0	0 (Note 1)
	PDCCH_RB	0	0 (Note 1)
PDSCH	PDSCH_RA	0	0 (Note 1)
	PDSCH_RB	0	0 (Note 1)
OCNG	OCNG_RA	0	-Inf
	OCNG_RB	0	-Inf
NOTE 1: Only used for SIB1, otherwise EPRE is –Inf NOTE 2: 1x2 antenna configuration is assumed			

C.3.1.1.2 Non-MBSFN ABS Transmission, 2x2 antenna without PBCH

Table C.3.1.1.2-1: Transmission configuration #1 with non-MBSFN ABS, 2x2 without PBCH

Physical Channels and Signals	Parameters	EPRE [dB]	
		Non-ABS	ABS
PBCH	PBCH_RA	-3	-Inf
	PBCH_RB	-3	-Inf
PSS	PSS_RA	-3	-3
SSS	SSS_RA	-3	-3
PCFICH	PCFICH_RB	1	-Inf
PHICH	PHICH_RA	-3	-Inf
	PHICH_RB	-3	-Inf
PDCCH	PDCCH_RA	1	-Inf
	PDCCH_RB	1	-Inf
PDSCH	PDSCH_RA	-3	-Inf
	PDSCH_RB	-3	-Inf
OCNG	OCNG_RA	-3	-Inf
	OCNG_RB	-3	-Inf
NOTE: 2x2 antenna configuration is assumed			

Table C.3.1.1.2-2: Transmission configuration #2 with non-MBSFN ABS, 2x2 without PBCH

Physical Channels and Signals	Parameters	EPRE [dB]	
		Non-ABS	ABS
PBCH	PBCH_RA	-3	-Inf
	PBCH_RB	-3	-Inf
PSS	PSS_RA	-3	-3
SSS	SSS_RA	-3	-3
PCFICH	PCFICH_RB	1	-Inf
PHICH	PHICH_RA	-3	-Inf
	PHICH_RB	-3	-Inf
PDCCH	PDCCH_RA	-3	-Inf
	PDCCH_RB	-3	-Inf
PDSCH	PDSCH_RA	-3	-Inf
	PDSCH_RB	-3	-Inf
OCNG	OCNG_RA	-3	-Inf
	OCNG_RB	-3	-Inf
NOTE: 2x2 antenna configuration is assumed			

C.3.1.2 MBSFN ABS Transmission Configurations

C.3.1.2.1 MBSFN ABS Transmission, 1x2 antenna

Table C.3.1.2.1-1: Transmission configuration with MBSFN ABS, 1x2

Physical Channels and Signals	Parameters	EPRE, [dB]	
		Non-ABS	ABS
PBCH	PBCH_RA	0	N/A
	PBCH_RB	0	N/A
PSS	PSS_RA	0	N/A
SSS	SSS_RA	0	N/A
PCFICH	PCFICH_RB	0	-Inf
PHICH	PHICH_RA	0	-Inf
	PHICH_RB	0	-Inf
PDCCH	PDCCH_RA	0	-Inf
	PDCCH_RB	0	-Inf
PDSCH	PDSCH_RA	0	-Inf
	PDSCH_RB	0	-Inf
PMCH	PMCH_RA	0	-Inf
	PMCH_RB	0	-Inf
OCNG	OCNG_RA	0	-Inf
	OCNG_RB	0	-Inf
NOTE: 1x2 antenna configuration is assumed			

C.3.1.2.2 MBSFN ABS Transmission, 2x2 antenna

Table C.3.1.2.2-1: Transmission configuration #1 with MBSFN ABS, 2x2

Physical Channels and Signals	Parameters	EPRE, [dB]	
		Non-ABS	ABS
PBCH	PBCH_RA	-3	N/A
	PBCH_RB	-3	N/A
PSS	PSS_RA	-3	N/A
SSS	SSS_RA	-3	N/A
PCFICH	PCFICH_RB	1	-Inf
PHICH	PHICH_RA	-3	-Inf
	PHICH_RB	-3	-Inf
PDCCH	PDCCH_RA	1	-Inf
	PDCCH_RB	1	-Inf
PDSCH	PDSCH_RA	-3	-Inf
	PDSCH_RB	-3	-Inf
PMCH	PMCH_RA	-3	-Inf
	PMCH_RB	-3	-Inf
OCNG	OCNG_RA	-3	-Inf
	OCNG_RB	-3	-Inf
NOTE: 2x2 antenna configuration is assumed			

Table C.3.1.2.2-2: Transmission configuration # 2 with MBSFN ABS, 2x2

Physical Channels and Signals	Parameters	EPRE, [dB]	
		Non-ABS	ABS
PBCH	PBCH_RA	-3	N/A
	PBCH_RB	-3	N/A
PSS	PSS_RA	-3	N/A
SSS	SSS_RA	-3	N/A
PCFICH	PCFICH_RB	1	-Inf
PHICH	PHICH_RA	-3	-Inf
	PHICH_RB	-3	-Inf
PDCCH	PDCCH_RA	-3	-Inf
	PDCCH_RB	-3	-Inf
PDSCH	PDSCH_RA	-3	-Inf
	PDSCH_RB	-3	-Inf
PMCH	PMCH_RA	-3	-Inf
	PMCH_RB	-3	-Inf
OCNG	OCNG_RA	-3	-Inf
	OCNG_RB	-3	-Inf
NOTE: 2x2 antenna configuration is assumed			

C.3.2 Impact of Reference Sensitivity Degradation with Carrier Aggregation on Test Cases

C.3.2.1 Impact of Reference Sensitivity Degradation due to Insertion Loss

For a UE supporting inter-band carrier aggregation configuration with uplink in one E-UTRA band, if there is a relaxation of receiver sensitivity $\Delta R_{IB,c}>0$ dB as defined in TS 36.101 [5], 7.3.1-1A, there is no adjustment of test parameters in the tests specified in TS 36.133 when $\Delta R_{IB,c} \leq 1$ dB.

Annex D (normative): OFDMA Channel Noise Generator (OCNG)

D.1 OCNG Patterns for FDD

The following OCNG patterns are used for modelling allocations to virtual UEs (which are not under test) and/or allocations used for MBSFN. The OCNG pattern for each sub frame specifies the allocations that shall be filled with OCNG, and furthermore, the relative power level of each such allocation.

In each test case the OCNG is expressed by parameters OCNG_RA and OCNG_RB which together with a relative power level (γ) specifies the PDSCH EPRE-to-RS EPRE ratios in OFDM symbols with and without reference symbols, respectively. The relative power, which is used for modelling boosting per virtual UE allocation, is expressed by:

$$\gamma_i = PDSCH_i\_RA / OCNG\_RA = PDSCH_i\_RB / OCNG\_RB,$$

where γ_i denotes the relative power level of the *i:th* virtual UE. The parameter settings of OCNG_RA, OCNG_RB, and the set of relative power levels γ are chosen such that when also taking allocations to the UE under test into account, as given by a PDSCH reference channel, a constant transmitted power spectral density that is constant on an OFDM symbol basis is targeted.

Moreover the OCNG pattern is accompanied by a PCFICH/PDCCH/PHICH reference channel which specifies the control region. The number of PDCCH OFDM symbols in the non-MBSFN subframes is the same as specified in the RMC used in the test. The number of PDCCH OFDM symbols in the MBSFN subframes is the maximal allowed according to 3GPP TS 36.213 [8]. For any aggregation and PHICH allocation, the PDCCH and any unused PHICH groups are padded with resource element groups with a power level given respectively by PDCCH_RA/RB and PHICH_RA/RB as specified in the test case such that a total power spectral density in the control region that is constant on an OFDM symbol basis is targeted.

For subframes configured as PRS subframes the PDSCH allocation defined in the OCNG pattern does not apply.

For subframes configured as ABS subframes the PDSCH and PMCH allocation defined in the OCNG pattern does not apply.

The system information is scheduled in the allocations reserved for the OCNG patterns, in the subframes not configured for MBSFN. For this purpose the number of the RB-s allocated with PDSCH defined in the OCNG pattern can be reduced as necessary.

D.1.1 OCNG FDD pattern 1: outer resource blocks allocation in 10 MHz

Table D.1.1-1: OP.1 FDD: OCNG FDD Pattern 1

Allocation n_{PRB}	**Relative power level** γ_{PRB} **[dB]**				**PDSCH Data**	**PMCH Data**
	Subframe					
	0	5	4,9	1-3, 6-8		
0 - 12	0	0	0	N/A	Note 1	N/A
37 - 49	0	0	0	N/A		
0-49	N/A	N/A	N/A	Note 4	N/A	Note 2

Note 1: These physical resource blocks are assigned to an arbitrary number of virtual UEs with one PDSCH per virtual UE; the data transmitted over the OCNG PDSCHs shall be uncorrelated pseudo random data, which is QPSK modulated. The parameter γ_{PRB} is used to scale the power of PDSCH.

Note 2: Each physical resource block (PRB) is assigned to MBSFN transmission. The data in each PRB shall be uncorrelated with data in other PRBs over the period of any measurement. The MBSFN data shall be QPSK modulated. PMCH symbols shall not contain cell-specific Reference Signals. PMCH subframes shall contain cell-specific Reference Signals only in the first symbol of the first time slot. The parameter γ_{PRB} is used to scale the power of PMCH.

Note 3: If two or more transmit antennas with CRS are used in the test, the PDSCH part of OCNG shall be transmitted to the virtual users by all the transmit antennas with CRS and according to the antenna transmission mode 2. The parameter γ_{PRB} applies to each antenna port separately, so the transmit power of the PDSCH part of OCNG is equal between all the transmit antennas with CRS used in the test. The antenna transmission modes are specified in section 7.1 in 3GPP TS 36.213.

Note 4: 0 dB for 1 transmit antenna with CRS, +3 dB for 2 transmit antennas with CRS.

N/A: Not Applicable

D.1.2 OCNG FDD pattern 2: full bandwidth allocation in 10 MHz

Table D.1.2-1: OP.2 FDD: OCNG FDD Pattern 2

Allocation n_{PRB}	Relative power level γ_{PRB} [dB]				PDSCH Data	PMCH Data
	Subframe					
	0	5	4, 9	1 - 3, 6 - 8		
0 - 49	0	0	0	N/A	Note 1	N/A
0 - 49	N/A	N/A	N/A	Note 4	N/A	Note 2

Note 1: These physical resource blocks are assigned to an arbitrary number of virtual UEs with one PDSCH per virtual UE; the data transmitted over the OCNG PDSCHs shall be uncorrelated pseudo random data, which is QPSK modulated. The parameter γ_{PRB} is used to scale the power of PDSCH.

Note 2: Each physical resource block (PRB) is assigned to MBSFN transmission. The data in each PRB shall be uncorrelated with data in other PRBs over the period of any measurement. The MBSFN data shall be QPSK modulated. PMCH symbols shall not contain cell-specific Reference Signals. PMCH subframes shall contain cell-specific Reference Signals only in the first symbol of the first time slot. The parameter γ_{PRB} is used to scale the power of PMCH.

Note 3: If two or more transmit antennas with CRS are used in the test, the PDSCH part of OCNG shall be transmitted to the virtual users by all the transmit antennas with CRS and according to the antenna transmission mode 2. The parameter γ_{PRB} applies to each antenna port separately, so the transmit power of the PDSCH part of OCNG is equal between all the transmit antennas with CRS used in the test. The antenna transmission modes are specified in section 7.1 in 3GPP TS 36.213.

Note 4: 0 dB for 1 transmit antenna with CRS, +3 dB for 2 transmit antennas with CRS.

N/A: Not Applicable

D.1.3 OCNG FDD pattern 3: outer resource blocks allocation in 1.4 MHz

Table A.3.2.1.3-1: OP.3 FDD: OCNG FDD Pattern 3

Allocation n_{PRB}	Relative power level γ_{PRB} [dB]				PDSCH Data	PMCH Data
	Subframe					
	0	5	4,9	1-3, 6-8		
0 - 1	0	0	0	N/A	Note 1	N/A
4 - 5	0	0	0	N/A		
0 - 5	N/A	N/A	N/A	Note 4	N/A	Note 2

Note 1: These physical resource blocks are assigned to an arbitrary number of virtual UEs with one PDSCH per virtual UE; the data transmitted over the OCNG PDSCHs shall be uncorrelated pseudo random data, which is QPSK modulated. The parameter γ_{PRB} is used to scale the power of PDSCH.

Note 2: Each physical resource block (PRB) is assigned to MBSFN transmission. The data in each PRB shall be uncorrelated with data in other PRBs over the period of any measurement. The MBSFN data shall be QPSK modulated. PMCH symbols shall not contain cell-specific Reference Signals. PMCH subframes shall contain cell-specific Reference Signals only in the first symbol of the first time slot. The parameter γ_{PRB} is used to scale the power of PMCH.

Note 3: If two or more transmit antennas with CRS are used in the test, the PDSCH part of OCNG shall be transmitted to the virtual users by all the transmit antennas with CRS and according to the antenna transmission mode 2. The parameter γ_{PRB} applies to each antenna port separately, so the transmit power of the PDSCH part of OCNG is equal between all the transmit antennas with CRS used in the test. The antenna transmission modes are specified in section 7.1 in 3GPP TS 36.213.

Note 4: 0 dB for 1 transmit antenna with CRS, +3 dB for 2 transmit antennas with CRS.

N/A: Not Applicable

D.1.4 OCNG FDD pattern 4: full bandwidth allocation in 1.4 MHz

Table A.3.2.1.4-1: OP.4 FDD: OCNG FDD Pattern 4

Allocation n_{PRB}	Relative power level γ_{PRB} [dB]				PDSCH Data	PMCH Data
	Subframe					
	0	5	4, 9	1 - 3, 6 - 8		
0 - 5	0	0	0	N/A	Note 1	N/A
0 - 5	N/A	N/A	N/A	Note 4	N/A	Note 2

Note 1: These physical resource blocks are assigned to an arbitrary number of virtual UEs with one PDSCH per virtual UE; the data transmitted over the OCNG PDSCHs shall be uncorrelated pseudo random data, which is QPSK modulated. The parameter γ_{PRB} is used to scale the power of PDSCH.

Note 2: Each physical resource block (PRB) is assigned to MBSFN transmission. The data in each PRB shall be uncorrelated with data in other PRBs over the period of any measurement. The MBSFN data shall be QPSK modulated. PMCH subframes shall contain cell-specific Reference Signals only in the first symbol of the first time slot. The parameter γ_{PRB} is used to scale the power of PMCH.

Note 3: If two or more transmit antennas with CRS are used in the test, the PDSCH part of OCNG shall be transmitted to the virtual users by all the transmit antennas with CRS and according to the antenna transmission mode 2. The parameter γ_{PRB} applies to each antenna port separately, so the transmit power of the PDSCH part of OCNG is equal between all the transmit antennas with CRS used in the test. The antenna transmission modes are specified in section 7.1 in 3GPP TS 36.213.

Note 4: 0 dB for 1 transmit antenna with CRS, +3 dB for 2 transmit antennas with CRS.

N/A: Not Applicable

D.1.5 OCNG FDD pattern 5: outer resource blocks allocation in 10 MHz (without MBSFN)

Table D.1.5-1: OP.5 FDD: OCNG FDD Pattern 5

Allocation n_{PRB}	Relative power level γ_{PRB} [dB]				PDSCH Data
	Subframe (Note 1)				
	0	5	4, 9	1 - 3, 6 - 8	
0 - 12	0	0	0	N/A	Note 2
37 - 49	0	0	0	N/A	
0 - 49	N/A	N/A	N/A	0	

Note 1: PDSCH allocation applies only to subframes not configured as PRS subframes.

Note 2: These physical resource blocks are assigned to an arbitrary number of virtual UEs with one PDSCH per virtual UE; the data transmitted over the OCNG PDSCHs shall be uncorrelated pseudo random data, which is QPSK modulated. The parameter γ_{PRB} is used to scale the power of PDSCH.

Note 3: If two or more transmit antennas with CRS are used in the test, the PDSCH part of OCNG shall be transmitted to the virtual users by all the transmit antennas with CRS and according to the antenna transmission mode 2. The parameter γ_{PRB} applies to each antenna port separately, so the transmit power of the PDSCH part of OCNG is equal between all the transmit antennas with CRS used in the test. The antenna transmission modes are specified in section 7.1 in 3GPP TS 36.213.

N/A: Not Applicable

D.1.6 OCNG FDD pattern 6: full bandwidth allocation in 10 MHz (without MBSFN)

Table D.1.6-1: OP.6 FDD: OCNG FDD Pattern 6

Allocation n_{PRB}	**Relative power level** γ_{PRB} **[dB]**				**PDSCH Data**
	Subframe (Note 1)				
	0	5	4, 9	1 - 3, 6 - 8	
0 - 49	0	0	0	0	Note 2

Note 1: PDSCH allocation applies only to subframes not configured as PRS subframes.
Note 2: These physical resource blocks are assigned to an arbitrary number of virtual UEs with one PDSCH per virtual UE; the data transmitted over the OCNG PDSCHs shall be uncorrelated pseudo random data, which is QPSK modulated. The parameter γ_{PRB} is used to scale the power of PDSCH.
Note 3: If two or more transmit antennas with CRS are used in the test, the PDSCH part of OCNG shall be transmitted to the virtual users by all the transmit antennas with CRS and according to the antenna transmission mode 2. The parameter γ_{PRB} applies to each antenna port separately, so the transmit power of the PDSCH part of OCNG is equal between all the transmit antennas with CRS used in the test. The antenna transmission modes are specified in section 7.1 in 3GPP TS 36.213.

N/A: Not Applicable

D.1.7 OCNG FDD pattern 7: full bandwidth allocation in 1.4 MHz (without MBSFN)

Table D.1.7-1: OP.7 FDD: OCNG FDD Pattern 7

Allocation n_{PRB}	**Relative power level** γ_{PRB} **[dB]**				**PDSCH Data**
	Subframe (Note 1)				
	0	5	4, 9	1 - 3, 6 - 8	
0 - 5	0	0	0	0	Note 2

Note 1: PDSCH allocation applies only to subframes not configured as PRS subframes.
Note 2: These physical resource blocks are assigned to an arbitrary number of virtual UEs with one PDSCH per virtual UE; the data transmitted over the OCNG PDSCHs shall be uncorrelated pseudo random data, which is QPSK modulated. The parameter γ_{PRB} is used to scale the power of PDSCH.
Note 3: If two or more transmit antennas with CRS are used in the test, the PDSCH part of OCNG shall be transmitted to the virtual users by all the transmit antennas with CRS and according to the antenna transmission mode 2. The parameter γ_{PRB} applies to each antenna port separately, so the transmit power of the PDSCH part of OCNG is equal between all the transmit antennas with CRS used in the test. The antenna transmission modes are specified in section 7.1 in 3GPP TS 36.213.

N/A: Not Applicable

D.1.8 OCNG FDD pattern 8: outer resource blocks allocation in 10 MHz for MBSFN ABS

Table D.1.8-1: OP.8 FDD: OCNG FDD Pattern 8

Allocation n_{PRB}	Relative power level γ_{PRB} [dB]				PDSCH Data
	Subframe (Note 1)				
	0	5	4,9	(1-3, 6-8)Note4	
0 – 12	0	0	0	N/A	Note 2
37 – 49	0	0	0	N/A	
0 – 49	N/A	N/A	N/A	0	

Note 1: PDSCH allocation does not apply to subframes configured as PRS subframes.
Note 2: These physical resource blocks are assigned to an arbitrary number of virtual UEs with one PDSCH per virtual UE; the data transmitted over the OCNG PDSCHs shall be uncorrelated pseudo random data, which is QPSK modulated. The parameter γ_{PRB} is used to scale the power of PDSCH.
Note 3: If two or more transmit antennas with CRS are used in the test, the PDSCH part of OCNG shall be transmitted to the virtual users by all the transmit antennas with CRS and according to the antenna transmission mode 2. The parameter γ_{PRB} applies to each antenna port separately, so the transmit power of the PDSCH part of OCNG is equal between all the transmit antennas with CRS used in the test. The antenna transmission modes are specified in clause 7.1 in TS 36.213.
Note 4: The subframe(s) configured as MBSFN ABS in a test shall not contain any PMCH data and shall contain CRS only in the first symbol of the first time slot. The subframe(s) configured as MBSFN ABS depend upon the MBSFN ABS pattern used in the test.
N/A: Not Applicable

D.1.9 OCNG FDD pattern 9: full bandwidth allocation in 10 MHz for MBSFN ABS

Table D.1.9-1: OP.9 FDD: OCNG FDD Pattern 9

Allocation n_{PRB}	Relative power level γ_{PRB} [dB]				PDSCH Data
	Subframe (Note 1)				
	0	5	4, 9	(1-3, 6-8)Note4	
0 – 49	0	0	0	0	Note 2

Note 1: PDSCH allocation applies only to subframes not configured as PRS subframes.
Note 2: These physical resource blocks are assigned to an arbitrary number of virtual UEs with one PDSCH per virtual UE; the data transmitted over the OCNG PDSCHs shall be uncorrelated pseudo random data, which is QPSK modulated. The parameter γ_{PRB} is used to scale the power of PDSCH.
Note 3: If two or more transmit antennas with CRS are used in the test, the PDSCH part of OCNG shall be transmitted to the virtual users by all the transmit antennas with CRS and according to the antenna transmission mode 2. The parameter γ_{PRB} applies to each antenna port separately, so the transmit power of the PDSCH part of OCNG is equal between all the transmit antennas with CRS used in the test. The antenna transmission modes are specified in clause 7.1 in TS 36.213.
Note 4: The subframe(s) configured as MBSFN ABS in a test shall not contain any PMCH data and shall contain CRS only in the first symbol of the first time slot. The subframe(s) configured as MBSFN ABS depend upon the MBSFN ABS pattern used in the test.
N/A: Not Applicable

D.1.10 OCNG FDD pattern 10: outer resource blocks allocation in 10 MHz with user data in every SF (without MBSFN)

Table D.1.10-1: OP.10 FDD: OCNG FDD Pattern 10

Allocation n_{PRB}	Relative power level γ_{PRB} [dB]	PDSCH Data
	Subframe (Note 1)	

	0	5	4, 9	1 - 3, 6 - 8	
0 - 12	0	0	0	0	Note 2
37 - 49	0	0	0	0	

Note 1: PDSCH allocation applies only to subframes not configured as PRS subframes.
Note 2: These physical resource blocks are assigned to an arbitrary number of virtual UEs with one PDSCH per virtual UE; the data transmitted over the OCNG PDSCHs shall be uncorrelated pseudo random data, which is QPSK modulated. The parameter γ_{PRB} is used to scale the power of PDSCH.
Note 3: If two or more transmit antennas with CRS are used in the test, the PDSCH part of OCNG shall be transmitted to the virtual users by all the transmit antennas with CRS and according to the antenna transmission mode 2. The parameter γ_{PRB} applies to each antenna port separately, so the transmit power of the PDSCH part of OCNG is equal between all the transmit antennas with CRS used in the test. The antenna transmission modes are specified in section 7.1 in 3GPP TS 36.213.

N/A: Not Applicable

D.1.11 OCNG FDD pattern 11: outer resource blocks allocation in 20 MHz

Table D.1.11-1: OP.11 FDD: OCNG FDD Pattern 11

Allocation n_{PRB}	**Relative power level** γ_{PRB} **[dB]**				**PDSCH Data**	**PMCH Data**
	Subframe					
	0	5	4,9	1-3, 6-8		
0 – 37	0	0	0	N/A	Note 1	N/A
62 – 99	0	0	0	N/A		
0-99	N/A	N/A	N/A	Note 4	N/A	Note 2

Note 1: These physical resource blocks are assigned to an arbitrary number of virtual UEs with one PDSCH per virtual UE; the data transmitted over the OCNG PDSCHs shall be uncorrelated pseudo random data, which is QPSK modulated. The parameter γ_{PRB} is used to scale the power of PDSCH.
Note 2: Each physical resource block (PRB) is assigned to MBSFN transmission. The data in each PRB shall be uncorrelated with data in other PRBs over the period of any measurement. The MBSFN data shall be QPSK modulated. PMCH symbols shall not contain cell-specific Reference Signals. PMCH subframes shall contain cell-specific Reference Signals only in the first symbol of the first time slot. The parameter γ_{PRB} is used to scale the power of PMCH.
Note 3: If two or more transmit antennas with CRS are used in the test, the PDSCH part of OCNG shall be transmitted to the virtual users by all the transmit antennas with CRS and according to the antenna transmission mode 2. The parameter γ_{PRB} applies to each antenna port separately, so the transmit power of the PDSCH part of OCNG is equal between all the transmit antennas with CRS used in the test. The antenna transmission modes are specified in section 7.1 in 3GPP TS 36.213.
Note 4: 0dB for 1 transmit antenna with CRS, +3dB for 2 transmit antennas with CRS.

N/A: Not Applicable

D.1.12 OCNG FDD pattern 12: full bandwidth allocation in 20 MHz

Table D.1.12-1: OP.12 FDD: OCNG FDD Pattern 12

Allocation n_{PRB}	**Relative power level γ_{PRB} [dB]**				**PDSCH Data**	**PMCH Data**
	Subframe					
	0	5	4, 9	1 – 3, 6 – 8		
0 – 99	0	0	0	N/A	Note 1	N/A
0 – 99	N/A	N/A	N/A	Note 4	N/A	Note 2

Note 1: These physical resource blocks are assigned to an arbitrary number of virtual UEs with one PDSCH per virtual UE; the data transmitted over the OCNG PDSCHs shall be uncorrelated pseudo random data, which is QPSK modulated. The parameter γ_{PRB} is used to scale the power of PDSCH.

Note 2: Each physical resource block (PRB) is assigned to MBSFN transmission. The data in each PRB shall be uncorrelated with data in other PRBs over the period of any measurement. The MBSFN data shall be QPSK modulated. PMCH subframes shall contain cell-specific Reference Signals only in the first symbol of the first time slot. The parameter γ_{PRB} is used to scale the power of PMCH.

Note 3: If two or more transmit antennas with CRS are used in the test, the PDSCH part of OCNG shall be transmitted to the virtual users by all the transmit antennas with CRS and according to the antenna transmission mode 2. The parameter γ_{PRB} applies to each antenna port separately, so the transmit power of the PDSCH part of OCNG is equal between all the transmit antennas with CRS used in the test. The antenna transmission modes are specified in section 7.1 in 3GPP TS 36.213.

Note 4: 0dB for 1 transmit antenna with CRS, +3dB for 2 transmit antennas with CRS.

N/A: Not Applicable

D.1.13 OCNG FDD pattern 13: outer resource blocks allocation in 20 MHz (without MBSFN)

Table D.1.13-1: OP.13 FDD: OCNG FDD Pattern 13

Allocation n_{PRB}	Relative power level γ_{PRB} [dB]				PDSCH Data
	Subframe (Note 1)				
	0	5	4,9	1-3, 6-8	
0 – 37	0	0	0	N/A	Note 2
62 – 99	0	0	0	N/A	
0 – 99	N/A	N/A	N/A	0	

Note 1: PDSCH allocation applies only to subframes not configured as PRS subframes.
Note 2: These physical resource blocks are assigned to an arbitrary number of virtual UEs with one PDSCH per virtual UE; the data transmitted over the OCNG PDSCHs shall be uncorrelated pseudo random data, which is QPSK modulated. The parameter γ_{PRB} is used to scale the power of PDSCH.
Note 3: If two or more transmit antennas with CRS are used in the test, the PDSCH part of OCNG shall be transmitted to the virtual users by all the transmit antennas with CRS and according to the antenna transmission mode 2. The parameter γ_{PRB} applies to each antenna port separately, so the transmit power of the PDSCH part of OCNG is equal between all the transmit antennas with CRS used in the test. The antenna transmission modes are specified in section 7.1 in 3GPP TS 36.213.

N/A: Not Applicable

D.1.14 OCNG FDD pattern 14: full bandwidth allocation in 20 MHz (without MBSFN)

Table D.1.14-1: OP.14 FDD: OCNG FDD Pattern 14

Allocation n_{PRB}	Relative power level γ_{PRB} [dB]				PDSCH Data
	Subframe (Note 1)				
	0	5	4, 9	1 – 3, 6 – 8	

0 – 99	0	0	0	0	Note 2
Note 1: PDSCH allocation applies only to subframes not configured as PRS subframes. Note 2: These physical resource blocks are assigned to an arbitrary number of virtual UEs with one PDSCH per virtual UE; the data transmitted over the OCNG PDSCHs shall be uncorrelated pseudo random data, which is QPSK modulated. The parameter γ_{PRB} is used to scale the power of PDSCH. Note 3: If two or more transmit antennas with CRS are used in the test, the PDSCH part of OCNG shall be transmitted to the virtual users by all the transmit antennas with CRS and according to the antenna transmission mode 2. The parameter γ_{PRB} applies to each antenna port separately, so the transmit power of the PDSCH part of OCNG is equal between all the transmit antennas with CRS used in the test. The antenna transmission modes are specified in section 7.1 in 3GPP TS 36.213. N/A: Not Applicable					

D.2 OCNG Patterns for TDD

The following OCNG patterns are used for modelling allocations to virtual UEs (which are not under test). The OCNG pattern for each sub frame specifies the allocations that shall be filled with OCNG, and furthermore, the relative power level of each such allocation.

In each test case the OCNG is expressed by parameters OCNG_RA and OCNG_RB which together with a relative power level (γ) specifies the PDSCH EPRE-to-RS EPRE ratios in OFDM symbols with and without reference symbols, respectively. The relative power, which is used for modelling boosting per virtual UE allocation, is expressed by:

$$\gamma_i = PDSCH_i\_RA / OCNG\_RA = PDSCH_i\_RB / OCNG\_RB,$$

where γ_i denotes the relative power level of the *i:th* virtual UE. The parameter settings of OCNG_RA, OCNG_RB, and the set of relative power levels γ are chosen such that when also taking allocations to the UE under test into account, as given by a PDSCH reference channel, a transmitted power spectral density that is constant on an OFDM symbol basis is targeted.

Moreover the OCNG pattern is accompanied by a PCFICH/PDCCH/PHICH reference channel which specifies the control region. The number of PDCCH OFDM symbols in the non-MBSFN subframes is the same as specified in the RMC used in the test. The number of PDCCH OFDM symbols in the MBSFN subframes is the maximal allowed according to 3GPP TS 36.213 [8]. For any aggregation and PHICH allocation, the PDCCH and any unused PHICH groups are padded with resource element groups with a power level given respectively by PDCCH_RA/RB and PHICH_RA/RB as specified in the test case such that a total power spectral density in the control region that is constant on an OFDM symbol basis is targeted.

For subframes configured as PRS subframes the PDSCH allocation defined in the OCNG pattern does not apply.

For subframes configured as ABS subframes the PDSCH and PMCH allocation defined in the OCNG pattern does not apply.

The system information is scheduled in the allocations reserved for the OCNG patterns, in the subframes not configured for MBSFN. For this purpose the number of the RB-s allocated with PDSCH defined in the OCNG pattern can be reduced as necessary.

D.2.1 OCNG TDD pattern 1: outer resource blocks allocation in 10 MHz

Table D.2.1-1: OP.1 TDD: OCNG TDD Pattern 1 for 5ms downlink-to-uplink switch-point periodicity

Allocation n_{PRB}	**Relative power level** γ_{PRB} **[dB]**				**PDSCH Data**
	Subframe (Note 1)				
	0	5	3, 4, 8, 9 and 6 (as normal subframe) Note 3	1 and 6 (as special subframe) Note 3	
0 - 12	0	0	0	0	Note 2
37 - 49	0	0	0	0	

Note 1: PDSCH allocation applies only to subframes not configured as PRS subframes.
Note 2: These physical resource blocks are assigned to an arbitrary number of virtual UEs with one PDSCH per virtual UE; the data transmitted over the OCNG PDSCHs shall be uncorrelated pseudo random data, which is QPSK modulated. The parameter γ_{PRB} is used to scale the power of PDSCH.
Note 3: Subframes available for DL transmission depends on the Uplink-Downlink configuration defined in Table 4.2-2 in 3GPP TS 36.211 [9]. The control region consists of PCFICH, PHICH and PDCCH. Number of OFDM symbols belonging to the control region may vary between subframes.
Note 4: If two or more transmit antennas with CRS are used in the test, the OCNG shall be transmitted to the virtual users by all the transmit antennas with CRS and according to the antenna transmission mode 2. The parameter γ_{PRB} applies to each antenna port separately, so the transmit power is equal between all the transmit antennas with CRS used in the test. The antenna transmission modes are specified in section 7.1 in 3GPP TS 36.213.

D.2.2 OCNG TDD pattern 2: full bandwidth allocation in 10 MHz

Table D.2.2-1: OP.2 TDD: OCNG TDD Pattern 2 for 5ms downlink-to-uplink switch-point periodicity

Allocation n_{PRB}	**Relative power level** γ_{PRB} **[dB]**				**PDSCH Data**
	Subframe (Note 1)				
	0	5	3 , 4, 8, 9 and 6 (as normal subframe) Note 3	1 and 6 (as special subframe) Note 3	
0 - 49	0	0	0	0	Note 2

Note 1: PDSCH allocation applies only to subframes not configured as PRS subframes.
Note 2: These physical resource blocks are assigned to an arbitrary number of virtual UEs with one PDSCH per virtual UE; the data transmitted over the OCNG PDSCHs shall be uncorrelated pseudo random data, which is QPSK modulated. The parameter γ_{PRB} is used to scale the power of PDSCH.
Note 3: Subframes available for DL transmission depends on the Uplink-Downlink configuration in Table 4.2-2 in 3GPP TS 36.211[9]. The control region consists of PCFICH, PHICH and PDCCH. Number of OFDM symbols belonging to the control region may vary between subframes.
Note 4: If two or more transmit antennas with CRS are used in the test, the OCNG shall be transmitted to the virtual users by all the transmit antennas with CRS and according to the antenna transmission mode 2. The parameter γ_{PRB} applies to each antenna port separately, so the transmit power is equal between all the transmit antennas with CRS used in the test. The antenna transmission modes are specified in section 7.1 in 3GPP TS 36.213.

D.2.3 OCNG TDD pattern 3: outer resource blocks allocation in 1.4 MHz

Table D.2.3-1: OP.3 TDD: OCNG TDD Pattern 3 for 5 ms downlink-to-uplink switch-point periodicity

Allocation n_{PRB}	**Relative power level** γ_{PRB} **[dB]**				**PDSCH Data**
	Subframe (Note 1)				
	0	5	3 , 4, 8, 9 and 6 (as normal subframe) Note 3	1 and 6 (as special subframe) Note 3	
0 - 1	0	0	0	0	Note 2
4 - 5	0	0	0	0	
Note 1: PDSCH allocation applies only to subframes not configured as PRS subframes. Note 2: These physical resource blocks are assigned to an arbitrary number of virtual UEs with one PDSCH per virtual UE; the data transmitted over the OCNG PDSCHs shall be uncorrelated pseudo random data, which is QPSK modulated. The parameter γ_{PRB} is used to scale the power of PDSCH. Note 3: Subframes available for DL transmission depends on the Uplink-Downlink configuration defined in Table 4.2-2 in 3GPP TS 36.211 [9]. Note 4: If two or more transmit antennas with CRS are used in the test, the OCNG shall be transmitted to the virtual users by all the transmit antennas with CRS and according to the antenna transmission mode 2. The parameter γ_{PRB} applies to each antenna port separately, so the transmit power is equal between all the transmit antennas with CRS used in the test. The antenna transmission modes are specified in section 7.1 in 3GPP TS 36.213.					

D.2.4 OCNG TDD pattern 4: full bandwidth allocation in 1.4 MHz

Table D.2.4-1: OP.4 TDD: OCNG TDD Pattern 4 for 5 ms downlink-to-uplink switch-point periodicity

Allocation n_{PRB}	**Relative power level** γ_{PRB} **[dB]**				**PDSCH Data**
	Subframe (Note 1)				
	0	5	3 , 4, 8, 9 and 6 (as normal subframe) Note 3	1 and 6 (as special subframe) Note 3	
0 - 5	0	0	0	0	Note 2
Note 1: PDSCH allocation applies only to subframes not configured as PRS subframes. Note 2: These physical resource blocks are assigned to an arbitrary number of virtual UEs with one PDSCH per virtual UE; the data transmitted over the OCNG PDSCHs shall be uncorrelated pseudo random data, which is QPSK modulated. The parameter γ_{PRB} is used to scale the power of PDSCH. Note 3: Subframes available for DL transmission depends on the Uplink-Downlink configuration in Table 4.2-2 in 3GPP TS 36.211 [9]. Note 4: If two or more transmit antennas with CRS are used in the test, the OCNG shall be transmitted to the virtual users by all the transmit antennas with CRS and according to the antenna transmission mode 2. The parameter γ_{PRB} applies to each antenna port separately, so the transmit power is equal between all the transmit antennas with CRS used in the test. The antenna transmission modes are specified in section 7.1 in 3GPP TS 36.213.					

D.2.5 OCNG TDD pattern 5: outer resource blocks allocation in 10 MHz for MBSFN ABS

Table D.2.5-1: OP.5 TDD: OCNG TDD Pattern 5 for 5ms downlink-to-uplink switch-point periodicity

Allocation n_{PRB}	Relative power level γ_{PRB} [dB]				PDSCH Data
	Subframe (Note 1)				
	0	5	3 , 4, 8, 9 and 6 (as normal subframe) Note 3	1 and 6 (as special subframe) Note 3	
0 – 12	0	0	0	Table A.3.2.2.1-2	Note 2
37 – 49	0	0	0		

Note 1: PDSCH allocation does not apply to subframes configured as PRS subframes.
Note 2: These physical resource blocks are assigned to an arbitrary number of virtual UEs with one PDSCH per virtual UE; the data transmitted over the OCNG PDSCHs shall be uncorrelated pseudo random data, which is QPSK modulated The parameter γ_{PRB} is used to scale the power of PDSCH.
Note 3: Subframes available for DL transmission depends on the Uplink-Downlink configuration defined in Table 4.2-2 in TS 36.211 [16]. Any of the subframes 3, 4, 8 and 9 configured as MBSFN ABS in a test shall not contain any PMCH data and shall contain CRS only in the first symbol of the first time slot. The subframe(s) configured as MBSFN ABS depend upon the MBSFN ABS pattern used in the test.
Note 4: If two or more transmit antennas with CRS are used in the test, the OCNG shall be transmitted to the virtual users by all the transmit antennas with CRS and according to the antenna transmission mode 2. The parameter γ_{PRB} applies to each antenna port separately, so the transmit power is equal between all the transmit antennas with CRS used in the test. The antenna transmission modes are specified in clause 7.1 in TS 36.213.

Table D.2.5-2: OP.5 TDD: OCNG TDD Pattern 5 for special subframe configuration with 5ms downlink-to-uplink switch-point periodicity

Allocation n_{PRB}	CP length	Relative power level γ_{PRB} [dB]																	
		Special subframe configuration																	
		0		1		2		3		4		5		6		7		8	
		Control region OFDM symbols																	
		1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
0 – 12	N	0		0		0		0		0		0		0		0		0	
37 – 49	N	0		0		0		0		0		0		0		0		0	
Note 1: Special subframe configurations are defined in Table 4.2-1 in TS 36.211 [16].																			

D.2.6 OCNG TDD pattern 6: full bandwidth allocation in 10 MHz for MBSFN ABS

Table D.2.6-1: OP.6 TDD: OCNG TDD Pattern 6 for 5ms downlink-to-uplink switch-point periodicity

Allocation n_{PRB}	Relative power level γ_{PRB} [dB]				PDSCH Data
	Subframe (Note 1)				
	0	5	3 , 4, 8, 9 and 6 (as normal subframe) Note 3	1 and 6 (as special subframe) Note 3	
0 – 49	0	0	0	0	Note 2

Note 1: PDSCH allocation does not apply to subframes configured as PRS subframes.
Note 2: These physical resource blocks are assigned to an arbitrary number of virtual UEs with one PDSCH per virtual UE; the data transmitted over the OCNG PDSCHs shall be uncorrelated pseudo random data, which is QPSK modulated. The parameter γ_{PRB} is used to scale the power of PDSCH.
Note 3: Subframes available for DL transmission depends on the Uplink-Downlink configuration in Table 4.2-2 in TS 36.211 [16]. Any of the subframes 3, 4, 8 and 9 configured as MBSFN ABS in a test shall not contain any PMCH data and shall contain CRS only in the first symbol of the first time slot. The subframe(s) configured as MBSFN ABS depend upon the MBSFN ABS pattern used in the test.
Note 4: If two or more transmit antennas with CRS are used in the test, the OCNG shall be transmitted to the virtual users by all the transmit antennas with CRS and according to the antenna transmission mode 2. The parameter γ_{PRB} applies to each antenna port separately, so the transmit power is equal between all the transmit antennas with CRS used in the test. The antenna transmission modes are specified in clause 7.1 in TS 36.213.

D.2.7 OCNG TDD pattern 7: outer resource blocks allocation in 20 MHz

Table D.2.7-1: OP.7 TDD: OCNG TDD Pattern 7 for 5ms downlink-to-uplink switch-point periodicity

Allocation n_{PRB}	Relative power level γ_{PRB} [dB]				PDSCH Data
	Subframe (Note 1)				
	0	5	3 , 4, 8, 9 and 6 (as normal subframe) Note 3	1 and 6 (as special subframe) Note 3	

0 – 37	0	0	0	Table A.3.2.1.7-2	Note 2
62 – 99	0	0	0		

Note 1: PDSCH allocation applies only to subframes not configured as PRS subframes.
Note 2: These physical resource blocks are assigned to an arbitrary number of virtual UEs with one PDSCH per virtual UE; the data transmitted over the OCNG PDSCHs shall be uncorrelated pseudo random data, which is QPSK modulated The parameter γ_{PRB} is used to scale the power of PDSCH.
Note 3: Subframes available for DL transmission depends on the Uplink-Downlink configuration defined in Table 4.2-2 in 3GPP TS 36.211 [16].
Note 4: If two or more transmit antennas with CRS are used in the test, the OCNG shall be transmitted to the virtual users by all the transmit antennas with CRS and according to the antenna transmission mode 2. The parameter γ_{PRB} applies to each antenna port separately, so the transmit power is equal between all the transmit antennas with CRS used in the test. The antenna transmission modes are specified in section 7.1 in 3GPP TS 36.213.

Table D.2.7-2: OP.7 TDD: OCNG TDD Pattern 7 for special subframe configuration with 5ms downlink-to-uplink switch-point periodicity

Allocation n_{PRB}	CP length	Relative power level γ_{PRB} [dB]																	
		Special subframe configuration																	
		0		1		2		3		4		5		6		7		8	
		Control region OFDM symbols																	
		1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
0 – 37	N	0		0		0		0		0		0		0		0		0	
62 – 99	N	0		0		0		0		0		0		0		0		0	

Note 1: Special subframe configurations are defined in Table 4.2-1 in TS 36.211 [16].

D.2.8 OCNG TDD pattern 8: full bandwidth allocation in 20 MHz

Table D.2.8-1: OP.8 TDD: OCNG TDD Pattern 8 for 5ms downlink-to-uplink switch-point periodicity

Allocation n_{PRB}	Relative power level γ_{PRB} [dB]				PDSCH Data
	Subframe (Note 1)				
	0	5	3 , 4, 8, 9 and 6 (as normal subframe) Note 3	1 and 6 (as special subframe) Note 3	
0 – 99	0	0	0	0	Note 2

Note 1: PDSCH allocation applies only to subframes not configured as PRS subframes.
Note 2: These physical resource blocks are assigned to an arbitrary number of virtual UEs with one PDSCH per virtual UE; the data transmitted over the OCNG PDSCHs shall be uncorrelated pseudo random data, which is QPSK modulated. The parameter γ_{PRB} is used to scale the power of PDSCH.
Note 3: Subframes available for DL transmission depends on the Uplink-Downlink configuration in Table 4.2-2 in 3GPP TS 36.211 [16].
Note 4: If two or more transmit antennas with CRS are used in the test, the OCNG shall be transmitted to the virtual users by all the transmit antennas with CRS and according to the antenna transmission mode 2. The parameter γ_{PRB} applies to each antenna port separately, so the transmit power is equal between all the transmit antennas with CRS used in the test. The antenna transmission modes are specified in section 7.1 in 3GPP TS 36.213.

Annex E (normative): Cell configuration mapping

The cells used in TS 36.521-3 do not correspond to the cells defined in TS 36.508 [7] section 4.4.2. Table E-1 describes the mapping between cells described in TS 36.521-3 and those defined in TS 36.508 [7]. For each test case the cells as defined in TS 36.508 [7] section 4.4.2 are listed in one row. The test case shall apply the RF parameters as defined in TS 36.521-3 according to the column heading.

NOTE: For example if the second cell in a test case is an inter-frequency cell then Cell3 from TS 36.508 [7] section 4.4.2 is used with the radio parameters as defined for Cell2 in TS 36.521-3.

Table E-1: Cell configuration mapping for RRM testing

Test Case	Description	36.521-3 Cell1	36.521-3 Cell2	36.521-3 Cell3	
4.2.1	RRC IDLE / E-UTRAN Cell Reselection / FDD - FDD cell re-selection intra frequency case	Cell1	Cell11		
4.2.2	RRC IDLE / E-UTRAN Cell Reselection / TDD - TDD cell re-selection intra frequency case	Cell1	Cell11		
4.2.3	RRC IDLE / E-UTRAN Cell Reselection / FDD - FDD cell re-selection inter frequency case	Cell6	Cell23		
4.2.4	RRC IDLE / E-UTRAN Cell Reselection / FDD - TDD cell re-selection inter frequency case	Cell1	Cell31	Dual mode in single PLMN	
4.2.5	RRC IDLE / E-UTRAN Cell Reselection / TDD - FDD cell re-selection inter frequency case	Cell31	Cell1		
4.2.6	RRC IDLE / E-UTRAN Cell Reselection / TDD - TDD cell re-selection inter frequency case	Cell6	Cell23		
4.2.7	RRC IDLE / E-UTRAN Cell Reselection / FDD – FDD Inter frequency case in the existence of non-allowed CSG cell	Cell23	Cell6	Cell3	
4.2.8	RRC IDLE / E-UTRAN Cell Reselection / TDD – TDD Inter frequency case in the existence of non-allowed CSG cell	Cell23	Cell6	Cell3	
4.3.1.1	RRC IDLE / E-UTRAN to UTRAN Cell re-selection / E-UTRAN FDD - UTRAN FDD cell re-selection: UTRA is of higher priority	Cell3	Cell9		
4.3.1.2	RRC IDLE / E-UTRAN to UTRAN Cell re-selection / E-UTRAN FDD - UTRAN FDD cell re-selection: UTRA is of lower priority	Cell3	Cell9		
4.3.1.3	RRC IDLE / E-UTRAN to UTRAN Cell re-selection / E-UTRAN FDD - UTRAN FDD cell re-selection in fading propagation conditions: UTRA FDD is of lower priority	Cell3	Cell9		
4.3.2	RRC IDLE / E-UTRAN to UTRAN Cell re-selection / E-UTRAN FDD - UTRAN TDD cell re-selection	Cell6	Cell8		
4.3.3	RRC IDLE / E-UTRAN to UTRAN Cell re-selection / E-UTRAN TDD - UTRAN FDD cell re-selection	Cell6	Cell8		
4.3.4.1	RRC IDLE / E-UTRAN to UTRAN Cell re-selection / E-UTRAN TDD - UTRAN TDD cell re-selection: UTRA is of higher priority	Cell6	Cell8		
4.3.4.2	RRC IDLE / E-UTRAN to UTRAN Cell re-selection / E-UTRAN TDD - UTRAN TDD cell re-selection: UTRA is of lower priority	Cell6	Cell8		
4.3.4.3	RRC IDLE / E-UTRAN to UTRAN Cell re-selection /EUTRA TDD-UTRA TDD cell reselection in fading propagation conditions: UTRA TDD is of lower priority	Cell3	Cell9		
4.4.1	RRC IDLE / E-UTRAN to GSM Cell re-selection / E-UTRAN FDD - GSM cell re-selection	Cell1	Cell26		
4.4.2	RRC IDLE / E-UTRAN to GSM Cell re-selection / E-UTRAN TDD - GSM cell re-selection	Cell1	Cell26		
4.5.1.1	RRC IDLE / E-UTRAN to HRPD Cell re-selection / E-UTRAN FDD - HRPD cell re-selection: HRPD is of lower priority	Cell1	Cell15		
4.5.2.1	RRC IDLE / E-UTRAN to HRPD Cell re-selection / E-UTRAN TDD - HRPD Cell Reselection: HRPD is of Lower Priority	Cell1	Cell15		
4.6.1.1	RRC IDLE / E-UTRAN to cdma2000 1xRTT Cell re-selection / E-UTRAN FDD - cdma2000 1xRTT cell re-selection: cdma2000 1x is of lower priority	Cell1	Cell19		

Test Case	Description	36.521-3 Cell1	36.521-3 Cell2	36.521-3 Cell3	
4.6.2.1	RRC IDLE / E-UTRAN to cdma2000 1xRTT Cell re-selection / E-UTRAN TDD - cdma2000 1X Cell Reselection: cdma2000 1X is of Lower Priority	Cell1	Cell19		
5.1.1	RRC CONNECTED / E-UTRAN Handover / FDD - FDD / Intra frequency case	Cell1	Cell2		
5.1.2	RRC CONNECTED / E-UTRAN Handover / TDD - TDD / Intra frequency case	Cell1	Cell2		
5.1.3	RRC CONNECTED / E-UTRAN Handover / FDD - FDD / Inter frequency case	Cell6	Cell3		
5.1.4	RRC CONNECTED / E-UTRAN Handover / TDD - TDD / Inter frequency case	Cell6	Cell3		
5.1.5	RRC CONNECTED / E-UTRAN Handover / FDD - FDD / Inter frequency case: unknown target cell	Cell6	Cell3		
5.1.6	RRC CONNECTED / E-UTRAN Handover / TDD - TDD / Inter frequency case: unknown target cell	Cell6	Cell3		
5.1.7	RRC CONNECTED / E-UTRAN Handover / FDD – TDD / Inter frequency case	Cell1	Cell10	Dual mode in multiple PLMN	
5.1.8	RRC CONNECTED / E-UTRAN Handover / TDD – FDD / Inter frequency case	Cell10	Cell1		
5.2.1	RRC CONNECTED / Handover from E-UTRAN to other RATs / From E-UTRAN to UTRAN / E-UTRAN FDD - UTRAN FDD handover	Cell3	Cell9		
5.2.2	RRC CONNECTED / Handover from E-UTRAN to other RATs / From E-UTRAN to UTRAN / E-UTRAN TDD - UTRAN FDD handover	Cell6	Cell8		
5.2.3	RRC CONNECTED / Handover from E-UTRAN to other RATs / From E-UTRAN to GSM / E-UTRAN FDD - GSM handover	Cell1	Cell26		
5.2.4	RRC CONNECTED / Handover from E-UTRAN to other RATs / From E-UTRAN to UTRAN / E-UTRAN TDD - UTRAN TDD handover	Cell3	Cell9		
5.2.5	RRC CONNECTED / Handover from E-UTRAN to other RATs / From E-UTRAN to UTRAN / E-UTRAN FDD - UTRAN TDD handover	Cell6	Cell8		
5.2.6	RRC CONNECTED / Handover from E-UTRAN to other RATs / From E-UTRAN to GSM / E-UTRA TDD - GSM handover	Cell1	Cell26		
5.2.7	RRC CONNECTED / Handover from E-UTRAN to other RATs / E-UTRAN FDD - UTRAN FDD handover: unknown target cell	Cell3	Cell9		
5.2.8	RRC CONNECTED / Handover from E-UTRAN to other RATs / E-UTRAN FDD - GSM handover: unknown target cell	Cell1	Cell26		
5.2.9	RRC CONNECTED / Handover from E-UTRAN to other RATs / E-UTRAN TDD - GSM Handover: unknown target cell	Cell1	Cell26		
5.2.10	RRC CONNECTED / Handover from E-UTRAN to other RATs / E-UTRAN TDD - UTRAN TDD HO test: unknown target cell	Cell6	Cell8		
5.3.1	RRC CONNECTED / Handover from E-UTRAN to non-3GPP RATs / E-UTRAN FDD – HRPD handover	Cell1	Cell15		
5.3.2	RRC CONNECTED / Handover from E-UTRAN to non-3GPP RATs / E-UTRAN FDD – cdma2000 1xRTT handover	Cell1	Cell19		
5.3.3	RRC CONNECTED / Handover from E-UTRAN to non-3GPP RATs / E-UTRAN FDD – HRPD Handover: unknown target cell	Cell1	Cell15		
5.3.4	RRC CONNECTED / Handover from E-UTRAN to non-3GPP RATs / E-UTRAN FDD - cdma2000 1xRTT Handover: unknown target cell	Cell1	Cell19		
5.3.5	RRC CONNECTED / Handover from E-UTRAN to non-3GPP RATs / E-UTRAN TDD-HRPD Handover	Cell1	Cell15		
5.3.6	RRC CONNECTED / Handover from E-UTRAN to non-3GPP RATs / E-UTRAN TDD-cdma2000 1X Handover	Cell1	Cell19		
6.1.1	RRC Connection Mobility Control / E-UTRAN FDD Intra-frequency RRC Re-establishment	Cell1	Cell2		
6.1.2	RRC Connection Mobility Control / E-UTRAN FDD Inter-frequency RRC Re-establishment	Cell6	Cell3		
6.1.3	RRC Connection Mobility Control / E-UTRAN TDD Intra-frequency RRC Re-establishment	Cell1	Cell2		
6.1.4	RRC Connection Mobility Control / E-UTRAN TDD Inter-frequency RRC Re-establishment	Cell6	Cell3		

Test Case	Description	36.521-3 Cell1	36.521-3 Cell2	36.521-3 Cell3	
6.2.1	RRC Connection Mobility Control / Random Access / E-UTRAN FDD - Contention Based Random Access	Cell1			
6.2.2	RRC Connection Mobility Control / Random Access / E-UTRAN FDD - Non-Contention Based Random Access	Cell1			
6.2.3	RRC Connection Mobility Control / Random Access / E-UTRAN TDD - Contention Based Random Access	Cell1			
6.2.4	RRC Connection Mobility Control / Random Access / E-UTRAN TDD - Non-Contention Based Random Access	Cell1			
6.3.1	RRC Connection Mobility Control / RRC Connection Release with Redirection / Redirection from E-UTRAN FDD to UTRAN FDD	Cell3	Cell9		
6.3.2	RRC Connection Mobility Control / RRC Connection Release with Redirection / Redirection from E-UTRAN TDD to UTRAN FDD	Cell6	Cell8		
6.3.3	RRC Connection Mobility Control / RRC Connection Release with Redirection / Redirection from E-UTRAN FDD to GERAN when System Information is provided	Cell1	Cell26		
6.3.4	RRC Connection Mobility Control / RRC Connection Release with Redirection / Redirection from E-UTRAN TDD to GERAN when System Information is provided	Cell1	Cell26		
6.3.5	RRC Connection Mobility Control / RRC Connection Release with Redirection / E-UTRA TDD RRC connection release redirection to UTRA TDD	Cell3	Cell9		
6.3.6	RRC Connection Mobility Control / RRC Connection Release with Redirection / E-UTRA FDD RRC connection release redirection to UTRA TDD	Cell6	Cell8		
6.3.7	RRC Connection Mobility Control / RRC Connection Release with Redirection / E-UTRA TDD RRC connection release redirection to UTRA TDD without SI provided	Cell3	Cell9		
6.3.8	RRC Connection Mobility Control / RRC Connection Release with Redirection / E-UTRA FDD RRC connection release redirection to UTRA TDD without SI provided	Cell6	Cell8		
6.3.9	RRC Connection Mobility Control / RRC Connection Release with Redirection / Redirection from E-UTRAN FDD to UTRAN FDD without System Information	Cell3	Cell9		
6.3.10	RRC Connection Mobility Control / RRC Connection Release with Redirection / Redirection from E-UTRAN FDD to GERAN when System Information is not provided	Cell1	Cell26		
6.3.11	RRC Connection Mobility Control / RRC Connection Release with Redirection / Redirection from E-UTRAN TDD to GERAN when System Information is not provided	Cell1	Cell26		
6.3.12	RRC Connection Mobility Control / RRC Connection Release with Redirection / E-UTRAN TDD RRC connection release redirection to UTRAN FDD without SI provided	Cell6	Cell8		
7.1.1	E-UTRAN FDD-UE Transmit Timing Accuracy	Cell1			
7.1.2	E-UTRAN TDD-UE Transmit Timing Accuracy	Cell1			
7.2.1	E-UTRAN FDD-UE Timing Advance Adjustment Accuracy	Cell1			
7.2.2	E-UTRAN TDD-UE Timing Advance Adjustment Accuracy	Cell1			
7.3.1	E-UTRAN FDD Radio Link Monitoring Test for Out-of-sync	Cell1			
7.3.2	E-UTRAN FDD Radio Link Monitoring Test for In-sync	Cell1			
7.3.3	E-UTRAN TDD Radio Link Monitoring Test for Out-of-sync	Cell1			
7.3.4	E-UTRAN TDD Radio Link Monitoring Test for In-sync	Cell1			
7.3.5	E-UTRAN FDD Radio Link Monitoring Test for Out-of-sync in DRX	Cell1			
7.3.6	E-UTRAN FDD Radio Link Monitoring Test for In-sync in DRX	Cell1			
7.3.7	E-UTRAN TDD Radio Link Monitoring Test for Out-of-sync in DRX	Cell1			
7.3.8	E-UTRAN TDD Radio Link Monitoring Test for In-sync in DRX	Cell1			
8.1.1	UE Measurement Procedures / E-UTRAN FDD-FDD intra frequency event triggered reporting under fading propagation conditions in asynchronous cells	Cell1	Cell2		
8.1.2	UE Measurement Procedures / E-UTRAN FDD-FDD intra frequency event triggered reporting under fading propagation conditions in synchronous cells	Cell1	Cell2		

Test Case	Description	36.521-3 Cell1	36.521-3 Cell2	36.521-3 Cell3	
8.1.3	UE Measurement Procedures / E-UTRAN FDD-FDD intra frequency event triggered reporting under fading propagation conditions in synchronous cells with DRX	Cell1	Cell2		
8.1.4	Void				
8.1.5	E-UTRAN FDD - FDD Intra-frequency identification of a new CGI of E-UTRA cell using autonomous gaps	Cell1	Cell2		
8.1.6	E-UTRAN FDD - FDD Intra-frequency identification of a new CGI of E-UTRA cell using autonomous gaps with DRX	Cell1	Cell2		
8.2.1	UE Measurement Procedures / E-UTRAN TDD-TDD intra frequency event triggered reporting under fading propagation conditions in synchronous cells	Cell1	Cell2		
8.2.2	UE Measurement Procedures / E-UTRAN TDD-TDD intra-frequency event triggered reporting under fading propagation conditions in synchronous cells with DRX	Cell1	Cell2		
8.2.3	E-UTRAN TDD - TDD Intra-frequency identification of a new CGI of E-UTRA cell using autonomous gaps	Cell1	Cell2		
8.2.4	E-UTRAN TDD - TDD Intra-frequency identification of a new CGI of E-UTRA cell using autonomous gaps with DRX	Cell1	Cell2		
8.3.1	UE Measurement Procedures / E-UTRAN FDD-FDD inter frequency event triggered reporting under fading propagation conditions in asynchronous cells	Cell6	Cell3		
8.3.2	UE Measurement Procedures / E-UTRAN FDD-FDD inter frequency event triggered reporting when DRX is used under fading propagation conditions in asynchronous cells	Cell6	Cell3		
8.3.3	UE Measurement Procedures / E-UTRAN FDD-FDD inter frequency event triggered reporting under AWGN propagation conditions in asynchronous cells with DRX when L3 filtering is used	Cell6	Cell3		
8.3.4	E-UTRAN FDD - FDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps	Cell6	Cell3		
8.3.5	E-UTRAN FDD - FDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps with DRX	Cell6	Cell3		
8.4.1	UE Measurement Procedures / E-UTRAN TDD-TDD inter-frequency event triggered reporting under fading propagation conditions in synchronous cells	Cell6	Cell3		
8.4.2	UE Measurement Procedures / E-UTRAN TDD-TDD Inter-frequency event triggered reporting when DRX is used under fading propagation conditions in synchronous cells	Cell6	Cell3		
8.4.3	E-UTRAN TDD-TDD inter-frequency event triggered reporting under AWGN propagation conditions in synchronous cells with DRX when L3 filtering is used	Cell6	Cell3		
8.4.4	E-UTRAN TDD - TDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps	Cell6	Cell3		
8.4.5	E-UTRAN TDD - TDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps with DRX	Cell6	Cell3		
8.5.1	UE Measurement Procedures / E-UTRAN FDD - UTRAN FDD event triggered reporting under fading propagation conditions	Cell3	Cell9		
8.5.2	UE Measurement Procedures / E-UTRAN FDD - UTRAN FDD SON ANR cell search reporting under AWGN propagation conditions	Cell3	Cell9		
8.5.3	UE Measurement Procedures / E-UTRAN FDD - UTRAN FDD event triggered reporting when DRX is used under fading propagation conditions	Cell3	Cell9		
8.5.4	UE Measurement Procedures / E-UTRAN FDD - UTRAN FDD enhanced cell identification under AWGN propagation conditions	Cell3	Cell9		
8.6.1	UE Measurement Procedures / E-UTRAN TDD - UTRAN FDD event triggered reporting under fading propagation conditions	Cell1	Cell8		
8.7.1	UE Measurement Procedures / E-UTRAN TDD - UTRAN TDD event triggered reporting under fading propagation conditions	Cell1	Cell8		
8.7.2	UE Measurement Procedures / E-UTRAN TDD - UTRAN TDD cell search when DRX is used under fading propagation conditions	Cell1	Cell8		

Test Case	Description	36.521-3 Cell1	36.521-3 Cell2	36.521-3 Cell3	
8.7.3	UE Measurement Procedures / E-UTRAN TDD - UTRAN TDD SON ANR cell search reporting under AWGN propagation conditions	Cell3	Cell9		
8.7.4	UE Measurement Procedures / E-UTRAN TDD - UTRAN TDD enhanced cell identification under AWGN propagation conditions	Cell3	Cell9		
8.8.1	UE Measurement Procedures / E-UTRAN FDD - GSM event triggered reporting in AWGN	Cell6	Cell26		
8.8.2	UE Measurement Procedures / E-UTRAN FDD - GSM event triggered reporting when DRX is used in AWGN	Cell6	Cell26		
8.9.1	UE Measurement Procedures / E-UTRAN FDD - UTRAN TDD event triggered reporting under fading propagation conditions	Cell1	Cell8		
8.9.2	UE Measurement Procedures / E-UTRAN FDD - UTRAN TDD enhanced cell identification under AWGN propagation conditions	Cell1	Cell8		
8.10.1	UE Measurement Procedures / E-UTRAN TDD - GSM event triggered reporting in AWGN	Cell6	Cell26		
8.10.2	UE Measurement Procedures / E-UTRAN TDD - GSM event triggered reporting when DRX is used in AWGN	Cell6	Cell26		
8.11.1	UE Measurement Procedures / Monitoring of multiple layers / E-UTRAN FDD - E-UTRAN FDD and E-UTRAN FDD Inter-frequency event triggered reporting under fading propagation conditions	Cell1	Cell3	Cell6	
8.11.2	UE Measurement Procedures / Monitoring of multiple layers / E-UTRAN TDD - E-UTRAN TDD and E-UTRAN TDD Inter-frequency event triggered reporting under fading propagation conditions	Cell1	Cell3	Cell6	
8.11.3	UE Measurement Procedures / Monitoring of multiple layers / InterRAT E-UTRA FDD to E-UTRA FDD and UTRA FDD cell search	Cell1	Cell6	Cell8	
8.11.4	UE Measurement Procedures / Monitoring of multiple layers / InterRAT E-UTRA TDD to E-UTRA TDD and UTRA TDD cell search	Cell1	Cell6	Cell8	
8.11.5	UE Measurement Procedures / Combined E-UTRAN FDD - E-UTRA FDD and GSM cell search. E-UTRA cells in fading; GSM cell in static propagation conditions	Cell6	Cell3	Cell24	
8.11.6	UE Measurement Procedures / Combined E-UTRAN TDD - E-UTRA TDD and GSM cell search. E-UTRA cells in fading; GSM cell in static propagation conditions	Cell6	Cell3	Cell24	
8.14.1	UE Measurement Procedures / E-UTRAN TDD-FDD Inter-frequency event triggered reporting under fading propagation conditions in asynchronous cells	Cell10	Cell1		
8.14.2	UE Measurement Procedures / E-UTRAN TDD-FDD Inter-frequency event triggered reporting when DRX is used under fading propagation conditions in synchronous cells	Cell10	Cell1		
8.14.3	UE Measurement Procedures / E-UTRAN TDD - FDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps	Cell10	Cell1		
8.15.1	UE Measurement Procedures / E-UTRAN FDD-TDD Inter-frequency event triggered reporting under fading propagation conditions in asynchronous cells	Cell1	Cell10		
8.15.2	UE Measurement Procedures / E-UTRAN FDD-TDD Inter-frequency event triggered reporting when DRX is used under fading propagation conditions in asynchronous cells	Cell1	Cell10		
8.15.3	UE Measurement Procedures / E-UTRAN FDD - TDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps	Cell1	Cell10		

Test Case	Description	36.521-3 Cell1	36.521-3 Cell2	36.521-3 Cell3	
8.16.1	UE Measurement Procedures / E-UTRAN FDD event triggered reporting under deactivated SCell in non-DRX	Cell1	FFS	FFS	Intra-band
		Cell1	Cell10	Cell30	Inter-band
8.16.2	UE Measurement Procedures / E-UTRAN TDD event triggered reporting under deactivated SCell in non-DRX	Cell1	FFS	FFS	Intra-band
		Cell1	Cell10	Cell30	Inter-band
8.16.3	UE Measurement Procedures / E-UTRAN FDD-FDD Event triggered reporting on deactivated SCell with PCell interruption in non-DRX	Cell1	FFS	FFS	Intra-band
8.16.4	UE Measurement Procedures / E-UTRAN TDD-TDD Event triggered reporting on deactivated SCell with PCell interruption in non-DRX	Cell1	Cell3	Cell12	Intra-band
8.16.5	E-UTRAN FDD event triggered reporting under deactivated SCell in non-DRX for 20 MHz bandwidth	Cell1	Cell3	Cell12	Intra-band
		Cell1	Cell10	Cell30	Inter-band
8.16.6	E-UTRAN TDD event triggered reporting under deactivated SCell in non-DRX for 20 MHz bandwidth	Cell1	Cell3	Cell12	Intra-band
		Cell1	Cell10	Cell30	Inter-band
8.18.1	UE Measurement Procedures / E-UTRAN TDD-HRPD event triggered reporting under fading propagation conditions	Cell1	Cell15		
8.19.1	UE Measurement Procedures / E-UTRAN TDD-CDMA2000 1X event triggered reporting under fading propagation conditions	Cell1	Cell19		
9.1.1.1	Measurement Performance Requirements / E-UTRAN / FDD Intra frequency RSRP Accuracy / Absolute	Cell1	Cell2		
9.1.1.2	Measurement Performance Requirements / E-UTRAN / FDD Intra frequency RSRP Accuracy / Relative	Cell1	Cell2		
9.1.2.1	Measurement Performance Requirements / E-UTRAN / TDD Intra Frequency RSRP Accuracy / Absolute	Cell1	Cell2		
9.1.2.2	Measurement Performance Requirements / E-UTRAN / TDD Intra Frequency RSRP Accuracy / Relative	Cell1	Cell2		
9.1.3.1	Measurement Performance Requirements / E-UTRAN / FDD Inter frequency RSRP Accuracy / Absolute	Cell6	Cell3		
9.1.3.2	Measurement Performance Requirements / E-UTRAN / FDD Inter frequency RSRP Accuracy / Relative	Cell6	Cell3		
9.1.4.1	Measurement Performance Requirements / E-UTRAN / TDD Inter Frequency RSRP Accuracy / Absolute	Cell6	Cell3		
9.1.4.2	Measurement Performance Requirements / E-UTRAN / TDD Inter Frequency RSRP Accuracy / Relative	Cell6	Cell3		
9.1.5.1	Measurement Performance Requirements / E-UTRAN / FDD – TDD Inter frequency RSRP Accuracy / Absolute	Cell1	Cell10		
9.1.5.2	Measurement Performance Requirements / E-UTRAN / FDD-TDD Inter frequency RSRP Accuracy / Relative	Cell1	Cell10		
9.1.6.1	Measurement Performance Requirements / FDD Absolute RSRP Accuracy E-UTRA for Carrier Aggregation	Cell1	FFS	FFS	Intra-band
		Cell1	Cell10	Cell30	Inter-band
9.1.6.2	Measurement Performance Requirements / FDD Relative RSRP Accuracy E-UTRA for Carrier Aggregation	Cell1	FFS	FFS	Intra-band
		Cell1	Cell10	Cell30	Inter-band
9.1.7.1	Measurement Performance Requirements / TDD Absolute RSRP Accuracy E-UTRA for Carrier Aggregation	Cell1	FFS	FFS	Intra-band
		Cell1	Cell10	Cell30	Inter-band
9.1.7.2	Measurement Performance Requirements / TDD Relative RSRP Accuracy E-UTRA for Carrier Aggregation	Cell1	FFS	FFS	Intra-band
		Cell1	Cell10	Cell30	Inter-band
9.1.8.1	FDD Absolute RSRP Accuracy under Time-Domain Measurement Resource Restriction with Non-MBSFN ABS (eICIC)	Cell1	Cell2		

Test Case	Description	36.521-3 Cell1	36.521-3 Cell2	36.521-3 Cell3	
9.1.8.2	FDD Relative RSRP Accuracy under Time-Domain Measurement Resource Restriction with Non-MBSFN ABS (eICIC)	Cell1	Cell2		
9.1.9.1	TDD Absolute RSRP Accuracy under Time-Domain Measurement Resource Restriction with Non-MBSFN ABS (eICIC)	Cell1	Cell2		
9.1.9.2	TDD Relative RSRP Accuracy under Time-Domain Measurement Resource Restriction with Non-MBSFN ABS (eICIC)	Cell1	Cell2		
9.1.13.1	Measurement Performance Requirements / TDD Absolute RSRP Accuracy for E-UTRA Carrier Aggregation for 20 MHz	Cell1	Cell3	Cell12	Intra-band
		Cell1	Cell10	Cell30	Inter-band
9.1.13.2	Measurement Performance Requirements / TDD Relative RSRP Accuracy for E-UTRA Carrier Aggregation for 20 MHz	Cell1	Cell3	Cell12	Intra-band
		Cell1	Cell10	Cell30	Inter-band
9.2.1.1	Measurement Performance Requirements / E-UTRAN / FDD Intra frequency RSRQ Accuracy / Absolute	Cell1	Cell2		
9.2.2.1	Measurement Performance Requirements / E-UTRAN / TDD Intra Frequency RSRQ Accuracy / Absolute	Cell1	Cell2		
9.2.3.1	Measurement Performance Requirements / E-UTRAN / FDD Inter frequency RSRQ Accuracy / Absolute	Cell6	Cell3		
9.2.3.2	Measurement Performance Requirements / E-UTRAN / FDD Inter frequency RSRQ Accuracy / Relative	Cell6	Cell3		
9.2.4.1	Measurement Performance Requirements / E-UTRAN / TDD - TDD Inter Frequency RSRQ Accuracy / Absolute	Cell6	Cell3		
9.2.4.2	Measurement Performance Requirements / E-UTRAN / TDD - TDD Inter Frequency RSRQ Accuracy / Relative	Cell6	Cell3		
9.2.4A.1	Measurement Performance Requirements / FDD - TDD Inter Frequency Absolute RSRQ Accuracy	Cell1	Cell10		
9.2.4A.2	Measurement Performance Requirements / FDD - TDD Inter Frequency Relative Accuracy of RSRQ	Cell1	Cell10		
9.2.5.1	Measurement Performance Requirements / FDD Absolute RSRQ Accuracy for E-UTRA Carrier Aggregation	Cell1	FFS	FFS	Intra-band
		Cell1	Cell10	Cell30	Inter-band
9.2.5.2	Measurement Performance Requirements / FDD Relative RSRQ Accuracy E-UTRA for Carrier Aggregation	Cell1	FFS	FFS	Intra-band
		Cell1	Cell10	Cell30	Inter-band
9.2.6.1	Measurement Performance Requirements / TDD Absolute RSRQ Accuracy for E-UTRA Carrier Aggregation	Cell1	FFS	FFS	Intra-band
		Cell1	Cell10	Cell30	Inter-band
9.2.6.2	Measurement Performance Requirements / TDD Relative RSRQ Accuracy for E-UTRA Carrier Aggregation	Cell1	FFS	FFS	Intra-band
		Cell1	Cell10	Cell30	Inter-band
9.2.7.1	FDD RSRQ under Time Domain Measurement Resource Restriction with Non-MBSFN ABS (eICIC)	Cell1	Cell2		
9.2.8.1	TDD RSRQ under Time Domain Measurement Resource Restriction with Non-MBSFN ABS (eICIC)	Cell1	Cell2		
9.2.12.1	Measurement Performance Requirements / TDD Absolute RSRQ Accuracy for E-UTRA Carrier Aggregation for 20MHz	Cell1	Cell3	Cell12	Intra-band
		Cell1	Cell10	Cell30	Inter-band
9.2.12.2	Measurement Performance Requirements / TDD Relative RSRQ Accuracy for E-UTRA Carrier Aggregation for 20MHz	Cell1	Cell3	Cell12	Intra-band
		Cell1	Cell10	Cell30	Inter-band
9.3.1	Measurement Performance Requirements / E-UTRAN FDD - UTRA FDD CPICH RSCP absolute accuracy	Cell3	Cell9		
9.3.2	Measurement Performance Requirements / E-UTRAN TDD- UTRA FDD CPICH RSCP absolute accuracy	Cell3	Cell9		

Test Case	Description	36.521-3 Cell1	36.521-3 Cell2	36.521-3 Cell3	
9.4.1	Measurement Performance Requirements / E- UTRAN FDD - UTRA FDD CPICH Ec/No absolute accuracy	Cell3	Cell9		
9.4.2	Measurement Performance Requirements / E- UTRAN TDD - UTRA FDD CPICH Ec/No absolute accuracy	Cell3	Cell9		
9.5.1	Measurement Performance Requirements / E- UTRAN FDD - UTRA TDD P-CCPCH RSCP absolute accuracy	Cell3	Cell9		
9.5.2	Measurement Performance Requirements / E- UTRAN TDD - UTRA TDD P-CCPCH RSCP absolute accuracy	Cell3	Cell9		
9.6.1	GSM RSSI absolute accuracy for E-UTRAN FDD	Cell1	Cell26	Cell24	
9.6.2	GSM RSSI absolute accuracy for E-UTRAN TDD	Cell1	Cell26	Cell24	

Annex F (normative): Measurement uncertainties and Test Tolerances

The requirements of this clause apply to all applicable tests in the present document.

