## 8.7 Measurements Performance Requirements

Unless explicitly stated:

- Reported measurements shall be within defined range in 90 % of the cases.

- Measurement channel is 12.2 kbps as defined in Annex C, sub-clause C.3.1. This measurement channel is used both in active cell and cells to be measured.

- Physical channels used as defined in Annex E.

- Cell 1 is the active cell.

- Single task reporting.

- Power control is active.

Note: 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.

When DRX is configured in state CELL\_FACH, the accuracy specified for idle mode reselections in chapter 4 of TS25.133[2] is applicable to UE measurements.

NOTE: The requirements for Band XXXII are applicable only with dual band configuration (e.g., DB-DC-HSDPA or dual band 4C-HSDPA).

### 8.7.1 CPICH RSCP

#### 8.7.1.1 Intra frequency measurements accuracy

##### 8.7.1.1.1 Absolute accuracy requirement

8.7.1.1.1.1 Definition and applicability

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

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

8.7.1.1.1.2 Minimum Requirements

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

CPICH\_RSCP1|dBm.according to Annex L.3.1 for a corresponding Band

Table 8.7.1.1.1.1: CPICH\_RSCP Intra frequency absolute accuracy

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Parameter | Accuracy [dB] | | Conditions | | |
| Normal condition | Extreme condition | Operating bands | Io [dBm/3,84MHz] | |
| Minimum Io | Maximum Io |
| CPICH\_RSCP |  6 |  9 | I, IV, VI, X, XI, XIX, XXI and XXXII | -94 | -70 |
| II, V and VII | -92 | -70 |
| XXV and XXVI | -90.5  (Note 1) | -70 |
| III, VIII, XII, XIII, XIV, XX and XXII | -91 | -70 |
| IX | -93 | -70 |
|  8 |  11 | Note 2 | -70 | -50 |
| NOTE 1: The minimum Io is -92 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  NOTE 2: The same bands apply for this requirement as for the corresponding highest accuracy requirement | | | | | |

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

8.7.1.1.1.3 Test purpose

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

8.7.1.1.1.4 Method of test

8.7.1.1.1.4.1 Initial conditions

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

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

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

Table 8.7.1.1.1.2: CPICH RSCP Intra frequency parameters

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Parameter | | Unit | Test 1 | | Test 2 | | Test 3 | |
| Cell 1 | Cell 2 | Cell 1 | Cell 2 | Cell 1 | Cell 2 |
| UTRA RF Channel number | |  | Channel 1 | | Channel 1 | | Channel 1 | |
| CPICH\_Ec/Ior | | dB | -10 | | -10 | | -10 | |
| PCCPCH\_Ec/Ior | | dB | -12 | | -12 | | -12 | |
| SCH\_Ec/Ior | | dB | -12 | | -12 | | -12 | |
| PICH\_Ec/Ior | | dB | -15 | | -15 | | -15 | |
| DPCH\_Ec/Ior | | dB | -15 | - | -15 | - | -15 | - |
| OCNS\_Ec/Ior | | dB | -1.11 | -0.94 | -1.11 | -0.94 | -1.11 | -0.94 |
| Ioc | Band I, IV, VI, X, XI, XIX, XXI | dBm/ 3.84 MHz | -77.54 | | -59.98 | | -97.47 | |
| Band IX\* | -96.47 | |
| Band II, V, VII | -95.47 | |
| Band XXV, XXVI | -93.97 (Note 2) | |
| Band III, VIII, XII, XIII, XIV.XX, XXII | -94.47 | |
| Îor/Ioc | | dB | 4 | 0 | 9 | 0 | 0 | -6.53 |
| CPICH RSCP, Note 1 | Band I, IV, VI, X, XI, XIX, XXI | dBm | -83.5 | -87.5 | -60.98 | -69.88 | -107.47 | -114.0 |
| Band IX\* | -106.47 | -113.0 |
| Band II, V, VII | -105.47 | -112.0 |
| Band XXV, XXVI | -103.97 (Note 2) | -110.5 (Note 2) |
| Band III, VIII, XII, XIII, XIV,XX, XXII | -104.47 | -111.0 |
| Io, Note 1 | Band I, IV, VI, X, XI, XIX, XXI | dBm/3.84 MHz | -71 | | -50 | | -94 | |
| Band IX\* | -93 | |
| Band II, V, VII | -92 | |
| Band XXV, XXVI | -90.5 (Note 2) | |
| Band III, VIII, XII, XIII, XIV,XX, XXII | -91 | |
| Propagation condition | | - | AWGN | | AWGN | | AWGN | |
| NOTE 1: CPICH RSCP and Iolevels have been calculated from other parameters for information purposes. They are not settable parameters themselves.  \*) 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 2: 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. | | | | | | | | |

8.7.1.1.1.4.2 Procedure

1) A call is set up according to the test procedure specified in TS 34.108 [3] clause 7.3.2. The RF parameters for Test 1 are set up according to table 8.7.1.1.1.4.

2) SS shall transmit MEASUREMENT CONTROL message.

3) UE shall transmit periodically MEASUREMENT REPORT messages.

4) SS shall check CPICH\_RSCP value in MEASUREMENT REPORT messages. CPICH RSCP power of Cell 1 and Cell 2 reported by UE is compared to actual CPICH RSCP power for each MEASUREMENT REPORT message.

5) SS shall check MEASUREMENT REPORT messages transmitted by UE until statistical significance according to Annex F.6.2.8 is achieved.

6) The RF parameters are set up according to table 8.7.1.1.1.4 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 4) and 5) above are repeated.

7) The RF parameters are set up according to table 8.7.1.1.1.4 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 4) and 5) above are repeated.

8) The SS shall transmit RRC CONNECTION RELEASE message.

9) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

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

MEASUREMENT CONTROL message for Intra frequency measurement (Step 2):

| Information Element | Value/Remark |
| --- | --- |
| Message Type |  |
| UE information elements  -RRC transaction identifier  -Integrity check info  -message authentication code  -RRC message sequence number | 0  SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.  SS provides the value of this IE, from its internal counter. |
| Measurement Information elements  -Measurement Identity  -Measurement Command  -Measurement Reporting Mode  - Measurement Report Transfer Mode  - Periodical Reporting / Event Trigger Reporting Mode  -Additional measurement list  -CHOICE Measurement Type  -Intra-frequency measurement  - Intra-frequency measurement objects list  -Intra-frequency measurement quantity  -Filter coefficient  -CHOICE mode  -Measurement quantity  -Intra-frequency reporting quantity  -Reporting quantities for active set cells  -Cell synchronisation information reporting indicator  -Cell Identity reporting indicator  -CHOICE mode  -CPICH Ec/N0 reporting indicator  -CPICH RSCP reporting indicator  -Pathloss reporting indicator  -Reporting quantities for monitored set cells  -Cell synchronisation information reporting indicator  -Cell Identity reporting indicator  -CHOICE mode  -CPICH Ec/N0 reporting indicator  -CPICH RSCP reporting indicator  -Pathloss reporting indicator  -Reporting quantities for detected set cells  -Reporting cell status  -CHOICE reported cell  -Maximum number of reported cells  -Measurement validity  -CHOICE report criteria  -Amount of reporting  -Reporting interval | 1  Modify  Acknowledged mode RLC  Periodical reporting  Not Present  Intra-frequency measurement  Not Present  0  FDD  CPICH RSCP  TRUE  TRUE  FDD  TRUE  TRUE  FALSE  FALSE  TRUE  FDD  TRUE  TRUE  FALSE  Not Present  Report all active set cells + cells within monitored set on used frequency  Virtual/active set cells + 2  Not Present  Periodical reporting criteria  Infinity  250 ms |
| Physical channel information elements  -DPCH compressed mode status info | Not Present |

MEASUREMENT REPORT message for Intra frequency test cases

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

8.7.1.1.1.5 Test requirements

Table 8.7.1.1.1.3: CPICH\_RSCP Intra frequency absolute accuracy, test requirement

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Parameter | Accuracy [dB] | | Conditions | | |
| Normal condition | Extreme condition | Operating bands | Io [dBm/3,84MHz] | |
| Minimum Io | Maximum Io |
| CPICH\_RSCP |  7.4 |  10.4 | I, IV, VI, X, XI, XIX, XXI and XXXII | -94 | -70 |
| II, V and VII | -92 | -70 |
| XXV and XXVI | -90.5  (Note 1) | -70 |
| III, VIII, XII, XIII, XIV, XX and XXII | -91 | -70 |
| IX | -93 | -70 |
|  9.4 |  12.4 | Note 2 | -70 | -50 |
| NOTE 1: The minimum Io is -92 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  NOTE 2: The same bands apply for this requirement as for the corresponding highest accuracy requirement | | | | | |

Table 8.7.1.1.1.4: CPICH RSCP Intra frequency test parameters

| Parameter | | Unit | Test 1 | | Test 2 | | Test 3 | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Cell 1 | Cell 2 | Cell 1 | Cell 2 | Cell 1 | Cell 2 |
| UTRA RF Channel number | |  | Channel 1 | | Channel 1 | | Channel 1 | |
| CPICH\_Ec/Ior | | dB | -10 | | -10 | | -10 | |
| PCCPCH\_Ec/Ior | | dB | -12 | | -12 | | -12 | |
| SCH\_Ec/Ior | | dB | -12 | | -12 | | -12 | |
| PICH\_Ec/Ior | | dB | -15 | | -15 | | -15 | |
| DPCH\_Ec/Ior | | dB | -15 | - | -15 | - | -15 | - |
| OCNS\_Ec/Ior | | dB | -1.11 | -0.94 | -1.11 | -0.94 | -1.11 | -0.94 |
| Ioc | Band I, IV, VI, X, XI, XIX, XXI | dBm/ 3.84 MHz | -79.16 | | -61,6 | | -96.47 | |
| Band IX\* | -95.47 | |
| Band II, V, VII | -94.47 | |
| Band XXV, XXVI | -92.97 (Note 2) | |
| Band III, VIII, XII, XIII, XIV,XX, XXII | -93.47 | |
| Îor/Ioc | | dB | 4.3 | 0.3 | 9.3 | 0.3 | 0.3 | -6.23 |
| CPICH RSCP, Note 1 | Band I, IV, VI, X, XI, XIX, XXI | dBm | -84.86 | -88.86 | -62.3 | -71.3 | -106.17 | -112.7 |
| Band IX\* | -105.17 | -111.7 |
| Band II, V, VII | -104.17 | -110.7 |
| Band XXV, XXVI | -102.67 (Note 2) | -109.2 (Note 2) |
| Band III, VIII, XII, XIII, XIV,XX, XXII | -103.17 | -109.7 |
| Io, Note 1 | Band I, IV, VI, X, XI, XIX, XXI | dBm / 3.84 MHz | -72.4 | | -51,4 | | -92,8 | |
| Band IX\* | -91.8 | |
| Band II, V, VII | -90.8 | |
| Band XXV, XXVI | -89.3 (Note 2) | |
| Band III, VIII, XII, XIII, XIV,XX, XXII | -89.8 | |
| Propagation condition | | - | AWGN | | AWGN | | AWGN | |
| NOTE 1: CPICH RSCP and Iolevels have been calculated from other parameters for information purposes. They are not settable parameters themselves.  \*) 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 2: 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. | | | | | | | | |

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

Table 8.7.1.1.1.5: CPICH\_RSCP Intra frequency absolute accuracy requirements  
for the reported values

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Test 1 | Test 2 | Test 3 (Band I, IV, VI, X, XI XIX, XXI) | Test 3 (Band IX) | Test 3 (Band II,V and VII) | Test 3 (Band III, VIII, XII, XIII, XIV, XX and XXII) |
| Normal Conditions | | | | | | |
| Lowest reported value (Cell 1) | CPICH\_RSCP\_23 | CPICH\_RSCP\_44 | CPICH\_RSCP\_2 | CPICH\_RSCP\_3 | CPICH\_RSCP\_4 | CPICH\_RSCP\_5 |
| Highest reported value (Cell 1) | CPICH\_RSCP\_38 | CPICH\_RSCP\_63 | CPICH\_RSCP\_17 | CPICH\_RSCP\_18 | CPICH\_RSCP\_19 | CPICH\_RSCP\_20 |
| Lowest reported value (Cell 2) | CPICH\_RSCP\_19 | CPICH\_RSCP\_35 | CPICH\_RSCP\_  -5 (NOTE 2) | CPICH\_RSCP\_  -4 (NOTE 2) | CPICH\_RSCP\_  -3 (NOTE 2) | CPICH\_RSCP\_-2 (NOTE 2) |
| Highest reported value (Cell 2) | CPICH\_RSCP\_34 | CPICH\_RSCP\_54 | CPICH\_RSCP\_10 | CPICH\_RSCP\_11 | CPICH\_RSCP\_12 | CPICH\_RSCP\_13 |
| Extreme Conditions | | | | | | |
| Lowest reported value (Cell 1) | CPICH\_RSCP\_20 | CPICH\_RSCP\_41 | CPICH\_RSCP\_  -1 (NOTE 2) | CPICH\_RSCP  \_0 | CPICH\_RSCP\_1 | CPICH\_RSCP\_2 |
| Highest reported value (Cell 1) | CPICH\_RSCP\_41 | CPICH\_RSCP\_66 | CPICH\_RSCP\_20 | CPICH\_RSCP\_21 | CPICH\_RSCP\_22 | CPICH\_RSCP\_23 |
| Lowest reported value (Cell 2) | CPICH\_RSCP\_16 | CPICH\_RSCP\_32 | CPICH\_RSCP\_  -5 (NOTE 2) | CPICH\_RSCP\_  -5 (NOTE 2) | CPICH\_RSCP\_  -5 (NOTE 2) | CPICH\_RSCP\_  -5 (NOTE 2) |
| Highest reported value (Cell 2) | CPICH\_RSCP\_37 | CPICH\_RSCP\_57 | CPICH\_RSCP\_13 | CPICH\_RSCP\_14 | CPICH\_RSCP\_15 | CPICH\_RSCP\_16 |

NOTE 1: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

NOTE 2: This value applies for a UE complying to release 5 or later. The corresponding value for a pre-release 5 UE is CPICH\_RSCP\_0.

##### 8.7.1.1.2 Relative accuracy requirement

8.7.1.1.2.1 Definition and applicability

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

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

8.7.1.1.2.2 Minimum Requirements

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

CPICH\_RSCP1,2|dBm according to Annex B.3.2 for a corresponding Band.

Table 8.7.1.1.2.1: CPICH\_RSCP Intra frequency relative accuracy

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Parameter | Accuracy [dB] | | Conditions | | |
| Normal condition | Extreme condition | Operating bands | Io [dBm/3,84 [MHz] | |
| Minimum Io | Maximum Io |
| CPICH\_RSCP |  3 |  3 | I, IV, VI, X, XI, XIX, XXI and XXXII | -94 | -50 |
| II, V and VII | -92 | -50 |
| XXV and XXVI | -90.5  (Note 1) | -50 |
| III, VIII, XII, XIII, XIV, XX and XXII | -91 | -50 |
| IX | -93 | -50 |
| NOTE 1: The minimum Io is -90.5 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. | | | | | |

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

8.7.1.1.2.3 Test purpose

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

8.7.1.1.2.4 Method of test

8.7.1.1.2.4.1 Initial conditions

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

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

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

8.7.1.1.2.4.2 Procedure

1) A call is set up according to the test procedure specified in TS 34.108 [3] clause 7.3.2. The RF parameters for Test 1 are set up according to table 8.7.1.1.2.3.

2) SS shall transmit MEASUREMENT CONTROL message.

3) UE shall transmit periodically MEASUREMENT REPORT messages.

4) SS shall check CPICH\_RSCP value of Cell 1 and Cell 2 in MEASUREMENT REPORT messages. CPICH RSCP power value measured from Cell 1 is compared to CPICH RSCP power value measured from Cell 2 for each MEASUREMENT REPORT message.

5) The result of step 4) is compared to actual power level difference of CPICH RSCP of Cell 1 and Cell 2.

6) SS shall check MEASUREMENT REPORT messages transmitted by UE until statistical significance according to Annex F.6.2.8 is achieved.

7) The RF parameters are set up according to table 8.7.1.1.2.3 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 4), 5) and 6) above are repeated.

8) The RF parameters are set up according to table 8.7.1.1.2.3 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 4), 5) and 6) above are repeated.

9) The SS shall transmit RRC CONNECTION RELEASE message.

10) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

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

MEASUREMENT CONTROL message for Intra frequency measurement in clause 8.7.1.1.1.4.2 is used.

MEASUREMENT REPORT message for Intra frequency test cases

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

8.7.1.1.2.5 Test requirements

Table 8.7.1.1.2.2: CPICH\_RSCP Intra frequency relative accuracy, test requirements

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Parameter | Accuracy [dB] | | Conditions | | |
| Normal condition | Extreme condition | Operating bands | Io [dBm/3,84 [MHz] | |
| Minimum Io | Maximum Io |
| CPICH\_RSCP |  3.8 |  3.8 | I, IV, VI, X, XI, XIX, XXI and XXXII | -94 | -50 |
| II, V and VII | -92 | -50 |
| XXV and XXVI | -90.5  (Note 1) | -50 |
| III, VIII, XII, XIII, XIV, XX and XXII | -91 | -50 |
| IX | -93 | -50 |
| NOTE 1: The minimum Io is -90.5 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. | | | | | |

Table 8.7.1.1.2.3: CPICH RSCP Intra frequency test parameters

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Parameter | | Unit | Test 1 | | Test 2 | | Test 3 | |
| Cell 1 | Cell 2 | Cell 1 | Cell 2 | Cell 1 | Cell 2 |
| UTRA RF Channel number | |  | Channel 1 | | Channel 1 | | Channel 1 | |
| CPICH\_Ec/Ior | | dB | -10 | | -10 | | -10 | |
| PCCPCH\_Ec/Ior | | dB | -12 | | -12 | | -12 | |
| SCH\_Ec/Ior | | dB | -12 | | -12 | | -12 | |
| PICH\_Ec/Ior | | dB | -15 | | -15 | | -15 | |
| DPCH\_Ec/Ior | | dB | -15 | - | -15 | - | -15 | - |
| OCNS\_Ec/Ior | | dB | -1.11 | -0.94 | -1.11 | -0.94 | -1.11 | -0.94 |
| Ioc | Band I, IV, VI, X, XI, XIX, XXI | dBm/ 3.84 MHz | -74.54 | | -61,6 | | -96.47 | |
| Band IX\* | -95.47 | |
| Band II, V, VII | -94.47 | |
| Band XXV, XXVI | -92.97 (Note 2) | |
| Band III, VIII, XII, XIII, XIV,XX, XXII | -93.47 | |
| Îor/Ioc | | dB | 4.3 | 0.3 | 9.3 | 0.3 | 0.3 | -6.23 |
| CPICH RSCP, Note 1 | Band I, IV, VI, X, XI, XIX, XXI | dBm | -80.2 | -84.2 | -62.3 | -71.3 | -106.17 | -112.7 |
| Band IX\* | -105.17 | -111.7 |
| Band II, V, VII | -104.17 | -110.7 |
| Band XXV, XXVI | -102.67 (Note 2) | -109.2 (Note 2) |
| Band III, VIII, XII, XIII, XIV,XX, XXII | -103.17 | -109.7 |
| Io, Note 1 | Band I, IV, VI, X, XI, XIX, XXI | dBm/ 3.84 MHz | -67.8 | | -51,4 | | -92,8 | |
| Band IX\* | -91.8 | |
| Band II, V, VII | -90.8 | |
| Band XXV, XXVI | -89.3 (Note 2) | |
| Band III, VIII, XII, XIII, XIV,XX, XXII | -89.8 | |
| Propagation condition | | - | AWGN | | AWGN | | AWGN | |
| NOTE 1: CPICH RSCP and Iolevels have been calculated from other parameters for information purposes. They are not settable parameters themselves.  \*) 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 2 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. | | | | | | | | |

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

Table 8.7.1.1.2.4: CPICH\_RSCP Intra frequency relative accuracy requirements  
for the reported values

|  |  |  |  |
| --- | --- | --- | --- |
|  | Test 1 | Test 2 | Test 3 |
| Normal Conditions | | | |
| Lowest reported value cell 2 | CPICH\_RSCP\_(x - 8) | CPICH\_RSCP\_(x - 13) | CPICH\_RSCP\_(x - 11) |
| Highest reported value cell 2 | CPICH\_RSCP\_x | CPICH\_RSCP\_(x - 5) | CPICH\_RSCP\_(x - 3) |
| Extreme Conditions | | | |
| Lowest reported value cell2 | CPICH\_RSCP\_(x - 8) | CPICH\_RSCP\_(x - 13) | CPICH\_RSCP\_(x - 11) |
| Highest reported value cell2 | CPICH\_RSCP\_x | CPICH\_RSCP\_(x - 5) | CPICH\_RSCP\_(x - 3) |
| CPICH\_RSCP\_x is the reported value of cell 1 | | | |

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

#### 8.7.1.2 Inter frequency measurement accuracy

##### 8.7.1.2.1 Relative accuracy requirement

8.7.1.2.1.1 Definition and applicability

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

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

8.7.1.2.1.2 Minimum Requirements

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

CPICH\_RSCP1|dBm according to Annex L.3.3 for a corresponding Band

| Channel 1\_Io|dBm/3.84 MHz ‑Channel 2\_Io|dBm/3.84 MHz |  20 dB.