F.1 Acceptable uncertainty of Test System (normative)

See TS 36.521-1[10] Annex F1.

F.1.1 Measurement of test environments

See TS 36.521-1[10] Annex F1.1.

F.1.2 Measurement of RRM requirements

Table F.1.2-1: Maximum Test System Uncertainty for RRM Requirements

Subclause	Maximum Test System Uncertainty[1]	Derivation of Test System Uncertainty
4.2.1 E-UTRA FDD - FDD cell re-selection intra frequency	N_{oc} ±1.0 dB averaged over BW_{Config} $Ês_1 / N_{oc}$ ±0.3 dB averaged over BW_{Config} $Ês_2 / N_{oc}$ ±0.3 dB averaged over BW_{Config}	Note: $Ês_1 / N_{oc}$ is the ratio of cell 1 signal / AWGN $Ês_2 / N_{oc}$ is the ratio of cell 2 signal / AWGN
4.2.2 E-UTRA TDD - TDD cell re-selection intra frequency	Same as 4.2.1	
4.2.3 E-UTRA FDD - FDD cell re-selection inter frequency	N_{oc1} ±0.7 dB averaged over BW_{Config} $Ês_1 / N_{oc1}$ ±0.3 dB averaged over BW_{Config} N_{oc2} ±0.7 dB averaged over BW_{Config} $Ês_2 / N_{oc2}$ ±0.3 dB averaged over BW_{Config}	Note: N_{oc1} is the AWGN on cell 1 frequency $Ês_1 / N_{oc1}$ is the ratio of cell 1 signal / AWGN N_{oc2} is the AWGN on cell 2 frequency $Ês_2 / N_{oc2}$ is the ratio of cell 2 signal / AWGN
4.2.4 E-UTRA FDD - TDD cell re-selection inter frequency	Same as 4.2.3	
4.2.5 E-UTRA TDD - FDD cell re-selection inter frequency	Same as 4.2.3	
4.2.6 E-UTRA TDD - TDD cell re-selection inter frequency	Same as 4.2.3	
4.2.7 E-UTRA FDD Inter frequency re-selection in the existence of non-allowed CSG cell	N_{oc1} ±1.0 dB averaged over BW_{Config} $Ês_1 / N_{oc1}$ ±0.3 dB averaged over BW_{Config} $Ês_3 / N_{oc1}$ ±0.3 dB averaged over BW_{Config} N_{oc2} ±1.0 dB averaged over BW_{Config} $Ês_2 / N_{oc2}$ ±0.3 dB averaged over BW_{Config}	Note: N_{oc1} is the AWGN on frequency 1 $Ês_1 / N_{oc1}$ is the ratio of cell 1 signal / AWGN $Ês_3 / N_{oc1}$ is the ratio of cell 3 signal / AWGN N_{oc2} is the AWGN on frequency 2 $Ês_2 / N_{oc2}$ is the ratio of cell 2 signal / AWGN
4.2.8 E-UTRA TDD Inter frequency re-selection in the existence of non-allowed CSG cell	Same as 4.2.7	
4.3.1.1 E-UTRA FDD - UTRAN FDD cell reselection: UTRA FDD is of higher priority	E-UTRA cell N_{oc} ±0.7 dB averaged over BW_{Config} $Ês / N_{oc}$ ±0.3 dB averaged over BW_{Config} UTRA cell I_{oc} ±0.7 dB I_{or} / I_{oc} ±0.3 dB CPICH E_c / I_{or} ±0.1 dB	Notes: N_{oc} is the AWGN on cell 1 (E-UTRA) frequency $Ês / N_{oc}$ is the ratio of cell 1 signal / AWGN I_{oc} is the AWGN on cell 2 (UTRA) frequency I_{or} / I_{oc} is the ratio of cell 2 signal / AWGN CPICH E_c / I_{or} is the fraction of cell 2 power assigned to the CPICH Physical channel
4.3.1.2 E-UTRAN FDD - UTRAN FDD cell re-selection: UTRA FDD is of lower priority	Same as 4.3.1.1	

4.3.1.3 EUTRA FDD-UTRA FDD cell reselection in fading propagation conditions: UTRA FDD is of lower priority	E-UTRA cell N_{oc} ±0.7 dB averaged over BW_{Config} Ês / N_{oc} ±0.6 dB averaged over BW_{Config} UTRA cell I_{oc} ±0.7 dB I_{or} / I_{oc} ±0.3 dB CPICH E_c / I_{or} ±0.1 dB	Notes: N_{oc} is the AWGN on cell 1 (E-UTRA) frequency Ês / N_{oc} is the ratio of cell 1 signal / AWGN Ês / N_{oc} uncertainty for fading condition comprises two quantities: 1. Signal-to-noise ratio uncertainty 2. Fading profile power uncertainty Items 1 and 2 are assumed to be uncorrelated so can be root sum squared: Ês / N_{oc} uncertainty = SQRT (Signal-to-noise ratio uncertainty^2 + Fading profile power uncertainty^2) Signal-to-noise ratio uncertainty ±0.3 dB Fading profile power uncertainty ±0.5 dB I_{oc} is the AWGN on cell 2 (UTRA) frequency I_{or} / I_{oc} is the ratio of cell 2 signal / AWGN CPICH E_c / I_{or} is the fraction of cell 2 power assigned to the CPICH Physical channel
4.3.2 E-UTRA FDD - UTRAN TDD cell re-selection	E-UTRA cell N_{oc} ±0.7 dB averaged over BW_{Config} Ês / N_{oc} ±0.3 dB averaged over BW_{Config} UTRA cell I_{oc} ±0.7 dB $\hat{I}_{or}$ / I_{oc} ±0.3 dB PCCPCH Ec/Ior ±0.1 dB DwPCH_Ec/Ior ±0.1 dB	Note: N_{oc} is the AWGN on cell 1 frequency Ês / N_{oc} is the ratio of cell 1 signal / AWGN I_{oc} is the AWGN on cell 2 frequency $\hat{I}_{or}$ / I_{oc} is the ratio of cell 2 signal / AWGN PCCPCH E_c / I_{or} is the fraction of cell 2 power assigned to the PCCPCH Physical channel DwPCH_Ec/Ior is the fraction of cell 2 power assigned to the DwPCH channel
4.3.3 E-UTRAN TDD - UTRAN FDD cell re-selection: UTRA FDD is of lower priority	Same as 4.3.1.2	
4.3.4.1 E-UTRA TDD - UTRAN TDD cell re-selection : UTRA is of higher priority	Same as 4.3.2	
4.3.4.2 E-UTRA TDD - UTRAN TDD cell re-selection : UTRA is of lower priority	Same as 4.3.2	
4.3.4.3 EUTRA TDD-UTRA TDD cell reselection in fading propagation conditions: UTRA TDD is of lower priority	E-UTRA cell N_{oc} ±0.7 dB averaged over BW_{Config} Ês / N_{oc} ±0.6 dB averaged over BW_{Config} UTRA cell I_{oc} ±0.7 dB $\hat{I}_{or}$ / I_{oc} ±0.3 dB PCCPCH Ec/Ior ±0.1 dB DwPCH_Ec/Ior ±0.1 dB	Note: N_{oc} is the AWGN on cell 1 (E-UTRA) frequency Ês / N_{oc} is the ratio of cell 1 signal / AWGN Each Ês / N_{oc} uncertainty for fading condition comprises two quantities: 1. Signal-to-noise ratio uncertainty 2. Fading profile power uncertainty Items 1 and 2 are assumed to be uncorrelated so can be root sum squared: Ês / N_{oc} uncertainty = SQRT (Signal-to-noise ratio uncertainty^2 + Fading profile power uncertainty^2) Signal-to-noise ratio uncertainty ±0.3 dB Fading profile power uncertainty ±0.5 dB I_{oc} is the AWGN on cell 2 (UTRA) frequency $\hat{I}_{or}$ / I_{oc} is the ratio of cell 2 signal / AWGN PCCPCH E_c / I_{or} is the fraction of cell 2 power assigned to the PCCPCH Physical channel DwPCH_Ec/Ior is the fraction of cell 2 power assigned to the DwPCH channel

4.4.1 E-UTRAN FDD - GSM cell re-selection	E-UTRA cell N_{oc} ±0.7 dB averaged over BW_{Config} $\hat{E}s / N_{oc}$ ±0.3 dB averaged over BW_{Config} GSM cell Signal level ±0.7 dB	Notes: N_{oc} is the AWGN on cell 1 (E-UTRA) frequency $\hat{E}s / N_{oc}$ is the ratio of cell 1 signal / AWGN Cell 2 (GSM) has only the wanted signal, without AWGN
4.4.2 E-UTRAN TDD - GSM cell re-selection	Same as 4.4.1	
4.5.1.1 RRC IDLE / E-UTRAN to HRPD Cell re-selection / E-UTRAN FDD - HRPD cell re-selection: HRPD is of lower priority	E-UTRA cell N_{oc} ±0.7 dB averaged over BW_{Config} $\hat{E}s / N_{oc}$ ±0.3 dB averaged over BW_{Config} HRPD cell I_{oc} ±2.0 dB $\hat{I}_{or} / I_{oc}$ ±0.7 dB	Note: N_{oc} is the AWGN on cell 1 frequency $\hat{E}s / N_{oc}$ is the ratio of cell 1 signal / AWGN I_{oc} is the AWGN on cell 2 (HRPD) frequency I_{or} / I_{oc} is the ratio of cell 2 signal / AWGN
4.5.2.1 E-UTRAN TDD - HRPD Cell Reselection: HRPD is of Lower Priority	Same as 4.5.1.1	Same as 4.5.1.1
5.1.1 E-UTRAN FDD-FDD Handover intra frequency case	N_{oc} ±1.0 dB averaged over BW_{Config} $\hat{E}s_1 / N_{oc}$ ±0.3 dB averaged over BW_{Config} $\hat{E}s_2 / N_{oc}$ ±0.3 dB averaged over BW_{Config}	Note: $\hat{E}s_1 / N_{oc}$ is the ratio of cell 1 signal / AWGN $\hat{E}s_2 / N_{oc}$ is the ratio of cell 2 signal / AWGN
5.1.2 E-UTRAN TDD-TDD Handover intra frequency case	Same as 5.1.1	Same as 5.1.1
5.1.3 E-UTRAN FDD-FDD Handover inter frequency case	Same as 4.2.3	Same as 4.2.3
5.1.4 E-UTRAN TDD-TDD Handover inter frequency case	Same as 4.2.3	Same as 4.2.3
5.1.5 E-UTRAN FDD-FDD inter-frequency Handover with unknown target cell	Same as 4.2.3	Same as 4.2.3
5.1.6 E-UTRAN TDD-TDD inter-frequency Handover with unknown target cell	Same as 4.2.3	Same as 4.2.3
5.1.7 E-UTRAN FDD-TDD Handover inter frequency case	Same as 4.2.3	Same as 4.2.3
5.1.8 E-UTRAN TDD-FDD Handover inter frequency case	Same as 4.2.3	Same as 4.2.3
5.2.1 E-UTRAN FDD - UTRAN FDD handover	E-UTRA cell N_{oc} ±0.7dB averaged over BW_{Config} $\hat{E}s / N_{oc}$ ±0.3 dB averaged over BW_{Config} UTRA cell I_{oc} ±0.7 dB I_{or} / I_{oc} ±0.3 dB CPICH Ec/I_{or} ±0.1 dB	Notes: N_{oc} is the AWGN on cell 1 (E-UTRA) frequency $\hat{E}s / N_{oc}$ is the ratio of cell 1 signal / AWGN I_{oc} is the AWGN on cell 2 (UTRA) frequency I_{or} / I_{oc} is the ratio of cell 2 signal / AWGN CPICH Ec / Ior is the fraction of cell 2 power assigned to the CPICH Physical channel
5.2.2 E-UTRAN TDD - UTRAN FDD handover	Same as 5.2.1	Same as 5.2.1
5.2.3 E-UTRAN FDD - GSM handover	E-UTRA Cell N_{oc} ±1.0 dB averaged over BW_{Config} $\hat{E}s / N_{oc}$ ±0.3 dB averaged over BW_{Config} GSM cell Signal level ±0.7 dB	Note: N_{oc} is the AWGN on cell 1 frequency $\hat{E}s / N_{oc}$ is the ratio of cell 1 signal / AWGN Cell 2 (GSM) has only the wanted signal, without AWGN

5.2.4 E-UTRA TDD – UTRA TDD handover	E-UTRA Cell: N_{oc} ± 107 dB averaged over BW_{Config} $\hat{E}_s$ / N_{oc} ± 0.3 dB averaged over BW_{Config} UTRA cell I_{oc} ± 0.7 dB $\hat{I}_{or}$ / I_{oc} ± 0.3 dB P-CCPCH_E_c / I_{or} ± 0.1 dB DwPCH_E_c / I_{or} ± 0.1 dB	Note: N_{oc} is the AWGN on cell 1 frequency $\hat{E}_s$ / N_{oc} is the ratio of cell 1 signal / AWGN I_{oc} is the AWGN on cell 2 frequency $\hat{I}_{or}$ / I_{oc} is the ratio of cell 2 signal / AWGN P-CCPCH_E_c / I_{or} is the fraction of cell 2 power assigned to the P-CCPCH physical channel. DwPCH_E_c / I_{or} is the fraction of cell 2 power assigned to the DwPCH channel
5.2.5 E-UTRA FDD – UTRA TDD handover	Same as 5.2.4	Same as 5.2.4
5.2.6 E-UTRA TDD - GSM handover	Same as 5.2.3	Same as 5.2.3
5.2.7 E-UTRAN FDD - UTRAN FDD handover: unknown target cell	E-UTRA cell N_{oc} ±0.7 dB averaged over BW_{Config} Ês / N_{oc} ±0.3 dB averaged over BW_{Config} UTRA cell I_{oc} ±0.7 dB I_{or}/I_{oc} ±0.3 dB CPICH Ec/Ior ±0.1 dB	Note: N_{oc} is the AWGN on cell 1 frequency Ês / N_{oc} is the ratio of cell 1 signal / AWGN Ioc is the AWGN on Cell 2 (UTRA) frequency Ior/Ioc is the ratio of Cell 2 signal/AWGN CPICH Ec/Ior is the fraction on Cell 2 power assigned to the CPICH physical channel
5.2.8 E-UTRAN FDD - GSM handover: unknown target cell	Same as 5.2.3	Same as 5.2.3
5.2.9 E-UTRAN TDD – GSM handover: unknown target cell	Same as 5.2.3	Same as 5.2.3
5.2.10 E-UTRAN TDD - UTRAN TDD HO test: unknown target cell	E-UTRA cell N_{oc} ±0.7 dB averaged over BW_{Config} Ês / N_{oc} ±0.3 dB averaged over BW_{Config} UTRA TDD cell I_{oc} ±0.7 dB Ior/Ioc ±0.3 dB PCCPCH_Ec /Ior ±0.1 dB DwPCH_Ec /Ior ±0.1 dB	Note: N_{oc} is the AWGN on cell 1 frequency Ês / N_{oc} is the ratio of cell 1 signal / AWGN Ioc is the AWGN on Cell 2 (UTRA TDD) frequency Ior/Ioc is the ratio of Cell 2 signal/AWGN PCCPCH_Ec /Ior is the fraction of Cell 2 power assigned to the PCCPCH physical channel DwPCH_Ec /Ior is the fraction of Cell 2 power assigned to the DwPCH physical channel
5.3.1 RRC CONNECTED / Handover from E-UTRAN to non-3GPP RATs / E-UTRAN FDD – HRPD handover	E-UTRA cell N_{oc} ±0.7 dB averaged over BW_{Config} Ês / N_{oc} ±0.3 dB averaged over BW_{Config} HRPD cell I_{oc} ±2.0 dB $\hat{I}_{or}$ / I_{oc} ±0.7 dB	Note: N_{oc} is the AWGN on cell 1 frequency Ês / N_{oc} is the ratio of cell 1 signal / AWGN I_{oc} is the AWGN on cell 2 (HRPD) frequency I_{or} / I_{oc} is the ratio of cell 2 signal / AWGN
5.3.5 E-UTRAN TDD - HRPD handover	Same as 5.3.1	Same as 5.3.1
6.1.1 E-UTRAN FDD Intra-frequency RRC Re-establishment	Same as 5.1.1	Same as 5.1.1
6.1.2 E-UTRAN FDD Inter-frequency RRC Re-establishment	N_{oc1} ±1.0 dB averaged over BW_{Config} $Ês_1$ / N_{oc1} ±0.3 dB averaged over BW_{Config} N_{oc2} ±1.0 dB averaged over BW_{Config} $Ês_2$ / N_{oc2} ±0.3 dB averaged over BW_{Config}	Note: N_{oc1} is the AWGN on cell 1 frequency $Ês_1$ / N_{oc1} is the ratio of cell 1 signal / AWGN N_{oc2} is the AWGN on cell 2 frequency $Ês_2$ / N_{oc2} is the ratio of cell 2 signal / AWGN
6.1.3 E-UTRAN TDD Intra-frequency RRC Re-establishment	Same as 6.1.1	Same as 6.1.1
6.1.4 E-UTRAN TDD Inter-frequency RRC Re-establishment	Same as 6.1.3	Same as 6.1.3

6.2.1 E-UTRAN FDD - Contention Based Random Access Test	Test 1 and Test 2: N_{oc} ±0.7 dB averaged over BW_{Config} $Ês / N_{oc}$ ±0.3 dB averaged over BW_{Config} Uplink absolute power measurement ±0.7 dB Uplink relative power measurement ±0.7 dB ±3Ts Uplink signal transmit timing relative to downlink	Note: $Ês_1 / N_{oc1}$ is the ratio of cell 1 signal / AWGN T_S = 1/(15000 x 2048) seconds, the basic timing unit defined in TS 36.211 [9]
6.2.2 E-UTRAN FDD - Non Contention Based Random Access Test	Same as 6.2.1	Same as 6.2.1
6.2.3 E-UTRAN TDD - Contention Based Random Access Test	Same as 6.2.1	Same as 6.2.1
6.2.4 E-UTRAN TDD - Non Contention Based Random Access Test	Same as 6.2.1	Same as 6.2.1
6.3.1 Redirection from E-UTRAN FDD to UTRAN FDD	E-UTRA cell N_{oc} ±1.0 dB averaged over BW_{Config} $Ês / N_{oc}$ ±0.3 dB averaged over BW_{Config} UTRA cell I_{oc} ±0.7 dB I_{or}/I_{oc} ±0.3 dB CPICH Ec/Ior ±0.1 dB SCH Ec/Ior ±0.1 dB	Note: N_{oc} is the AWGN on cell 1 frequency $Ês / N_{oc}$ is the ratio of cell 1 signal / AWGN Ioc is the AWGN on Cell 2 (UTRA) frequency Ior/Ioc is the ratio of Cell 2 signal/AWGN CPICH Ec/Ior and SCH_Ec/Ior are the fractions of Cell 2 power assigned to the CPICH and SCH physical channels
6.3.2 Redirection from E-UTRAN TDD to UTRAN FDD	Same as 6.3.1	Same as 6.3.1
6.3.3 Redirection from E-UTRAN FDD to GERAN when System Information is provided	E-UTRA Cell N_{oc} ±1.0 dB averaged over BW_{Config} $Ês / N_{oc}$ ±0.3 dB averaged over BW_{Config} GSM cell Signal level ±0.7 dB	Note: N_{oc} is the AWGN on cell 1 frequency $Ês / N_{oc}$ is the ratio of cell 1 signal / AWGN Cell 2 (GSM) has only the wanted signal, without AWGN
6.3.4 Redirection from E-UTRAN TDD to GERAN when System Information is provided	Same as 6.3.3	Same as 6.3.3
6.3.5 E-UTRA TDD RRC connection release redirection to UTRA TDD	E-UTRA cell N_{oc} ±1.0 dB averaged over BW_{Config} $Ês / N_{oc}$ ±0.3 dB averaged over BW_{Config} UTRA cell I_{oc} ±0.7 dB I_{or}/I_{oc} ±0.3 dB PCCPCH_Ec/Ior ±0.1 dB DwPCH_Ec/Ior ±0.1 dB	Note: N_{oc} is the AWGN on cell 1 frequency $Ês / N_{oc}$ is the ratio of cell 1 signal / AWGN I_{oc} is the AWGN on cell 2 frequency $\hat{I}_{or} / I_{oc}$ is the ratio of cell 2 signal / AWGN PCCPCH E_c / I_{or} is the fraction of cell 2 power assigned to the PCCPCH Physical channel DwPCH_Ec/Ior is the fraction of cell 2 power assigned to the DwPCH channel
6.3.6 E-UTRA FDD RRC connection release redirection to UTRA TDD	Same as 6.3.5	Same as 6.3.5
6.3.7 E-UTRA TDD RRC connection release redirection to UTRA TDD without SI provided	Same as 6.3.5	Same as 6.3.5
6.3.8 E-UTRA FDD RRC connection release redirection to UTRA TDD without SI provided	Same as 6.3.5	Same as 6.3.5

6.3.9 Redirection from E-UTRAN FDD to UTRAN FDD without System Information	Same as 6.3.1	Same as 6.3.1
6.3.10 Redirection from E-UTRAN FDD to GERAN when System Information is not provided	Same as 6.3.3	Same as 6.3.3
6.3.11 Redirection from E-UTRAN TDD to GERAN when System Information is not provided	Same as 6.3.3	Same as 6.3.3
6.3.12 E-UTRAN TDD RRC connection release redirection to UTRAN FDD without SI provided	Same as 6.3.1	Same as 6.3.1
7.1.1 E-UTRAN FDD - UE Transmit Timing Accuracy	N_{oc} ±3.0 dB averaged over BW_{Config} $\hat{E}s / N_{oc}$ ±0.3 dB ±3Ts Uplink signal transmit timing relative to downlink ±0.5Ts relative during UE timing adjustment	Note: $\hat{E}s / N_{oc}$ is the ratio of cell 1 signal / AWGN T_S = 1/(15000 x 2048) seconds, the basic timing unit defined in TS 36.211 [9]
7.1.2 E-UTRAN TDD - UE Transmit Timing Accuracy	Same as 7.1.1	Same as 7.1.1
7.2.1 E-UTRAN FDD - UE Timing Advance Adjustment Accuracy	N_{oc1} ±3.0 dB averaged over BW_{Config} $\hat{E}s_1 / N_{oc1}$ ±0.3 dB Timing Advance Adjustment: ±0.5T_s	Note: $\hat{E}s_1 / N_{oc1}$ is the ratio of cell 1 signal / AWGN The timing unit T_S = 1/(15000 * 2048) seconds, as defined in TS.36.211 [9]
7.2.2 E-UTRAN TDD - UE Timing Advance Adjustment Accuracy	Same as 7.2.1	Same as 7.2.1

7.3.1 E-UTRAN FDD Radio Link Monitoring Test for Out-of-sync	± 0.6dB (Subtest 1&2, AWGN conditions) ± 0.8dB (Subtest 3, Fading conditions, single antenna transmission) ± 0.9dB (Subtest 4, Fading conditions, two antenna transmission)	Subtests 1 & 2: Overall system uncertainty for AWGN condition comprises two quantities: 1. Signal-to-noise ratio uncertainty 2. Effect of AWGN flatness and signal flatness Items 1 and 2 are assumed to be uncorrelated so can be root sum squared: AWGN flatness and signal flatness has x 0.25 effect on the required SNR, so use sensitivity factor of x 0.25 for the uncertainty contribution. Test System uncertainty = SQRT (Signal-to-noise ratio uncertainty ^{2} + (0.25 x AWGN flatness and signal flatness) ^{2}) Signal-to-noise ratio uncertainty ±0.3 dB AWGN flatness and signal flatness ±2.0 dB Subtests 3: Overall system uncertainty for fading condition comprises three quantities: 1. Signal-to-noise ratio uncertainty 2. Fading profile power uncertainty 3. Effect of AWGN flatness and signal flatness Items 1, 2 and 3 are assumed to be uncorrelated so can be root sum squared: Test System uncertainty = SQRT (Average signal-to-noise ratio uncertainty ^{2} + Signal-to-noise ratio variation^2 + Fading profile power uncertainty^2) Signal-to-noise ratio uncertainty ±0.3 dB Signal-to-noise ratio variation ±0.5 dB Fading profile power uncertainty ±0.5 dB for single Tx Subtest 4: Same calculations as for subtest 3 but with Fading profile uncertainty of ±0.7 for two Tx.
7.3.2 E-UTRAN FDD Radio Link Monitoring Test for In-sync	± 0.8dB (Subtest 1, Fading conditions, single antenna transmission) ± 0.9dB (Subtest 2, Fading conditions, two antenna transmission)	Subtest 1: See 7.3.1 subtest 3 Subtest 2: See 7.3.1 subtest 4
7.3.3 E-UTRAN TDD Radio Link Monitoring Test for Out-of-sync	Same as 7.3.1	Same as 7.3.1
7.3.4 E-UTRAN TDD Radio Link Monitoring Test for In-sync	Same as 7.3.2	Same as 7.3.2
7.3.5 E-UTRAN FDD Radio Link Monitoring Test for Out-of-sync in DRX	±0.9dB (Subtest 1, Fading conditions, two antenna transmission) ± 0.6dB (Subtest 2, AWGN conditions)	Subtest 1: See 7.3.1, subtest 4 Subtest 2: See 7.3.1, subtest 1
7.3.6 E-UTRAN FDD Radio Link Monitoring Test for In-sync in DRX	± 0.6dB (AWGN conditions)	See 7.3.1, subtest 1
7.3.7 E-UTRAN TDD Radio Link Monitoring Test for Out-of-sync in DRX	±0.9dB (Subtest 1, Fading conditions, two antenna transmission) ± 0.6dB (Subtest 2, AWGN conditions)	Subtest 1: See 7.3.1, subtest 4 Subtest 2: See 7.3.1, subtest 1
7.3.8 E-UTRAN TDD Radio Link Monitoring Test for In-sync in DRX	± 0.6dB (AWGN conditions)	See 7.3.1, subtest 1

8.1.1 E-UTRAN FDD-FDD intra frequency event triggered reporting under fading propagation conditions in asynchronous cells	N_{oc} ±1.0 dB averaged over BW_{Config} $Ês_1 / N_{oc}$ ±0.6 dB averaged over BW_{Config} $Ês_2 / N_{oc}$ ±0.6 dB averaged over BW_{Config}	Note: $Ês_1 / N_{oc}$ is the ratio of cell 1 signal / AWGN $Ês_2 / N_{oc}$ is the ratio of cell 2 signal / AWGN $Ês / N_{oc}$ uncertainty for fading condition comprises two quantities: 1. Signal-to-noise ratio uncertainty 2. Fading profile power uncertainty Items 1 and 2 are assumed to be uncorrelated so can be root sum squared: $Ês / N_{oc}$ uncertainty = SQRT (Signal-to-noise ratio uncertainty^2 + Fading profile power uncertainty^2) Signal-to-noise ratio uncertainty ±0.3 dB Fading profile power uncertainty ±0.5 dB
8.1.2 E-UTRAN FDD-FDD intra frequency event triggered reporting under fading propagation conditions in synchronous cells	Same as 8.1.1	Same as 8.1.1
8.1.3 E-UTRAN FDD-FDD intra-frequency event triggered reporting under fading propagation conditions in synchronous cells with DRX	Same as 8.1.1	Same as 8.1.1
8.1.5 E-UTRAN FDD - FDD Intra-frequency identification of a new CGI of E-UTRA cell using autonomous gaps	N_{oc} ±1.0 dB averaged over BW_{Config} $Ês_1 / N_{oc}$ ±0.3 dB averaged over BW_{Config} $Ês_2 / N_{oc}$ ±0.3 dB averaged over BW_{Config}	Note: $Ês_1 / N_{oc}$ is the ratio of cell 1 signal / AWGN $Ês_2 / N_{oc}$ is the ratio of cell 2 signal / AWGN
8.1.6 E-UTRAN FDD - FDD Intra-frequency identification of a new CGI of E-UTRA cell using autonomous gaps with DRX	Same as 8.1.5	Same as 8.1.5
8.2.1 E-UTRAN TDD-TDD intra frequency event triggered reporting under fading propagation conditions in synchronous cells	Same as 8.1.1	Same as 8.1.1
8.2.2 E-UTRAN TDD-TDD intra-frequency event triggered reporting under fading propagation conditions in synchronous cells with DRX	Same as 8.1.1	Same as 8.1.1
8.2.3 E-UTRAN TDD-TDD Intra-frequency identification of a new CGI of E-UTRA cell using autonomous gaps	N_{oc} ±1.0 dB averaged over BW_{Config} $Ês_1 / N_{oc}$ ±0.3 dB averaged over BW_{Config} $Ês_2 / N_{oc}$ ±0.3 dB averaged over BW_{Config}	Note: $Ês_1 / N_{oc}$ is the ratio of cell 1 signal / AWGN $Ês_2 / N_{oc}$ is the ratio of cell 2 signal / AWGN
8.2.4 E-UTRAN TDD-TDD Intra-frequency identification of a new CGI of E-UTRA cell using autonomous gaps with DRX	Same as 8.2.3	Same as 8.2.3

8.3.1 E-UTRAN FDD-FDD Inter-frequency event triggered reporting under fading propagation conditions in asynchronous cells	N_{oc1} ±0.7 dB averaged over BW_{Config} $Ês_1 / N_{oc1}$ ±0.6 dB averaged over BW_{Config} N_{oc2} ±0.7 dB averaged over BW_{Config} $Ês_2 / N_{oc2}$ ±0.6 dB averaged over BW_{Config}	Note: N_{oc1} is the AWGN on cell 1 frequency $Ês_1 / N_{oc1}$ is the ratio of cell 1 signal / AWGN N_{oc2} is the AWGN on cell 2 frequency $Ês_2 / N_{oc2}$ is the ratio of cell 2 signal / AWGN Each $Ês / N_{oc}$ uncertainty for fading condition comprises two quantities: 1. Signal-to-noise ratio uncertainty 2. Fading profile power uncertainty Items 1 and 2 are assumed to be uncorrelated so can be root sum squared: $Ês / N_{oc}$ uncertainty = SQRT (Signal-to-noise ratio uncertainty^2 + Fading profile power uncertainty^2) Signal-to-noise ratio uncertainty ±0.3 dB Fading profile power uncertainty ±0.5 dB
8.3.2 E-UTRAN FDD-FDD Inter-frequency event triggered reporting when DRX is used under fading propagation conditions in asynchronous cells	Same as 8.3.1	Same as 8.3.1
8.3.3 E-UTRAN FDD-FDD Inter frequency event triggered reporting under AWGN propagation conditions in asynchronous cells with DRX when L3 filtering is used	N_{oc1} ±0.7 dB averaged over BW_{Config} $Ês_1 / N_{oc1}$ ±0.3 dB averaged over BW_{Config} N_{oc2} ±0.7 dB averaged over BW_{Config} $Ês_2 / N_{oc2}$ ±0.3 dB averaged over BW_{Config}	Note: N_{oc1} is the AWGN on cell 1 frequency $Ês_1 / N_{oc1}$ is the ratio of cell 1 signal / AWGN N_{oc2} is the AWGN on cell 2 frequency $Ês_2 / N_{oc2}$ is the ratio of cell 2 signal / AWGN
8.3.4 E-UTRAN FDD - FDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps	N_{oc1} ±1.0 dB averaged over BW_{Config} $Ês_1 / N_{oc1}$ ±0.3 dB averaged over BW_{Config} N_{oc2} ±1.0 dB averaged over BW_{Config} $Ês_2 / N_{oc2}$ ±0.3 dB averaged over BW_{Config}	Note: N_{oc1} is the AWGN on cell 1 frequency $Ês_1 / N_{oc1}$ is the ratio of cell 1 signal / AWGN N_{oc2} is the AWGN on cell 2 frequency $Ês_2 / N_{oc2}$ is the ratio of cell 2 signal / AWGN
8.3.5 E-UTRAN FDD - FDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps with DRX	Same as 8.3.4	Same as 8.3.4
8.4.1 E-UTRAN TDD-TDD Inter-frequency event triggered reporting under fading propagation conditions in synchronous cells	N_{oc1} ±0.7 dB averaged over BW_{Config} $Ês_1 / N_{oc1}$ ±0.6 dB averaged over BW_{Config} N_{oc2} ±0.7 dB averaged over BW_{Config} $Ês_2 / N_{oc2}$ ±0.6 dB averaged over BW_{Config}	Note: N_{oc1} is the AWGN on cell 1 frequency $Ês_1 / N_{oc1}$ is the ratio of cell 1 signal / AWGN N_{oc2} is the AWGN on cell 2 frequency $Ês_2 / N_{oc2}$ is the ratio of cell 2 signal / AWGN Each $Ês / N_{oc}$ uncertainty for fading condition comprises two quantities: 1. Signal-to-noise ratio uncertainty 2. Fading profile power uncertainty Items 1 and 2 are assumed to be uncorrelated so can be root sum squared: $Ês / N_{oc}$ uncertainty = SQRT (Signal-to-noise ratio uncertainty^2 + Fading profile power uncertainty^2) Signal-to-noise ratio uncertainty ±0.3 dB Fading profile power uncertainty ±0.5 dB
8.4.2 E-UTRAN TDD-TDD Inter-frequency event triggered reporting when DRX is used under fading propagation conditions in synchronous cells	Same as 8.4.1	Same as 8.4.1

8.4.3 E-UTRAN TDD-TDD inter-frequency event triggered reporting under AWGN propagation conditions in synchronous cells with DRX when L3 filtering is used	Same as 8.3.3	Same as 8.3.3
8.4.4 E-UTRAN TDD-TDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps	N_{oc1} ±1.0 dB averaged over BW_{Config} $Ês_1 / N_{oc1}$ ±0.3 dB averaged over BW_{Config} N_{oc2} ±1.0 dB averaged over BW_{Config} $Ês_2 / N_{oc2}$ ±0.3 dB averaged over BW_{Config}	Note: N_{oc1} is the AWGN on cell 1 frequency $Ês_1 / N_{oc1}$ is the ratio of cell 1 signal / AWGN N_{oc2} is the AWGN on cell 2 frequency $Ês_2 / N_{oc2}$ is the ratio of cell 2 signal / AWGN
8.4.5 E-UTRAN TDD-TDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps with DRX	Same as 8.4.4	Same as 8.4.4
8.5.1 E-UTRAN FDD - UTRAN FDD event triggered reporting under fading propagation conditions	E-UTRAN cell N_{oc} ±0.7 dB averaged over BW_{Config} $Ês / N_{oc}$ ±0.6 dB averaged over BW_{Config} UTRA cell I_{oc} ±0.7 dB I_{or}/I_{oc} ±0.6 dB CPICH Ec/Ior ±0.1 dB	Note: N_{oc} is the AWGN on Cell 1 frequency $Ês / N_{oc}$ is the ratio of Cell 1 signal / AWGN $Ês / N_{oc}$ uncertainty or I_{or}/I_{oc} uncertainty for fading condition comprises two quantities: 1. Signal-to-noise ratio uncertainty 2. Fading profile power uncertainty Items 1 and 2 are assumed to be uncorrelated so can be root sum squared: $Ês / N_{oc}$ uncertainty = SQRT (Signal-to-noise ratio uncertainty^2 + Fading profile power uncertainty^2) Signal-to-noise ratio uncertainty ±0.3 dB Fading profile power uncertainty ±0.5 dB Ioc is the AWGN on Cell 2 (UTRA) frequency Ior/Ioc is the ratio of Cell 2 signal/AWGN CPICH Ec/Ior is the fraction of Cell 2 power assigned to the CPICH physical channel
8.5.2 E-UTRAN FDD - UTRAN FDD SON ANR cell search reporting under AWGN propagation conditions	E-UTRA cell N_{oc} ±0.7 dB averaged over BW_{Config} $Ês / N_{oc}$ ±0.3 dB averaged over BW_{Config} UTRA cell I_{oc} ±0.7 dB I_{or}/I_{oc} ±0.3 dB CPICH Ec/Ior ±0.1 dB SCH Ec/Ior ±0.1 dB	Note: N_{oc} is the AWGN on cell 1 frequency $Ês / N_{oc}$ is the ratio of cell 1 signal / AWGN Ioc is the AWGN on Cell 2 (UTRA) frequency Ior/Ioc is the ratio of Cell 2 signal/AWGN CPICH Ec/Ior is the fraction of Cell 2 power assigned to the CPICH physical channel SCH Ec/Ior is the fraction of Cell 2 power assigned to the SCH physical channel
8.5.3 E-UTRAN FDD - UTRAN FDD event triggered reporting when DRX is used under fading propagation conditions	Same as 8.5.1	Same as 8.5.1
8.5.4 E-UTRAN FDD - UTRAN FDD enhanced cell identification under AWGN propagation conditions	E-UTRA cell N_{oc} ±1.0 dB averaged over BW_{Config} $Ê_s / N_{oc}$ ±0.3 dB averaged over BW_{Config} UTRA cell I_{oc} ±0.7 dB I_{or}/I_{oc} ±0.3 dB CPICH E_c/I_{or} ±0.1 dB SCH E_c/I_{or} ±0.1 dB	Note: N_{oc} is the AWGN on cell 1 frequency $Ê_s / N_{oc}$ is the ratio of cell 1 signal / AWGN I_{oc} is the AWGN on Cell 2 (UTRA) frequency I_{or}/I_{oc} is the ratio of Cell 2 signal/AWGN CPICH E_c/I_{or} is the fraction of Cell 2 power assigned to the CPICH physical channel SCH E_c/I_{or} is the fraction of Cell 2 power assigned to the SCH physical channel
8.6.1 E-UTRAN TDD - UTRAN FDD event triggered reporting under fading propagation conditions	Same as 8.5.1	Same as 8.5.1

8.7.1 E-UTRAN TDD - UTRAN TDD event triggered reporting under fading propagation conditions	E-UTRA cell N_{oc} ±0.7 dB averaged over BW_{Config} Ês / N_{oc} ±0.6 dB averaged over BW_{Config} UTRA cell I_{oc} ±0.7 dB I_{or}/I_{oc} ±0.6 dB PCCPCH Ec/Ior ±0.1 dB DwPCH_Ec/Ior ±0.1 dB	Notes: N_{oc} is the AWGN on cell 1 (E-UTRA) frequency Ês / N_{oc} is the ratio of cell 1 signal / AWGN Ês / N_{oc} uncertainty or I_{or} / I_{oc} uncertainty for fading condition comprises two quantities: 1. Signal-to-noise ratio uncertainty 2. Fading profile power uncertainty Items 1 and 2 are assumed to be uncorrelated so can be root sum squared: Ês / N_{oc} uncertainty or I_{or} / I_{oc} uncertainty = SQRT (Signal-to-noise ratio uncertainty^2 + Fading profile power uncertainty^2) Signal-to-noise ratio uncertainty ±0.3 dB Fading profile power uncertainty ±0.5 dB I_{oc} is the AWGN on cell 2 (UTRA) frequency I_{or} / I_{oc} is the ratio of cell 2 signal / AWGN PCCPCH E_c / I_{or} is the fraction of cell 2 power assigned to the PCCPCH Physical channel DwPCH_Ec/Ior is the fraction of cell 2 power assigned to the DwPCH channel
8.7.2 E-UTRAN TDD - UTRAN TDD cell search when DRX is used under fading propagation conditions	Same as 8.7.1	Same as 8.7.1
8.7.3 E-UTRAN TDD - UTRAN TDD SON ANR cell search reporting under AWGN propagation conditions	E-UTRA cell N_{oc} ±0.7 dB averaged over BW_{Config} Ês / N_{oc} ±0.3 dB averaged over BW_{Config} UTRA cell I_{oc} ±0.7 dB I_{or}/I_{oc} ±0.3 dB PCCPCH Ec/Ior ±0.1 dB DwPCH_Ec/Ior ±0.1 dB	Note: N_{oc} is the AWGN on cell 1 frequency Ês / N_{oc} is the ratio of cell 1 signal / AWGN I_{oc} is the AWGN on cell 2 (UTRA) frequency I_{or} / I_{oc} is the ratio of cell 2 signal / AWGN PCCPCH E_c / I_{or} is the fraction of cell 2 power assigned to the PCCPCH Physical channel DwPCH_Ec/Ior is the fraction of cell 2 power assigned to the DwPCH channel
8.7.4 E-UTRAN TDD - UTRAN TDD enhanced cell identification under AWGN propagation conditions	E-UTRA cell Noc ±1.0 dB averaged over BW_{Config} Ês / Noc ±0.3 dB averaged over BW_{Config} UTRA cell Ioc ±0.7 dB Ior/Ioc ±0.3 dB PCCPCH Ec/Ior ±0.1 dB DwPCH_Ec/Ior ±0.1 dB	Note: Noc is the AWGN on cell 1 frequency Ês / Noc is the ratio of cell 1 signal / AWGN Ioc is the AWGN on cell 2 (UTRA) frequency Ior / Ioc is the ratio of cell 2 signal / AWGN PCCPCH Ec/Ior is the fraction of cell 2 power assigned to the PCCPCH Physical channel DwPCH_Ec/Ior is the fraction of cell 2 power assigned to the DwPCH channel
8.8.1 E-UTRAN FDD - GSM event triggered reporting in AWGN	E-UTRA Cell N_{oc} ±0.7 dB averaged over BW_{Config} Ês / N_{oc} ±0.3 dB averaged over BW_{Config} GSM cell Signal level ±0.7 dB	Note: N_{oc} is the AWGN on cell 1 frequency Ês / N_{oc} is the ratio of cell 1 signal / AWGN Cell 2 (GSM) has only the wanted signal, without AWGN

8.8.2 E-UTRAN FDD- GSM event triggered reporting when DRX is used in AWGN	E-UTRA Cell N_{oc} ±0.7 dB averaged over BW_{Config} Ês / N_{oc} ±0.3 dB averaged over BW_{Config} GSM cell Signal level ±0.7 dB	Note: N_{oc} is the AWGN on cell 1 frequency Ês / N_{oc} is the ratio of cell 1 signal / AWGN Cell 2 (GSM) has only the wanted signal, without AWGN
8.9.1 E-UTRAN FDD - UTRAN TDD event triggered reporting under fading propagation conditions	E-UTRA cell N_{oc} ±0.7 dB averaged over BW_{Config} Ês / N_{oc} ±0.6 dB averaged over BW_{Config} UTRA TDD cell I_{oc} ±0.7 dB Ior/Ioc ±0.6 dB PCCPCH_Ec /Ior ±0.1 dB DwPCH_Ec /Ior ±0.1 dB	N_{oc} is the AWGN on cell 1 frequency Ês / N_{oc} is the ratio of cell 1 signal / AWGN Ioc is the AWGN on Cell 2 (UTRA TDD) frequency Ior/Ioc is the ratio of Cell 2 signal/AWGN PCCPCH_Ec /Ior is the fraction on Cell 2 power assigned to the CPCCPCH physical channel DwPCH_Ec /Ior is the fraction on Cell 2 power assigned to the DwPCH physical channel Ês / N_{oc} and Ior/Ioc uncertainty for fading condition comprise two quantities: 1. Signal-to-noise ratio uncertainty 2. Fading profile power uncertainty
8.9.2 E-UTRAN FDD - UTRAN TDD enhanced cell identification under AWGN propagation conditions	Same as 8.7.4	Same as 8.7.4
8.10.1 E-UTRAN TDD - GSM event triggered reporting in AWGN	Same as 8.8.1	Same as 8.8.1
8.10.2 E-UTRAN TDD- GSM event triggered reporting when DRX is used in AWGN	Same as 8.8.2	Same as 8.8.2
8.11.1 Multiple E-UTRAN FDD-FDD Inter-frequency event triggered reporting under fading propagation conditions	N_{oc1} ±0.7 dB averaged over BW_{Config} $Ês_1$ / N_{oc1} ±0.3 dB averaged over BW_{Config} N_{oc2} ±0.7 dB averaged over BW_{Config} $Ês_2$ / N_{oc2} ±0.6 dB averaged over BW_{Config} N_{oc3} ±0.7 dB averaged over BW_{Config} $Ês_3$ / N_{oc3} ±0.6 dB averaged over BW_{Config}	Note: N_{oc1} is the AWGN on cell 1 frequency $Ês_1$ / N_{oc1} is the ratio of cell 1 signal / AWGN N_{oc2} is the AWGN on cell 2 frequency $Ês_2$ / N_{oc2} is the ratio of cell 2 signal / AWGN N_{oc3} is the AWGN on cell 3 frequency Ês3 / N_{oc3} is the ratio of cell 3 signal / AWGN $Ês_2$ / N_{oc2} uncertainty or $Ês_3$ / N_{oc3} uncertainty for fading condition comprises two quantities: 1. Signal-to-noise ratio uncertainty 2. Fading profile power uncertainty Items 1 and 2 are assumed to be uncorrelated so can be root sum squared: Ês / N_{oc} uncertainty = SQRT (Signal-to-noise ratio uncertainty^2 + Fading profile power uncertainty^2) Signal-to-noise ratio uncertainty ±0.3 dB Fading profile power uncertainty ±0.5 dB
8.11.2 E-UTRAN TDD - E-UTRAN TDD and E-UTRAN TDD Inter-frequency event triggered reporting under fading propagation conditions	Same as 8.11.1	Same as 8.11.1

8.11.3 E-UTRAN FDD-FDD Inter-frequency and UTRAN FDD event triggered reporting under fading propagation conditions	E-UTRA cells N_{oc1} ±0.7 dB averaged over BW_{Config} $\hat{E}s_1 / N_{oc1}$ ±0.3 dB averaged over BW_{Config} N_{oc2} ±0.7 dB averaged over BW_{Config} $\hat{E}s_2 / N_{oc2}$ ±0.6 dB averaged over BW_{Config} UTRA cell I_{oc} ±0.7 dB I_{or}/I_{oc} ±0.6 dB CPICH Ec/Ior ±0.1 dB	Note: N_{oc1} is the AWGN on cell 1 frequency $\hat{E}s_1 / N_{oc1}$ is the ratio of cell 1 signal / AWGN N_{oc2} is the AWGN on cell 2 frequency $\hat{E}s_2 / N_{oc2}$ is the ratio of cell 2 signal / AWGN Ioc is the AWGN on Cell 3 (UTRA) frequency Ior/Ioc is the ratio of Cell 3 signal/AWGN CPICH Ec/Ior is the fraction of Cell 3 power assigned to the CPICH physical channel $\hat{E}s_2 / N_{oc2}$ uncertainty or I_{or}/I_{oc} uncertainty for fading condition comprises two quantities: 1. Signal-to-noise ratio uncertainty 2. Fading profile power uncertainty Items 1 and 2 are assumed to be uncorrelated so can be root sum squared: $\hat{E}s / N_{oc}$ uncertainty = SQRT (Signal-to-noise ratio uncertainty^2 + Fading profile power uncertainty^2) Signal-to-noise ratio uncertainty ±0.3 dB Fading profile power uncertainty ±0.5 dB
8.11.4 InterRAT E-UTRA TDD to E-UTRA TDD and UTRA TDD cell search	E-UTRA cells N_{oc1} ±0.7 dB averaged over BW_{Config} $\hat{E}s_1 / N_{oc1}$ ±0.3 dB averaged over BW_{Config} N_{oc2} ±0.7 dB averaged over BW_{Config} $\hat{E}s_2 / N_{oc2}$ ±0.6 dB averaged over BW_{Config} UTRA cell I_{oc} ±0.7 dB I_{or}/I_{oc} ±0.6 dB PCCPCH Ec/Ior ±0.1 dB DwPCH_Ec/Ior ±0.1 dB	Note: N_{oc1} is the AWGN on cell 1 frequency $\hat{E}s_1 / N_{oc1}$ is the ratio of cell 1 signal / AWGN N_{oc2} is the AWGN on cell 2 frequency $\hat{E}s_2 / N_{oc2}$ is the ratio of cell 2 signal / AWGN I_{oc} is the AWGN on cell 3 (UTRA) frequency I_{or} / I_{oc} is the ratio of cell 3 signal / AWGN PCCPCH E_c / I_{or} is the fraction of cell 3 power assigned to the PCCPCH Physical channel DwPCH_Ec/Ior is the fraction of cell 3 power assigned to the DwPCH channel $\hat{E}s_2 / N_{oc2}$ uncertainty or I_{or}/I_{oc} uncertainty for fading condition comprises two quantities: 1. Signal-to-noise ratio uncertainty 2. Fading profile power uncertainty Items 1 and 2 are assumed to be uncorrelated so can be root sum squared: $\hat{E}s / N_{oc}$ or I_{or}/I_{oc} uncertainty = SQRT (Signal-to-noise ratio uncertainty^2 + Fading profile power uncertainty^2) Signal-to-noise ratio uncertainty ±0.3 dB Fading profile power uncertainty ±0.5 dB

8.11.5 Combined E-UTRAN FDD - E-UTRA FDD and GSM cell search. E-UTRA cells in fading; GSM cell in static propagation conditions	E-UTRA cells N_{oc1} ±1.0 dB averaged over BW_{Config} $\hat{E}s_1$ / N_{oc1} ±0.6 dB averaged over BW_{Config} N_{oc2} ±1.0 dB averaged over BW_{Config} $\hat{E}s_2$ / N_{oc2} ±0.6 dB averaged over BW_{Config} GSM cell Signal level ±0.7 dB	Note: N_{oc1} is the AWGN on cell 1 frequency $\hat{E}s_1$ / N_{oc1} is the ratio of cell 1 signal / AWGN N_{oc2} is the AWGN on cell 2 frequency $\hat{E}s_2$ / N_{oc2} is the ratio of cell 2 signal / AWGN Cell 3 (GSM) has only the wanted signal, without AWGN $\hat{E}s_1$ / N_{oc1} uncertainty or $\hat{E}s_2$ / N_{oc2} uncertainty for fading condition comprises two quantities: 1. Signal-to-noise ratio uncertainty 2. Fading profile power uncertainty Items 1 and 2 are assumed to be uncorrelated so can be root sum squared: $\hat{E}s$ / N_{oc} uncertainty = SQRT (Signal-to-noise ratio uncertainty^2 + Fading profile power uncertainty^2) Signal-to-noise ratio uncertainty ±0.3 dB Fading profile power uncertainty ±0.5 dB
8.11.6 Combined E-UTRAN TDD - E-UTRA TDD and GSM cell search. E-UTRA cells in fading; GSM cell in static propagation conditions	Same as 8.11.5	Same as 8.11.5
8.14.1 E-UTRAN TDD-FDD Inter-frequency event triggered reporting under fading propagation conditions in asynchronous cells	Same as 8.3.1	Same as 8.3.1
8.14.2 E-UTRAN TDD-FDD Inter-frequency event triggered reporting when DRX is used under fading propagation conditions in asynchronous cells	Same as 8.3.1	Same as 8.3.1
8.14.3 E-UTRAN TDD - FDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps	Same as 8.4.4	Same as 8.4.4
8.15.1 E-UTRAN FDD-TDD Inter-frequency event triggered reporting under fading propagation conditions in asynchronous cells	Same as 8.4.1	Same as 8.4.1
8.15.2 E-UTRAN FDD-TDD Inter-frequency event triggered reporting when DRX is used under fading propagation conditions in asynchronous cells	Same as 8.4.1	Same as 8.4.1
8.15.3 E-UTRAN FDD - TDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps	Same as 8.4.4	Same as 8.4.4

8.16.1 E-UTRAN FDD event triggered reporting under deactivated SCell in non-DRX	N_{oc1} ±1.0 dB averaged over BW_{Config} $\hat{E}s_1 / N_{oc1}$ ±0.6 dB averaged over BW_{Config} N_{oc2} ±1.0 dB averaged over BW_{Config} $\hat{E}s_2 / N_{oc2}$ ±0.6 dB averaged over BW_{Config} $\hat{E}s_3 / N_{oc2}$ ±0.6 dB averaged over BW_{Config} Time alignment error cell 2 rel. to cell 1: Intra-band contiguous CA: ±130 ns (±4Ts) Intra-band non-contiguous CA: ±260 ns (±8Ts) Inter-band CA: ±260 ns (±8Ts)	Note: N_{oc1} is the AWGN on frequency 1 $\hat{E}s_1 / N_{oc1}$ is the ratio of cell 1 signal / AWGN N_{oc2} is the AWGN on frequency 2 $\hat{E}s_2 / N_{oc2}$ is the ratio of cell 2 signal / AWGN $\hat{E}s_3 / N_{oc2}$ is the ratio of cell 3 signal / AWGN $\hat{E}s_1 / N_{oc1}$, $\hat{E}s_2 / N_{oc2}$ uncertainty and $\hat{E}s_3 / N_{oc2}$ uncertainty for fading condition comprises two quantities: 1. Signal-to-noise ratio uncertainty 2. Fading profile power uncertainty Items 1 and 2 are assumed to be uncorrelated so can be root sum squared: $\hat{E}s / N_{oc}$ uncertainty = SQRT (Signal-to-noise ratio uncertainty^2 + Fading profile power uncertainty^2) Signal-to-noise ratio uncertainty ±0.3 dB Fading profile power uncertainty ±0.5 dB T_S = 1/(15000 x 2048) seconds, the basic timing unit defined in TS 36.211 [9]
8.16.2 E-UTRAN TDD event triggered reporting under deactivated SCell in non-DRX	Same as 8.16.1	Same as 8.16.1
8.16.3 E-UTRAN FDD-FDD Event triggered reporting on deactivated SCell with PCell interruption in non-DRX	N_{oc1} ±1.0 dB averaged over BW_{Config} $\hat{E}s_1 / N_{oc1}$ ±0.3 dB averaged over BW_{Config} N_{oc2} ±1.0 dB averaged over BW_{Config} $\hat{E}s_2 / N_{oc2}$ ±0.3 dB averaged over BW_{Config} $\hat{E}s_3 / N_{oc2}$ ±0.3 dB averaged over BW_{Config} Time alignment error cell 2 rel. to cell 1: Intra-band contiguous CA: ±130 ns (±4Ts) Intra-band non-contiguous CA: ±260 ns (±8Ts) Inter-band CA: ±260 ns (±8Ts)	Note: N_{oc1} is the AWGN on frequency 1 $\hat{E}s_1 / N_{oc1}$ is the ratio of Cell 1 signal / AWGN N_{oc2} is the AWGN on frequency 2 $\hat{E}s_2 / N_{oc2}$ is the ratio of Cell 2 signal / AWGN $\hat{E}s_3 / N_{oc2}$ is the ratio of Cell 3 signal / AWGN T_S = 1/(15000 x 2048) seconds, the basic timing unit defined in TS 36.211 [9]
8.16.4 E-UTRAN TDD-TDD Event triggered reporting on deactivated SCell with PCell interruption in non-DRX	Same as 8.16.3	Same as 8.16.3
9.1.1.1 FDD Intra Frequency Absolute RSRP Accuracy	N_{oc} ±1.0 dB averaged over BW_{Config} N_{oc} ±1.3 dB for PRBs #22-27 $\hat{E}s_1 / N_{oc}$ and $\hat{E}s_2 / N_{oc}$ each ±0.3 dB averaged over BW_{Config} $\hat{E}s_1 / N_{oc}$ and $\hat{E}s_2 / N_{oc}$ each ±0.8 dB for PRBs #22-27	Note: $\hat{E}s_1 / N_{oc}$ is the ratio of cell 1 signal / AWGN $\hat{E}s_2 / N_{oc}$ is the ratio of cell 2 signal / AWGN

9.1.1.2 FDD Intra Frequency Relative Accuracy of RSRP	N_{oc} ±0.7 dB averaged over BW_{Config} N_{oc} ±1.0 dB for PRBs #22-27 $\hat{E}s_1 / N_{oc}$ and $\hat{E}s_2 / N_{oc}$ each ±0.3 dB averaged over BW_{Config} $\hat{E}s_1 / N_{oc}$ and $\hat{E}s_2 / N_{oc}$ each ±0.8 dB for PRBs #22-27	Note: $\hat{E}s_1 / N_{oc}$ is the ratio of cell 1 signal / AWGN $\hat{E}s_2 / N_{oc}$ is the ratio of cell 2 signal / AWGN
9.1.2.1 TDD Intra Frequency Absolute RSRP Accuracy	Same as 9.1.1.1	Same as 9.1.1.1
9.1.2.2 TDD Intra Frequency Relative RSRP Accuracy	Same as 9.1.1.2	Same as 9.1.1.2
9.1.3.1 FDD Inter Frequency Absolute RSRP Accuracy	N_{oc1} and N_{oc2} each ±1.0 dB averaged over BW_{Config} N_{oc1} and N_{oc2} each ±1.3 dB for PRBs #22-27 $\hat{E}s_1 / N_{oc1}$ and $\hat{E}s_2 / N_{oc2}$ each ±0.3 dB averaged over BW_{Config} $\hat{E}s_1 / N_{oc1}$ and $\hat{E}s_2 / N_{oc2}$ each ±0.8 dB for PRBs #22-27	Note: N_{oc1} is the AWGN on cell 1 frequency $\hat{E}s_1 / N_{oc1}$ is the ratio of cell 1 signal / AWGN N_{oc2} is the AWGN on cell 2 frequency $\hat{E}s_2 / N_{oc2}$ is the ratio of cell 2 signal / AWGN
9.1.3.2 FDD Inter Frequency Relative RSRP Accuracy	Same as 9.1.3.1	Same as 9.1.3.1
9.1.4.1 TDD Inter Frequency Absolute RSRP Accuracy	Same as 9.1.3.1	Same as 9.1.3.1
9.1.4.2 TDD Inter Frequency Relative RSRP Accuracy	Same as 9.1.3.1	Same as 9.1.3.1
9.1.5.1 FDD - TDD Inter Frequency Absolute RSRP Accuracy	N_{oc1} and N_{oc2} each ±0.7 dB averaged over BW_{Config} N_{oc1} and N_{oc2} each ±1.0 dB for PRBs #22-27 $\hat{E}s_1 / N_{oc1}$ and $\hat{E}s_2 / N_{oc2}$ each ±0.3 dB averaged over BW_{Config} $\hat{E}s_1 / N_{oc1}$ and $\hat{E}s_2 / N_{oc2}$ each ±0.8 dB for PRBs #22-27	Note: N_{oc1} is the AWGN on cell 1 frequency $\hat{E}s_1 / N_{oc1}$ is the ratio of cell 1 signal / AWGN N_{oc2} is the AWGN on cell 2 frequency $\hat{E}s_2 / N_{oc2}$ is the ratio of cell 2 signal / AWGN
9.1.5.2 FDD - TDD Inter Frequency Relative Accuracy of RSRP	N_{oc1} and N_{oc2} each ±0.7 dB averaged over BW_{Config} N_{oc1} and N_{oc2} each ±1.0 dB for PRBs #22-27 $\hat{E}s_1 / N_{oc1}$ and $\hat{E}s_2 / N_{oc2}$ each ±0.3 dB averaged over BW_{Config} $\hat{E}s_1 / N_{oc1}$ and $\hat{E}s_2 / N_{oc2}$ each ±0.8 dB for PRBs #22-27	Note: N_{oc1} is the AWGN on cell 1 frequency $\hat{E}s_1 / N_{oc1}$ is the ratio of cell 1 signal / AWGN N_{oc2} is the AWGN on cell 2 frequency $\hat{E}s_2 / N_{oc2}$ is the ratio of cell 2 signal / AWGN

9.1.6.1 FDD Absolute RSRP Accuracy for E-UTRA Carrier Aggregation	N_{oc1} ±1.0 dB averaged over BW_{Config} N_{oc1} ±1.3 dB for PRBs #22-27 N_{oc2} ±1.0 dB averaged over BW_{Config} N_{oc2} ±1.3 dB for PRBs #22-27 $\hat{E}s_1 / N_{oc1}$, $\hat{E}s_2 / N_{oc2}$ and $\hat{E}s_3 / N_{oc2}$ each ±0.3 dB averaged over BW_{Config} $\hat{E}s_1 / N_{oc1}$, $\hat{E}s_2 / N_{oc2}$ and $\hat{E}s_3 / N_{oc2}$ each ±0.8 dB for PRBs #22-27 Time alignment error cell 2 rel. to cell 1: Intra-band contiguous CA: ±130 ns (±4Ts) Intra-band non-contiguous CA: ±260 ns (±8Ts) Inter-band CA: ±260 ns (±8Ts)	Note: N_{oc1} is the AWGN on frequency 1 $\hat{E}s_1 / N_{oc1}$ is the ratio of cell 1 signal / AWGN N_{oc2} is the AWGN on frequency 2 $\hat{E}s_2 / N_{oc2}$ is the ratio of cell 2 signal / AWGN $\hat{E}s_3 / N_{oc2}$ is the ratio of cell 3 signal / AWGN T_S = 1/(15000 x 2048) seconds, the basic timing unit defined in TS 36.211 [9]
9.1.6.2 FDD Relative RSRP Accuracy for E-UTRA Carrier Aggregation	Same as 9.1.6.1	
9.1.7.1 TDD Absolute RSRP Accuracy for E-UTRA Carrier Aggregation	Same as 9.1.6.1	
9.1.7.2 TDD Relative RSRP Accuracy for E-UTRA Carrier Aggregation	Same as 9.1.6.1	
9.1.8.1 FDD Absolute RSRP Accuracy under Time Domain Measurement Resource Restriction with Non-MBSFN ABS	N_{oc} ±1.0 dB averaged over BW_{Config} N_{oc} ±1.3 dB for PRBs #22-27 $\hat{E}s_1 / N_{oc}$ and $\hat{E}s_2 / N_{oc}$ each ±0.3 dB averaged over BW_{Config} $\hat{E}s_1 / N_{oc}$ and $\hat{E}s_2 / N_{oc}$ each ±0.8 dB for PRBs #22-27	Note: $\hat{E}s_1 / N_{oc}$ is the ratio of cell 1 signal / AWGN $\hat{E}s_2 / N_{oc}$ is the ratio of cell 2 signal / AWGN
9.1.8.2 FDD Relative RSRP Accuracy under Time Domain Measurement Resource Restriction with Non-MBSFN ABS	Same as 9.1.8.1	
9.1.9.1 TDD Absolute RSRP Accuracy under Time Domain Measurement Resource Restriction with Non-MBSFN ABS	Same as 9.1.8.1	
9.1.9.2 TDD Relative RSRP Accuracy under Time Domain Measurement Resource Restriction with Non-MBSFN ABS	Same as 9.1.8.1	
9.2.1.1 FDD Intra Frequency Absolute RSRQ Accuracy	N_{oc} ±0.7 dB averaged over BW_{Config} N_{oc} ±1.0 dB for PRBs #22-27 $\hat{E}s_1 / N_{oc}$ and $\hat{E}s_2 / N_{oc}$ each ±0.3 dB averaged over BW_{Config} $\hat{E}s_1 / N_{oc}$ and $\hat{E}s_2 / N_{oc}$ each ±0.8 dB for PRBs #22-27	Note: $\hat{E}s_1 / N_{oc}$ is the ratio of cell 1 signal / AWGN $\hat{E}s_2 / N_{oc}$ is the ratio of cell 2 signal / AWGN
9.2.2.1 TDD Intra Frequency Absolute RSRQ Accuracy	Same as 9.2.1.1	Same as 9.2.1.1

9.2.3.1 FDD - FDD Inter Frequency Absolute RSRQ Accuracy	N_{oc1} ±0.7 dB averaged over BW_{Config} N_{oc1} ±1.0 dB for PRBs #22-27 N_{oc2} ±0.7 dB averaged over BW_{Config} N_{oc2} ±1.0 dB for PRBs #22-27 $\hat{E}s_1 / N_{oc1}$ and $\hat{E}s_2 / N_{oc2}$ each ±0.3 dB averaged over BW_{Config} $\hat{E}s_1 / N_{oc1}$ and $\hat{E}s_2 / N_{oc2}$ each ±0.8 dB for PRBs #22-27	Note: $\hat{E}s_1 / N_{oc1}$ is the ratio of cell 1 signal / AWGN on frequency 1 $\hat{E}s_2 / N_{oc2}$ is the ratio of cell 2 signal / AWGN on frequency 2
9.2.3.2 FDD - FDD Inter Frequency Relative RSRQ Accuracy	Same as 9.2.3.1	
9.2.4.1 TDD - TDD Inter Frequency Absolute RSRQ Accuracy	Same as 9.2.3.1	
9.2.4.2 TDD - TDD Inter Frequency Relative RSRQ Accuracy	Same as 9.2.3.1	
9.2.4A.1 FDD - TDD Inter Frequency Absolute RSRQ Accuracy	Same as 9.2.3.1	
9.2.4A.2 FDD - TDD Inter Frequency Relative Accuracy of RSRQ	Same as 9.2.3.1	
9.2.5.1 FDD Absolute RSRQ Accuracy for E-UTRA Carrier Aggregation	N_{oc1} ±1.0 dB averaged over BW_{Config} N_{oc1} ±1.3 dB for PRBs #22-27 N_{oc2} ±1.0 dB averaged over BW_{Config} N_{oc2} ±1.3 dB for PRBs #22-27 $\hat{E}s_1 / N_{oc1}$, $\hat{E}s_2 / N_{oc2}$ and $\hat{E}s_3 / N_{oc2}$ each ±0.3 dB averaged over BW_{Config} $\hat{E}s_1 / N_{oc1}$, $\hat{E}s_2 / N_{oc2}$ and $\hat{E}s_3 / N_{oc2}$ each ±0.8 dB for PRBs #22-27 Time alignment error cell 2 rel. to cell 1: Intra-band contiguous CA: ±130 ns (±4Ts) Intra-band non-contiguous CA: ±260 ns (±8Ts) Inter-band CA: ±260 ns (±8Ts)	Note: N_{oc1} is the AWGN on frequency 1 $\hat{E}s_1 / N_{oc1}$ is the ratio of cell 1 signal / AWGN N_{oc2} is the AWGN on frequency 2 $\hat{E}s_2 / N_{oc2}$ is the ratio of cell 2 signal / AWGN $\hat{E}s_3 / N_{oc2}$ is the ratio of cell 3 signal / AWGN T_S = 1/(15000 x 2048) seconds, the basic timing unit defined in TS 36.211 [9]
9.2.5.2 FDD Relative RSRQ Accuracy for E-UTRA Carrier Aggregation	Same as 9.2.5.1	
9.2.6.1 TDD Absolute RSRQ Accuracy for E-UTRA Carrier Aggregation	Same as 9.2.5.1	
9.2.6.2 TDD Relative RSRQ Accuracy for E-UTRA Carrier Aggregation	Same as 9.2.5.1	
9.2.7.1 FDD RSRQ under Time Domain Measurement Resource Restriction with Non-MBSFN ABS	N_{oc} ±1.0 dB averaged over BW_{Config} N_{oc} ±1.3 dB for PRBs #22-27 $\hat{E}s_1 / N_{oc}$ and $\hat{E}s_2 / N_{oc}$ each ±0.3 dB averaged over BW_{Config} $\hat{E}s_1 / N_{oc}$ and $\hat{E}s_2 / N_{oc}$ each ±0.8 dB for PRBs #22-27	Note: $\hat{E}s_1 / N_{oc}$ is the ratio of cell 1 signal / AWGN $\hat{E}s_2 / N_{oc}$ is the ratio of cell 2 signal / AWGN

9.2.8.1 TDD RSRQ under Time Domain Measurement Resource Restriction with Non-MBSFN ABS	Same as 9.2.7.1	Same as 9.2.7.1
9.3.1 E-UTRAN FDD - UTRA FDD CPICH RSCP absolute accuracy	E-UTRA cell N_{oc} ±0.7 dB averaged over BW_{Config} $Ês / N_{oc}$ ±0.3 dB averaged over BW_{Config} UTRA cell I_{oc} ±0.7 dB I_{or} / I_{oc} ±0.3 dB CPICH E_c / I_{or} ±0.1 dB	Notes: N_{oc} is the AWGN on cell 1 (E-UTRA) frequency $Ês / N_{oc}$ is the ratio of cell 1 signal / AWGN I_{oc} is the AWGN on cell 2 (UTRA) frequency I_{or} / I_{oc} is the ratio of cell 2 signal / AWGN CPICH E_c / I_{or} is the fraction of cell 2 power assigned to the CPICH Physical channel
9.3.2 E-UTRAN TDD - UTRA FDD CPICH RSCP absolute accuracy	Same as 9.3.1	
9.4.1 E-UTRAN FDD – UTRA FDD CPICH Ec/No absolute accuracy	E-UTRA cell N_{oc} ±0.7 dB averaged over BW_{Config} $Ês / N_{oc}$ ±0.3 dB averaged over BW_{Config} UTRA cell I_{oc} ±0.7 dB I_{or} / I_{oc} ±0.3 dB CPICH E_c / I_{or} ±0.1 dB	Notes: N_{oc} is the AWGN on cell 1 (E-UTRA) frequency $Ês / N_{oc}$ is the ratio of cell 1 signal / AWGN I_{oc} is the AWGN on cell 2 (UTRA) frequency I_{or} / I_{oc} is the ratio of cell 2 signal / AWGN CPICH E_c / I_{or} is the fraction of cell 2 power assigned to the CPICH Physical channel
9.4.2 E-UTRAN TDD – UTRA FDD CPICH Ec/No absolute accuracy	Same as 9.4.1	Same as 9.4.1
9.5.1 E-UTRAN FDD – UTRA TDD P-CCPCH RSCP absolute accuracy	E-UTRA cell N_{oc} ±1.0 dB averaged over BW_{Config} $Ês / N_{oc}$ ±0.3 dB averaged over BW_{Config} UTRA cell I_{oc} ±0.7 dB I_{or} / I_{oc} ±0.3 dB PCCPCH E_C/I_{or} ±0.1 dB DwPCH_E_C/I_{or} ±0.1 dB	Notes: N_{oc} is the AWGN on cell 1 (E-UTRA) frequency $Ês / N_{oc}$ is the ratio of cell 1 signal / AWGN I_{oc} is the AWGN on cell 2 (UTRA) frequency I_{or} / I_{oc} is the ratio of cell 2 signal / AWGN PCCPCH E_c / I_{or} is the fraction of cell 2 power assigned to the PCCPCH Physical channel DwPCH_ E_c / I_{or} is the fraction of cell 2 power assigned to the DwPCH channel
9.5.2 E-UTRAN TDD – UTRA TDD P-CCPCH RSCP absolute accuracy	Same as 9.5.1	
9.6.1 GSM RSSI accuracy for E-UTRAN FDD	E-UTRA Cell N_{oc} ±1.0 dB averaged over BW_{Config} $Ês / N_{oc}$ ±0.3 dB averaged over BW_{Config} GSM cell BCCH1 Signal level ±0.7 dB GSM cell BCCH 2 to 6 Signal level ±2.0 dB	Note: N_{oc} is the AWGN on cell 1 frequency $Ês / N_{oc}$ is the ratio of cell 1 signal / AWGN GSM cells BCCH 1 to 6 have only the wanted signal, without AWGN
9.6.2 GSM RSSI accuracy for E-UTRAN TDD	E-UTRA Cell N_{oc} ±1.0 dB averaged over BW_{Config} $Ês / N_{oc}$ ±0.3 dB averaged over BW_{Config} GSM cell BCCH1 Signal level ±0.7 dB GSM cell BCCH 2 to 6 Signal level ±2.0 dB	Note: N_{oc} is the AWGN on cell 1 frequency $Ês / N_{oc}$ is the ratio of cell 1 signal / AWGN GSM cells BCCH 1 to 6 have only the wanted signal, without AWGN

In addition, the following Test System uncertainties and related constraints apply. Any additional constraints are defined in the specific tests.	
AWGN Bandwidth	≥ 1.08MHz, 2.7MHz, 4.5MHz, 9MHz, 13.5MHz, 18MHz; N_{RB} x 180kHz according to BW_{Config}
AWGN absolute power uncertainty	Test-specific
AWGN flatness and signal flatness, max deviation for any Resource Block, relative to average over BW_{Config}	±2 dB
AWGN peak to average ratio	≥10 dB @0.001%
Signal-to noise ratio uncertainty	Test-specific
Fading profile power uncertainty	±0.5 dB
Fading profile delay uncertainty, relative to frame timing	±5 ns (excludes absolute errors related to baseband timing)

F.2 Interpretation of measurement results (normative)

See TS 36.521-1[10] Annex F2.

F.3 Test Tolerance and Derivation of Test Requirements (informative)

See TS 36.521-1[10] Annex F3.

F.3.1 Measurement of test environments

See TS 36.521-1[10] Annex F3.1.

F.3.2 Measurement of RRM requirements

Because the relationships between the Test system uncertainties and the Test Tolerances are often complex, it is not always possible to give a simple derivation of the Test Requirement in this document. The analysis is recorded in 3GPP TR 36 903 [20].

Table F.3.2-1: Derivation of Test Requirements (RRM tests)

Test	Minimum Requirement in TS 36.133	Test Tolerance (TT)	Test Requirement in TS 36.521-3
4.2.1 E-UTRA FDD - FDD cell re-selection intra frequency	During T1: N_{oc}: -98dBm/15kHz $\hat{E}s_1 / N_{oc}$: +16.00dB $\hat{E}s_2 / N_{oc}$: -infinity During T2: N_{oc}: -98dBm/15kHz $\hat{E}s_1 / N_{oc}$: +13.00dB $\hat{E}s_2 / N_{oc}$: +16.00dB During T3: N_{oc}: -98dBm /15kHz $\hat{E}s_1 / N_{oc}$: +16.00dB $\hat{E}s_2 / N_{oc}$: +13.00dB	During T1: 0dB 0dB 0dB During T2: 0dB 0dB +0.45dB During T3: 0dB +0.45dB 0dB	During T1: N_{oc}: -98dBm/15kHz $\hat{E}s_1 / N_{oc}$: +16.00dB $\hat{E}s_2 / N_{oc}$: -infinity During T2: N_{oc}: -98dBm/15kHz $\hat{E}s_1 / N_{oc}$: +13.00dB $\hat{E}s_2 / N_{oc}$: +16.45dB During T3: N_{oc}: -98dBm /15kHz $\hat{E}s_1 / N_{oc}$: +16.45dB $\hat{E}s_2 / N_{oc}$: +13.00dB
4.2.2 E-UTRA TDD - TDD cell re-selection intra frequency	Same as 4.2.1	Same as 4.2.1	Same as 4.2.1
4.2.3 E-UTRA FDD - FDD cell re-selection inter frequency	During T0: N_{oc1}: -98dBm/15kHz $\hat{E}s_1 / N_{oc1}$: -4.00dB N_{oc2}: -98dBm/15kHz $\hat{E}s_2 / N_{oc2}$: +14.00dB During T1: N_{oc1}: -98dBm/15kHz $\hat{E}s_1 / N_{oc1}$: +14.00dB N_{oc2}: -98dBm/15kHz $\hat{E}s_2 / N_{oc2}$: -4.00dB During T2: N_{oc1}: -98dBm/15kHz $\hat{E}s_1 / N_{oc1}$: +14.00dB N_{oc2}: -98dBm/15kHz $\hat{E}s_2 / N_{oc2}$: -infinity During T3: N_{oc1}: -98dBm /15kHz $\hat{E}s_1 / N_{oc1}$: +14.00dB N_{oc2}: -98dBm/15kHz $\hat{E}s_2 / N_{oc2}$: +12.00dB	During T0: -1.1dB +0.3dB -1.1dB +1.9dB During T1: -1.1dB +1.9dB -1.1dB +0.3dB During T2: -1.1dB +1.9dB -1.1dB 0dB During T3: -1.1dB +1.9dB -1.1dB +1.9dB	During T0: N_{oc1}: -99.1dBm/15kHz $\hat{E}s_1 / N_{oc1}$: -3.70dB N_{oc2}: -99.1dBm/15kHz $\hat{E}s_2 / N_{oc2}$: +15.90dB During T1: N_{oc1}: -99.1dBm/15kHz $\hat{E}s_1 / N_{oc1}$: +15.90dB N_{oc2}: -99.1dBm/15kHz $\hat{E}s_2 / N_{oc2}$: -3.70dB During T2: N_{oc1}: -99.1dBm/15kHz $\hat{E}s_1 / N_{oc1}$: +15.90dB N_{oc2}: -99.1dBm/15kHz $\hat{E}s_2 / N_{oc2}$: -infinity During T3: N_{oc1}: -99.1dBm /15kHz $\hat{E}s_1 / N_{oc1}$: +15.90dB N_{oc2}: -99.1dBm/15kHz $\hat{E}s_2 / N_{oc2}$: +13.90dB
4.2.4 E-UTRA FDD - TDD cell re-selection inter frequency	Same as 4.2.3	Same as 4.2.3	Same as 4.2.3
4.2.5 E-UTRA TDD - FDD cell re-selection inter frequency	Same as 4.2.3	Same as 4.2.3	Same as 4.2.3
4.2.6 E-UTRA TDD - TDD cell re-selection inter frequency	Same as 4.2.3	Same as 4.2.3	Same as 4.2.3

4.2.7 E-UTRA FDD Inter frequency re-selection in the existence of non-allowed CSG cell	During T0: N_{oc1}: -98dBm/15kHz $\hat{E}s_1 / N_{oc1}$: +13.00dB $\hat{E}s_3 / N_{oc1}$: -infinity N_{oc2}: -98dBm/15kHz $\hat{E}s_2 / N_{oc2}$: -3.00dB During T1: N_{oc1}: -98dBm/15kHz $\hat{E}s_1 / N_{oc1}$: +8.00dB $\hat{E}s_3 / N_{oc1}$: +8.00dB N_{oc2}: -98dBm/15kHz $\hat{E}s_2 / N_{oc2}$: -infinity During T2: N_{oc1}: -98dBm/15kHz $\hat{E}s_1 / N_{oc1}$: +8.00dB $\hat{E}s_3 / N_{oc1}$: +13.00dB N_{oc2}: -98dBm/15kHz $\hat{E}s_2 / N_{oc2}$: +13.00dB During T3: N_{oc1}: -98dBm/15kHz $\hat{E}s_1 / N_{oc1}$: +13.00dB $\hat{E}s_3 / N_{oc1}$: +38.00dB N_{oc2}: -98dBm/15kHz $\hat{E}s_2 / N_{oc2}$: +8.00dB	During T0: 0dB 0dB 0dB 0dB 0dB During T1: 0dB -0.2dB 0dB 0dB 0dB During T2: 0dB 0dB 0dB 0dB 0dB During T3: 0dB 0dB 0dB 0dB 0dB	During T0: N_{oc1}: -98dBm/15kHz $\hat{E}s_1 / N_{oc1}$: +13.00dB $\hat{E}s_3 / N_{oc1}$: -infinitydB N_{oc2}: -98dBm/15kHz $\hat{E}s_2 / N_{oc2}$: -3.00dB During T1: N_{oc1}: -98dBm/15kHz $\hat{E}s_1 / N_{oc1}$: +7.80dB $\hat{E}s_3 / N_{oc1}$: +8.00dB N_{oc2}: -98dBm/15kHz $\hat{E}s_2 / N_{oc2}$: -infinity During T2: N_{oc1}: -98dBm/15kHz $\hat{E}s_1 / N_{oc1}$: +8.00dB $\hat{E}s_3 / N_{oc1}$: +13.00dB N_{oc2}: -98dBm/15kHz $\hat{E}s_2 / N_{oc2}$: +13.00dB During T3: N_{oc1}: -98dBm/15kHz $\hat{E}s_1 / N_{oc1}$: +13.00dB $\hat{E}s_3 / N_{oc1}$: +38.00dB N_{oc2}: -98dBm/15kHz $\hat{E}s_2 / N_{oc2}$: +8.00dB
4.2.8 E-UTRA TDD Inter frequency re-selection in the existence of non-allowed CSG cell	Same as 4.2.7	Same as 4.2.7	Same as 4.2.7
4.3.1.1 E-UTRA FDD - UTRAN FDD cell reselection: UTRA FDD is of higher priority	During T1: E-UTRA Cell 1 N_{oc}: -98.00dBm/15kHz $\hat{E}s / N_{oc}$: +14.00dB UTRA Cell 2 I_{oc}: -70.00dBm/3.84MHz I_{or} / I_{oc}: -∞dB CPICH_E_c/I_{or}: -10.00dB During T2: E-UTRA Cell 1 N_{oc}: -98.00dBm/15kHz $\hat{E}s / N_{oc}$: +14.00dB UTRA Cell 2 I_{oc}: -70.00dBm/3.84MHz I_{or} / I_{oc}: +11.00dB CPICH_E_c/I_{or}: -10.00dB During T3: E-UTRA Cell 1 N_{oc}: -98.00dBm/15kHz $\hat{E}s / N_{oc}$: +14.00dB UTRA Cell 2 I_{oc}: -70.00dBm/3.84MHz I_{or} / I_{oc}: -5.00dB CPICH_E_c/I_{or}: -10.00dB	During T1: 0dB +0.8dB -0.1dB 0dB 0dB During T2: 0dB +0.8dB -0.1dB +0.9dB 0dB During T3: 0dB +0.8dB -0.1dB -0.7dB 0dB	During T1: E-UTRA Cell 1 N_{oc}: -98.00dBm/15kHz $\hat{E}s / N_{oc}$: +14.80dB UTRA Cell 2 I_{oc}: -70.10dBm/3.84MHz I_{or} / I_{oc}: -∞dB CPICH_ E_c/I_{or}: -10.00dB During T2: E-UTRA Cell 1 N_{oc}: -98.00dBm/15kHz $\hat{E}s / N_{oc}$: +14.80dB UTRA Cell 2 I_{oc}: -70.10dBm/3.84MHz I_{or} / I_{oc}: +11.90dB CPICH_ E_c/I_{or}: -10.00dB During T3: E-UTRA Cell 1 N_{oc}: -98.00dBm/15kHz $\hat{E}s / N_{oc}$: +14.80dB UTRA Cell 2 I_{oc}: -70.10dBm/3.84MHz I_{or} / I_{oc}: -5.70dB CPICH_ E_c/I_{or}: -10.00dB

4.3.1.2 E-UTRAN FDD - UTRAN FDD cell re-selection: UTRA FDD is of lower priority	During T1: E-UTRA Cell 1 N_{oc}: -98.00dBm/15kHz Ês / N_{oc}: +12.00dB UTRA Cell 2 I_{oc}: -70.00dBm/3.84MHz I_{or} / I_{oc}: +13.00dB CPICH_E_c/I_{or}: -10.00dB During T2: E-UTRA Cell 1 N_{oc}: -98.00dBm/15kHz Ês / N_{oc}: -4.00dB UTRA Cell 2 I_{oc}: -70.00dBm/3.84MHz I_{or} / I_{oc}: +13.00dB CPICH_E_c/I_{or}: -10.00dB	During T1: -1.10dB +1.90dB 0dB +0.80dB 0dB During T2: -1.10dB +0.30dB 0dB +0.80dB 0dB	During T1: E-UTRA Cell 1 N_{oc}: -99.10dBm/15kHz Ês / N_{oc}: +13.90dB UTRA Cell 2 I_{oc}: -70.00dBm/3.84MHz I_{or} / I_{oc}: +13.80dB CPICH_ E_c/I_{or}: -10.00dB During T2: E-UTRA Cell 1 N_{oc}: -99.10dBm/15kHz Ês / N_{oc}: -3.70dB UTRA Cell 2 I_{oc}: -70.00dBm/3.84MHz I_{or} / I_{oc}: +13.80dB CPICH_ E_c/I_{or}: -10.00dB
4.3.1.3 EUTRA FDD-UTRA FDD cell reselection in fading propagation conditions: UTRA FDD is of lower priority	During T1, T2: E-UTRA Cell 1 N_{oc}: -104.00dBm/15kHz Ês / N_{oc}: +22.00dB UTRA Cell 2 I_{oc}: -70.00dBm/3.84MHz I_{or} / I_{oc}: +13.00dB CPICH_E_c/I_{or}: -10.00dB During T3, T4: E-UTRA Cell 1 N_{oc}: -104.00dBm/15kHz Ês / N_{oc}: -3.00dB UTRA Cell 2 I_{oc}: -70.00dBm/3.84MHz I_{or} / I_{oc}: +13.00dB CPICH_E_c/I_{or}: -10.00dB	During T1,T2 0dB 0dB 0dB +0.80dB 0dB During T3,T4 0dB 0dB 0dB +0.80dB 0dB	During T1, T2: E-UTRA Cell 1 N_{oc}: -104.00dBm/15kHz Ês / N_{oc}: +22.00dB UTRA Cell 2 I_{oc}: -70.00dBm/3.84MHz I_{or} / I_{oc}: +13.80dB CPICH_ E_c/I_{or}: -10.00dB During T3, T4: E-UTRA Cell 1 N_{oc}: -104.00dBm/15kHz Ês / N_{oc}: -3.00dB UTRA Cell 2 I_{oc}: -70.00dBm/3.84MHz I_{or} / I_{oc}: +13.80dB CPICH_ E_c/I_{or}: -10.00dB
4.3.2 E-UTRA FDD - UTRAN TDD cell re-selection	During T1: E-UTRA Cell 1 N_{oc}: -98.0dBm/15kHz Ês / N_{oc}: +11.00dB UTRA Cell 2 I_{oc}: -80.0dBm/1.28MHz $\hat{I}_{or}$ / I_{oc}: +11.0dB PCCPCH_E_c/I_{or}: -3dB DwPCH_Ec/Ior: 0dB During T2: E-UTRA Cell 1 N_{oc}: -98.0dBm/15kHz Ês / N_{oc}: -3.0dB UTRA Cell 2 I_{oc}: -80.0dBm/1.28MHz $\hat{I}_{or}$ / I_{oc}: +11.0dB PCCPCH_E_c/I_{or}: -3dB DwPCH_Ec/Ior: 0dB	During T1: 0dB 0dB 0dB 0dB 0dB 0dB During T2: 0dB 0dB 0dB 0dB 0dB 0dB	During T1: E-UTRA Cell 1 N_{oc}: -98.0dBm/15kHz Ês / N_{oc}: +11.00dB UTRA Cell 2 I_{oc}: -80.0dBm/1.28MHz $\hat{I}_{or}$ / I_{oc}: +11.0dB PCCPCH_E_c/I_{or}: -3dB DwPCH_Ec/Ior: 0dB During T2: E-UTRA Cell 1 N_{oc}: -98.0dBm/15kHz Ês / N_{oc}: -3.0dB UTRA Cell 2 I_{oc}: -80.0dBm/1.28MHz $\hat{I}_{or}$ / I_{oc}: +11.0dB PCCPCH_E_c/I_{or}: -3dB DwPCH_Ec/Ior: 0dB
4.3.3 E-UTRAN TDD - UTRAN FDD cell re-selection: UTRA FDD is of lower priority	Same as 4.3.1.2	Same as 4.3.1.2	Same as 4.3.1.2

4.3.4.1 E-UTRA TDD - UTRAN TDD cell re-selection : UTRA is of higher priority	During T1: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: +11.00dB UTRA Cell 2 Ioc: -80dBm/1.28MHz Îor / Ioc: -infinity During T2: E-UTRA Cell 1 Noc: -98dBm /15kHz Ês / Noc: +11.00dB UTRA Cell 2 Ioc: -80dBm/1.28MHz Îor / Ioc: +11.00dB PCCPCH_Ec/Ior: -3dB DwPCH_Ec/Ior: 0dB During T3: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: +11.00dB UTRA Cell 2 Ioc: -80dBm/1.28MHz Îor / Ioc: -3.00dB PCCPCH_Ec/Ior: -3dB DwPCH_Ec/Ior: 0dB	During T1: 0dB 0dB 0dB 0dB During T2: 0dB 0dB 0dB 0dB 0dB 0dB During T3: 0dB 0dB 0dB 0dB 0dB 0dB	During T1: N_{oc}: -98.0dBm/15kHz Ês / N_{oc}: +11.0dB I_{oc}: -80.0dBm/1.28MHz $\hat{I}_{or}$ / I_{oc}: -infinity During T2: N_{oc}: -98.0dBm /15kHz Ês / N_{oc}: +11.0dB I_{oc}: -80.0dBm/1.28MHz $\hat{I}_{or}$ / I_{oc}: +11.0dB PCCPCH_E_c/I_{or}: -3dB DwPCH_E_c/I_{or}: 0dB During T3: N_{oc}: -98.0dBm/15kHz Ês / N_{oc}: +11.0dB I_{oc}: -80.0dBm/1.28MHz $\hat{I}_{or}$ / I_{oc}: -3.0dB PCCPCH_E_c/I_{or}: -3dB DwPCH_E_c/I_{or}: 0dB
4.3.4.2 E-UTRA TDD - UTRAN TDD cell re-selection : UTRA is of lower priority	Same as 4.3.2	Same as 4.3.2	Same as 4.3.2
4.3.4.3 EUTRA TDD-UTRA TDD cell reselection in fading propagation conditions: UTRA TDD is of lower priority	During T1, T2: E-UTRA Cell 1 N_{oc}: -104.0dBm/15kHz Ês / N_{oc}: +22.00dB UTRA Cell 2 I_{oc}: -80.0dBm/1.28MHz $\hat{I}_{or}$ / I_{oc}: +13.0dB PCCPCH_E_c/I_{or}: -3dB DwPCH_Ec/Ior: 0dB During T3, T4: E-UTRA Cell 1 N_{oc}: -104.0dBm/15kHz Ês / N_{oc}: -3.0dB UTRA Cell 2 I_{oc}: -80.0dBm/1.28MHz $\hat{I}_{or}$ / I_{oc}: +13.0dB PCCPCH_E_c/I_{or}: -3dB DwPCH_Ec/Ior: 0dB	During T1, T2: 0dB 0dB 0dB 0dB 0dB 0dB During T3, T4: 0dB 0dB 0dB 0dB 0dB 0dB	During T1, T2: E-UTRA Cell 1 N_{oc}: -104.0dBm/15kHz Ês / N_{oc}: +22.00dB UTRA Cell 2 I_{oc}: -80.0dBm/1.28MHz $\hat{I}_{or}$ / I_{oc}: +13.0dB PCCPCH_E_c/I_{or}: -3dB DwPCH_Ec/Ior: 0dB During T3, T4: E-UTRA Cell 1 N_{oc}: -104.0dBm/15kHz Ês / N_{oc}: -3.0dB UTRA Cell 2 I_{oc}: -80.0dBm/1.28MHz $\hat{I}_{or}$ / I_{oc}: +13.0dB PCCPCH_E_c/I_{or}: -3dB DwPCH_Ec/Ior: 0dB
4.4.1 E-UTRAN FDD - GSM cell re-selection	During T1: E-UTRA Cell 1 N_{oc}: -98.00dBm/15kHz Ês / N_{oc}: +9.00dB GSM Cell 2 Signal level: -90.00dBm During T2: E-UTRA Cell 1 N_{oc}: -98.00dBm/15kHz Ês / N_{oc}: -4.00dB GSM Cell 2 Signal level: -75.0dBm	During T1: -1.1dB +0.9dB 0dB During T2: -1.1dB +0.3dB 0dB	During T1: E-UTRA Cell 1 N_{oc}: -99.10dBm/15kHz Ês / N_{oc}: +9.90dB GSM Cell 2 Signal level: -90.00dBm During T2: E-UTRA Cell 1 N_{oc}: -99.10dBm/15kHz Ês / N_{oc}: -3.70dB GSM Cell 2 Signal level: -75.00dBm
4.4.2 E-UTRAN TDD - GSM cell re-selection	Same as 4.4.1	Same as 4.4.1	Same as 4.4.1

4.5.1.1 RRC IDLE / E-UTRAN to HRPD Cell re-selection / E-UTRAN FDD - HRPD cell re-selection: HRPD is of lower priority	<u>During T1:</u> E-UTRA Cell 1 N_{oc}: -98.00dBm/15kHz Ês / N_{oc}: +9.00dB HRPD Cell 2 I_{oc}: -55.00dBm/1.2288MHz I_{or} / I_{oc}: 0 dB <u>During T2:</u> E-UTRA Cell 1 N_{oc}: -98.00dBm/15kHz Ês / N_{oc}: -4.00dB HRPD Cell 2 I_{oc}: -55.00dBm/1.2288MHz I_{or} / I_{oc}: 0 dB	<u>During T1</u> -1.1dB 0.9dB 0dB 0dB <u>During T2</u> -1.1dB 0.3dB 0dB 0dB	<u>During T1:</u> E-UTRA Cell 1 N_{oc}: -99.1dBm/15kHz Ês / N_{oc}: +9.90dB HRPD Cell 2 I_{oc}: -55.00dBm/1.2288MHz I_{or} / I_{oc}: 0 dB <u>During T2:</u> E-UTRA Cell 1 N_{oc}: -99.1dBm/15kHz Ês / N_{oc}: -3.70dB HRPD Cell 2 I_{oc}: -55.00dBm/1.2288MHz I_{or} / I_{oc}: 0 dB
4.5.2.1 E-UTRAN TDD - HRPD Cell Reselection: HRPD is of Lower Priority	Same as 4.5.1.1	Same as 4.5.1.1	Same as 4.5.1.1
5.1.1 E-UTRAN FDD-FDD Handover intra frequency case	<u>During T1:</u> N_{oc}: -98dBm/15kHz $Ês_1$ / N_{oc}: +8.00dB $Ês_2$ / N_{oc}: -infinity <u>During T2:</u> N_{oc}: -98dBm/15kHz $Ês_1$ / N_{oc}: +8.00dB $Ês_2$ / N_{oc}: +11.00dB <u>During T3:</u> N_{oc}: -98dBm /15kHz $Ês_1$ / N_{oc}: +8.00dB $Ês_2$ / N_{oc}: +11.00dB	<u>During T1:</u> 0dB 0dB 0dB <u>During T2:</u> 0dB 0dB +0.5dB <u>During T3:</u> 0dB 0dB +0.5dB	<u>During T1:</u> N_{oc}: -98dBm/15kHz $Ês_1$ / N_{oc}: +8.00dB $Ês_2$ / N_{oc}: -infinity <u>During T2:</u> N_{oc}: -98dBm/15kHz $Ês_1$ / N_{oc}: +8.00dB $Ês_2$ / N_{oc}: +11.50dB <u>During T3:</u> N_{oc}: -98dBm /15kHz $Ês_1$ / N_{oc}: +8.00 $Ês_2$ / N_{oc}: +11.50dB
5.1.2 E-UTRAN TDD-TDD Handover intra frequency case	Same as 5.1.1	Same as 5.1.1	Same as 5.1.1
5.1.3 E-UTRAN FDD-FDD Handover inter frequency case	<u>During T1:</u> N_{oc1}: -98dBm/15kHz $Ês_1$ / N_{oc1}: +4dB N_{oc2}: -98dBm/15kHz $Ês_2$ / N_{oc2}: -infinity During T2: N_{oc1}: -98dBm/15kHz $Ês_1$ / N_{oc1}: +4dB N_{oc2}: -98dBm/15kHz $Ês_2$ / N_{oc2}: +7.0dB <u>During T3:</u> N_{oc1}: -98dBm /15kHz $Ês_1$ / N_{oc1}: +4dB N_{oc2}: -98dBm/15kHz $Ês_2$ / N_{oc2}: +7.0dB	<u>During T1:</u> 0dB 0dB 0dB <u>During T2:</u> 0dB 0dB 0dB 0.1dB <u>During T3:</u> 0dB 0dB 0dB +0.1dB	<u>During T1:</u> N_{oc1}: -98dBm/15kHz $Ês_1$ / N_{oc1}: +4dB N_{oc2}: -98dBm/15kHz $Ês_2$ / N_{oc2}: -infinity During T2: N_{oc1}: -98dBm/15kHz $Ês_1$ / N_{oc1}: +4dB N_{oc2}: -98dBm/15kHz $Ês_2$ / N_{oc2}: +7.10dB <u>During T3:</u> N_{oc1}: -98dBm /15kHz $Ês_1$ / N_{oc1}: +4dB N_{oc2}: -98dBm/15kHz $Ês_2$ / N_{oc2}: +7.10dB
5.1.4 E-UTRAN TDD-TDD Handover inter frequency case	Same as 5.1.3	Same as 5.1.3	Same as 5.1.3
5.1.5 E-UTRAN FDD-FDD inter-frequency Handover with unknown target cell	During T1: Noc1: -98dBm/15kHz Ês1 / Noc1: +4dB Noc2: -98dBm/15kHz Ês2 / Noc2: -infinity During T2: Noc1: -98dBm/15kHz Ês1 / Noc1: +4dB Noc2: -98dBm/15kHz Ês2 / Noc2: +7.0dB	During T1: 0dB 0dB 0dB During T2: 0dB 0dB 0dB 0dB	During T1: Noc1: -98dBm/15kHz Ês1 / Noc1: +4dB Noc2: -98dBm/15kHz Ês2 / Noc2: -infinity During T2: Noc1: -98dBm/15kHz Ês1 / Noc1: +4dB Noc2: -98dBm/15kHz Ês2 / Noc2: +7.0dB

5.1.6 E-UTRAN TDD-TDD inter-frequency Handover with unknown target cell	During T1: Noc1: -98dBm/15kHz Ês1 / Noc1: +4dB Noc2: -98dBm/15kHz Ês2 / Noc2: -infinity During T2: Noc1: -98dBm/15kHz Ês1 / Noc1: +4dB Noc2: -98dBm/15kHz Ês2 / Noc2: +5.0dB	During T1: 0dB 0dB 0dB During T2: 0dB 0dB 0dB 0dB	During T1: Noc1: -98dBm/15kHz Ês1 / Noc1: +4dB Noc2: -98dBm/15kHz Ês2 / Noc2: -infinity During T2: Noc1: -98dBm/15kHz Ês1 / Noc1: +4dB Noc2: -98dBm/15kHz Ês2 / Noc2: +5.0dB
5.1.7 E-UTRAN FDD-TDD Handover inter frequency case	Same as 5.1.3	Same as 5.1.3	Same as 5.1.3
5.1.8 E-UTRAN TDD-FDD Handover inter frequency case	Same as 5.1.3	Same as 5.1.3	Same as 5.1.3
5.2.1 E-UTRAN FDD - UTRAN FDD handover	During T1: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: 0.00dB UTRA Cell 2 Ioc: -70dBm/3.84MHz Ior / Ioc: -infinity During T2: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: 0.00dB UTRA Cell 2 Ioc: -70dBm/3.84MHz Ior / Ioc:-1.80dB During T3: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: 0.00dB UTRA Cell 2 Ioc: -70dBm/3.84MHz Ior / Ioc:-1.80dB	During T1: 0dB -0.80dB 0dB - During T2: 0dB -0.80dB 0dB 0dB During T3: 0dB -0.80dB 0dB 0dB	During T1: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: -0.80dB UTRA Cell 2 Ioc: -70dBm/3.84MHz Ior / Ioc: -infinity During T2: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: -0.80dB UTRA Cell 2 Ioc: -70dBm/3.84MHz Ior / Ioc:-1.80dB During T3: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: -0.80dB UTRA Cell 2 Ioc: -70dBm/3.84MHz Ior / Ioc:-1.80dB
5.2.2 E-UTRAN TDD - UTRAN FDD handover	Same as 5.2.1	Same as 5.2.1	Same as 5.2.1
5.2.3 E-UTRAN FDD - GSM handover	During T1: E-UTRA Cell 1 N_{oc}: -98dBm/15kHz Ês / N_{oc}: +4dB GSM Cell 2 Signal level: -85dBm During T2: E-UTRA Cell 1 N_{oc}: -98dBm/15kHz Ês / N_{oc}: +4dB GSM Cell 2 Signal level: -75dBm During T3: E-UTRA Cell 1 N_{oc}: -98dBm /15kHz Ês / N_{oc}: +4dB GSM Cell 2 Signal level: -75dBm	During T1: 0dB 0dB 0dB During T2: 0dB 0dB 0dB During T3: 0dB 0dB 0dB	During T1: E-UTRAN Cell 1 N_{oc}: -98dBm/15kHz Ês / N_{oc}: +4dB GSM Cell 2 Signal level: -85dBm During T2: E-UTRA Cell 1 N_{oc}: -98dBm/15kHz Ês / N_{oc}: +4dB GSM Cell 2 Signal level: -75dBm During T3: E-UTRA Cell 1 N_{oc}: -98dBm /15kHz Ês / N_{oc}: +4dB GSM Cell 2 Signal level: -75dBm

5.2.4 E-UTRA TDD – UTRA TDD handover	During T1: E-UTRA Cell 1 N_{oc}: -98dBm/15kHz $\hat{E}_s$ / N_{oc}: +13.00dB UTRA Cell 2 I_{oc}: -80dBm/1.28MHz $\hat{I}_{or}$ / I_{oc}: -3.00dB PCCPCH_Ec/Ior: -3dB DwPCH_Ec/Ior: 0dB During T2: E-UTRA Cell 1 N_{oc}: -98dBm/15kHz Ês / N_{oc}: -3.00dB UTRA Cell 2 I_{oc}: -80dBm/1.28MHz $\hat{I}_{or}$ / I_{oc}: 11.00dB PCCPCH_Ec/Ior: -3dB DwPCH_Ec/Ior: 0dB During T3: E-UTRA Cell 1 N_{oc}: -98dBm/15kHz Ês / N_{oc}: -3.00dB UTRA Cell 2 I_{oc}: -80dBm/1.28MHz $\hat{I}_{or}$ / I_{oc}: 11.00dB PCCPCH_Ec/Ior: -3dB DwPCH_Ec/Ior: 0dB	During T1: -1.05dB 2.1dB -0.8dB 0dB 0dB 0dB During T2: -1.05dB 0dB -0.8dB 1.6dB 0dB 0dB During T3: -1.05dB 0dB -0.8dB +1.6dB 0dB 0dB	During T1: N_{oc}: -99.05dBm/15kHz Ês / N_{oc}: +15.1dB I_{oc}: -80.8dBm/1.28MHz $\hat{I}_{or}$ / I_{oc}: -3.0dB PCCPCH_Ec/Ior: -3dB DwPCH_Ec/Ior: 0dB During T2: N_{oc}: -99.05dBm/15kHz Ês / N_{oc}: -3.0dB I_{oc}: -80.8dBm/1.28MHz $\hat{I}_{or}$ / I_{oc}: 12.6dB PCCPCH_Ec/Ior: -3dB DwPCH_Ec/Ior: 0dB During T3: N_{oc}: -99.05dBm/15kHz Ês / N_{oc}: -3.0dB I_{oc}: -80.8dBm/1.28MHz $\hat{I}_{or}$ / I_{oc}: 12.6dB PCCPCH_Ec/Ior: -3dB DwPCH_Ec/Ior: 0dB
5.2.5 E-UTRA FDD – UTRA TDD handover	Same as 5.2.4	Same as 5.2.4	Same as 5.2.4
5.2.6 E-UTRA TDD - GSM handover	Same as 5.2.3	Same as 5.2.3	Same as 5.2.3
5.2.7 E-UTRAN FDD - UTRAN FDD handover: unknown target cell	During T1: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: 0dB UTRA Cell 2 Ioc: -70dBm/3.84MHz Ior / Ioc: -infinity During T2: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: 0dB UTRA Cell 2 Ioc: -70dBm/3.84MHz Ior / Ioc: -1.8 dB	During T1: 0dB 0dB 0dB During T2: 0dB 0dB 0dB 0dB	During T1: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: 0dB UTRA Cell 2 Ioc: -70dBm/3.84MHz Ior / Ioc: -infinity During T2: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: 0dB UTRA Cell 2 Ioc: -70dBm/3.84MHz Ior / Ioc: -1.8dB
5.2.8 E-UTRAN FDD - GSM handover: unknown target cell	During T1: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: +4dB GSM Cell 2 Signal level: -infinity During T2: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: +4dB GSM Cell 2 Signal level: -75 dBm	During T1: 0dB 0dB During T2: 0dB 0dB 0dB	During T1: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: +4dB GSM Cell 2 Signal level: -infinity During T2: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: +4dB GSM Cell 2 Signal level: -75 dBm
5.2.9 E-UTRAN TDD – GSM handover: unknown target cell	Same as 5.2.8	Same as 5.2.8	Same as 5.2.8

5.2.10 E-UTRAN TDD - UTRAN TDD HO test: unknown target cell	During T1: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: 3dB UTRA Cell 2 Ioc: -80dBm/1.28MHz Ior / Ioc: -infinity During T2: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: 3dB UTRA Cell 2 Ioc: -80dBm/1.28MHz Ior / Ioc: 13 dB PCCPCH_E_c/I_{or}: -3.00dB DwPCH_E_c/I_{or}: 0dB	During T1: 0dB 0dB 0dB During T2: 0dB 0dB 0dB 0dB 0dB 0dB	During T1: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: 3dB UTRA Cell 2 Ioc: -80dBm/1.28MHz Ior / Ioc: -infinity During T2: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: 3dB UTRA Cell 2 Ioc: -80dBm/1.28MHz Ior / Ioc: 13 dB PCCPCH_E_c/I_{or}: -3.00dB DwPCH_E_c/I_{or}: 0dB
5.3.1 RRC CONNECTED / Handover from E-UTRAN to non-3GPP RATs / E-UTRAN FDD – HRPD handover	During T1: E-UTRA Cell 1 N_{oc}: -98dBm/15kHz $\hat{E}_s / N_{oc}$: 0dB HRPD Cell 2 I_{oc}: -55.00dBm/1.2288MHz I_{or} / I_{oc}: -infinity During T2: E-UTRA Cell 1 N_{oc}: -98dBm/15kHz $\hat{E}_s / N_{oc}$: 0dB HRPD Cell 2 I_{oc}: -55.00dBm/1.2288MHz I_{or} / I_{oc}: 0 dB During T3: E-UTRA Cell 1 N_{oc}: -98dBm/15kHz $\hat{E}_s / N_{oc}$: 0dB HRPD Cell 2 I_{oc}: -55.00dBm/1.2288MHz I_{or} / I_{oc}: 0 dB	During T1: 0dB -0.8dB 0dB During T2: 0dB -0.8dB 0dB 0dB During T3: 0dB -0.8dB 0dB 0dB	During T1: N_{oc}: -98dBm/15kHz $\hat{E}_s / N_{oc}$: -0.8dB I_{oc}: -55.00dBm/1.2288MHz I_{or} / I_{oc}: -infinity During T2: N_{oc}: -98dBm/15kHz $\hat{E}_s / N_{oc}$: -0.8dB I_{oc}: -55.00dBm/1.2288MHz I_{or} / I_{oc}: 0 dB During T3: N_{oc}: -98dBm/15kHz $\hat{E}_s / N_{oc}$: -0.8dB I_{oc}: -55.00dBm/1.2288MHz I_{or} / I_{oc}: 0 dB
5.3.5 E-UTRAN TDD - HRPD handover	Same as 5.3.1	Same as 5.3.1	Same as 5.3.1
6.1.1 E-UTRAN FDD Intra-frequency RRC Re-establishment	During T1: N_{oc}: -98dBm/15kHz $\hat{E}s_1 / N_{oc}$: +7.00dB $\hat{E}s_2 / N_{oc}$: +4.00dB During T2: N_{oc}: -98dBm/15kHz $\hat{E}s_1 / N_{oc}$: -infinity $\hat{E}s_2 / N_{oc}$: +4.00dB During T3: N_{oc}: -98dBm /15kHz $\hat{E}s_1 / N_{oc}$: -infinity $\hat{E}s_2 / N_{oc}$: +4.00dB	During T1: 0dB 0dB 0dB During T2: 0dB 0dB 0dB During T3: 0dB 0dB 0dB	During T1: N_{oc}: -98dBm/15kHz $\hat{E}s_1 / N_{oc}$: +7.00dB $\hat{E}s_2 / N_{oc}$: +4.00dB During T2: N_{oc}: -98dBm/15kHz $\hat{E}s_1 / N_{oc}$: -infinity $\hat{E}s_2 / N_{oc}$: +4.00dB During T3: N_{oc}: -98dBm /15kHz $\hat{E}s_1 / N_{oc}$: -infinity $\hat{E}s_2 / N_{oc}$: +4.00dB

6.1.2 E-UTRAN FDD Inter-frequency RRC Re-establishment	During T1: N_{oc1}: -98dBm/15kHz $Ês_1 / N_{oc1}$: +4.00dB N_{oc2}: -98dBm/15kHz $Ês_2 / N_{oc2}$: -infinity During T2: N_{oc1}: -98dBm/15kHz $Ês_1 / N_{oc1}$: -infinity N_{oc2}: -98dBm/15kHz $Ês_2 / N_{oc2}$: -infinity During T3: N_{oc1}: -98dBm /15kHz $Ês_1 / N_{oc1}$: -infinity N_{oc2}: -98dBm/15kHz $Ês_2 / N_{oc2}$: +7.00dB	During T1: 0dB 0dB 0dB 0dB During T2: 0dB 0dB 0dB 0dB During T3: 0dB 0dB 0dB 0dB	During T1: N_{oc1}: -98dBm/15kHz $Ês_1 / N_{oc1}$: +4.00dB N_{oc2}: -98dBm/15kHz $Ês_2 / N_{oc2}$: -infinity During T2: N_{oc1}: -98dBm/15kHz $Ês_1 / N_{oc1}$: -infinity N_{oc2}: -98dBm/15kHz $Ês_2 / N_{oc2}$: -infinity During T3: N_{oc1}: -98dBm /15kHz $Ês_1 / N_{oc1}$: -infinity N_{oc2}: -98dBm/15kHz $Ês_2 / N_{oc2}$: +7.00dB
6.1.3 E-UTRAN TDD Intra-frequency RRC Re-establishment	Same as 6.1.1	Same as 6.1.1	Same as 6.1.1
6.1.4 E-UTRAN TDD Inter-frequency RRC Re-establishment	Same as 6.1.3	Same as 6.1.3	Same as 6.1.3
6.2.1 E-UTRAN FDD - Contention Based Random Access Test	Test 1 and Test 2 Absolute uplink power: Normal conditions ±9dB Extreme conditions ±12dB Relative uplink power step: Normal conditions ±3dB Extreme conditions ±5dB Uplink timing T_e: ±12T_s	 1.1dB 1.1dB 0.7dB 0.7dB 3T_s	Test 1 and Test 2 Absolute uplink power: Normal conditions ±10.1dB Extreme conditions ±13.1dB Relative uplink power step: Normal conditions ±3.7dB Extreme conditions ±5.7dB Uplink timing T_e: ±15T_s
6.2.2 E-UTRAN FDD - Non Contention Based Random Access Test	Same as 6.2.1	Same as 6.2.1	Same as 6.2.1
6.2.3 E-UTRAN TDD - Contention Based Random Access Test	Same as 6.2.1	Same as 6.2.1	Same as 6.2.1
6.2.4 E-UTRAN TDD - Non Contention Based Random Access Test	Same as 6.2.1	Same as 6.2.1	Same as 6.2.1
6.3.1 Redirection from E-UTRAN FDD to UTRAN FDD	During T1: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: +4dB UTRA Cell 2 Ioc: -70dBm/3.84MHz Ior / Ioc: -infinity During T2: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: 4dB UTRA Cell 2 Ioc: -70dBm/3.84MHz Ior / Ioc: 0.02 dB	During T1: 0dB 0dB 0dB During T2: 0dB 0dB 0dB 0.4dB	During T1: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: +4dB UTRA Cell 2 Ioc: -70dBm/3.84MHz Ior / Ioc: -infinity During T2: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: 4dB UTRA Cell 2 Ioc: -70dBm/3.84MHz Ior / Ioc: 0.42dB
6.3.2 Redirection from E-UTRAN TDD to UTRAN FDD	Same as 6.3.1	Same as 6.3.1	Same as 6.3.1

6.3.3 Redirection from E-UTRAN FDD to GERAN when System Information is provided	During T1: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: +4dB GSM Cell 2 Signal level: -infinity During T2: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: +4dB GSM Cell 2 Signal level: -75 dBm	During T1: 0dB 0dB During T2: 0dB 0dB 0dB	During T1: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: +4dB GSM Cell 2 Signal level: -infinity During T2: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: +4dB GSM Cell 2 Signal level: -75 dBm
6.3.4 Redirection from E-UTRAN TDD to GERAN when System Information is provided	Same as 6.3.3	Same as 6.3.3	Same as 6.3.3
6.3.5 E-UTRA TDD RRC connection release redirection to UTRA TDD	During T1: E-UTRA Cell 1 N_{oc}: -98.0dBm/15kHz Ês / N_{oc}: +4.00dB UTRA Cell 2 I_{oc}: -80.0dBm/1.28MHz $\hat{I}_{or}$ / I_{oc}: -infinity PCCPCH_E_c/I_{or}: -4.77dB DwPCH_Ec/Ior: 0dB During T2: E-UTRA Cell 1 N_{oc}: -98.0dBm/15kHz Ês / N_{oc}: +4.0dB UTRA Cell 2 I_{oc}: -80.0dBm/1.28MHz $\hat{I}_{or}$ / I_{oc}: +8.0dB PCCPCH_E_c/I_{or}: -4.77dB DwPCH_Ec/Ior: 0dB	During T1: 0dB 0dB 0dB 0dB 0dB 0dB During T2: 0dB 0dB 0dB 0dB 0dB 0dB	During T1: E-UTRA Cell 1 N_{oc}: -98.0dBm/15kHz Ês / N_{oc}: +4.00dB UTRA Cell 2 I_{oc}: -80.0dBm/1.28MHz $\hat{I}_{or}$ / I_{oc}: -infinity PCCPCH_E_c/I_{or}: -4.77dB DwPCH_Ec/Ior: 0dB During T2: E-UTRA Cell 1 N_{oc}: -98.0dBm/15kHz Ês / N_{oc}: +4.0dB UTRA Cell 2 I_{oc}: -80.0dBm/1.28MHz $\hat{I}_{or}$ / I_{oc}: +8.0dB PCCPCH_E_c/I_{or}: -4.77dB DwPCH_Ec/Ior: 0dB
6.3.6 E-UTRA FDD RRC connection release redirection to UTRA TDD	Same as 6.3.5	Same as 6.3.5	Same as 6.3.5
6.3.7 E-UTRA TDD RRC connection release redirection to UTRA TDD without SI provided	Same as 6.3.5	Same as 6.3.5	Same as 6.3.5
6.3.8 E-UTRA FDD RRC connection release redirection to UTRA TDD without SI provided	Same as 6.3.5	Same as 6.3.5	Same as 6.3.5
6.3.9 Redirection from E-UTRAN FDD to UTRAN FDD without System Information	Same as 6.3.1	Same as 6.3.1	Same as 6.3.1
6.3.10 Redirection from E-UTRAN FDD to GERAN when System Information is not provided	Same as 6.3.3	Same as 6.3.3	Same as 6.3.3
6.3.11 Redirection from E-UTRAN TDD to GERAN when System Information is not provided	Same as 6.3.3	Same as 6.3.3	Same as 6.3.3
6.3.12 E-UTRAN TDD RRC connection release redirection to UTRAN FDD without SI provided	Same as 6.3.1	Same as 6.3.1	Same as 6.3.1

7.1.1 E-UTRAN FDD - UE Transmit Timing Accuracy	Test 1 (10MHz Ch BW): Uplink timing: $\pm 12T_s$ Max step size T_q: $3.5T_s$ Min adjust rate: $7T_s$ Max adjust rate: $3.5T_s$ $\hat{E}s / N_{oc}$: +3.00dB Test 2 (10MHz Ch BW): Uplink timing: $\pm 12T_s$ $\hat{E}s / N_{oc}$: +3.00dB Test 3: (1.4MHz Ch BW) Uplink timing: $\pm 24T_s$ Max step size T_q: $17.5T_s$ Max adjust rate: $17.5T_s$ $\hat{E}s / N_{oc}$: +3.00dB	 $\pm 3T_s$ $+0.5T_s$ $-3.6T_s$ $+1.1T_s$+0.3dB $\pm 3T_s$ +0.3dB $\pm 3T_s$ $+0.5T_s$ $+1.1T_s$+0.3dB	Test 1 (10MHz Ch BW): Uplink timing: $\pm 15T_s$ Max step size T_q: $4T_s$ Min adjust rate: $3.4T_s$ Max adjust rate: $4.6T_s$ $\hat{E}s / N_{oc}$: +3.30dB Test 2 (10MHz Ch BW): Uplink timing: $\pm 15T_s$ $\hat{E}s / N_{oc}$: +3.30dB Test 3: (1.4MHz Ch BW) Uplink timing: $\pm 27T_s$ Max step size T_q: $18T_s$ Max adjust rate: $18.6T_s$ $\hat{E}s / N_{oc}$: +3.30dB
7.1.1_1 E-UTRAN FDD - UE Transmit Timing Accuracy (Non DRx UE)	Test 1 (10MHz Ch BW): Uplink timing: $\pm 12T_s$ Max step size T_q: $3.5T_s$ Min adjust rate: $7T_s$ Max adjust rate: $3.5T_s$ $\hat{E}s / N_{oc}$: +3.00dB Test 2 not applicable Test 3: (1.4MHz Ch BW) Uplink timing: $\pm 24T_s$ Max step size T_q: $17.5T_s$ Max adjust rate: $17.5T_s$ $\hat{E}s / N_{oc}$: +3.00dB	 $\pm 3T_s$ $+0.5T_s$ $-3.6T_s+1.1T_s$ +0.3dB $\pm 3T_s$ $+0.5T_s$ $+1.1T_s$ +0.3dB	Test 1 (10MHz Ch BW): Uplink timing: $\pm 15T_s$ Max step size T_q: $4T_s$ Min adjust rate: $3.4T_s$ Max adjust rate: $4.6T_s$ $\hat{E}s / N_{oc}$: +3.30dB Test 2 not applicable Test 3: (1.4MHz Ch BW) Uplink timing: $\pm 27T_s$ Max step size T_q: $18T_s$ Max adjust rate: $18.6T_s$ $\hat{E}s / N_{oc}$: +3.30dB
7.1.2 E-UTRAN TDD - UE Transmit Timing Accuracy	Test 1 (10MHz Ch BW): Uplink timing: (624 $\pm$12) x T_s Max step size T_q: $3.5T_s$ Min adjust rate: $7T_s$ Max adjust rate: $3.5T_s$ $\hat{E}s / N_{oc}$: +3.00dB Test 2 (10MHz Ch BW): Uplink timing: (624 $\pm$12) x T_s $\hat{E}s / N_{oc}$: +3.00dB Test 3: (1.4MHz Ch BW) Uplink timing: (624 $\pm$24) x T_s Max step size T_q: $17.5T_s$ Max adjust rate: $17.5T_s$ $\hat{E}s / N_{oc}$: +3.00dB	 $\pm 3T_s$ $+0.5T_s$ $-3.6T_s$ $+1.1T_s$+0.3dB $\pm 3T_s$ +0.3dB $\pm 3T_s$ $+0.5T_s$ $+1.1T_s$+0.3dB	Test 1 (10MHz Ch BW): Uplink timing: (624 $\pm$15) x T_s Max step size T_q: $4T_s$ Min adjust rate: $3.4T_s$ Max adjust rate: $4.6T_s$ $\hat{E}s / N_{oc}$: +3.30dB Test 2 (10MHz Ch BW): Uplink timing: (624 $\pm$15) x T_s $\hat{E}s / N_{oc}$: +3.30dB Test 3: (1.4MHz Ch BW) Uplink timing: (624 $\pm$27) x T_s Max step size T_q: $18T_s$ Max adjust rate: $18.6T_s$ $\hat{E}s / N_{oc}$: +3.30dB
7.1.2_1 E-UTRAN TDD - UE Transmit Timing Accuracy (Non DRx UE)	Test 1 (10MHz Ch BW): Uplink timing: (624 $\pm$12) x T_s Max step size T_q: $3.5T_s$ Min adjust rate: $7T_s$ Max adjust rate: $3.5T_s$ $\hat{E}s / N_{oc}$: +3.00dB Test 2 not applicable Test 3: (1.4MHz Ch BW) Uplink timing: (624 $\pm$24) x T_s Max step size T_q: $17.5T_s$ Max adjust rate: $17.5T_s$ $\hat{E}s / N_{oc}$: +3.00dB	 $\pm 3T_s$ $+0.5T_s$ $-3.6T_s$ $+1.1T_s$ +0.3dB $\pm 3T_s$ $+0.5T_s$ $+1.1T_s$ +0.3dB	Test 1 (10MHz Ch BW): Uplink timing: (624 $\pm$15) x T_s Max step size T_q: $4T_s$ Min adjust rate: $3.4T_s$ Max adjust rate: $4.6T_s$ $\hat{E}s / N_{oc}$: +3.30dB Test 2 not applicable Test 3: (1.4MHz Ch BW) Uplink timing: (624 $\pm$27) x T_s Max step size T_q: $18T_s$ Max adjust rate: $18.6T_s$ $\hat{E}s / N_{oc}$: +3.30dB
7.2.1 E-UTRAN FDD - UE Timing Advanced Adjustment Accuracy	Timing Advance Adjustment: $\pm 4T_s$	 $0.5T_S$	Timing Advance Adjustment: $\pm 4.5T_s$
7.2.2 E-UTRAN TDD - UE Timing Advance Adjustment Accuracy	Same as 7.2.2	Same as 7.2.2	Same as 7.2.2