Table 8.7.1.2.1.1: CPICH\_RSCP Inter frequency relative accuracy

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Parameter | Accuracy [dB] | | Conditions | | |
| Normal condition | Extreme condition | CPICH\_RSCP is on Band | Io [dBm/3,84 [MHz] | |
| Minimum Io | Maximum Io |
| CPICH\_RSCP |  6 |  6 | I, IV, VI, X, XI, XIX, XXI and XXXII | -94 | -50 |
| II, V and VII | -92 | -50 |
| XXV and XXVI | -90.5  (Note 1) | -50 |
| III, VIII, XII, XIII, XIV, XX and XXII | -91 | -50 |
| IX | -93 | -50 |
| NOTE 1: The minimum Io is -92 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. | | | | | |

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

8.7.1.2.1.3 Test purpose

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

8.7.1.2.1.4 Method of test

8.7.1.2.1.4.1 Initial conditions

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

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

In this case both cells are on different frequencies.

For UEs that require compressed mode, compressed mode is applied. The gap length is 7, detailed definition is in clause C.5, set 1 of table C.5.2 except for TGRRC and TGCFN. TGPRC and TGCFN shall set to "Infinity" and "(Current CFN + (256 – TTI/10msec))mod 256".

For UEs that do not require compressed mode, compressed mode is not applied and therefore no Physical Channel Reconfiguration message will be sent.

CPICH RSCP inter frequency relative accuracy requirements are tested by using test parameters in table 8.7.1.2.1.2.

Table 8.7.1.2.1.2: CPICH RSCP Inter frequency parameters

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Parameter | | Unit | Test 1 | | Test 2 | | | |
| Cell 1 | Cell 2 | Cell 1 | Cell 2 | |  |
| UTRA RF Channel number | |  | Channel 1 | Channel 2 | Channel 1 | Channel 2 | | |
| CPICH\_Ec/Ior | | dB | -10 | | -10 | | | |
| PCCPCH\_Ec/Ior | | dB | -12 | | -12 | | | |
| SCH\_Ec/Ior | | dB | -12 | | -12 | | | |
| PICH\_Ec/Ior | | dB | -15 | | -15 | | | |
| DPCH\_Ec/Ior | | dB | -15 | - | -15 | | - | |
| OCNS\_Ec/Ior | | dB | -1.11 | -0.94 | -1.11 | | -0.94 | |
| Ioc | Band I, IV, VI, X, XX, XIX, XXI | dBm/ 3.84 MHz | -60.00 | -60.00 | -84.00 | | -94.46 | |
| Band IX\* | -83.00 | | -93.46 | |
| Band II, V, VII | -82.00 | | -92.46 | |
| Band XXV, XXVI | -80.5  (Note 2) | | -90.96  (Note 2) | |
| Band III, VIII, XII, XIII, XIV,XX, XXII | -81.00 | | -91.46 | |
| Îor/Ioc | | dB | 9.54 | 9.54 | 0 | | -9.54 | |
| CPICH RSCP, Note 1 | Band I, IV, VI, X, XI, XIX, XXI | dBm | -60.46 | -60.46 | -94.0 | | -114.0 | |
| Band IX\* | -93.0 | | -113.0 | |
| Band II, V, VII | -92.0 | | -112.0 | |
| Band XXV, XXVI | -90.5  (Note 2) | | -110.5  (Note 2) | |
| Band III, VIII, XII, XIII, XIV,XX, XXII | -91.0 | | -111.0 | |
| Io, Note 1 | Band I, IV, VI, X, XI, XIX, XXI | dBm/3.84 MHz | -50.00 | -50.00 | -81.0 | | -94.0 | |
| Band IX\* | -80.0 | | -93.0 | |
| Band II, V, VII | -79.0 | | -92.0 | |
| Band XXV, XXVI | -77.5  (Note 2) | | -90.5  (Note 2) | |
| Band III, VIII, XII, XIII, XIV,XX, XXII | -78.0 | | -91.0 | |
| Propagation condition | | - | AWGN | | AWGN | | | |
| NOTE 1: CPICH RSCP and Iolevels have been calculated from other parameters for information purposes. They are not settable parameters themselves.  \*) 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 2: 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. | | | | | | | | |

8.7.1.2.1.4.2 Procedure

1) A call is set up according to the test procedure specified in TS 34.108 [3] clause 7.3.2. The RF parameters for Test 1 are set up according to table 8.7.1.2.1.4.

2) If compressed mode is required, SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message. Otherwise, go to step 4.

3) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

4) SS shall transmit MEASUREMENT CONTROL message for intra frequency measurement and transmit MEASUREMENT CONTROL message for inter frequency measurement.

5) UE shall transmit periodically MEASUREMENT REPORT messages.

6) SS shall check CPICH\_RSCP value of Cell 1 and Cell 2 in MEASUREMENT REPORT messages. CPICH RSCP power value measured from Cell 1 is compared to CPICH RSCP power value measured from Cell 2 for each MEASUREMENT REPORT message.

7) The result of step 6) is compared to actual power level difference of CPICH RSCP of Cell 1 and Cell 2.

8) SS shall check MEASUREMENT REPORT messages transmitted by UE until statistical significance according to Annex F.6.2.8 is achieved.

9) The RF parameters are set up according to table 8.7.1.2.1.4 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 6), 7) and 8) above are repeated.

10) The SS shall transmit RRC CONNECTION RELEASE message.

11) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

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

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

| Information Element | Value/Remark | Version |
| --- | --- | --- |
| Message Type |  |  |
| UE Information Elements |  |  |
| -RRC transaction identifier | 0 |  |
| -Integrity check info |  |  |
| -message authentication code | SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I. |  |
| -RRC message sequence number | SS provides the value of this IE, from its internal counter. |  |
| -Integrity protection mode info | Not Present |  |
| -Ciphering mode info | Not Present |  |
| -Activation time | Not Present |  |
| -New U-RNTI | Not Present |  |
| -New C-RNTI | Not Present |  |
| -RRC State Indicator | CELL\_DCH |  |
| -UTRAN DRX cycle length coefficient | Not Present |  |
| CN Information Elements |  |  |
| -CN Information info | Not Present |  |
| UTRAN mobility information elements |  |  |
| -URA identity | Not Present |  |
| RB information elements |  |  |
| -Downlink counter synchronisation info | Not Present |  |
| PhyCH information elements |  |  |
| -Frequency info | Not Present |  |
| Uplink radio resources |  |  |
| -Maximum allowed UL TX power | Not Present |  |
| - CHOICE channel requirement | Not Present |  |
| Downlink radio resources |  |  |
| -CHOICE mode | FDD |  |
| -Downlink PDSCH information | Not Present | R99 and Rel-4 only |
| -Downlink information common for all radio links |  |  |
| -Downlink DPCH info common for all RL | Not Present |  |
| -CHOICE mode | FDD |  |
| -DPCH compressed mode info |  |  |
| -Transmission gap pattern sequence |  |  |
| -TGPSI | 1 |  |
| -TGPS Status Flag | Activate |  |
| -TGCFN | (Current CFN + (256 – TTI/10msec))mod 256 |  |
| -Transmission gap pattern sequence configuration parameters |  |  |
| -TGMP | FDD measurement |  |
| -TGPRC | Infinity |  |
| -TGSN | 4 |  |
| -TGL1 | 7 |  |
| -TGL2 | Not Present |  |
| -TGD | UNDEFINED |  |
| -TGPL1 | 3 |  |
| -TGPL2 | Not Present | R99 and Rel-4 only |
| -RPP | Mode 0 |  |
| -ITP | Mode 0 |  |
| -CHOICE UL/DL mode | UL and DL |  |
| -Downlink compressed mode method | SF/2 |  |
| -Uplink compressed mode method | SF/2 |  |
| -Downlink frame type | B |  |
| -DeltaSIR1 | 3.0 |  |
| -DeltaSIRafter1 | 3.0 |  |
| -DeltaSIR2 | Not Present |  |
| -DeltaSIRafter2 | Not Present |  |
| -N Identify abort | Not Present |  |
| -T Reconfirm abort | Not Present |  |
| -TX Diversity Mode | Not Present |  |
| -SSDT information | Not Present | R99 and Rel-4 only |
| -Default DPCH Offset Value | Not Present |  |
| -Downlink information per radio link list |  |  |
| -Downlink information for each radio link |  |  |
| -Choice mode | FDD |  |
| -Primary CPICH info |  |  |
| -Primary scrambling code | 100 |  |
| -PDSCH with SHO DCH Info | Not Present | R99 and Rel-4 only |
| -PDSCH code mapping | Not Present | R99 and Rel-4 only |
| -Downlink DPCH info for each RL |  |  |
| -CHOICE mode | FDD |  |
| -Primary CPICH usage for channel estimation | Primary CPICH may be used |  |
| -DPCH frame offset | Set to value Default DPCH Offset Value ( as currently stored in SS) mod 38400 |  |
| -Secondary CPICH info | Not Present |  |
| -DL channelisation code |  |  |
| -Secondary scrambling code | Not Present |  |
| -Spreading factor | 128 |  |
| -Code number | 96 |  |
| -Scrambling code change | No code change |  |
| -TPC combination index | 0 |  |
| -SSDT Cell Identity | Not Present | R99 and Rel-4 only |
| -Closed loop timing adjustment mode | Not Present |  |
| -SCCPCH Information for FACH | Not Present |  |

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

|  |  |
| --- | --- |
| Information Element | Value/Remark |
| Message Type |  |
| UE information elements  -RRC transaction identifier  -Integrity check info  -message authentication code  -RRC message sequence number | 0    SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.  SS provides the value of this IE, from its internal counter. |
| Measurement Information elements  -Measurement Identity  -Measurement Command  -Measurement Reporting Mode  - Measurement Report Transfer Mode  - Periodical Reporting / Event Trigger Reporting Mode  -Additional measurement list  -CHOICE Measurement Type  -Intra-frequency measurement  - Intra-frequency measurement objects list  -Intra-frequency cell info list  -Intra-frequency measurement quantity  -Filter coefficient  -CHOICE mode  -Measurement quantity  -Intra-frequency reporting quantity  -Reporting quantities for active set cells  -Cell synchronisation information reporting indicator  -Cell Identity reporting indicator  -CHOICE mode  -CPICH Ec/N0 reporting indicator  -CPICH RSCP reporting indicator  -Pathloss reporting indicator  -Reporting quantities for monitored set cells  -Cell synchronisation information reporting indicator  -Cell Identity reporting indicator  -CHOICE mode  -CPICH Ec/N0 reporting indicator  -CPICH RSCP reporting indicator  -Pathloss reporting indicator  -Reporting quantities for detected set cells  -Reporting cell status  -CHOICE reported cell  -Maximum number of reported cells  -Measurement validity  -CHOICE report criteria  -Amount of reporting  -Reporting interval | 1  Modify  Acknowledged mode RLC  Periodical reporting  Not Present  Intra-frequency measurement  Not Present  0  FDD  CPICH RSCP  TRUE  TRUE  FDD  TRUE  TRUE  FALSE  FALSE  TRUE  FDD  TRUE  TRUE  FALSE  Not Present  Report all active set cells + cells within monitored set on used frequency  Virtual/active set cells + 2  Not Present  Periodical reporting criteria  Infinity  250 ms |
| Physical channel information elements  -DPCH compressed mode status info | Not Present |

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

|  |  |
| --- | --- |
| Information Element | Value/Remark |
| Message Type |  |
| UE information elements  -RRC transaction identifier  -Integrity check info  -message authentication code  -RRC message sequence number | 0    SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.  SS provides the value of this IE, from its internal counter. |
| Measurement Information elements  -Measurement Identity  -Measurement Command  -Measurement Reporting Mode  - Measurement Report Transfer Mode  - Periodical Reporting / Event Trigger Reporting Mode  -Additional measurement list  -CHOICE Measurement Type  -Inter-frequency measurement object list  -CHOICE Inter-frequency cell removal  -New inter-frequency cells  -Cell for measurement  -Inter-frequency measurement quantity  -CHOICE reporting criteria  -Filter coefficient  -CHOICE mode  -Measurement quantity for frequency quality estimate  -Inter-frequency reporting quantity  -UTRA Carrier RSSI  -Frequency quality estimate  -Non frequency related cell reporting quantities  -Cell synchronisation information reporting indicator  -Cell Identity reporting indicator  -CHOICE mode  -CPICH Ec/N0 reporting indicator  -CPICH RSCP reporting indicator  -Pathloss reporting indicator  -Reporting cell status  -CHOICE reported cell  -Maximum number of reported cells  -Measurement validity  -Inter-frequency set update  -CHOICE report criteria  -Amount of reporting  -Reporting interval | 2  Setup  Acknowledged mode RLC  Periodical reporting  Not Present  Inter-frequency measurement  Not Present  Cell 2 information is included  Not Present  Inter-frequency reporting criteria  0  FDD  CPICH RSCP  TRUE  TRUE  TRUE  TRUE  FDD  TRUE  TRUE  FALSE  Report cells within monitored set on non-used frequency  2  Not Present  Not Present  Periodical reporting criteria  Infinity  500 ms |
| Physical channel information elements  -DPCH compressed mode status info | Not Present |

MEASUREMENT REPORT message for Inter frequency test cases

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

8.7.1.2.1.5 Test requirements

Table 8.7.1.2.1.3: CPICH\_RSCP Inter frequency relative accuracy, test requirements

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Parameter | Accuracy [dB] | | Conditions | | |
| Normal condition | Extreme condition | CPICH\_RSCP is on Band | Io [dBm/3,84 [MHz] | |
| Minimum Io | Maximum Io |
| CPICH\_RSCP |  7.1 |  7.1 | I, IV, VI, X, XI, XIX, XXI and XXXII | -94 | -50 |
| II, V and VII | -92 | -50 |
| XXV and XXVI | -90.5  (Note 1) | -50 |
| III, VIII, XII, XIII, XIV, XX and XXII | -91 | -50 |
| IX | -93 | -50 |
| NOTE 1: The minimum Io is -92 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. | | | | | |

Table 8.7.1.2.1.4: CPICH RSCP Inter frequency tests parameters

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Parameter | | Unit | Test 1 | | Test 2 | | |
| Cell 1 | Cell 2 | Cell 1 | Cell 2 | |
| UTRA RF Channel number | |  | Channel 1 | Channel 2 | Channel 1 | Channel 2 | |
| CPICH\_Ec/Ior | | dB | -10 | | -10 | | |
| PCCPCH\_Ec/Ior | | dB | -12 | | -12 | | |
| SCH\_Ec/Ior | | dB | -12 | | -12 | | |
| PICH\_Ec/Ior | | dB | -15 | | -15 | | |
| DPCH\_Ec/Ior | | dB | -15 | - | -15 | | - |
| OCNS\_Ec/Ior | | dB | -1.11 | -0.94 | -1.11 | | -0.94 |
| Ioc | Band I, IV, VI, X,XI, XIX, XXI | dBm/ 3.84 MHz | -61.6 | -61.6 | -83.00 | | -93.46 |
| Band IX\* | -82.00 | | -92.46 |
| Band II, V, VII | -81.00 | | -91.46 |
| Band XXV, XXVI | -79.50  (Note 2) | | -89.96  (Note 2) |
| Band III, VIII, XII, XIII, XIV,XX, XXII | -80.00 | | -90.46 |
| Îor/Ioc | | dB | 9.84 | 9.84 | 0.3 | | -9.24 |
| CPICH RSCP, Note 1 | Band I, IV, VI, X, XI, XIX, XXI | dBm | -61.8 | -61.8 | -92.7 | | -112.7 |
| Band IX\* | -91.7 | | -111.7 |
| Band II, V, VII | -90.7 | | -110.7 |
| Band XXV, XXVI | -89.2  (Note 2) | | -109.2  (Note 2) |
| Band III, VIII, XII, XIII, XIV,XX, XXII | -89.7 | | -109.7 |
| Io, Note 1 | Band I, IV, VI, X, XI, XIX, XXI | dBm/3.84 MHz | -51.3 | -51.3 | -79.8 | | -93.0 |
| Band IX\* | -78.8 | | -92.0 |
| Band II, V, VII | -77.8 | | -91.0 |
| Band XXV, XXVI | -76.3  (Note 2) | | -89.5  (Note 2) |
| Band III, VIII, XII, XIII, XIV,XX, XXII | -76.8 | | -90.0 |
| Propagation condition | | - | AWGN | | AWGN | | |
| NOTE 1: CPICH RSCP and Iolevels have been calculated from other parameters for information purposes. They are not settable parameters themselves.  \*) 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 2: 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. | | | | | | | |

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

Table 8.7.1.2.1.5: CPICH\_RSCP Inter frequency relative accuracy requirements for the reported values

|  |  |  |
| --- | --- | --- |
|  | Test 1 | Test 2 |
| Normal Conditions | | |
| Lowest reported value cell 2 | CPICH\_RSCP\_(x - 8) | CPICH\_RSCP\_(x - 28) |
| Highest reported value cell 2 | CPICH\_RSCP\_(x + 8) | CPICH\_RSCP\_(x - 12) |
| Extreme Conditions | | |
| Lowest reported value cell2 | CPICH\_RSCP\_(x - 8) | CPICH\_RSCP\_(x - 28) |
| Highest reported value cell2 | CPICH\_RSCP\_(x + 8) | CPICH\_RSCP\_(x - 12) |
| CPICH\_RSCP\_x is the reported value of cell 1 | | |

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

### 8.7.2 CPICH Ec/Io

#### 8.7.2.1 Intra frequency measurements accuracy

##### 8.7.2.1.1 Absolute accuracy requirement

8.7.2.1.1.1 Definition and applicability

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

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

8.7.2.1.1.2 Minimum Requirements

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

CPICH\_RSCP1|dBm according to Annex L.3.4 for a corresponding Band

Table 8.7.2.1.1.1: CPICH\_Ec/Io Intra frequency absolute accuracy, minimum requirements

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Parameter | Accuracy [dB] | | Conditions | | |
| Normal condition | Extreme condition | Operating bands | Io [dBm/3,84 [MHz] | |
| Minimum Io | Maximum Io |
| CPICH\_Ec/Io |  1.5 for ‑14    CPICH Ec/Io  2 for ‑16    CPICH Ec/Io  <  -14  3 for ‑20    CPICH Ec/Io < -16 |  3 | I, IV, VI, X, XI, XIX, XXI and XXXII | -94 | -50 |
| II, V and VII | -92 | -50 |
| XXV and XXVI | -90.5  (Note 1) | -50 |
| III, VIII, XII, XIII, XIV, XX and XXII | -91 | -50 |
| IX | -93 | -50 |
| NOTE 1: The minimum Io is -92 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. | | | | | |

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

8.7.2.1.1.3 Test purpose

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

8.7.2.1.1.4 Method of test

8.7.2.1.1.4.1 Initial conditions

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

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

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

Table 8.7.2.1.1.2: CPICH\_Ec/Io Intra frequency parameters

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Parameter | | Unit | Test 1 | | Test 2 | | Test 3 | |
| Cell 1 | Cell 2 | Cell 1 | Cell 2 | Cell 1 | Cell 2 |
| UTRA RF Channel number | |  | Channel 1 | | Channel 1 | | Channel 1 | |
| CPICH\_Ec/Ior | | dB | -10 | | -10 | | -10 | |
| PCCPCH\_Ec/Ior | | dB | -12 | | -12 | | -12 | |
| SCH\_Ec/Ior | | dB | -12 | | -12 | | -12 | |
| PICH\_Ec/Ior | | dB | -15 | | -15 | | -15 | |
| DPCH\_Ec/Ior | | dB | -15 | - | -15 | - | -6 | - |
| OCNS\_Ec/Ior | | dB | -1.11 | -0.94 | -1.11 | -0.94 | -2.56 | -0.94 |
| Ioc | Band I, IV, VI, X, XI, XIX, XXI | dBm/ 3.84 MHz | -56.98 | | -89.07 | | -94.98 | |
| Band IX\* | -88.07 | | -93.98 | |
| Band II, V, VII | -87.07 | | -92.98 | |
| Band XXV, XXVI | -85.57 | | -91.48 (Note 2) | |
| Band III, VIII, XII, XIII, XIV,XX, XXII | -86.07 | | -91.98 | |
| Îor/Ioc | | dB | 3.0 | 3.0 | -2.9 | -2.9 | -9.0 | -9.0 |
| CPICH Ec/Io, Note 1 | | dBm | -14.0 | -14.0 | -16.0 | -16.0 | -20.0 | -20.0 |
| Io, Note 1 | Band I, IV, VI, X, XI, XIX, XXI | dBm/3.84 MHz | -50 | | -86 | | -94 | |
|  | Band IX\* | -85 | | -93 | |
|  | Band II, V, VII | -84 | | -92 | |
|  | Band XXV, XXVI | -82.5 | | -90.5 (Note 2) | |
|  | Band III, VIII, XII, XIII, XIV,XX, XXII | -83 | | -91 | |
| Propagation condition | | - | AWGN | | AWGN | | AWGN | |
| NOTE 1: CPICH Ec/Io and Iolevels have been calculated from other parameters for information purposes. They are not settable parameters themselves.  \*) 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 2: 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. | | | | | | | | |

8.7.2.1.1.4.2 Procedure

1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2. The RF parameters for Test 1 are set up according to table 8.7.2.1.1.5.