7.3.1 E-UTRAN FDD Radio Link Monitoring Test for Out-of-sync	SNRs as specified	0.6dB (Subtests 1&2) 0.8dB (Subtest 3) 0.9dB (Subtest 4)	During T1: Formula: SNR + TT During T2: Formula: SNR + TT During T3: Formula: SNR - TT
7.3.2 E-UTRAN FDD Radio Link Monitoring Test for In-sync	SNRs as specified	0.8dB (Subtest 1) 0.9dB (Subtest 2)	During T1: Formula: SNR + TT During T2: Formula: SNR + TT During T3: Formula: SNR - TT During T4: Formula: SNR - TT During T5: Formula: SNR + TT
7.3.3 E-UTRAN TDD Radio Link Monitoring Test for Out-of-sync	SNRs as specified	Same as 7.3.1	Same as 7.3.1
7.3.4 E-UTRAN TDD Radio Link Monitoring Test for In-sync	SNRs as specified	Same as 7.3.2	Same as 7.3.2
7.3.5 E-UTRAN FDD Radio Link Monitoring Test for Out-of-sync in DRX	SNRs as specified	0.9dB (Subtest 1) 0.6dB (Subtest 2)	Same as 7.3.1
7.3.6 E-UTRAN FDD Radio Link Monitoring Test for In-sync in DRX	SNRs as specified	0.6dB	Same as 7.3.2
7.3.7 E-UTRAN TDD Radio Link Monitoring Test for Out-of-sync in DRX	SNRs as specified	0.9dB (Subtest 1) 0.6dB (Subtest 2)	Same as 7.3.1
7.3.8 E-UTRAN TDD Radio Link Monitoring Test for In-sync in DRX	SNRs as specified	0.6dB	Same as 7.3.2
8.1.1 E-UTRAN FDD-FDD intra frequency event triggered reporting under fading propagation conditions in asynchronous cells	During T1: N_{oc}: -98dBm/15kHz $\hat{E}s_1 / N_{oc}$: +4.00dB $\hat{E}s_2 / N_{oc}$: -infinity During T2: N_{oc}: -98dBm/15kHz $\hat{E}s_1 / N_{oc}$: +4.00dB $\hat{E}s_2 / N_{oc}$: +4.00dB	During T1: 0dB 2.10dB 0dB During T2: 0dB 2.10dB 2.10dB	During T1: N_{oc}: -98dBm/15kHz $\hat{E}s_1 / N_{oc}$: +6.10dB $\hat{E}s_2 / N_{oc}$: -infinity During T2: N_{oc}: -98dBm/15kHz $\hat{E}s_1 / N_{oc}$: +6.10dB $\hat{E}s_2 / N_{oc}$: +6.10dB
8.1.2 E-UTRAN FDD-FDD intra frequency event triggered reporting under fading propagation conditions in synchronous cells	Same as 8.1.1	Same as 8.1.1	Same as 8.1.1
8.1.3 E-UTRAN FDD-FDD intra frequency event triggered reporting under fading propagation conditions in synchronous cells with DRX	Same as 8.1.1	Same as 8.1.1	Same as 8.1.1

8.1.5 E-UTRAN FDD - FDD Intra-frequency identification of a new CGI of E-UTRA cell using autonomous gaps	During T1: N_{oc}: -98dBm/15kHz $\hat{E}s_1 / N_{oc}$: +8.00dB $\hat{E}s_2 / N_{oc}$: -infinity During T2: N_{oc}: -98dBm/15kHz $\hat{E}s_1 / N_{oc}$: +8.00dB $\hat{E}s_2 / N_{oc}$: +11.00dB During T3: N_{oc}: -98dBm /15kHz $\hat{E}s_1 / N_{oc}$: +8.00dB $\hat{E}s_2 / N_{oc}$: +11.00dB	During T1: 0dB 0dB 0dB During T2: 0dB 0dB 0dB During T3: 0dB 0dB 0dB	During T1: N_{oc}: -98dBm/15kHz $\hat{E}s_1 / N_{oc}$: +8.00dB $\hat{E}s_2 / N_{oc}$: -infinity During T2: N_{oc}: -98dBm/15kHz $\hat{E}s_1 / N_{oc}$: +8.00dB $\hat{E}s_2 / N_{oc}$: +11.00dB During T3: N_{oc}: -98dBm /15kHz $\hat{E}s_1 / N_{oc}$: +8.00dB $\hat{E}s_2 / N_{oc}$: +11.00dB
8.1.6 E-UTRAN FDD - FDD Intra-frequency identification of a new CGI of E-UTRA cell using autonomous gaps with DRX	Same as 8.1.5	Same as 8.1.5	Same as 8.1.5
8.2.1 E-UTRAN TDD-TDD intra frequency event triggered reporting under fading propagation conditions in synchronous cells	During T1: N_{oc}: -98dBm/15kHz $\hat{E}s_1 / N_{oc}$: +4.00dB $\hat{E}s_2 / N_{oc}$: -infinity During T2: N_{oc}: -98dBm/15kHz $\hat{E}s_1 / N_{oc}$: +4.00dB $\hat{E}s_2 / N_{oc}$: +4.00dB	During T1: 0dB 2.10dB 0dB During T2: 0dB 2.60dB 2.60dB	During T1: N_{oc}: -98dBm/15kHz $\hat{E}s_1 / N_{oc}$: +6. 10dB $\hat{E}s_2 / N_{oc}$: -infinity During T2: N_{oc}: -98dBm/15kHz $\hat{E}s_1 / N_{oc}$: +6.60dB $\hat{E}s_2 / N_{oc}$: +6.60dB
8.2.2 E-UTRAN TDD-TDD intra-frequency event triggered reporting under fading propagation conditions in synchronous cells with DRX	Same as 8.2.1	Same as 8.2.1	Same as 8.2.1
8.2.3 E-UTRAN TDD-TDD Intra-frequency identification of a new CGI of E-UTRA cell using autonomous gaps	During T1: N_{oc}: -98dBm/15kHz $\hat{E}s_1 / N_{oc}$: +8.00dB $\hat{E}s_2 / N_{oc}$: -infinity During T2: N_{oc}: -98dBm/15kHz $\hat{E}s_1 / N_{oc}$: +8.00dB $\hat{E}s_2 / N_{oc}$: +11.00dB During T3: N_{oc}: -98dBm /15kHz $\hat{E}s_1 / N_{oc}$: +8.00dB $\hat{E}s_2 / N_{oc}$: +11.00dB	During T1: 0dB 0dB 0dB During T2: 0dB 0dB 0dB During T3: 0dB 0dB 0dB	During T1: N_{oc}: -98dBm/15kHz $\hat{E}s_1 / N_{oc}$: +8.00dB $\hat{E}s_2 / N_{oc}$: -infinity During T2: N_{oc}: -98dBm/15kHz $\hat{E}s_1 / N_{oc}$: +8.00dB $\hat{E}s_2 / N_{oc}$: +11.00dB During T3: N_{oc}: -98dBm /15kHz $\hat{E}s_1 / N_{oc}$: +8.00dB $\hat{E}s_2 / N_{oc}$: +11.00dB
8.2.4 E-UTRAN TDD-TDD Intra-frequency identification of a new CGI of E-UTRA cell using autonomous gaps with DRX	Same as 8.2.3	Same as 8.2.3	Same as 8.2.3
8.3.1 E-UTRAN FDD-FDD Inter-frequency event triggered reporting under fading propagation conditions in asynchronous cells	During T1: N_{oc1}: -98dBm/15kHz $\hat{E}s_1 / N_{oc1}$: +4.00dB N_{oc2}: -98dBm/15kHz $\hat{E}s_2 / N_{oc2}$: -infinity During T2: N_{oc1}: -98dBm/15kHz $\hat{E}s_1 / N_{oc1}$: +4.00dB N_{oc2}: -98dBm/15kHz $\hat{E}s_2 / N_{oc2}$: +7.00dB	During T1: 0dB 0dB 0dB 0dB During T2: 0dB 0dB 0dB 0.3dB	During T1: N_{oc1}: -98dBm/15kHz $\hat{E}s_1 / N_{oc1}$: +4.00dB N_{oc2}: -98dBm/15kHz $\hat{E}s_2 / N_{oc2}$: -infinity During T2: N_{oc1}: -98dBm/15kHz $\hat{E}s_1 / N_{oc1}$: +4.00dB N_{oc2}: -98dBm/15kHz $\hat{E}s_2 / N_{oc2}$: +7.30dB

8.3.2 E-UTRAN FDD-FDD Inter-frequency event triggered reporting when DRX is used under fading propagation conditions in asynchronous cells	Same as 8.3.1	Same as 8.3.1	Same as 8.3.1
8.3.3 E-UTRAN FDD-FDD Inter frequency event triggered reporting under AWGN propagation conditions in asynchronous cells with DRX when L3 filtering is used	During T1: N_{oc1}: -98dBm/15kHz $\hat{E}s_1 / N_{oc1}$: +4.00dB N_{oc2}: -98dBm/15kHz $\hat{E}s_2 / N_{oc2}$: +4.00dB During T2: N_{oc1}: -98dBm/15kHz $\hat{E}s_1 / N_{oc1}$: +4.00dB N_{oc2}: -98dBm/15kHz $\hat{E}s_2 / N_{oc2}$: +24.00dB	During T1: +1.10dB 0dB 0dB 0dB During T2: +1.10dB -2.20dB 0dB 0dB	During T1: N_{oc1}: -96.90dBm/15kHz $\hat{E}s_1 / N_{oc1}$: +4.00dB N_{oc2}: -98dBm/15kHz $\hat{E}s_2 / N_{oc2}$: +4.00dB During T2: N_{oc1}: -96.90dBm/15kHz $\hat{E}s_1 / N_{oc1}$: +1.80dB N_{oc2}: -98dBm/15kHz $\hat{E}s_2 / N_{oc2}$: +24.00dB
8.3.4 E-UTRAN FDD - FDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps	During T1: N_{oc1}: -98dBm/15kHz $\hat{E}s_1 / N_{oc1}$: +4.00dB N_{oc2}: -98dBm/15kHz $\hat{E}s_2 / N_{oc2}$: -infinity During T2: N_{oc1}: -98dBm/15kHz $\hat{E}s_1 / N_{oc1}$: +4.00dB N_{oc2}: -98dBm/15kHz $\hat{E}s_2 / N_{oc2}$: +7.00dB During T3: N_{oc1}: -98dBm /15kHz $\hat{E}s_1 / N_{oc1}$: +4.00dB N_{oc2}: -98dBm/15kHz $\hat{E}s_2 / N_{oc2}$: +7.00dB	During T1: 0dB 0dB 0dB 0dB During T2: 0dB 0dB 0dB 0dB During T3: 0dB 0dB 0dB 0dB	During T1: N_{oc1}: -98dBm/15kHz $\hat{E}s_1 / N_{oc1}$: +4.00dB N_{oc2}: -98dBm/15kHz $\hat{E}s_2 / N_{oc2}$: -infinity During T2: N_{oc1}: -98dBm/15kHz $\hat{E}s_1 / N_{oc1}$: +4.00dB N_{oc2}: -98dBm/15kHz $\hat{E}s_2 / N_{oc2}$: +7.00dB During T3: N_{oc1}: -98dBm /15kHz $\hat{E}s_1 / N_{oc1}$: +4.00dB N_{oc2}: -98dBm/15kHz $\hat{E}s_2 / N_{oc2}$: +7.00dB
8.3.5 E-UTRAN FDD - FDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps with DRX	Same as 8.3.4	Same as 8.3.4	Same as 8.3.4
8.4.1 E-UTRAN TDD-TDD Inter-frequency event triggered reporting under fading propagation conditions in synchronous cells	During T1: N_{oc1}: -98dBm/15kHz $\hat{E}s_1 / N_{oc1}$: +4.00dB N_{oc2}: -98dBm/15kHz $\hat{E}s_2 / N_{oc2}$: -infinity During T2: N_{oc1}: -98dBm/15kHz $\hat{E}s_1 / N_{oc1}$: +4.00dB N_{oc2}: -98dBm/15kHz $\hat{E}s_2 / N_{oc2}$: +7.00dB	During T1: 0dB 0dB 0dB 0dB During T2: 0dB 0dB 0dB 0.3dB	During T1: N_{oc1}: -98dBm/15kHz $\hat{E}s_1 / N_{oc1}$: +4.00dB N_{oc2}: -98dBm/15kHz $\hat{E}s_2 / N_{oc2}$: -infinity During T2: N_{oc1}: -98dBm/15kHz $\hat{E}s_1 / N_{oc1}$: +4.00dB N_{oc2}: -98dBm/15kHz $\hat{E}s_2 / N_{oc2}$: +7.30dB
8.4.2 E-UTRAN TDD-TDD Inter-frequency event triggered reporting when DRX is used under fading propagation conditions in synchronous cells	Same as 8.4.1	Same as 8.4.1	Same as 8.4.1
8.4.3 E-UTRAN TDD-TDD inter-frequency event triggered reporting under AWGN propagation conditions in synchronous cells with DRX when L3 filtering is used	Same as 8.3.3	Same as 8.3.3	Same as 8.3.3

8.4.4 E-UTRAN TDD-TDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps	During T1: N_{oc1}: -98dBm/15kHz $Ês_1$ / N_{oc1}: +4.00dB N_{oc2}: -98dBm/15kHz $Ês_2$ / N_{oc2}: -infinity During T2: N_{oc1}: -98dBm/15kHz $Ês_1$ / N_{oc1}: +4.00dB N_{oc2}: -98dBm/15kHz $Ês_2$ / N_{oc2}: +7.00dB During T3: N_{oc1}: -98dBm /15kHz $Ês_1$ / N_{oc1}: +4.00dB N_{oc2}: -98dBm/15kHz $Ês_2$ / N_{oc2}: +7.00dB	During T1: 0dB 0dB 0dB 0dB During T2: 0dB 0dB 0dB 0dB During T3: 0dB 0dB 0dB 0dB	During T1: N_{oc1}: -98dBm/15kHz $Ês_1$ / N_{oc1}: +4.00dB N_{oc2}: -98dBm/15kHz $Ês_2$ / N_{oc2}: -infinity During T2: N_{oc1}: -98dBm/15kHz $Ês_1$ / N_{oc1}: +4.00dB N_{oc2}: -98dBm/15kHz $Ês_2$ / N_{oc2}: +7.00dB During T3: N_{oc1}: -98dBm /15kHz $Ês_1$ / N_{oc1}: +4.00dB N_{oc2}: -98dBm/15kHz $Ês_2$ / N_{oc2}: +7.00dB
8.4.5 E-UTRAN TDD-TDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps with DRX	Same as 8.4.4	Same as 8.4.4	Same as 8.4.4
8.5.1 E-UTRAN FDD - UTRAN FDD event triggered reporting under fading propagation conditions	During T1: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: +4.00dB UTRA Cell 2 Ioc: -70dBm/3.84MHz Ior / Ioc: -infinity During T2: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: +4.00dB UTRA Cell 2 Ioc: -70dBm/3.84MHz Ior / Ioc: -1.8 dB	During T1: 0dB 0dB 0dB During T2: 0dB 0dB 0dB 0dB	During T1: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: +4.00dB UTRA Cell 2 Ioc: -70dBm/3.84MHz Ior / Ioc: -infinity During T2: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: +4.00dB UTRA Cell 2 Ioc: -70dBm/3.84MHz Ior / Ioc: -1.8dB
8.5.2 E-UTRAN FDD - UTRAN FDD SON ANR cell search reporting under AWGN propagation conditions	During T1: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: 4dB UTRA Cell 2 Ioc: -70dBm/3.84MHz Ior / Ioc: -infinity During T2: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: 4dB UTRA Cell 2 Ioc: -70dBm/3.84MHz Ior / Ioc: -3.35 dB	During T1: 0dB 0dB 0dB During T2: 0dB 0dB 0dB 0.4dB	During T1: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: 4dB UTRA Cell 2 Ioc: -70dBm/3.84MHz Ior / Ioc: -infinity During T2: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: 4dB UTRA Cell 2 Ioc: -70dBm/3.84MHz Ior / Ioc: -2.95dB
8.5.3 E-UTRAN FDD - UTRAN FDD event triggered reporting when DRX is used under fading propagation conditions	Same as 8.5.1	Same as 8.5.1	Same as 8.5.1

8.5.4 E-UTRAN FDD - UTRAN FDD enhanced cell identification under AWGN propagation conditions	During T1: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: 4dB UTRA Cell 2 Ioc: -70dBm/3.84MHz Ior / Ioc: -infinity During T2: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: 4dB UTRA Cell 2 Ioc: -70dBm/3.84MHz Ior / Ioc: 0.02 dB	During T1: 0dB 0dB 0dB During T2: 0dB 0dB 0dB 0dB	During T1: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: 4dB UTRA Cell 2 Ioc: -70dBm/3.84MHz Ior / Ioc: -infinity During T2: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: 4dB UTRA Cell 2 Ioc: -70dBm/3.84MHz Ior / Ioc: 0.02dB
8.6.1 E-UTRAN TDD -UTRAN FDD event triggered reporting under fading propagation conditions	Same as 8.5.1	Same as 8.5.1	Same as 8.5.1
8.7.1 E-UTRAN TDD - UTRAN TDD event triggered reporting under fading propagation conditions	During T1: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: +9dB UTRA Cell 2 I_{oc}: -80dBm/1.28MHz I_{or} / I_{oc}: -inf PCCPCH_E_c/I_{or}: -3dB DwPCH_Ec/Ior: 0dB During T2: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: +9dB UTRA Cell 2 I_{oc}: -80dBm/1.28MHz I_{or} / I_{oc}: +5dB PCCPCH_E_c/I_{or}: -3dB DwPCH_Ec/Ior: 0dB	During T1: 0dB 0dB 0dB 0dB 0dB 0dB During T2: 0dB 0dB 0dB 0dB 0dB 0dB	During T1: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: +9dB UTRA Cell 2 I_{oc}: -80dBm/1.28MHz I_{or} / I_{oc}: -inf PCCPCH_E_c/I_{or}: -3dB DwPCH_Ec/Ior: 0dB During T2: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: +9dB UTRA Cell 2 I_{oc}: -80dBm/1.28MHz I_{or} / I_{oc}: +5dB PCCPCH_E_c/I_{or}: -3dB DwPCH_Ec/Ior: 0dB
8.7.2 E-UTRAN TDD - UTRAN TDD cell search when DRX is used under fading propagation conditions	During T1: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: +4dB UTRA Cell 2 I_{oc}: -80dBm/1.28MHz I_{or} / I_{oc}: -inf PCCPCH_E_c/I_{or}: -3dB DwPCH_Ec/Ior: 0dB During T2: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: +4dB UTRA Cell 2 I_{oc}: -80dBm/1.28MHz I_{or} / I_{oc}: +9dB PCCPCH_E_c/I_{or}: -3dB DwPCH_Ec/Ior: 0dB	During T1: 0dB 0dB -0.40dB 0dB 0dB 0dB During T2: 0dB 0dB -0.40dB 0dB 0dB 0dB	During T1: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: +4dB UTRA Cell 2 I_{oc}: -80.40dBm/1.28MHz I_{or} / I_{oc}: -inf PCCPCH_E_c/I_{or}: -3dB DwPCH_Ec/Ior: 0dB During T2: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: +4dB UTRA Cell 2 I_{oc}: -80.40dBm/1.28MHz I_{or} / I_{oc}: +9dB PCCPCH_E_c/I_{or}: -3dB DwPCH_Ec/Ior: 0dB

8.7.3 E-UTRAN TDD - UTRAN TDD SON ANR cell search reporting under AWGN propagation conditions	During T1: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: +4dB UTRA Cell 2 I_{oc}: -75dBm/1.28MHz I_{or} / I_{oc}: -inf PCCPCH_E_c/I_{or}: -3dB DwPCH_Ec/Ior: 0dB During T2: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: +4dB UTRA Cell 2 I_{oc}: -75dBm/1.28MHz I_{or} / I_{oc}: +5dB PCCPCH_E_c/I_{or}: -3dB DwPCH_Ec/Ior: 0dB	During T1: 0dB 0dB 0dB 0dB 0dB 0dB During T2: 0dB 0dB 0dB 0dB 0dB 0dB	During T1: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: +4dB UTRA Cell 2 I_{oc}: -75dBm/1.28MHz I_{or} / I_{oc}: -inf PCCPCH_E_c/I_{or}: -3dB DwPCH_Ec/Ior: 0dB During T2: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: +4dB UTRA Cell 2 I_{oc}: -75dBm/1.28MHz I_{or} / I_{oc}: +5dB PCCPCH_E_c/I_{or}: -3dB DwPCH_Ec/Ior: 0dB
8.7.4 E-UTRAN TDD - UTRAN TDD enhanced cell identification under AWGN propagation conditions	During T1: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: +4dB UTRA Cell 2 Ioc: -80dBm/1.28MHz Ior / Ioc: - infinity PCCPCH_Ec/Ior: -4.77dB DwPCH_Ec/Ior: 0dB During T2: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: +4dB UTRA Cell 2 Ioc: -80dBm/1.28MHz Ior / Ioc: +8dB PCCPCH_Ec/Ior: -4.77dB DwPCH_Ec/Ior: 0dB	During T1: 0dB 0dB +0.6dB 0dB 0dB 0dB During T2: 0dB 0dB +0.6dB 0dB 0dB 0dB	During T1: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: +4dB UTRA Cell 2 Ioc: -79.4dBm/1.28MHz Ior / Ioc: - infinity PCCPCH_Ec/Ior: -4.77dB DwPCH_Ec/Ior: 0dB During T2: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: +4dB UTRA Cell 2 Ioc: -79.4dBm/1.28MHz Ior / Ioc: +8dB PCCPCH_Ec/Ior: -4.77dB DwPCH_Ec/Ior: 0dB
8.8.1 E-UTRAN FDD - GSM event triggered reporting in AWGN	During T1: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: +4dB GSM Cell 2 Signal level: -infinity During T2: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: +4dB GSM Cell 2 Signal level: -75 dBm	During T1: 0dB 0dB 0dB During T2: 0dB 0dB 0dB	During T1: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: +4dB GSM Cell 2 Signal level: -infinity During T2: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: +4dB GSM Cell 2 Signal level: -75 dBm
8.8.2 E-UTRAN FDD- GSM event triggered reporting when DRX is used in AWGN	During T1: E-UTRA Cell 1 N_{oc}: -98dBm/15kHz Ês / N_{oc}: +4.00dB GSM Cell 2 Signal level: -infinity During T2: E-UTRA Cell 1 N_{oc}: -98dBm/15kHz Ês / N_{oc}: +4.00dB GSM Cell 2 Signal level: -75dBm	During T1: 0dB 0dB 0dB During T2: 0dB 0dB 0dB	During T1: E-UTRAN Cell 1 N_{oc}: -98dBm/15kHz Ês / N_{oc}: +4.00dB GSM Cell 2 Signal level: -infinity During T2: E-UTRA Cell 1 N_{oc}: -98dBm/15kHz Ês / N_{oc}: +4.00dB GSM Cell 2 Signal level: -75dBm

8.9.1 E-UTRAN FDD - UTRAN TDD event triggered reporting under fading propagation conditions	During T1: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Iot: 4dB UTRA Cell 2 Ioc: -70dBm/1.28MHz Ior / Ioc: -infinity During T2: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Iot: 4dB UTRA Cell 2 Ioc: -70dBm/1.28MHz Ior / Ioc: 9 dB	During T1: 0dB 0dB 0dB During T2: 0dB 0dB 0dB 0 dB	During T1: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Iot: 4dB UTRA Cell 2 Ioc: -70dBm/1.28MHz Ior / Ioc: -infinity During T2: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Iot: 4dB UTRA Cell 2 Ioc: -70dBm/1.28MHz Ior / Ioc: 9 dB
8.9.2 E-UTRAN FDD - UTRAN TDD enhanced cell identification under AWGN propagation conditions	Same as 8.7.4	Same as 8.7.4	Same as 8.7.4
8.10.1 E-UTRAN TDD - GSM event triggered reporting in AWGN	Same as 8.8.1	Same as 8.8.1	Same as 8.8.1
8.10.2 E-UTRAN TDD-GSM event triggered reporting when DRX is used in AWGN	Same as 8.8.2	Same as 8.8.2	Same as 8.8.2
8.11.1 Multiple E-UTRAN FDD-FDD Inter-frequency event triggered reporting under fading propagation conditions	<u>During T1:</u> E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: 0dB E-UTRA Cell 2 Noc: -98dBm/15kHz Ês / Noc: -infinity E-UTRA Cell 3 Noc: -98dBm/15kHz Ês / Noc: -infinity <u>During T2:</u> E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: 3dB E-UTRA Cell 2 Noc: -98dBm/15kHz Ês / Noc: 3dB E-UTRA Cell 3 Noc: -98dBm/15kHz Ês / Noc: 3dB	<u>During T1:</u> 0dB 0dB 0dB 0dB 0dB 0dB <u>During T2:</u> 0dB 0dB 0dB +0.2dB 0dB +0.2dB	<u>During T1:</u> E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: 0dB E-UTRA Cell 2 Noc: -98dBm/15kHz Ês / Noc: -infinity E-UTRA Cell 3 Noc: -98dBm/15kHz Ês / Noc: -infinity <u>During T2:</u> E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: 3dB E-UTRA Cell 2 Noc: -98dBm/15kHz Ês / Noc: 3.2dB E-UTRA Cell 3 Noc: -98dBm/15kHz Ês / Noc: 3.2dB
8.11.2 E-UTRAN TDD - E-UTRAN TDD and E-UTRAN TDD Inter-frequency event triggered reporting under fading propagation conditions	Same as 8.11.1	Same as 8.11.1	Same as 8.11.1

8.11.3 E-UTRAN FDD-FDD Inter-frequency and UTRAN FDD event triggered reporting under fading propagation conditions	During T1: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: +4.00dB E-UTRA Cell 2 Noc: -98dBm/15kHz Ês / Noc: -infinity UTRA Cell 3 Ioc: -70dBm/3.84MHz Ior / Ioc: -infinity During T2: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: +4.00dB E-UTRA Cell 2 Noc: -98dBm/15kHz Ês / Noc: +7.00dB UTRA Cell 3 Ioc: -70dBm/3.84MHz Ior / Ioc: -1.8 dB	During T1: 0dB -0.8dB 0dB 0dB 0dB 0dB During T2: 0dB -0.8dB 0dB 0dB 0dB 0dB	During T1: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: +3.20dB E-UTRA Cell 2 Noc: -98dBm/15kHz Ês / Noc: -infinity UTRA Cell 3 Ioc: -70dBm/3.84MHz Ior / Ioc: -infinity During T2: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: +3.20dB E-UTRA Cell 2 Noc: -98dBm/15kHz Ês / Noc: +7.00dB UTRA Cell 3 Ioc: -70dBm/3.84MHz Ior / Ioc: -1.8 dB
8.11.4 InterRAT E-UTRA TDD to E-UTRA TDD and UTRA TDD cell search	During T1: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: +4.00dB E-UTRA Cell 2 Noc: -98dBm/15kHz Ês / Noc: -infinity UTRA Cell 3 I_{oc}: -80dBm/1.28MHz I_{or} / I_{oc}: -infinity PCCPCH_E_c/I_{or}: -3dB DwPCH_Ec/Ior: 0dB During T2: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: +4.00dB E-UTRA Cell 2 Noc: -98dBm/15kHz Ês / Noc: +7.00dB UTRA Cell 3 I_{oc}: -80dBm/1.28MHz I_{or} / I_{oc}: 9.00dB PCCPCH_E_c/I_{or}: -3dB DwPCH_Ec/Ior: 0dB	During T1: 0dB -0.8dB 0dB 0dB -0.4dB 0dB 0dB 0dB During T2: 0dB -0.8dB 0dB 0dB -0.4dB 0dB 0dB 0dB	During T1: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: +3.20dB E-UTRA Cell 2 Noc: -98dBm/15kHz Ês / Noc: -infinity UTRA Cell 3 I_{oc}: -80.4dBm/1.28MHz I_{or} / I_{oc}: -infinity PCCPCH_E_c/I_{or}: -3dB DwPCH_Ec/Ior: 0dB During T2: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: +3.20dB E-UTRA Cell 2 Noc: -98dBm/15kHz Ês / Noc: +7.00dB UTRA Cell 3 I_{oc}: -80.4dBm/1.28MHz I_{or} / I_{oc}: 9.00dB PCCPCH_E_c/I_{or}: -3dB DwPCH_Ec/Ior: 0dB
8.11.5 Combined E-UTRAN FDD - E-UTRA FDD and GSM cell search. E-UTRA cells in fading; GSM cell in static propagation conditions	During T1: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: +4.00dB E-UTRA Cell 2 Noc: -98dBm/15kHz Ês / Noc: -infinity GSM Cell 3 Signal level: -infinity During T2: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: +4.00dB E-UTRA Cell 2 Noc: -98dBm/15kHz Ês / Noc: +7.00dB GSM Cell 3 Signal level: -75dBm	During T1: 0dB -0.2dB 0dB 0dB 0dB During T2: 0dB -0.2dB 0dB +0.5dB 0dB	During T1: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: +3.80dB E-UTRA Cell 2 Noc: -98dBm/15kHz Ês / Noc: -infinity GSM Cell 3 Signal level: -infinity During T2: E-UTRA Cell 1 Noc: -98dBm/15kHz Ês / Noc: +3.80dB E-UTRA Cell 2 Noc: -98dBm/15kHz Ês / Noc: +7.50dB GSM Cell 3 Signal level: -75dBm

8.11.6 Combined E-UTRAN TDD - E-UTRA TDD and GSM cell search. E-UTRA cells in fading; GSM cell in static propagation conditions	Same as 8.11.5	Same as 8.11.5	Same as 8.11.5
8.14.1 E-UTRAN TDD-FDD Inter-frequency event triggered reporting under fading propagation conditions in asynchronous cells	Same as 8.3.1	Same as 8.3.1	Same as 8.3.1
8.14.2 E-UTRAN TDD-FDD Inter-frequency event triggered reporting when DRX is used under fading propagation conditions in asynchronous cells	Same as 8.3.1	Same as 8.3.1	Same as 8.3.1
8.14.3 E-UTRAN TDD - FDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps	Same as 8.4.4	Same as 8.4.4	Same as 8.4.4
8.15.1 E-UTRAN FDD-TDD Inter-frequency event triggered reporting under fading propagation conditions in asynchronous cells	Same as 8.4.1	Same as 8.4.1	Same as 8.4.1
8.15.2 E-UTRAN FDD-TDD Inter-frequency event triggered reporting when DRX is used under fading propagation conditions in asynchronous cells	Same as 8.4.1	Same as 8.4.1	Same as 8.4.1
8.15.3 E-UTRAN FDD - TDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps	Same as 8.4.4	Same as 8.4.4	Same as 8.4.4
8.16.1 E-UTRAN FDD event triggered reporting under deactivated SCell in non-DRX	During T1: E-UTRA Cell 1 N_{oc1}: -101dBm/15kHz $\hat{E}s_1 / N_{oc1}$: 19dB E-UTRA Cell 2 N_{oc2}: -101dBm/15kHz $\hat{E}s_2 / N_{oc2}$: 19dB E-UTRA Cell 3 $\hat{E}s_3 / N_{oc2}$: -infinity During T2: E-UTRA Cell 1 N_{oc1}: -101dBm/15kHz $\hat{E}s_1 / N_{oc1}$: 19dB E-UTRA Cell 2 N_{oc2}: -101dBm/15kHz $\hat{E}s_2 / N_{oc2}$: 19dB E-UTRA Cell 3 $\hat{E}s_3 / N_{oc2}$: 19dB During T3: E-UTRA Cell 1 N_{oc1}: -101dBm/15kHz $\hat{E}s_1 / N_{oc1}$: -3dB E-UTRA Cell 2 N_{oc2}: -101dBm/15kHz $\hat{E}s_2 / N_{oc2}$: -3dB E-UTRA Cell 3 $\hat{E}s_3 / N_{oc2}$: -3dB	During T1: 0dB +0.2dB 0dB +0.2dB 0dB During T2: 0dB +0.2dB 0dB +0.2dB 0dB During T3: 0dB 0dB 0dB -0.2dB 0dB	During T1: E-UTRA Cell 1 N_{oc1}: -101dBm/15kHz $\hat{E}s_1 / N_{oc1}$: 19.2dB E-UTRA Cell 2 N_{oc2}: -101dBm/15kHz $\hat{E}s_2 / N_{oc2}$: 19.2dB E-UTRA Cell 3 $\hat{E}s_3 / N_{oc2}$: -infinity During T2: E-UTRA Cell 1 N_{oc1}: -101dBm/15kHz $\hat{E}s_1 / N_{oc1}$: 19.2dB E-UTRA Cell 2 N_{oc2}: -101dBm/15kHz $\hat{E}s_2 / N_{oc2}$: 19.2dB E-UTRA Cell 3 $\hat{E}s_3 / N_{oc2}$: 19.0dB During T3: E-UTRA Cell 1 N_{oc1}: -101dBm/15kHz $\hat{E}s_1 / N_{oc1}$: -3.0dB E-UTRA Cell 2 N_{oc2}: -101dBm/15kHz $\hat{E}s_2 / N_{oc2}$: -3.2dB E-UTRA Cell 3 $\hat{E}s_3 / N_{oc2}$: -3.0dB
8.16.2 E-UTRAN TDD event triggered reporting under deactivated SCell in non-DRX	Same as 8.16.1	Same as 8.16.1	Same as 8.16.1

8.16.3 E-UTRAN FDD-FDD Event triggered reporting on deactivated SCell with PCell interruption in non-DRX	During T1: E-UTRA Cell 1 N_{oc1}: -98dBm/15kHz $\hat{E}s_1 / N_{oc1}$: 16dB E-UTRA Cell 2 N_{oc2}: -98dBm/15kHz $\hat{E}s_2 / N_{oc2}$: 16dB E-UTRA Cell 3 $\hat{E}s_3 / N_{oc2}$: -infinity During T2: E-UTRA Cell 1 N_{oc1}: -98dBm/15kHz $\hat{E}s_1 / N_{oc1}$: 16dB E-UTRA Cell 2 N_{oc2}: -98dBm/15kHz $\hat{E}s_2 / N_{oc2}$: 16dB E-UTRA Cell 3 $\hat{E}s_3 / N_{oc2}$: 16dB	During T1: 0dB 0dB 0dB 0dB 0dB During T2: 0dB 0dB 0dB 0dB 0dB	During T1: E-UTRA Cell 1 N_{oc1}: -98dBm/15kHz $\hat{E}s_1 / N_{oc1}$: 16dB E-UTRA Cell 2 N_{oc2}: -98dBm/15kHz $\hat{E}s_2 / N_{oc2}$: 16dB E-UTRA Cell 3 $\hat{E}s_3 / N_{oc2}$: -infinity During T2: E-UTRA Cell 1 N_{oc1}: -98dBm/15kHz $\hat{E}s_1 / N_{oc1}$: 16dB E-UTRA Cell 2 N_{oc2}: -98dBm/15kHz $\hat{E}s_2 / N_{oc2}$: 16dB E-UTRA Cell 3 $\hat{E}s_3 / N_{oc2}$: 16dB
8.16.4 E-UTRAN TDD-TDD Event triggered reporting on deactivated SCell with PCell interruption in non-DRX	Same as 8.16.3	Same as 8.16.3	Same as 8.16.3
9.1.1.1 FDD Intra Frequency Absolute RSRP Accuracy	Test 1: N_{oc}: -106dBm/15kHz $\hat{E}s_1 / N_{oc}$: +6.0dB $\hat{E}s_2 / N_{oc}$: +1.0dB Reported RSRP values: ±6dB Test 2: N_{oc}: -88dBm/15kHz $\hat{E}s_1 / N_{oc}$: +6.0dB $\hat{E}s_2 / N_{oc}$: +1.0dB Reported RSRP values: ±8dB Test 3: N_{oc}: -116dBm to -112.5dBm /15kHz depending on operating band $\hat{E}s_1 / N_{oc}$: +3.0dB $\hat{E}s_2 / N_{oc}$: -1.0dB Reported RSRP values: ±6dB	Test 1: -1.0dB 0dB +1.0dB Via mapping Test 2: 0dB 0dB +1.0dB Via mapping Test 3: 0dB 0dB +0.8dB Via mapping	Test 1: N_{oc}: -107.0dBm/15kHz $\hat{E}s_1 / N_{oc}$: +6.0dB $\hat{E}s_2 / N_{oc}$: +2.0dB RSRP_29 to RSRP_43 Test 2: N_{oc}: -88dBm/15kHz $\hat{E}s_1 / N_{oc}$: +6.0dB $\hat{E}s_2 / N_{oc}$: +2.0dB RSRP_45 to RSRP_64 Test 3: N_{oc}: -116dBm to -112.5dBm /15kHz depending on operating band $\hat{E}s_1 / N_{oc}$: +3.0dB $\hat{E}s_2 / N_{oc}$: -0.2dB RSRP_17 to RSRP_32 RSRP_18 to RSRP_33 RSRP_19 to RSRP_34 RSRP_20 to RSRP_35 depending on operating band
	The derivation of the RSRP values takes into account the uncertainty in Cell 2 RSRP from N_{oc} and $\hat{E}s_2 / N_{oc}$, the allowed UE reporting accuracy, and the UE mapping function. The RSRP values given above are for normal conditions. In all cases the RSRP values are 3dB wider at each end for extreme conditions.		

9.1.1.2 FDD Intra Frequency Relative RSRP Accuracy	Test 1: N_{oc}: -106dBm/15kHz $\hat{E}s_1$ / N_{oc}: +6.0dB $\hat{E}s_2$ / N_{oc}: +1.0dB Reported relative RSRP values: ±3dB Test 2: N_{oc}: -88dBm/15kHz $\hat{E}s_1$ / N_{oc}: +6.0dB $\hat{E}s_2$ / N_{oc}: +1.0dB Reported relative RSRP values: ±3dB Test 3: N_{oc}: -116dBm to -112.5dBm /15kHz depending on operating band $\hat{E}s_1$ / N_{oc}: +3.0dB $\hat{E}s_2$ / N_{oc}: -1.0dB Reported relative RSRP values: ±3dB	Test 1: 0 dB 0 dB +1.0dB Via mapping Test 2: 0dB 0dB +1.0dB Via mapping Test 3: 0dB 0dB +1.0dB Via mapping	Test 1: N_{oc}: -106 dBm/15kHz $\hat{E}s_1$ / N_{oc}: +6.0dB $\hat{E}s_2$ / N_{oc}: +2.0dB RSRP_x-9 to RSRP_x+1 Test 2: N_{oc}: -88dBm/15kHz $\hat{E}s_1$ / N_{oc}: +6.0dB $\hat{E}s_2$ / N_{oc}: +2.0dB RSRP_x-9 to RSRP_x+1 Test 3: N_{oc}: -116dBm to -112.5dBm /15kHz depending on operating band $\hat{E}s_1$ / N_{oc}: +3.0dB $\hat{E}s_2$ / N_{oc}: 0dB RSRP_x-8 to RSRP_x+2
	The derivation of the RSRP values takes into account the uncertainty in Cell 1 and Cell 2 RSRP from N_{oc}, $\hat{E}s_1$ / N_{oc} and $\hat{E}s_2$ / N_{oc}, the allowed UE reporting accuracy, and the UE mapping function. The RSRP values given above are for both normal and extreme conditions.		
9.1.2.1 TDD Intra Frequency Absolute RSRP Accuracy	Same as 9.1.1.1	Same as 9.1.1.1	Same as 9.1.1.1
9.1.2.2 TDD Intra Frequency Relative RSRP Accuracy	Same as 9.1.1.2	Same as 9.1.1.2	Same as 9.1.1.2
9.1.3.1 FDD Inter Frequency Absolute RSRP Accuracy	Test 1: N_{oc1}: -88.65dBm/15kHz $\hat{E}s_1$ / N_{oc1}: +10.00dB N_{oc2}: -88.65dBm/15kHz $\hat{E}s_2$ / N_{oc2}: +10.00dB Reported RSRP values: ±8dB Test 2: N_{oc1}: (N_{oc2} +8dB) $\hat{E}s_1$ / N_{oc1}: +13.00dB N_{oc2}: -117dBm to -113.5dBm /15kHz depending on operating band $\hat{E}s_2$ / N_{oc2}: -4.00dB Reported RSRP values: ±6dB	Test 1: -0.6dB 0dB -0.6dB 0dB Via mapping Test 2: 0dB 0dB 0dB 0.8dB Via mapping	Test 1: N_{oc1}: -89.25dBm/15kHz $\hat{E}s_1$ / N_{oc1}: +10.00dB N_{oc2}: -89.25dBm/15kHz $\hat{E}s_2$ / N_{oc2}: +10.00dB RSRP_52 to RSRP_71 Test 2: N_{oc1}: (N_{oc2} +8dB) $\hat{E}s_1$ / N_{oc1}: +13.00dB N_{oc2}: -117dBm to -113.5dBm /15kHz depending on operating band $\hat{E}s_2$ / N_{oc}: -3.20dB RSRP_13 to RSRP_28 RSRP_14 to RSRP_29 RSRP_15 to RSRP_30 RSRP_16 to RSRP_31 depending on operating band
	The derivation of the RSRP values takes into account the uncertainty in Cell 2 RSRP from N_{oc2} and $\hat{E}s_2$ / N_{oc2}, the allowed UE reporting accuracy, and the UE mapping function. The RSRP values given above are for normal conditions. In all cases the RSRP values are 3dB wider at each end for extreme conditions.		

9.1.3.2 FDD Inter Frequency Relative RSRP Accuracy	<u>Test 1:</u> N_{oc1}: -88.65dBm/15kHz N_{oc2}: -88.65dBm/15kHz $\hat{E}s_1 / N_{oc1}$: +10dB $\hat{E}s_2 / N_{oc2}$: +10dB Reported relative RSRP values: ±6dB <u>Test 2:</u> N_{oc1}: (N_{oc2} +8dB) N_{oc2}: -117dBm to -113.5dBm /15kHz depending on operating band $\hat{E}s_1 / N_{oc1}$: +13dB $\hat{E}s_2 / N_{oc2}$: -4.0dB Reported relative RSRP values: ±6dB	<u>Test 1:</u> -0.6dB -0.6dB 0dB 0dB Via mapping <u>Test 2:</u> -1.0dB 0dB 0dB 0.8dB Via mapping	<u>Test 1:</u> N_{oc1}: -89.25dBm/15kHz N_{oc2}: -89.25dBm/15kHz $\hat{E}s_1 / N_{oc}$: +10dB $\hat{E}s_2 / N_{oc}$: +10dB RSRP_(x-9) to RSRP_(x+9) <u>Test 2:</u> N_{oc1}: (N_{oc2} +7dB) N_{oc2}: -117dBm to -113.5dBm /15kHz depending on operating band $\hat{E}s_1 / N_{oc1}$: +13dB $\hat{E}s_2 / N_{oc2}$: -3.2dB RSRP_(x-32) to RSRP_(x-16)
	The derivation of the RSRP values takes into account the uncertainty in Cell 1 and Cell 2 RSRP from N_{oc1} and $\hat{E}s_1 / N_{oc1}$ and N_{oc2} and $\hat{E}s_2 / N_{oc2}$, the allowed UE reporting accuracy, and the UE mapping function. The RSRP values given above are for both normal and extreme conditions.		
9.1.4.1 TDD Inter Frequency Absolute RSRP Accuracy	Same as 9.1.3.1	Same as 9.1.3.1	Same as 9.1.3.1
9.1.4.2 TDD Inter Frequency Relative RSRP Accuracy	Same as 9.1.3.2	Same as 9.1.3.2	Same as 9.1.3.2
9.1.5.1 FDD-TDD inter frequency absolute RSRP Accuracy	Test 1: N_{oc1}: -88.65dBm/15kHz N_{oc2}: -88.65dBm/15kHz $\hat{E}s_1 / N_{oc1}$: +10dB $\hat{E}s_2 / N_{oc2}$: +10dB Reported absolute RSRP values: ±8dB Test 2: N_{oc1}: -104dBm /15kHz N_{oc2}: -112dBm/15kHz $\hat{E}s_1 / N_{oc1}$: +13dB $\hat{E}s_2 / N_{oc2}$: -4.0dB Reported absolute RSRP values: ±6dB	Test 1: -0.3dB -0.3dB 0dB 0dB Via mapping Test 2: 0dB 0dB 0dB 0.8dB Via mapping	Test 1: N_{oc1}: -88.95dBm/15kHz N_{oc2}: -88.95dBm/15kHz $\hat{E}s_1 / N_{oc}$: +10dB $\hat{E}s_2 / N_{oc}$: +10dB RSRP_52 to RSRP_71 Test 2: N_{oc1}: -104Bm /15kHz N_{oc2}: -112dBm /15kHz $\hat{E}s_1 / N_{oc1}$: +13dB $\hat{E}s_2 / N_{oc2}$: -3.2dB RSRP_18 to RSRP_33
9.1.5.2 FDD-TDD Inter Frequency Relative RSRP Accuracy	Test 1: N_{oc1}: -88.65dBm/15kHz N_{oc2}: -88.65dBm/15kHz $\hat{E}s_1 / N_{oc1}$: +10dB $\hat{E}s_2 / N_{oc2}$: +10dB Reported absolute RSRP values: ±6dB Test 2: N_{oc1}: -104dBm /15kHz N_{oc2}: -112dBm/15kHz $\hat{E}s_1 / N_{oc1}$: +13dB $\hat{E}s_2 / N_{oc2}$: -4.0dB Reported absolute RSRP values: ±6dB	Test 1: -0.3dB -0.3dB 0dB 0dB Via mapping Test 2: -0.6dB 0dB 0dB 0.8dB Via mapping	Test 1: N_{oc1}: -88.95dBm/15kHz N_{oc2}: -88.95dBm/15kHz $\hat{E}s_1 / N_{oc}$: +10dB $\hat{E}s_2 / N_{oc}$: +10dB RSRP_(x-8) to RSRP_(x+8) Test 2: N_{oc1}: -104.6Bm /15kHz N_{oc2}: -112dBm /15kHz $\hat{E}s_1 / N_{oc1}$: +13dB $\hat{E}s_2 / N_{oc2}$: -3.2dB RSRP_(x-32) to RSRP_(x-16)
	The derivation of the RSRP values takes into account the uncertainty in Cell 1 and Cell 2 RSRP from N_{oc1} and $\hat{E}s_1 / N_{oc1}$ and N_{oc2} and $\hat{E}s_2 / N_{oc2}$, the allowed UE reporting accuracy, and the UE mapping function. The RSRP values given above are for both normal and extreme conditions.		

9.1.6.1 FDD Absolute RSRP Accuracy for E-UTRA Carrier Aggregation	N_{oc1}: -117dBm or -116dBm or -115.5dBm or -115 dBm or -114dBm or -113.5dBm /15kHz depending on operating band N_{oc2}: = N_{oc1} +1dB $Ês_1 / N_{oc1}$: -4dB $Ês_2 / N_{o2c}$: +3dB $Ês_3 / N_{o2c}$: -1dB Reported RSRP values: ±6dB for normal conditions and ±9dB for extreme conditions	0dB 0dB 0dB 0dB 0dB Via mapping Via mapping	N_{oc1}: -117dBm or -116dBm or -115.5dBm or -115 dBm or -114dBm or -113.5dBm /15kHz depending on operating band N_{oc2}: = N_{oc1} +1dB $Ês_1 / N_{oc1}$: -4dB $Ês_2 / N_{o2c}$: +3dB $Ês_3 / N_{o2c}$: -1dB Cell 1: RSRP_12 to RSRP_27 RSRP_13 to RSRP_28 RSRP_13 to RSRP_29 RSRP_14 to RSRP_29 RSRP_15 to RSRP_30 RSRP_15 to RSRP_31 depending on operating band Cell 2: RSRP_20 to RSRP_35 RSRP_21 to RSRP_36 RSRP_21 to RSRP_37 RSRP_22 to RSRP_37 RSRP_23 to RSRP_38 RSRP_23 to RSRP_39 depending on Cell 1 band
	The derivation of the RSRP values takes into account the uncertainty in Cell 1 RSRP from N_{oc1} and $Ês_1 / N_{oc1}$, the uncertainty in Cell 2 RSRP from N_{oc2} and $Ês_2 / N_{oc2}$, the allowed UE reporting accuracy, and the UE mapping function. The RSRP values given above are for normal conditions. In all cases the RSRP values are 3dB wider at each end for extreme conditions.		
9.1.6.2 FDD Relative RSRP Accuracy for E-UTRA Carrier Aggregation	N_{oc1}: -117dBm or -116dBm or -115.5dBm or -115 dBm or -114dBm or -113.5dBm /15kHz depending on operating band N_{oc2}: = N_{oc1} +1dB $Ês_1 / N_{oc1}$: -4dB $Ês_2 / N_{o2c}$: +3dB $Ês_3 / N_{o2c}$: -1dB Reported relative RSRP values: (Cell 2 – Cell 1): ±6dB (Cell 3 – Cell 2): ±3dB	0dB 0dB 0dB 0dB +0.8dB Via mapping Via mapping	N_{oc1}: -117dBm or -116dBm or -115.5dBm or -115 dBm or -114dBm or -113.5dBm /15kHz depending on operating band N_{oc2}: = N_{oc1} +1dB $Ês_1 / N_{oc1}$: -4dB $Ês_2 / N_{o2c}$: +3dB $Ês_3 / N_{o2c}$: -0.2dB (Cell 2 – Cell 1): RSRP_(x-1) to RSRP_(x+17) (Cell 3 - Cell 2): RSRP_(x-8) to RSRP_(x+1)
	The derivation of the RSRP values takes into account the uncertainty in Cell 1 RSRP from N_{oc1} and $Ês_1 / N_{oc1}$, the uncertainty in Cell 2 RSRP from N_{oc2} and $Ês_2 / N_{oc2}$, the uncertainty in Cell 3 RSRP from $Ês_3 / N_{oc2}$, the allowed UE reporting accuracy, and the UE mapping function. The RSRP values given above are for normal and extreme conditions.		
9.1.7.1 TDD Absolute RSRP Accuracy for E-UTRA Carrier Aggregation	Same as 9.1.6.1	Same as 9.1.6.1	Same as 9.1.6.1
9.1.7.2 TDD Relative RSRP Accuracy for E-UTRA Carrier Aggregation	Same as 9.1.6.2	Same as 9.1.6.2	Same as 9.1.6.2

9.1.8.1 FDD Absolute RSRP Accuracy under Time Domain Measurement Resource Restriction with Non-MBSFN ABS	Test 1: N_{oc}: -106.0dBm/15kHz $\hat{E}s_1 / N_{oc}$: +5.0dB $\hat{E}s_2 / N_{oc}$: -2.0dB Reported RSRP values: ±6dB Test 2: N_{oc}: -88.0dBm/15kHz $\hat{E}s_1 / N_{oc}$: +5.0dB $\hat{E}s_2 / N_{oc}$: -4.0dB Reported RSRP values: ±8dB Test 3: N_{oc}: -116dBm to -112.5dBm /15kHz depending on operating band $\hat{E}s_1 / N_{oc}$: +5.0dB $\hat{E}s_2 / N_{oc}$: -4.0dB Reported RSRP values: ±6dB	Test 1: 0dB 0dB 0dB Via mapping Test 2: 0dB 0dB +0.8dB Via mapping Test 3: 0dB 0dB +0.8dB Via mapping	Test 1: N_{oc}: -106.0Bm/15kHz $\hat{E}s_1 / N_{oc}$: +5.0dB $\hat{E}s_2 / N_{oc}$: -2.0dB RSRP_25 to RSRP_40 Test 2: N_{oc}: -88.0dBm/15kHz $\hat{E}s_1 / N_{oc}$: +5.0dB $\hat{E}s_2 / N_{oc}$: -3.2dB RSRP_40 to RSRP_59 Test 3: N_{oc}: -116dBm to -112.5dBm /15kHz depending on operating band $\hat{E}s_1 / N_{oc}$: +5.0dB $\hat{E}s_2 / N_{oc}$: -3.2dB RSRP_14 to RSRP_29 RSRP_15 to RSRP_30 RSRP_16 to RSRP_31 RSRP_17 to RSRP_32 depending on operating band
	The derivation of the RSRP values takes into account the uncertainty in Cell 2 RSRP from N_{oc} and $\hat{E}s_2 / N_{oc}$, the allowed UE reporting accuracy, and the UE mapping function. The RSRP values given above are for normal conditions. In all cases the RSRP values are 3dB wider at each end for extreme conditions.		
9.1.8.2 FDD Relative RSRP Accuracy under Time Domain Measurement Resource Restriction with Non-MBSFN ABS	Test 1: N_{oc}: -106.0dBm/15kHz $\hat{E}s_1 / N_{oc}$: +5.0dB $\hat{E}s_2 / N_{oc}$: -2.0dB Reported relative RSRP values: ±2dB Test 2: N_{oc}: -88.0dBm/15kHz $\hat{E}s_1 / N_{oc}$: +5.0dB $\hat{E}s_2 / N_{oc}$: -4.0dB Reported relative RSRP values: ±3dB Test 3: N_{oc}: -116dBm to -112.5dBm /15kHz depending on operating band $\hat{E}s_1 / N_{oc}$: +5.0dB $\hat{E}s_2 / N_{oc}$: -4.0dB Reported relative RSRP values: ±3dB	Test 1: 0dB 0dB +0.8dB Via mapping Test 2: 0dB 0dB +0.8dB Via mapping Test 3: 0dB 0dB +0.8dB Via mapping	Test 1: N_{oc}: -106.0Bm/15kHz $\hat{E}s_1 / N_{oc}$: +5.0dB $\hat{E}s_2 / N_{oc}$: -1.2dB RSRP_x-10 to RSRP_x-3 Test 2: N_{oc}: -88.0dBm/15kHz $\hat{E}s_1 / N_{oc}$: +5.0dB $\hat{E}s_2 / N_{oc}$: -3.2dB RSRP_x-13 to RSRP_x-4 Test 3: N_{oc}: -116dBm to -112.5dBm /15kHz depending on operating band $\hat{E}s_1 / N_{oc}$: +5.0dB $\hat{E}s_2 / N_{oc}$: -3.2dB RSRP_x-13 to RSRP_x-4
	The derivation of the RSRP values takes into account the uncertainty in Cell 1 and Cell 2 RSRP from N_{oc}, $\hat{E}s_1 / N_{oc}$ and $\hat{E}s_2 / N_{oc}$, the allowed UE reporting accuracy, and the UE mapping function. The RSRP values given above are for normal conditions. For Test 1 extreme conditions allow 1dB wider at each end. Test 2, Test 3 RSRP values for extreme conditions are the same for normal conditions.		
9.1.9.1 TDD Absolute RSRP Accuracy under Time Domain Measurement Resource Restriction with Non-MBSFN ABS	Same as 9.1.8.1	Same as 9.1.8.1	Same as 9.1.8.1
9.1.9.2 TDD Relative RSRP Accuracy under Time Domain Measurement Resource Restriction with Non-MBSFN ABS	Same as 9.1.8.2	Same as 9.1.8.2	Same as 9.1.8.2

9.2.1.1 FDD Intra Frequency Absolute RSRQ Accuracy	Test 1: N_{oc}: -84.76dBm/15kHz $\hat{E}s_1 / N_{oc}$: +3.0dB $\hat{E}s_2 / N_{oc}$: +3.0dB Reported RSRQ values: ±2.5dB Test 2: N_{oc}: -103.85dBm/15kHz $\hat{E}s_1 / N_{oc}$: -2.9dB $\hat{E}s_2 / N_{oc}$: -2.9dB Reported RSRQ values: ±3.5dB Test 3: N_{oc}: -116dBm or -114dBm or -113dBm or -115dBm /15kHz depending on operating band $\hat{E}s_1 / N_{oc}$: -4.0dB $\hat{E}s_2 / N_{oc}$: -4.0dB Reported RSRQ values: ±3.5dB	Test 1: -0.75dB 0dB 0dB Via mapping Test 2: 0dB 0dB 0dB Via mapping Test 3: 0dB +0.4dB +0.4dB Via mapping	Test 1: N_{oc}: -85.51Bm/15kHz $\hat{E}s_1 / N_{oc}$: +3.0dB $\hat{E}s_2 / N_{oc}$: +3.0dB RSRQ_04 to RSRQ_16 Test 2: N_{oc}: -103.85dBm/15kHz $\hat{E}s_1 / N_{oc}$: -2.9dB $\hat{E}s_2 / N_{oc}$: -2.9dB RSRQ_00 to RSRP_14 Test 3: N_{oc}: -116dBm or -114dBm or -113dBm or -115dBm /15kHz depending on operating band $\hat{E}s_1 / N_{oc}$: -3.6dB $\hat{E}s_2 / N_{oc}$: -3.6dB RSRQ_00 to RSRQ_14
	The derivation of the RSRQ values takes into account the uncertainty in Cell 2 RSRQ from N_{oc} and $\hat{E}s_2 / N_{oc}$, the allowed UE reporting accuracy, and the UE mapping function. The RSRQ values given above are for normal conditions. For test 1 the RSRQ values are 1.5dB wider at each end for extreme conditions, and for tests 2 and 3 the RSRQ values are 0.5dB wider at each end for extreme conditions.		
9.2.2.1 TDD Intra Frequency Absolute RSRQ Accuracy	Test 1: N_{oc}: -84.76dBm/15kHz $\hat{E}s_1 / N_{oc}$: +3.0dB $\hat{E}s_2 / N_{oc}$: +3.0dB Reported RSRQ values: ±2.5dB Test 2: N_{oc}: -103.85dBm/15kHz $\hat{E}s_1 / N_{oc}$: -2.9dB $\hat{E}s_2 / N_{oc}$: -2.9dB Reported RSRQ values: ±3.5dB Test 3: N_{oc}: -116dBm/15kHz $\hat{E}s_1 / N_{oc}$: -4.0dB $\hat{E}s_2 / N_{oc}$: -4.0dB Reported RSRQ values: ±3.5dB	Test 1: -0.75dB 0dB 0dB Via mapping Test 2: 0dB 0dB 0dB Via mapping Test 3: 0dB +0.4dB +0.4dB Via mapping	Test 1: N_{oc}: -85.51Bm/15kHz $\hat{E}s_1 / N_{oc}$: +3.0dB $\hat{E}s_2 / N_{oc}$: +3.0dB RSRQ_04 to RSRQ_16 Test 2: N_{oc}: -103.85dBm/15kHz $\hat{E}s_1 / N_{oc}$: -2.9dB $\hat{E}s_2 / N_{oc}$: -2.9dB RSRQ_00 to RSRQ_14 Test 3: N_{oc}: -116dBm/15kHz $\hat{E}s_1 / N_{oc}$: -3.6dB $\hat{E}s_2 / N_{oc}$: -3.6dB RSRQ_00 to RSRQ_14
	The derivation of the RSRQ values takes into account the uncertainty in Cell 2 RSRQ from N_{oc} and $\hat{E}s_2 / N_{oc}$, the allowed UE reporting accuracy, and the UE mapping function. The RSRQ values given above are for normal conditions. For test 1 the RSRQ values are 1.5dB wider at each end for extreme conditions, and for test 2 the RSRQ values are 0.5dB wider at each end for extreme conditions.		

9.2.3.1 FDD - FDD Inter Frequency Absolute RSRQ Accuracy	Test 1: N_{oc1}: -80dBm/15kHz N_{oc2}: -80dBm/15kHz $Ês_1 / N_{oc1}$: -1.75dB $Ês_2 / N_{oc2}$: -1.75dB Reported RSRQ values: ±2.5dB for normal conditions and ±4dB for extreme conditions Test 2: N_{oc1}: -104.7dBm/15kHz N_{oc2}: -104.7dBm/15kHz $Ês_1 / N_{oc1}$: -4.0dB $Ês_2 / N_{o2c}$: -4.0dB Reported RSRQ values: ±3.5dB for normal conditions and ±4dB for extreme conditions Test 3: N_{oc1}: -119.5dBm or -117.5dBm or -116dBm or -116.5 dBm or -118.5dBm /15kHz depending on operating band N_{oc2}: -119.5dBm or -117.5dBm or -116dBm or -116.5dBm or -118.5dBm /15kHz depending on operating band $Ês_1 / N_{oc1}$: -4dB $Ês_2 / N_{o2c}$: -4dB Reported RSRQ values: ±3.5dB for normal conditions and ±4dB for extreme conditions	Test 1: 0dB -0.8dB 0dB 0dB Via mapping Test 2: 0dB 0dB 0dB 0.8dB Via mapping Test 3: 0dB 0dB 0dB 0.8dB Via mapping	Test 1: N_{oc1}: -80dBm/15kHz N_{oc2}: -80.8dBm/15kHz $Ês_1 / N_{oc1}$: -1.75dB $Ês_2 / N_{oc2}$: -1.75dB RSRQ_04 to RSRQ_16 (NTC) RSRQ_01 to RSRQ_19 (ETC) Test 2: N_{oc1}: -104dBm/15kHz N_{oc2}: -104dBm/15kHz $Ês_1 / N_{oc1}$: -4dB $Ês_2 / N_{o2c}$: -3.2dB RSRQ_00 to RSRQ_16 (NTC) RSRQ_00 to RSRQ_17 (ETC) Test 3: N_{oc1}: -119.5dBm or -117.5dBm or -116 or -116.5dBm or -118.5dBm /15kHz depending on operating band N_{oc2}: -119.5dBm or -117.5dBm or -116dBm or -116.5dBm or -118.5dBm /15kHz depending on operating band $Ês_1 / N_{oc1}$: -4dB $Ês_2 / N_{o2c}$: -3.2dB RSRQ_00 to RSRQ_16 (NTC) RSRQ_00 to RSRQ_17 (ETC)
	The derivation of the RSRQ values takes into account the uncertainty in Cell 2 RSRQ from N_{oc2} and $Ês_2 / N_{oc2}$, the allowed UE reporting accuracy, and the UE mapping function.		

9.2.3.2 FDD - FDD Inter Frequency Relative RSRQ Accuracy	Test 1: N_{oc1}: -80dBm/15kHz N_{oc2}: -80dBm/15kHz $\hat{E}s_1 / N_{oc1}$: -1.75dB $\hat{E}s_2 / N_{oc2}$: -1.75dB Reported Relative RSRQ values: ±3dB for normal conditions and ±4dB for extreme conditions Test 2: N_{oc1}: -104.7dBm/15kHz N_{oc2}: -104.7dBm/15kHz $\hat{E}s_1 / N_{oc1}$: -4dB $\hat{E}s_2 / N_{o2c}$: -4dB Reported Relative RSRQ values: ±4dB Test 3: N_{oc1}: -119.5dBm or -117.5dBm or -116dBm or -116.5dBm or -118.5dBm /15kHz depending on operating band N_{oc2}: -119.5dBm or -117.5dBm or -116 or -116.5dBm or -118.5dBm /15kHz depending on operating band $\hat{E}s_1 / N_{oc1}$: -4dB $\hat{E}s_2 / N_{o2c}$: -4dB Reported Relative RSRQ values: ±4dB	Test 1: -0.8dB -0.8dB 0dB 0dB Via mapping Test 2: 0dB 0dB 0dB 0.8dB Via mapping Test 3: 0dB 0dB 0dB 0.8dB Via mapping	Test 1: N_{oc1}: -80.8dBm/15kHz N_{oc2}: -80.8dBm/15kHz $\hat{E}s_1 / N_{oc1}$: -1.75dB $\hat{E}s_2 / N_{oc2}$: -1.75dB RSRQ_x - 8 to RSRQ_x + 8 (NTC) RSRQ_x - 10 to RSRQ_x + 10 (ETC) Test 2: N_{oc1}: -104.7dBm/15kHz N_{oc2}: -104.7dBm/15kHz $\hat{E}s_1 / N_{oc1}$: -4dB $\hat{E}s_2 / N_{o2c}$: -3.2dB RSRQ_x - 10 to RSRQ_x + 10 Test 3: N_{oc1}: -119.5dBm or -117.5dBm or -116dBm or -116.5dBm or -118.5dBm /15kHz depending on operating band N_{oc2}: -119dBm or -117.5dBm or -116dBm -116.5dBm or -118.5dBm /15kHz depending on operating band $\hat{E}s_1 / N_{oc1}$: -4dB $\hat{E}s_2 / N_{o2c}$: -3.2dB RSRQ_x - 10 to RSRQ_x + 10
	The derivation of the relative RSRQ values takes into account the uncertainty in Cell 1 RSRQ from N_{oc1} and $\hat{E}s_1 / N_{oc1}$ and Cell 2 RSRQ from N_{oc2} and $\hat{E}s_2 / N_{oc2}$, the allowed UE reporting accuracy, and the UE mapping function.		
9.2.4.1 TDD - TDD Inter Frequency Absolute RSRQ Accuracy	Same as 9.2.3.1		
9.2.4.2 TDD - TDD Inter Frequency Relative RSRQ Accuracy	Same as 9.2.3.2		

9.2.4A.1 FDD - TDD Inter Frequency Absolute RSRQ Accuracy	Test 1: N_{oc1}: -80dBm/15kHz N_{oc2}: -80dBm/15kHz $\hat{E}s_1 / N_{oc1}$: -1.75dB $\hat{E}s_2 / N_{oc2}$: -1.75dB Reported RSRQ values: ±2.5dB for normal conditions and ±4dB for extreme conditions Test 2: N_{oc1}: -104.7dBm/15kHz N_{oc2}: -104.7dBm/15kHz $\hat{E}s_1 / N_{oc1}$: -4.0dB $\hat{E}s_2 / N_{o2c}$: -4.0dB Reported RSRQ values: ±3.5dB for normal conditions and ±4dB for extreme conditions Test 3: N_{oc1}: -114.5dBm/15kHz N_{oc2}: -114.5dBm/15kHz $\hat{E}s_1 / N_{oc1}$: -4dB $\hat{E}s_2 / N_{o2c}$: -4dB Reported RSRQ values: ±3.5dB for normal conditions and ±4dB for extreme conditions	Test 1: 0dB -0.8dB 0dB 0dB Via mapping Test 2: 0dB 0dB 0dB 0.8dB Via mapping Test 3: 0dB 0dB 0dB 0.8dB Via mapping	Test 1: N_{oc1}: -80dBm/15kHz N_{oc2}: -80.8dBm/15kHz $\hat{E}s_1 / N_{oc1}$: -1.75dB $\hat{E}s_2 / N_{oc2}$: -1.75dB RSRQ_04 to RSRQ_16 (NTC) RSRQ_01 to RSRQ_19 (ETC) Test 2: N_{oc1}: -104.7dBm/15kHz N_{oc2}: -104.7dBm/15kHz $\hat{E}s_1 / N_{oc1}$: -4dB $\hat{E}s_2 / N_{o2c}$: -3.2dB RSRQ_00 to RSRQ_16 (NTC) RSRQ_00 to RSRQ_17 (ETC) Test 3: N_{oc1}: -114.5dBm/15kHz N_{oc2}: -114.5dBm/15kHz $\hat{E}s_1 / N_{oc1}$: -4dB $\hat{E}s_2 / N_{o2c}$: -3.2dB RSRQ_00 to RSRQ_16 (NTC) RSRQ_00 to RSRQ_17 (ETC)
	The derivation of the RSRQ values takes into account the uncertainty in Cell 2 RSRQ from N_{oc2} and $\hat{E}s_2 / N_{oc2}$, the allowed UE reporting accuracy, and the UE mapping function.		
9.2.4A.2 FDD - TDD Inter Frequency Relative Accuracy of RSRQ	Test 1: N_{oc1}: -80dBm/15kHz N_{oc2}: -80dBm/15kHz $\hat{E}s_1 / N_{oc1}$: -1.75dB $\hat{E}s_2 / N_{oc2}$: -1.75dB Reported Relative RSRQ values: ±3dB for normal conditions and ±4dB for extreme conditions Test 2: N_{oc1}: -104.7dBm/15kHz N_{oc2}: -104.7dBm/15kHz $\hat{E}s_1 / N_{oc1}$: -4dB $\hat{E}s_2 / N_{o2c}$: -4dB Reported Relative RSRQ values: ±4dB Test 3: N_{oc1}: -114.5dBm/15kHz N_{oc2}: -114.5dBm/15kHz $\hat{E}s_1 / N_{oc1}$: -4dB $\hat{E}s_2 / N_{o2c}$: -4dB Reported Relative RSRQ values: ±4dB	Test 1: -0.8dB -0.8dB 0dB 0dB Via mapping Test 2: 0dB 0dB 0dB 0.8dB Via mapping Test 3: 0dB 0dB 0dB 0.8dB Via mapping	Test 1: N_{oc1}: -80.8dBm/15kHz N_{oc2}: -80.8dBm/15kHz $\hat{E}s_1 / N_{oc1}$: -1.75dB $\hat{E}s_2 / N_{oc2}$: -1.75dB RSRQ_x - 8 to RSRQ_x + 8 (NTC) RSRQ_x - 10 to RSRQ_x + 10 (ETC) Test 2: N_{oc1}: -104.7dBm/15kHz N_{oc2}: -104.7dBm/15kHz $\hat{E}s_1 / N_{oc1}$: -4dB $\hat{E}s_2 / N_{o2c}$: -3.2dB RSRQ_x - 10 to RSRQ_x + 10 Test 3: N_{oc1}: -114.5dBm/15kHz N_{oc2}: -114.5dBm/15kHz $\hat{E}s_1 / N_{oc1}$: -4dB $\hat{E}s_2 / N_{o2c}$: -3.2dB RSRQ_x - 10 to RSRQ_x + 10
	The derivation of the relative RSRQ values takes into account the uncertainty in Cell 1 RSRQ from N_{oc1} and $\hat{E}s_1 / N_{oc1}$ and Cell 2 RSRQ from N_{oc2} and $\hat{E}s_2 / N_{oc2}$, the allowed UE reporting accuracy, and the UE mapping function.		

9.2.5.1 FDD Absolute RSRQ Accuracy for E-UTRA Carrier Aggregation	N_{oc1}: -119.5dBm or -118.5dBm or -118dBm or -117.5 dBm or -116.5dBm or -116dBm /15kHz depending on operating band N_{oc2}: -116dBm or -115dBm or -114.5dBm or -114 dBm or -113dBm or -112.5dBm /15kHz depending on operating band $\hat{E}s_1 / N_{oc1}$: -4dB $\hat{E}s_2 / N_{o2c}$: -4dB $\hat{E}s_3 / N_{o2c}$: -4dB Reported RSRQ values: ±3.5dB for normal conditions and ±4dB for extreme conditions	0dB 0dB 0dB +0.3dB 0dB Via mapping Via mapping	N_{oc1}: -119.5dBm or -118.5dBm or -118dBm or -117.5 dBm or -116.5dBm or -116dBm /15kHz depending on operating band N_{oc2}: -116dBm or -115dBm or -114.5dBm or -114 dBm or -113dBm or -112.5dBm /15kHz depending on operating band $\hat{E}s_1 / N_{oc1}$: -4dB $\hat{E}s_2 / N_{o2c}$: -3.7dB $\hat{E}s_3 / N_{o2c}$: -4dB Cell 1: RSRQ_00 to RSRQ_15 (NTC) RSRQ_00 to RSRQ_16 (ETC) Cell 2: RSRQ_00 to RSRQ_14 (NTC) RSRQ_00 to RSRQ_15 (ETC)
	The derivation of the RSRQ values takes into account the uncertainty in Cell 1 RSRQ from N_{oc1} and $\hat{E}s_1 / N_{oc1}$, the uncertainty in Cell 2 RSRQ from N_{oc2} and $\hat{E}s_2 / N_{oc2}$, the allowed UE reporting accuracy, and the UE mapping function.		
9.2.5.2 FDD Relative RSRQ Accuracy E-UTRA for Carrier Aggregation	N_{oc1}: -119.5dBm or -118.5dBm or -118dBm or -117.5 dBm or -116.5dBm or -116dBm /15kHz depending on operating band N_{oc2}: -116dBm or -115dBm or -114.5dBm or -114 dBm or -113dBm or -112.5dBm /15kHz depending on operating band $\hat{E}s_1 / N_{oc1}$: -4dB $\hat{E}s_2 / N_{o2c}$: -4dB $\hat{E}s_3 / N_{o2c}$: -4dB Reported RSRQ values: ±4dB	0dB 0dB 0dB +0.3dB 0dB Via mapping	N_{oc1}: -119.5dBm or -118.5dBm or -118dBm or -117.5 dBm or -116.5dBm or -116dBm /15kHz depending on operating band N_{oc2}: -116dBm or -115dBm or -114.5dBm or -114 dBm or -113dBm or -112.5dBm /15kHz depending on operating band $\hat{E}s_1 / N_{oc1}$: -4dB $\hat{E}s_2 / N_{o2c}$: -3.7dB $\hat{E}s_3 / N_{o2c}$: -4dB RSRQ_x - 12 to RSRQ_x + 9 (NTC and ETC)
9.2.6.1 TDD Absolute RSRQ Accuracy for E-UTRA Carrier Aggregation	Same as 9.2.5.1	Same as 9.2.5.1	Same as 9.2.5.1
9.2.6.2 TDD Relative RSRQ Accuracy for E-UTRA Carrier Aggregation	Same as 9.2.5.2	Same as 9.2.5.2	Same as 9.2.5.2
9.2.7.1 FDD RSRQ under Time Domain Measurement Resource Restriction with Non-MBSFN ABS	Test 1: N_{oc}: -84.76dBm/15kHz $\hat{E}s_1 / N_{oc}$: +5.0dB $\hat{E}s_2 / N_{oc}$: -2.0dB Reported RSRQ values: ±2.5dB Test 2: N_{oc}: -103.85dBm/15kHz $\hat{E}s_1 / N_{oc}$: +5.0dB $\hat{E}s_2 / N_{oc}$: -2.0dB Reported RSRQ values: ±2.5dB Test 3: N_{oc}: -116dBm to -112.5dBm /15kHz depending on operating band $\hat{E}s_1 / N_{oc}$: +5.0dB $\hat{E}s_2 / N_{oc}$: -4.0dB Reported RSRQ values: ±3.5dB	Test 1: -1.0dB 0dB +0.8dB Via mapping Test 2: 0dB 0dB +0.8dB Via mapping Test 3: 0dB 0dB +0.8dB Via mapping	Test 1: N_{oc}: -85.76Bm/15kHz $\hat{E}s_1 / N_{oc}$: +5.0dB $\hat{E}s_2 / N_{oc}$: -1.2dB RSRQ_04 to RSRQ_16 Test 2: N_{oc}: -103.85dBm/15kHz $\hat{E}s_1 / N_{oc}$: +5.0dB $\hat{E}s_2 / N_{oc}$: -1.2dB RSRQ_04 to RSRQ_16 Test 3: N_{oc}: -116dBm to -112.5dBm /15kHz depending on operating band $\hat{E}s_1 / N_{oc}$: +5.0dB $\hat{E}s_2 / N_{oc}$: -3.2dB RSRQ_00 to RSRQ_15
	The derivation of the RSRQ values takes into account the uncertainty in Cell 2 RSRQ from N_{oc} and $\hat{E}s_2 / N_{oc}$, the allowed UE reporting accuracy, and the UE mapping function. The RSRQ values given above are for normal conditions. For tests 1 and 2 the RSRQ values are 1.5dB wider at each end for extreme conditions, and for test 3 the RSRQ values are 0.5dB wider at each end for extreme conditions.		

9.2.8.1 TDD RSRQ under Time Domain Measurement Resource Restriction with Non-MBSFN ABS	Subset of 9.2.7.1	Same as 9.2.7.1	Subset of 9.2.7.1
9.3.1 E-UTRAN FDD - UTRA FDD CPICH RSCP absolute accuracy	Test 1: E-UTRA Cell 1 Noc: -98.00dBm/15kHz Ês / Noc: +4.00dB UTRA Cell 2 Ioc: -60.00dBm/3.84MHz Ior / Ioc: +9.54dB CPICH_Ec/Ior: -10.00dB Reported CPICH_RSCP values: ±8dB Test 2: E-UTRA Cell 1 Noc: -98.00dBm/15kHz Ês / Noc: +4.00dB UTRA Cell 2 Ioc: -94.46dBm or -92.46dBm or -91.46dBm or -93.46dBm /3.84MHz depending on operating band Ior / Ioc: -9.54dB CPICH_Ec/Ior: -10.00dB Reported CPICH_RSCP values: ±6dB	Test 1: 0dB 0dB -0.75dB 0dB 0dB Via mapping Test 2: 0dB 0dB 0.7dB 0.35dB 0dB Via mapping	Test 1: E-UTRA Cell 1 Noc: -98.00dBm/15kHz Ês / Noc: +4.00dB UTRA Cell 2 Ioc: -60.75dBm/3.84MHz Ior / Ioc: +9.54dB CPICH_Ec/Ior: -10.00dB CPICH_RSCP_46 to CPICH_RSCP_63 Test 2: E-UTRA Cell 1 Noc: -98.00dBm/15kHz Ês / Noc: +4.00dB UTRA Cell 2 Ioc: -93.76dBm or -91.76dBm or -90.76dBm or -92.76dBm /3.84MHz depending on operating band Ior / Ioc: -9.19dB CPICH_Ec/Ior: -10.00dB CPICH_RSCP_-04 to CPICH_RSCP_9 CPICH_RSCP_-02 to CPICH_RSCP_11 CPICH_RSCP_-01 to CPICH_RSCP_12 CPICH_RSCP_-03 to CPICH_RSCP_10 depending on operating band
	The derivation of the CPICH_RSCP values takes into account the uncertainty in Cell 2 CPICH_RSCP from Ioc, Ior / Ioc and CPICH_Ec/Ior, the allowed UE reporting accuracy, and the UE mapping function. The CPICH_RSCP values given above are for normal conditions. In all cases the CPICH_RSCP values are 3dB wider at each end for extreme conditions.		
9.3.2 E-UTRAN TDD - UTRA FDD CPICH RSCP absolute accuracy	Same as 9.3.1		

9.4.1 E-UTRAN FDD – UTRA FDD CPICH Ec/No absolute accuracy	Test 1: E-UTRA Cell 1 Noc: -98.00dBm/15kHz Ês / Noc: +4.00dB UTRA Cell 2 Ioc: -52.22dBm/3.84MHz Ior / Ioc: -1.75dB CPICH_Ec/Ior: -10.00dB Reported CPICH_Ec/Io accuracy values: ±1.5dB for normal conditions and ±3dB for extreme conditions Test 2: E-UTRA Cell 1 Noc: -98.00dBm/15kHz Ês / Noc: +4.00dB UTRA Cell 2 Ioc: -87.27dBm/3.84MHz Ior / Ioc: -4.7dB CPICH_Ec/Ior: -10.00dB Reported CPICH_Ec/Io accuracy values: ±2dB for normal conditions and ±3dB for extreme conditions Test 3: E-UTRA Cell 1 Noc: -98.00dBm/15kHz Ês / Noc: +4.00dB UTRA Cell 2 Ioc: -94.46dBm or -92.46dBm or -91.46dBm or -93.46dBm/3.84MHz Ior / Ioc: -9.54dB CPICH_Ec/Ior: -10.00dB Reported CPICH_Ec/Io accuracy values: ±3dB for normal conditions and extreme conditions	Test 1: 0dB -0dB -0.9dB 0.3dB 0dB Via mapping Test 2: 0dB 0dB 0dB 0.3dB 0dB Via mapping Test 3: 0dB 0dB 0.7dB 0.4dB 0dB Via mapping	Test 1: E-UTRA Cell 1 Noc: -98.00dBm/15kHz Ês / Noc: +4.00dB UTRA Cell 2 Ioc: -53.12dBm/3.84MHz Ior / Ioc: -1.45dB CPICH_Ec/Ior: -10.00dB CPICH_Ec/Io_17 to CPICH_Ec/Io_24 for normal conditions. CPICH_Ec/Io_14 to CPICH_Ec/Io_27 for extreme conditions Test 2: E-UTRA Cell 1 Noc: -98.00dBm/15kHz Ês / Noc: +4.00dB UTRA Cell 2 Ioc: -87.27dBm/3.84MHz Ior / Ioc: -4.4dB CPICH_Ec/Ior: -10.00dB CPICH_Ec/Io_13 to CPICH_Ec/Io_22 for normal conditions. CPICH_Ec/Io_11 to CPICH_Ec/Io_24 for extreme conditions Test 3: E-UTRA Cell 1 Noc: -98.00dBm/15kHz Ês / Noc: +4.00dB UTRA Cell 2 Ioc: -93.76dBm or -91.76dBm or -90.76dBm or -92.76dBm /3.84MHz depending on operating band Ior / Ioc: -9.14dB CPICH_Ec/Ior: -10.00dB CPICH_Ec/Io_3 to CPICH_Ec/Io_16 for normal and extreme conditions.
9.4.2 E-UTRAN TDD – UTRA FDD CPICH Ec/No absolute accuracy	Same as 9.4.1	Same as 9.4.1	Same as 9.4.1

9.5.1 E-UTRAN FDD – UTRA TDD P-CCPCH RSCP absolute accuracy	Test 1: E-UTRA Cell 1 Noc: -98.00dBm/15kHz Ês / Noc: +4.00dB UTRA Cell 2 Ioc: -54.1dBm/1.28MHz Ior / Ioc: 2.0dB PCCPCH_E_C/I_{or}: -3dB DwPCH_E_C/I_{or}: 0dB Reported PCCPCH RSCP accuracy values: ±8dB for normal conditions and ±11dB for extreme conditions Test 2: E-UTRA Cell 1 Noc: -98.00dBm/15kHz Ês / Noc: +4.00dB UTRA Cell 2 Ioc: -75.2dBm/1.28MHz Ior / Ioc: 5.0dB PCCPCH_E_C/I_{or}: -3dB DwPCH_E_C/I_{or}: 0dB Reported PCCPCH RSCP accuracy values: ±8dB for normal conditions and ±11dB for extreme conditions Test 3: E-UTRA Cell 1 Noc: -98.00dBm/15kHz Ês / Noc: +4.00dB UTRA Cell 2 Ioc: -97.0dBm/1.28MHz Ior / Ioc: 0dB PCCPCH_E_C/I_{or}: -3dB DwPCH_E_C/I_{or}: 0dB Reported PCCPCH RSCP accuracy values: ±6dB for normal conditions and ±9dB for extreme conditions	Test 1: 0dB 0dB -0.8dB 0dB 0dB 0dB Via mapping Test 2: 0dB 0dB 0dB 0dB 0dB 0dB Via mapping Test 3: 0dB 0dB 0.8dB 0dB 0dB 0dB Via mapping	Test 1: E-UTRA Cell 1 Noc: -98.00dBm/15kHz Ês / Noc: +4.00dB UTRA Cell 2 Ioc: -54.9dBm/1.28MHz Ior / Ioc: 2.0dB PCCPCH_E_C/I_{or}: -3dB DwPCH_E_C/I_{or}: 0dB PCCPCH RSCP 51 to PCCPCH RSCP 68 for normal conditions. PCCPCH RSCP 48 to PCCPCH RSCP 71 for extreme conditions Test 2: E-UTRA Cell 1 Noc: -98.00dBm/15kHz Ês / Noc: +4.00dB UTRA Cell 2 Ioc: -75.2dBm/1.28MHz Ior / Ioc: 5.0dB PCCPCH_E_C/I_{or}: -3dB DwPCH_E_C/I_{or}: 0dB PCCPCH RSCP 34 to PCCPCH RSCP 51 for normal conditions. PCCPCH RSCP 31 to PCCPCH RSCP 54 for extreme conditions Test 3: E-UTRA Cell 1 Noc: -98.00dBm/15kHz Ês / Noc: +4.00dB UTRA Cell 2 Ioc: -96.2dBm/1.28MHz Ior / Ioc: 0dB PCCPCH_E_C/I_{or}: -3dB DwPCH_E_C/I_{or}: 0dB PCCPCH RSCP 10 to PCCPCH RSCP 23 for normal conditions. PCCPCH RSCP 07 to PCCPCH RSCP 26 for extreme conditions
9.5.2 E-UTRAN TDD – UTRA TDD P-CCPCH RSCP absolute accuracy	Same as 9.5.1	Same as 9.5.1	Same as 9.5.1

9.6.1, GSM RSSI accuracy for E-UTRAN FDD	Subtest 1: E-UTRA Cell 1 N_{oc}: -98dBm/15kHz Ês / N_{oc}: +4dB GSM Cell 2 Signal level: -38.5dBm GSM Cell 3 Signal level: -38.5dBm Subtest 2: E-UTRA Cell 1 N_{oc}: -98dBm/15kHz Ês / N_{oc}: +4dB GSM Cell 2 Signal level: -48.5dBm GSM Cell 3 Signal level: -48.5dBm Subtest 3: E-UTRA Cell 1 N_{oc}: -98dBm/15kHz Ês / N_{oc}: +4dB GSM Cell 2 Signal level: -70.5dBm GSM Cell 3 Signal level: -70.5dBm Subtest 4: E-UTRA Cell 1 N_{oc}: -98dBm/15kHz Ês / N_{oc}: +4dB GSM Cell 2 Signal level: -109.5dBm GSM Cell 3 Signal level: -109.5dBm Subtest 5: E-UTRA Cell 1 N_{oc}: -98dBm/15kHz Ês / N_{oc}: +4dB GSM Cell 2 Signal level: -57.5dBm GSM Cell 3 Signal level: -54.5dBm Subtest 6: E-UTRA Cell 1 N_{oc}: -98dBm/15kHz Ês / N_{oc}: +4dB GSM Cell 2 Signal level: -64.5dBm GSM Cell 3 Signal level: -59.5dBm Subtest 7: E-UTRA Cell 1 N_{oc}: -98dBm/15kHz Ês / N_{oc}: +4dB GSM Cell 2 Signal level: -71.5dBm GSM Cell 3 Signal level: -64.5dBm Subtest 8: E-UTRA Cell 1 N_{oc}: -98dBm/15kHz Ês / N_{oc}: +4dB GSM Cell 2 Signal level: -78.5dBm GSM Cell 3 Signal level: -69.5dBm	Subtest 1: E-UTRA Cell 1 0 dB 0 dB GSM Cell 2 -0.2 dB GSM Cell 3 0 dB Subtest 2: E-UTRA Cell 1 0 dB 0 dB GSM Cell 2 -0.2 dB GSM Cell 3 -1.5 dB Subtest 3: E-UTRA Cell 1 0 dB 0 dB GSM Cell 2 -0.2 dB GSM Cell 3 0 dB Subtest 4: E-UTRA Cell 1 0 dB 0 dB GSM Cell 2 +0.2 dB GSM Cell 3 0 dB Subtest 5: E-UTRA Cell 1 0 dB 0 dB GSM Cell 2 0 dB GSM Cell 3 0 dB Subtest 6: E-UTRA Cell 1 0 dB 0 dB GSM Cell 2 0dB GSM Cell 3 0 dB Subtest 7: E-UTRA Cell 1 0 dB 0 dB GSM Cell 2 0dB GSM Cell 3 0 dB Subtest 8: E-UTRA Cell 1 0 dB 0 dB GSM Cell 2 0dB GSM Cell 3 0 dB	Subtest 1: E-UTRA Cell 1 N_{oc}: -98dBm/15kHz Ês / N_{oc}: +4dB GSM Cell 2 Signal level: -38.7dBm GSM Cell 3 Signal level: -38.5dBm Subtest 2: E-UTRA Cell 1 N_{oc}: -98dBm/15kHz Ês / N_{oc}: +4dB GSM Cell 2 Signal level: -48.7dBm GSM Cell 3 Signal level: -50.0dBm Subtest 3: E-UTRA Cell 1 N_{oc}: -98dBm/15kHz Ês / N_{oc}: +4dB GSM Cell 2 Signal level: -70.7dBm GSM Cell 3 Signal level: -70.5dBm Subtest 4: E-UTRA Cell 1 N_{oc}: -98dBm/15kHz Ês / N_{oc}: +4dB GSM Cell 2 Signal level: -109.3dBm GSM Cell 3 Signal level: -109.5dBm Subtest 5: E-UTRA Cell 1 N_{oc}: -98dBm/15kHz Ês / N_{oc}: +4dB GSM Cell 2 Signal level: -57.5dBm GSM Cell 3 Signal level: -54.5dBm Subtest 6: E-UTRA Cell 1 N_{oc}: -98dBm/15kHz Ês / N_{oc}: +4dB GSM Cell 2 Signal level: -64.5dBm GSM Cell 3 Signal level: -59.5dBm Subtest 7: E-UTRA Cell 1 N_{oc}: -98dBm/15kHz Ês / N_{oc}: +4dB GSM Cell 2 Signal level: -71.5dBm GSM Cell 3 Signal level: -64.5dBm Subtest 8: E-UTRA Cell 1 N_{oc}: -98dBm/15kHz Ês / N_{oc}: +4dB GSM Cell 2 Signal level: -78.5dBm GSM Cell 3 Signal level: -69.5dBm Subtest 9:

9.6.2, GSM RSSI accuracy for E-UTRAN TDD	Same as 9.6.1	Same as 9.6.1	Same as 9.6.1

Annex G (normative): Statistical Testing

G.1 General

FSS

G.2 Statistical testing of delay and UE measurement performance in RRM tests

G.2.1 General

The RRM tests are either of deterministic or of statistical nature. The pass fail limits in tests of statistical nature are expressed as a limit (e.g. delay limit) and a success ratio applicable for the limit. The success ratio is 90% uniform (the complement is the error ratio ER = 10%).

G.2.2 Design of the test

The test is defined by the following design principles (see TS 36.521-1 clause G.X, Theory):

1) The early decision concept is applied.

2) A second limit is introduced: bad DUT factor M>1

To decide the test pass:

Supplier risk is applied based on the bad DUT quality

To decide the test fails

Customer risk is applied based on the specified DUT quality

The test is defined by the following parameters:

1) Limit ER = 0.1 (success ratio = 90%)

2) Bad DUT factor M=1.5 (selectivity)

3) Confidence level CL = 95% (for specified DUT and bad DUT-quality)

G.2.3 Numerical definition of the pass fail limits

Table G.2.3-1: pass fail limits

ne	ns_p	ns_f	ne	ns_p	ns_f	ne	ns_p	ns_f	ne	ns_p	ns_f
0	33	NA	43	408	283	86	737	644	129	1056	1021
1	46	NA	44	416	291	87	745	653	130	1064	1030
2	58	2	45	424	299	88	752	661	131	1071	1039
3	69	5	46	432	307	89	760	670	132	1078	1048
4	79	8	47	440	315	90	767	679	133	1086	1057
5	89	12	48	447	324	91	775	687	134	1093	1066
6	99	17	49	455	332	92	782	696	135	1100	1074
7	109	22	50	463	340	93	790	705	136	1108	1083
8	118	27	51	471	348	94	797	713	137	1115	1092
9	127	33	52	478	356	95	804	722	138	1122	1101
10	136	39	53	486	365	96	812	731	139	1130	1110
11	145	45	54	494	373	97	819	739	140	1137	1119
12	154	51	55	502	381	98	827	748	141	1144	1128
13	163	58	56	509	389	99	834	757	142	1152	1137
14	172	64	57	517	398	100	842	766	143	1159	1147
15	180	71	58	525	406	101	849	774	144	1166	1155
16	189	78	59	532	414	102	857	783	145	1174	1164
17	197	85	60	540	423	103	864	792	146	1181	1173
18	206	92	61	548	431	104	871	801	147	NA	1182
19	214	99	62	555	440	105	879	809	148		
20	223	106	63	563	448	106	886	818	149		
21	231	113	64	571	456	107	894	827	150		
22	239	120	65	578	465	108	901	836	151		
23	248	128	66	586	473	109	909	844	152		
24	256	135	67	594	482	110	916	853	153		
25	264	142	68	601	490	111	923	862	154		
26	272	150	69	609	499	112	931	871	155		
27	281	157	70	616	507	113	938	880	156		
28	289	165	71	624	516	114	946	888	157		
29	297	173	72	632	524	115	953	897	158		
30	305	180	73	639	533	116	960	906	159		
31	313	188	74	647	541	117	968	915	160		
32	321	196	75	654	550	118	975	924	161		
33	329	204	76	662	558	119	983	933	162		
34	337	211	77	669	567	120	990	941	163		
35	345	219	78	677	575	121	997	950	164		
36	353	227	79	684	584	122	1005	959	165		
37	361	235	80	692	592	123	1012	968	166		
38	369	243	81	700	601	124	1019	977	167		
39	377	251	82	707	610	125	1027	986	168		
40	385	259	83	715	618	126	1034	994	169		
41	393	267	84	722	627	127	1042	1003			
42	400	275	85	730	635	128	1049	1012			

The first column is the number of errors (ne = number of exceeded delays or number of wrong reports)

The second column is the number of samples for the pass limit (ns_p , ns=Number of samples= number of successes + number of exceedings or number of reports)

The third column is the number of samples for the fail limit (ns_f)

G.2.4 Pass fail decision rules

The pass fail decision rules apply for a single test, comprising one component in the test vector. The over all Pass /Fail conditions are defined in clause G.2.6

Having observed 0 errors, pass the test at 33+ samples, otherwise continue

Having observed 1 error, pass the test at 46+ samples, otherwise continue

Having observed 2 errors, pass the test at 58+ samples, fail the test at 2 samples, otherwise continue

Having observed 146 errors, pass the test at 1181+ samples, fail the test at 1173- samples, otherwise continue

Having observed 147 errors, fail the test at 1182- samples,

Where x+ means: x or more, x- means x or less

NOTE 1: an ideal DUT passes after 33 samples. The maximum test time is 1181 samples.

G.2.5 Void

G.2.6 Test conditions for delay tests and UE measurement performance

Table G.2.6-1: test conditions

Test	Statistical independence	Number of components in the test vector, as specified in the test requirements and initial conditions of the applicable test	-	Over all Pass/Fail condition
All tests in clauses 4, 5, 6.1, 7.2, 7.3 and 8 are delay tests of statistical nature while 6.2 and 7.1 are not applicable, since deterministic.	Test procedure in all statistical tests ensures independency	1 per operating band (if tested, see 3A.3.3)		Full set of environmental conditions (5) per operating band
All tests in clause 9 are UE level reports of statistical nature	Independency is assumed, although Layer 1 filtering is applied to the reported results	Full set of environmental conditions (5) per operating band		Full set of environmental conditions (5) per operating band

G.X Theory to derive the numbers in Table G.2.3-1 (informative)

TS 36.521-1 Annex G.X applies

Annex H (normative): Default Message Contents

This annex contains the default values of common messages specific to RRM, other than those described in TS 36.508 [7]. The message contents shall apply to test cases accordingly and unless indicated otherwise in specific test cases, shall be transmitted and checked by the system simulator. The default message contents can be defined for FDD Mode, or TDD Mode or both FDD/TDD Modes. All the messages are listed in alphabetical order based on conformance tests.

NOTE: For example, test case 8.1.1 has an exception for RRCConnectionReconfiguration message and therefore uses message contents according to TS 36.508 [7] with the exception of the RRCConnectionReconfiguration message specified in Annex H.

H.1 Common contents of system information messages exceptions

This clause contains the default values of common system information messages, other than those described in TS 36.508 [7].

H.2 Common contents of system information blocks exceptions

This clause contains the default values of common system information blocks, other than those described in TS 36.508 [7].

H.2.1 System information blocks message contents exceptions for E-UTRAN intra frequency cell re-selection

SystemInformationBlockType3: (FDD/TDD) for E-UTRAN intra-frequency cell re-selection

Table H.2.1-1: *SystemInformationBlockType3*: E-UTRAN intra frequency cell re-selection

Derivation Path: TS 36.508 [7] clause 4.4.3.3, Table 4.4.3.3-2 SystemInformationBlockType3			
Information Element	**Value/remark**	**Comment**	**Condition**
cellReselectionInfoCommon SEQUENCE {			
q-Hyst	dB0 (0 dB)	0 is actual value in dB (0 * 2 dB)	
}			

SystemInformationBlockType4: (FDD/TDD) for E-UTRAN intra-frequency cell re-selection

For Cell 2

Table H.2.1-2: *SystemInformationBlockType4*: E-UTRAN intra frequency cell re-selection

Derivation Path: TS 36.508 [7] clause 4.4.3.3, Table 4.4.3.3-3 SystemInformationBlockType4			
Information Element	**Value/remark**	**Comment**	**Condition**
intraFreqNeighCellList SEQUENCE (SIZE (1..maxCellIntra)) OF SEQUENCE {			
IntraFreqNeighCellInfo ::= SEQUENCE {			
physCellId	0 (Cell 1 Id)	INTEGER (0..503)	
q-OffsetCell	dB0 (0 dB)	0 is actual value in dB (0 * 2 dB)	
}			
}			

H.2.2 System information blocks message contents exceptions for E-UTRAN inter frequency cell re-selection

SystemInformationBlockType3: (FDD/TDD) for E-UTRAN inter-frequency cell re-selection

Table H.2.2-1: *SystemInformationBlockType3*: E-UTRAN inter frequency cell re-selection

Derivation Path: TS 36.508 [7] clause 4.4.3.3, Table 4.4.3.3-2 SystemInformationBlockType3			
Information Element	**Value/remark**	**Comment**	**Condition**
cellReselectionServingFreqInfo SEQUENCE {			
s-NonIntraSearch	25 (50 dB)	50 is actual value in dB (25 * 2 dB); for Cell 1	Cell 1
	Not Present		Cell 2
threshServingLow	22 (44 dB)	44 is actual value in dB (22 * 2 dB)	
cellReselectionPriority	4		Cell 1
	5		Cell 2
}			

SystemInformationBlockType5: (FDD/TDD) for E-UTRAN inter-frequency cell re-selection case

For Cell 1

Table H.2.2-2: *SystemInformationBlockType5*: E-UTRAN inter frequency cell re-selection

Derivation Path: TS 36.508 [7] clause 4.4.3.3, Table 4.4.3.3-4 SystemInformationBlockType5			
Information Element	**Value/remark**	**Comment**	**Condition**
interFreqCarrierFreqList SEQUENCE (SIZE (1..maxFreq)) OF SEQUENCE {			
q-Rxlevmin	-70 (-140 dBm)	-140 is actual value in dBm (-70 * 2 dBm)	
threshX-High	24 (48 dB)	48 is actual value in dB (24 * 2 dB)	
threshX-Low	25 (50 dB)	50 is actual value in dB (25 * 2 dB)	
cellReselectionPriority[*n*]	5 for cell 1		
}			

For Cell 2

Derivation Path: TS 36.508 [7] clause 4.4.3.3, Table 4.4.3.3-4 SystemInformationBlockType5			
Information Element	**Value/remark**	**Comment**	**Condition**
interFreqCarrierFreqList SEQUENCE (SIZE (1..maxFreq)) OF SEQUENCE {			
q-Rxlevmin	-70 (-140 dBm)	-140 is actual value in dBm (-70 * 2 dBm)	
threshX-High	24 (48 dB)	48 is actual value in dB (24 * 2 dB)	
threshX-Low	25 (50 dB)	50 is actual value in dB (25 * 2 dB)	
cellReselectionPriority[*n*]	4 for cell 2		
}			
interFreqNeighCellList[*n*] SEQUENCE (SIZE (1..maxCellInter)) OF SEQUENCE {			
physCellId	0 (Cell 1 Id)	INTEGER (0..503)	
q-OffsetCell	dB0 (0 dB)	0 is actual value in dB (0 * 2 dB)	
}			

H.2.3 System information blocks message contents exceptions for E-UTRAN inter-RAT cell re-selection

SystemInformationBlockType3: for inter-RAT EUTRAN FDD - UTRA FDD is of higher priority cell re-selection

Table H.2.3-1: *SystemInformationBlockType3*: Inter-RAT E-UTRAN FDD - UTRA FDD is of higher priority cell re-selection

Derivation Path: TS 36.508 [7] clause 4.4.3.3, Table 4.4.3.3-2 SystemInformationBlockType3			
Information Element	Value/remark	Comment	Condition
cellReselectionServingFreqInfo SEQUENCE {			
s-NonIntraSearch	25 (50 dB)	50 is actual value in dB (25 * 2 dB); for Cell 1 (E-UTRA)	
}			

SystemInformationBlockType6: for inter-RAT EUTRAN FDD - UTRA FDD is of higher priority cell re-selection

Table H.2.3-2: *SystemInformationBlockType6*: Inter-RAT E-UTRAN FDD - UTRA FDD is of higher priority cell re-selection

Derivation Path: TS 36.508 [7] clause 4.4.3.3, Table 4.4.3.3-5 SystemInformationBlockType6			
Information Element	**Value/remark**	**Comment**	**Condition**
CarrierFreqListUTRA-FDD ::= SEQUENCE (SIZE (1..maxUTRA-FDD-Carrier)) OF SEQUENCE {			UTRA-FDD
threshX-High	20 (40 dB)	40 is actual value in dB (20 * 2 dB)	
q-RxLevMin	-58 (-115 dBm)	-115 is actual value in dBm (-58 * 2 + 1 dBm)	
p-MaxUTRA	21 (21 dBm)	Default value in TS 36.508	
q-QualMin	-20 (-20 dB)		
cellReselectionPriority[*n*]	5	UTRA is of higher priority than E-UTRAN	
}			

SystemInformationBlockType3: for inter-RAT EUTRAN TDD - UTRA TDD is of higher priority cell re-selection

Table H.2.3-3: *SystemInformationBlockType3*: Inter-RAT E-UTRAN TDD - UTRA TDD is of higher priority cell re-selection

Derivation Path: TS 36.508 [7] clause 4.4.3.3, Table 4.4.3.3-2 SystemInformationBlockType3			
Information Element	Value/remark	Comment	Condition
cellReselectionServingFreqInfo SEQUENCE {			
s-NonIntraSearch	23 (46 dB)	46 is actual value in dB (23 * 2 dB); for Cell 1 (E-UTRA)	
}			

SystemInformationBlockType6: for inter-RAT EUTRAN TDD - UTRA TDD is of higher priority cell re-selection

Table H.2.3-4: *SystemInformationBlockType6*: Inter-RAT E-UTRAN TDD - UTRA TDD is of higher priority cell re-selection

Derivation Path: TS 36.508 [7] clause 4.4.3.3, Table 4.4.3.3-5 SystemInformationBlockType6			
Information Element	**Value/remark**	**Comment**	**Condition**
CarrierFreqListUTRA-TDD ::= SEQUENCE (SIZE (1..maxUTRA-TDD-Carrier)) OF SEQUENCE {			UTRA-TDD
threshX-High	12 (24 dB)	24 is actual value in dB (12 * 2 dB)	
q-RxLevMin	-52 (-103 dBm)	-103 is actual value in dBm (-52 * 2 + 1 dBm)	
p-MaxUTRA	21 (21 dBm)		
cellReselectionPriority[*n*]	5	UTRA is of higher priority than E-UTRAN	
}			

SystemInformationBlockType3: for inter-RAT EUTRAN FDD/TDD - UTRA FDD is of lower priority cell re-selection

Table H.2.3-5: *SystemInformationBlockType3*: Inter-RAT E-UTRAN FDD/TDD - UTRA FDD is of lower priority cell re-selection

Derivation Path: TS 36.508 [7] clause 4.4.3.3, Table 4.4.3.3-2 SystemInformationBlockType3			
Information Element	**Value/remark**	**Comment**	**Condition**
cellReselectionServingFreqInfo SEQUENCE {			
threshServingLow	22 (44 dB)	44 is actual value in dB (22 * 2 dB)	

SystemInformationBlockType6: for inter-RAT EUTRAN FDD/TDD - UTRA FDD is of lower priority cell re-selection

Table H.2.3-6: *SystemInformationBlockType6*: Inter-RAT E-UTRAN FDD/TDD - UTRA FDD is of lower priority cell re-selection

Derivation Path: TS 36.508 [7] clause 4.4.3.3, Table 4.4.3.3-5 SystemInformationBlockType6			
Information Element	**Value/remark**	**Comment**	**Condition**
CarrierFreqListUTRA-FDD ::= SEQUENCE (SIZE (1..maxUTRA-FDD-Carrier)) OF SEQUENCE {			UTRA-FDD
threshX-Low	21 (42 dB)	42 is actual value in dB (21 * 2 dB)	
q-RxLevMin	-58 (-115 dBm)	-115 is actual value in dBm (-58 * 2 + 1 dBm)	
p-MaxUTRA	21 (21 dBm)		
q-QualMin	-20 (-20 dB)		
}			

SystemInformationBlockType3: for inter-RAT EUTRAN FDD/TDD - UTRA TDD is of lower priority cell re-selection

Table H.2.3-7: *SystemInformationBlockType3*: Inter-RAT E-UTRAN FDD/TDD - UTRA TDD is of lower priority cell re-selection

Derivation Path: TS 36.508 [7] clause 4.4.3.3, Table 4.4.3.3-2 SystemInformationBlockType3			
Information Element	**Value/remark**	**Comment**	**Condition**
cellReselectionServingFreqInfo SEQUENCE {			
threshServingLow	23 (46 dB)	46 is actual value in dB (23 * 2 dB)	

SystemInformationBlockType6: for inter-RAT EUTRAN FDD/TDD - UTRA TDD is of lower priority cell re-selection

Table H.2.3-8: *SystemInformationBlockType6*: Inter-RAT E-UTRAN FDD/TDD - UTRA TDD is of lower priority cell re-selection

Derivation Path: TS 36.508 [7] clause 4.4.3.3, Table 4.4.3.3-5 SystemInformationBlockType6			
Information Element	**Value/remark**	**Comment**	**Condition**
CarrierFreqListUTRA-TDD ::= SEQUENCE (SIZE (1..maxUTRA-TDD-Carrier)) OF SEQUENCE {			UTRA-TDD
threshX-Low	12 (24 dB)	24 is actual value in dB (12 * 2 dB)	
q-RxLevMin	-52 (-103 dBm)	-103 is actual value in dBm (-52 * 2 + 1 dBm)	
p-MaxUTRA	21 (21 dBm)		
}			

SystemInformationBlockType3: (FDD/TDD) for inter-RAT E-UTRAN - GSM cell re-selection

Table H.2.3-9: *SystemInformationBlockType3*: Inter-RAT E-UTRAN - GSM cell re-selection

Derivation Path: TS 36.508 [7] clause 4.4.3.3, Table 4.4.3.3-2 SystemInformationBlockType3			
Information Element	Value/remark	Comment	Condition
cellReselectionServingFreqInfo SEQUENCE {			
s-NonIntraSearch	Not sent		
threshServingLow	22 (44 dB)	44 is actual value in dB (22 * 2 dB)	
cellReselectionPriority	4		

SystemInformationBlockType7: (FDD/TDD) for inter-RAT E-UTRAN - GSM cell re-selection

Table H.2.3-10: *SystemInformationBlockType7*: Inter-RAT E-UTRAN - GSM cell re-selection

Derivation Path: TS 36.508 [7] clause 4.4.3.3, Table 4.4.3.3-6 SystemInformationBlockType7			
Information Element	Value/remark	Comment	Condition
commonInfo SEQUENCE {			
cellReselectionPriority	0		
ncc-Permitted	'11111111'B		
q-RxLevMin	5 (-105 dBm)	-105 is actual value in dBm (5 * 2 - 115 dBm)	
p-MaxGERAN	23 (23 dBm)		GSM 400 & GSM 900 & GSM 850 & GSM 700
	24 (24 dBm)		DCS 1800 & PCS 1900
threshX-High	12 (24 dB)	24 is actual value in dB (12 * 2 dB)	
threshX-Low	12 (24 dB)	24 is actual value in dB (12 * 2 dB)	

SystemInformationBlockType3: Inter-RAT E-UTRAN FDD/TDD - HRPD is of lower priority cell re-selection

Table H.2.3-11: *SystemInformationBlockType3*: Inter-RAT E-UTRAN FDD/TDD - HRPD is of lower priority cell re-selection

Derivation Path: TS 36.508 [7] clause 4.4.3.3, Table 4.4.3.3-2 SystemInformationBlockType3			
Information Element	**Value/remark**	**Comment**	**Condition**
cellReselectionServingFreqInfo SEQUENCE {			
s-NonIntraSearch	Not sent		
threshServingLow	22 (44 dB)	44 is actual value in dB (22 * 2 dB)	
cellReselectionPriority	1		
}			
intraFreqCellReselectionInfo SEQUENCE {			
q-RxLevMin	-70 (-140 dBm)	For RF/RRM test cases	
s-IntraSearch	Not present		
t-ReselectionEUTRA	0		

SystemInformationBlockType8: Inter-RAT E-UTRAN FDD/TDD - HRPD is of lower priority cell re-selection

Table H.2.3-12: *SystemInformationBlockType8*: Inter-RAT E-UTRAN FDD/TDD - HRPD is of lower priority cell re-selection

Derivation Path: TS 36.508 [7] clause 4.4.3.3, Table 4.4.3.3-7 SystemInformationBlockType8			
Information Element	**Value/remark**	**Comment**	**Condition**
cellReselectionParametersHRPD SEQUENCE {			
bandClassList SEQUENCE (SIZE (1..maxCDMA-BandClass)) OF SEQUENCE {	1 entry		
cellReselectionPriority	0		
threshX-High	60(-30)	INTEGER (0..63)	
threshX-Low	28(-14)	INTEGER (0..63)	
}			
}			
t-ReselectionCDMA2000	0	INTEGER (0..7)	
}			

System Information Block Type 3: for E-UTRAN to UTRAN inter-RAT cell re-selection

Table H.2.3-13: System Information Block type3: Inter-RAT E-UTRAN FDD/TDD - UTRAN FDD cell re-selection

Derivation Path: 34.108 clause 6.1.0b			
Information Element	**Value/remark**	**Comment**	**Condition**
- Cell selection and reselection info			
- Qqualmin	-20		
- Qrxlevlmin	-58 (-115dBm)		
- Maximum allowed UL TX power	21		

Table H.2.3-14: System Information Block type 3 (1.28 Mcps TDD): inter-RAT E-UTRAN FDD/TDD – UTRAN TDD cell re-selection

Derivation Path: 34.108 clause 6.1.0b			
Information Element	**Value/remark**	**Comment**	**Condition**
- SIB4 Indicator	TRUE		
- Cell identity	0000 0000 0000 0000 0000 0000 0001B		
- Cell selection and re-selection info			
- Mapping info	Not present		
- Cell selection and reselection quality measure	(no data)		
- CHOICE mode	TDD		
- Sintrasearch	10 dB		
- Sintersearch	10 dB		
- SsearchHCS	Not present		
- RAT List	Not present		
- Qrxlevmin	-103 dBm		
- $Qhyst1_s$	0 dB		
- Treselections	0 seconds		
- HCS Serving cell information	Not present		

SystemInformationBlockType3: Inter-RAT E-UTRAN FDD/TDD – cdma2000 1xRTT is of lower priority cell re-selection

Table H.2.3-15: *SystemInformationBlockType3*: Inter-RAT E-UTRAN FDD/TDD – cdma2000 1xRTT is of lower priority cell re-selection

Derivation Path: TS 36.508 [7] clause 4.4.3.3, Table 4.4.3.3-2 SystemInformationBlockType3			
Information Element	**Value/remark**	**Comment**	**Condition**
cellReselectionServingFreqInfo SEQUENCE {			
s-NonIntraSearch	Not sent		
threshServingLow	22 (44 dB)	44 is actual value in dB (22 * 2 dB)	
cellReselectionPriority	1		
}			
intraFreqCellReselectionInfo SEQUENCE {			
q-RxLevMin	-70 (-140 dBm)	For RF/RRM test cases	
s-IntraSearch	Not present		
t-ReselectionEUTRA	0		
}			

SystemInformationBlockType8: Inter-RAT E-UTRAN FDD/TDD – cdma2000 1xRTT is of lower priority cell re-selection

Table H.2.3-16: *SystemInformationBlockType8*: Inter-RAT E-UTRAN FDD/TDD – cdma2000 1xRTT is of lower priority cell re-selection

Derivation Path: TS 36.508 [7] clause 4.4.3.3, Table 4.4.3.3-7 SystemInformationBlockType8			
Information Element	**Value/remark**	**Comment**	**Condition**
cellReselectionParameters1XRTT SEQUENCE {			1XRTT
longCodeState1XRTT	Not Present		
cellReselectionParameters1XRTT SEQUENCE {			
bandClassList SEQUENCE (SIZE (1..maxCDMA-BandClass)) OF SEQUENCE {	1 entry		
cellReselectionPriority	0		
threshX-High	60(-30)	INTEGER (0..63)	
threshX-Low	56(-28)	INTEGER (0..63)	
}			
t-ReselectionCDMA2000	0	INTEGER (0..7)	
t-ReselectionCDMA2000-SF	Not Present		
}			
}			
}			

H.2.4 System information blocks message contents exceptions for E-UTRAN radio link monitoring (RLM)

SystemInformationBlockType2: (FDD/TDD) for E-UTRAN Radio Link Monitoring test for out-of-sync

Table H.2.4-1: *SystemInformationBlockType2*: E-UTRAN Radio Link Monitoring test for out-of-sync

Derivation Path: TS 36.508 [7] clause 4.4.3.3, Table 4.4.3.3-2 SystemInformationBlockType2			
Information Element	**Value/remark**	**Comment**	**Condition**
SystemInformationBlockType 2 ::= SEQUENCE {			
radioResourceConfigCommon SEQUENCE {			
pdsch-ConfigCommon SEQUENCE {			
referenceSignalPower	Set to an arbitrarily selected value above -11dBm and within the IE allowed range described in 36.331[5]	The selected IE value depends on the test system implementation and should be declared in the test report.	
}			
soundingRS-UL-ConfigCommon CHOICE {			
release	NULL		
}			
}			
ue-TimersAndConstants {			
t300	ms1000		
t301	ms1000		
t310	ms0		
n310	n1		
t311	ms1000		
n311	n1		
}			

SystemInformationBlockType2: (FDD/TDD) for E-UTRAN Radio Link Monitoring test for in-sync

Table H.2.4-2: *SystemInformationBlockType2*: E-UTRAN Radio Link Monitoring test for in-sync

Derivation Path: TS 36.508 [7] clause 4.4.3.3, Table 4.4.3.3-2 SystemInformationBlockType2			
Information Element	**Value/remark**	**Comment**	**Condition**
SystemInformationBlockType 2 ::= SEQUENCE {			
radioResourceConfigCommon SEQUENCE {			
pdsch-ConfigCommon SEQUENCE {			
referenceSignalPower	Set to an arbitrarily selected value above -11dBm and within the IE allowed range described in 36.331[5]	The selected IE value depends on the test system implementation and should be declared in the test report.	
}			
soundingRS-UL-ConfigCommon CHOICE {			
release	NULL		
}			
}			
ue-TimersAndConstants {			
t300	ms1000		
t301	ms1000		
t310	ms2000		
n310	n1		
t311	ms1000		
n311	n1		
}			

H.2.5 System information blocks message contents exceptions for RRC Re-establishment

SystemInformationBlockType2: (FDD/TDD) for E-UTRAN Intra-frequency RRC Re-establishment

Table H.2.5-1: *SystemInformationBlockType2*: E-UTRAN FDD Intra-frequency RRC Re-establishment

Derivation Path: TS 36.508 [7] clause 4.4.3.3, Table 4.4.3.3-1 SystemInformationBlockType2			
Information Element	**Value/remark**	**Comment**	**Condition**
SystemInformationBlockType 2 ::= SEQUENCE {			
ue-TimersAndConstants {			
t310	ms0		
t311	ms3000		
n310	n1		
n311	n1		

SystemInformationBlockType2: (FDD/TDD) for E-UTRAN Inter-frequency RRC Re-establishment

Table H.2.5-2: *SystemInformationBlockType2*: E-UTRAN FDD Inter-frequency RRC Re-establishment

Derivation Path: TS 36.508 [7] clause 4.4.3.3, Table 4.4.3.3-1 SystemInformationBlockType2			
Information Element	**Value/remark**	**Comment**	**Condition**
SystemInformationBlockType 2 ::= SEQUENCE {			
ue-TimersAndConstants {			
t310	ms0		
t311	ms5000		
n310	n1		
n311	n1		

H.2.6 System information block messages and information elements contents exceptions for E-UTRAN Random Access

SystemInformationBlockType1: (FDD/TDD) for E-UTRAN random access

Table H.2.6-1: *SystemInformationBlockType1*: E-UTRAN FDD/TDD - Contention and Non-Contention Based Random Access

Derivation Path: TS 36.508 [7] clause 4.4.3.2, Table 4.4.3.2-3 SystemInformationBlockType1			
Information Element	**Value/remark**	**Comment**	**Condition**
SystemInformationBlockType1 ::= SEQUENCE {			
p-Max	23 (dBm)		

RACH-ConfigCommon-DEFAULT: (FDD/TDD) for E-UTRAN random access

Table H.2.6-2: *RACH-ConfigCommon-DEFAULT*: E-UTRAN FDD/TDD - Contention and Non-Contention Based Random Access

Derivation Path: TS 36.508 [7] clause 4.6.3, Table 4.6.3-12 RACH-ConfigCommon-DEFAULT			
Information Element	**Value/remark**	**Comment**	**Condition**
RACH-ConfigCommon-DEFAULT ::= SEQUENCE {			
preambleInfo SEQUENCE {			
numberOfRA-Preambles	n52		
preamblesGroupAConfig SEQUENCE {}	Not present		
}			
powerRampingParameters SEQUENCE {			
powerRampingStep	dB2		
preambleInitialReceivedTargetPower	dBm-120		
}			

PDSCH-ConfigCommon-DEFAULT: (FDD/TDD) for E-UTRAN random access

Table H.2.6-3: *PDSCH-ConfigCommon-DEFAULT*: E-UTRAN FDD/TDD - Contention and Non-Contention Based Random Access

Derivation Path: TS 36.508 [7] clause 4.6.3, Table 4.6.3-5 PDSCH-ConfigCommon-DEFAULT			
Information Element	**Value/remark**	**Comment**	**Condition**
PDSCH-ConfigCommon-DEFAULT ::= SEQUENCE {			
referenceSignalPower	-5 (dBm)		1TX

H.3 Default RRC messages and information elements contents exceptions

This clause contains the default values of common sRRC messages and information elements, other than those described in TS 36.508 [7].

H.3.1 RRC messages and information elements contents exceptions for E-UTRAN measurement configuration

RRCConnectionReconfiguration: (FDD/TDD) to setup E-UTRAN Measurement Configuration

Table H.3.1-1: *RRCConnectionReconfiguration*: E-UTRAN Measurement Configuration

Derivation Path: TS 36.508 [7] 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 {			
measConfig			
}	MeasConfig -DEFAULT		MEAS
}			
}			
}			

MeasConfig-DEFAULT (FDD/TDD) E-UTRAN measurement configuration for intra frequency measurement

Table H.3.1-2: *MeasConfig-DEFAULT*: E-UTRAN intra frequency measurement configuration

Derivation Path: TS 36.508 [7] clause 4.6.6, Table 4.6.6-1 MeasConfig-DEFAULT:			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasConfig-DEFAULT ::= SEQUENCE {			
measObjectToRemoveList	Not present		
measObjectToAddModList SEQUENCE (SIZE (1..maxObjectId)) OF SEQUENCE {	1 entry		
measObjectId	IdMeasObject-f1	f1 is the frequency of the serving cell	
measObject CHOICE {			
MeasObjectEUTRA	MeasObjectEUTRA-GENERIC(f1)		
}			
}			
reportConfigToRemoveList	Not present		
reportConfigToAddModList SEQUENCE (SIZE (1..maxReportConfigId))OF SEQUENCE {	1 entry		
reportConfigId	idReportConfig-A3		
reportConfig	ReportConfigEUTRA-A3		
}			
measIdToRemoveList	Not present		
measIdToAddModList SEQUENCE (SIZE (1..maxMeasId)) of SEQUENCE {	1 entry		
measId	1		
measObjectId	IdMeasObject-f1		
reportConfigId	idReportConfig-A3		
}			
quantityConfig	QuantityConfig-DEFAULT		
measGapConfig	Not present		
s-Measure	Not present		
preRegistrationInfoHRPD	Not present		
speedStatePars	Not present		
}			

MeasConfig-DEFAULT (FDD/TDD) E-UTRAN measurement configuration for inter frequency handover

Table H.3.1-3: *MeasConfig-DEFAULT*: E-UTRAN inter frequency measurement configuration for inter frequency handover

Derivation Path: TS 36.508 [7] clause 4.6.6, Table 4.6.6-1 MeasConfig-DEFAULT:			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasConfig-DEFAULT ::= SEQUENCE {			
measObjectToRemoveList	Not present		
measObjectToAddModList SEQUENCE (SIZE (1..maxObjectId)) OF SEQUENCE {	2 entry		
MeasObjectToAddMod SEQUENCE {		f1 is the frequency of the serving cell	
measObjectId	IdMeasObject-f1		
measObject CHOICE {			
MeasObjectEUTRA	MeasObjectEUTRA-GENERIC(f1)		
}			
}			
MeasObjectToAddMod SEQUENCE {			
measObjectId	IdMeasObject-f2	f2 is the frequency of the neighbouring cell(inter frequency cell)	
measObject CHOICE {			
MeasObjectEUTRA	MeasObjectEUTRA-GENERIC(f2)	inter frequency cell	
}			
}			
}			
reportConfigToRemoveList	Not present		
reportConfigToAddModList SEQUENCE (SIZE (1..maxReportConfigId))OF SEQUENCE {	1 entry		
reportConfigId	idReportConfig-A3		
reportConfig	ReportConfigEUTRA-A3		
}			
measIdToRemoveList	Not present		
measIdToAddModList SEQUENCE (SIZE (1..maxMeasId)) of SEQUENCE {	1 entry		
measId	1		
measObjectId	IdMeasObject-f2		
reportConfigId	idReportConfig-A3		
}			
quantityConfig	QuantityConfig-DEFAULT		
measGapConfig	MeasGapConfig-GP1		Gap Pattern Id = 0
	MeasGapConfig-GP2		Gap Pattern Id = 1
s-Measure	Not present		
preRegistrationInfoHRPD	Not present		
speedStatePars	Not present		
}			

MeasConfig-DEFAULT (FDD/TDD) E-UTRAN measurement configuration for E-UTRAN to UTRAN cell search

Table H.3.1-4: *MeasConfig-DEFAULT*: interRAT UTRAN measurement configuration for E-UTRAN to UTRAN cell search

Derivation Path: TS 36.508 [7] clause 4.6.6, Table 4.6.6-1 MeasConfig-DEFAULT:			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasConfig-DEFAULT ::= SEQUENCE {			
measObjectToRemoveList	Not present		
measObjectToAddModList SEQUENCE (SIZE (1..maxObjectId)) OF SEQUENCE {	2 entry		
MeasObjectToAddMod SEQUENCE {			
measObjectId	IdMeasObject-f1	f1 is the frequency of the serving cell (E-UTRA Cell)	
measObject CHOICE {			
MeasObjectEUTRA	MeasObjectEUTRA-GENERIC(f1)	E-UTRA Cell	
}			
}			
MeasObjectToAddMod SEQUENCE {			
measObjectId	IdMeasObject-f2	f2 is the frequency of the neighbouring cell(UTRA Cell)	
measObject CHOICE {			
measObjectUTRA	MeasObjectUTRA-GENERIC(f2)	UTRA Cell	
}			
}			
}			
reportConfigToRemoveList	Not present		
reportConfigToAddModList SEQUENCE (SIZE (1..maxReportConfigId))OF SEQUENCE {	1 entry		
reportConfigId	idReportConfig-B1		
reportConfig	ReportConfigInterRAT-B1-UTRA		
}			
measIdToRemoveList	Not present		
measIdToAddModList SEQUENCE (SIZE (1..maxMeasId)) of SEQUENCE {	1 entry		
measId	1		
measObjectId	IdMeasObject-f2		
reportConfigId	idReportConfig-B1		
}			
quantityConfig	QuantityConfig-DEFAULT		UTRAN
measGapConfig	MeasGapConfig-GP1		Gap Pattern Id = 0
	MeasGapConfig-GP2		Gap Pattern Id = 1
s-Measure	Not present		
preRegistrationInfoHRPD	Not present		
speedStatePars	Not present		
}			

MeasConfig-DEFAULT (FDD/TDD) E-UTRAN measurement configuration for E-UTRAN to UTRAN handover

Table H.3.1-5: *MeasConfig-DEFAULT*: interRAT UTRAN measurement configuration for E-UTRAN to UTRAN handover

Derivation Path: TS 36.508 [7] clause 4.6.6, Table 4.6.6-1 MeasConfig-DEFAULT:			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasConfig-DEFAULT ::= SEQUENCE {			
measObjectToRemoveList	Not present		
measObjectToAddModList SEQUENCE (SIZE (1..maxObjectId)) OF SEQUENCE {	2 entry		
MeasObjectToAddMod SEQUENCE {			
measObjectId	IdMeasObject-f1	f1 is the frequency of the serving cell(E-UTRA Cell)	
measObject CHOICE {			
MeasObjectEUTRA	MeasObjectEUTRA-GENERIC(f1)	E-UTRA Cell	
}			
}			
MeasObjectToAddMod SEQUENCE {			
measObjectId	IdMeasObject-f2	f2 is the frequency of the neighbouring cell(UTRA Cell)	
measObject CHOICE {			
measObjectUTRA	MeasObjectUTRA-GENERIC(f2)	UTRA Cell	
}			
}			
}			
reportConfigToRemoveList	Not present		
reportConfigToAddModList SEQUENCE (SIZE (1..maxReportConfigId)) OF SEQUENCE {	1 entry		
reportConfigId	idReportConfig-B2		
reportConfig	ReportConfigInterRAT-B2-UTRA		
}			
measIdToRemoveList	Not present		
measIdToAddModList SEQUENCE (SIZE (1..maxMeasId)) OF SEQUENCE {	1 entry		
measId	1		
measObjectId	IdMeasObject-f2		
reportConfigId	IdReportConfig-B2		
}			
quantityConfig	QuantityConfig-DEFAULT		UTRAN
measGapConfig	MeasGapConfig-GP1		Gap Pattern Id = 0
	MeasGapConfig-GP2		Gap Pattern Id = 1
s-Measure	Not present		
preRegistrationInfoHRPD	Not present		
speedStatePars	Not present		
}			

MeasConfig-DEFAULT (FDD/TDD) E-UTRAN measurement configuration for E-UTRAN to GSM handover

Table H.3.1-6: *MeasConfig-DEFAULT*: interRAT GSM measurement configuration for E-UTRAN to GSM handover

Derivation Path: TS 36.508 [7] clause 4.6.6, Table 4.6.6-1 MeasConfig-DEFAULT:			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasConfig-DEFAULT ::= SEQUENCE {			
measObjectToRemoveList	Not present		
measObjectToAddModList SEQUENCE (SIZE (1..maxObjectId)) OF SEQUENCE {	2 entry		
MeasObjectToAddMod SEQUENCE {			
measObjectId	IdMeasObject-f1	f1 is the frequency of the serving cell(E-UTRA Cell)	
measObject CHOICE {			
MeasObjectEUTRA	MeasObjectEUTRA-GENERIC(f1)	E-UTRA Cell	
}			
}			
MeasObjectToAddMod SEQUENCE {			
measObjectId	IdMeasObject-f2	f2 is the frequency of the neighbouring cell(GERAN Cell)	
measObject CHOICE {			
measObjectGERAN	MeasObjectGERAN-GENERIC(f2)	GERAN Cell	
}			
}			
}			
reportConfigToRemoveList	Not present		
reportConfigToAddModList SEQUENCE (SIZE (1..maxReportConfigId))OF SEQUENCE {	1 entry		
reportConfigId	idReportConfig-B1		
reportConfig	ReportConfigInterRAT-B1-GERAN		
}			
measIdToRemoveList	Not present		
measIdToAddModList SEQUENCE (SIZE (1..maxMeasId)) of SEQUENCE {	1 entry		
measId	1		
measObjectId	IdMeasObject-f2		
reportConfigId	idReportConfig-B1		
}			
quantityConfig	QuantityConfig-DEFAULT		GERAN
measGapConfig	MeasGapConfig-GP1		Gap Pattern Id = 0
	MeasGapConfig-GP2		Gap Pattern Id = 1
s-Measure	Not present		
preRegistrationInfoHRPD	Not present		
speedStatePars	Not present		
}			

QuantityConfig-DEFAULT (FDD/TDD) E-UTRAN measurement configuration for L3 filtering is not used

Table H.3.1-7: QuantityConfig-DEFAULT: measurement configuration for L3 filtering is not used

Derivation Path: TS 36.508 [7] clause 4.6.6, Table 4.6.6-3A: QuantityConfig-DEFAULT			
Information Element	**Value/remark**	**Comment**	**Condition**
QuantityConfig-DEFAULT ::= SEQUENCE {			
quantityConfigEUTRA SEQUENCE {			
filterCoefficientRSRP	fc0		
filterCoefficientRSRQ	fc0		
}			
quantityConfigUTRA SEQUENCE {}	Not present		
quantityConfigUTRA SEQUENCE {			UTRAN
measQuantityUTRA-FDD	cpich-EcN0		
measQuantityUTRA-TDD	pccpch-RSCP		
filterCoefficient	fc0		
}			
quantityConfigGERAN SEQUENCE {}	Not present		
quantityConfigGERAN SEQUENCE {			GERAN
measQuantityGERAN	rssi		
filterCoefficient	fc0		
}			
quantityConfigCDMA2000 SEQUENCE {}	Not present		
quantityConfigCDMA2000 SEQUENCE {			CDMA2000
measQuantityCDMA2000	pilotStrength		
}			
}			

Condition	Explanation
UTRAN	For inter-RAT measurements with UTRAN
GERAN	For inter-RAT measurements with GERAN
CDMA2000	For inter-RAT measurements with CDMA2000

Table H.3.1-8: *MeasConfig-DEFAULT*: interRAT HRPD measurement configuration for E-UTRAN to HRPD handover

Derivation Path: TS 36.508 [7] clause 4.6.6, Table 4.6.6-1 MeasConfig-DEFAULT:			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasConfig-DEFAULT ::= SEQUENCE {			
measObjectToRemoveList	Not present		
measObjectToAddModList SEQUENCE (SIZE (1..maxObjectId)) OF SEQUENCE {	2 entry		
MeasObjectToAddMod SEQUENCE {			
measObjectId	IdMeasObject-f1	f1 is the frequency of the serving cell(E-UTRA Cell)	
measObject CHOICE {			
measObjectEUTRA	MeasObjectEUTRA-GENERIC(f1)	E-UTRA Cell	
}			
}			
MeasObjectToAddMod SEQUENCE {			
measObjectId	IdMeasObject-f2	f2 is the frequency of the neighbouring cell(CDMA2000 Cell)	
measObject CHOICE {			
measObjectCDMA2000	MeasObjectCDMA2000	CDMA2000 Cell	
}			
}			
}			
reportConfigToRemoveList	Not present		
reportConfigToAddModList SEQUENCE (SIZE (1..maxReportConfigId)) OF SEQUENCE {	1 entry		
reportConfigId	idReportConfig-B2		
reportConfig	ReportConfigInterRAT-B2-CDMA2000		
}			
measIdToRemoveList	Not present		
measIdToAddModList SEQUENCE (SIZE (1..maxMeasId)) OF SEQUENCE {	1 entry		
measId	1		
measObjectId	IdMeasObject-f2		
reportConfigId	IdReportConfig-B2		
}			
quantityConfig	QuantityConfig-DEFAULT		CDMA2000
measGapConfig	MeasGapConfig-GP1		Gap Pattern Id = 0
s-Measure	Not present		
preRegistrationInfoHRPD	Not present		
speedStatePars	Not present		
}			