2) SS shall transmit MEASUREMENT CONTROL message.

3) UE shall transmit periodically MEASUREMENT REPORT messages.

4) SS shall check CPICH\_Ec/No value in MEASUREMENT REPORT messages. According to table 8.7.2.1.1.3 the SS calculates CPICH\_Ec/Io power ratio of Cell 1, which is compared to the actual CPICH Ec/Io power ratio from the same cell for each MEASUREMENT REPORT message.

5) SS shall check MEASUREMENT REPORT messages transmitted by UE until statistical significance according to Annex F.6.2.8 is achieved.

6) The RF parameters are set up according to table 8.7.2.1.1.5 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 4) and 5) above are repeated.

7) The RF parameters are set up according to table 8.7.2.1.1.5 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 4) and 5) above are repeated.

8) The SS shall transmit RRC CONNECTION RELEASE message.

9) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Table 8.7.2.1.1.3: CPICH Ec/Io measurement report mapping

|  |  |  |
| --- | --- | --- |
| Reported value | Measured quantity value | Unit |
| CPICH\_Ec/No \_00 | CPICH Ec/Io < ‑24 | dB |
| CPICH\_Ec/No \_01 | -24  CPICH Ec/Io < ‑23.5 | dB |
| CPICH\_Ec/No \_02 | -23.5  CPICH Ec/Io < ‑23 | dB |
| … | … | … |
| CPICH\_Ec/No \_47 | -1  CPICH Ec/Io < -0.5 | dB |
| CPICH\_Ec/No \_48 | -0.5  CPICH Ec/Io < 0 | dB |
| CPICH\_Ec/No \_49 | 0  CPICH Ec/Io | dB |

Specific Message Contents

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

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

| Information Element | Value/Remark |
| --- | --- |
| Message Type |  |
| UE information elements |  |
| -RRC transaction identifier | 0 |
| -Integrity check info |  |
| -message authentication code | SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I. |
| -RRC message sequence number | SS provides the value of this IE, from its internal counter. |
| Measurement Information elements |  |
| -Measurement Identity | 1 |
| -Measurement Command | Modify |
| -Measurement Reporting Mode |  |
| - Measurement Report Transfer Mode | Acknowledged mode RLC |
| - Periodical Reporting / Event Trigger Reporting Mode | Periodical reporting |
| -Additional measurement list | Not Present |
| -CHOICE Measurement Type | Intra-frequency measurement |
| -Intra-frequency measurement |  |
| - Intra-frequency measurement objects list | Not Present |
| -Intra-frequency measurement quantity |  |
| -Filter coefficient | 0 |
| -CHOICE mode | FDD |
| -Measurement quantity | CPICH RSCP |
| -Intra-frequency reporting quantity |  |
| -Reporting quantities for active set cells |  |
| -Cell synchronisation information reporting | TRUE |
| indicator |  |
| -Cell Identity reporting indicator | TRUE |
| -CHOICE mode | FDD |
| -CPICH Ec/N0 reporting indicator | TRUE |
| -CPICH RSCP reporting indicator | TRUE |
| -Pathloss reporting indicator | FALSE |
| -Reporting quantities for monitored set cells |  |
| -Cell synchronisation information reporting indicator | FALSE |
| -Cell Identity reporting indicator | FALSE |
| -CHOICE mode | FDD |
| -CPICH Ec/N0 reporting indicator | TRUE |
| -CPICH RSCP reporting indicator | TRUE |
| -Pathloss reporting indicator | FALSE |
| -Reporting quantities for detected set cells | Not Present |
| -Reporting cell status |  |
| -CHOICE reported cell | Report all active set cells + cells within monitored set on used frequency |
| -Maximum number of reported cells | Virtual/active set cells + 2 |
| -Measurement validity | Not Present |
| -CHOICE report criteria | Periodical reporting criteria |
| -Amount of reporting | Infinity |
| -Reporting interval | 250 ms |
| Physical channel information elements |  |
| -DPCH compressed mode status info | Not Present |

MEASUREMENT REPORT message for Intra frequency test cases

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

8.7.2.1.1.5 Test requirements

The CPICH Ec/Io measurement accuracy shall meet the requirements in clause 8.7.2.1.1.2. The effect of assumed thermal noise and noise generated in the receiver (-99 dBm for Band I, IV, VI, X, XI, XIX, XXI and XXXII, -98dBm for Band IX, -97 dBm for Band II, V and VII, -96 dBm for Band III, VIII, XII, XIII, XIV, XX and XXII, -95.5 for Band XXV and XXVI) shall be added into the required accuracy defined in subclause 8.7.2.1.1.2 as shown in table 8.7.2.1.1.4.

Table 8.7.2.1.1.4: CPICH\_Ec/Io Intra frequency absolute accuracy, test requirements

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Parameter | Unit | Accuracy [dB] | |  | Conditions | | | |
| Normal condition | Extreme condition |  | Io [dBm/3.84 MHz] | | | |
| Band I, IV, VI, X, XI, XIX, XXI and XXXII | Band IX | Band II,V and VII | Band XXV and XXVI | Band III, VIII, XII, XIII, XIV, XX and XXII |
| CPICH\_Ec/  Io | dB | -3.1…1.9 for ‑14  CPICH Ec/Io –3.6…2.4 for ‑16  CPICH Ec/Io < -14 –4.6…3.4 for ‑20  CPICH Ec/Io < -16 | -4.6…3.4 | -94...-87 | -93...-86 | -92...-85 | -90.5...-83.5 (Note 1) | -91...-84 |
|  1.95 for ‑14  CPICH Ec/Io  2.4 for ‑16  CPICH Ec/Io < -14  3.4 for ‑20  CPICH Ec/Io < -16 |  3.4 | -87...-50 | -86...-50 | -85...-50 | -83.5...-50 (Note 1) | -84...-50 |
| NOTE 1: 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.. | | | | | | | | |

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

Table 8.7.2.1.1.5: CPICH\_Ec/Io Intra frequency tests parameters

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Parameter | | Unit | Test 1 | | Test 2 | | Test 3 | |
| Cell 1 | Cell 2 | Cell 1 | Cell 2 | Cell 1 | Cell 2 |
| UTRA RF Channel number | |  | Channel 1 | | Channel 1 | | Channel 1 | |
| CPICH\_Ec/Ior | | dB | -9.7 | | -9.8 | | -9.9 | |
| PCCPCH\_Ec/Ior | | dB | -11.7 | | -11.8 | | -11.9 | |
| SCH\_Ec/Ior | | dB | -11.7 | | -11.8 | | -11.9 | |
| PICH\_Ec/Ior | | dB | -14.7 | | -14.8 | | -14.9 | |
| DPCH\_Ec/Ior | | dB | -14.7 | - | -14.8 | - | -5.9 | - |
| OCNS\_Ec/Ior | | dB | -1.2 | -1.02 | -1.17 | -0.99 | -2.64 | -0.97 |
| Ioc | Band I, IV, VI, X, XI, XIX, XXI | dBm/ 3.84 MHz | -58.5 | | -89.07 | | -93.98 | |
| Band IX\* | -88.07 | | -92.98 | |
| Band II, V, VII | -87.07 | | -91.98 | |
| Band XXV, XXVI | -85.57 (Note 2) | | -90.48 (Note 2) | |
| Band III, VIII, XII, XIII, XIV, XX, XXII | -86.07 | | -90.98 | |
| Îor/Ioc | | dB | 3.3 | 3.3 | -2.6 | -2.6 | -8.7 | -8.7 |
| CPICH Ec/Io, Note 1 | | dBm | -13.6 | -13.6 | -15.6 | -15.6 | -19.6 | -19.6 |
| Io, Note 1 | Band I, IV, VI, X, XI, XIX, XXI | dBm / 3.84 MHz | -51.3 | | -85.85 | | -92.9 | |
| Band IX\* | -84.85 | | -91.9 | |
| Band II, V, VII | -83.85 | | -90.9 | |
| Band XXV, XXVI | -82.35 (Note 2) | | -89.4 (Note 2) | |
| Band III, VIII, XII, XIII, XIV, XX, XXII | -82.85 | | -89.9 | |
| Propagation condition | | - | AWGN | | AWGN | | AWGN | |
| NOTE 1: CPICH Ec/Io and Iolevels have been calculated from other parameters for information purposes. They are not settable parameters themselves.  \*) 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 2: 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. | | | | | | | | |

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

Table 8.7.2.1.1.6: CPICH\_Ec/Io Intra frequency absolute accuracy requirements  
for the reported values

|  |  |  |  |
| --- | --- | --- | --- |
|  | Test 1 | Test 2 | Test 3 |
| Normal Conditions | | | |
| Lowest reported value | CPICH\_Ec/No\_17 | CPICH\_Ec/No\_12 | CPICH\_Ec/No\_0 |
| Highest reported value | CPICH\_Ec/No\_25 | CPICH\_Ec/No\_22 | CPICH\_Ec/No\_16 |
| Extreme Conditions | | | |
| Lowest reported value | CPICH\_Ec/No\_14 | CPICH\_Ec/No\_10 | CPICH\_Ec/No\_0 |
| Highest reported value | CPICH\_Ec/No\_28 | CPICH\_Ec/No\_24 | CPICH\_Ec/No\_16 |

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

##### 8.7.2.1.2 Relative accuracy requirement

8.7.2.1.2.1 Definition and applicability

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

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

8.7.2.1.2.2 Minimum Requirements

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

CPICH\_RSCP1,2|dBm according to Annex B.3.5 for a corresponding Band

Table 8.7.2.1.2.1: CPICH\_Ec/Io Intra frequency relative accuracy

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Parameter | Accuracy [dB] | | Conditions | | |
| Normal condition | Extreme condition | Operating bands | Io [dBm/3,84 [MHz] | |
| Minimum Io | Maximum Io |
| The lower of the CPICH\_Ec/Io from cell1 and cell2 |  1.5 for ‑14    CPICH Ec/Io  2 for ‑16    CPICH Ec/Io  <  -14  3 for ‑20    CPICH Ec/Io  <  -16 |  3 | I, IV, VI, X, XI, XIX, XXI and XXXII | -94 | -50 |
| II, V and VII | -92 | -50 |
| XXV and XXVI | -90.5  (Note 1) | -50 |
| III, VIII, XII, XIII, XIV, XX and XXII | -91 | -50 |
| IX | -93 | -50 |
| NOTE 1: The minimum Io is -92 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. | | | | | |

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

8.7.2.1.2.3 Test purpose

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

8.7.2.1.2.4 Method of test

8.7.2.1.2.4.1 Initial conditions

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

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

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

8.7.2.1.2.4.2 Procedure

1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2. The RF parameters for Test 1 are set up according to table 8.7.2.1.2.3.

2) SS shall transmit MEASUREMENT CONTROL message.

3) UE shall transmit periodically MEASUREMENT REPORT messages.

4) SS shall check CPICH\_Ec/No value of Cell 1 and Cell 2 in MEASUREMENT REPORT messages. According to table 8.7.2.1.1.3 the SS calculates CPICH\_Ec/Io power ratio of Cell 1 and Cell 2. CPICH\_Ec/Io power ratio value measured from Cell 1 is compared to CPICH\_Ec/Io power ratio value measured from Cell 2 for each MEASUREMENT REPORT message.

5) The result of step 4) is compared to actual power level difference of CPICH\_Ec/Io of Cell 1 and Cell 2.

6) SS shall check MEASUREMENT REPORT messages transmitted by UE until statistical significance according to Annex F.6.2.8 is achieved.

7) The RF parameters are set up according to table 8.7.2.1.2.3 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 4), 5) and 6) above are repeated.

8) The RF parameters are set up according to table 8.7.2.1.2.3 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 4), 5) and 6) above are repeated.

9) The SS shall transmit RRC CONNECTION RELEASE message.

10) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

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

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

MEASUREMENT REPORT message for Intra frequency test cases

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

8.7.2.1.2.5 Test requirements

Table 8.7.2.1.2.2: CPICH\_Ec/Io Intra frequency relative accuracy

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Parameter | Accuracy [dB] | | Conditions | | |
| Normal condition | Extreme condition | Operating bands | Io [dBm/3,84 [MHz] | |
| Minimum Io | Maximum Io |
| The lower of the CPICH\_Ec/Io from cell1 and cell2 |  2.3 for ‑14    CPICH Ec/Io  2.8 for ‑16    CPICH Ec/Io  <  -14  3.8 for ‑20    CPICH Ec/Io  <  -16 |  3.8 | I, IV, VI, X, XI, XIX, XXI and XXXII | -94 | -50 |
| II, V and VII | -92 | -50 |
| XXV and XXVI | -90.5  (Note 1) | -50 |
| III, VIII, XII, XIII, XIV, XX and XXII | -91 | -50 |
| IX | -93 | -50 |
| NOTE 1: The minimum Io is -92 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. | | | | | |

Table 8.7.2.1.2.3: CPICH\_Ec/Io Intra frequency tests parameters

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Parameter | | Unit | Test 1 | | Test 2 | | Test 3 | |
| Cell 1 | Cell 2 | Cell 1 | Cell 2 | Cell 1 | Cell 2 |
| UTRA RF Channel number | |  | Channel 1 | | Channel 1 | | Channel 1 | |
| CPICH\_Ec/Ior | | dB | -9.7 | | -9.8 | | -9.9 | |
| PCCPCH\_Ec/Ior | | dB | -11.7 | | -11.8 | | -11.9 | |
| SCH\_Ec/Ior | | dB | -11.7 | | -11.8 | | -11.9 | |
| PICH\_Ec/Ior | | dB | -14.7 | | -14.8 | | -14.9 | |
| DPCH\_Ec/Ior | | dB | -14.7 | - | -14.8 | - | -5.9 | - |
| OCNS\_Ec/Ior | | dB | -1.2 | - 1.02 | -1.17 | -0.99 | -2.64 | -0.97 |
| Ioc | Band I, IV, VI, X, XI, XIX, XXI | dBm/ 3.84 MHz | -58.5 | | -89.07 | | -93.98 | |
| Band IX\* | -88.07 | | -92.98 | |
| Band II, V, VII | -87.07 | | -91.98 | |
| Band XXV, XXVI | -85.57 | | -90.48 (Note 2) | |
| Band III, VIII, XII, XIII, XIV,XX, XXII | -86.07 | | -90.98 | |
| Îor/Ioc | | dB | 3.3 | 3.3 | -2.6 | -2.6 | -8.7 | -8.7 |
| CPICH Ec/Io, Note 1 | | dBm | -13.6 | -13.6 | -15.6 | -15.6 | -19.6 | -19.6 |
| Io, Note 1 | Band I, IV, VI, X, XI, XIX, XXI | dBm / 3.84 MHz | -51,3 | | -85.85 | | -92.9 | |
| Band IX\* | -84.85 | | -91.9 | |
| Band II, V, VII | -83.85 | | -90.9 | |
| Band XXV, XXVI | -82.35 | | -89.4 (Note 2) | |
| Band III, VIII, XII, XIII, XIV,XX, XXII | -82.85 | | -89.9 | |
| Propagation condition | | - | AWGN | | AWGN | | AWGN | |
| NOTE 1: CPICH Ec/Io and Iolevels have been calculated from other parameters for information purposes. They are not settable parameters themselves.  \*) 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 2: 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. | | | | | | | | |

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

Table 8.7.2.1.2.4: CPICH\_Ec/Io Intra frequency relative accuracy requirements for the reported values

|  |  |  |  |
| --- | --- | --- | --- |
|  | Test 1 | Test 2 | Test 3 |
| Normal Conditions | | | |
| Lowest reported value cell 2 | CPICH\_Ec/No\_(x - 5) | CPICH\_Ec/No\_(x - 6) | CPICH\_Ec/No\_(x - 8) |
| Highest reported value cell 2 | CPICH\_Ec/No\_(x+ 5) | CPICH\_Ec/No\_(x + 6) | CPICH\_Ec/No\_(x+ 8) |
| Extreme Conditions | | | |
| Lowest reported value cell2 | CPICH\_Ec/No\_(x - 8) | CPICH\_Ec/No\_(x - 8) | CPICH\_Ec/No\_(x - 8) |
| Highest reported value cell2 | CPICH\_Ec/No\_(x + 8) | CPICH\_Ec/No\_(x+ 8) | CPICH\_Ec/No\_(x+ 8) |
| CPICH\_Ec/No\_x is the reported value of cell 1 | | | |

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

#### 8.7.2.2 Inter frequency measurement accuracy

##### 8.7.2.2.1 Absolute accuracy requirement

Void

##### 8.7.2.2.2 Relative accuracy requirement

8.7.2.2.2.1 Definition and applicability

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

The relative accuracy is defined using the lower CPICH\_Ec/Io of cell 1 and cell 2.

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

8.7.2.2.2.2 Minimum Requirements

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

CPICH\_RSCP1|dBm according to Annex L.3.7 for a corresponding Band

| Channel 1\_Io|dBm/3.84 MHz ‑Channel 2\_Io|dBm/3.84 MHz |  20 dB.

Table 8.7.2.2.2.1: CPICH\_Ec/Io Inter frequency relative accuracy, minimum requirements

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Parameter** | **Accuracy [dB]** | | **Conditions** | | |
| **Normal condition** | **Extreme condition** | **CPICH\_Ec/Io is on Band** | **Io [dBm/3,84 [MHz]** | |
| **Minimum Io** | **Maximum Io** |
| The lower of the CPICH\_Ec/Io from cell1 and cell2 |  1.5 for ‑14    CPICH Ec/Io  2 for ‑16    CPICH Ec/Io  <  -14  3 for ‑20    CPICH Ec/Io  <  -16 |  3 | I, IV, VI, X, XI, XIX, XXI and XXXII | -94 | -50 |
| II, V and VII | -92 | -50 |
| XXV and XXVI | -90.5  (Note 1) | -50 |
| III, VIII, XII, XIII, XIV, XX and XXII | -91 | -50 |
| IX | -93 | -50 |
| NOTE 1: The minimum condition is -92 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. | | | | | |

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

8.7.2.2.2.3 Test purpose

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

8.7.2.2.2.4 Method of test

8.7.2.2.2.4.1 Initial conditions

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

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

In this case both cells are on different frequencies.

For UEs that require compressed mode, compressed mode is applied. The gap length is 7, detailed definition is in clause C.5, set 1 of table C.5.2 except for TGRRC and TGCFN. TGPRC and TGCFN shall set to "Infinity" and "(Current CFN + (256 – TTI/10msec)) mod 256".

For UEs that do not require compressed mode, compressed mode is not applied and therefore no Physical Channel Reconfiguration message will be sent.

CPICH Ec/Io inter frequency relative accuracy requirements are tested by using test parameters in table 8.7.2.2.2.2.

Table 8.7.2.2.2.2: CPICH Ec/Io Inter frequency parameters

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Parameter | | Unit | Test 1 | | Test 2 | | Test 3 | |
| Cell 1 | Cell 2 | Cell 1 | Cell 2 | Cell 1 | Cell 2 |
| UTRA RF Channel number | |  | Channel 1 | Channel 2 | Channel 1 | Channel 2 | Channel 1 | Channel 2 |
| CPICH\_Ec/Ior | | dB | -10 | | -10 | | -10 | |
| PCCPCH\_Ec/Ior | | dB | -12 | | -12 | | -12 | |
| SCH\_Ec/Ior | | dB | -12 | | -12 | | -12 | |
| PICH\_Ec/Ior | | dB | -15 | | -15 | | -15 | |
| DPCH\_Ec/Ior | | dB | -15 | - | -6 | - | -6 | - |
| OCNS\_Ec/Ior | | dB | -1.11 | -0.94 | -2.56 | -0.94 | -2.56 | -0.94 |
| Ioc | Band I, IV, VI, X, XI, XIX, XXI | dBm/ 3.84 MHz | -52.22 | -52.22 | -87.27 | -87.27 | -94.46 | -94.46 |
| Band IX\* | -86.27 | -86.27 | -93.46 | -93.46 |
| Band II, V, VII | -85.27 | -85.27 | -92.46 | -92.46 |
| Band XXV, XXVI | 83.77 | 83.77 | 90.96  (Note 2) | 90.96  (Note 2) |
| Band III, VIII, XII, XIII, XIV,XX, XXII | -84.27 | -84.27 | -91.46 | -91.46 |
| Îor/Ioc | | dB | -1.75 | -1.75 | -4.7 | -4.7 | -9.54 | -9.54 |
| CPICH Ec/Io, Note 1 | | dBm | -14.0 | -14.0 | -16.0 | -16.0 | -20.0 | -20.0 |
| Io, Note 1 | Band I, IV, VI, X, XI, XIX, XXI | dBm/3.84 MHz | -50 | -50 | -86 | -86 | -94 | -94 |
| Band IX\* | -85 | -85 | -93 | -93 |
| Band II, V, VII | -84 | -84 | -92 | -92 |
| Band XXV, XXVI | 82.4 | 82.4 | 90.5  (Note 2) | 90.5  (Note 2) |
| Band III, VIII, XII, XIII, XIV,XX, XXII | -83 | -83 | -91 | -91 |
| Propagation condition | | - | AWGN | | AWGN | | AWGN | |
| NOTE 1: CPICH Ec/Io and Iolevels have been calculated from other parameters for information purposes. They are not settable parameters themselves.  \*) 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 2: 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. | | | | | | | | |

8.7.2.2.2.4.2 Procedure

1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2. The RF parameters for Test 1 are set up according to table 8.7.2.2.2.4.