MeasConfig-DEFAULT (FDD/TDD) E-UTRAN measurement configuration for inter frequency measurement

Table H.3.1-9: *MeasConfig-DEFAULT*: E-UTRAN inter frequency measurement configuration

Derivation Path: TS 36.508 [7] clause 4.6.6, Table 4.6.6-1 MeasConfig-DEFAULT:			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasConfig-DEFAULT ::= SEQUENCE {			
measObjectToRemoveList	Not present		
measObjectToAddModList SEQUENCE (SIZE (1..maxObjectId)) OF SEQUENCE {	2 entry		
MeasObjectToAddMod SEQUENCE {			
measObjectId	IdMeasObject-f1	f1 is the frequency of the serving cell	
measObject CHOICE {			
MeasObjectEUTRA	MeasObjectEUTRA-GENERIC(f1)		
}			
}			
MeasObjectToAddMod SEQUENCE {			
measObjectId	IdMeasObject-f2	f2 is the frequency of the neighbouring cell(inter frequency cell)	
measObject CHOICE {			
MeasObjectEUTRA	MeasObjectEUTRA-GENERIC(f2)	inter frequency cell	
}			
}			
}			
reportConfigToRemoveList	Not present		
reportConfigToAddModList SEQUENCE (SIZE (1..maxReportConfigId))OF SEQUENCE {	1 entry		
reportConfigId	idReportConfig-A3		
reportConfig	ReportConfigEUTRA-A3		
}			
measIdToRemoveList	Not present		
measIdToAddModList SEQUENCE (SIZE (1..maxMeasId)) of SEQUENCE {	1 entry		
measId	1		
measObjectId	IdMeasObject-f2		
reportConfigId	idReportConfig-A3		
}			
quantityConfig	QuantityConfig-DEFAULT		
measGapConfig	MeasGapConfig-GP1		Gap Pattern Id = 0
	MeasGapConfig-GP2		Gap Pattern Id = 1
s-Measure	Not present		
preRegistrationInfoHRPD	Not present		
speedStatePars	Not present		
}			

MeasConfig-DEFAULT (FDD/TDD) E-UTRAN measurement configuration for E-UTRAN to GSM cell search

Table H.3.1-10: *MeasConfig-DEFAULT*: interRAT GSM measurement configuration for E-UTRAN to GSM cell search

Derivation Path: TS 36.508 [7] clause 4.6.6, Table 4.6.6-1 MeasConfig-DEFAULT:			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasConfig-DEFAULT ::= SEQUENCE {			
measObjectToRemoveList	Not present		
measObjectToAddModList SEQUENCE (SIZE (1..maxObjectId)) OF SEQUENCE {	7 entry		
MeasObjectToAddMod SEQUENCE {			
measObjectId	IdMeasObject-f1	f1 is the frequency of the serving cell(E-UTRA Cell)	
measObject CHOICE {			
MeasObjectEUTRA	MeasObjectEUTRA-GENERIC(f1)	E-UTRA Cell	
}			
}			
MeasObjectToAddMod SEQUENCE {			
measObjectId	IdMeasObject-f2	f2 is the frequency of the neighbouring cell(GERAN Cell)	
measObject CHOICE {			
measObjectGERAN	MeasObjectGERAN-GENERIC(f2)	GERAN Cell	
}			
}			
MeasObjectToAddMod SEQUENCE {			
measObjectId	IdMeasObject-f3	f3 is the frequency of the neighbouring cell(GERAN Cell)	
measObject CHOICE {			
measObjectGERAN	MeasObjectGERAN-GENERIC(f3)	GERAN Cell	
}			
}			
MeasObjectToAddMod SEQUENCE {			
measObjectId	IdMeasObject-f4	f4 is the frequency of the neighbouring cell(GERAN Cell)	
measObject CHOICE {			
measObjectGERAN	MeasObjectGERAN-GENERIC(f4)	GERAN Cell	
}			
}			
MeasObjectToAddMod SEQUENCE {			
measObjectId	IdMeasObject-f5	f5 is the frequency of the neighbouring cell(GERAN Cell)	
measObject CHOICE {			
measObjectGERAN	MeasObjectGERAN-GENERIC(f5)	GERAN Cell	
}			
}			
MeasObjectToAddMod SEQUENCE {			
measObjectId	IdMeasObject-f6	f6 is the frequency of the neighbouring cell(GERAN Cell)	
measObject CHOICE {			

measObjectGERAN	MeasObjectGERAN-GENERIC(f6)	GERAN Cell	
}			
}			
MeasObjectToAddMod SEQUENCE {			
measObjectId	IdMeasObject-f7	f7 is the frequency of the neighbouring cell(GERAN Cell)	
measObject CHOICE {			
measObjectGERAN	MeasObjectGERAN-GENERIC(f7)	GERAN Cell	
}			
}			
}			
reportConfigToRemoveList	Not present		
reportConfigToAddModList SEQUENCE (SIZE (1..maxReportConfigId))OF SEQUENCE {	1 entry		
reportConfigId	idReportConfig-B1		
reportConfig	ReportConfigInterRAT-B1-GERAN		
}			
measIdToRemoveList	Not present		
measIdToAddModList SEQUENCE (SIZE (1..maxMeasId)) of SEQUENCE {	1 entry		
measId	1		
measObjectId	IdMeasObject-f2		
reportConfigId	idReportConfig-B1		
}			
quantityConfig	QuantityConfig-DEFAULT		GERAN
measGapConfig	MeasGapConfig-GP1		Gap Pattern Id = 0
	MeasGapConfig-GP2		Gap Pattern Id = 1
s-Measure	Not present		
preRegistrationInfoHRPD	Not present		
speedStatePars	Not present		
}			

MeasConfig-DEFAULT (FDD/TDD) E-UTRAN measurement periodical configuration for E-UTRAN to GSM cell search

Table H.3.1-11: *MeasConfig-DEFAULT*: interRAT GSM measurement periodical configuration for E-UTRAN to GSM cell search

Derivation Path: TS 36.508 [7] clause 4.6.6, Table 4.6.6-1 MeasConfig-DEFAULT:			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasConfig-DEFAULT ::= SEQUENCE {			
measObjectToRemoveList	Not present		
measObjectToAddModList SEQUENCE (SIZE (1..maxObjectId)) OF SEQUENCE {	7 entry		
MeasObjectToAddMod SEQUENCE {			
measObjectId	IdMeasObject-f1	f1 is the frequency of the serving cell(E-UTRA Cell)	
measObject CHOICE {			
MeasObjectEUTRA	MeasObjectEUTRA-GENERIC(f1)	E-UTRA Cell	
}			
}			
MeasObjectToAddMod SEQUENCE {			
measObjectId	IdMeasObject-f2	f2 is the frequency of the neighbouring cell(GERAN Cell)	
measObject CHOICE {			
measObjectGERAN	MeasObjectGERAN-GENERIC(f2)	GERAN Cell	
}			
}			
MeasObjectToAddMod SEQUENCE {			
measObjectId	IdMeasObject-f3	f3 is the frequency of the neighbouring cell(GERAN Cell)	
measObject CHOICE {			
measObjectGERAN	MeasObjectGERAN-GENERIC(f3)	GERAN Cell	
}			
}			
MeasObjectToAddMod SEQUENCE {			
measObjectId	IdMeasObject-f4	f4 is the frequency of the neighbouring cell(GERAN Cell)	
measObject CHOICE {			
measObjectGERAN	MeasObjectGERAN-GENERIC(f4)	GERAN Cell	
}			
}			
MeasObjectToAddMod SEQUENCE {			
measObjectId	IdMeasObject-f5	f5 is the frequency of the neighbouring cell(GERAN Cell)	
measObject CHOICE {			
measObjectGERAN	MeasObjectGERAN-GENERIC(f5)	GERAN Cell	
}			
}			
MeasObjectToAddMod SEQUENCE {			
measObjectId	IdMeasObject-f6	f6 is the frequency of the neighbouring cell(GERAN Cell)	

measObject CHOICE {			
measObjectGERAN	MeasObjectGERAN-GENERIC(f6)	GERAN Cell	
}			
}			
MeasObjectToAddMod SEQUENCE {			
measObjectId	IdMeasObject-f7	f7 is the frequency of the neighbouring cell(GERAN Cell)	
measObject CHOICE {			
measObjectGERAN	MeasObjectGERAN-GENERIC(f7)	GERAN Cell	
}			
}			
}			
reportConfigToRemoveList	Not present		
reportConfigToAddModList SEQUENCE (SIZE (1..maxReportConfigId))OF SEQUENCE {	1 entry		
reportConfigId	idReportConfig-P		
reportConfig	ReportConfigInterRAT-PERIODICAL		
}			
measIdToRemoveList	Not present		
measIdToAddModList SEQUENCE (SIZE (1..maxMeasId)) of SEQUENCE {	2 entry		
measIdToAddMod ::= SEQUENCE {			
measId	1		
measObjectId	IdMeasObject-f2		
reportConfigId	idReportConfig-P		
}			
measIdToAddMod ::= SEQUENCE {			
measId	2		
measObjectId	IdMeasObject-f3		
reportConfigId	idReportConfig-P		
}			
}			
quantityConfig	QuantityConfig-DEFAULT		GERAN
measGapConfig	MeasGapConfig-GP1		Gap Pattern Id = 0
	MeasGapConfig-GP2		Gap Pattern Id = 1
s-Measure	Not present		
preRegistrationInfoHRPD	Not present		
speedStatePars	Not present		
}			

H.3.2 RRC messages and information elements contents exceptions for E-UTRAN cell re-selection and handover

PRACH-Config-DEFAULT: (FDD) for cell re-selection and handover

Table H.3.2-1: *PRACH-Config-DEFAULT*: E-UTRAN FDD cell re-selection and handover

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

PRACH-Config-DEFAULT: (TDD) for cell re-selection and intra frequency / inter frequency handover

Table H.3.2-2: *PRACH-Config-DEFAULT*: E-UTRAN TDD cell re-selection and handover

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

RRCConnectionReconfiguration: (FDD/TDD) for intra-frequency / inter-frequency handover

Table H.3.2-3: *RRCConnectionReconfiguration*: E-UTRAN handover Configuration

Derivation Path: TS 36.508 [7] 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
}			
}			
}			

H.3.3 RRC messages and information elements contents exceptions for E-UTRAN inter-RAT handover

Handover: (FDD/TDD) to perform Inter-RAT E-UTRAN - UTRAN handover

Table H.3.3-1: *Handover*: Inter-RAT E-UTRAN - UTRAN handover

Derivation Path: 36.331 clause 6.2.2			
Information Element	Value/remark	Comment	Condition
Handover ::= SEQUENCE {			
targetRAT-Type	utra	ENUMERATED {utra, geran, cdma2000-1XTT, cdma2000-HRPD, spare4, spare3, spare2, spare1, …}	
targetRAT-MessageContainer		OCTET STRING	
nas-SecurityParamFromEUTRA		OCTET STRING(SIZE (1))	UTRAGERAN
}			

Handover: (FDD/TDD) to perform Inter-RAT E-UTRAN - GSM handover

Table H.3.3-2: *Handover*: Inter-RAT E-UTRAN - GSM handover

Derivation Path: 36.331 clause 6.2.2			
Information Element	Value/remark	Comment	Condition
Handover ::= SEQUENCE {			
targetRAT-Type	geran	ENUMERATED {utran, geran, cdma2000-1XTT, cdma2000-HRPD, spare4, spare3, spare2, spare1, ...}	
targetRAT-MessageContainer		OCTET STRING	
nas-SecurityParamFromEUTRA		OCTET STRING(SIZE (1))	UTRAGERAN
}			

MobilityFromEUTRACommand: (FDD/TDD) to setup Inter-RAT E-UTRAN handover

Table H.3.3-3: *MobilityFromEUTRACommand*: Inter-RAT E-UTRAN handover

Derivation Path: TS 36.508 [7] clause 4.6.1, Table 4.6.1-6 MobilityFromEUTRACommand			
Information Element	**Value/remark**	**Comment**	**Condition**
MobilityFromEUTRACommand ::= SEQUENCE {			
rrc-TransactionIdentifier	RRC-TransactionIdentifier-DL		
criticalExtensions CHOICE {			
c1 CHOICE {			
mobilityFromEUTRACommand-r8 SEQUENCE {			
csFallbackIndicator	FALSE		
purpose CHOICE {			
Handover	Handover		
}			
nonCriticalExtension SEQUENCE {}	Not present		
nonCriticalExtension SEQUENCE {			GERAN
lateNonCriticalExtension	Not present		
nonCriticalExtension SEQUENCE {			
bandIndicator		ENUMERATED {dcs1800, pcs1900}	
nonCriticalExtension SEQUENCE {}	Not present		
}			
}			
}			
}			
}			
}			

Condition	Explanation
GERAN	The field should be present if the *purpose* is set to "*handover*" and the *targetRAT-Type* is set to "*geran*"; otherwise the field is not present

Handover: (FDD/TDD) to perform Inter-RAT E-UTRAN – HRPD handover

Table H.3.3-4: *Handover*: Inter-RAT E-UTRAN – HRPD handover

Derivation Path: 36.331 clause 6.2.2			
Information Element	Value/remark	Comment	Condition
Handover ::= SEQUENCE {			
targetRAT-Type	cdma2000-HRPD	ENUMERATED {utran, geran, cdma2000-1XTT, cdma2000-HRPD, spare4, spare3, spare2, spare1, …}	

H.3.4 RRC messages and information elements exceptions for E-UTRAN UE transmit timing accuracy and UE timing advance adjustment accuracy

RRCConnectionReconfiguration: (FDD/TDD) to establish E-UTRAN Radio Resource Configuration

Table H.3.4-1: *RRCConnectionReconfiguration*: E-UTRAN Radio Resource Configuration

Derivation Path: TS 36.508 [7] 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 {			
radioResourceConfigDedicated			
	RadioResourceConfigDedicated-HO-TO-EUTRA(n,m)		HO-TO-EUTRA(n,m)

PhysicalConfigDedicated-DEFAULT: (FDD/TDD) for E-UTRAN Physical Configuration

Table H.3.4-2: *PhysicalConfigDedicated-DEFAULT*: E-UTRAN Physical Configuration

Derivation Path: TS 36.508 [7] clause 4.8.21.6, Table 4.8.2.1.6-1 PhysicalConfigDedicated-DEFAULT			
Information Element	**Value/remark**	**Comment**	**Condition**
PhysicalConfigDedicated-DEFAULT ::= SEQUENCE {			
soundingRS-UL-ConfigDedicated			SRB1
	SoundingRS-UL-ConfigDedicated-DEFAULT		RBC
antennaInformation CHOICE {			
defaultValue	NULL		
}			
schedulingRequestConfig	Not present		SRB1

H.3.5 RRC messages and information elements contents exceptions for E-UTRAN RSRP and RSRQ Accuracy

MeasConfig: (FDD/TDD) to perform Measurement Configuration for E-UTRAN intra frequency RSRP and RSRQ accuracy

Table H.3.5-1: *MeasConfig-DEFAULT*: E-UTRAN intra frequency RSRP and RSRQ Accuracy

Derivation Path: TS 36.508 [7] clause 4.6.6, Table 4.6.6-1 MeasConfig-DEFAULT			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasConfig-DEFAULT ::= SEQUENCE {			
measObjectToRemoveList	Not present		
measObjectToAddModList SEQUENCE (SIZE (1..maxObjectId)) OF SEQUENCE {	1 entry		
measObjectId	IdMeasObject-f1	f1 is the frequency of the serving cell	
measObject CHOICE {			
MeasObjectEUTRA	MeasObjectEUTRA-GENERIC(f1)		
}			
}			
reportConfigToRemoveList	Not present		
reportConfigToAddModList SEQUENCE (SIZE (1..maxReportConfigId))OF SEQUENCE {	1 entry		
reportConfigId	idReportConfig-P		
reportConfig	ReportConfigEUTRA-PERIODICAL		
}			
measIdToRemoveList	Not present		
measIdToAddModList SEQUENCE (SIZE (1..maxMeasId)) of SEQUENCE {			
measId	1		
measObjectId	IdMeasObject-f1		
reportConfigId	idReportConfig-P		
}			
quantityConfig	QuantityConfig-DEFAULT		
measGapConfig	Not present		
s-Measure	Not present		
preRegistrationInfoHRPD	Not present		
speedStatePars	Not present		
}			

MeasConfig: (FDD/TDD) perform Measurement Configuration for E-UTRAN inter frequency RSRP and RSRQ accuracy

Table H.3.5-2: *MeasConfig-DEFAULT*: E-UTRAN inter frequency RSRP and RSRQ Accuracy

Derivation Path: TS 36.508 [7] clause 4.6.6, Table 4.6.6-1 MeasConfig-DEFAULT			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasConfig-DEFAULT ::= SEQUENCE {			
measObjectToRemoveList	Not present		
measObjectToAddModList SEQUENCE (SIZE (1..maxObjectId)) OF SEQUENCE {	2 entry		
MeasObjectToAddMod SEQUENCE {			
measObjectId	IdMeasObject-f1	f1 is the frequency of the serving cell	
measObject CHOICE {			
MeasObjectEUTRA	MeasObjectEUTRA-GENERIC(f1)		
}			
}			
MeasObjectToAddMod SEQUENCE {			
measObjectId	IdMeasObject-f2	f2 is the frequency of the neighbouring cell (inter frequency cell)	
measObject CHOICE {			
MeasObjectEUTRA	MeasObjectEUTRA-GENERIC(f2)	inter frequency cell	
}			
}			
}			
reportConfigToRemoveList	Not present		
reportConfigToAddModList SEQUENCE (SIZE (1..maxReportConfigId))OF SEQUENCE {	1 entry		
reportConfigId	idReportConfig-P		
reportConfig	ReportConfigEUTRA-PERIODICAL		
}			
measIdToRemoveList	Not present		
measIdToAddModList SEQUENCE (SIZE (1..maxMeasId)) of SEQUENCE {	1 entry		
measId	1		
measObjectId	IdMeasObject-f2		
reportConfigId	idReportConfig-P		
}			
quantityConfig	QuantityConfig-DEFAULT		
measGapConfig	MeasGapConfig-GP1		Gap Pattern Id = 0
	MeasGapConfig-GP2		Gap Pattern Id = 1
s-Measure	Not present		
preRegistrationInfoHRPD	Not present		
speedStatePars	Not present		
}			

ReportConfigEUTRA-PEROIDICAL: (FDD/TDD) for periodical configuration reporting of E-UTRAN RSRP accuracy

Table H.3.5-3: *ReportConfigEUTRA-PERIODICAL*: E-UTRAN RSRP Accuracy

Derivation Path: TS 36.508 [7] clause 4.6.6, Table 4.6.6-7 ReportConfigEUTRA-PERIODICAL			
Information Element	**Value/remark**	**Comment**	**Condition**
ReportConfigEUTRA-PERIODICAL ::= SEQUENCE {			
triggerType CHOICE {			
periodical SEQUENCE {			
purpose	reportStrongestCells		
}			
}			
triggerQuantity	rsrp		
reportQuantity	sameAsTriggerQuantity		
maxReportCells	1		
reportInterval	ms1024 (1024 ms)		
reportAmount	Infinity		
}			

ReportConfigEUTRA-PEROIDICAL: (FDD/TDD) for periodical configuration reporting of E-UTRAN RSRQ accuracy

Table H.3.5-4: *ReportConfigEUTRA-PERIODICAL*: E-UTRAN RSRQ Accuracy

Derivation Path: TS 36.508 [7] clause 4.6.6, Table 4.6.6-7 ReportConfigEUTRA-PERIODICAL			
Information Element	**Value/remark**	**Comment**	**Condition**
ReportConfigEUTRA-PERIODICAL ::= SEQUENCE {			
triggerType CHOICE {			
periodical SEQUENCE {			
purpose	reportStrongestCells		
}			
}			
triggerQuantity	rsrq		
reportQuantity	sameAsTriggerQuantity		
maxReportCells	1		
reportInterval	ms1024 (1024 ms)		
reportAmount	Infinity		
}			

H.3.6 RRC messages and information elements contents exceptions for E-UTRAN inter frequency handover and E-UTRAN intra frequency cell search

MAC-MainConfig-RBC: (FDD/TDD) to perform DRX Configuration for E-UTRAN - inter-frequency handover and E-UTRAN intra-frequency cell search with DRX_S

Table H.3.6-1: *MAC-MainConfig-RBC*: E-UTRAN inter frequency handover and E-UTRAN intra frequency cell search with DRX_S

Derivation Path: TS 36.508 [7] clause 4.8.2.1.5, Table 4.8.2.1.6-1 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	sf1280		
ttiBundling	FALSE		
}			
drx-Config CHOICE {			DRX_S
setup SEQUENCE {			
onDurationTimer	psf2		
drx-InactivityTimer	psf100		
drx-RetransmissionTimer	psf16		
longDRX-CycleStartOffset CHOICE {		sf40 typical value in real network for best-effort services.	
sf40	0		
}			
shortDRX	Not present		
}			
}			
}			

MAC-MainConfig-RBC: (FDD/TDD) to perform DRX Configuration for E-UTRAN - inter-frequency handover and E-UTRAN intra-frequency cell search with DRX_L

Table H.3.6-2: *MAC-MainConfig-RBC*: E-UTRAN inter frequency handover and E-UTRAN intra frequency cell search with DRX_L

Derivation Path: TS 36.508 [7] clause 4.8.2.1.5, Table 4.8.2.1.6-1 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	sf1280		
ttiBundling	FALSE		
}			
drx-Config CHOICE {			DRX_L
Setup SEQUENCE {			
onDurationTimer	psf6		
drx-InactivityTimer	psf1920		
drx-RetransmissionTimer	psf16		
longDRX-CycleStartOffset CHOICE {		sf1280 typical value in real network for best-effort services.	
sf1280	0		
}			
shortDRX	Not present		
}			
}			
}			

H.3.7 RRC messages and information elements contents exceptions for E-UTRAN inter frequency and E-UTRAN inter-RAT cell search when DRX is used

MAC-MainConfig-RBC: (FDD/TDD) to perform DRX Configuration for E-UTRAN - inter-frequency and E-UTRAN inter-RAT cell search when DRX = 40 ms

Table H.3.7-1: *MAC-MainConfig-RBC*: E-UTRAN inter frequency cell search and E-UTRAN intra frequency cell search when DRX = 40 ms

Derivation Path: TS 36.508 [7] clause 4.8.2.1.5, Table 4.8.2.1.6-1 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	sf1280		
ttiBundling	FALSE		
}			
drx-Config CHOICE {			
Setup SEQUENCE {			
onDurationTimer	psf1		
drx-InactivityTimer	psf1		
drx-RetransmissionTimer	psf1		
longDRX-CycleStartOffset CHOICE {		sf40 typical value in real network for real-time services.	
sf40	9	To avoid overlapping with measurement gap.	
}			
shortDRX	Not present		
}			
}			
timeAlignmentTimerDedicated	sf500		
}			

MAC-MainConfig-RBC: (FDD/TDD) to perform DRX Configuration for E-UTRAN - inter-frequency and E-UTRAN inter-RAT cell search when DRX = 1280 ms

Table H.3.7-2: *MAC-MainConfig-RBC*: E-UTRAN inter frequency and E-UTRAN inter-RAT cell search when DRX = 1280 ms

Derivation Path: TS 36.508 [7] clause 4.8.2.1.5, Table 4.8.2.1.6-1 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	sf1280		
ttiBundling	FALSE		
}			
drx-Config CHOICE {			
Setup SEQUENCE {			
onDurationTimer	psf1		
drx-InactivityTimer	psf1		
drx-RetransmissionTimer	psf1		
longDRX-CycleStartOffset CHOICE {		sf1280 typical value in real network for best-effort services.	
sf1280	9	To avoid overlapping with measurement gap.	
}			
shortDRX	Not present		
}			
}			
timeAlignmentTimerDedicated	sf500		
}			

PhysicalConfigDedicated-DEFAULT: (FDD/TDD) to perform DRX Configuration for E-UTRAN - inter-frequency and E-UTRAN inter-RAT cell search

Table H.3.7-3: *PhysicalConfigDedicated-DEFAULT*: E-UTRAN inter frequency and E-UTRAN inter-RAT cell search

Derivation Path: TS 36.508 [7] clause 4.8.2.1.6, Table 4.8.2.1.6-1 PhysicalConfigDedicated-DEFAULT			
Information Element	**Value/remark**	**Comment**	**Condition**
PhysicalConfigDedicated-DEFAULT ::= SEQUENCE {			
schedulingRequestConfig	SchedulingRequest-Config-DEFAULT		
}			

H.4 Default RRC messages and information elements contents exceptions for Carrier Aggregation

This clause contains the default values of common RRC messages and information elements for Carrier Aggregation, other than those described in TS 36.508 [7].

H.4.1 RRC messages and information elements contents exceptions for E-UTRAN measurement configuration for CA

RRCConnectionReconfiguration: (FDD/TDD) to setup E-UTRAN Measurement Configuration for CA

Table H.4.1-1: *Void*

MeasConfig-DEFAULT: (FDD/TDD) E-UTRAN Measurement Configuration for Event Triggered Reporting for CA

Table H.4.1-2: *MeasConfig-DEFAULT*: E-UTRAN Measurement Configuration for CA

Derivation Path: TS 36.508 [7] clause 4.6.6, Table 4.6.6-1 MeasConfig-DEFAULT			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasConfig-DEFAULT ::= SEQUENCE {			
measObjectToRemoveList	Not present		
measObjectToAddModList SEQUENCE (SIZE (1..maxObjectId)) OF SEQUENCE {	2 entries		
MeasObjectToAddMod[1] SEQUENCE {			
measObjectId	IdMeasObject-f1	f1 is the frequency of the PCell (Cell 1)	
measObject CHOICE {			
MeasObjectEUTRA	MeasObjectEUTRA-GENERIC(f1)		
}			
}			
MeasObjectToAddMod[2] SEQUENCE {			
measObjectId	IdMeasObject-f2	f2 is the frequency of the SCell on the SCC (Cell 2)and neighbouring cell on the SCC (Cell 3)	
measObject CHOICE {			
MeasObjectEUTRA	MeasObjectEUTRA-GENERIC(f2)		
}			
}			
}			
reportConfigToRemoveList	Not present		
reportConfigToAddModList SEQUENCE (SIZE (1..maxReportConfigId))OF SEQUENCE {	1 entry		
reportConfigId	idReportConfig-A6		
reportConfig	ReportConfigEUTRA-A6		
}			
measIdToRemoveList	Not present		
measIdToAddModList SEQUENCE (SIZE (1..maxMeasId)) of SEQUENCE {	1 entry		
measId	1		
measObjectId	IdMeasObject-f2		
reportConfigId	idReportConfig-A6		
}			
quantityConfig	QuantityConfig-DEFAULT		
measGapConfig	Not present		
s-Measure	Not present		
preRegistrationInfoHRPD	Not present		
speedStatePars	Not present		
}			

MeasObjectEUTRA-GENERIC: (FDD/TDD) E-UTRAN Measurement Configuration for Event Triggered Reporting for CA

Table H.4.1-3: *MeasObjectEUTRA-GENERIC(Freq)*: E-UTRAN Measurement Configuration for CA with SCell measurement cycle 1280 ms)

Derivation Path: TS 36.508 [7] clause 4.6.6, Table 4.6.6-2 MeasObjectEUTRA-GENERIC			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasObjectEUTRA-GENERIC(Freq) ::= SEQUENCE {			
carrierFreq	Downlink EARFCN for Freq		
allowedmeasBandwidth	The number of the resource blocks for Freq		
presenceAntennaPort1	FALSE		
neighbourCellConfig	'01'B (No MBSFN subframes are present in all neighbour cells)	MBSFN doesn't apply by default.	TDD
	10'B (The MBSFN subframe allocations of all neighbour cells are identical to or subsets of that in the serving cell)		FDD
offsetFreq	0 (dB 0)		
cellsToRemoveList	Not present		
cellsToAddModList	Not present		
blackCellsToRemoveList	Not present		
blackCellsToAddModList	Not present		
cellForWhichToReportCGI	Not present		
measCycleSCell-r10	sf1280		
measSubframePatternConfigNeigh-r10	Not present		
}			

Table H.4.1-4: Void

MeasurementReport: (FDD/TDD) E-UTRAN Measurement Report for CA

Table H.4.1-5: MeasurementReport: E-UTRAN Measurement Report for CA

Derivation path: 36.508 4.6.1 table 4.6.1-5			
Information Element	**Value/Remark**	**Comment**	**Condition**
MeasurementReport ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
measurementReport-r8 SEQUENCE {			
measResults ::= SEQUENCE {			
measId	1		
measResultPCell::= SEQUENCE {		PCell	
rsrpResult	(0..97)	Set according to specific test	
rsrqResult	(0..34)	Set according to specific test	
}			
measResultNeighCells CHOICE {			
MeasResultEUTRA ::= SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {		Neighbour cell	
physCellId	physCellId of Cell 3		
cgi-Info	Not present		
measResult SEQUENCE {			
rsrpResult	(0..97)	Set according to specific test	
rsrqResult	(0..34)	Set according to specific test	
}			
}			
}			
measResultForECID-r9	Not present		
locationInfo-r10	Not present		
measResultServFreqList-r10 SEQUENCE (SIZE (1..maxServCell-r10)) OF SEQUENCE {			
servFreqId-r10	1		
measResultSCell-r10 SEQUENCE {		SCell	
rsrpResultSCell-r10	(0..97)	Set according to specific test	
rsrqResultSCell-r10	(0..34)	Set according to specific test	
}			
}			
}			
}			
}			
}			

ReportConfigEUTRA-A6: (FDD/TDD) E-UTRAN Measurement Report Configuration for Event A6 for CA

Table H.4.1-6: ReportConfig-A6: E-UTRAN Report config for Event A6 for CA

Derivation Path: 36.508 clause 4.6.6 table 4.6.6-6A			
Information Element	**Value/remark**	**Comment**	**Condition**
ReportConfigEUTRA-A6 ::= SEQUENCE {			
triggerType CHOICE {			
event SEQUENCE {			
eventId CHOICE {			
eventA6-r10 SEQUENCE {			
a6-Offset-r10	-6 (-3 dB)	-3 is actual value in dB (-6 * 0.5 dB)	A6-Offset = -3dB
	-12 (-6 dB)	-6 is actual value in dB (-12 * 0.5 dB)	A6-Offset = -6dB
a6-ReportOnLeave-r10	FALSE		
}			
}			
Hysteresis	0 (0 dB)	0 is actual value in dB (0 * 0.5 dB)	
timeToTrigger	ms0		
}			
}			
triggerQuantity	rsrp		
reportQuantity	both		
maxReportCells	1		
reportInterval	ms5120		
reportAmount	r1		
}			

H.4.2 RRC messages and information elements contents exceptions for E-UTRAN RSRP and RSRQ Accuracy for CA

MeasConfig: (FDD/TDD) to perform Measurement Configuration for E-UTRAN RSRP and RSRQ accuracy for CA

Table H.4.2-1: *MeasConfig-DEFAULT*: E-UTRAN RSRP and RSRQ Accuracy for CA

Derivation Path: TS 36.508 [7] clause 4.6.6, Table 4.6.6-1 MeasConfig-DEFAULT			
Information Element	**Value/remark**	**Comment**	**Condition**
MeasConfig-DEFAULT ::= SEQUENCE {			
measObjectToRemoveList	Not present		
measObjectToAddModList SEQUENCE (SIZE (1..maxObjectId)) OF SEQUENCE {	2 entries		
MeasObjectToAddMod[1] SEQUENCE {			
measObjectId	IdMeasObject-f1	f1 is the frequency of the PCell (Cell 1)	
measObject CHOICE {			
MeasObjectEUTRA	MeasObjectEUTRA-GENERIC(f1)		
}			
measObjectId	IdMeasObject-f2	f2 is the frequency of the PCell (Cell 1)	Switch PCell/SCell scenario
measObject CHOICE {			
MeasObjectEUTRA	MeasObjectEUTRA-GENERIC(f2)		
}			
}			
MeasObjectToAddMod[2] SEQUENCE {			
measObjectId	IdMeasObject-f2	f2 is the frequency of the SCell on the SCC (Cell 2) and neighbouring cell on the SCC(Cell 3)	
measObject CHOICE {			
MeasObjectEUTRA	MeasObjectEUTRA-GENERIC(f2)		
}			
measObjectId	IdMeasObject-f1	f1 is the frequency of the SCell on the SCC (Cell 2) and neighbouring cell on the SCC(Cell 3)	Switch PCell/SCell scenario
measObject CHOICE {			
MeasObjectEUTRA	MeasObjectEUTRA-GENERIC(f1)		
}			
}			
}			
reportConfigToRemoveList	Not present		
reportConfigToAddModList SEQUENCE (SIZE (1..maxReportConfigId))OF SEQUENCE {	1 entry		
reportConfigId	idReportConfig-P		
reportConfig	ReportConfigEUTRA-PERIODICAL		
}			
measIdToRemoveList	Not present		
measIdToAddModList SEQUENCE (SIZE (1..maxMeasId)) of SEQUENCE {	1 entry		
measIdToAddMod ::= SEQUENCE {			
measId	1		
measObjectId	IdMeasObject-f2	f2 is the frequency	

		of the SCell on the SCC (Cell 2) and neighbouring cell on the SCC (Cell 3)	
	IdMeasObject-f1	f1 is the frequency of the SCell on the SCC (Cell 2) and neighbouring cell on the SCC (Cell 3)	Switch PCell/SCell scenario
reportConfigId	idReportConfig-P		
}			
quantityConfig	QuantityConfig-DEFAULT		
measGapConfig	Not present		
s-Measure	Not present		
preRegistrationInfoHRPD	Not present		
speedStatePars	Not present		
}			

ReportConfigEUTRA-PEROIDICAL: (FDD/TDD) for periodical configuration reporting of E-UTRAN RSRP accuracy for CA

Table H.4.2-2: *ReportConfigEUTRA-PERIODICAL*: E-UTRAN RSRP Accuracy for CA

Derivation Path: TS 36.508 [7] clause 4.6.6, Table 4.6.6-7 ReportConfigEUTRA-PERIODICAL			
Information Element	**Value/remark**	**Comment**	**Condition**
ReportConfigEUTRA-PERIODICAL ::= SEQUENCE {			
triggerType CHOICE {			
periodical SEQUENCE {			
purpose	reportStrongestCells		
}			
}			
triggerQuantity	rsrp		
reportQuantity	sameAsTriggerQuantity		
maxReportCells	2		
reportInterval	ms1024 (1024 ms)		
reportAmount	Infinity		
}			

ReportConfigEUTRA-PEROIDICAL: (FDD/TDD) for periodical configuration reporting of E-UTRAN RSRQ accuracy for CA

Table H.4.2-3: *ReportConfigEUTRA-PERIODICAL*: E-UTRAN RSRQ Accuracy for CA

Derivation Path: TS 36.508 [7] clause 4.6.6, Table 4.6.6-7 ReportConfigEUTRA-PERIODICAL			
Information Element	**Value/remark**	**Comment**	**Condition**
ReportConfigEUTRA-PERIODICAL ::= SEQUENCE {			
triggerType CHOICE {			
periodical SEQUENCE {			
purpose	reportStrongestCells		
}			
}			
triggerQuantity	rsrq		
reportQuantity	sameAsTriggerQuantity		
maxReportCells	2		
reportInterval	ms1024 (1024 ms)		
reportAmount	Infinity		
}			

MeasurementReport: (FDD/TDD) for periodical configuration reporting of E-UTRAN RSRP and RSRQ accuracy for CA

Table H.4.2-4: *MeasurementReport*: E-UTRAN RSRP and RSRQ Accuracy for CA

Derivation path: TS 36.508 [7] clause 4.6.1 Table 4.6.1-5 MeasurementReport			
Information Element	**Value/Remark**	**Comment**	**Condition**
MeasurementReport ::= SEQUENCE {			
criticalExtensions CHOICE {			
c1 CHOICE {			
measurementReport-r8 SEQUENCE {			
measResults ::= SEQUENCE {			
measId	1		
measResultPCell::= SEQUENCE {		PCell	
rsrpResult	(0..97)	Set according to specific test	
rsrqResult	(0..34)	Set according to specific test	
}			
measResultNeighCells CHOICE {			
MeasResultEUTRA ::= SEQUENCE (SIZE (1..maxCellReport)) OF SEQUENCE {			
MeasResultEUTRA SEQUENCE {			
physCellId	physCellId of best Cell		
cgi-Info	Not present		
measResult SEQUENCE {			
rsrpResult	(0..97)	Set according to specific test	
rsrqResult	(0..34)	Set according to specific test	
}			
}			
MeasResultEUTRA SEQUENCE {			
physCellId	physCellId of 2nd best Cell		
cgi-Info	Not present		
measResult SEQUENCE {			
rsrpResult	(0..97)	Set according to specific test	
rsrqResult	(0..34)	Set according to specific test	
}			
}			
}			
}			
measResultForECID-r9	Not present		
locationInfo-r10	Not present		
measResultServFreqList-r10 SEQUENCE (SIZE (1..maxServCell-r10)) OF SEQUENCE {			
servFreqId-r10	1		
measResultSCell-r10 SEQUENCE {		SCell	
rsrpResultSCell-r10	(0..97)	Set according to specific test	
rsrqResultSCell-r10	(0..34)	Set according to specific test	
}			
}			
}			
}			
}			
}			

Annex I (normative): Conditions for RRM requirements applicability for operating bands

I.1 Conditions for E-UTRAN RRC_IDLE state mobility

I.1.1 Conditions for measurements of intra-frequency E-UTRAN cells for cell re-selection

This section defines the E-UTRAN intra-frequency RSRP, RSRP Ês/Iot, SCH_RP and SCH Ês/Iot applicable for a corresponding operating band.

The conditions for measurements of intra-frequency E-UTRAN cells for cell re-selection are defined in Table I.1.1-1

Table I.1.1-1: Conditions for measurements of intra-frequency E-UTRAN cells for cell re-selection

Parameter	E-UTRA operating bands	Minimum RSRP	Minimum SCH_RP	RSRP Ês/Iot	SCH Ês/Iot
		dBm/15kHz	dBm/15kHz	dB	dB
Conditions	1, 4, 6, 10, 11, 18, 19, 21, 23, 24, 33, 34, 35, 36, 37, 38, 39, 40	-124	-124	≥ -4	≥ -4
	9, 42, 43	-123	-123		
	28	-122.5	-122.5		
	2, 5, 7, 27, 41, [44]	-122	-122		
	26	-121.5 Note 2	-121.5 Note 2		
	3, 8, 12, 13, 14, 17, 20, 22	-121	-121		
	29 Note 3	-121	-121		
	25	-120.5	-120.5		

NOTE 1: For a UE supporting a band combination of E-UTRA carrier aggregation with one uplink carrier configuration, if there is a relaxation of receiver sensitivity ΔRIB,c as defined in TS 36.101 [5] due to the CA configuration, the RSRP and SCH_RP measurement side conditions shall be increased by the amount ΔRIB,c defined for the corresponding downlink band.
NOTE 2: The condition is -122 dBm/15kHz when the carrier frequency of the assigned E-UTRA channel bandwidth is within 865-894 MHz.
NOTE 3: This band is used only for E-UTRA carrier aggregation with other E-UTRA bands.

I.1.2 Conditions for measurements of inter-frequency E-UTRAN cells for cell re-selection

This section defines the E-UTRAN inter-frequency RSRP, RSRP Ês/Iot, SCH_RP and SCH Ês/Iot applicable for a corresponding operating band.

The conditions for measurements of intra-frequency E-UTRAN cells for cell re-selection defined in Table I.1.1-1 also apply for inter-frequency E-UTRAN cells in this section.

I.2 Conditions for UE Measurements Procedures in RRC_CONNECTED State

I.2.1 Conditions for E-UTRAN intra-frequency measurements

This section defines the E-UTRAN intra-frequency SCH_RP and SCH Ês/Iot applicable for a corresponding operating band

The conditions for intra-frequency E-UTRAN measurements are defined in Table I.2.1-1

Table I.2.1-1: E-UTRAN intra-frequency measurements

Parameter	E-UTRA operating bands	Minimum SCH_RP	SCH Ês/Iot
		dBm/15kHz	dB
Conditions	1, 4, 6, 10, 11, 18, 19, 21, 23, 24, 33, 34, 35, 36, 37, 38, 39, 40	-127	≥ -6
	9, 42, 43	-126	
	28	-125.5	
	2, 5, 7, 27, 41, [44]	-125	
	26	-124.5 Note 2	
	3, 8, 12, 13, 14, 17, 20, 22	-124	
	29 Note 3	-124	
	25	-123.5	
NOTE 1: For a UE supporting a band combination of E-UTRA carrier aggregation with one uplink carrier configuration, if there is a relaxation of receiver sensitivity ΔRIB,c as defined in TS 36.101 [5] due to the CA configuration, the SCH_RP measurement side condition shall be increased by the amount ΔRIB,c defined for the corresponding downlink band. NOTE 2: The condition is -125 dBm/15kHz when the carrier frequency of the assigned E-UTRA channel bandwidth is within 865-894 MHz. NOTE 3: This band is used only for E-UTRA carrier aggregation with other E-UTRA bands.			

I.2.2 Conditions for E-UTRAN intra-frequency measurements with autonomous gaps

This section defines the E-UTRAN intra-frequency SCH_RP and SCH Ês/Iot applicable for a corresponding operating band

The conditions for intra-frequency E-UTRAN measurements with autonomous gap are defined in Table I.2.1-1

Table I.2.2-1: Void

I.2.3 Conditions for E-UTRAN inter-frequency measurements

This section defines the E-UTRAN inter-frequency SCH_RP, SCH Ês/Iot, RSRP and RSRP Ês/Iot applicable for a corresponding operating band

The conditions for inter-frequency E-UTRAN measurements with autonomous gap are defined in Table I.2.3-1

Table I.2.3-1: E-UTRAN inter-frequency measurements

Parameter	E-UTRA operating bands	Minimum RSRP	Minimum SCH_RP	RSRP Ês/Iot	SCH Ês/Iot
		dBm/15kHz	dBm/15kHz	dB	dB
Conditions	1, 4, 6, 10, 11, 18, 19, 21, 23, 24, 33, 34, 35, 36, 37, 38, 39, 40	-125	-125	≥ -4	≥ -4
	9, 42, 43	-124	-124		
	28	-123.5	-123.5		
	2, 5, 7, 27, 41, [44]	-123	-123		
	26	-122.5 Note 2	-122.5 Note 2		
	3, 8, 12, 13, 14, 17, 20, 22	-122	-122		
	29 Note 3	-122	-122		
	25	-121.5	-121.5		

NOTE 1: For a UE supporting a band combination of E-UTRA carrier aggregation with one uplink carrier configuration, if there is a relaxation of receiver sensitivity ΔRIB,c as defined in TS 36.101 [5] due to the CA configuration, the RSRP and SCH_RP measurement side conditions shall be increased by the amount ΔRIB,c defined for the corresponding downlink band.
NOTE 2: The condition is -123 dBm/15kHz when the carrier frequency of the assigned E-UTRA channel bandwidth is within 865-894 MHz.
NOTE 3: This band is used only for E-UTRA carrier aggregation with other E-UTRA bands.

I.2.4 Conditions for E-UTRAN inter-frequency measurements with autonomous gaps

This section defines the E-UTRAN inter-frequency SCH_RP and SCH Ês/Iot applicable for a corresponding operating band.

The conditions for inter-frequency E-UTRAN measurements with autonomous gap are defined in Table I.2.4-1.

Table I.2.4-1: E-UTRAN inter-frequency measurements with autonomous gaps

Parameter	E-UTRA operating bands	Minimum SCH_RP	SCH Ês/Iot
		dBm/15kHz	dB
Conditions	1, 4, 6, 10, 11, 18, 19, 21, 23, 24, 33, 34, 35, 36, 37, 38, 39, 40	-125	≥ -4
	9, 42, 43	-124	
	28	-123.5	
	2, 5, 7, 27, 41, [44]	-123	
	26	-122.5 Note 2	
	3, 8, 12, 13, 14, 17, 20, 22	-122	
	29 Note 3	-122	
	25	-121.5	

NOTE 1: For a UE supporting a band combination of E-UTRA carrier aggregation with one uplink carrier configuration, if there is a relaxation of receiver sensitivity ΔRIB,c as defined in TS 36.101 [5] due to the CA configuration, the SCH_RP measurement side condition shall be increased by the amount ΔRIB,c defined for the corresponding downlink band.
NOTE 2: The condition is -123 dBm/15kHz when the carrier frequency of the assigned E-UTRA channel bandwidth is within 865-894 MHz.
NOTE 3: This band is used only for E-UTRA carrier aggregation with other E-UTRA bands.

I.2.5 Conditions for E-UTRAN OTDOA intra-frequency RSTD Measurements

The conditions for E-UTRAN OTDOA intra-frequency RSTD Measurements can be found in Annex E in TS 37.571-1.

I.2.6 Conditions for E-UTRAN OTDOA inter-frequency RSTD Measurements

The conditions for E-UTRAN OTDOA inter-frequency RSTD Measurements can be found in Annex E in TS 37.571-1.

I.2.7 Conditions for Measurements of the secondary component carrier with deactivated SCell

This section defines the SCH_RP and SCH Ês/Iot for measurements in the secondary component carrier applicable for a corresponding operating band

The conditions for measurements of the secondary component carrier with deactivated SCell are defined in Table I.2.7-1.

Table I.2.7-1: Measurements of the secondary component carrier with deactivated SCell

Parameter	E-UTRA operating bands	Minimum SCH_RP	SCH Ês/Iot
		dBm/15kHz	dB
Conditions	1, 4, 6, 10, 11, 18, 19, 21, 23, 24, 33, 34, 35, 36, 37, 38, 39, 40	-127	≥ -6
	9, 42, 43	-126	
	28	-125.5	
	2, 5, 7, 27, 41, [44]	-125	
	26	-124.5 Note 2	
	3, 8, 12, 13, 14, 17, 20, 22	-124	
	29 Note 3	-124	
	25	-123.5	

NOTE 1: For a UE supporting a band combination of E-UTRA carrier aggregation with one uplink carrier configuration, if there is a relaxation of receiver sensitivity ΔRIB,c as defined in TS 36.101 [5] due to the CA configuration, the SCH_RP measurement side condition shall be increased by the amount ΔRIB,c defined for the corresponding downlink band.

NOTE 2: The condition is -125 dBm/15kHz when the carrier frequency of the assigned E-UTRA channel bandwidth is within 865-894 MHz.

NOTE 3: This band is used only for E-UTRA carrier aggregation with other E-UTRA bands.

I.2.8 Conditions for E-UTRAN Intra-Frequency Measurements under Time Domain Measurement Resource Restriction

This section defines the E-UTRAN intra-frequency SCH_RP and SCH Ês/Iot applicable for a corresponding operating band.

The conditions for intra-frequency E-UTRAN measurements under time domain measurement resource restriction are defined in Table I.2.8-1.

Table I.2.8-1 E-UTRAN intra-frequency measurements under time domain measurement resource restriction

Parameter	E-UTRA operating bands	Minimum SCH_RP	SCH Ês/Iot
		dBm/15kHz	dB
Conditions	1, 4, 6, 10, 11, 18, 19, 21, 23, 24, 33, 34, 35, 36, 37, 38, 39, 40	-127	≥ -7.5
	9, 42, 43	-126	
	28	-125.5	
	2, 5, 7, 27, 41, [44]	-125	
	26	-124.5 Note 2	
	3, 8, 12, 13, 14, 17, 20, 22	-124	
	29 Note 3	-124	
	25	-123.5	
NOTE 1: For a UE supporting a band combination of E-UTRA carrier aggregation with one uplink carrier configuration, if there is a relaxation of receiver sensitivity ΔRIB,c as defined in TS 36.101 [5] due to the CA configuration, the SCH_RP measurement side condition shall be increased by the amount ΔRIB,c defined for the corresponding downlink band. NOTE 2: The condition is -125 dBm/15kHz when the carrier frequency of the assigned E-UTRA channel bandwidth is within 865-894 MHz. NOTE 3: This band is used only for E-UTRA carrier aggregation with other E-UTRA bands.			

I.2.9 Conditions for E-UTRAN Intra-Frequency Measurements under Time Domain Measurement Resource Restriction with CRS Assistance Information

This clause defines the E-UTRAN intra-frequency SCH_RP and SCH Ês/Iot applicable for a corresponding operating band.

The conditions for intra-frequency E-UTRAN measurements under time domain measurement resource restriction with CRS assistance information are defined in Table B.2.9-1.

Parameter	E-UTRA operating bands	Minimum SCH_RP dBm/15kHz	SCH Es/Iot dB
	1, 4, 6, 10, 11, 18, 19, 21, 23, 24, 33, 34, 35, 36, 37, 38, 39, 40	-127	
	9, 42, 43	-126	
	28	-125.5	
Conditions	2, 5, 7, 27, 41, 44	-125	≥ -11.07
	26	-124.5 Note 2	
	3, 8, 12, 13, 14, 17, 20, 22	-124	
	29 Note 3	-124	
	25	-123.5	
NOTE 1: For a UE supporting a band combination of E-UTRA carrier aggregation with one uplink carrier configuration, if there is a relaxation of receiver sensitivity ΔRIB,c as defined in TS 36.101 [5] due to the CA configuration, the SCH_RP measurement side condition shall be increased by the amount ΔRIB,c defined for the corresponding downlink band. NOTE 2: The condition is -125 dBm/15kHz when the carrier frequency of the assigned E-UTRA channel bandwidth is within 865-894 MHz. NOTE 3: This band is used only for E-UTRA carrier aggregation with other E-UTRA bands.			

Table I.2.9-1: E-UTRAN intra-frequency measurements under time domain measurement resource restriction with CRS assistance information

I.3 Conditions for measurements performance requirements for UE

I.3.1 Conditions for intra-frequency RSRP and RSRQ Accuracy Requirements

This section defines the E-UTRAN intra-frequency RSRP applicable for a corresponding operating band.

The conditions for intra-frequency absolute RSRP and RSRQ accuracy requirements are defined in Table I.3.1-1.

Table I.3.1-1: Intra-frequency absolute RSRP and RSRQ Accuracy Requirements

Parameter	E-UTRA operating bands	Minimum RSRP
		dBm/15kHz
Conditions	1, 4, 6, 10, 11, 18, 19, 21, 23, 24, 33, 34, 35, 36, 37, 38, 39, 40	-127
	9, 42, 43	-126
	28	-125.5
	2, 5, 7, 27, 41, [44]	-125
	26	-124.5 Note 2
	3, 8, 12, 13, 14, 17, 20, 22	-124
	25	-123.5
NOTE 1: For a UE supporting a band combination of E-UTRA carrier aggregation with one uplink carrier configuration, if there is a relaxation of receiver sensitivity ΔRIB,c as defined in TS 36.101 [5] due to the CA configuration, the RSRP measurement side condition shall be increased by the amount ΔRIB,c defined for the corresponding downlink band. NOTE 2: The condition is -125 dBm/15kHz when the carrier frequency of the assigned E-UTRA channel bandwidth is within 865-894 MHz.		

I.3.2 Void

I.3.3 Conditions for inter-frequency RSRP and RSRQ Accuracy Requirements

This section defines the E-UTRAN inter-frequency RSRP applicable for a corresponding operating band.

The conditions for inter-frequency absolute RSRP and RSRQ accuracy requirements are defined in Table I.3.1-1.

I.3.4 Conditions for inter-frequency relative RSRP and RSRQ Accuracy Requirements

This section defines the E-UTRAN inter-frequency RSRP1,2 applicable for a corresponding operating band.

The conditions for inter-frequency relative RSRP and RSRQ accuracy requirements are defined in Table I.3.8-1.

I.3.5 Conditions for UE Rx – Tx time difference

The conditions for UE Rx-Tx time difference can be found in Annex E in TS 37.571-1.

I.3.6 Conditions for intra-frequency Reference Signal Time Difference (RSTD) measurements

The conditions for intra-frequency Reference Signal Time Difference (RSTD) Measurements can be found in Annex E in TS 37.571-1.

I.3.7 Conditions for inter-frequency RSTD measurements

The conditions for intra frequency Reference Signal Time Difference (RSTD) Measurements can be found in Annex E in TS 37.571-1.

I.3.8 Conditions for Intra-Frequency Relative RSRP Accuracy Requirements

This section defines the E-UTRAN intra-frequency RSRP1,2 applicable for a corresponding operating band.

The conditions for intra-frequency relative RSRP accuracy requirements are specified in Table I.3.8-1.

Table I.3.8-1 Intra-frequency relative RSRP accuracy requirements

Parameter	E-UTRA operating bands	Minimum RSRP1,2
		dBm/15kHz
Conditions	1, 4, 6, 10, 11, 18, 19, 21, 23, 24, 33, 34, 35, 36, 37, 38, 39, 40	-127
	9, 42, 43	-126
	28	-125.5
	2, 5, 7, 27, 41, [44]	-125
	26	-124.5 Note 2
	3, 8, 12, 13, 14, 17, 20, 22	-124
	29 Note 3	-124
	25	-123.5

NOTE 1: For a UE supporting a band combination of E-UTRA carrier aggregation with one uplink carrier configuration, if there is a relaxation of receiver sensitivity ΔRIB,c as defined in TS 36.101 [5] due to the CA configuration, the RSRP measurement side condition shall be increased by the amount ΔRIB,c defined for the corresponding downlink band.
NOTE 2: The condition is -125 dBm/15kHz when the carrier frequency of the assigned E-UTRA channel bandwidth is within 865-894 MHz.
NOTE 3: This band is used only for E-UTRA carrier aggregation with other E-UTRA bands.

I.3.9 Conditions for Intra-Frequency Absolute RSRP and RSRQ Accuracy Requirements under Time Domain Measurement Resource Restriction

This section defines the E-UTRAN intra-frequency RSRP applicable for a corresponding operating band.

The conditions for intra-frequency absolute RSRP and RSRQ accuracy requirements under time domain measurement resource restriction are as specified in Table I.3.1-1.

I.3.10 Conditions for Intra-Frequency Relative RSRP Accuracy Requirements under Time Domain Measurement Resource Restriction

This section defines the E-UTRAN intra-frequency RSRP1,2 applicable for a corresponding operating band.

The conditions for intra-frequency relative RSRP accuracy requirements under time domain measurement resource restriction are defined in Table I.3.8-1.

I.4 RRM Requirements Exceptions

I.4.1 General

I.4.2 Receiver sensitivity relaxation for UE supporting CA

For a UE supporting inter-band carrier aggregation configuration with uplink in one E-UTRA band, if there is a relaxation of receiver sensitivity $\Delta R_{IB,c}>0$ dB as defined in TS 36.101 [2], Table 7.3.1-1A, the relevant side conditions specifying received power levels (E-UTRA RSRP, SCH_RP, PRP, and Io) shall be increased by the amount $\Delta=\Delta R_{IB,c}$ defined for each of the downlink E-UTRA bands.

NOTE: This side condition adjustment applies only for a UE supporting a single inter-band LTE CA band combination. For a UE supporting additional inter-band LTE CA band combinations, the $\Delta R_{IB,c}$ for all bands supported by the UE, need to be studied [5].

I.4.3 Receiver sensitivity relaxation for UE configured with CA

I.4.3.1 Inter-band carrier aggregation

Editor's note: Capturing refsens requirements for operating band without uplink band is TBD, to align with TS 36.101[2].

In this section, requirements exceptions are described for the UE configured with inter-band carrier aggregation with one uplink active in low frequency operating band.

A relevant side condition (e.g., E-UTRA RSRP, SCH_RP, PRP, and Io) in a requirement shall be increased by the amount Δ=L2-L1, where L1 is the reference sensitivity level specified in TS 36.101[2], Table 7.3.1-1, and L2 is the reference sensitivity level specified in TS 36.101[2], Table 7.3.1A-0a, when the following conditions are fulfilled,

- both downlink component carriers on different bands are configured with CA and active,
- the single uplink is active in the low frequency operating band,
- the exception requirements specified in TS 36.101[2], Table 7.3.1A-0a, apply.

If the relaxation Δ specified in this section applies, then the relaxation specified in Section B.4.2 should not be applied.

I.4.3.2 Intra-band non-contiguous carrier aggregation

For a UE configured with intra-band non-contiguous carrier aggregation configuration with uplink in one E-UTRA band, if there is a relaxation of receiver sensitivity $\Delta R_{IBNC}>0$ as defined in TS 36.101 [2], Section Table 7.3.1A-3, the relevant side conditions specifying received power levels (E-UTRA RSRP, SCH_RP, PRP, and Io) shall be increased by the amount $\Delta=\Delta R_{IBNC}$ defined for the downlink SCC, when the following conditions are fulfilled,

- both downlink component carriers are configured with CA and active,
- one uplink carrier is active,
- the exception requirements specified in TS36.101[2], Table 7.3.1A-3, apply.

If the relaxation Δ specified in this section applies, then the relaxation specified in Section I.4.2 should not be applied.

I.4.3.3 Inter-band carrier aggregation with operating bands without uplink band

In this section, requirements are described for the UE configured with inter-band carrier aggregation involving one operating band without uplink band.

There is no relaxation in relevant side condition (e.g., E-UTRA RSRP, SCH_RP, PRP, and Io) in a requirement, i.e., Δ=0, when the following conditions are fulfilled,

- both downlink component carriers on different bands are configured with CA and active,
- the single uplink is active in the higher frequency operating band,
- conditions specified in TS36.101[2], Table 7.3.1A-0d, apply.

If Δ specified in this section applies, then no other additional relaxation to REFSENS shall be applied.

Annex J (informative): Handling requirements and tests for different releases and UE capabilities

This annex gives guidance on how minimum requirements in different releases of 3GPP TS 36.133 [4] and different UE capabilities are handled in the specification 3GPP TS 36.521-3.