2) If compressed mode is required, SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message. Otherwise, go to step 4.

3) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

4) SS shall transmit a MEASUREMENT CONTROL message for intra frequency measurement and transmit another MEASUREMENT CONTROL message for inter frequency measurement.

5) UE shall transmit periodically MEASUREMENT REPORT messages.

6) SS shall check CPICH\_Ec/No value of Cell 1 and Cell 2 in MEASUREMENT REPORT messages. According to table 8.7.2.1.1.3 the SS calculates CPICH\_Ec/Io power ratio of Cell 1 and Cell 2. CPICH\_Ec/Io power ratio measured from Cell 1 is compared to CPICH\_Ec/Io power value measured from Cell 2 for each MEASUREMENT REPORT message.

7) The result of step 6) is compared to actual power level difference of CPICH\_Ec/Io of Cell 1 and Cell 2.

8) SS shall check MEASUREMENT REPORT messages transmitted by UE until statistical significance according to Annex F.6.2.8 is achieved.

9) The RF parameters are set up according to table 8.7.2.2.2.4 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 6), 7) and 8) above are repeated.

10) The RF parameters are set up according to table 8.7.2.2.2.4 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 6), 7) and 8) above are repeated.

11) The SS shall transmit RRC CONNECTION RELEASE message.

12) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

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

PHYSICAL CHANNEL RECONFIGURATION message for Inter frequency measurement (step 2):

| Information Element | Value/Remark | Version |
| --- | --- | --- |
| Message Type |  |  |
| UE Information Elements |  |  |
| -RRC transaction identifier | 0 |  |
| -Integrity check info |  |  |
| -message authentication code | SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I. |  |
| -RRC message sequence number | SS provides the value of this IE, from its internal counter. |  |
| -Integrity protection mode info | Not Present |  |
| -Ciphering mode info | Not Present |  |
| -Activation time | Not Present |  |
| -New U-RNTI | Not Present |  |
| -New C-RNTI | Not Present |  |
| -RRC State Indicator | CELL\_DCH |  |
| -UTRAN DRX cycle length coefficient | Not Present |  |
| CN Information Elements |  |  |
| -CN Information info | Not Present |  |
| UTRAN mobility information elements |  |  |
| -URA identity | Not Present |  |
| RB information elements |  |  |
| -Downlink counter synchronisation info | Not Present |  |
| PhyCH information elements |  |  |
| -Frequency info | Not Present |  |
| Uplink radio resources |  |  |
| -Maximum allowed UL TX power | Not Present |  |
| - CHOICE channel requirement | Not Present |  |
| Downlink radio resources |  |  |
| -CHOICE mode | FDD |  |
| -Downlink PDSCH information | Not Present | R99 and Rel-4 only |
| -Downlink information common for all radio links |  |  |
| -Downlink DPCH info common for all RL | Not Present |  |
| -CHOICE mode | FDD |  |
| -DPCH compressed mode info |  |  |
| -Transmission gap pattern sequence |  |  |
| -TGPSI | 1 |  |
| -TGPS Status Flag | Activate |  |
| -TGCFN | (Current CFN + (256 – TTI/10msec))mod 256 |  |
| -Transmission gap pattern sequence configuration parameters |  |  |
| -TGMP | FDD measurement |  |
| -TGPRC | Infinity |  |
| -TGSN | 4 |  |
| -TGL1 | 7 |  |
| -TGL2 | Not Present |  |
| -TGD | UNDEFINED |  |
| -TGPL1 | 3 |  |
| -TGPL2 | Not Present | R99 and Rel-4 only |
| -RPP | Mode 0 |  |
| -ITP | Mode 0 |  |
| -CHOICE UL/DL mode | UL and DL |  |
| -Downlink compressed mode method | SF/2 |  |
| -Uplink compressed mode method | SF/2 |  |
| -Downlink frame type | B |  |
| -DeltaSIR1 | 3.0 |  |
| -DeltaSIRafter1 | 3.0 |  |
| -DeltaSIR2 | Not Present |  |
| -DeltaSIRafter2 | Not Present |  |
| -N Identify abort | Not Present |  |
| -T Reconfirm abort | Not Present |  |
| -TX Diversity Mode | Not Present |  |
| -SSDT information | Not Present | R99 and Rel-4 only |
| -Default DPCH Offset Value | Not Present |  |
| -Downlink information per radio link list |  |  |
| -Downlink information for each radio link |  |  |
| -Choice mode | FDD |  |
| -Primary CPICH info |  |  |
| -Primary scrambling code | 100 |  |
| -PDSCH with SHO DCH Info | Not Present | R99 and Rel-4 only |
| -PDSCH code mapping | Not Present | R99 and Rel-4 only |
| -Downlink DPCH info for each RL |  |  |
| -CHOICE mode | FDD |  |
| -Primary CPICH usage for channel estimation | Primary CPICH may be used |  |
| -DPCH frame offset | Set to value Default DPCH Offset Value ( as currently stored in SS) mod 38400 |  |
| -Secondary CPICH info | Not Present |  |
| -DL channelisation code |  |  |
| -Secondary scrambling code | Not Present |  |
| -Spreading factor | 128 |  |
| -Code number | 96 |  |
| -Scrambling code change | No code change |  |
| -TPC combination index | 0 |  |
| -SSDT Cell Identity | Not Present | R99 and Rel-4 only |
| -Closed loop timing adjustment mode | Not Present |  |
| -SCCPCH Information for FACH | Not Present |  |

First MEASUREMENT CONTROL message for Intra frequency measurement (Step 4):

|  |  |
| --- | --- |
| Information Element | Value/Remark |
| Message Type |  |
| UE information elements  -RRC transaction identifier  -Integrity check info  -message authentication code  -RRC message sequence number | 0    SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.  SS provides the value of this IE, from its internal counter. |
| Measurement Information elements  -Measurement Identity  -Measurement Command  -Measurement Reporting Mode  - Measurement Report Transfer Mode  - Periodical Reporting / Event Trigger Reporting Mode  -Additional measurement list  -CHOICE Measurement Type  -Intra-frequency measurement  - Intra-frequency measurement objects list  -Intra-frequency cell info list  -Intra-frequency measurement quantity  -Filter coefficient  -CHOICE mode  -Measurement quantity  -Intra-frequency reporting quantity  -Reporting quantities for active set cells  -Cell synchronisation information reporting indicator  -Cell Identity reporting indicator  -CHOICE mode  -CPICH Ec/N0 reporting indicator  -CPICH RSCP reporting indicator  -Pathloss reporting indicator  -Reporting quantities for monitored set cells  -Cell synchronisation information reporting indicator  -Cell Identity reporting indicator  -CHOICE mode  -CPICH Ec/N0 reporting indicator  -CPICH RSCP reporting indicator  -Pathloss reporting indicator  -Reporting quantities for detected set cells  -Reporting cell status  -CHOICE reported cell  -Maximum number of reported cells  -Measurement validity  -CHOICE report criteria  -Amount of reporting  -Reporting interval | 1  Modify  Acknowledged mode RLC  Periodical reporting  Not Present  Intra-frequency measurement  Not Present  0  FDD  CPICH RSCP  TRUE  TRUE  FDD  TRUE  TRUE  FALSE  FALSE  TRUE  FDD  TRUE  TRUE  FALSE  Not Present  Report all active set cells + cells within monitored set on used frequency  Virtual/active set cells + 2  Not Present  Periodical reporting criteria  Infinity  250 ms |
| Physical channel information elements  -DPCH compressed mode status info | Not Present |

Second MEASUREMENT CONTROL message for Inter frequency measurement (step 4):

|  |  |
| --- | --- |
| Information Element | Value/Remark |
| Message Type |  |
| UE information elements  -RRC transaction identifier  -Integrity check info  -message authentication code  -RRC message sequence number | 0    SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.  SS provides the value of this IE, from its internal counter. |
| Measurement Information elements  -Measurement Identity  -Measurement Command  -Measurement Reporting Mode  - Measurement Report Transfer Mode  - Periodical Reporting / Event Trigger Reporting Mode  -Additional measurement list  -CHOICE Measurement Type  -Inter-frequency measurement  -Inter-frequency cell info list  -CHOICE Inter-frequency cell removal  -New inter-frequency cells  -Cell for measurement  -Inter-frequency measurement quantity  -CHOICE reporting criteria  -Filter coefficient  -CHOICE mode  -Measurement quantity for frequency quality estimate  -Inter-frequency reporting quantity  -UTRA Carrier RSSI  -Frequency quality estimate  -Non frequency related cell reporting quantities  -Cell synchronisation information reporting indicator  -Cell Identity reporting indicator  -CHOICE mode  -CPICH Ec/N0 reporting indicator  -CPICH RSCP reporting indicator  -Pathloss reporting indicator  -Reporting cell status  -CHOICE reported cell  -Maximum number of reported cells  -Measurement validity  -Inter-frequency set update  -CHOICE report criteria  -Amount of reporting  -Reporting interval | 2  Setup  Acknowledged mode RLC  Periodical reporting  Not Present  Inter-frequency measurement  Not Present  Cell 2 information is included  Not Present  Inter-frequency reporting criteria  0  FDD  CPICH RSCP  TRUE  TRUE  TRUE  TRUE  FDD  TRUE  TRUE  FALSE  Report cells within monitored set on non-used frequency  2  Not Present  Not Present  Periodical reporting criteria  Infinity  500 ms |
| Physical channel information elements  -DPCH compressed mode status info | Not Present |

MEASUREMENT REPORT message for Intra frequency test cases

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

8.7.2.2.2.5 Test requirements

The effect of assumed thermal noise and noise generated in the receiver -99 dBm for Band I, IV, VI, X, XI, XIX, XXI and XXXII, -98dBm for Band IX, -97 dBm for Band II, V and VII, -96 dBm for Band IIII, VIII, XII, XIII, XIV, XX and XXII, -95.5 dBm for Band XXV and XXVI) shall be added into the required accuracy defined in clause 8.7.2.2.2.2 as shown in table 8.7.2.2.2.3.

Table 8.7.2.2.2.3: CPICH\_Ec/Io Inter frequency relative accuracy, test requirements

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Parameter | Unit | Normal condition | Extreme condition |  | Io [dBm/3.84 MHz] | | | |
| Band I, IV, VI, X, XI XIX, XXI and XXXII | Band IX | Band II, V and VII | Band XXV and XXVI | Band III, VIII, XII, XIII, XIV, XX and XXII |
| CPICH\_Ec/Io | dB | 3.5 for ‑14  CPICH Ec/Io 4 for ‑16  CPICH Ec/Io < -14 5 for ‑20  CPICH Ec/Io < -16 |  5 | -94...-87 | -93...-86 | -92...-85 | -90.5...-84.5 (Note 1) | -91...-84 |
| 2.3 for ‑14  CPICH Ec/Io  2.8 for ‑16  CPICH Ec/Io < -14  3.8 for ‑20  CPICH Ec/Io < -16 |  3.8 | -87...-50 | -86...-50 | -85...-50 | -83.5...-50 (Note 1) | -84...-50 |
| NOTE 1: 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. | | | | | | | | |

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

Table 8.7.2.2.2.4: CPICH Ec/Io Inter frequency tests parameters

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Parameter | | Unit | Test 1 | | Test 2 | | Test 3 | |
| Cell 1 | Cell 2 | Cell 1 | Cell 2 | Cell 1 | Cell 2 |
| UTRA RF Channel number | |  | Channel 1 | Channel 2 | Channel 1 | Channel 2 | Channel 1 | Channel 2 |
| CPICH\_Ec/Ior | | dB | -10 | | -10 | | -10 | |
| PCCPCH\_Ec/Ior | | dB | -12 | | -12 | | -12 | |
| SCH\_Ec/Ior | | dB | -12 | | -12 | | -12 | |
| PICH\_Ec/Ior | | dB | -15 | | -15 | | -15 | |
| DPCH\_Ec/Ior | | dB | -15 | - | -6 | - | -6 | - |
| OCNS\_Ec/Ior | | dB | -1.11 | -0.94 | -2.56 | -0.94 | -2.56 | -0.94 |
| Ioc | Band I, IV, VI, X, XI, XIX, XXI | dBm/ 3.84 MHz | -53.5 | -53.5 | -86.27 | -86.27 | -93.46 | -93.46 |
| Band IX\* | -85.27 | -85.27 | -92.46 | -92.46 |
| Band II, V, VII | -84.27 | -84.27 | -91.46 | -91.46 |
| Band XXV, XXVI | -82.77 | -82.77 | -89.96  (Note 2) | -89.96  (Note 2) |
| Band III, VIII, XII, XIII, XIV,XX, XXII | -83.27 | -83.27 | -90.46 | -90.46 |
| Îor/Ioc | | dB | -1.45 | -1.45 | -4.4 | -4.4 | -9.24 | -9.24 |
| CPICH Ec/Io, Note 1 | | dBm | -13.8 | -13.8 | -15.7 | -15.7 | -19.7 | -19.7 |
| Io, Note 1 | Band I, IV, VI, X, XI, XIX, XXI | dBm /3.84 MHz | -51.15 | -51.15 | -84.9 | -84.9 | -93 | -93 |
| Band IX\* | -83.9 | -83.9 | -92 | -92 |
| Band II, V, VII | -82.9 | -82.9 | -91 | -91 |
| Band XXV, XXVI | -81.4 | -81.4 | -89.5  (Note 2) | -89.5  (Note 2) |
| Band III, VIII, XII, XIII, XIV,XX, XXII | -81.9 | -81.9 | -90 | -90 |
| Propagation condition | | - | AWGN | | AWGN | | AWGN | |
| NOTE 1: CPICH Ec/Io and Iolevels have been calculated from other parameters for information purposes. They are not settable parameters themselves.  \*) 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 2: 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. | | | | | | | | |

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

The reported values for the relative inter frequency CPICH Ec/Io measurement shall meet the requirements in table 8.7.2.2.2.5.

Table 8.7.2.2.2.5: CPICH\_Ec/Io Inter frequency relative accuracy requirements for the reported values

|  |  |  |  |
| --- | --- | --- | --- |
|  | Test 1 | Test 2 | Test 3 |
| Normal Conditions | | | |
| Lowest reported value cell 2 | CPICH\_Ec/No\_(x -5) | CPICH\_Ec/No\_(x - 6) | CPICH\_Ec/No\_(x - 10) |
| Highest reported value cell 2 | CPICH\_Ec/No\_(x+5) | CPICH\_Ec/No\_(x + 6) | CPICH\_Ec/No\_(x +10) |
| Extreme Conditions | | | |
| Lowest reported value cell2 | CPICH\_Ec/No\_(x - 8) | CPICH\_Ec/No\_(x - 8) | CPICH\_Ec/No\_(x - 10) |
| Highest reported value cell2 | CPICH\_Ec/No\_(x + 8) | CPICH\_Ec/No\_(x + 8) | CPICH\_Ec/No\_(x + 10) |
| CPICH\_Ec/No\_x is the reported value of cell 1 | | | |

### 8.7.3 UTRA Carrier RSSI

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

#### 8.7.3.1 Absolute measurement accuracy requirement

##### 8.7.3.1.1 Definition and applicability

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

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

##### 8.7.3.1.2 Minimum Requirements

Table 8.7.3.1.1: UTRA Carrier RSSI Inter frequency absolute accuracy

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Parameter | Accuracy [dB] | | Conditions | | |
| Normal condition | Extreme condition | Operating bands | Io [dBm/3,84MHz] | |
| Minimum Io | Maximum Io |
| UTRA Carrier RSSI |  4 |  7 | I, IV, VI, X, XI, XIX, XXI and XXXII | -94 | -70 |
| II, V and VII | -92 | -70 |
| XXV and XXVI | -90.5  (Note 1) | -70 |
| III, VIII, XII, XIII, XIV, XX and XXII | -91 | -70 |
| IX | -93 | -70 |
|  6 |  9 | Note 2 | -70 | -50 |
| NOTE 1: The minimum condition is -92 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.  NOTE 2: The same bands apply for this requirement as for the corresponding highest accuracy requirement.. | | | | | |

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

##### 8.7.3.1.3 Test purpose

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

##### 8.7.3.1.4 Method of test

8.7.3.1.4.1 Initial conditions

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

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

In this case both cells are on different frequencies.

For UEs that require compressed mode, compressed mode is applied. The gap length is 7, detailed definition is in clause C.5, Set 1 of table C.5.2 except for TGRRC and TGCFN. TGPRC and TGCFN shall set to "Infinity" and "(Current CFN + (256 – TTI/10msec)) mod 256".

For UEs that do not require compressed mode, compressed mode is not applied and therefore no Physical Channel Reconfiguration message will be sent.

UTRA Carrier RSSI absolute accuracy requirements are tested by using test parameters in table 8.7.3.1.2.

Table 8.7.3.1.2: UTRA Carrier RSSI Inter frequency absolute accuracy parameters

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Parameter | | Unit | Test 1 | | Test 2 | | Test 3 | |
| Cell 1 | Cell 2 | Cell 1 | Cell 2 | Cell 1 | Cell 2 |
| UTRA RF Channel number | |  | Channel 1 | Channel 2 | Channel 1 | Channel 2 | Channel 1 | Channel 2 |
| CPICH\_Ec/Ior | | dB | -10 | | -10 | | -10 | |
| PCCPCH\_Ec/Ior | | dB | -12 | | -12 | | -12 | |
| SCH\_Ec/Ior | | dB | -12 | | -12 | | -12 | |
| PICH\_Ec/Ior | | dB | -15 | | -15 | | -15 | |
| DPCH\_Ec/Ior | | dB | -15 | - | -6 | - | -6 | - |
| OCNS\_Ec/Ior | | dB | -1.11 | -0.94 | -2.56 | -0.94 | -2.56 | -0.94 |
| Ioc | Band I, IV, VI, X, XI, XIX, XXI | dBm/ 3.84 MHz | -52.22 | -52.22 | -70.27 | -70.27 | -94.46 | -94.46 |
| Band IX\* | -93.46 | -93.46 |
| Band II, V, VII | -92.46 | -92.46 |
| Band XXV, XXVI | -90.96 (Note 2) | -90.96 (Note 2) |
| Band III, VIII, XII, XIII, XIV,XX, XXII | -91.46 | -91.46 |
| Îor/Ioc | | dB | -1.75 | -1.75 | -4.7 | -4.7 | -9.54 | -9.54 |
| CPICH Ec/Io, Note 1 | | dBm | -14.0 | -14.0 | -16.0 | -16.0 | -20.0 | -20.0 |
| Io, Note 1 | Band I, IV, VI, X, XI, XIX, XXI | dBm/3.84 MHz | -50 | -50 | -69 | -69 | -94 | -94 |
| Band IX\* | -93 | -93 |
| Band II, V, VII | -92 | -92 |
| Band XXV, XXVI | -90.5  (Note 2) | -90.5  (Note 2) |
| Band III, VIII, XII, XIII, XIV,XX, XXII | -91 | -91 |
| Propagation condition | | - | AWGN | | AWGN | | AWGN | |
| NOTE 1: CPICH Ec/Io and Iolevels have been calculated from other parameters for information purposes. They are not settable parameters themselves.  \*) 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 2: 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. | | | | | | | | |

8.7.3.1.4.2 Procedure

1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2. The RF parameters for Test 1 are set up according to table 8.7.3.1.2.

2) If compressed mode is required, SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message. Otherwise, go to step 4.

3) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

4) SS shall transmit MEASUREMENT CONTROL message.

5) UE shall transmit periodically MEASUREMENT REPORT messages.

6) SS shall check UTRA carrier RSSI value of Channel 2 in MEASUREMENT REPORT messages. UTRA carrier RSSI power of Channel 2 reported by UE is compared to actual UTRA Carrier RSSI value of Channel 2 for each MEASUREMENT REPORT message.

7) SS shall check MEASUREMENT REPORT messages transmitted by UE until statistical significance according to Annex F.6.2.8 is achieved.