J.1 General considerations

Same as TS 36.521-1 [10] Annex I with the following exceptions:

- Instead of "*TS 36.101*" → use "*TS 36.133*"
- Instead of "*TS 36.521-1*" → use "*TS 36.521-3*"
- Instead of "*Annex I*" → use "*Annex J*"

J.2 Concrete scenarios

J.2.1 Tests for minimum requirements varying between releases, without introduction of new features

Same as TS 36.521-1 [10] Annex I with the following exceptions:

- Instead of "*TS 36.101*" → use "*TS 36.133*"
- Instead of "*TS 36.521-1*" → use "*TS 36.521-3*"
- Instead of "*Annex I*" → use "*Annex J*"

J.2.2 Tests for CA (Carrier aggregation)

FFS

Annex K (informative): Change history

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
2008-06	RAN5#39bis	R5-082129			R5-082129: Restructure of TS 36.521-1 and RRM proposal (Split of RRM from 36.521-1 v0.2.0 in its own specification 36.521-3 v0.1.0)		0.1.0
2008-06	*RAN5#39bis*	*R5-082174*			Following approved TPs have been included: R5-082129: Restructure of TS 36.521-1 and RRM proposal (Split of RRM from 36.521-1 v0.2.0 in its own specification 36.521-3 v0.1.0) R5-082160: Cover for LTE E-UTRAN RRC_IDLE State Mobility text proposal R5-082161: Cover for LTE E-UTRAN RRC_CONNECTED State Mobility text proposal R5-082162: Update of 36.521-1: Introduction of HRPD and CDMA2000 in RRM test cases R5-082163: Cover for LTE UE Transmit Timing Requirements text proposal Editorial changes for Annexes	*0.1.0*	*0.2.0*
2008-08	RAN5#40	R5-083164			Following approved TPs have been included: R5-083051: LTE E-UTRAN RRC_IDLE State Mobility text proposal R5-083052: LTE E-UTRAN RRC_CONNECTED State Mobility text proposal R5-083053: LTE UE Transmit Timing Requirements text proposal R5-083054: LTE UE Measurement Procedures text proposal R5-083813: LTE UE Measurement Performance Requirements text proposal R5-083138: Text proposal for LTE E-UTRAN Cell Re-selection to HRPD or to cdma2000 1xRTT in TS 36.521-3 R5-083056: RRC Connection Mobility Control text proposal R5-083164: LTE-RF 36-521-3 after RAN5#40 Editorial restructuring to section 4	0.2.0	0.3.0
2008-10	RAN5#40Bis	R5-084073			Following approved TPs have been included: R5-084073: TS 36.521-3 after RAN5#40Bis R5-084079: LTE Cell Re-Selection text proposal R5-084322: LTE FDD/FDD Handover for intra/inter frequency text proposal	0.3.0	0.4.0
2008-11	RAN5#41	R5-085084			Following approved TPs have been included: R5-085084 LTE-RF: TS 36.521-3 after RAN5#41 R5-085718 LTE RRM Cell Re-Selection text proposal R5-085719 LTE RRM FDD/FDD Handover for intra/inter frequency text proposal R5-085720 E-UTRAN FDD intra-frequency measurements text proposal R5-085740 RSRQ Accuracy Measurement Performance Requirements text proposal R5-085722 Text Proposal for Cell Configuration mapping annex in 36.521-3 Editor's cleanup	0.4.0	0.5.0

2009-01	RAN5#41Bis	R5-086067			Following approved TPs have been included: R5-086067 LTE-RF: TS 36.521-3 after RAN5#41Bis R5-086149 References to connection diagrams R5-086418 LTE RRM Cell Re-Selection text proposal R5-086095 Cell configuration reference correction for RRM tests in 36.521-3 section 3A.3 R5-086419 LTE RRM FDD/FDD Handover for intra/inter frequency text proposal R5-086420 E-UTRAN FDD intra-frequency measurements text proposal R5-086431 RSRQ Accuracy Measurement Performance Requirements text proposal R5-086082 LTE UE Transmit Timing Requirements text proposal R5-086422 Text proposal for RSRP measurement accuracy test cases R5-086432 E-UTRAN FDD- FDD Inter-Frequency Measurements text proposal R5-086142 Measurement Reference Channels and OCNG for RRM testing R5-086150 Statistical testing in RRM tests Editor's cleanup	0.5.0	0.6.0

2009-03	RAN5#42	R5-090191			Following approved TPs have been included: R5-091026 TDD Intra frequency RSRQ Accuracy R5-091085 TDD Inter frequency RSRQ Accuracy R5-091035 LTE RRM FDD/FDD Handover for intra/inter frequency text proposal R5-091047 E-UTRAN FDD intra-frequency measurements text proposal R5-091029 RSTQ Accuracy Measurement Performance Requirements text proposal R5-091041 LTE RRM E-UTRA FDD to GSM Cell Re-Selection text proposal R5-091040 LTE RRM E-UTRA FDD to GSM Handover text proposal R5-090182 LTE UE Measurement Procedures Structure text proposal R5-091048 LTE RRM E-UTRA FDD to UTRA FDD Cell Search text proposal R5-090184 LTE UE inter-RAT Handover Structure text proposal R5-091039 LTE RRM E-UTRA FDD to UTRA FDD Handover text proposal R5-091053 LTE UE Transmit Timing Requirements text proposal R5-090191 LTE-RF: TS 36.521-3 after RAN5#42 R5-091091 Intra-frequency cell search TDD R5-091088 Intra-frequency Absolute RSRP measurement accuracy TDD R5-091090 Intra-frequency Relative RSRP measurement accuracy TDD R5-091089 Inter-frequency RSRP absolute accuracy TDD R5-091087 Inter-frequency RSRP relative accuracy TDD R5-091028 Text Proposal for RSRP Measurement Accuracy test cases R5-091076 Text Proposal for Annex C of TS 36.521-3 R5-091051 TP of E-UTRAN TDD & GSM cell re-selection test case R5-091043 TP of E-UTRAN TDD & TDD inter frequency cell re-selection test case R5-091036 TP of E-UTRAN TDD & TDD inter frequency handover test case R5-091044 TP of E-UTRAN TDD - TDD intra frequency cell re-selection test case R5-091038 TP of E-UTRAN TDD & TDD intra frequency handover test case R5-091045 TP of E-UTRAN TDD & UTRAN TDD cell re-selection test case R5-091049 E-UTRAN FDD- FDD Inter-Frequency Measurements text proposal R5-091050 E-UTRAN TDD- TDD Inter-Frequency Measurements text proposal R5-091052 LTE-RF: Update to 36.521-3 Annex E Cell Configuration mapping R5-091064 Correction to frequencies to be tested in RRM test cases R5-091042 LTE RRM Cell Re-Selection text proposal Editor's cleanup	0.6.0	1.0.0

2009-03	RAN5#42Bis				R5-091263 LTE-RRM Cell Re-Selection text proposal R5-091922 LTE-RRM E-UTRA FDD to GSM Cell Re-Selection text proposal R5-091923 LTE-RRM E-UTRA FDD - UTRA TDD Cell Re-Selection text proposal R5-091924 TP of E-UTRA TDD - GSM cell reselection R5-091945 TP of E-UTRA TDD-UTRAN TDD cell re-selection : UTRA is of higher priority R5-091926 TP of E-UTRA TDD - UTRA TDD cell reselection: UTRA is of lower priority test case R5-091264 LTE-RRM FDD/FDD Handover for intra/inter frequency text proposal R5-091931 LTE-RRM E-UTRA FDD to GSM Handover text proposal R5-091928 LTE-RRM E-UTRA FDD to UTRA FDD Handover text proposal R5-091946 LTE-RRM: E-UTRA TDD to UTRA FDD Handover text proposal R5-091947 LTE-RRM: Handover test proposal R5-091930 TP of E-UTRA TDD to UTRA TDD handover test case R5-091265 LTE-RRM E-UTRAN FDD intra-frequency measurements text proposal R5-091266 LTE-RRM RSRQ Accuracy Measurement Performance Requirements text proposal R5-091932 LTE-RRM E-UTRA FDD to UTRA FDD Cell Search (fading) text proposal R5-091933 LTE-RRM E-UTRAN FDD & UE Transmit Timing Accuracy text proposal R5-091276 LTE-RRM E-UTRAN FDD & UE Timing Advance Adjustment Accuracy text proposal R5-091934 LTE-RRM: E-UTRA TDD to UTRA FDD Cell Search (fading) text proposal R5-091935 LTE-RRM E-UTRAN TDD & UE Transmit Timing Accuracy text proposal R5-091936 LTE-RRM E-UTRAN TDD & UE Timing Advance Adjustment Accuracy text proposal R5-091937 LTE-RRM E-UTRA FDD to UTRA TDD Cell Search (fading) text proposal R5-091381 EUTRAN TDD to UTRAN TDD cell search (fading) R5-091386 LTE RRM TDD Inter Frequency RSRP Accuracy text proposal R5-091398 Text Proposal for RSRP Measurement Accuracy test cases R5-091948 LTE-RRM: Measurements test proposal R5-091431 RRM-EUTRAN FDD RLM test for out-of-sync R5-091434 RRM-EUTRAN TDD RLM test for out-of-sync R5-091435 RRM-EUTRAN FDD RLM test for In-sync R5-091436 RRM-EUTRAN TDD RLM test for In-sync R5-091468 RRM E-UTRAN FDD-FDD Inter-frequency Measurements R5-091469 RRM E-UTRAN TDD-TDD Inter-frequency Measurements R5-091939 LTE-RRM cell configuration mapping updates R5-091407 Update of statistical requirements to 36.521-3 Editor's cleanup	1.0.0	1.1.0

2009-05	RAN5#43	R5-092156			R5-092156 LTE-RF: TS 36.521-3 after RAN5#43 R5-092066 E-UTRAN FDD- FDD Inter-Frequency Measurements text proposal R5-092617 RRM E-UTRAN TDD-TDD Inter-frequency Measurement R5-092068 RRM-EUTRAN FDD RLM test for out-of-sync and in-synch R5-092069 RRM-EUTRAN TDD RLM test for out-of-sync and in-synch R5-092071 Reference measurement Channels for Radio Link Monitoring Tests with 2 Antennas R5-092127 Update of statistical requirements to 36.521-3 R5-092630 LTE RRM: 1→2 RX antenna R5-092618 Text Proposal for E-UTRAN FDD-UTRAN FDD cell re-selection test cases R5-092651 Text Proposal for E-UTRAN FDD - GSM Measurements test case R5-092620 LTE-RRM E-UTRA TDD to GSM event triggered reporting in AWGN text proposal R5-092360 LTE RRM TDD Inter Frequency RSRP Accuracy text proposal R5-092621 LTE-RRM Default Message Contents for support of RRM text proposal R5-092384 LTE-RRM Update of Message Contents for E-UTRAN FDD RRM tests to align with support of RRM text proposal R5-092622 LTE-RRM E-UTRAN FDD Cell Re-Selection text proposal R5-092386 LTE-RRM FDD Inter Frequency RSRQ Accuracy Measurement Performance Requirements text proposal R5-092387 LTE-RRM E-UTRA FDD to GSM Cell Re-Selection text proposal R5-092623 LTE-RRM E-UTRAN FDD intra frequency cell search (fading) in long DRX text proposal R5-092624 LTE-RRM E-UTRAN FDD intra frequency cell search (fading) in short DRX text proposal R5-092390 LTE-RRM E-UTRAN FDD - UE Transmit Timing Accuracy text proposal R5-092626 LTE-RRM E-UTRAN FDD random access: contention based scenario text proposal R5-092627 LTE-RRM E-UTRAN FDD random access: non-contention based scenario text proposal R5-092628 LTE-RRM E-UTRA FDD to HRPD Handover text proposal R5-092629 LTE-RRM E-UTRA FDD to cdma2000 1xRTT Handover text proposal R5-092443 Addition of band 18 and 19 to LTE RRM test cases Editor's cleanup	1.1.0	2.0.0
2009-05	RAN#44	-	-		Updated to v8.0.0 after RAN#44 with no technical change.	2.0.0	8.0.0
2009-06	-	-	-		Editorial clean up	8.0.0	8.0.1
2009-09	RAN#45	R5-094036	0001	-	Correction CR to 36.521-3: Update of Requirements for E-UTRAN (FDD) cell re-selection tests	8.0.1	8.1.0
2009-09	RAN#45	R5-094037	0002	-	Correction CR to 36.521-3: Update of Requirements for E-UTRAN FDD - FDD Inter Frequency Handover test	8.0.1	8.1.0
2009-09	RAN#45	R5-094038	0003	-	Correction CR to 36.521-3: Update of Requirements for E-UTRAN FDD - FDD Intra Frequency Cell Search test	8.0.1	8.1.0
2009-09	RAN#45	R5-094039	0004	-	Correction CR to 36.521-3: Update of Requirements for E-UTRAN FDD - UE transmit timing accuracy test	8.0.1	8.1.0
2009-09	RAN#45	R5-094040	0005	-	Correction CR to 36.521-3: Update of Requirements for E-UTRAN FDD - GSM cell re-selection test	8.0.1	8.1.0
2009-09	RAN#45	R5-094041	0006	-	Correction CR to 36.521-3: Update of Requirements conditions for E-UTRAN FDD - UE timing advance adjustment accuracy test	8.0.1	8.1.0
2009-09	RAN#45	R5-094042	0007	-	Correction CR to 36.521-3: Update of Requirements for E-UTRAN FDD - GSM Handover test	8.0.1	8.1.0
2009-09	RAN#45	R5-094043	0008	-	Correction CR to 36.521-3: Update of Requirements for E-UTRAN FDD - UTRAN FDD Handover test	8.0.1	8.1.0
2009-09	RAN#45	R5-094045	0009	-	Correction CR to 36.521-3: Update of Requirements for E-UTRAN FDD - GSM Cell Search test	8.0.1	8.1.0
2009-09	RAN#45	R5-094047	0010	-	Correction CR to 36.521-3: Update of Requirements for E-UTRAN FDD - Contention Based Random Access test	8.0.1	8.1.0
2009-09	RAN#45	R5-094048	0011	-	Correction CR to 36.521-3: Update of Requirements for E-UTRAN FDD - Non-Contention Based Random Access test	8.0.1	8.1.0
2009-09	RAN#45	R5-094049	0012	-	Addition of test scenario CR to 36.521-3: E-UTRAN FDD-FDD Inter-frequency cell search when DRX is used under fading propagation conditions	8.0.1	8.1.0

2009-09	RAN#45	R5-094050	0013	-	Correction CR to 36.521-3: Update of E-UTRAN FDD-FDD Intra-frequency cell search when DRX is used under fading propagation conditions	8.0.1	8.1.0
2009-09	RAN#45	R5-094051	0014	-	Correction CR to 36.521-3: Update of Annex H Default Message Contents for support of RRM	8.0.1	8.1.0
2009-09	RAN#45	R5-094217	0015	-	Update for E-UTRA FDD - UTRA TDD cell reselection	8.0.1	8.1.0
2009-09	RAN#45	R5-094218	0016	-	Test proposal for E-UTRA FDD - UTRA TDD HO	8.0.1	8.1.0
2009-09	RAN#45	R5-094219	0017	-	Test proposal for E-UTRA TDD random access: contention based scenario	8.0.1	8.1.0
2009-09	RAN#45	R5-094220	0018	-	Test proposal for E-UTRA TDD random access: non-contention based scenario	8.0.1	8.1.0
2009-09	RAN#45	R5-094221	0019	-	Update for TDD Intra-frequency RSRQ measurement accuracy	8.0.1	8.1.0
2009-09	RAN#45	R5-094222	0020	-	Update for TDD Inter-frequency RSRQ measurement accuracy	8.0.1	8.1.0
2009-09	RAN#45	R5-094223	0021	-	Update for E-UTRAN TDD Transmit timing accuracy	8.0.1	8.1.0
2009-09	RAN#45	R5-094225	0022	-	Update for E-UTRA FDD - UTRA TDD cell search(fading)	8.0.1	8.1.0
2009-09	RAN#45	R5-094253	0023	-	CR to 36.521-3: Addition of E-UTRAN FDD Intra-frequency RRC Re-establishment	8.0.1	8.1.0
2009-09	RAN#45	R5-094254	0024	-	CR to 36.521-3: Addition of E-UTRAN FDD Inter-frequency RRC Re-establishment	8.0.1	8.1.0
2009-09	RAN#45	R5-094285	0025	-	LTE-RRM: Introduction of Common Exception messages table for E-UTRAN TDD-UTRAN FDD handover and E-UTRAN TDD-UTRAN FDD measurements	8.0.1	8.1.0
2009-09	RAN#45	R5-094358	0026	-	Correction to RSRP measurement accuracy test cases	8.0.1	8.1.0
2009-09	RAN#45	R5-094442	0027	-	CR to 36.521-3: Update of E-UTRA FDD to HRPD Handover and E-UTRA FDD to cdma2000 1xRTT Handover test cases	8.0.1	8.1.0
2009-09	RAN#45	R5-094709	0028	-	LTE RRM: Correction to test cases 4.4.1 and 4.4.2	8.0.1	8.1.0
2009-09	RAN#45	R5-094713	0029	-	Resubmission - Update to E-UTRAN to HRPD Cell Re-Selection (HRPD is of lower priority) test case	8.0.1	8.1.0
2009-09	RAN#45	R5-094720	0030	-	Resubmission - Update to E-UTRAN to CDMA2000 1xRTT Cell Re-Selection (CDMA2000 1xRTT is of low er priority) test case	8.0.1	8.1.0
2009-09	RAN#45	R5-094743	0031	-	RRM TCs in test mode	8.0.1	8.1.0
2009-09	RAN#45	R5-094927	0032	-	Correction CR to 36.521-3: Update of inter-frequency E-UTRAN TDD-TDD cell re-selection 4.2.6	8.0.1	8.1.0
2009-09	RAN#45	R5-094928	0033	-	Correction CR to 36.521-3: Update of E-UTRAN TDD - UTRAN TDD cell re-selection 4.3.4	8.0.1	8.1.0
2009-09	RAN#45	R5-094929	0034	-	Correction CR to 36.521-3: Update of Requirements for E-UTRAN FDD - UTRAN FDD cell re-selection test	8.0.1	8.1.0
2009-09	RAN#45	R5-094930	0035	-	LTE-RRM: Addition of common messages to Annex H	8.0.1	8.1.0
2009-09	RAN#45	R5-094931	0036	-	Test Proposal for E-UTRAN TDD Intra-frequency RRC Re-establishment	8.0.1	8.1.0
2009-09	RAN#45	R5-094932	0037	-	Test Proposal for E-UTRAN TDD Inter-frequency RRC Re-establishment	8.0.1	8.1.0
2009-09	RAN#45	R5-094933	0038	-	Update for E-UTRAN TDD Timing advanced adjustment accuracy	8.0.1	8.1.0
2009-09	RAN#45	R5-094934	0039	-	Correction CR to 36.521-3: Update of Requirements for E-UTRAN FDD - UTRAN FDD Cell Search test	8.0.1	8.1.0
2009-09	RAN#45	R5-094935	0040	-	E-UTRA TDD - TDD Intra frequency cell search with DRX	8.0.1	8.1.0
2009-09	RAN#45	R5-094936	0041	-	TDD - TDD RSRP measurement	8.0.1	8.1.0
2009-09	RAN#45	R5-094937	0042	-	Update 8.10.1 E-UTRAN TDD-GSM event triggered reporting in AWGN	8.0.1	8.1.0
2009-09	RAN#45	R5-094938	0043	-	Add new tc 8.10.2 EUTRAN TDD-GSM cell search with DRX	8.0.1	8.1.0
2009-09	RAN#45	R5-094939	0044	-	Add new tc 8.7.2 EUTRAN TDD - UTRAN TDD cell search with DRX	8.0.1	8.1.0
2009-09	RAN#45	R5-094940	0045	-	E-UTRA TDD - TDD Inter frequency cell search with DRX	8.0.1	8.1.0
2009-09	RAN#45	R5-094942	0046	-	Update to Annex E Cell Configuration Mapping	8.0.1	8.1.0
2009-09	RAN#45	R5-094967	0047	-	RRM Radio Link Monitoring FDD update	8.0.1	8.1.0
2009-09	RAN#45	R5-094968	0048	-	RRM Radio Link Monitoring TDD update	8.0.1	8.1.0
2009-09	RAN#45	R5-094969	0050	-	RRM: E-UTRAN FDD - UTRAN FDD SON ANR cell search reporting	8.0.1	8.1.0
2009-09	RAN#45	R5-094970	0051	-	CR to 36.521-3:Message updates for RSRP and RSRQ Accuracy measurement	8.0.1	8.1.0
2009-09	RAN#45	R5-094971	0052	-	RRM OCNG and RMC update	8.0.1	8.1.0
2009-09	RAN#45	R5-094972	0053	-	RRM: Update of Annex E for SON	8.0.1	8.1.0
2009-12	RAN#46	R5-095492	0054	-	Removal of test state 4 in RRM test cases	8.1.0	8.2.0
2009-12	RAN#46	R5-095493	0055	-	CR to 36.521-3 Annexes of E-UTRAN cell reselection test cases	8.1.0	8.2.0
2009-12	RAN#46	R5-095499	0056	-	CR for E-UTRAN FDD - UTRAN TDD handover	8.1.0	8.2.0
2009-12	RAN#46	R5-095501	0057	-	CR for E-UTRAN TDD - UE Transmit Timing Accuracy	8.1.0	8.2.0
2009-12	RAN#46	R5-095503	0058	-	CR for E-UTRAN FDD - UTRAN TDD event triggered reporting under fading propagation conditions	8.1.0	8.2.0
2009-12	RAN#46	R5-095504	0059	-	Correction to TDD RSRP and RSRQ measurement requirements	8.1.0	8.2.0

2009-12	RAN#46	R5-095527	0060	-	Correction CR to 36.521-3: E-UTRAN FDD - FDD cell re-selection intra frequency case and inter frequency case conformance minimum requirements updates	8.1.0	8.2.0
2009-12	RAN#46	R5-095528	0061	-	Correction CR to 36.521-3: E-UTRAN FDD - UTRAN FDD cell re-selection: UTRA FDD is of higher priority and UTRA FDD is of lower priority conformance minimum requirements	8.1.0	8.2.0
2009-12	RAN#46	R5-095529	0062	-	Correction CR to 36.521-3: E-UTRAN FDD - FDD Inter Frequency event triggered reporting under fading propagation conditions in asynchronous cells case	8.1.0	8.2.0
2009-12	RAN#46	R5-095530	0063	-	Correction CR to 36.521-3: E-UTRAN FDD - FDD Inter Frequency event triggered reporting when DRX is used under fading propagation conditions	8.1.0	8.2.0
2009-12	RAN#46	R5-095531	0064	-	Correction CR to 36.521-3: E-UTRAN FDD - FDD Intra Frequency event triggered reporting under fading propagation conditions	8.1.0	8.2.0
2009-12	RAN#46	R5-095537	0065	-	Correction CR to 36.521-3: E-UTRAN FDD - UE Transmit Timing Accuracy case	8.1.0	8.2.0
2009-12	RAN#46	R5-095538	0066	-	Correction CR to 36.521-3: E-UTRAN FDD - FDD inter frequency event triggered reporting when DRX is used	8.1.0	8.2.0
2009-12	RAN#46	R5-095557	0067	-	Correction CR to 36.521-3: General RRM Updates	8.1.0	8.2.0
2009-12	RAN#46	R5-095572	0068	-	Update TC 8.7.2 E-UTRAN TDD - UTRAN TDD cell search when DRX is used under fading propagation conditions	8.1.0	8.2.0
2009-12	RAN#46	R5-095573	0069	-	Update TC 8.10.2 E-UTRAN TDD - GSM event triggered reporting when DRX is used in AWGN	8.1.0	8.2.0
2009-12	RAN#46	R5-095576	0070	-	Update TC 8.2.1 E-UTRAN TDD - TDD intra-frequency event triggered reporting under fading propagation conditions in synchronous cells	8.1.0	8.2.0
2009-12	RAN#46	R5-095591	0071	-	update of Annex H.2.3 in 36.521-3	8.1.0	8.2.0
2009-12	RAN#46	R5-095741	0072	-	CR to the inconsistent expression in UE Measurements Procedures	8.1.0	8.2.0
2009-12	RAN#46	R5-095917	0073	-	Update: Radio Link Monitoring test cases: no DRX	8.1.0	8.2.0
2009-12	RAN#46	R5-096145	0074	-	Correction CR to 36.521-3: E-UTRAN FDD - FDD Inter Frequency Absolute RSRP Accuracy case	8.1.0	8.2.0
2009-12	RAN#46	R5-096243	0075	-	Update to RRM TC: E-UTRAN FDD - UTRAN TDD cell re-selection	8.1.0	8.2.0
2009-12	RAN#46	R5-096244	0104	1	Addition of new TC to 36.521-3: E-UTRAN TDD - UTRAN FDD cell re-selection test	8.1.0	8.2.0
2009-12	RAN#46	R5-096246	0105	-	Modification of section 4.2.2 in 36.521-3	8.1.0	8.2.0
2009-12	RAN#46	R5-096247	0106	-	Modification of section 4.2.2 in 36.521-3	8.1.0	8.2.0
2009-12	RAN#46	R5-096255	0076	-	CR to the RA response window's name in Random Access conformance requirements	8.1.0	8.2.0
2009-12	RAN#46	R5-096257	0077	-	Addition of test scenario CR to 36.521-3: E-UTRAN FDD - UTRAN FDD cell re-selection in fading propagation conditions: UTRA FDD is of lower priority	8.1.0	8.2.0
2009-12	RAN#46	R5-096258	0078	1	Addition of new TC to 36.521-3:E-UTRAN TDD - GSM Handover: Unknown Target Cell	8.1.0	8.2.0
2009-12	RAN#46	R5-096263	0079	1	Add new TC 5.1.6 E-UTRAN TDD - TDD inter frequency handover: unknown target cell	8.1.0	8.2.0
2009-12	RAN#46	R5-096265	0080	-	CR to 36.521-3: Update of E-UTRA FDD to HRPD Handover and E-UTRA FDD to cdma2000 1xRTT Handover test cases	8.1.0	8.2.0
2009-12	RAN#46	R5-096267	0081	-	Addition of test scenario CR to 36.521-3: E-UTRAN FDD - GSM Cell Search when DRX is used	8.1.0	8.2.0
2009-12	RAN#46	R5-096268	0082	-	Addition of test scenario CR to 36.521-3: E-UTRAN FDD - UTRAN FDD Cell Search when DRX is used	8.1.0	8.2.0
2009-12	RAN#46	R5-096269	0083	-	RRM: Update of test case 8.4.1 TDD inter-frequency event triggered reporting	8.1.0	8.2.0
2009-12	RAN#46	R5-096271	0084	-	LTE-RF: Update to Annex E Cell Configuration Mapping	8.1.0	8.2.0
2009-12	RAN#46	R5-096272	0085	-	Correction CR to 36.521-3: Addition of message contents exceptions for E-UTRAN inter frequency and inter-RAT Cell Search for when DRX is used	8.1.0	8.2.0
2009-12	RAN#46	R5-096273	0086	-	Correction CR to 36.521-3: E-UTRAN FDD - UTRA FDD Handover case	8.1.0	8.2.0
2009-12	RAN#46	R5-096274	0087	-	CR to 36.521-3: Update to FDD Intra-frequency RRC Re-establishment test case	8.1.0	8.2.0
2009-12	RAN#46	R5-096275	0088	-	CR to 36.521-3: Update to FDD Inter-frequency RRC Re-establishment test case	8.1.0	8.2.0
2009-12	RAN#46	R5-096276	0107	-	Test Case of E-UTRAN TDD to GSM Handover	8.1.0	8.2.0
2009-12	RAN#46	R5-096296	0089	-	Update TC 8.7.1 E-UTRAN TDD - UTRAN TDD event triggered reporting under fading propagation conditions	8.1.0	8.2.0
2009-12	RAN#46	R5-096302	0090	-	Correction CR to 36.521-3: E-UTRAN FDD - GSM event triggered reporting in AWGN case	8.1.0	8.2.0
2009-12	RAN#46	R5-096303	0091	-	Addition of new TC to 36.521-3: E-UTRAN TDD to E-UTRAN TDD and UTRA TDD cell search test case	8.1.0	8.2.0

2009-12	RAN#46	R5-096310	0092	-	Addition of test scenario CR to 36.521-3: E-UTRAN FDD - UTRAN FDD Handover: Unknow n Target Cell	8.1.0	8.2.0
2009-12	RAN#46	R5-096324	0093	-	Addition of new TC to 36.521-3 E-UTRAN TDD - UTRAN TDD HO test: unknow n target cell	8.1.0	8.2.0
2009-12	RAN#46	R5-096325	0094	-	Addition of test scenario CR to 36.521-3: E-UTRAN FDD - FDD inter frequency Handover test cases: Unknown Target Cell	8.1.0	8.2.0
2009-12	RAN#46	R5-096326	0095	-	Addition of test scenario CR to 36.521-3: E-UTRAN FDD - GSM Handover: Unknow n Target Cell	8.1.0	8.2.0
2009-12	RAN#46	R5-096327	0096	-	Addition of new TC to 36.521-3: E-UTRAN TDD - E-UTRAN TDD and E-UTRAN TDD Inter-frequency event triggered reporting under fading propagation conditions test case	8.1.0	8.2.0
2009-12	RAN#46	R5-096328	0097	-	E-UTRAN FDD Radio Link Monitoring test for Out-of-sync in DRX	8.1.0	8.2.0
2009-12	RAN#46	R5-096329	0098	-	E-UTRAN FDD Radio Link Monitoring test for in-sync in DRX	8.1.0	8.2.0
2009-12	RAN#46	R5-096330	0099	-	E-UTRAN TDD Radio Link Monitoring test for Out-of-sync in DRX	8.1.0	8.2.0
2009-12	RAN#46	R5-096331	0100	-	E-UTRAN TDD Radio Link Monitoring test for in-sync in DRX	8.1.0	8.2.0
2009-12	RAN#46	R5-096332	0101	-	RRM: Update of test case 8.3.1 FDD inter-frequency event triggered reporting	8.1.0	8.2.0
2009-12	RAN#46	R5-096337	0102	-	Correction CR to 36.521-3: E-UTRAN FDD - FDD Handover intra frequency and inter frequency case	8.1.0	8.2.0
2009-12	RAN#46	R5-096340	0103	-	Introduction of uncertainties for RRM test cases 4.2.1 and 4.2.2	8.1.0	8.2.0
2010-03	RAN#47	R5-100130	0108	-	Test Tolerances and alignment w ith 36.133 for cell re-selection intra frequency cases	8.2.0	8.3.0
2010-03	RAN#47	R5-100132	0109	-	Uncertainties and Test Tolerances for inter frequency cell re-selection	8.2.0	8.3.0
2010-03	RAN#47	R5-100135	0110	-	Clarification of Extreme conditions for RSRP test cases	8.2.0	8.3.0
2010-03	RAN#47	R5-100362	0113	-	CR about the Cell Search Requirements for LTE FDD-FDD/ TDD-TDD Handover to Unknow n Target Cell	8.2.0	8.3.0
2010-03	RAN#47	R5-100365	0114	-	CR on updating the handover delay requirements for E-UTRAN TDD - TDD both intra-frequency and inter-frequency handovers	8.2.0	8.3.0
2010-03	RAN#47	R5-100367	0115	-	CR to correct the test requirements of reselection from E-UTRAN FDD/TDD to UTRAN TDD	8.2.0	8.3.0
2010-03	RAN#47	R5-100394	0116	-	Correction of Annex H about measurement performance messages	8.2.0	8.3.0
2010-03	RAN#47	R5-100401	0117	-	RRM Inter frequency cell search updates, TC 8.3.1 and 8.4.1	8.2.0	8.3.0
2010-03	RAN#47	R5-100438	0118	-	Update TC 8.7.1, 8.9.1 and 8.11.4	8.2.0	8.3.0
2010-03	RAN#47	R5-100460	0119	-	Misc update on 521-3	8.2.0	8.3.0
2010-03	RAN#47	R5-100486	0120	-	CR to 36.521-3: Addition of E-UTRA FDD to HRPD Handover: Unknown Target Cell and E-UTRA FDD to cdma2000 1xRTT Handover: Unknow n Target Cell test cases	8.2.0	8.3.0
2010-03	RAN#47	R5-100519	0121	-	Correction to RSRP Accuracy test cases	8.2.0	8.3.0
2010-03	RAN#47	R5-100546	0122	-	CR to 36.521-3: Update to E-UTRAN FDD RRC Re-establishment test cases	8.2.0	8.3.0
2010-03	RAN#47	R5-100562	0123	-	CR to 36.521-3: Update LTE RRM test cases w ith test requirements for extended LTE1500	8.2.0	8.3.0
2010-03	RAN#47	R5-100714	0124	-	Addition of missing Es/Noc parameters in RRM test cases	8.2.0	8.3.0
2010-03	RAN#47	R5-100715	0125	-	Correction to GSM measurement configuration in Annex H.3.1	8.2.0	8.3.0
2010-03	RAN#47	R5-100716	0126	-	Update on Annex C for 36.521-3	8.2.0	8.3.0
2010-03	RAN#47	R5-100849	0127	-	Text on exclusion of extra delay due to RRC retransmission	8.2.0	8.3.0
2010-03	RAN#47	R5-100850	0128	-	Correction to test iteration procedure in cell re-selection TCs	8.2.0	8.3.0
2010-03	RAN#47	R5-100852	0129	-	DL Mac Padding for RRM TCs	8.2.0	8.3.0
2010-03	RAN#47	R5-100853	0130	-	Update TC 5.1.6 E-UTRAN TDD-TDD inter frequency handover unknown target cell	8.2.0	8.3.0
2010-03	RAN#47	R5-100854	0131	-	New RRM test case, 8.7.3 E-UTRAN TDD SON ANR	8.2.0	8.3.0
2010-03	RAN#47	R5-100859	0132	-	Update TC 8.2.2 E-UTRAN TDD-TDD intra-frequency event triggered reporting under fading propagation conditions in synchronous cells w ith DRX	8.2.0	8.3.0
2010-03	RAN#47	R5-100860	0133	-	Update TC 8.2.1 E-UTRAN TDD-TDD intra-frequency event triggered reporting under fading propagation conditions in synchronous cells	8.2.0	8.3.0
2010-03	RAN#47	R5-100861	0134	-	Update TC 8.4.2 E-UTRAN TDD-TDD Inter-frequency event triggered reporting when DRX is used under fading propagation conditions in synchronous cells	8.2.0	8.3.0
2010-03	RAN#47	R5-100862	0135	-	Misc update on test applicability	8.2.0	8.3.0
2010-03	RAN#47	R5-100865	0136	-	CR about corrections of PDSCH Reference Measurement Channels	8.2.0	8.3.0
2010-03	RAN#47	R5-100866	0137	-	CR about OFDMA Channel Noise Generator (OCNG)	8.2.0	8.3.0
2010-03	RAN#47	R5-100873	0138	-	CR to 36.521-3 Rel-8 Introduction of E-UTRAN FDD - FDD Intra Frequency Cell Search with DRX w hen L3 filtering is used	8.2.0	8.3.0

2010-03	RAN#47	R5-100890	0139	-	Update to RRM TC: TDD Intra frequency RSRP Accuracy	8.2.0	8.3.0
2010-03	RAN#47	R5-100896	0140	-	Clarification on Time offset between cells	8.2.0	8.3.0
2010-03	RAN#47	R5-100897	0141	-	Update to RRM TC: E-UTRAN TDD-TDD cell re-selection	8.2.0	8.3.0
2010-03	RAN#47	R5-100898	0142	-	Update to RRM TC: TDD Inter frequency RSRP Accuracy	8.2.0	8.3.0
2010-03	RAN#47	R5-100900	0143	-	Uncertainties and Test Tolerances for FDD Intra Frequency Absolute RSRP Accuracy	8.2.0	8.3.0
2010-03	RAN#47	R5-100901	0144	-	RRM TTIdcch and cell timing change, update of chapter 8	8.2.0	8.3.0
2010-03	RAN#47	-	-	-	Moved to v9.0.0 with no change	8.3.0	9.0.0
2010-06	RAN#48	R5-103105	0145	-	CR to 36.521-3: Update RSRP test cases with band 11 and 21	9.0.0	9.1.0
2010-06	RAN#48	R5-103116	0146	-	Correction of CR conflict for Intra Frequency TDD reselection test	9.0.0	9.1.0
2010-06	RAN#48	R5-103117	0147	-	Reference to TR 36.903 in TS 36.521-3	9.0.0	9.1.0
2010-06	RAN#48	R5-103312	0149	-	Connection diagram for test 8.11.2 (3 cells)	9.0.0	9.1.0
2010-06	RAN#48	R5-103315	0150	-	Correction to connection diagram reference for test 8.10.1 and 8.10.2	9.0.0	9.1.0
2010-06	RAN#48	R5-103330	0151	-	update on test applicability	9.0.0	9.1.0
2010-06	RAN#48	R5-103358	0152	-	Annex E update	9.0.0	9.1.0
2010-06	RAN#48	R5-103496	0153	-	LTE-RRM: Update of test procedure for measurement performance test cases	9.0.0	9.1.0
2010-06	RAN#48	R5-103526	0154	-	CR 36.521-3 on corrections to requirements in Idle Mode	9.0.0	9.1.0
2010-06	RAN#48	R5-103528	0155	-	CR 36.521-3 on correction to InterRAT handover minimum requirements	9.0.0	9.1.0
2010-06	RAN#48	R5-103531	0156	-	CR 36.521-3 on correction to measurement requirements	9.0.0	9.1.0
2010-06	RAN#48	R5-103532	0157	-	CR 36.521-3 on correction to E-UTRA inter frequency cell search requirements	9.0.0	9.1.0
2010-06	RAN#48	R5-103534	0158	-	CR 36.521-3 on correction to UE transmit timing minimum and test requirements	9.0.0	9.1.0
2010-06	RAN#48	R5-103541	0159	-	Addition of test tolerances and system uncertainties for E-UTRAN FDD-FDD HO inter-frequency case	9.0.0	9.1.0
2010-06	RAN#48	R5-103546	0160	-	Addition of test tolerances and system uncertainties for E-UTRAN FDD-FDD intra frequency cell search under fading in asynchronous cells	9.0.0	9.1.0
2010-06	RAN#48	R5-103547	0161	-	Addition of test tolerances and system uncertainties for E-UTRAN FDD-FDD intra frequency cell search under fading in synchronous cells	9.0.0	9.1.0
2010-06	RAN#48	R5-103548	0162	-	Addition of test tolerances and system uncertainties for E-UTRAN TDD-TDD intra frequency cell search under fading in synchronous cells	9.0.0	9.1.0
2010-06	RAN#48	R5-103607	0163	-	Correction to step of physical cell identity change in 4.2.3	9.0.0	9.1.0
2010-06	RAN#48	R5-103608	0164	-	Correction of test mode reference to 36.508	9.0.0	9.1.0
2010-06	RAN#48	R5-103611	0165	-	Correction to the references of exceptional message	9.0.0	9.1.0
2010-06	RAN#48	R5-103612	0166	-	Correction to b2-Threshold1 in the exceptional message	9.0.0	9.1.0
2010-06	RAN#48	R5-103613	0194	-	Correction to Radio Resource Configuration in UE transmit timing and UE timing advance TCs	9.0.0	9.1.0
2010-06	RAN#48	R5-103614	0195	-	Correction to Gap Pattern Id in the exceptional message	9.0.0	9.1.0
2010-06	RAN#48	R5-103615	0196	-	Correction to Measure object and ID in the exceptional messages	9.0.0	9.1.0
2010-06	RAN#48	R5-103658	0197	-	Iteration in cell reselection tests	9.0.0	9.1.0
2010-06	RAN#48	R5-103709	0167	-	Connection diagram reference for intra-freq measurement TCs	9.0.0	9.1.0
2010-06	RAN#48	R5-103724	0168	-	LTE-RRM:CR to E-UTRAN TDD RRC Re-establishment test cases	9.0.0	9.1.0
2010-06	RAN#48	R5-103734	0169	-	Test Tolerances and alignment for RLM FDD TC 7.3.1, 7.3.2	9.0.0	9.1.0
2010-06	RAN#48	R5-103736	0170	-	Uncertainties and Test Tolerances for Inter Frequency Absolute RSRP Accuracy	9.0.0	9.1.0
2010-06	RAN#48	R5-103737	0171	-	Uncertainties and Test Tolerances for TC 8.1.3 and 8.2.2	9.0.0	9.1.0
2010-06	RAN#48	R5-103738	0172	-	Uncertainties and Test Tolerances for TC 8.4.1 and 8.4.2	9.0.0	9.1.0
2010-06	RAN#48	R5-103739	0173	-	LTE-RRM: CR for Test Tolerances of intra-freq hand over test cases (5.1.1 & 5.1.2)	9.0.0	9.1.0
2010-06	RAN#48	R5-103740	0174	-	LTE-RRM:CR for Test Tolerances of inter-freq absolute RSRQ accuracy test cases (9.2.3.1 & 9.2.4.1)	9.0.0	9.1.0
2010-06	RAN#48	R5-103741	0175	-	LTE-RRM:CR for Test Tolerances of inter-freq relative RSRQ accuracy test cases (9.2.3.2 & 9.2.4.2)	9.0.0	9.1.0
2010-06	RAN#48	R5-103742	0176	-	Uncertainties and Test Tolerances for Inter Frequency Relative RSRP Accuracy	9.0.0	9.1.0
2010-06	RAN#48	R5-103743	0177	-	LTE-RRM: CR on Test Tolerances for TDD intra-freq absolute RSRP accuracy Test	9.0.0	9.1.0
2010-06	RAN#48	R5-103744	0178	-	LTE-RRM: CR on Test Tolerances for TDD intra-freq relative RSRP accuracy Test case	9.0.0	9.1.0
2010-06	RAN#48	R5-103745	0179	-	Addition of test tolerances and system uncertainties for E-UTRAN TDD-TDD HO inter-frequency case	9.0.0	9.1.0
2010-06	RAN#48	R5-103746	0180	-	Additions to measurement uncertainties and Test Tolerances for E-UTRAN FDD-FDD and TDD-TDD HO inter-frequency case in Annex F	9.0.0	9.1.0

2010-06	RAN#48	R5-103747	0181	-	Additions to measurement uncertainties and Test Tolerances for E-UTRAN FDD-FDD and TDD-TDD intra frequency cell search in Annex F	9.0.0	9.1.0
2010-06	RAN#48	R5-103748	0182	-	Addition of test tolerances and system uncertainties for FDD intra frequency absolute RSRQ accuracy	9.0.0	9.1.0
2010-06	RAN#48	R5-103749	0183	-	Addition of test tolerances and system uncertainties for TDD intra frequency absolute RSRQ accuracy	9.0.0	9.1.0
2010-06	RAN#48	R5-103750	0184	-	Additions to measurement uncertainties and Test Tolerances for FDD and TDD intra frequency absolute RSRQ accuracy in Annex F	9.0.0	9.1.0
2010-06	RAN#48	R5-103758	0185	-	CR on 36.521-3 for corrections of missing Es/Noc parameters in RRM test cases	9.0.0	9.1.0
2010-06	RAN#48	R5-103759	0186	-	Adding new test case 8.11.5 Combined E-UTRAN - EUTRAN FDD and GSM cell search	9.0.0	9.1.0
2010-06	RAN#48	R5-103760	0187	-	Adding new test case 8.11.6 Combined E-UTRAN - EUTRAN TDD and GSM cell search.	9.0.0	9.1.0
2010-06	RAN#48	R5-103761	0188	-	Adding test case 8.7.3, 8.11.5, 8.11.6 to Annex E Cell configuration mapping.	9.0.0	9.1.0
2010-06	RAN#48	R5-103769	0189	-	Adding band 20, 800MHz in EU to TS36.521-3	9.0.0	9.1.0
2010-06	RAN#48	R5-103773	0190	-	Iteration in Handover and Re-establishment test cases	9.0.0	9.1.0
2010-06	RAN#48	R5-103779	0191	-	LTE-RRM: Addition of new TC E-UTRAN FDD -UTRAN FDD CPICH Ec/No absolute accuracy	9.0.0	9.1.0
2010-06	RAN#48	R5-103783	0192	-	Correction to q-RxLevMin for E-UTRAN - GSM cell re-selection	9.0.0	9.1.0
2010-06	RAN#48	R5-103784	0145	-	DL Mac Padding for RRM TCs	9.0.0	9.1.0
2010-06	RAN#48	R5-103105	0146	-	CR to 36.521-3: Update RSRP test cases with band 11 and 21	9.0.0	9.1.0
2010-06	RAN#48	R5-103116	0147	-	Correction of CR conflict for Intra Frequency TDD reselection test	9.0.0	9.1.0
2010-06	RAN#48	R5-103117	0201	-	Reference to TR 36.903 in TS 36.521-3	9.0.0	9.1.0
2010-06	RAN#48	R5-103229n	0149	-	Removal of technical content in 36.521-3 v8.3.0 and substitution with pointer to the next Release	9.0.0	9.1.0
2010-06	RAN#48	R5-103312	0150	-	Connection diagram for test 8.11.2 (3 cells)	9.0.0	9.1.0
2010-06	RAN#48	R5-103315	0151	-	Correction to connection diagram reference for test 8.10.1 and 8.10.2	9.0.0	9.1.0
2010-06	RAN#48	R5-103330	0152	-	update on test applicability	9.0.0	9.1.0
2010-06	RAN#48	R5-103358	0153	-	Annex E update	9.0.0	9.1.0
2010-09	RAN#49	R5-104098	0198	-	PUSCH Scheduling for RRM tests	9.1.0	9.2.0
2010-09	RAN#49	R5-104103	0199	-	Delay exclusion for retransmissions in RRM test cases	9.1.0	9.2.0
2010-09	RAN#49	R5-104108	0200	-	Expiry of contention resolution timer in Contention based PRACH test	9.1.0	9.2.0
2010-09	RAN#49	R5-104160	0201	-	Uncertainties and Test Tolerances for FDD Intra Frequency Relative RSRP Accuracy section 9.1.1.2	9.1.0	9.2.0
2010-09	RAN#49	R5-104230	0202	-	Correction CR to 36.521-3: Update of E-UTRAN TDD-TDD cell re-selection intra frequency case 4.2.2	9.1.0	9.2.0
2010-09	RAN#49	R5-104231	0203	-	Correction CR to 36.521-3: Update of E-UTRAN TDD-TDD cell re-selection inter frequency case 4.2.6	9.1.0	9.2.0
2010-09	RAN#49	R5-104232	0204	-	Correction CR to 36.521-3: Update of E-UTRAN TDD-TDD Handover intra frequency case 5.1.2	9.1.0	9.2.0
2010-09	RAN#49	R5-104233	0205	-	Correction CR to 36.521-3: Update of E-UTRAN TDD-TDD Handover inter frequency case 5.1.4	9.1.0	9.2.0
2010-09	RAN#49	R5-104247	0206	-	Addition of Cell Configuration Mapping for Cell Search Test	9.1.0	9.2.0
2010-09	RAN#49	R5-104248	0207	-	CR to 36.521-3 on Correction to cell search	9.1.0	9.2.0
2010-09	RAN#49	R5-104249	0208	-	CR to 36.521-3 on Correction to UE Measurement Procedures	9.1.0	9.2.0
2010-09	RAN#49	R5-104250	0209	-	CR to 36.521-3 on Correction to RRM Cell Search	9.1.0	9.2.0
2010-09	RAN#49	R5-104251	0210	-	CR to 36.521-3 on Correction to RRM General	9.1.0	9.2.0
2010-09	RAN#49	R5-104260	0211	-	Addition of test tolerances and system uncertainties for E-UTRAN FDD random access tests	9.1.0	9.2.0
2010-09	RAN#49	R5-104261	0212	-	Addition of test tolerances and system uncertainties for E-UTRAN TDD random access tests	9.1.0	9.2.0
2010-09	RAN#49	R5-104262	0213	-	LTE-RRM: Addition of new TC E-UTRAN TDD -UTRAN FDD CPICH Ec/No absolute accuracy	9.1.0	9.2.0
2010-09	RAN#49	R5-104263	0214	-	LTE-RRM: Addition of new TC E-UTRAN TDD -UTRAN FDD CPICH RSCP absolute accuracy	9.1.0	9.2.0
2010-09	RAN#49	R5-104451	0215	-	Test Tolerances and alignment for RLM FDD TC 7.3.3, 7.3.4	9.1.0	9.2.0
2010-09	RAN#49	R5-104452	0216	-	Test Tolerances and alignment for RLM FDD TC 7.3.5, 7.3.6	9.1.0	9.2.0
2010-09	RAN#49	R5-104453	0217	-	Test Tolerances and alignment for RLM TDD TC 7.3.7, 7.3.8	9.1.0	9.2.0
2010-09	RAN#49	R5-104456	0218	-	Uncertainties and Test Tolerances for E-UTRAN FDD Intra-frequency RRC Re-establishment	9.1.0	9.2.0
2010-09	RAN#49	R5-104460	0219	-	Uncertainties and Test Tolerances for E-UTRAN FDD-FDD Inter-frequency event triggered reporting under fading propagation conditions	9.1.0	9.2.0
2010-09	RAN#49	R5-104497	0220	-	Clarification on the neighbour cell info	9.1.0	9.2.0
2010-09	RAN#49	R5-104498	0221	-	Addition of the exceptional message to UE Transmit Timing	9.1.0	9.2.0
2010-09	RAN#49	R5-104499	0222	-	Maintenance on exceptional messages for annex info	9.1.0	9.2.0

2010-09	RAN#49	R5-104500	0223	-	Correction to 6.1.1 and 6.1.2 of RRC Re-establishment test case	9.1.0	9.2.0
2010-09	RAN#49	R5-104501	0224	-	Maintenance on exceptional messages for Mobility Control Info	9.1.0	9.2.0
2010-09	RAN#49	R5-104521	0225	-	36521-3 General update of sections 00 to 07: missing Introduction references formatting	9.1.0	9.2.0
2010-09	RAN#49	R5-104563	0226	-	Update on exclusion of extra delay due to RRC retransmission	9.1.0	9.2.0
2010-09	RAN#49	R5-104616	0227	-	36.521-3 Correction to test procedure in 8.11.5 and 8.11.6 test cases	9.1.0	9.2.0
2010-09	RAN#49	R5-104625	0228	-	E-UTRAN TDD inter-frequency reselection test	9.1.0	9.2.0
2010-09	RAN#49	R5-104650	0229	-	Clarifications of test requirements in measurement accuracy tests	9.1.0	9.2.0
2010-09	RAN#49	R5-104663	0230	-	36.521-3: Annex B and Annex C update	9.1.0	9.2.0
2010-09	RAN#49	R5-104825	0231	-	Missing cell Identity change step for test cases with unknown cell 2 timing	9.1.0	9.2.0
2010-09	RAN#49	R5-104826	0232	-	Addition of test tolerances and system uncertainties for FDD timing characteristics tests	9.1.0	9.2.0
2010-09	RAN#49	R5-104827	0233	-	Addition of test tolerances and system uncertainties for TDD timing characteristics tests	9.1.0	9.2.0
2010-09	RAN#49	R5-104828	0234	-	Additions to measurement uncertainties and test tolerances for timing characteristics tests in annex F	9.1.0	9.2.0
2010-09	RAN#49	R5-104829	0235	-	Uncertainties and Test Tolerances for E-UTRAN FDD Inter-frequency RRC Re-establishment	9.1.0	9.2.0
2010-09	RAN#49	R5-104830	0236	-	Uncertainties and Test Tolerances for E-UTRAN TDD-TDD inter-frequency Handover with unknown target cell	9.1.0	9.2.0
2010-09	RAN#49	R5-104839	0237	-	36521-3: Editorial update of sections 08	9.1.0	9.2.0
2010-09	RAN#49	R5-104849	0238	-	Maintenance on the exceptional messages in Ch8 - Annex	9.1.0	9.2.0
2010-09	RAN#49	R5-104855	0239	-	Uncertainties, Test Tolerances and Test Requirements for UE Transmit Timing	9.1.0	9.2.0
2010-09	RAN#49	R5-104856	0240	-	GSM carrier RSSI measurement accuracy in E-UTRAN TDD	9.1.0	9.2.0
2010-09	RAN#49	R5-104859	0241	-	E-UTRAN_to_UTRAN_FDD_reselection	9.1.0	9.2.0
2010-09	RAN#49	R5-104864	0242	-	Applicability of RRM inter-frequency test cases to (narrow) frequency bands	9.1.0	9.2.0
2010-09	RAN#49	R5-104865	0243	-	Maintenance on the exceptional messages in Ch5 - Ch6	9.1.0	9.2.0
2010-09	RAN#49	R5-104866	0244	-	36.521-3: Annex E update	9.1.0	9.2.0
2010-09	RAN#49	R5-104880	0245	-	Correction to E-UTRAN to UTRAN Cell Re-Selection test case	9.1.0	9.2.0
2010-09	RAN#49	R5-104881	0246	-	Redundant information in RRM Random Access Test Requirements	9.1.0	9.2.0
2010-09	RAN#49	R5-104883	0247	-	E-UTRAN TDD to UTRAN FDD Handover	9.1.0	9.2.0
2010-09	RAN#49	R5-104885	0248	-	Cell ID change time and iteration procedure for RRM test cases 4.2.1, 4.2.2	9.1.0	9.2.0
2010-09	RAN#49	R5-104886	0249	-	Cell ID change time for RRM test cases 4.2.3, 4.2.6	9.1.0	9.2.0
2010-09	RAN#49	R5-104887	0250	-	Scrambling code change time for RRM test cases 4.3.1.1, 4.3.4.1, 8.5.2, 8.7.3, 8.11.4	9.1.0	9.2.0
2010-09	RAN#49	R5-104889	0251	-	Iteration procedure for handover and re-establishment test cases	9.1.0	9.2.0
2010-09	RAN#49	R5-104890	0252	-	Correction to cell re-selection inter frequency test case	9.1.0	9.2.0
2010-09	RAN#49	R5-105057	0253	-	Clarification of Radio link monitoring test cases	9.1.0	9.2.0
2010-09	RAN#49	RP-100941	0254	-	Correction of status for RRM test cases and missing information in Annex	9.1.0	9.2.0
-	-	-	-	-	Re-insertion of the ambiguous step 11 of cl. 5.2.2.4.2 according to R5-104825 after email discussion	9.2.0	9.2.1
2010-12	RAN#50	R5-106079	0255	-	HARQ delay exclusion for HO test: Clarification for UE-DTX-case	9.2.1	9.3.0
2010-12	RAN#50	R5-106080	0256	-	Iteration procedure for inter RAT handover test cases	9.2.1	9.3.0
2010-12	RAN#50	R5-106082	0257	-	Corrections to event triggered measurement tests using DRX (Clause 8)	9.2.1	9.3.0
2010-12	RAN#50	R5-106083	0258	-	Missing titles in the RRM specification	9.2.1	9.3.0
2010-12	RAN#50	R5-106085	0259	-	Scheduling of System information for RRM tests	9.2.1	9.3.0
2010-12	RAN#50	R5-106086	0260	-	Update of PDCCH aggregation level for channel BW 1,4 MHz	9.2.1	9.3.0
2010-12	RAN#50	R5-106119	0261	-	CR to 36.521-3: Update LTE RRM test requirements for EUTRA TDD LTE band 41.	9.2.1	9.3.0
2010-12	RAN#50	R5-106313	0262	-	Uncertainties and Test Tolerances for Connected State Mobility test	9.2.1	9.3.0
2010-12	RAN#50	R5-106314	0263	-	Addition to Measurement Uncertainties and Test Tolerances for Connected State Mobility Test in Annex	9.2.1	9.3.0
2010-12	RAN#50	R5-106318	0264	-	Correction to inter-RAT Connected State Mobility test setup	9.2.1	9.3.0
2010-12	RAN#50	R5-106320	0265	-	Correction to Inter-RAT Connected State Mobility test requirements	9.2.1	9.3.0
2010-12	RAN#50	R5-106321	0266	-	Correction to Inter-RAT Connected State Mobility for Alignment	9.2.1	9.3.0
2010-12	RAN#50	R5-106322	0267	-	Correction to Inter-RAT Connected State Mobility test requirements	9.2.1	9.3.0

2010-12	RAN#50	R5-106448	0268	-	Addition of SIB7 exceptional messages	9.2.1	9.3.0
2010-12	RAN#50	R5-106451	0269	-	Correction to UE transmit timing TC	9.2.1	9.3.0
2010-12	RAN#50	R5-106455	0270	-	Correction to the exceptional messages in RSRQ tests	9.2.1	9.3.0
2010-12	RAN#50	R5-106456	0271	-	Correction to Min Test time for RRM fading tests	9.2.1	9.3.0
2010-12	RAN#50	R5-106483	0272	-	Annex E update	9.2.1	9.3.0
2010-12	RAN#50	R5-106493	0273	-	CR to 36.521-3: Update to G.2.6 Test Conditions for Delay Tests and UE Measurement Performance	9.2.1	9.3.0
2010-12	RAN#50	R5-106805	0274	-	Correction to test case 5.1.2 - Update of E-UTRAN TDD-TDD Handover intra frequency case	9.2.1	9.3.0
2010-12	RAN#50	R5-106806	0275	-	Correction to test case 5.1.4 - Update of E-UTRAN TDD-TDD Handover inter frequency case	9.2.1	9.3.0
2010-12	RAN#50	R5-106807	0276	-	Correction to Inter-RAT UE Measurements Procedures	9.2.1	9.3.0
2010-12	RAN#50	R5-106808	0277	-	Correction to Inter-RAT UE Measurements Procedures under fading	9.2.1	9.3.0
2010-12	RAN#50	R5-106810	0278	-	Correction to test case 8.2.1	9.2.1	9.3.0
2010-12	RAN#50	R5-106811	0279	-	Correction to test case 8.2.2	9.2.1	9.3.0
2010-12	RAN#50	R5-106812	0295	-	Update of RRM OCNG patterns	9.2.1	9.3.0
2010-12	RAN#50	R5-106829	0280	-	General Corrections to RRC_IDLE State Mobility	9.2.1	9.3.0
2010-12	RAN#50	R5-106830	0281	-	Correction to test case 6.2.3	9.2.1	9.3.0
2010-12	RAN#50	R5-106831	0282	-	Correction to test case 6.2.4	9.2.1	9.3.0
2010-12	RAN#50	R5-106832	0283	-	Correction to MeasConfig-DEFAULT in RRM TCs	9.2.1	9.3.0
2010-12	RAN#50	R5-106833	0284	-	Adding support of inter-band test configuration for RRM inter-frequency/inter-RAT test cases	9.2.1	9.3.0
2010-12	RAN#50	R5-106834	0285	-	CR on UEs RRM Band applicability	9.2.1	9.3.0
2010-12	RAN#50	R5-106835	0286	-	Correction to test case 7.1.2	9.2.1	9.3.0
2010-12	RAN#50	R5-106836	0287	-	Correction to test case 10.1.2.1, 9.1.2.2 and 9.2.2.1	9.2.1	9.3.0
2010-12	RAN#50	R5-106840	0288	-	Update to Radio Link Monitoring Test Cases	9.2.1	9.3.0
2010-12	RAN#50	R5-106857	0291	-	Correction to DL configuration on Non-Contention Based Random Access Test	9.2.1	9.3.0
2010-12	RAN#50	R5-106859	0292	-	Corrections to UE transmit timing tests (Subclause 7.3)	9.2.1	9.3.0
2010-12	RAN#50	R5-106862	0293	-	Correction to DL configuration on Contention Based Random Access Test	9.2.1	9.3.0
2010-12	RAN#50	R5-106864	0294	-	Update of Annex G for RLM test in DRX	9.2.1	9.3.0
2010-12	RAN#50	R5-106870	0289	-	Uncertainties and Test Tolerances for UE measurements procedures test	9.2.1	9.3.0
2010-12	RAN#50	R5-106871	0290	-	Addition to Measurement Uncertainties and Test Tolerances for UE Measurement Procedures test in Annex	9.2.1	9.3.0
2011-03	RAN#51	R5-110150	0296	-	RRC Re-establishment tests: Corrections to Message contents	9.3.0	9.4.0
2011-03	RAN#51	R5-110151	0297	-	Radio link monitoring tests: Corrections to Message contents	9.3.0	9.4.0
2011-03	RAN#51	R5-110155	0298	-	UE Measurements Procedures tests: Test loop	9.3.0	9.4.0
2011-03	RAN#51	R5-110167	0299	-	Removal of [ ] from PDSCH and PCFICH/PDCCH/PHICH Measurement Channel references	9.3.0	9.4.0
2011-03	RAN#51	R5-110348	0300	-	Revision of 36.521-3 Annex G - Statistical testing	9.3.0	9.4.0
2011-03	RAN#51	R5-110418	0301	-	Correction to TDD cell re-selection	9.3.0	9.4.0
2011-03	RAN#51	R5-110419	0302	-	Correction to exception messages in 4.5.1 HRPD Re selection test	9.3.0	9.4.0
2011-03	RAN#51	R5-110424	0303	-	Alignment of exception messages for TDD event triggered measurement tests	9.3.0	9.4.0
2011-03	RAN#51	R5-110435	0304	-	Modification of message content definition for TC 8.4.1	9.3.0	9.4.0
2011-03	RAN#51	R5-110437	0305	-	Update to TC 8.6.1: E-UTRAN TDD - UTRAN FDD event triggered reporting under fading propagation conditions	9.3.0	9.4.0
2011-03	RAN#51	R5-110438	0306	-	Correction to TC 8.7.1: E-UTRA TDD to UTRA(1.28 Mcps TDD OPTION) cell search in fading propagation conditions	9.3.0	9.4.0
2011-03	RAN#51	R5-110443	0307	-	Update to TC 8.8.1: E-UTRAN FDD - GSM event triggered reporting in AWGN	9.3.0	9.4.0
2011-03	RAN#51	R5-110445	0308	-	Corrections to TC 8.9.1: E-UTRAN FDD - UTRAN TDD event triggered reporting under fading propagation conditions	9.3.0	9.4.0
2011-03	RAN#51	R5-110520	0309	-	Correction to Inter-RAT Connected State Mobility for Alignment	9.3.0	9.4.0
2011-03	RAN#51	R5-110546	0310	-	Uncertainties and Test Tolerances for Connected State Mobility Inter-RAT to UTRAN test	9.3.0	9.4.0
2011-03	RAN#51	R5-110549	0312	-	Uncertainties and Test Tolerances for Connected State Mobility Inter-RAT to GSM unknow n test	9.3.0	9.4.0
2011-03	RAN#51	R5-110584	0314	-	Correction to gap pattern ID in test case 5.1.4	9.3.0	9.4.0
2011-03	RAN#51	R5-110586	0315	-	Clarification to 1.4 MHz testing and applicability in test case 7.1.1	9.3.0	9.4.0
2011-03	RAN#51	R5-110588	0316	-	Test time limit correction for DRX=40ms in test case 8.1.3	9.3.0	9.4.0
2011-03	RAN#51	R5-110863	0330	-	Higher SNR on event triggered measurement tests	9.3.0	9.4.0
2011-03	RAN#51	R5-110866	0311	-	Addition to Measurement Uncertainties and Test Tolerances for Connected State Mobility Inter-RAT to UTRAN test in Annex	9.3.0	9.4.0

2011-03	RAN#51	R5-110868	0313	-	Addition to Measurement Uncertainties and Test Tolerances for Connected State Mobility Inter-RAT to GSM unknown test in Annex	9.3.0	9.4.0
2011-03	RAN#51	R5-110902	0317	-	CR to 36.521-3: Update LTE RRM test requirements for EUTRA TDD LTE band 41	9.3.0	9.4.0
2011-03	RAN#51	R5-110903	0318	-	Correction to exception messages in 5.3.1 HRPD HHO test	9.3.0	9.4.0
2011-03	RAN#51	R5-110904	0319	-	MIMO Correlation scenario for RLM test cases	9.3.0	9.4.0
2011-03	RAN#51	R5-110905	0320	-	Enabling HARQ for section 8 and 9 RRM Tests	9.3.0	9.4.0
2011-03	RAN#51	R5-110907	0321	-	Re-ordering of Time periods, definition of uncertainties, and addition of Test Tolerances for RRM test case 4.3.1.1	9.3.0	9.4.0
2011-03	RAN#51	R5-110910	0322	-	Updated Test Tolerances for RRM Test cases 7.1.1 + 7.1.2	9.3.0	9.4.0
2011-03	RAN#51	R5-110911	0323	-	Uncertainties and Test Tolerances for Connected State Mobility Inter-RAT to GSM tests	9.3.0	9.4.0
2011-03	RAN#51	R5-110912	0324	-	Addition to Measurement Uncertainties and Test Tolerances for Connected State Mobility Inter-RAT to GSM test in Annex	9.3.0	9.4.0
2011-03	RAN#51	R5-110927	0325	-	Corrections to RRM TC 8.1.1, 8.1.2 and 8.1.3	9.3.0	9.4.0
2011-03	RAN#51	R5-110928	0326	-	Corrections to test cases about E-UTRAN FDD-FDD Inter-frequency measurement 8.3.1, 8.3.2 and 8.3.3	9.3.0	9.4.0
2011-03	RAN#51	R5-110929	0327	-	Corrections to TCs related to E-UTRAN FDD - UTRAN measurements: 8.5.1, 8.5.2 and 8.5.3	9.3.0	9.4.0
2011-03	RAN#51	R5-110930	0328	-	UE Measurement procedures tests: Corrections to Message contents	9.3.0	9.4.0
2011-03	RAN#51	R5-110931	0329	-	DL-RMC-s and OCNG for RRM tests: Updates	9.3.0	9.4.0
2011-03	RAN#51	R5-110946	0331	-	Uncertainties and Test Tolerances for RRM test case 4.3.1.2	9.3.0	9.4.0
2011-03	RAN#51	R5-110948	0332	-	Uncertainties and Test Tolerances for RRM test cases 4.4.1 and 4.4.2	9.3.0	9.4.0
2011-03	RAN#51	R5-110956	0333	-	Modification of test case 5.1.6 - E-UTRAN TDD-TDD inter frequency handover: unknown target cell	9.3.0	9.4.0
2011-03	RAN#51	R5-110957	0334	-	LTE RRM: reference to state 3A in 36.521-3	9.3.0	9.4.0
2011-03	RAN#51	R5-110958	0335	-	Correction to RRM testes for Alignment	9.3.0	9.4.0
2011-03	RAN#51	R5-110959	0336	-	CR to 36.521-3: E-UTRAN FDD - UTRA FDD CPICH RSCP absolute accuracy test case	9.3.0	9.4.0
2011-03	RAN#51	R5-110960	0337	-	CR to 36.521-3: Addition of Multiple E-UTRAN FDD-FDD Inter-frequency event triggered reporting test case	9.3.0	9.4.0
2011-03	RAN#51	R5-110961	0338	-	CR to 36.521-3: E-UTRAN FDD-FDD Inter-frequency and UTRAN FDD event triggered reporting test case	9.3.0	9.4.0
2011-03	RAN#51	R5-110962	0339	-	Correction to exception messages in Radio Link Monitoring Test	9.3.0	9.4.0
2011-03	RAN#51	R5-110963	0340	-	Correction to TC 8.4.2: E-UTRAN TDD-TDD Inter-frequency event triggered reporting when DRX is used under fading propagation conditions in synchronous cells	9.3.0	9.4.0
2011-03	RAN#51	R5-110964	0341	-	Corrections to TC 8.7.3: E-UTRAN TDD - UTRAN TDD SON ANR cell search reporting under AWGN propagation conditions	9.3.0	9.4.0
2011-03	RAN#51	R5-110965	0342	-	Correct the message definitions related to the RSRP and RSRQ performance testing	9.3.0	9.4.0
2011-03	RAN#51	R5-110966	0343	-	Update of RRM test 8.5.2 FDD SON	9.3.0	9.4.0
2011-03	RAN#51	R5-110974	0344	-	PUSCH scheduling: Correction for considering DRX	9.3.0	9.4.0
2011-03	RAN#51	R5-110980	0345	-	Correction to TC 8.8.2: E-UTRAN FDD - GSM Event triggered reporting when DRX is used in AWGN	9.3.0	9.4.0
2011-03	RAN#51	R5-110981	0346	-	Update to TC 8.10.1: E-UTRAN TDD - GSM event triggered reporting in AWGN	9.3.0	9.4.0
2011-03	RAN#51	R5-110982	0347	-	Corrections to TC 8.10.2: E-UTRAN TDD-GSM event triggered reporting when DRX is used in AWGN	9.3.0	9.4.0
2011-03	RAN#51	R5-110983	0348	-	Modification to TC 8.7.2: E-UTRAN TDD to UTRAN 1.28Mcps TDD cell search when DRX is used in fading propagation conditions	9.3.0	9.4.0
2011-03	RAN#51	R5-110995	0352	-	Radio link monitoring test 7.3.4: Minor correction to the test requirement	9.3.0	9.4.0
2011-03	RAN#51	R5-110996	0353	-	Radio link monitoring tests: Corrections to the test procedure	9.3.0	9.4.0
2011-06	RAN#52	R5-112124	0354	-	Uncertainties and Test Tolerances for RRM test case 8.7.1	9.4.0	9.5.0
2011-06	RAN#52	R5-112126	0355	-	Uncertainties and Test Tolerances for RRM test case 8.7.2	9.4.0	9.5.0
2011-06	RAN#52	R5-112128	0356	-	Uncertainties and Test Tolerances for RRM test cases 8.8.1+8.10.1	9.4.0	9.5.0
2011-06	RAN#52	R5-112152	0357	-	RRM TC-s 4.2: Transition between time intervals	9.4.0	9.5.0
2011-06	RAN#52	R5-112153	0358	-	RRM TC 4.2.6: Introduction of time duration T0	9.4.0	9.5.0
2011-06	RAN#52	R5-112155	0359	-	RRM TC-s clause 8: Reference to the state 3A / 3A-RF in the test loop	9.4.0	9.5.0
2011-06	RAN#52	R5-112185	0360	-	Addition of new RRM TC 4.3.4.3: EUTRA TDD-UTRA TDD cell reselection in fading propagation conditions: UTRA TDD is of lower priority	9.4.0	9.5.0
2011-06	RAN#52	R5-112314	0365	-	Correction to E-UTRAN FDD - UTRAN FDD cell re-selection when UTRA FDD is under lower priority	9.4.0	9.5.0