8) The RF parameters are set up according to table 8.7.3.1.2 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 6) and 7) above are repeated.

9) The RF parameters are set up according to table 8.7.3.1.2 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 6) and 7) above are repeated.

10) The SS shall transmit RRC CONNECTION RELEASE message.

11) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

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

PHYSICAL CHANNEL RECONFIGURATION message for Inter frequency measurement (step 2):

| Information Element | Value/Remark | Version |
| --- | --- | --- |
| Message Type |  |  |
| UE Information Elements |  |  |
| -RRC transaction identifier | 0 |  |
| -Integrity check info |  |  |
| -message authentication code | SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I. |  |
| -RRC message sequence number | SS provides the value of this IE, from its internal counter. |  |
| -Integrity protection mode info | Not Present |  |
| -Ciphering mode info | Not Present |  |
| -Activation time | Not Present |  |
| -New U-RNTI | Not Present |  |
| -New C-RNTI | Not Present |  |
| -RRC State Indicator | CELL\_DCH |  |
| -UTRAN DRX cycle length coefficient | Not Present |  |
| CN Information Elements |  |  |
| -CN Information info | Not Present |  |
| UTRAN mobility information elements |  |  |
| -URA identity | Not Present |  |
| RB information elements |  |  |
| -Downlink counter synchronisation info | Not Present |  |
| PhyCH information elements |  |  |
| -Frequency info | Not Present |  |
| Uplink radio resources |  |  |
| -Maximum allowed UL TX power | Not Present |  |
| - CHOICE channel requirement | Not Present |  |
| Downlink radio resources |  |  |
| -CHOICE mode | FDD |  |
| -Downlink PDSCH information | Not Present | R99 and Rel-4 only |
| -Downlink information common for all radio links |  |  |
| -Downlink DPCH info common for all RL | Not Present |  |
| -CHOICE mode | FDD |  |
| -DPCH compressed mode info |  |  |
| -Transmission gap pattern sequence |  |  |
| -TGPSI | 1 |  |
| -TGPS Status Flag | Activate |  |
| -TGCFN | (Current CFN + (256 – TTI/10msec))mod 256 |  |
| -Transmission gap pattern sequence configuration parameters |  |  |
| -TGMP | FDD measurement |  |
| -TGPRC | Infinity |  |
| -TGSN | 4 |  |
| -TGL1 | 7 |  |
| -TGL2 | Not Present |  |
| -TGD | UNDEFINED |  |
| -TGPL1 | 3 |  |
| -TGPL2 | Not Present | R99 and Rel-4 only |
| -RPP | Mode 0 |  |
| -ITP | Mode 0 |  |
| -CHOICE UL/DL mode | UL and DL |  |
| -Downlink compressed mode method | SF/2 |  |
| -Uplink compressed mode method | SF/2 |  |
| -Downlink frame type | B |  |
| -DeltaSIR1 | 3.0 |  |
| -DeltaSIRafter1 | 3.0 |  |
| -DeltaSIR2 | Not Present |  |
| -DeltaSIRafter2 | Not Present |  |
| -N Identify abort | Not Present |  |
| -T Reconfirm abort | Not Present |  |
| -TX Diversity Mode | Not Present |  |
| -SSDT information | Not Present | R99 and Rel-4 only |
| -Default DPCH Offset Value | Not Present |  |
| -Downlink information per radio link list |  |  |
| -Downlink information for each radio link |  |  |
| -Choice mode | FDD |  |
| -Primary CPICH info |  |  |
| -Primary scrambling code | 100 |  |
| -PDSCH with SHO DCH Info | Not Present | R99 and Rel-4 only |
| -PDSCH code mapping | Not Present | R99 and Rel-4 only |
| -Downlink DPCH info for each RL |  |  |
| -CHOICE mode | FDD |  |
| -Primary CPICH usage for channel estimation | Primary CPICH may be used |  |
| -DPCH frame offset | Set to value Default DPCH Offset Value ( as currently stored in SS) mod 38400 |  |
| -Secondary CPICH info | Not Present |  |
| -DL channelisation code |  |  |
| -Secondary scrambling code | Not Present |  |
| -Spreading factor | 128 |  |
| -Code number | 96 |  |
| -Scrambling code change | No code change |  |
| -TPC combination index | 0 |  |
| -SSDT Cell Identity | Not Present | R99 and Rel-4 only |
| -Closed loop timing adjustment mode | Not Present |  |
| -SCCPCH Information for FACH | Not Present |  |

MEASUREMENT CONTROL message for Inter frequency measurement (step 4):

| Information Element | Value/Remark |
| --- | --- |
| Message Type |  |
| UE information elements  -RRC transaction identifier  -Integrity check info  -message authentication code  -RRC message sequence number | 0    SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.  SS provides the value of this IE, from its internal counter. |
| Measurement Information elements  -Measurement Identity  -Measurement Command  -Measurement Reporting Mode  - Measurement Report Transfer Mode  - Periodical Reporting / Event Trigger Reporting Mode  -Additional measurement list  -CHOICE Measurement Type  -Inter-frequency measurement  -Inter-frequency cell info list  -CHOICE Inter-frequency cell removal  -New inter-frequency cells  -Cell for measurement  -Inter-frequency measurement quantity  -CHOICE reporting criteria  -Filter coefficient  -CHOICE mode  -Measurement quantity for frequency quality estimate  -Inter-frequency reporting quantity  -UTRA Carrier RSSI  -Frequency quality estimate  -Non frequency related cell reporting quantities  -Cell synchronisation information reporting indicator  -Cell Identity reporting indicator  -CHOICE mode  -CPICH Ec/N0 reporting indicator  -CPICH RSCP reporting indicator  -Pathloss reporting indicator  -Reporting cell status  -CHOICE reported cell  -Maximum number of reported cells  -Measurement validity  -Inter-frequency set update  -CHOICE report criteria  -Amount of reporting  -Reporting interval | 2  Setup  Acknowledged mode RLC  Periodical reporting  Not Present  Inter-frequency measurement  Not Present  Cell 2 information is included.  Not Present  Inter-frequency reporting criteria  0  FDD  CPICH RSCP  TRUE  TRUE  TRUE  TRUE  FDD  TRUE  TRUE  FALSE  Report cells within monitored set on non-used frequency  2  Not Present  Not Present  Periodical reporting criteria  Infinity  500 ms |
| Physical channel information elements  -DPCH compressed mode status info | Not Present |

MEASUREMENT REPORT message for Inter frequency test cases

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

##### 8.7.3.1.5 Test requirements

The UTRA Carrier RSSI absolute measurement accuracy shall meet the requirements in clause 8.7.3.1.2. The effect of assumed thermal noise and noise generated in the receiver (-99 dBm for Band I, IV, VI, X, XI, XIX and XXI, -98dBm for Band IX, -97 dBm for Band II, V and VII, -96 dBm for Band III, VIII, XII, XIII, XIV, XX and XXII, -95.5 dBm for Band XXV and XXVI) shall be added into the required accuracy defined in subclause 8.7.3.1.2 as shown in table 8.7.3.1.3.

Table 8.7.3.1.3: UTRA Carrier RSSI absolute accuracy, test requirements

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Parameter | Unit | Accuracy [dB] | | | | | |
| Normal condition | | | Extreme condition | | |
| Test 1 | Test 2 | Test 3 | Test 1 | Test 2 | Test 3 |
| UTRA Carrier RSSI | dBm |  7.15 |  5.1 | -5…5.8 |  10.15 |  8.1 | -8…8.8 |

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

Table 8.7.3.1.4: UTRA Carrier RSSI Inter frequency absolute accuracy test parameters

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Parameter | | Unit | Test 1 | | Test 2 | | Test 3 | |
| Cell 1 | Cell 2 | Cell 1 | Cell 2 | Cell 1 | Cell 2 |
| UTRA RF Channel number | |  | Channel 1 | Channel 2 | Channel 1 | Channel 2 | Channel 1 | Channel 2 |
| CPICH\_Ec/Ior | | dB | -10 | | -10 | | -10 | |
| PCCPCH\_Ec/Ior | | dB | -12 | | -12 | | -12 | |
| SCH\_Ec/Ior | | dB | -12 | | -12 | | -12 | |
| PICH\_Ec/Ior | | dB | -15 | | -15 | | -15 | |
| DPCH\_Ec/Ior | | dB | -15 | - | -6 | - | -6 | - |
| OCNS\_Ec/Ior | | dB | -1.11 | -0.94 | -2.56 | -0.94 | -2.56 | -0.94 |
| Ioc | Band I, IV, VI, X, XI, XIX, XXI | dBm/ 3.84 MHz | -53.5 | -53.5 | -69.27 | -69.27 | -93.46 | -93.46 |
| Band IX\* | -92.46 | -92.46 |
| Band II, V, VII | -91.46 | -91.46 |
| Band XXV, XXVI | -89.96 (Note 2) | -89.96 (Note 2) |
| Band III, VIII, XII, XIII, XIV,XX, XXII | -90.46 | -90.46 |
| Îor/Ioc | | dB | -1.45 | -1.45 | -4.4 | -4.4 | -9.24 | -9.24 |
| CPICH Ec/Io, Note 1 | | dBm | -13.8 | -13.8 | -15.7 | -15.7 | -19.7 | -19.7 |
| Io, Note 1 | Band I, IV, VI, X, XI, XIX, XXI | dBm/3.84 MHz | -51.15 | -51.15 | -67.9 | -67.9 | -93 | -93 |
| Band IX\* | -92 | -92 |
| Band II, V, VII | -91 | -91 |
| Band XXV, XXVI | -89.5  (Note 2) | -89.5  (Note 2) |
| Band III, VIII, XII, XIII, XIV,XX, XXII | -90 | -90 |
| Propagation condition | | - | AWGN | | AWGN | | AWGN | |
| NOTE 1: CPICH Ec/Io and Iolevels have been calculated from other parameters for information purposes. They are not settable parameters themselves.  \*) 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 2: 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. | | | | | | | | |

The reported values for the UTRA Carrier RSSI absolute measurement shall meet the requirements in table 8.7.3.1.5.

Table 8.7.3.1.5: UTRA Carrier RSSI absolute accuracy requirements for the reported values

|  |  |  |  |
| --- | --- | --- | --- |
|  | Test 1 | Test 2 | Test 3 |
| Normal Conditions | | | |
| Lowest reported value (Cell 2) | UTRA\_carrier\_RSSI\_LEV\_42 | UTRA\_carrier\_RSSI\_LEV\_27 | UTRA\_carrier\_RSSI\_LEV\_02 |
| Highest reported value (Cell 2) | UTRA\_carrier\_RSSI\_LEV\_57 | UTRA\_carrier\_RSSI\_LEV\_38 | UTRA\_carrier\_RSSI\_LEV\_13 |
| Extreme Conditions | | | |
| Lowest reported value (Cell 2) | UTRA\_carrier\_RSSI\_LEV\_39 | UTRA\_carrier\_RSSI\_LEV\_24 | UTRA\_carrier\_RSSI\_LEV\_00 |
| Highest reported value (Cell 2) | UTRA\_carrier\_RSSI\_LEV\_60 | UTRA\_carrier\_RSSI\_LEV\_41 | UTRA\_carrier\_RSSI\_LEV\_16 |

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

#### 8.7.3.2 Relative measurement accuracy requirement

##### 8.7.3.2.1 Definition and applicability

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

The requirements and this test apply for Release 6 and later releases to all types of UTRA for the FDD UE.

##### 8.7.3.2.2 Minimum Requirements

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

|Channel 1\_Io|dBm/3.84 MHz ‑ |Channel 2\_Io|dBm/3.84 MHz < 20 dB.

Table 8.7.3.2.1: UTRA Carrier RSSI Inter frequency relative accuracy

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Parameter | Accuracy [dB] | | Conditions | | |
| Normal condition | Extreme condition | UTRA Carrier RSSI is on Band | Io [dBm/3,84 [MHz] | |
| Minimum Io | Maximum Io |
| UTRA Carrier RSSI |  7 |  11 | I, IV, VI, X, XI, XIX, XXI and XXXII | -94 | -50 |
| II, V and VII | -92 | -50 |
| XXV and XXVI | -90.5  (Note 1) | -50 |
| III, VIII, XII, XIII, XIV, XX and XXII | -91 | -50 |
| IX | -93 | -50 |
| NOTE 1: The minimum condition is -92 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. | | | | | |

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

##### 8.7.3.2.3 Test purpose

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

##### 8.7.3.2.4 Method of test

8.7.3.2.4.1 Initial conditions

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

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

In this case all cells are on different frequencies and compressed mode is applied. The gap length is 7, detailed definition is in clause C.5, Set 1 of table C.5.2 except for TGRRC and TGCFN. TGPRC and TGCFN shall set to "Infinity" and "(Current CFN + (256 – TTI/10msec))mod 256". UTRA Carrier RSSI relative accuracy requirements are tested by using test parameters in table 8.7.3.2.1A. UTRA carrier RSSI measurements of neighbour cell 2 and neighbour cell 3 are reported to serving cell 1.

Table 8.7.3.2.1A: UTRA Carrier RSSI Inter frequency relative accuracy test parameters

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Parameter | | Unit | Test 1 | | | Test 2 | | | Test 3 | | |
| Cell 1 | Cell 2 | Cell 3 | Cell 1 | Cell 2 | Cell3 | Cell 1 | Cell 2 | Cell 3 |
| UTRA RF Channel number | |  | Channel 1 | Channel 2 | Channel 3 | Channel 1 | Channel 2 | Channel 3 | Channel 1 | Channel 2 | Channel 3 |
| CPICH\_Ec/Ior | | dB | -10 | | | -10 | | | -10 | | |
| PCCPCH\_Ec/Ior | | dB | -12 | | | -12 | | | -12 | | |
| SCH\_Ec/Ior | | dB | -12 | | | -12 | | | -12 | | |
| PICH\_Ec/Ior | | dB | -15 | | | -15 | | | -15 | | |
| DPCH\_Ec/Ior | | dB | -15 | - | - | -6 | - | - | -6 | - | - |
| OCNS\_Ec/Ior | | dB | -1.11 | -0.94 | -0.94 | -2.56 | -0.94 | -0.94 | -2.56 | -0.94 | -0.94 |
| Ioc | Band I, IV, VI, X, XI, XIX, XXI | dBm/ 3.84 MHz | -52.23 | -52.23 | -71.23 | -91.27 | -91.27 | -81.27 | -94.45 | -94.45 | -75.45 |
| Band IX\* | -93.45 | -93.45 | -74.45 |
| Band II, V, VII | -92.45 | -92.45 | -73.45 |
| Band XXV, XXVI | -90.95 (Note 3) | -90.95 (Note 3) | -71.95 (Note 3) |
| Band III, VIII, XII, XIII, XIV,XX, XXII | -91.45 | -91.45 | -72.45 |
| Îor/Ioc | | dB | -1.75 | -1.75 | -1.75 | -4.7 | -4.7 | -4.7 | -9.54 | -9.54 | -9.54 |
| CPICH Ec/Io,  Note 1 | | dBm | -14.0 | -14.0 | -14.0 | -16.0 | -16.0 | -16.0 | -20.0 | -20.0 | -20.0 |
| Io,  Note 1 | Band I, IV, VI, X, XI, XIX, XXI | dBm/ 3.84 MHz | -50  (Note 2) | -50 | -69 | -90 (Note 2) | -90 | -80 | -94  (Note 2) | -94 | -75 |
| Band IX\* | -93  (Note 2) | -93 | -74 |
| Band II, V, VII | -92  (Note 2) | -92 | -73 |
| Band XXV, XXVI | -90.5 (Note 3) | -90.5 (Note 3) | -71.5 (Note 3) |
| Band III, VIII, XII, XIII, XIV,XX, XXII | -91  (Note 2) | -91 | -72 |
| Propagation condition | | - | AWGN | | | AWGN | | | AWGN | | |
| NOTE 1: CPICH Ec/Io and Iolevels have been calculated from other parameters for information purposes. They are not settable parameters themselves.  NOTE 2: Io levels are not reported by the UE on cell 1.  \*) 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 Cell 2 or Cell 3 in between the tests. | | | | | | | | | | | |

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

8.7.3.2.4.2 Procedure

1) A call is set up according to the test procedure specified in TS 34.108 [3] clause 7.3.2. The RF parameters for Test 1 are set up according to table 8.7.3.2.3.

2) SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message.

3) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

4) SS shall transmit MEASUREMENT CONTROL message. The SS shall wait 6.8 seconds to allow UE to be ready for inter frequency measurements.

5) UE shall transmit periodically MEASUREMENT REPORT messages.

6) SS shall check UTRA carrier RSSI value of Channel 2 and Channel 3 in MEASUREMENT REPORT messages. UTRA carrier RSSI power value measured from Channel 3 is compared to UTRA carrier RSSI power value measured from Channel 2 for each MEASUREMENT REPORT message.

7) The result of step 6) is compared to actual power level difference of UTRA Carrier RSSI of Channel 3 and Channel 2.

8) SS shall check MEASUREMENT REPORT messages transmitted by UE until statistical significance according to Annex F.6.2.8 is achieved.

9) The RF parameters are set up according to table 8.7.3.2.3 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 6), 7) and 8) above are repeated.

10) The RF parameters are set up according to table 8.7.3.2.3 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 6), 7) and 8) above are repeated.

11) The SS shall transmit RRC CONNECTION RELEASE message.

12) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

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

PHYSICAL CHANNEL RECONFIGURATION message for Inter frequency measurement (step 2):

| Information Element | Value/Remark | Version |
| --- | --- | --- |
| Message Type |  |  |
| UE Information Elements |  |  |
| -RRC transaction identifier | 0 |  |
| -Integrity check info |  |  |
| -message authentication code | SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I. |  |
| -RRC message sequence number | SS provides the value of this IE, from its internal counter. |  |
| -Integrity protection mode info | Not Present |  |
| -Ciphering mode info | Not Present |  |
| -Activation time | Not Present |  |
| -New U-RNTI | Not Present |  |
| -New C-RNTI | Not Present |  |
| -RRC State Indicator | CELL\_DCH |  |
| -UTRAN DRX cycle length coefficient | Not Present |  |
| CN Information Elements |  |  |
| -CN Information info | Not Present |  |
| UTRAN mobility information elements |  |  |
| -URA identity | Not Present |  |
| RB information elements |  |  |
| -Downlink counter synchronisation info | Not Present |  |
| PhyCH information elements |  |  |
| -Frequency info | Not Present |  |
| Uplink radio resources |  |  |
| -Maximum allowed UL TX power | Not Present |  |
| - CHOICE channel requirement | Not Present |  |
| Downlink radio resources |  |  |
| -CHOICE mode | FDD |  |
| -Downlink PDSCH information | Not Present | R99 and Rel-4 only |
| -Downlink information common for all radio links |  |  |
| -Downlink DPCH info common for all RL | Not Present |  |
| -CHOICE mode | FDD |  |
| -DPCH compressed mode info |  |  |
| -Transmission gap pattern sequence |  |  |
| -TGPSI | 1 |  |
| -TGPS Status Flag | Activate |  |
| -TGCFN | (Current CFN + (256 – TTI/10msec))mod 256 |  |
| -Transmission gap pattern sequence configuration parameters |  |  |
| -TGMP | FDD measurement |  |
| -TGPRC | Infinity |  |
| -TGSN | 4 |  |
| -TGL1 | 7 |  |
| -TGL2 | Not Present |  |
| -TGD | UNDEFINED |  |
| -TGPL1 | 3 |  |
| -TGPL2 | Not Present | R99 and Rel-4 only |
| -RPP | Mode 0 |  |
| -ITP | Mode 0 |  |
| -CHOICE UL/DL mode | UL and DL |  |
| -Downlink compressed mode method | SF/2 |  |
| -Uplink compressed mode method | SF/2 |  |
| -Downlink frame type | B |  |
| -DeltaSIR1 | 3.0 |  |
| -DeltaSIRafter1 | 3.0 |  |
| -DeltaSIR2 | Not Present |  |
| -DeltaSIRafter2 | Not Present |  |
| -N Identify abort | Not Present |  |
| -T Reconfirm abort | Not Present |  |
| -TX Diversity Mode | Not Present |  |
| -SSDT information | Not Present | R99 and Rel-4 only |
| -Default DPCH Offset Value | Not Present |  |
| -Downlink information per radio link list |  |  |
| -Downlink information for each radio link |  |  |
| -Choice mode | FDD |  |
| -Primary CPICH info |  |  |
| -Primary scrambling code | 100 |  |
| -PDSCH with SHO DCH Info | Not Present | R99 and Rel-4 only |
| -PDSCH code mapping | Not Present | R99 and Rel-4 only |
| -Downlink DPCH info for each RL |  |  |
| -CHOICE mode | FDD |  |
| -Primary CPICH usage for channel estimation | Primary CPICH may be used |  |
| -DPCH frame offset | Set to value Default DPCH Offset Value ( as currently stored in SS) mod 38400 |  |
| -Secondary CPICH info | Not Present |  |
| -DL channelisation code |  |  |
| -Secondary scrambling code | Not Present |  |
| -Spreading factor | 128 |  |
| -Code number | 96 |  |
| -Scrambling code change | No code change |  |
| -TPC combination index | 0 |  |
| -SSDT Cell Identity | Not Present | R99 and Rel-4 only |
| -Closed loop timing adjustment mode | Not Present |  |
| -SCCPCH Information for FACH | Not Present |  |

MEASUREMENT CONTROL message for Inter frequency measurement (step 4):

|  |  |
| --- | --- |
| Information Element | Value/Remark |
| Message Type |  |
| UE information elements |  |
| -RRC transaction identifier | 0 |
| -Integrity check info |  |
| -message authentication code | SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I. |
| -RRC message sequence number | SS provides the value of this IE, from its internal counter. |
| Measurement Information elements |  |
| -Measurement Identity | 2 |
| -Measurement Command | Setup |
| -Measurement Reporting Mode |  |
| - Measurement Report Transfer Mode | Acknowledged mode RLC |
| - Periodical Reporting / Event Trigger Reporting Mode | Periodical reporting |
| -Additional measurement list | Not Present |
| -CHOICE Measurement Type | Inter-frequency measurement |
| -Inter-frequency measurement |  |
| -Inter-frequency cell info list |  |
| -CHOICE Inter-frequency cell removal | Not Present |
| -New inter-frequency cells | Cell 2 and Cell 3 information are included. |
| -Cell for measurement | Not Present |
| -Inter-frequency measurement quantity |  |
| -CHOICE reporting criteria | Inter-frequency reporting criteria |
| -Filter coefficient | 0 |
| -CHOICE mode | FDD |
| -Measurement quantity for frequency quality estimate | CPICH RSCP |
| -Inter-frequency reporting quantity |  |
| -UTRA Carrier RSSI | TRUE |
| -Frequency quality estimate | TRUE |
| -Non frequency related cell reporting quantities |  |
| -Cell synchronisation information reporting indicator | TRUE |
| -Cell Identity reporting indicator | TRUE |
| -CHOICE mode | FDD |
| -CPICH Ec/N0 reporting indicator | TRUE |
| -CPICH RSCP reporting indicator | TRUE |
| -Pathloss reporting indicator |  |
| -Reporting cell status |  |
| -CHOICE reported cell | Report cells within monitored set on non-used frequency |
| -Maximum number of reported cells | 3 |
| -Measurement validity | Not Present |
| -Inter-frequency set update | Not Present |
| -CHOICE report criteria | Periodical reporting criteria |
| -Amount of reporting | Infinity |
| -Reporting interval | 500 ms |
| Physical channel information elements |  |
| -DPCH compressed mode status info | Not Present |

MEASUREMENT REPORT message for inter frequency test cases

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

##### 8.7.3.2.5 Test requirements

The UTRA Carrier RSSI relative measurement accuracy shall meet the requirements in clause 8.7.3.2.2. The effect of assumed thermal noise and noise generated in the receiver (-99 dBm for Band I, IV, VI, X, XI, XIX, XXI and XXXII, -98dBm for Band IX, -97 dBm for Band II, V and VII, -96 dBm for Band III, VIII, XII, XIII, XIV, XX and XXII, -95.5 dBm for Band XXV, XXVI) shall be added into the required accuracy defined in clause 8.7.3.2.2 as shown in table 8.7.3.2.2.

Table 8.7.3.2.2: UTRA Carrier RSSI relative accuracy, test requirements

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Parameter | Unit | Accuracy [dB] | | | | | |
| Normal condition | | | Extreme condition | | |
| Test 1 | Test 2 | Test 3 | Test 1 | Test 2 | Test 3 |
| UTRA Carrier RSSI | dBm |  7.9 |  8.8 |  8.9 |  11.9 |  12.8 |  12.9 |

Table 8.7.3.2.3: UTRA Carrier RSSI Inter frequency relative accuracy test parameters

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Parameter | | Unit | Test 1 | | | Test 2 | | | Test 3 | | |
| Cell 1 | Cell 2 | Cell 3 | Cell 1 | Cell 2 | Cell3 | Cell 1 | Cell 2 | Cell 3 |
| UTRA RF Channel number | |  | Channel 1 | Channel 2 | Channel 3 | Channel 1 | Channel 2 | Channel 3 | Channel 1 | Channel 2 | Channel 3 |
| CPICH\_Ec/Ior | | dB | -10 | | | -10 | | | -10 | | |
| PCCPCH\_Ec/Ior | | dB | -12 | | | -12 | | | -12 | | |
| SCH\_Ec/Ior | | dB | -12 | | | -12 | | | -12 | | |
| PICH\_Ec/Ior | | dB | -15 | | | -15 | | | -15 | | |
| DPCH\_Ec/Ior | | dB | -15 | - | - | -6 | - | - | -6 | - | - |
| OCNS\_Ec/Ior | | dB | -1.11 | -0.94 | -0.94 | -2.56 | -0.94 | -0.94 | -2.56 | -0.94 | -0.94 |
| Ioc | Band I, IV, VI, X, XI, XIX, XXI | dBm/ 3.84 MHz | -53.50 | -53.50 | -71.23 | -91.27 | -91.27 | -81.27 | -93.45 | -93.45 | -74.45 |
| Band IX\* | -92.45 | -92.45 | -73.45 |
| Band II, V, VII | -91.45 | -91.45 | -72.45 |
| Band XXV, XXVI | -89.95 (Note 3) | -89.95 (Note 3) | -70.95 (Note 3) |
| Band III, VIII, XII, XIII, XIV,XX | -90.45 | -90.45 | -71.45 |
| Îor/Ioc | | dB | -1.45 | -1.45 | -1.45 | -4.4 | -4.4 | -4.4 | -9.24 | -9.24 | -9.24 |
| CPICH Ec/Io,  Note 1 | | dBm | -13.7 | -13.7 | -13.7 | -15.7 | -15.7 | -15.7 | -19.7 | -19.7 | -19.7 |
| Io,  Note 1 | Band I, IV, VI, X, XI, XIX, XXI | dBm/ 3.84 MHz | -51.15  (Note 2) | -51.15 | -69 | -90 (Note 2) | -90 | -80 | -93  (Note 2) | -93 | -74 |
| Band IX\* | -92  (Note 2) | -92 | -73 |
| Band II, V, VII | -91  (Note 2) | -91 | -72 |
| Band XXV, XXVI | -89.5 (Note 3) | -89.5 (Note 3) | -70.5 (Note 3) |
| Band III, VIII, XII, XIII, XIV,XX | -90  (Note 2) | -90 | -71 |
| Propagation condition | | - | AWGN | | | AWGN | | | AWGN | | |
| NOTE 1: CPICH Ec/Io and Iolevels have been calculated from other parameters for information purposes. They are not settable parameters themselves.  NOTE 2: Io levels are not reported by the UE on cell 1.  \*) 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 Cell 2 or Cell 3 in between the tests. | | | | | | | | | | | |
| The frequency separation among 3 cells shall be at least 10 MHz to avoid overlapping the AWGN interference coming from different Ioc sources. | | | | | | | | | | | |

The reported values for the UTRA Carrier RSSI relative measurement shall meet the requirements in table 8.7.3.2.4.

Table 8.7.3.2.4: UTRA Carrier RSSI relative accuracy requirements for the reported values

|  |  |  |  |
| --- | --- | --- | --- |
|  | Test 1 | Test 3 | Test 3 |
| Normal Conditions | | | |
| Lowest reported value (Cell 3) | UTRA\_carrier\_RSSI\_LEV\_(x – 26) | UTRA\_carrier\_RSSI\_LEV\_(x + 1) | UTRA\_carrier\_RSSI\_LEV\_(x + 10) |
| Highest reported value (Cell 3) | UTRA\_carrier\_RSSI\_LEV\_(x -10) | UTRA\_carrier\_RSSI\_LEV\_(x + 19) | UTRA\_carrier\_RSSI\_LEV\_(x + 28) |
| Extreme Conditions | | | |
| Lowest reported value (Cell 3) | UTRA\_carrier\_RSSI\_LEV\_\_(x – 30) | UTRA\_carrier\_RSSI\_LEV\_\_(x – 3) | UTRA\_carrier\_RSSI\_LEV\_\_(x + 6) |
| Highest reported value (Cell 3) | UTRA\_carrier\_RSSI\_LEV\_\_(x - 6) | UTRA\_carrier\_RSSI\_LEV\_\_(x + 23) | UTRA\_carrier\_RSSI\_LEV\_\_(x + 32) |
| UTRA\_carrier\_RSSI\_LEV\_x is the reported value of cell 2 | | | |

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

### 8.7.3A GSM Carrier RSSI

#### 8.7.3A.1 Definition and applicability

The GSM carrier RSSI measurement is used for handover between UTRAN and GSM.

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

#### 8.7.3A.2 Minimum Requirements

The UE shall meet the measurement accuracy requirements stated for RXLEV below, when the given measurement time allows the UE to take at least 3 GSM carrier RSSI samples per GSM carrier in the monitored set during the measurement period.

The absolute accuracy shall be as follows:

The R.M.S received signal level at the receiver input shall be measured by the UE and the BSS over the full range of ‑110 dBm to ‑48 dBm with an absolute accuracy of ±4 dB from ‑110 dBm to ‑70 dBm under normal conditions and ±6 dB over the full range under both normal and extreme conditions. The R.M.S received signal level at the receiver input shall be measured by the UE above -48 dBm up to -38 dBm with an absolute accuracy of ± 9 dB under both normal and extreme conditions.

If the received signal level falls below the reference sensitivity level for the type of UE or BSS, then the measured level shall be within the range allowing for the absolute accuracy specified above. In case the upper limit of this range is below the reference sensitivity level for the type of UE or BSS, then the upper limit shall be considered as equal to the reference sensitivity level.

The 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 or BTS and measurements between ARFCN in the same band for a multiband

MS or BTS;

s = reference sensitivity level as specified in 3GPP TS 05.05 [28] for R99 and in 3GPP TS 45.005 [29] for Rel-4 and later releases.

For measurements between ARFCN in different bands;

s = the reference sensitivity level as specified in [28] and [29] for the band including x1.

At extreme temperature conditions an extra 2 dB shall be added to c and d in above table.

The selectivity of the received signal level measurement shall be as follows:

‑ for adjacent (200 kHz) channel  16 dB;

‑ for adjacent (400 kHz) channel  48 dB;

‑ for adjacent (600 kHz) channel  56 dB.

The selectivity shall be met using random, continuous, GSM‑modulated signals with the wanted signal at the level 20 dB above the reference sensitivity level.

The reporting range and mapping specified for RXLEV in TS 05.08[20] for R99 and in TS 45.008 [30] for Rel-4 and later releases shall apply.

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

The normative reference for this requirement is:

For R99: TS 25.133 [2] clause 8.1.2.5 and 9.1.4 and TS 05.08 [20] clause 8.1.2.

For Rel-4 and later releases: TS 25.133 [2] clause 8.1.2.5 and 9.1.4 and TS 45.008 [30] clause 8.1.2.

#### 8.7.3A.3 Test purpose

The purpose of this test is to verify that the GSM Carrier RSSI measurement accuracy in CELL\_DCH state, for UE that needs compressed mode to perform GSM measurements, is within the specified limits. This measurement is for UTRAN to GSM handover evaluation.

#### 8.7.3A.4 Method of test

##### 8.7.3A.4.1 Initial conditions

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

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

In the test in Cell\_DCH state compressed mode with purpose "GSM Carrier RSSI Measurement" is applied to measure on GSM. The gap length is 7, detailed definition is in clause C.5, Set 2 of table C.5.2 except for TGPRC and TGCFN. TGPRC and TGCFN shall set to '"Infinity" and "(Current CFN + (256 – TTI/10msec))mod 256". Table 8.7.3A.1 defines the limits of signal strengths and code powers on the UMTS FDD cell, where the requirement is applicable. In the measurement control information it is indicated to the UE that periodic reporting of the GSM RSSI measurement.

The requirements are also applicable for a UE not requiring compressed mode, in which case no compressed mode pattern should be sent for the parameters specified in table 8.7.3A.1.

Table 8.7.3A.1: General GSM Carrier RSSI test parameters

|  |  |  |  |
| --- | --- | --- | --- |
| Parameter | Unit | Value | Comment |
| DCH parameters |  | DL Reference Measurement Channel 12.2 kbps | As specified in section C.3.1 |
| Power Control |  | On |  |
| Target quality value on DTCH | BLER | 0.01 |  |
| Compressed mode patterns - GSM carrier RSSI measurement |  | Compressed mode reference pattern 2 Set 2 | As specified in table C.5.2 section C.5 |
| Inter-RAT measurement quantity |  | GSM Carrier RSSI |  |
| BSIC verification required |  | Not required |  |
| Monitored cell list size |  | 6 GSM neighbours | See Annex I for cell information  Measurement control information is sent before the compressed mode patterns starts. |

Table 8.7.3A.2: Cell specific GSM Carrier RSSI test parameters

|  |  |  |
| --- | --- | --- |
| Parameter | Unit | Cell 1 |
| UTRA RF Channel number | - | Channel 1 |
| Îor/Ioc | dB | -1 |
| Ioc | dBm/ 3.84 MHz | -70 |
| Propagation condition | - | AWGN |

Table 8.7.3A.3: Signal levels at receiver input in dBm

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Step | BCCH1 | BCCH2 | BCCH3 | BCCH4 | BCCH5 | BCCH6 |
| 1 | -38.5 | -38.5 | NA | NA | NA | NA |
| 2 | -48.5 | -48.5 | NA | NA | NA | NA |
| 3 | -70.5 | -70.5 | NA | NA | NA | NA |
| 4 | -109.5 | -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 8.7.3A.4: 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 900 for FDD Band VIII(note1) | 110 | 124 | 1 | 90 | 80 | 100 |
| GSM 900 for FDD bands ≠ FDD Band VIII | 62 | 124 | 20 | 40 | 80 | 100 |
| DCS 1800 for FDD Band III and IX(Note2) | 747 | 885 | 585 | 660 | 855 | 835 |
| DCS 1800 for FDD bands ≠ FDD Band III and IX | 700 | 885 | 585 | 660 | 790 | 835 |
| PCS 1900 for FDD Band II(note3) | 700 | 805 | 585 | 615 | 790 | 550 |
| PCS 1900 for FDD bands ≠ FDD Band II | 700 | 805 | 585 | 660 | 790 | 550 |
| 450/900 | 124 | 276 | 293 | 269 | 288 | 1 |
| 480/900 | 124 | 323 | 340 | 316 | 335 | 1 |
| 450/1800 | 885 | 276 | 293 | 269 | 288 | 512 |
| 480/1800 | 885 | 323 | 340 | 316 | 335 | 512 |
| 900/1800 for FDD Band VIII(Note1) | 885 | 1 | 124 | 90 | 100 | 512 |
| 900/1800 for FDD bands ≠ FDD Band VIII | 885 | 62 | 124 | 40 | 100 | 512 |
| 450/900/1800 | 124 | 276 | 885 | 293 | 1 | 512 |
| 480/900/1800 | 124 | 323 | 885 | 340 | 1 | 512 |
| GSM 850 for FDD Band V, VI and XIX (Note4) | 220 | 251 | 130 | 140 | 240 | 230 |
| GSM 850  for FDD bands ≠ FDD Band V, VI and XIX | 189 | 251 | 150 | 170 | 210 | 230 |
| GSM 750 | 475 | 511 | 440 | 455 | 485 | 500 |
| 750/850 | 251 | 475 | 511 | 455 | 485 | 128 |

NOTE 1: The following BCCH ARFCN’s specified for FDD Band VIII provide enough gap for a UMTS cell and its AWGN to be setup with centre frequency at UARFCN number 3013.

NOTE 2: The following BCCH ARFCN’s specified for FDD Band III and IX provide enough gap for a UMTS cell and its AWGN to be setup with centre frequency at UARFCN number 1375 and 9312.

NOTE 3: The following BCCH ARFCN’s specified for FDD Band II provide enough gap for a UMTS cell and its AWGN to be setup with centre frequency at UARFCN number 9800.

NOTE 4: The following BCCH ARFCN’s specified for FDD Band V, VI and XIX provide enough gap for a UMTS cell and its AWGN to be setup with centre frequency at UARFCN number 4400.

##### 8.7.3A.4.2 Procedure

1) A call is set up according to the test procedure specified in TS 34.108 [3] clause 7.3.2. The RF parameters for cell 1 are set up according to table to table 8.7.3A.1 and 8.7.3A.2.

2) The RF parameters for two GSM cells are set up according to the step 1 in table 8.7.3A.5. The fading profile for the BCCHs will be set to static, see 51.010-1 [25]. The ARFCN numbers for GSM cells are set up according to table 8.7.3.A.4.

3) If compressed mode is required , SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message. Otherwise go to step 5.

4) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

5) SS shall transmit MEASUREMENT CONTROL message.

6) UE shall transmit periodically MEASUREMENT REPORT messages.

7) SS shall check GSM carrier RSSI value of the two GSM cells in MEASUREMENT REPORT messages. The GSM CARRIER RSSI values reported in the first measurement report are discarded. The SS records repeatedly GSM CARRIER RSSI values reported for the two BCCHs in each step. One report produces more than one mapped level or level difference. If the UE reports a value compliant with the applicable Table 8.7.3A.6 or 8.7.3A.7 or 8.7.3A.8 or 8.7.3A.9 then a success is recorded. Otherwise a failure is recorded. The successes and failures are assigned to the individual mapped levels or level differences. Repeat steps 7 according to Annex F.6.2 table 6.2.8. The repetition shall be continued, until the last mapped level or level difference experiences an early decision according to Annex F.6.2.

8) The RF parameters for two GSM cells are set up according to the next test step in table 8.7.3A.5.

9) Repeat procedure steps 7 and 8 until MEASUREMENT REPORT messages from the test step 12 of Table 8.7.3A.5 have been recorded.