2011-06	RAN#52	R5-112315	0366	-	Correction to E-UTRA FDD-high UTRA FDD inter RAT cell re-selection test case	9.4.0	9.5.0
2011-06	RAN#52	R5-112316	0367	-	Correction to E-UTRAN TDD-UTRAN TDD cell search reporting for SON ANR in AWGN propagation conditions	9.4.0	9.5.0
2011-06	RAN#52	R5-112317	0368	-	Correction on test cases of E-UTRA to UTRA cell reselection in idle state	9.4.0	9.5.0
2011-06	RAN#52	R5-112318	0369	-	Correction to E-UTRAN TDD - UTRAN TDD test case in 36.521-3	9.4.0	9.5.0
2011-06	RAN#52	R5-112418	0370	-	Update of 4.3.1.3 E-UTRA-UTRA reselection test case	9.4.0	9.5.0
2011-06	RAN#52	R5-112421	0371	-	Correction to 6.1 RRC Re-establishment test case	9.4.0	9.5.0
2011-06	RAN#52	R5-112423	0372	-	Maintenance on Message contents in 8.5.3	9.4.0	9.5.0
2011-06	RAN#52	R5-112424	0373	-	Correction to Annex H.3.3 for Inter-RAT E-UTRAN - HRPD handover	9.4.0	9.5.0
2011-06	RAN#52	R5-112454	0374	-	Wrong references into statistical annex	9.4.0	9.5.0
2011-06	RAN#52	R5-112457	0375	-	References into connection diagrams in 36.508,Annex A	9.4.0	9.5.0
2011-06	RAN#52	R5-112470	0376	-	Misalignment in Meas Gap configuration	9.4.0	9.5.0
2011-06	RAN#52	R5-112475	0377	-	Band 20 missing in section 9 test cases	9.4.0	9.5.0
2011-06	RAN#52	R5-112533	0378	-	Uncertainties and Test Tolerances for connected state mobility Inter-RAT TDD to GSM test	9.4.0	9.5.0
2011-06	RAN#52	R5-112536	0379	-	Addition to Measurement Uncertainties and Test Tolerances for connected state mobility Inter-RAT TDD to GSM test in Annex	9.4.0	9.5.0
2011-06	RAN#52	R5-112543	0380	-	Uncertainties and Test Tolerances for connected state mobility Inter-RAT TDD to GSM unknown test	9.4.0	9.5.0
2011-06	RAN#52	R5-112544	0381	-	Addition to Measurement Uncertainties and Test Tolerances for connected state mobility Inter-RAT TDD to GSM unknown test in Annex	9.4.0	9.5.0
2011-06	RAN#52	R5-112546	0382	-	Uncertainties and Test Tolerances for Inter-RAT to UTRAN event triggered reporting under fading test	9.4.0	9.5.0
2011-06	RAN#52	R5-112554	0383	-	Uncertainties and Test Tolerances for Inter-RAT to GSM event triggered when DRX is used in AWGN tests	9.4.0	9.5.0
2011-06	RAN#52	R5-112555	0384	-	Addition to Measurement Uncertainties and Test Tolerances for Inter-RAT to GSM event triggered when DRX is used in AWGN tests in Annex	9.4.0	9.5.0
2011-06	RAN#52	R5-112734	0385	-	Addition of Band 24 to section 9.1 and 9.2 , RSRP and RSRQ measurement performance requirements	9.4.0	9.5.0
2011-06	RAN#52	R5-112741	0363	-	Uncertainties and Test Tolerances for RRM test case 10.3.1	9.4.0	9.5.0
2011-06	RAN#52	R5-112742	0364	-	Uncertainties and Test Tolerances for RRM test case 9.3.2	9.4.0	9.5.0
2011-06	RAN#52	R5-112745	0394	-	Completing for E-UTRAN TDD-UTRAN TDD cell reselection_UTRA is of lower priority	9.4.0	9.5.0
2011-06	RAN#52	R5-112746	0395	-	Completing for E-UTRAN FDD-UTRAN FDD-UTRAN TDD cell reselection	9.4.0	9.5.0
2011-06	RAN#52	R5-112803	0386	-	Addition to Measurement Uncertainties and Test Tolerances for Inter-RAT to UTRAN event triggered reporting under fading test in Annex	9.4.0	9.5.0
2011-06	RAN#52	R5-112815	0387	-	Correction to test frequency references in RRM initial condition	9.4.0	9.5.0
2011-06	RAN#52	R5-112817	0388	-	RRM TC-s 8.1.1, 8.1.2, 8.1.3, 8.2.1, 8.2.2: Changing SNR for serving cell	9.4.0	9.5.0
2011-06	RAN#52	R5-112818	0389	-	RRM TC 9.6.2: Overall corrections	9.4.0	9.5.0
2011-06	RAN#52	R5-112819	0390	-	CR for 9.4 UTRA FDD measurement accuracy	9.4.0	9.5.0
2011-06	RAN#52	R5-112820	0391	-	Add test frequencies for bands 42, 43 (3500MHz)	9.4.0	9.5.0
2011-06	RAN#52	R5-112849	0398	-	Update of clause 3A.3 RRM test configuration	9.4.0	9.5.0
2011-06	RAN#52	R5-112853	0399	-	Correction to inconsistent test procedures in RRM	9.4.0	9.5.0
2011-06	RAN#52	R5-112855	0400	-	Uncertainties and Test Tolerances for RRM test case 5.2.10	9.4.0	9.5.0
2011-06	RAN#52	R5-112858	0401	-	Addition of new RRM TC 8.4.3: E-UTRAN TDD-TDD inter-freq event triggered reporting under AWGN in synchronous cells with DRX when L3 filtering is used	9.4.0	9.5.0
2011-09	RAN#53	R5-113183	0402	-	RRM TC 8: Adding missing PRACH Configuration for some tests	9.5.0	9.6.0
2011-09	RAN#53	R5-113226	0403	-	Uncertainties and Test Tolerances for RRM test case 4.3.1.3	9.5.0	9.6.0
2011-09	RAN#53	R5-113249	0404	-	Uncertainties and Test Tolerances for TC 5.2.1	9.5.0	9.6.0
2011-09	RAN#53	R5-113250	0405	-	Uncertainties and Test Tolerances for TC 5.2.2	9.5.0	9.6.0
2011-09	RAN#53	R5-113395	0406	-	Not tested minimum requirement in Clause 8	9.5.0	9.6.0
2011-09	RAN#53	R5-113460	0407	-	Correction to 4.2.3	9.5.0	9.6.0
2011-09	RAN#53	R5-113461	0408	-	Correction to the exceptional messages in HO TCs with unknown target cell	9.5.0	9.6.0
2011-09	RAN#53	R5-113462	0409	-	Maintenance on the exceptional messages for Mobility Control Info	9.5.0	9.6.0
2011-09	RAN#53	R5-113463	0410	-	Correction to 6.2.3 and 6.2.4	9.5.0	9.6.0
2011-09	RAN#53	R5-113466	0411	-	Correction to FDD RSRP and RSRQ test	9.5.0	9.6.0
2011-09	RAN#53	R5-113467	0412	-	Correction to TDD RSRP and RSRQ test for band 41	9.5.0	9.6.0
2011-09	RAN#53	R5-113468	0413	-	Correction to the exceptional messages in Annex H	9.5.0	9.6.0
2011-09	RAN#53	R5-113597	0414	-	Abbreviation update and Editorial corrections in TS36.521-3	9.5.0	9.6.0

2011-09	RAN#53	R5-113843	0443	-	Adding FGI Applicabilities into Chapters 4 - 7 in 36.521-3	9.5.0	9.6.0
2011-09	RAN#53	R5-113844	0440	-	RRM TCs 5.1: PRACH power configuration	9.5.0	9.6.0
2011-09	RAN#53	R5-113845	0444	-	RRM TCs 7.3: Update of the test procedure and requirements	9.5.0	9.6.0
2011-09	RAN#53	R5-113846	0425	-	Statistical clarification for TC 8.3.3 and 8.3.4	9.5.0	9.6.0
2011-09	RAN#53	R5-114005	0415	-	LTE-RRM: Corrections to test iteration for test case 4.3.4.1	9.5.0	9.6.0
2011-09	RAN#53	R5-114007	0416	-	Correction on the inter-RAT cell identification time in DRX	9.5.0	9.6.0
2011-09	RAN#53	R5-114009	0417	-	Completing for E-UTRAN TDD - UTRAN TDD handover test case	9.5.0	9.6.0
2011-09	RAN#53	R5-114013	0418	-	Uncertainties and Test Tolerance for FDD SON ANR test case 8.5.2	9.5.0	9.6.0
2011-09	RAN#53	R5-114016	0419	-	Uncertainties and Test Tolerances for TC 9.4.1 and 9.4.2	9.5.0	9.6.0
2011-09	RAN#53	R5-114019	0420	-	CR Uncertainties and TT for 8.4.3 in 36.521-3	9.5.0	9.6.0
2011-09	RAN#53	R5-114021	0421	-	CR Uncertainties and TT for 4.3.4.3 in 36.521-3	9.5.0	9.6.0
2011-09	RAN#53	R5-114026	0422	-	Deletion of editor note for discrepancy between TT and 36.903	9.5.0	9.6.0
2011-09	RAN#53	R5-114050	0423	-	RRM: Use of State 3A-RF	9.5.0	9.6.0
2011-09	RAN#53	R5-114055	0424	-	RRM TCs 7.2: Transition between iteration loops	9.5.0	9.6.0
2011-09	RAN#53	R5-114057	0426	-	Statistical clarification in 6 Test cases in clause 8.11.	9.5.0	9.6.0
2011-09	RAN#53	R5-114059	0427	-	Completing for E-UTRAN TDD-UTRAN TDD cell re-selection_UTRA is of higher priority	9.5.0	9.6.0
2011-09	RAN#53	R5-114060	0428	-	Uncertainties and Test Tolerances for TC 8.9.1	9.5.0	9.6.0
2011-09	RAN#53	R5-114072	0429	-	Update LTE RRM test requirements for FDD LTE Band 23 in 36.521-3	9.5.0	9.6.0
2011-09	RAN#53	R5-114084	0430	-	Simplification of frequency dependent minimum requirements in TS36.521-3	9.5.0	9.6.0
2011-09	RAN#53	R5-114097	0431	-	Adding FGI Applicabilities into Chapters 8 - 9 in 36.521-3	9.5.0	9.6.0
2011-09	RAN#53	R5-114099	0432	-	Addition of new RRM TC 8.1.5´╝ÜE-UTRAN FDD - FDD Intra-frequency identification of a new CGI of E-UTRA cell using autonomous gaps	9.5.0	9.6.0
2011-09	RAN#53	R5-114100	0433	-	Addition of new RRM TC 8.1.6: E-UTRAN FDD - FDD Intra-frequency identification of a new CGI of E-UTRA cell using autonomous gaps with DRX	9.5.0	9.6.0
2011-09	RAN#53	R5-114101	0434	-	Addition of new RRM TC 8.2.3: E-UTRAN TDD - TDD Intra-frequency identification of a new CGI of E-UTRA cell using autonomous gaps	9.5.0	9.6.0
2011-09	RAN#53	R5-114102	0435	-	Addition of new RRM TC 8.2.4: E-UTRAN TDD - TDD Intra-frequency identification of a new CGI of E-UTRA cell using autonomous gaps with DRX	9.5.0	9.6.0
2011-09	RAN#53	R5-114103	0436	-	Addition of new RRM TC 8.3.4´╝ÜE-UTRAN FDD - FDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps	9.5.0	9.6.0
2011-09	RAN#53	R5-114104	0437	-	Addition of new RRM TC 8.3.5:E-UTRAN FDD - FDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps with DRX	9.5.0	9.6.0
2011-09	RAN#53	R5-114105	0438	-	Addition of new RRM TC 8.4.4:E-UTRAN TDD - TDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps	9.5.0	9.6.0
2011-09	RAN#53	R5-114106	0439	-	Addition of new RRM TC 8.4.5:E-UTRAN TDD - TDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps with DRX	9.5.0	9.6.0
2011-09	RAN#53	R5-114111	0441	-	Correction to RLM	9.5.0	9.6.0
2011-09	RAN#53	R5-114115	0442	-	LTE-RRM: Correction to test procedure for inter-RAT cell reselection test cases	9.5.0	9.6.0
2011-09	RAN#53	R5-114119	0445	-	Introduction of Expanded 1900MHz Band (Band 25) into section 9 of 36.521-3	9.5.0	9.6.0
2011-12	RAN#54	R5-115121	0446	-	RRM TC-s 7, 8: Iteration loop and usage of the UE states 3A / 3A-RF	9.6.0	9.7.0
2011-12	RAN#54	R5-115140	0447	-	Modify the test requirement table in the TC 5.2.1	9.6.0	9.7.0
2011-12	RAN#54	R5-115142	0449	-	LTE-RRM : Update to Annex E	9.6.0	9.7.0
2011-12	RAN#54	R5-115189	0452	-	Uncertainties and Test Tolerances for RRM test case 8.11.3	9.6.0	9.7.0
2011-12	RAN#54	R5-115199	0453	-	Correction of references to Annex I in TS36.521-3	9.6.0	9.7.0
2011-12	RAN#54	R5-115200	0454	-	Test System uncertainties for frequencies between 3000MHz to 4200MHz in 36.521-3	9.6.0	9.7.0
2011-12	RAN#54	R5-115202	0456	-	Uncertainties and Test Tolerance for TDD SON ANR test case 8.7.3	9.6.0	9.7.0
2011-12	RAN#54	R5-115327	0457	-	Correction to RRM tests 7.1.2 and 7.2.2	9.6.0	9.7.0
2011-12	RAN#54	R5-115379	0458	-	Update of operating band configuration	9.6.0	9.7.0
2011-12	RAN#54	R5-115381	0459	-	Correction to FGI in test applicability for Cell reselection test case	9.6.0	9.7.0
2011-12	RAN#54	R5-115385	0460	-	Correction to 5.2.2	9.6.0	9.7.0
2011-12	RAN#54	R5-115386	0461	-	Alignment of the exceptional messages in 7.3.x RLM	9.6.0	9.7.0
2011-12	RAN#54	R5-115387	0462	-	Correction to 8.10.1 and 8.10.2	9.6.0	9.7.0
2011-12	RAN#54	R5-115388	0463	-	Correction to the exceptional message in 8.6.1.1	9.6.0	9.7.0
2011-12	RAN#54	R5-115403	0465	-	Uncertainties and Test Tolerances for RRM test case 4.3.3	9.6.0	9.7.0

2011-12	RAN#54	R5-115433	0466	-	Corrections to TC 5.1.5 and TC 5.1.6 inter-f HO: unknown target cell	9.6.0	9.7.0
2011-12	RAN#54	R5-115435	0467	-	Updates of TC 5.2.3: E-UTRAN FDD - GSM handover	9.6.0	9.7.0
2011-12	RAN#54	R5-115479	0468	-	Corrections to RSRQ in Intra-Frequency Measurement Minimum Requirements	9.6.0	9.7.0
2011-12	RAN#54	R5-115482	0469	-	Addition to measurement uncertainties and test tolerances E-UTRAN FDD - UTRAN FDD event triggered reporting w/DRX under fading test in Annex	9.6.0	9.7.0
2011-12	RAN#54	R5-115787	0471	-	Uncertainties and Test Tolerances for RRM test case 8.11.1 and 8.11.2	9.6.0	9.7.0
2011-12	RAN#54	R5-115582	0472	-	RRM TC 6.2: Corrections to power settings	9.6.0	9.7.0
2011-12	RAN#54	R5-115814	0473	-	Incomplete test case for 7.1.1 and 7.1.2	9.6.0	9.7.0
2011-12	RAN#54	R5-115823	0474	-	Uncertainties and TT for TC 6.1.3 and 6.1.4 in 36.521-3	9.6.0	9.7.0
2011-12	RAN#54	R5-115827	0477	-	Correction to Test Tolerances for RRM ch.9 test cases	9.6.0	9.7.0
2011-12	RAN#54	R5-115833	0478	-	Adding band 22 (3500MHz FDD) to 36.521-3	9.6.0	9.7.0
2011-12	RAN#54	R5-115834	0479	-	RRM: Phase rotation for intra frequency tests in static conditions	9.6.0	9.7.0
2011-12	RAN#54	R5-115835	0480	-	Addition of the exceptional message in 4.6.1.1	9.6.0	9.7.0
2011-12	RAN#54	R5-115836	0481	-	Addition of undefined UTRA system information for TC 4.3.1.1	9.6.0	9.7.0
2011-12	RAN#54	R5-115838	0482	-	Corrections to TC 5.2.1 and TC 5.2.2: E-UTRAN FDD/TDD - UTRAN FDD handover	9.6.0	9.7.0
2011-12	RAN#54	R5-115839	0483	-	Corrections to message content definition for TC 5.1.1 and TC 5.1.2: intra-f HO	9.6.0	9.7.0
2011-12	RAN#54	R5-115840	0484	-	Updates to TC 5.1.3 and TC 5.1.4: inter-f HO	9.6.0	9.7.0
2011-12	RAN#54	R5-115841	0485	-	Updates of TC 5.2.4 and TC 5.2.5: E-UTRAN FDD/TDD - UTRAN TDD handover	9.6.0	9.7.0
2011-12	RAN#54	R5-115842	0486	-	Removal of measurement related message definitions in TC 5.2.7, TC 5.2.9 and TC 5.2.10	9.6.0	9.7.0
2011-12	RAN#54	R5-115843	0487	-	Modification of message definitions in the Annex H	9.6.0	9.7.0
2011-12	RAN#54	R5-115844	0488	-	Modification of the test cases of Random Access	9.6.0	9.7.0
2011-12	RAN#54	R5-115845	0489	-	RRM TC-s 9: Missing bands in specification	9.6.0	9.7.0
2011-12	RAN#54	R5-115846	0490	-	RRM TC-s 7.3: SRS configuration in radio link monitoring tests	9.6.0	9.7.0
2011-12	RAN#54	R5-115847	0491	-	Correction to test frequency in MeasConfig-DEFAULT	9.6.0	9.7.0
2011-12	RAN#54	R5-115848	0492	-	Corrections to TC 7.1.1 and TC 7.1.2: UE Transmit Timing Accuracy	9.6.0	9.7.0
2011-12	RAN#54	R5-115850	0493	-	Correction to 5.2.6	9.6.0	9.7.0
2011-12	RAN#54	R5-115878	0494	-	Correction to cell reselection delay in test procedure	9.6.0	9.7.0
2011-12	RAN#54	R5-115882	0495	-	Addition of undefined UTRA system information for TC 4.3.1.2 and TC 4.3.1.3	9.6.0	9.7.0
2011-12	RAN#54	R5-115883	0496	-	Addition of undefined UTRA system information for TC 4.3.2	9.6.0	9.7.0
2011-12	RAN#54	R5-115884	0497	-	Addition of undefined UTRA system information for TC 4.3.3	9.6.0	9.7.0
2011-12	RAN#54	R5-115885	0498	-	Addition of undefined UTRA system information for TC 4.3.4.1	9.6.0	9.7.0
2011-12	RAN#54	R5-115886	0499	-	Addition of UTRA system information definitions for TC 4.3.4.2	9.6.0	9.7.0
2011-12	RAN#54	R5-115887	0500	-	Updates of the message content definitions for TC 4.3.4.3	9.6.0	9.7.0
2011-12	RAN#54	R5-115888	0501	-	Updates of TC 4.4.1 and TC 4.4.2: E-UTRAN FDD/TDD - GSM cell re-selection	9.6.0	9.7.0
2011-12	RAN#54	R5-115786	0502	-	Corrections to test cases for E-UTRAN RRC Re-establishment	9.6.0	9.7.0
2011-12	RAN#54	R5-115893	0503	-	RRM TC-s 4: General review of the test procedures of cell re-selection test cases	9.6.0	9.7.0
2011-12	RAN#54	R5-115481	0504	-	Uncertainties and test tolerances E-UTRAN FDD - UTRAN FDD event triggered reporting w/DRX under fading test	9.6.0	9.7.0
2012-03	RAN#55	R5-120107	0505	-	Uncertainties and Test Tolerance for E-UTRAN TDD Intra-frequency new CGI test cases 8.2.3 and 8.2.4	9.7.0	9.8.0
2012-03	RAN#55	R5-120124	0506	-	Uncertainties and Test Tolerance for E-UTRAN TDD Inter-frequency new CGI test cases 8.4.4 and 8.4.5.	9.7.0	9.8.0
2012-03	RAN#55	R5-120141	0507	-	RRM: Iteration loop in cdma2000 reselection tests	9.7.0	9.8.0
2012-03	RAN#55	R5-120178	0508	-	RF/RRM: Correction on TC 8.4.1 message content definition	9.7.0	9.8.0
2012-03	RAN#55	R5-120183	0509	-	RF/RRM: Addition of new TC 4.2.4 E-UTRAN FDD - TDD cell re-selection inter frequency case	9.7.0	9.8.0
2012-03	RAN#55	R5-120184	0510	-	RF/RRM: Addition of new TC 4.2.5 E-UTRAN TDD - FDD cell re-selection inter frequency case	9.7.0	9.8.0
2012-03	RAN#55	R5-120185	0511	-	RF/RRM: Addition of new TC 5.1.7 E-UTRAN FDD - TDD handover inter frequency case	9.7.0	9.8.0
2012-03	RAN#55	R5-120186	0512	-	RF/RRM: Addition of new TC 5.1.8 E-UTRAN TDD - FDD handover Inter frequency case	9.7.0	9.8.0
2012-03	RAN#55	R5-120187	0513	-	RF/RRM: Addition of new TC 8.12.1 E-UTRAN TDD - FDD Inter-frequency event triggered reporting under fading propagation conditions in asynchronous cells	9.7.0	9.8.0
2012-03	RAN#55	R5-120189	0514	-	RF/RRM: Addition of new TC 9.1.5.1 FDD - TDD Inter Frequency Absolute RSRP Accuracy	9.7.0	9.8.0
2012-03	RAN#55	R5-120190	0515	-	RF/RRM: Addition of new TC 9.1.5.2 FDD - TDD Inter Frequency Relative Accuracy of RSRP	9.7.0	9.8.0

2012-03	RAN#55	R5-120191	0516	-	RF/RRM: Addition of Cell configuration mapping for those new RRM test cases	9.7.0	9.8.0
2012-03	RAN#55	R5-120245	0517	-	Update of 36.521-3 Test Cases 9.1.4.1 and 9.1.4.2, lo difference band-independent	9.7.0	9.8.0
2012-03	RAN#55	R5-120249	0518	-	Uncertainties and Test Tolerances for RRM test case 8.11.4	9.7.0	9.8.0
2012-03	RAN#55	R5-120321	0519	-	Update of 4.3.1 E-UTRAN FDD - UTRAN FDD cell re-selection	9.7.0	9.8.0
2012-03	RAN#55	R5-120322	0520	-	Update of 4.3.4 E-UTRAN TDD - UTRAN TDD cell re-selection	9.7.0	9.8.0
2012-03	RAN#55	R5-120323	0521	-	Adding E-UTRAN test parameter reference to messages exception	9.7.0	9.8.0
2012-03	RAN#55	R5-120324	0522	-	Correction to 4.6.1.1 E-UTRAN FDD c2k cell re-selection	9.7.0	9.8.0
2012-03	RAN#55	R5-120325	0523	-	Correction to 5.2.4 E-UTRAN TDD - UTRAN TDD handover	9.7.0	9.8.0
2012-03	RAN#55	R5-120339	0524	-	Addition of FGI bit 16 into test cases 9.1.x.x and 9.2.x.x	9.7.0	9.8.0
2012-03	RAN#55	R5-120341	0525	-	Correction to FGI bits in test case 8.5.2	9.7.0	9.8.0
2012-03	RAN#55	R5-120424	0526	-	Correction to TIntra in Minimum Conformance Requirements	9.7.0	9.8.0
2012-03	RAN#55	R5-120425	0527	-	Correction to the identification time in DRX for UTRA TDD	9.7.0	9.8.0
2012-03	RAN#55	R5-120515	0528	-	Addition of FGI bit 15 into test cases configuring event 1B	9.7.0	9.8.0
2012-03	RAN#55	R5-120808	0535	-	RF/RRM: Corrections on RSRP and RSRQ accuracy related test cases	9.7.0	9.8.0
2012-03	RAN#55	R5-120809	0536	-	TS 36.521-3: 8.3.3 and 8.4.3 T2 value correction	9.7.0	9.8.0
2012-03	RAN#55	R5-120810	0537	-	TS 36.521-3: 6.2.3 Extreme conditions test tolerance correction	9.7.0	9.8.0
2012-03	RAN#55	R5-120827	0538	-	Correction to CQI report configuration of 7.1.1 in TS36.521-3	9.7.0	9.8.0
2012-03	RAN#55	R5-120846	0539	-	Test configuration for Inter RAT testcases, delete note	9.7.0	9.8.0
2012-03	RAN#55	R5-120847	0540	-	RF/RRM: Addition of new TC 8.13.1 E-UTRAN FDD - TDD Inter-frequency event triggered reporting under fading propagation conditions in asynchronous cells	9.7.0	9.8.0
2012-03	RAN#55	R5-120848	0541	-	Correction to 8.7.3 E-UTRAN TDD - UTRAN TDD SON ANR	9.7.0	9.8.0
2012-03	RAN#55	R5-120892	0542	-	Update of PRACH test case	9.7.0	9.8.0
2012-03	RAN#55	R5-120894	0543	-	Correction to 5.2.10 E-UTRAN TDD - UTRAN TDD handover	9.7.0	9.8.0
2012-03	RAN#55	R5-120895	0544	-	Correction to test frequency in MeasConfig-DEFAULT for E-UTRAN to GSM cell search test case	9.7.0	9.8.0
2012-03	RAN#55	R5-120907	0547	-	Uncertainties and Test Tolerances for E-UTRAN to HRPD Cell reselection TC 4.5.1.1	9.7.0	9.8.0
2012-03	RAN#55	R5-120917	0546	-	Uncertainties and Test Tolerances for E-UTRAN to HRPD HO TC 5.3.1	9.7.0	9.8.0
2012-03	RAN#55	R5-120530	0529	-	Introduction to FDD RSRQ for E-UTRA Carrier Aggregation	9.8.0	10.0.0
2012-03	RAN#55	R5-120531	0530	-	Introduction to TDD RSRQ for E-UTRA Carrier Aggregation	9.8.0	10.0.0
2012-03	RAN#55	R5-120532	0531	-	Introduction to FDD RSRQ for E-UTRA Carrier Aggregation in Annex	9.8.0	10.0.0
2012-03	RAN#55	R5-120533	0532	-	Introduction to TDD RSRQ for E-UTRA Carrier Aggregation in Annex	9.8.0	10.0.0
2012-03	RAN#55	R5-120535	0533	-	Introduction to Carrier Aggregation in Radio Resource Management	9.8.0	10.0.0
2012-03	RAN#55	R5-120536	0534	-	Introduction to Carrier Aggregation in Default Message Contents	9.8.0	10.0.0
2012-06	RAN#56	R5-121229	0549	-	Correction of test procedures for Autonomous gap test cases, section 8	10.0.0	10.1.0
2012-06	RAN#56	R5-121240	0550	-	Revise test frequencies for FDD-TDD interworking Test cases	10.0.0	10.1.0
2012-06	RAN#56	R5-121247	0551	-	RRM: Removal of Editors note on connection diagram used in intra frequency tests in static conditions	10.0.0	10.1.0
2012-06	RAN#56	R5-121527	0552	-	Addition of Handover to UTRAN commands in 36.521-3	10.0.0	10.1.0
2012-06	RAN#56	R5-121528	0553	-	Correction of drx-RetransmissionTimer parameters	10.0.0	10.1.0
2012-06	RAN#56	R5-121529	0554	-	Correction to Test2 in 7.1.1 and 7.1.2 of 36.521-3	10.0.0	10.1.0
2012-06	RAN#56	R5-121530	0555	-	Correction to DRX offset in 7.1.2	10.0.0	10.1.0
2012-06	RAN#56	R5-121532	0557	-	Correction to 8.11.1 and 8.11.2	10.0.0	10.1.0
2012-06	RAN#56	R5-121547	0558	-	Addition of new TCs for UTRAN TDD P-CCPCH RSCP measurement	10.0.0	10.1.0
2012-06	RAN#56	R5-121691	0559	-	TS 36.521-3: 8.3.3 and 8.4.3 update	10.0.0	10.1.0
2012-06	RAN#56	R5-121901	0560	-	Introduction of E-UTRAN Inter Introduction of E-UTRAN Inter frequency case reselection in the existence of non-allowed CSG cell	10.0.0	10.1.0
2012-06	RAN#56	R5-121902	0561	-	Addition of new RRM TC 6.3.1: Redirection from E-UTRAN FDD to UTRAN FDD	10.0.0	10.1.0
2012-06	RAN#56	R5-121922	0562	-	Addition of new RRM TC 6.3.2: Redirection from E-UTRAN TDD to UTRAN FDD	10.0.0	10.1.0
2012-06	RAN#56	R5-121923	0563	-	Addition of new RRM TC 6.3.3: Redirection from E-UTRAN FDD to GERAN when System Information is provided	10.0.0	10.1.0
2012-06	RAN#56	R5-121924	0564	-	Addition of new RRM TC 6.3.4: Redirection from E-UTRAN TDD to GERAN when System Information is provided	10.0.0	10.1.0
2012-06	RAN#56	R5-121927	0565	-	Uncertainties and Test Tolerances for TC 9.6.2	10.0.0	10.1.0
2012-06	RAN#56	R5-121929	0566	-	Uncertainties and Test Tolerances for RRM test cases 4.2.4 and 4.2.5	10.0.0	10.1.0

2012-06	RAN#56	R5-121930	0567	-	Uncertainties and Test Tolerances for RRM test cases 5.1.7 and 5.1.8	10.0.0	10.1.0
2012-06	RAN#56	R5-121931	0568	-	Uncertainties and Test Tolerances for RRM test cases 8.14.1	10.0.0	10.1.0
2012-06	RAN#56	R5-121932	0569	-	Uncertainties and Test Tolerances for RRM test case 8.15.1	10.0.0	10.1.0
2012-06	RAN#56	R5-121933	0570	-	Uncertainties and Test Tolerances for RRM test case 9.1.5.1	10.0.0	10.1.0
2012-06	RAN#56	R5-121934	0571	-	Uncertainties and Test Tolerances for FDD - TDD Inter Frequency Relative Accuracy of RSRP test case 9.1.5.2	10.0.0	10.1.0
2012-06	RAN#56	R5-121940	0572	-	Correction to the test mode references for RRM tests	10.0.0	10.1.0
2012-06	RAN#56	R5-121941	0573	-	Addition of new RRM TC 6.3.5: E-UTRA TDD RRC connection release redirection to UTRA TDD	10.0.0	10.1.0
2012-06	RAN#56	R5-121942	0574	-	RRM: Introduction of Annex for handling of different releases and UE capabilities	10.0.0	10.1.0
2012-06	RAN#56	R5-121969	0575	-	Adding operating band 26 to TS 36.521-3	10.0.0	10.1.0
2012-06	RAN#56	R5-121977	0576	-	Change in transmit timing tests based on DRX feature group indicator	10.0.0	10.1.0
2012-06	RAN#56	R5-121980	0577	-	Clarifications to FDD RSRQ for E-UTRA Carrier Aggregation	10.0.0	10.1.0
2012-06	RAN#56	R5-121981	0578	-	Clarifications to TDD RSRQ for E-UTRA Carrier Aggregation	10.0.0	10.1.0
2012-06	RAN#56	R5-121991	0579	-	Further Test Tolerance analysis for operating band 25 and 41 in 36.521-3	10.0.0	10.1.0
2012-06	RAN#56	R5-121998	0580	-	Addition of new RRM TC 6.3.6: E-UTRA FDD RRC connection release redirection to UTRA TDD	10.0.0	10.1.0
2012-06	RAN#56	R5-121999	0581	-	Addition of new RRM TC 8.5.4 E-UTRAN FDD - UTRAN FDD enhanced cell identification under AWGN propagation conditions	10.0.0	10.1.0
2012-06	RAN#56	R5-122000	0582	-	Addition of new RRM TC 8.7.4 E-UTRA TDD-UTRA TDD enhanced cell identification under AWGN propagation conditions	10.0.0	10.1.0
2012-06	RAN#56	R5-122001	0583	-	Addition of new RRM TC 8.9.2 E-UTRA FDD-UTRA TDD enhanced cell identification under AWGN propagation conditions	10.0.0	10.1.0
2012-06	RAN#56	R5-122002	0584	-	RRM: Clarifications to the OCNG patterns	10.0.0	10.1.0
2012-06	RAN#56	R5-122007	0556	-	Correction to SR Config Index for TDD DRX test cases	10.0.0	10.1.0
2012-09	RAN#57	R5-123065	0585	-	Correction to References in Annex I	10.1.0	10.2.0
2012-09	RAN#57	R5-123149	0587	-	Corrections to E-UTRAN FDD intra frequency measurements requirements	10.1.0	10.2.0
2012-09	RAN#57	R5-123151	0588	-	Corrections to E-UTRAN FDD inter frequency measurements requirements	10.1.0	10.2.0
2012-09	RAN#57	R5-123152	0589	-	Corrections to E-UTRAN TDD intra frequency measurements requirements	10.1.0	10.2.0
2012-09	RAN#57	R5-123153	0590	-	Corrections to E-UTRAN TDD inter frequency measurements requirements	10.1.0	10.2.0
2012-09	RAN#57	R5-123163	0591	-	Introduction of E-UTRAN TDD-TDD Event Triggered reporting on deactivated SCell with PCell interruption in non-DRX for CA	10.1.0	10.2.0
2012-09	RAN#57	R5-123166	0592	-	Correction to FDD RSRQ for E-UTRA Carrier Aggregation tests	10.1.0	10.2.0
2012-09	RAN#57	R5-123167	0593	-	Correction to TDD RSRQ for E-UTRA Carrier Aggregation tests	10.1.0	10.2.0
2012-09	RAN#57	R5-123168	0594	-	Introduction of default RRC messages exceptions for Carrier Aggregation	10.1.0	10.2.0
2012-09	RAN#57	R5-123281	0596	-	Addition of new TC 4.6.2.1 E-UTRAN TDD-cdma2000 1X Cell Reselection: cdma2000 1X is of Lower Priority	10.1.0	10.2.0
2012-09	RAN#57	R5-123290	0597	-	Addition of new TC 8.18.1 E-UTRAN TDD-HRPD event triggered reporting under fading propagation conditions	10.1.0	10.2.0
2012-09	RAN#57	R5-123291	0598	-	Addition of new TC 8.19.1 E-UTRAN TDD-CDMA2000 1X event triggered reporting under fading propagation conditions	10.1.0	10.2.0
2012-09	RAN#57	R5-123292	0599	-	Annex H message content updates	10.1.0	10.2.0
2012-09	RAN#57	R5-123301	0600	-	Addition of Cell configuration mapping for new RRM test cases	10.1.0	10.2.0
2012-09	RAN#57	R5-123335	0601	-	Correction to transmit timing test cases	10.1.0	10.2.0
2012-09	RAN#57	R5-123336	0602	-	Addition of band indicator for GERAN	10.1.0	10.2.0
2012-09	RAN#57	R5-123426	0603	-	RRM: Update of Annex J	10.1.0	10.2.0
2012-09	RAN#57	R5-123903	0606	-	Addition of new RRM TC 4.5.2.1 E-UTRAN TDD-HRPD Cell Reselection: HRPD is of Lower Priority	10.1.0	10.2.0
2012-09	RAN#57	R5-123904	0607	-	Addition of new TC 5.3.5 E-UTRAN TDD-HRPD Handover	10.1.0	10.2.0
2012-09	RAN#57	R5-123905	0608	-	Addition of new TC 6.3.8 E-UTRA FDD RRC connection release redirection to UTRA TDD without SI provided	10.1.0	10.2.0
2012-09	RAN#57	R5-123906	0609	-	Addition of new TC 6.3.9 Redirection from E-UTRAN FDD to UTRAN FDD without System Information	10.1.0	10.2.0
2012-09	RAN#57	R5-123907	0610	-	Addition of new TC 6.3.10 Redirection from E-UTRAN FDD to GERAN when System Information is not provided	10.1.0	10.2.0
2012-09	RAN#57	R5-123908	0611	-	Addition of new TC 6.3.11 Redirection from E-UTRAN TDD to GERAN when System Information is not provided	10.1.0	10.2.0
2012-09	RAN#57	R5-123916	0612	-	Introduction of Chapter9 absolute and relative RSRP measurement test cases for carrier aggregation (TC 9.1.6.1 and 9.1.6.2)	10.1.0	10.2.0

2012-09	RAN#57	R5-123920	0613	-	Uncertainties and Test Tolerances for E-UTRAN FDD, TDD Inter frequency reselection in the existence of non-allowed CSG cell Test cases 4.2.7 and 4.2.8	10.1.0	10.2.0
2012-09	RAN#57	R5-123935	0614	-	Addition of new TC 5.3.6 E-UTRAN TDD-cdma2000 1X Handover	10.1.0	10.2.0
2012-09	RAN#57	R5-123936	0615	-	Addition of new TC 6.3.7 E-UTRA TDD RRC connection release redirection to UTRA TDD without SI provided	10.1.0	10.2.0
2012-09	RAN#57	R5-123937	0616	-	Addition of new TC 6.3.12 E-UTRAN TDD RRC connection release redirection to UTRAN FDD without SI provided	10.1.0	10.2.0
2012-09	RAN#57	R5-123938	0617	-	Addition of new TC 9.2.4A.1 FDD - TDD Inter Frequency Absolute RSRQ Accuracy	10.1.0	10.2.0
2012-09	RAN#57	R5-123939	0618	-	Addition of new TC 9.2.4A.2 FDD - TDD Inter Frequency Relative Accuracy of RSRQ	10.1.0	10.2.0
2012-09	RAN#57	R5-123940	0619	-	Addition of new TC 8.14.3 E-UTRAN TDD - FDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps	10.1.0	10.2.0
2012-09	RAN#57	R5-123941	0620	-	Addition of new TC 8.15.3 E-UTRAN FDD - TDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps	10.1.0	10.2.0
2012-09	RAN#57	R5-123959	0621	-	Introduction of E-UTRAN FDD-FDD Event Triggered reporting on deactivated SCell with PCell interruption in non-DRX for CA	10.1.0	10.2.0
2012-09	RAN#57	R5-123960	0622	-	Introduction of E-UTRAN Event Triggered reporting on deactivated SCell with PCell interruption in non-DRX for CA in Annex	10.1.0	10.2.0
2012-09	RAN#57	R5-123995	0623	-	Addition of new TC 8.14.2 E-UTRAN TDD-FDD Inter-frequency event triggered reporting when DRX is used under fading propagation conditions in synchronous cells	10.1.0	10.2.0
2012-09	RAN#57	R5-123996	0624	-	Addition of new TC 8.15.2 E-UTRAN FDD-TDD Inter-frequency event triggered reporting when DRX is used under fading propagation conditions in asynchronous cells	10.1.0	10.2.0
2012-09	RAN#57	R5-123998	0625	-	RRM: Further avoidance of frequency overlapping for inter-frequency and inter-RAT	10.1.0	10.2.0
2012-09	RAN#57	R5-123999	0626	-	Adding clauses in TS36.521-3 with references for positioning test cases	10.1.0	10.2.0
2012-09	RAN#57	R5-123789	0605	-	Implementation of only partly implemented CR: Clarification of the release of UTRAN-EUTRAN Inter-RAT RRM test cases in 36.521-3	10.2.0	10.2.1
2012-12	RAN#58	R5-124155	0667	-	New TC(8.20) introduction of inter-frequency/RAT measurements in CA mode	10.3.0	10.4.0
2012-12	RAN#58	R5-124172	0668	-	Correction to TC 8.16.3 E-UTRAN FDD-FDD Event Triggered reporting on deactivated SCell with PCell interruption in non-DRX for CA	10.3.0	10.4.0
2012-12	RAN#58	R5-124173	0669	-	Corrections to TC 8.16.4 E-UTRAN TDD-TDD Event Triggered reporting on deactivated SCell with PCell interruption in non-DRX for CA	10.3.0	10.4.0
2012-12	RAN#58	R5-124174	0670	-	Introduction of default RRC messages exceptions for Carrier Aggregation	10.3.0	10.4.0
2012-12	RAN#58	R5-124180	0671	-	Addition of new cell configuration mapping for CA related test cases	10.3.0	10.4.0
2012-12	RAN#58	R5-125209	0627	-	RRM TC 9.1.6.1: General updates and corrections	10.3.0	10.4.0
2012-12	RAN#58	R5-125210	0628	-	RRM TC 9.1.6.2: General updates and corrections	10.3.0	10.4.0
2012-12	RAN#58	R5-125328	0629	-	RRM Annex C: Addition of physical channel settings for eICIC tests	10.3.0	10.4.0
2012-12	RAN#58	R5-125335	0630	-	RRM Annex A: Addition of measurement channels for eICIC tests	10.3.0	10.4.0
2012-12	RAN#58	R5-125337	0631	-	RRM New TC 7.3.9: Test skeleton for E-UTRAN FDD Radio Link Monitoring Out-of-sync with non-MBSFN ABS	10.3.0	10.4.0
2012-12	RAN#58	R5-125338	0632	-	RRM New TC 7.3.10: Test skeleton for E-UTRAN TDD Radio Link Monitoring Out-of-sync with non-MBSFN ABS	10.3.0	10.4.0
2012-12	RAN#58	R5-125339	0633	-	RRM New TC 7.3.11: Test skeleton for E-UTRAN FDD Radio Link Monitoring In-sync with non-MBSFN ABS	10.3.0	10.4.0
2012-12	RAN#58	R5-125340	0634	-	RRM New TC 7.3.12: Test skeleton for E-UTRAN TDD Radio Link Monitoring In-sync with non-MBSFN ABS	10.3.0	10.4.0
2012-12	RAN#58	R5-125341	0635	-	RRM New TC 8.1.7: Test skeleton for E-UTRAN FDD-FDD Intra-Frequency Event-Triggered Reporting with non-MBSFN ABS	10.3.0	10.4.0
2012-12	RAN#58	R5-125342	0636	-	RRM New TC 8.2.5: Test skeleton for E-UTRAN TDD-TDD Intra-Frequency Event-Triggered Reporting with non-MBSFN ABS	10.3.0	10.4.0
2012-12	RAN#58	R5-125344	0637	-	RRM TC 9.6.2: General corrections	10.3.0	10.4.0
2012-12	RAN#58	R5-125363	0638	-	Update Test cases 5.2.3+5.2.6 uncertainties for >3GHz	10.3.0	10.4.0
2012-12	RAN#58	R5-125364	0639	-	Fading margin for RRM Test cases 8.3.1, 8.3.2, 8.4.1, 8.4.2, 8.14.1 and 8.15.1	10.3.0	10.4.0
2012-12	RAN#58	R5-125366	0640	-	Procedure and requirements for Test cases 4.2.7 and 4.2.8	10.3.0	10.4.0

2012-12	RAN#58	R5-125368	0641	-	Correction of RSRP values in the Test Requirement for RRM Test case 5.3.1	10.3.0	10.4.0
2012-12	RAN#58	R5-125382	0642	-	Clean up of TDD related RRM tests in 36.521-3	10.3.0	10.4.0
2012-12	RAN#58	R5-125427	0643	-	Correction to TC 9.2.5.1 FDD Absolute RSRQ for E-UTRA Carrier Aggregation tests	10.3.0	10.4.0
2012-12	RAN#58	R5-125430	0644	-	Correction to TC 9.2.6.1 TDD Absolute RSRQ for E-UTRA Carrier Aggregation tests	10.3.0	10.4.0
2012-12	RAN#58	R5-125538	0645	-	RRM TC 9.6.1: Introduction of GSM RSSI accuracy for E-UTRAN FDD	10.3.0	10.4.0
2012-12	RAN#58	R5-125549	0646	-	Uncertainties and Test Tolerances for TC 4.5.2.1	10.3.0	10.4.0
2012-12	RAN#58	R5-125551	0647	-	Uncertainties and Test Tolerances for TC 5.3.5	10.3.0	10.4.0
2012-12	RAN#58	R5-125553	0648	-	Uncertainties and Test Tolerances for TC 8.14.2	10.3.0	10.4.0
2012-12	RAN#58	R5-125555	0649	-	Uncertainties and Test Tolerances for TC 8.15.2	10.3.0	10.4.0
2012-12	RAN#58	R5-125557	0650	-	Uncertainties and Test Tolerances for TC 8.14.3 and 8.15.3	10.3.0	10.4.0
2012-12	RAN#58	R5-125559	0651	-	Uncertainties and Test Tolerances for TC 9.2.4A.1	10.3.0	10.4.0
2012-12	RAN#58	R5-125561	0652	-	Uncertainties and Test Tolerances for TC 9.2.4A.2	10.3.0	10.4.0
2012-12	RAN#58	R5-125576	0665	-	Correction to Table 9.2.1.1.5-2 in subclause 9.2.1.1.5	10.3.0	10.4.0
2012-12	RAN#58	R5-125812	0653	-	Correction to RRM 9.3.1 in 36.521-3	10.3.0	10.4.0
2012-12	RAN#58	R5-125813	0654	-	Addition of new TC 8.16.1 E-UTRAN FDD event triggered reporting under deactivated SCell in non-DRX including uncertainties and Test Tolerances	10.3.0	10.4.0
2012-12	RAN#58	R5-125814	0655	-	Addition of new TC 8.16.2 E-UTRAN TDD event triggered reporting under deactivated SCell in non-DRX including uncertainties and Test Tolerances	10.3.0	10.4.0
2012-12	RAN#58	R5-125865	0656	-	Introduction of Band 27 to TS 36.521-3	10.3.0	10.4.0
2012-12	RAN#58	R5-125878	0657	-	Correction to TC 9.2.5.2 FDD Relative RSRQ for E-UTRA Carrier Aggregation tests	10.3.0	10.4.0
2012-12	RAN#58	R5-125879	0658	-	Correction to TC 9.2.6.2 TDD Relative RSRQ for E-UTRA Carrier Aggregation tests	10.3.0	10.4.0
2012-12	RAN#58	R5-125888	0659	-	Correction to accuracy requirements in RSRP/RSRQ test for Band 26in 36.521-3	10.3.0	10.4.0
2012-12	RAN#58	R5-125889	0660	-	Correction to RRM 9.4.1 in 36.521-3	10.3.0	10.4.0
2012-12	RAN#58	R5-125922	0661	-	Update Test Procedure and Test Tolerances for UE Transmit Timing Accuracy	10.3.0	10.4.0
2012-12	RAN#58	R5-126045	0663	-	Addition of a new TC 9.1.7.1 TDD Absolute RSRP Accuracy E-UTRA for Carrier Aggregation	10.3.0	10.4.0
2012-12	RAN#58	R5-126046	0664	-	Addition of a new TC 9.1.7.2 TDD Relative RSRP Accuracy E-UTRA for Carrier Aggregation	10.3.0	10.4.0
2012-12	RAN#58	R5-126064	0662	-	Correction to RRM 4.2.7 in 36.521-3	10.3.0	10.4.0
2013-03	RAN#59	R5-130058	0666	-	Uncertainties and Test Tolerances for RRM test cases 9.1.6.1 and 9.1.7.1	10.4.0	10.5.0
2013-03	RAN#59	R5-130060	0667	-	Uncertainties and Test Tolerances for RRM test cases 9.1.6.2 and 9.1.7.2	10.4.0	10.5.0
2013-03	RAN#59	R5-130062	0668	-	Uncertainties and Test Tolerances for RRM test cases 9.2.5.1 and 9.2.6.1	10.4.0	10.5.0
2013-03	RAN#59	R5-130162	0705	-	Modifying test requirements for handover test from E-UTRAN to UTRAN TDD	10.4.0	10.5.0
2013-03	RAN#59	R5-130290	0669	-	RRM:Corrections to TC 9.3.1	10.4.0	10.5.0
2013-03	RAN#59	R5-130300	0670	-	RRM: Corrections to TC 9.6.1	10.4.0	10.5.0
2013-03	RAN#59	R5-130301	0671	-	RRM: Corrections to TC 9.6.2	10.4.0	10.5.0
2013-03	RAN#59	R5-130302	0672	-	Editors note for test cases where Test Requirement not valid above 3GHz	10.4.0	10.5.0
2013-03	RAN#59	R5-130395	0673	-	Uncertainties and Test Tolerances for TC 6.3.1 Redirection from E-UTRAN FDD to UTRAN FDD	10.4.0	10.5.0
2013-03	RAN#59	R5-130396	0674	-	Uncertainties and Test Tolerances for TC 6.3.3 Redirection from E-UTRAN FDD to GERAN when System Information is provided	10.4.0	10.5.0
2013-03	RAN#59	R5-130397	0675	-	Uncertainties and Test Tolerances for TC 6.3.9 Redirection from E-UTRAN FDD to UTRAN FDD without System Information	10.4.0	10.5.0
2013-03	RAN#59	R5-130398	0676	-	Uncertainties and Test Tolerances for TC 6.3.10 Redirection from E-UTRAN FDD to GERAN when System Information is not provided	10.4.0	10.5.0
2013-03	RAN#59	R5-130430	0677	-	Correction to RRM 4.2.7 and 4.2.8	10.4.0	10.5.0
2013-03	RAN#59	R5-130436	0678	-	Update of cell configuration mapping in Annex E	10.4.0	10.5.0
2013-03	RAN#59	R5-130468	0706	-	Correction to RRM measurement accuracy tests	10.4.0	10.5.0
2013-03	RAN#59	R5-130803	0680	-	Updates to TC 8.16.3 and 8.16.4	10.4.0	10.5.0
2013-03	RAN#59	R5-130931	0683	-	Update Test Procedure and Test Tolerances for UE Transmit Timing Accuracy	10.4.0	10.5.0
2013-03	RAN#59	R5-130932	0684	-	Uncertainties and Test Tolerances for RRM test cases 9.2.5.2 and 9.2.6.2	10.4.0	10.5.0
2013-03	RAN#59	R5-130934	0685	-	Test Tolerances to TCs 8.16.3 and 8.16.4 Event Triggered reporting on deactivated SCell with PCell interruption in non-DRX	10.4.0	10.5.0

2013-03	RAN#59	R5-130781	0686	-	RRM: Updates and corrections to TC 8.1.5	10.4.0	10.5.0
2013-03	RAN#59	R5-130943	0687	-	Correction to sr-ConfigIndex in RRM FDD-TDD dual mode tests	10.4.0	10.5.0
2013-03	RAN#59	R5-130953	0688	-	CA RRM: Corrections to tests with independent events	10.4.0	10.5.0
2013-03	RAN#59	R5-130962	0689	-	Add structure for new eICIC test cases 9.2.7.1 and 9.2.8.1, FDD and TDD RSRQ	10.4.0	10.5.0
2013-03	RAN#59	R5-130981	0690	-	Introduction of Chapter 9 RRM test cases for RSRP accuracy for FDD EUTRA -eICIC	10.4.0	10.5.0
2013-03	RAN#59	R5-130982	0691	-	Introduction of Chapter 9 RRM test cases for RSRP accuracy for TDD EUTRA -eICIC	10.4.0	10.5.0
2013-03	RAN#59	R5-130983	0692	-	Additions to TC 8.16.3 E-UTRAN FDD-FDD Event triggered reporting on deactivated SCell with PCell interruption in non-DRX	10.4.0	10.5.0
2013-03	RAN#59	R5-130984	0693	-	Additions to TC 8.16.4 E-UTRAN TDD-TDD Event triggered reporting on deactivated SCell with PCell interruption in non-DRX	10.4.0	10.5.0
2013-03	RAN#59	R5-130985	0694	-	Additions to TC 9.2.5.1 FDD Absolute RSRQ for E-UTRA Carrier Aggregation tests	10.4.0	10.5.0
2013-03	RAN#59	R5-130986	0695	-	Additions to TC 9.2.5.2 FDD Relative RSRQ for E-UTRA Carrier Aggregation tests	10.4.0	10.5.0
2013-03	RAN#59	R5-130987	0696	-	Additions to TC 9.2.6.1 TDD Absolute RSRQ for E-UTRA Carrier Aggregation tests	10.4.0	10.5.0
2013-03	RAN#59	R5-130988	0697	-	Additions to TC 9.2.6.2 TDD Relative RSRQ for E-UTRA Carrier Aggregation tests	10.4.0	10.5.0
2013-03	RAN#59	R5-130989	0698	-	Updates to TC 8.16.1 and 8.16.2	10.4.0	10.5.0
2013-03	RAN#59	R5-130990	0699	-	Updates to TCs in section 8.20	10.4.0	10.5.0
2013-03	RAN#59	R5-130991	0700	-	Updates to TCs about FDD and TDD RSRP accuracy for E-UTRA CA	10.4.0	10.5.0
2013-03	RAN#59	R5-130992	0701	-	Updates to TCs about FDD and TDD RSRQ accuracy for E-UTRA CA	10.4.0	10.5.0
2013-03	RAN#59	R5-130993	0702	-	Updates to H.4 default RRC message content for CA	10.4.0	10.5.0
2013-03	RAN#59	R5-130995	0703	-	Correction to RRC Connection Release with Redirection tests	10.4.0	10.5.0
2013-03	RAN#59	R5-130782	0704	-	Correction to new CGI E-UTRA cell with autonomous gaps tests	10.4.0	10.5.0
2013-03	RAN#59	R5-130452	0679	-	Adding operating bands 28 and 44 to Annex I in TS36.521-3	10.5.0	11.0.0
2013-03	RAN#59	R5-130906	0681	-	Introduction of Band 44 for APAC 700 MHz	10.5.0	11.0.0
2013-03	RAN#59	R5-130907	0682	-	Introduction of Band 28 for APAC 700 MHz	10.5.0	11.0.0
2013-06	RAN#60	R5-131105	0707	-	Correction to Test requirement for tests 7.1.X	11.0.0	11.1.0
2013-06	RAN#60	R5-131109	0708	-	eICIC RRM: Addition of MBSFN ABS configuration in annex	11.0.0	11.1.0
2013-06	RAN#60	R5-131110	0709	-	eICIC RRM: Further specification of TC 7.3.9	11.0.0	11.1.0
2013-06	RAN#60	R5-131111	0710	-	eICIC RRM: Further specification of TC 7.3.10	11.0.0	11.1.0
2013-06	RAN#60	R5-131112	0711	-	eICIC RRM: Further specification of TC 7.3.11	11.0.0	11.1.0
2013-06	RAN#60	R5-131113	0712	-	eICIC RRM: Further specification of TC 7.3.12	11.0.0	11.1.0
2013-06	RAN#60	R5-131118	0713	-	CA RRM: References to connection diagrams	11.0.0	11.1.0
2013-06	RAN#60	R5-131148	0714	-	Updates to RRM test case for CA band combo CA_2A-29A	11.0.0	11.1.0
2013-06	RAN#60	R5-131177	0715	-	RRM: FGI bit support in test applicability statement	11.0.0	11.1.0
2013-06	RAN#60	R5-131178	0716	-	RRM TC 9.6: Clarification on testing requirement when no BCCH1 report available	11.0.0	11.1.0
2013-06	RAN#60	R5-131180	0718	-	RRM: Uncertainties and test tolerances for TCs 8.1.5 and 8.1.6	11.0.0	11.1.0
2013-06	RAN#60	R5-131182	0719	-	RRM: Uncertainties and test tolerances for TCs 8.3.4 and 8.3.5	11.0.0	11.1.0
2013-06	RAN#60	R5-131185	0720	-	RRM TC 8.14.2: Minor correction to cross references	11.0.0	11.1.0
2013-06	RAN#60	R5-131186	0721	-	RRM: Several corrections to CGI related test cases	11.0.0	11.1.0
2013-06	RAN#60	R5-131282	0722	-	Uncertainties and Test Tools for eICIC RRM test cases 9.2.7.1, 9.2.8.1	11.0.0	11.1.0
2013-06	RAN#60	R5-131286	0723	-	Uncertainties and Test Tools for RRM test cases 8.11.5, 8.11.6	11.0.0	11.1.0
2013-06	RAN#60	R5-131288	0724	-	Uncertainties and Test Tools for RRM test cases 9.5.1, 9.5.2	11.0.0	11.1.0
2013-06	RAN#60	R5-131291	0725	-	Cleanup of Annex F Introductory Text	11.0.0	11.1.0
2013-06	RAN#60	R5-131403	0726	-	Uncertainties and Test Tolerances for TS 36.521-3 test cases 5.2.4 and 5.2.5	11.0.0	11.1.0
2013-06	RAN#60	R5-131404	0727	-	Uncertainties and Test Tolerances for TS 36.521-3 test case 8.5.4	11.0.0	11.1.0
2013-06	RAN#60	R5-131405	0728	-	Uncertainties and Test Tolerances for TS 36.521-3 test cases 8.7.4 and 8.9.2	11.0.0	11.1.0
2013-06	RAN#60	R5-131445	0729	-	Addition of inter-freq/RAT without measurement gaps TCs	11.0.0	11.1.0
2013-06	RAN#60	R5-131463	0730	-	Uncertainties and Test Tolerances for RRM test cases 6.3.2 and 6.3.12	11.0.0	11.1.0
2013-06	RAN#60	R5-131468	0731	-	Uncertainties and Test Tolerances for RRM test cases 6.3.5+6.3.6+6.3.7+6.3.8	11.0.0	11.1.0
2013-06	RAN#60	R5-131469	0732	-	Modification to test cases 8.7.1 and 8.7.2	11.0.0	11.1.0
2013-06	RAN#60	R5-131517	0733	-	Corrections to RRM requirements for interruption in single CA	11.0.0	11.1.0

2013-06	RAN#60	R5-131529	0734	-	Corrections for RSRQ E-UTRA CA	11.0.0	11.1.0
2013-06	RAN#60	R5-131586	0735	-	Correction to the test cases with the existence of non-allowed CSG cell	11.0.0	11.1.0
2013-06	RAN#60	R5-131590	0736	-	Correction to PRACH configuration	11.0.0	11.1.0
2013-06	RAN#60	R5-131591	0737	-	Correction to Time Alignment Timer	11.0.0	11.1.0
2013-06	RAN#60	R5-131613	0738	-	Editors note for test cases where Test Requirement not valid above 3GHz, clause 8	11.0.0	11.1.0
2013-06	RAN#60	R5-131615	0739	-	Editors note for test cases where Test Requirement not valid above 3GHz, clause 8 - 9	11.0.0	11.1.0
2013-06	RAN#60	R5-131740	0740	-	Corrections of band 26 notes in TS36.521-3	11.0.0	11.1.0
2013-06	RAN#60	R5-131913	0741	-	Change the IE value of System Information Block type 19 for TS36.521-3 TDD test case 4.3.4.1.	11.0.0	11.1.0
2013-06	RAN#60	R5-131922	0742	-	eICIC RRM: Further specification of TC 8.1.7	11.0.0	11.1.0
2013-06	RAN#60	R5-131923	0743	-	eICIC RRM: Further specification of TC 8.2.5	11.0.0	11.1.0
2013-06	RAN#60	R5-131924	0744	-	Structure for new TCs 9.1.8.1, 9.1.8.2, FDD Absolute and Relative eICIC RSRP, Non-MBSFN	11.0.0	11.1.0
2013-06	RAN#60	R5-131925	0745	-	Structure for new TCs 9.1.9.1, 9.1.9.2, TDD Absolute and Relative eICIC RSRP, Non-MBSFN	11.0.0	11.1.0
2013-06	RAN#60	R5-131926	0746	-	Procedure and messages for eICIC RRM test cases 9.2.7.1, 9.2.8.1	11.0.0	11.1.0
2013-06	RAN#60	R5-131938	0747	-	Uncertainties and Test Tolerances for RRM test cases 6.3.4 and 6.3.11	11.0.0	11.1.0
2013-06	RAN#60	R5-131940	0748	-	RRM: Uncertainties and test tolerances for TCs 9.6.1 and 9.6.2	11.0.0	11.1.0
2013-06	RAN#60	R5-131965	0749	-	Correction to RRC Connection Release with Redirection tests	11.0.0	11.1.0
2013-06	RAN#60	R5-131966	0750	-	Correction to Monitored UTRA cell list size	11.0.0	11.1.0
2013-06	RAN#60	R5-131967	0751	-	Correction to UE Transmit Timing Accuracy	11.0.0	11.1.0
2013-06	RAN#60	R5-131986	0752	-	Editors note for test cases where Test Requirement not valid above 3GHz, clauses 4 to 7	11.0.0	11.1.0
2013-06	RAN#60	R5-131992	0753	-	Addition of Chapter 9 RRM test cases for absolute RSRQ accuracy under Time-Domain Measurement Resource Restriction with MBSFN ABS	11.0.0	11.1.0
2013-06	RAN#60	R5-132075	0754	-	Correction to new CGI E-UTRA cell with autonomous gaps tests	11.0.0	11.1.0
2013-06	RAN#60	R5-132107	0755	-	Update of Annex E	11.0.0	11.1.0
2013-06	RAN#60	R5-132112	0756	-	Correction to Combined E-UTRAN - E-UTRA and GSM cell search	11.0.0	11.1.0
2013-06	RAN#60	R5-132114	0757	-	Addition of Band 27 to overlooked sections of TS 36.521-3	11.0.0	11.1.0
2013-09	RAN#61	R5-133101	0758	-	Uncertainties and Test Tolerances for eICIC Absolute RSRP test cases 9.1.8.1+9.1.9.1	11.1.0	11.2.0
2013-09	RAN#61	R5-133103	0759	-	Uncertainties and Test Tolerances for eICIC Relative RSRP test cases 9.1.8.2+9.1.9.2	11.1.0	11.2.0
2013-09	RAN#61	R5-133105	0760	-	Uncertainties and Test Tolerances update for Inter-freq RSRP Test cases 9.1.3.x and 9.1.4.x	11.1.0	11.2.0
2013-09	RAN#61	R5-133142	0761	-	Addition of test cases 7.3.13 and 7.3.15	11.1.0	11.2.0
2013-09	RAN#61	R5-133220	0762	-	RRM: Uncertainties and test tolerances for TCs 9.6.1 and 9.6.2	11.1.0	11.2.0
2013-09	RAN#61	R5-133351	0764	-	Uncertainties and Test Tolerances update for Intra-freq RSRP Test cases 9.1.1.1 and 9.1.2.1	11.1.0	11.2.0
2013-09	RAN#61	R5-133354	0765	-	Band 28 update for Intra-freq relative RSRP Test case 9.1.1.2	11.1.0	11.2.0
2013-09	RAN#61	R5-133421	0766	-	Correction to Common Exception messages for ReportConfig-A6	11.1.0	11.2.0
2013-09	RAN#61	R5-133430	0767	-	Correction to 8.7.3 of 36.521-3	11.1.0	11.2.0
2013-09	RAN#61	R5-133432	0768	-	Correction to 8.11.5 and 8.11.6 of 36.521-3	11.1.0	11.2.0
2013-09	RAN#61	R5-133433	0769	-	Correction to 9.5.1 and 9.5.2 of 36.521-3	11.1.0	11.2.0
2013-09	RAN#61	R5-133435	0770	-	Correction to Common Exception messages in RLM tests	11.1.0	11.2.0
2013-09	RAN#61	R5-133440	0771	-	Addition of TC 7.3.14 E-UTRAN TDD Radio Link Monitoring Test for Out-of-sync under Time Domain Measurement Resource Restriction with MBSFN ABS (eICIC)	11.1.0	11.2.0
2013-09	RAN#61	R5-133441	0772	-	Addition of TC 7.3.16 E-UTRAN TDD Radio Link Monitoring Test for In-sync under Time Domain Measurement Resource Restriction with MBSFN ABS (eICIC)	11.1.0	11.2.0
2013-09	RAN#61	R5-133447	0793	-	Correction of configurations in RSRP TDD absolute and relative accuracy for CA test cases	11.1.0	11.2.0
2013-09	RAN#61	R5-133528	0773	-	Corrections to Conditions for UE Measurements Procedures in RRC_CONNECTED State	11.1.0	11.2.0
2013-09	RAN#61	R5-133722	0763	-	eICIC RRM: Message contents for TC-s 7.3.9-12, 8.1.7 and 8.2.5	11.1.0	11.2.0
2013-09	RAN#61	R5-133727	0788	-	Corrections to RRM CA measurement accuracy CA test cases with PCell and SCell switching	11.1.0	11.2.0
2013-09	RAN#61	R5-133728	0789	-	Correction to E-UTRAN RSRP and RSRQ accuracy for CA test cases of 36.521-3	11.1.0	11.2.0
2013-09	RAN#61	R5-133729	0791	-	Correction to CGI test cases	11.1.0	11.2.0

2013-09	RAN#61	R5-133809	0774	-	Correction to RRM CA test case 8.16.1	11.1.0	11.2.0
2013-09	RAN#61	R5-133810	0775	-	Correction to RRM CA test case 8.16.3	11.1.0	11.2.0
2013-09	RAN#61	R5-133813	0776	-	Correction to 8.11.4 InterRAT E-UTRA TDD to E-UTRA TDD and UTRA TDD cell search	11.1.0	11.2.0
2013-09	RAN#61	R5-133814	0777	-	Addition of Uplink-downlink configuration in 6.3.5 of 36.521-3	11.1.0	11.2.0
2013-09	RAN#61	R5-133836	0778	-	Cell Timing offsets and Cell Timing uncertainties for CA 8.x and 9.x test cases	11.1.0	11.2.0
2013-09	RAN#61	R5-133842	0779	-	Correction to 9.6.1 and 9.6.2 of 36.521-3	11.1.0	11.2.0
2013-09	RAN#61	R5-133855	0780	-	Addition of new CA TC 8.16.5 E-UTRAN FDD event triggered reporting under deactivated SCell in non-DRX for 20 MHz bandwidth	11.1.0	11.2.0
2013-09	RAN#61	R5-133856	0781	-	Addition of new CA TC 8.16.6 E-UTRAN TDD event triggered reporting under deactivated SCell in non-DRX for 20 MHz bandwidth	11.1.0	11.2.0
2013-09	RAN#61	R5-133857	0782	-	Addition of new CA TC 9.2.12.1 TDD Absolute RSRQ Accuracy for E-UTRA Carrier Aggregation for 20MHz	11.1.0	11.2.0
2013-09	RAN#61	R5-133858	0783	-	Addition of new CA TC 9.2.12.2 TDD Relative RSRQ Accuracy for E-UTRA Carrier Aggregation for 20MHz	11.1.0	11.2.0
2013-09	RAN#61	R5-133859	0784	-	Correction to RRM CA test case 8.20.1	11.1.0	11.2.0
2013-09	RAN#61	R5-133860	0785	-	New RRM TC 9.1.13.2 TDD Relative RSRP Accuracy for E-UTRA Carrier Aggregation for 20 MHz	11.1.0	11.2.0
2013-09	RAN#61	R5-133861	0786	-	New RRM TC 9.1.13.1 TDD Absolute RSRP Accuracy for E-UTRA Carrier Aggregation for 20 MHz	11.1.0	11.2.0
2013-09	RAN#61	R5-133862	0787	-	Cell configuration mapping for new CA TCs for 20MHz	11.1.0	11.2.0
2013-09	RAN#61	R5-133896	0790	-	Addition of RMC and OCNG pattern for CA 20 MHz	11.1.0	11.2.0
2013-09	RAN#61	R5-133901	0792	-	CA RRM: Clarification of applicability and completeness status of CA RRM TC-s	11.1.0	11.2.0