Specific Message Contents

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

PHYSICAL CHANNEL RECONFIGURATION message for Inter-RAT measurement (step 3):

| Information Element | Value/Remark | Version |
| --- | --- | --- |
| Message Type (10.2.22) |  |  |
| UE Information Elements |  |  |
| -RRC transaction identifier | 0 |  |
| -Integrity check info |  |  |
| -message authentication code | SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I. |  |
| -RRC message sequence number | SS provides the value of this IE, from its internal counter. |  |
| -Integrity protection mode info | Not Present |  |
| -Ciphering mode info | Not Present |  |
| -Activation time | Not Present |  |
| -New U-RNTI | Not Present |  |
| -New C-RNTI | Not Present |  |
| -RRC State Indicator | CELL\_DCH |  |
| -UTRAN DRX cycle length coefficient | Not Present |  |
| CN Information Elements |  |  |
| -CN Information info | Not Present |  |
| UTRAN mobility information elements |  |  |
| -URA identity | Not Present |  |
| RB information elements |  |  |
| -Downlink counter synchronisation info | Not Present |  |
| PhyCH information elements |  |  |
| -Frequency info (10.3.6.36) | Not Present |  |
| Uplink radio resources |  |  |
| -Maximum allowed UL TX power | 33 dBm |  |
| -CHOICE channel requirement | Not Present |  |
| Downlink radio resources |  |  |
| -CHOICE *mode* | FDD |  |
| -Downlink PDSCH information | Not Present | R99 and Rel-4 only |
| -Downlink information common for all radio links (10.3.6.24) |  |  |
| -Downlink DPCH info common for all RL (10.3.6.18) | Not Present |  |
| -CHOICE mode | FDD |  |
| -DPCH compressed mode info (10.3.6.33) |  |  |
| - Transmission gap pattern sequence | 1 |  |
| - TGPSI | 1 |  |
| - TGPS Status Flag | activate |  |
| - TGCFN | (Current CFN + (256 – TTI/10msec))mod 256 |  |
| - Transmission gap pattern sequence configuration parameters |  |  |
| -TGMP | GSM carrier RSSI measurement |  |
| -TGPRC | Infinity |  |
| -TGSN | 4 |  |
| -TGL1 | 7 |  |
| -TGL2 | Not Present |  |
| -TGD | UNDEFINED |  |
| -TGPL1 | 12 |  |
| -TGPL2 | Not Present | R99 and Rel-4 only |
| -RPP | mode 0 |  |
| -ITP | mode 0 |  |
| -CHOICE UL/DL mode | UL and DL |  |
| -Downlink compressed mode method | SF/2 |  |
| -Uplink compressed mode method | SF/2 |  |
| -Downlink frame type | B |  |
| -DeltaSIR1 | 3.0 |  |
| -DeltaSIRafter1 | 3.0 |  |
| -DeltaSIR2 | Not Present |  |
| -DeltaSIRafter2 | Not Present |  |
| -N Identify abort | Not Present |  |
| -T Reconfirm abort | Not Present |  |
| -TX Diversity mode (10.3.6.86) | None |  |
| -SSDT information (10.3.6.77) | Not Present | R99 and Rel-4 only |
| -Default DPCH Offset Value (10.3.6.16) | Not Present |  |
| -Downlink information per radio link list | 1 |  |
| -Downlink information for each radio link (10.3.6.27) |  |  |
| -CHOICE mode | FDD |  |
| -Primary CPICH info (10.3.6.60) |  |  |
| -Primary scrambling code | 100 |  |
| -PDSCH with SHO DCH info (10.3.6.47) | Not Present | R99 and Rel-4 only |
| -PDSCH code mapping (10.3.6.43) | Not Present | R99 and Rel-4 only |
| -Downlink DPCH info for each RL (10.3.6.21) |  |  |
| -CHOICE mode | FDD |  |
| -Primary CPICH usage for channel estimation | Primary CPICH may be used |  |
| -DPCH frame offset | Set to value Default DPCH Offset Value ( as currently stored in SS) mod 38400 |  |
| -Secondary CPICH info | Not Present |  |
| -DL channelisation code |  |  |
| -Secondary scrambling code | Not Present |  |
| -Spreading factor | 128 |  |
| -Code number | 96 |  |
| -Scrambling code change | No change |  |
| -TPC combination index | 0 |  |
| - SSDT Cell Identity | Not Present | R99 and Rel-4 only |
| - Closed loop timing adjustment mode | Not Present |  |
| - SCCPCH information for FACH (10.3.6.70) | Not Present |  |

MEASUREMENT CONTROL message for Inter-RAT measurement (step 5):

|  |  |  |
| --- | --- | --- |
| Information Element/Group name | Value/Remark | Version |
| Message Type (10.2.17) |  |  |
| UE information elements |  |  |
| -RRC transaction identifier | 0 |  |
| -Integrity check info |  |  |
| -message authentication code | SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I. |  |
| -RRC message sequence number | SS provides the value of this IE, from its internal counter. |  |
| Measurement Information elements |  |  |
| -Measurement Identity | 2 |  |
| -Measurement Command (10.3.7.46) | Setup |  |
| -Measurement Reporting Mode (10.3.7.49) |  |  |
| -Measurement Report Transfer Mode | AM RLC |  |
| -Periodical Reporting / Event Trigger Reporting Mode | Periodical reporting |  |
| -Additional measurements list (10.3.7.1) | Not Present |  |
| -CHOICE Measurement type | Inter-RAT measurement |  |
| -Inter-RAT measurement (10.3.7.27) |  |  |
| -Inter-RAT measurement objects list (10.3.7.23) |  |  |
| -CHOICE Inter-RAT cell removal | Remove no inter-RAT cells |  |
| -New inter-RAT cells | 6 |  |
| -Inter-RAT cell id | 9+n ( n=0 to 5) |  |
| -CHOICE Radio Access Technology | GSM |  |
| -Cell individual offset | 0 |  |
| -Cell selection and re-selection info (10.3.2.4) | Not Present |  |
| -BSIC (10.3.8.2) |  |  |
| -Base transceiver Station Identity Code (BSIC) | BSIC(1+n) for n=0, 1 according to 34.108 [3] Table 6.1.10; for n=2 to 5 chosen arbitrarily by the test house such that it does not collide with BSICs of other Inter-RAT cell ids |  |
| -Band indicator | According to PICS/PIXIT |  |
| -BCCH ARFCN | BCCH(1+n) according to Table 8.7.3A.4 |  |
| -Cell for measurement | Not Present |  |
| -Inter-RAT measurement quantity (10.3.7.29) |  |  |
| -Measurement quantity for UTRAN quality estimate (10.3.7.38) | Not Present |  |
| -CHOICE system | GSM |  |
| -Measurement quantity | GSM Carrier RSSI |  |
| -Filter coefficient | 0 |  |
| -BSIC verification required | not required |  |
| -Inter-RAT reporting quantity (10.3.7.32) |  |  |
| -UTRAN estimated quality | FALSE |  |
| -CHOICE system | GSM |  |
| -Observed time difference to GSM cell Reporting indicator | FALSE | R99 and Rel-4 only |
| -GSM carrier RSSI reporting indicator | TRUE |  |
| -Reporting cell status (10.3.7.61) |  |  |
| -CHOICE reported cell | Report cells within active set or within virtual active set or of the other RAT |  |
| -Maximum number of reported cells | 6 |  |
| -CHOICE report criteria | Periodical reporting criteria |  |
| -Periodical reporting criteria (10.3.7.53) |  |  |
| -Amount of reporting | Infinity |  |
| -Reporting interval | 500 ms |  |
| Physical channel information elements |  |  |
| -DPCH compressed mode status info (10.3.6.34) | Not Present |  |

MEASUREMENT REPORT message for inter– RAT test cases

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

#### 8.7.3A.5 Test requirements

Table 8.7.3A.5: Signal levels at receiver input in dBm, test parameters for test requirements

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Step | BCCH1 | BCCH2 | BCCH3 | BCCH4 | BCCH5 | BCCH6 |
| 1 | -39.5 | -39.5 | NA | NA | NA | NA |
| 2 | -49.5 | -49.5 | NA | NA | NA | NA |
| 3 | -71.5 | -71.5 | NA | NA | NA | NA |
| 4 | -108.5 | -108.5 | 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 |

For the UE preliminarily to pass the absolute requirements of GSM Carrier RSSI measurement, at least 90% of the reported GSM Carrier RSSI measurements shall fulfil the following test requirements for each step and each test environment with a confidence level of 95%.

Table 8.7.3A.6: GSM Carrier RSSI absolute accuracy requirements for the reported values

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Step | 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 = 61 | RXLEV = 63 | RXLEV = 61 | RXLEV = 63 |
| 2 | RXLEV = 54 | RXLEV = 63 | RXLEV = 54 | RXLEV = 63 |
| 3 | RXLEV = 34 | RXLEV = 44 | RXLEV = 32 | RXLEV = 46 |
| 4 | RXLEV = 00 | RXLEV = 09 | RXLEV = 00 | RXLEV = 09 |
| 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. | | | | |

For the UE preliminarily to pass the relative requirements of GSM Carrier RSSI measurement, at least 90% of the reported GSM Carrier RSSI measurements shall fulfil the following test requirements for each step and each test environment with a confidence level of 95%.

Table 8.7.3A.7: GSM Carrier RSSI Relative accuracy requirements  
for the reported values, measurements on different ARFCN within the same frequency band

|  |  |  |
| --- | --- | --- |
| Step | Normal & TL/VL & TH/VH | |
|  | Lowest reported value for BCCH2 | Highest reported value for BCCH2 |
| 1 | No requirements | No requirements |
| 2 | RXLEV = x-4 | RXLEV = x+4 |
| 3 | RXLEV = x-4 | RXLEV = x+4 |
| 4 | RXLEV = x-6 | RXLEV = x+4 |
|  | Lowest reported value for BCCH3 | Highest reported value for BCCH3 |
| 5 | RXLEV = x-1 | RXLEV = x+7 |
| 6 | RXLEV = x+1 | RXLEV = x+9 |
|  | Lowest reported value for BCCH4 | Highest reported value for BCCH4 |
| 7 | RXLEV = x+3 | RXLEV = x+11 |
| 8 | RXLEV = x+5 | RXLEV = x+13 |
|  | Lowest reported value for BCCH5 | Highest reported value for BCCH5 |
| 9 | RXLEV = x+7 | RXLEV = x+15 |
| 10 | RXLEV = x+8 | RXLEV = x+17 |
|  | Lowest reported value for BCCH6 | Highest reported value for BCCH6 |
| 11 | RXLEV = x+10 | RXLEV = x+19 |
| 12 | RXLEV = x+11 | RXLEV = x+21 |
| x is the reported value RXLEV for BCCH1 | | |
| NOTE: It is not mandatory for the UE to report BCCH1 in step 12. | | |

For the UE preliminarily to pass the relative requirements of GSM Carrier RSSI measurement, at least 90% of the reported GSM Carrier RSSI measurements shall fulfil the following test requirements for each step and each test environment with a confidence level of 95%.

Table 8.7.3A.8: GSM Carrier RSSI Relative accuracy requirements  
for the reported values, measurements on different frequency bands

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Step | Normal | | TL/VL & TH/VH | |
|  | Lowest reported value for BCCH2 | Highest reported value for BCCH2 | Lowest reported value for BCCH2 | Highest reported value for BCCH2 |
| 1 | No requirements | No requirements | No requirements | No requirements |
| 2 | RXLEV = x-6 | RXLEV = x+6 | RXLEV = x-8 | RXLEV = x+8 |
| 3 | RXLEV = x-6 | RXLEV = x+6 | RXLEV = x-8 | RXLEV = x+8 |
| 4 | RXLEV = x-8 | RXLEV = x+6 | RXLEV = x-10 | RXLEV = x+8 |
|  | Lowest reported value for BCCH3 | Highest reported value for BCCH3 | Lowest reported value for BCCH3 | Highest reported value for BCCH3 |
| 5 | RXLEV = x-3 | RXLEV = x+9 | RXLEV = x-5 | RXLEV = x+11 |
| 6 | RXLEV = x-1 | RXLEV = x+11 | RXLEV = x-3 | RXLEV = x+13 |
|  | Lowest reported value for BCCH4 | Highest reported value for BCCH4 | Lowest reported value for BCCH4 | Highest reported value for BCCH4 |
| 7 | RXLEV = x+1 | RXLEV = x+13 | RXLEV = x-1 | RXLEV = x+15 |
| 8 | RXLEV = x+3 | RXLEV = x+15 | RXLEV = x+1 | RXLEV = x+17 |
|  | Lowest reported value for BCCH5 | Highest reported value for BCCH5 | Lowest reported value for BCCH5 | Highest reported value for BCCH5 |
| 9 | RXLEV = x+5 | RXLEV = x+17 | RXLEV = x+3 | RXLEX = x+19 |
| 10 | RXLEV = x+6 | RXLEV = x+19 | RXLEV = x+4 | RXLEV = x+21 |
|  | Lowest reported value for BCCH6 | Highest reported value for BCCH6 | Lowest reported value for BCCH6 | Highest reported value for BCCH6 |
| 11 | RXLEV = x+8 | RXLEV = x+21 | RXLEV = x+6 | RXLEV = x+23 |
| 12 | RXLEV = x+9 | RXLEV = x+23 | RXLEV = x+7 | RXLEV = x+25 |
| x is the reported value RXLEV for BCCH1 | | | | |
| NOTE: It is not mandatory for the UE to report BCCH1 in step 12. | | | | |

For the UE preliminarily to pass the relative requirements of GSM Carrier RSSI measurement, at least 90% of the reported GSM Carrier RSSI measurements shall fulfil the following test requirements for each step and each test environment with a confidence level of 95%.

Table 8.7.3A.9: GSM Carrier RSSI Relative accuracy requirements  
for the reported values, measurements at single frequency (BCCH1)

|  |  |  |  |
| --- | --- | --- | --- |
| Step n | Step m | Normal & TL/VL & TH/VH | |
|  |  | Lowest reported value for BCCH1 at step n | Highest reported value for BCCH1 at step n |
| 5 | 6 | RXLEV = x+3 | RXLEV = x+11 |
| 5 | 7 | RXLEV = x+10 | RXLEV = x+18 |
| 6 | 7 | RXLEV = x+3 | RXLEV = x+11 |
| 6 | 8 | RXLEV = x+10 | RXLEV = x+18 |
| 7 | 8 | RXLEV = x+3 | RXLEV = x+11 |
| 7 | 9 | RXLEV = x+10 | RXLEV = x+18 |
| 8 | 9 | RXLEV = x+3 | RXLEV = x+11 |
| 8 | 10 | RXLEV = x+9 | RXLEV = x+18 |
| 9 | 10 | RXLEV = x+2 | RXLEV = x+11 |
| 9 | 11 | RXLEV = x+9 | RXLEV = x+18 |
| 10 | 11 | RXLEV = x+2 | RXLEV = x+11 |
| 10 | 12 | RXLEV = x+8 | RXLEV = x+18 |
| 11 | 12 | RXLEV = x+1 | RXLEV = x+11 |
| x is the reported value of BCCH1 at step m | | | |
| NOTE: It is not mandatory for the UE to report BCCH1 in step 12. | | | |

For the UE finally to pass, all preliminary decisions must be decided pass.

FFS: 3 test-environments \* 12 reporting periods \* 3 levels per report = 108 individual pass fail decisions

An individual pass/fail decision has a wrong decision risk of 5%. All individual decisions must pass, to pass the entire test. As a consequence a UE with marginal performance for each individual level will pass each individual test with a probability of 95%, but will fail the entire test with high probability. It is for further study whether to:

- Accept this situation.

- Decrease the wrong decision risk for each individual test at the expense of additional test time, to increase the pass probability for the entire test.

- Introduce allowance to fail a limited number of individual tests.

### 8.7.3B Transport channel BLER

Void.

### 8.7.3C UE transmitted power (R99 and Rel-4 only)

#### 8.7.3C.1 Definition and applicability

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

The requirements and this test apply to the R99 and Rel-4 only FDD UE.

#### 8.7.3C.2 Minimum requirements

The measurement period in CELL\_DCH state is 1 slot.

Table 8.7.3C.2.1: UE transmitted power absolute accuracy

|  |  |  |  |
| --- | --- | --- | --- |
| Parameter | Unit | Accuracy [dB] | |
| PUEMAX 24dBm | PUEMAX 21dBm |
| UE reported power  PUEMAX | dBm | +1/-3 | 2 |
| PUEMAX > UE reported power  PUEMAX-1 | dBm | +1.5/-3.5 | 2.5 |
| PUEMAX-1 > UE reported power  PUEMAX-2 | dBm | +2/-4 | 3 |
| PUEMAX-2 > UE reported power  PUEMAX-3 | dBm | +2.5/-4.5 | 3.5 |
| PUEMAX-3 > UE reported power  PUEMAX-10 | dBm | +3/-5 | 4 |

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

NOTE 2: UE transmitted power is the reported value.

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

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

#### 8.7.3C.3 Test purpose

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

#### 8.7.3C.4 Method of test

##### 8.7.3C.4.1 Initial conditions

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

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

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

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

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

|  |  |  |  |
| --- | --- | --- | --- |
| Parameter | Unit | Value | Comment |
| DCH parameters |  | DL Reference Measurement Channel 12.2 kbps | As specified in clause C.3.1 |
| DL-Power Control |  | Off |  |

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

|  |  |  |
| --- | --- | --- |
| Parameter | Unit | Cell 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 | -3 |
| OCNS\_Ec/Ior | dB | -5.2 |
|  | dB | 0 |
|  | dBm/3.84 MHz | -70 |
| CPICH\_Ec/Io | dB | -13 |
| Propagation Condition |  | AWGN |

##### 8.7.3C.4.2 Procedure

1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2. The RF parameters are set up according to table 8.7.3C.4.1 and 8.7.3C.4.2. Set the UE power and Maximum allowed UL TX power to the maximum power for the UE power class.

2) SS shall send continuously during the entire test Up power control commands to the UE.

3) SS shall transmit the MEASUREMENT CONTROL message as defined in the specific message contents below.

4) Decode the UE Transmitted power reported by the UE in the next available MEASUREMENT REPORT message.

5) Measure the mean power of the UE over a period of one timeslot.

6) Steps 4 and 5 shall be repeated until statistical significance according to Annex F.6.2.8 is achieved.

7) Decrease the Maximum allowed UL TX power by 1 dB. The SS shall transmit the PHYSICAL CHANNEL RECONFIGURATION message, as defined in the specific message contents below.

8) SS shall wait for the PHYSICAL CHANNEL RECONFIGURATION COMPLETE message from the UE.

9) Repeat from step 4) until the Maximum allowed UL TX Power reaches PUEMAX-10.

Specific Message Contents

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

MEASUREMENT CONTROL message:

|  |  |
| --- | --- |
| Information Element | Value/Remark |
| Message Type |  |
| UE information elements  -RRC transaction identifier  -Integrity check info  -message authentication code  -RRC message sequence number | 0    SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.  SS provides the value of this IE, from its internal counter. |
| Measurement Information elements  -Measurement Identity  -Measurement Command  -CHOICE Measurement type  -UE Internal measurement quantity  -Measurement quantity  -Filter coefficient  -UE Internal reporting quantity  -UE Transmitted power  -CHOICE mode  -UE Rx-Tx time difference  -CHOICE report criteria  -Amount of reporting  -Reporting interval  -Measurement Reporting Mode  -Measurement Report Transfer Mode  -Periodical Reporting / Event Trigger Reporting Mode  -AdditionalMeasurementList | 5  SETUP  UE Internal measurement    UE Transmitted power  0  TRUE  FDD  FALSE  Periodical reporting criteria  Infinity  250  AM RLC  Periodical reporting  Not Present |
| Physical channel information elements  -DPCH compressed mode status info | Not Present |

MEASUREMENT REPORT message:

|  |  |
| --- | --- |
| Information Element | Value/remark |
| Message Type |  |
| Integrity check info | The presence of this IE is dependent on PIXIT statements in TS 34.123-2. If integrity protection is indicated to be active, this IE shall be present with the values of the sub IEs as stated below. Else, this IE and the sub-IEs shall be absent. |
| - Message authentication code | This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. |
| - RRC Message sequence number | This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value. |
| Measurement identity | 5 |
| Measured Results |  |
| - CHOICE Measurement | UE Internal measured results |
| - Choice mode | FDD |
| - UE Transmitted power | Checked that this IE is present |
| - UE Rx-Tx report entries | Checked that this IE is absent |
| Measured results on RACH | Checked that this IE is absent |
| Additional measured results | Checked that this IE is absent |
| Event results | Checked that this IE is absent |

PHYSICAL CHANNEL RECONFIGURATION message:

|  |  |  |
| --- | --- | --- |
| Information Element | Value/Remark | Version |
| Message Type |  |  |
| UE Information Elements  -RRC transaction identifier  -Integrity check info  -message authentication code  -RRC message sequence number  -Integrity protection mode info  -Ciphering mode info  -Activation time  -New U-RNTI  -New C-RNTI  -RRC State Indicator  -UTRAN DRX cycle length coefficient | 0    SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.  SS provides the value of this IE, from its internal counter.  Not Present  Not Present  Not Present  Not Present  Not Present  CELL\_DCH  Not Present |  |
| CN Information Elements  -CN Information info | Not Present |  |
| UTRAN mobility information elements  -URA identity | Not Present |  |
| RB information elements  -Downlink counter synchronisation info | Not Present |  |
| PhyCH information elements  -Frequency info | Not Present |  |
| Uplink radio resources  -Maximum allowed UL TX power | At the first time this value is set to PUEMAX-1. After the second time this value is decreased　with 1 dB from previous value. |  |
| Downlink radio resources  -CHOICE mode  -Downlink PDSCH information  -Downlink information common for all radio links  -Downlink information per radio link list | FDD  Not Present  Not Present  Not Present | R99 and R4 only |

#### 8.7.3C.5 Test requirements

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

Table 8.7.3C.5: UE transmitted power test requirements

|  |  |  |
| --- | --- | --- |
| UE reported value | SS measured mean power (X) range [dBm] | |
| PUEMAX 24dBm | PUEMAX 21dBm |
| UE\_TX\_POWER\_104 | 33-3.7  X < 34+1.7 | 33-2.7  X < 34+2.7 |
| UE\_TX\_POWER\_103 | 32-3.7  X < 33+1.7 | 32-2.7  X < 33+2.7 |
|  |  |  |
|  |  |  |
|  |  |  |
| UE\_TX\_POWER\_097 | 26-3.7  X < 27+1.7 |  |
| UE\_TX\_POWER\_096 | 25-3.7  X < 26+1.7 |  |
| UE\_TX\_POWER\_095 | 24-3.7  X < 25+1.7 |  |
| UE\_TX\_POWER\_094 | 23-4.2  X < 24+2.2 | 23-2.7  X < 24+2.7 |
| UE\_TX\_POWER\_093 | 22-4.7  X < 23+2.7 | 22-2.7  X < 23+2.7 |
| UE\_TX\_POWER\_092 | 21-5.2  X < 22+3.2 | 21-2.7  X < 22+2.7 |
| UE\_TX\_POWER\_091 | 20-5.7  X < 21+3.7 | 20-3.2  X < 21+3.2 |
| UE\_TX\_POWER\_090 | 19-5.7  X < 20+3.7 | 19-3.7  X < 20+3.7 |
| UE\_TX\_POWER\_089 | 18-5.7  X < 19+3.7 | 18-4.2  X < 19+4.2 |
| UE\_TX\_POWER\_088 |  | 17-4.7  X < 18+4.7 |
| UE\_TX\_POWER\_087 |  | 16-4.7  X < 17+4.7 |
| UE\_TX\_POWER\_086 |  | 15-4.7  X < 15+4.7 |
|  |  |  |
|  |  |  |
|  |  |  |
| UE\_TX\_POWER\_022 | -49-5.7  X < -48+3.7 | -49-4.7  X < -48+4.7 |
| UE\_TX\_POWER\_021 | -50-5.7  X < -49+3.7 | -50-4.7  X < -49+4.7 |

NOTE 1: Although test requirements are given for all UE reported values, a good UE will likely report values between PUEMAX and PUEMAX - 10 dB. However, even a good UE may report also wider range of values due to errors in TPC command reception and allowed range specified for UE transmit power setting accuracy when Maximum Allowed UL TX Power has been signalled. On the other hand, a faulty UE may report any power value but then it does not fulfil the Table 8.7.3C.5 requirements for mean power or then it will not pass some other tests e.g. TC 5.2 of this specification.

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

### 8.7.3D UE transmitted power (Rel-5 and later)

#### 8.7.3D.1 Definition and applicability

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

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

#### 8.7.3D.2 Minimum requirements

This requirement is applicable in CELL\_DCH state. The measured quantity is the transmitted power averaged over the longest period (excluding a 25 µs period either side of any expected composite power change) during which the nominal composite symbol power reaches the maximum during 1 DPCH slot interval.

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

#### 8.7.3D.3 Test purpose

The purpose of this test is to verify that for any reported value of UE Transmitted Power in the range specified in table 8.7.3D.5 that the actual UE mean power lies within the range specified in clause 8.7.3D.5.

#### 8.7.3D.4 Method of test

##### 8.7.3D.4.1 Initial conditions

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

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

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

The test parameters are given in Table 8.7.3D.4.1 and 8.7.3D.4.2 below. In the measurement control information it shall be indicated to the UE that periodic reporting of the UE transmitted power measurement shall be used. The UE measured quantity absolute accuracy is defined in Table 8.7.3D.4.3.

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

|  |  |  |  |
| --- | --- | --- | --- |
| Parameter | Unit | Value | Comment |
| DCH parameters |  | DL Reference Measurement Channel 12.2 kbps | As specified in clause C.3.1 |
| DL-Power Control |  | Off |  |

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

|  |  |  |
| --- | --- | --- |
| Parameter | Unit | Cell 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 | -3 |
| OCNS\_Ec/Ior | dB | -5.2 |
|  | dB | 0 |
|  | dBm/3.84 MHz | -70 |
| CPICH\_Ec/Io | dB | -13 |
| Propagation Condition |  | AWGN |

Table 8.7.3D.4.3: UE transmitted power requirements

|  |  |  |  |
| --- | --- | --- | --- |
| Reported value | Measured quantity value (dBm) | Accuracy (dB)  note 1 | |
| UE\_TX\_POWER \_104 | 33 ≤ to < 34 | note 2 | |
| UE\_TX\_POWER \_103 | 32 ≤ to < 33 | note 2 | |
| UE\_TX\_POWER \_102 | 31 ≤ to < 32 | note 2 | |
| … | … |  | |
| UE\_TX\_POWER \_096 | 25 ≤ to < 26 | note 2 | |
| UE\_TX\_POWER \_095 | 24 ≤ to < 25 | 2.0 | -2.0 |
| UE\_TX\_POWER \_094 | 23 ≤ to < 24 | 2.0 | -2.0 |
| UE\_TX\_POWER \_093 | 22 ≤ to < 23 | 2.0 | -2.0 |
| UE\_TX\_POWER \_092 | 21 ≤ to < 22 | 2.0 | -2.0 |
| UE\_TX\_POWER \_091 | 20 ≤ to < 21 | 2.5 | -2.5 |
| UE\_TX\_POWER \_090 | 19 ≤ to < 20 | 3.0 | -3.0 |
| UE\_TX\_POWER \_089 | 18 ≤ to < 19 | 3.5 | -3.5 |
| UE\_TX\_POWER \_088 | 17 ≤ to < 18 | 4.0 | -4.0 |
| UE\_TX\_POWER \_087 | 16 ≤ to < 17 | 4.0 | -4.0 |
| UE\_TX\_POWER \_086 | 15 ≤ to < 16 | 4.0 | -4.0 |
| UE\_TX\_POWER \_085 | 14 ≤ to < 15 | 4.0 | -4.0 |
| UE\_TX\_POWER \_084 | 13 ≤ to < 14 | 4.0\* | -4.0 (note 3) |
| UE\_TX\_POWER \_083 | 12 ≤ to < 13 | 4.0\* | -4.0 (note 3) |
| UE\_TX\_POWER \_082 | 11 ≤ to < 12 | 4.0\* | -4.0 (note 3) |
| UE\_TX\_POWER \_081 | 10 ≤ to < 11 | note 2 | |
| … | … |  |  |
| UE\_TX\_POWER \_023 | -48 ≤ to < -47 | note 2 | |
| UE\_TX\_POWER \_022 | -49 ≤ to < -48 | note 2 | |
| UE\_TX\_POWER \_021 | -50 ≤ to < -49 | note 2 | |
| NOTE 1: The tolerance is specified for the maximum and minimum measured quantity value (dBm), i.e. MIN(Measured quantity value) + MIN(Accuracy) <= UE transmitted Power < Max (Measured quantity value) + MAX(Accuracy)  NOTE 2: No accurancy limit is applied.  NOTE 3: Applicable to power class 4 | | | |

##### 8.7.3D.4.2 Procedure

1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2. The RF parameters are set up according to table 8.7.3D.4.1 and 8.7.3D.4.2. Set the UE power and Maximum allowed UL TX power to the maximum power for the UE power class.

2) SS shall send continuously during the entire test Up power control commands to the UE.

3) SS shall transmit the MEASUREMENT CONTROL message as defined in the specific message contents below.

4) Decode the UE Transmitted power reported by the UE in the next available MEASUREMENT REPORT message.

5) Measure the mean power of the UE over the longest period (excluding a 25 µs period either side of any expected composite power change) during which the nominal composite symbol power reaches the maximum during one DPCH slot interval.

6) Steps 4 and 5 shall be repeated until statistical significance according to Annex F.6.2.8 is achieved.

7) Decrease the Maximum allowed UL TX power by 1 dB. The SS shall transmit the PHYSICAL CHANNEL RECONFIGURATION message, as defined in the specific message contents below.

8) SS shall wait for the PHYSICAL CHANNEL RECONFIGURATION COMPLETE message from the UE.

9) Repeat from step 4) until the Maximum allowed UL TX Power reaches PUEMAX-10.

Specific Message Contents

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

MEASUREMENT CONTROL message:

|  |  |
| --- | --- |
| Information Element | Value/Remark |
| Message Type |  |
| UE information elements |  |
| -RRC transaction identifier | 0 |
| -Integrity check info |  |
| -message authentication code | SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I. |
| -RRC message sequence number | SS provides the value of this IE, from its internal counter. |
| Measurement Information elements |  |
| -Measurement Identity | 5 |
| -Measurement Command | SETUP |
| -CHOICE Measurement type | UE Internal measurement |
| -UE Internal measurement quantity |  |
| -Measurement quantity | UE Transmitted power |
| -Filter coefficient | 0 |
| -UE Internal reporting quantity |  |
| -UE Transmitted power | TRUE |
| -CHOICE mode | FDD |
| -UE Rx-Tx time difference | FALSE |
| -CHOICE report criteria | Periodical reporting criteria |
| -Amount of reporting | Infinity |
| -Reporting interval | 250 |
| -Measurement Reporting Mode |  |
| -Measurement Report Transfer Mode | AM RLC |
| -Periodical Reporting / Event Trigger Reporting Mode | Periodical reporting |
| -AdditionalMeasurementList | Not Present |
| Physical channel information elements |  |
| -DPCH compressed mode status info | Not Present |

MEASUREMENT REPORT message:

|  |  |
| --- | --- |
| Information Element | Value/remark |
| Message Type |  |
| Integrity check info | The presence of this IE is dependent on PIXIT statements in TS 34.123-2. If integrity protection is indicated to be active, this IE shall be present with the values of the sub IEs as stated below. Else, this IE and the sub-IEs shall be absent. |
| - Message authentication code | This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. |
| - RRC Message sequence number | This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value. |
| Measurement identity | 5 |
| Measured Results |  |
| - CHOICE Measurement | UE Internal measured results |
| - Choice mode | FDD |
| - UE Transmitted power | Checked that this IE is present |
| - UE Rx-Tx report entries | Checked that this IE is absent |
| Measured results on RACH | Checked that this IE is absent |
| Additional measured results | Checked that this IE is absent |
| Event results | Checked that this IE is absent |

PHYSICAL CHANNEL RECONFIGURATION message:

|  |  |  |
| --- | --- | --- |
| Information Element | Value/Remark | Version |
| Message Type |  |  |
| UE Information Elements | 0 |  |
| -RRC transaction identifier |  |  |
| -Integrity check info |  |  |
| -message authentication code | SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I. |  |
| -RRC message sequence number | SS provides the value of this IE, from its internal counter. |  |
| -Integrity protection mode info | Not Present |  |
| -Ciphering mode info | Not Present |  |
| -Activation time | Not Present |  |
| -New U-RNTI | Not Present |  |
| -New C-RNTI | Not Present |  |
| -RRC State Indicator | CELL\_DCH |  |
| -UTRAN DRX cycle length coefficient | Not Present |  |
| CN Information Elements  -CN Information info | Not Present |  |
| UTRAN mobility information elements  -URA identity | Not Present |  |
| RB information elements  -Downlink counter synchronisation info | Not Present |  |
| PhyCH information elements  -Frequency info | Not Present |  |
| Uplink radio resources  -Maximum allowed UL TX power | At the first time this value is set to PUEMAX-1. After the second time this value is decreased　with 1 dB from previous value. |  |
| Downlink radio resources |  |  |
| -CHOICE mode | FDD |  |
| -Downlink PDSCH information | Not Present |  |
| -Downlink information common for all radio links | Not Present | R99 and R4 only |
| -Downlink information per radio link list | Not Present |  |

#### 8.7.3D.5 Test requirements

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

Table 8.7.3D.5: UE transmitted power test requirements

|  |  |  |  |
| --- | --- | --- | --- |
| Reported value | Measured quantity value (dBm) | Accuracy (dB)  note 1 | |
| UE\_TX\_POWER \_104 | 33 ≤ to < 34 | note 2 | |
| UE\_TX\_POWER \_103 | 32 ≤ to < 33 | note 2 | |
| UE\_TX\_POWER \_102 | 31 ≤ to < 32 | note 2 | |
| … | … |  | |
| UE\_TX\_POWER \_096 | 25 ≤ to < 26 | note 2 | |
| UE\_TX\_POWER \_095 | 24 ≤ to < 25 | 2.7 | -2.7 |
| UE\_TX\_POWER \_094 | 23 ≤ to < 24 | 2.7 | -2.7 |
| UE\_TX\_POWER \_093 | 22 ≤ to < 23 | 2.7 | -2.7 |
| UE\_TX\_POWER \_092 | 21 ≤ to < 22 | 2.7 | -2.7 |
| UE\_TX\_POWER \_091 | 20 ≤ to < 21 | 3.2 | -3.2 |
| UE\_TX\_POWER \_090 | 19 ≤ to < 20 | 3.7 | -3.7 |
| UE\_TX\_POWER \_089 | 18 ≤ to < 19 | 4.2 | -4.2 |
| UE\_TX\_POWER \_088 | 17 ≤ to < 18 | 4.7 | -4.7 |
| UE\_TX\_POWER \_087 | 16 ≤ to < 17 | 4.7 | -4.7 |
| UE\_TX\_POWER \_086 | 15 ≤ to < 16 | 4.7 | -4.7 |
| UE\_TX\_POWER \_085 | 14 ≤ to < 15 | 4.7 | -4.7 |
| UE\_TX\_POWER \_084 | 13 ≤ to < 14 | 4.7\* | -4.7 (note 3) |
| UE\_TX\_POWER \_083 | 12 ≤ to < 13 | 4.7\* | -4.7 (note 3) |
| UE\_TX\_POWER \_082 | 11 ≤ to < 12 | 4.7\* | -4.7 (note 3) |
| UE\_TX\_POWER \_081 | 10 ≤ to < 11 | note 2 | |
| … | … |  |  |
| UE\_TX\_POWER \_023 | -48 ≤ to < -47 | note 2 | |
| UE\_TX\_POWER \_022 | -49 ≤ to < -48 | note 2 | |
| UE\_TX\_POWER \_021 | -50 ≤ to < -49 | note 2 | |
| NOTE 1: The tolerance is specified for the maximum and minimum measured quantity value (dBm), i.e. MIN(Measured quantity value) + MIN(Accuracy) <= UE transmitted Power < Max (Measured quantity value) + MAX(Accuracy)  NOTE 2: No accurancy limit is applied.  NOTE 3: Applicable to power class 4 | | | |

NOTE 1: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

### 8.7.4 SFN-CFN observed time difference

#### 8.7.4.1 Intra frequency measurement requirement

##### 8.7.4.1.1 Definition and applicability

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

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

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

##### 8.7.4.1.2 Minimum requirements

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

CPICH\_RSCP1,2|dBm according to Annex L.3.8 for a corresponding Band

is low enough to ensure successful SFN decoding.

Table 8.7.4.1.1: SFN-CFN observed time difference intra frequency accuracy

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter | Accuracy [chip] | Conditions | | |
| Operating bands | Io [dBm/3,84 [MHz] | |
| Minimum Io | Maximum Io |
| SFN-CFN observed time difference |  1 | I, IV, VI, X, XI, XIX, XXI and XXXII | -94 | -50 |
| II, V and VII | -92 | -50 |
| XXV and XXVI | -90.5  (Note 1) | -50 |
| III, VIII, XII, XIII, XIV, XX and XXII | -91 | -50 |
| IX | -93 | -50 |
| NOTE 1: The minimum condition is -92 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. | | | | |

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

##### 8.7.4.1.3 Test Purpose

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

##### 8.7.4.1.4 Method of test

8.7.4.1.4.1 Initial conditions

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

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

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

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

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

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Parameter | | Unit | Test 1 | | Test 2 | | Test 3 | |
| Cell 1 | Cell 2 | Cell 1 | Cell 2 | Cell 1 | Cell 2 |
| UTRA RF Channel number | |  | Channel 1 | | Channel 1 | | Channel 1 | |
| CPICH\_Ec/Ior | | dB | -10 | | -10 | | -10 | |
| PCCPCH\_Ec/Ior | | dB | -12 | | -12 | | -12 | |
| SCH\_Ec/Ior | | dB | -12 | | -12 | | -12 | |
| PICH\_Ec/Ior | | dB | -15 | | -15 | | -15 | |
| DPCH\_Ec/Ior | | dB | -15 | | -15 | | -15 | |
| OCNS\_Ec/Ior | | dB | -1.11 | | -1.11 | | -1.11 | |
| Îor/Ioc | | dB | 10.5 | | 10.5 | | 10.5 | |
| Ioc | | dBm/ 3.84 MHz | Io –13.7 dB = Ioc, Note 1 | | Io –13.7 dB = Ioc, Note 1 | | Io –13.7 dB = Ioc, Note 1 | |
| Io | Band I, IV, VI, X, XI, XIX, XXI | dBm/3.84 MHz | -50 | | -72 | | -94 | |
| Band IX\* | -93 | |
| Band II, V, VII | -92 | |
| Band XXV, XXVI | -90.5 (Note 2,3) | |
| Band III, VIII, XII, XIII, XIV, XX, XXII | -91 | |
| SFN-CFN observed time difference as specified in TS 25.215 [22] | | chip | x  Note 4 | | | | | |
| Propagation condition | | - | AWGN | | AWGN | | AWGN | |
| NOTE 1: *Ioc* level shall be adjusted according the total signal power *Io* at receiver input and the geometry factor *Îor/Ioc*.  \*) 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 2: 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.  NOTE 3: 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. | | | | | | | | |
| NOTE4: For example, x= 491520 or 9830399. This is a calculated value using parameters "OFF" and "Tm" as specified in TS 25.215 [22]. | | | | | | | | |
| Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests. | | | | | | | | |

8.7.4.1.4.2 Procedure

1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2. The RF parameters for Test 1 are set up according to table 8.7.4.1.4.

2) SS shall transmit MEASUREMENT CONTROL message.

3) UE shall transmit periodically MEASUREMENT REPORT message.

4) SS shall check "OFF" and "Tm" values in MEASUREMENT REPORT message and calculate SFN-CFN observed time difference value according to the definition in clause 5.1.8 of TS 25.215 [22]. This value shall be compared to the actual SFN-CFN observed time difference value for each MEASUREMENT REPORT message.

5) SS shall check MEASUREMENT REPORT messages transmitted by UE until statistical significance according to Annex F.6.2.8 is achieved

6) The RF parameters are set up according to table 8.7.4.1.4 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 4) and 5) above are repeated.

7) The RF parameters are set up according to table 8.7.4.1.4 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 4) and 5) above are repeated.

8) The SS shall transmit RRC CONNECTION RELEASE message.

9) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

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

MEASUREMENT CONTROL message for intra frequency measurement

|  |  |
| --- | --- |
| Information Element | Value/Remark |
| Message Type |  |
| UE information elements  -RRC transaction identifier  -Integrity check info  -message authentication code  -RRC message sequence number | 0    SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.  SS provides the value of this IE, from its internal counter. |
| Measurement Information elements  -Measurement Identity  -Measurement Command  -Measurement Reporting Mode  - Measurement Report Transfer Mode  - Periodical Reporting / Event Trigger Reporting Mode  -Additional measurement list  -CHOICE Measurement Type  -Intra-frequency measurement  - Intra-frequency measurement objects list  -Intra-frequency measurement quantity  -Filter coefficient  -CHOICE mode  -Measurement quantity  -Intra-frequency reporting quantity  -Reporting quantities for active set cells  -Cell synchronisation information reporting indicator  -Cell Identity reporting indicator  -CHOICE mode  -CPICH Ec/N0 reporting indicator  -CPICH RSCP reporting indicator  -Pathloss reporting indicator  -Reporting quantities for monitored set cells  -Cell synchronisation information reporting indicator  -Cell Identity reporting indicator  -CHOICE mode  -CPICH Ec/N0 reporting indicator  -CPICH RSCP reporting indicator  -Pathloss reporting indicator  -Reporting quantities for detected set cells  -Reporting cell status  -CHOICE reported cell  -Maximum number of reported cells  -Measurement validity  -CHOICE report criteria  -Amount of reporting  -Reporting interval | 1  Modify  Acknowledged mode RLC  Periodical reporting  Not Present  Intra-frequency measurement  Not Present  0  FDD  CPICH RSCP  TRUE  TRUE  FDD  TRUE  TRUE  FALSE  TRUE  TRUE  FDD  TRUE  TRUE  FALSE  Not Present  Report all active set cells + cells within monitored set on used frequency  Virtual/active set cells + 2  Not Present  Periodical reporting criteria  Infinity  250 ms |
| Physical channel information elements  -DPCH compressed mode status info | Not Present |

MEASUREMENT REPORT message for Intra frequency test cases

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

##### 8.7.4.1.5 Test requirements

Table 8.7.4.1.3: SFN-CFN observed time difference intra frequency accuracy

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter | Accuracy [chip] | Conditions | | |
| Operating bands | Io [dBm/3,84 [MHz] | |
| Minimum Io | Maximum Io |
| SFN-CFN observed time difference |  1.5 | I, IV, VI, X, XI, XIX, XXI and XXXII | -94 | -50 |
| II, V and VII | -92 | -50 |
| XXV and XXVI | -90.5  (Note 1) | -50 |
| III, VIII, XII, XIII, XIV, XX and XXII | -91 | -50 |
| IX | -93 | -50 |
| NOTE 1: The minimum condition is -92 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. | | | | |

Table 8.7.4.1.4: SFN-CFN observed time difference Intra frequency test parameters

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Parameter | | Unit | Test 1 | | Test 2 | | Test 3 | |
| Cell 1 | Cell 2 | Cell 1 | Cell 2 | Cell 1 | Cell 2 |
| UTRA RF Channel number | |  | Channel 1 | | Channel 1 | | Channel 1 | |
| CPICH\_Ec/Ior | | dB | -10 | | -10 | | -10 | |
| PCCPCH\_Ec/Ior | | dB | -12 | | -12 | | -12 | |
| SCH\_Ec/Ior | | dB | -12 | | -12 | | -12 | |
| PICH\_Ec/Ior | | dB | -15 | | -15 | | -15 | |
| DPCH\_Ec/Ior | | dB | -15 | | -15 | | -15 | |
| OCNS\_Ec/Ior | | dB | -1.11 | | -1.11 | | -1.11 | |
| Îor/Ioc | | dB | 10.8 | | 10.8 | | 10.8 | |
| Ioc | Band I, IV, VI, X, XI, XIX, XXI | dBm/ 3.84 MHz | -65.3 | | -85.7 | | -106.7 | |
| Band IX\* | -105.7 | |
| Band II, V, VII | -104.7 | |
| Band XXV, XXVI | -103.2 (Note 2,3) | |
| Band III, VIII, XII, XIII, XIV, XX, XXII | -103.7 | |
| Io, Note 1 | Band I, IV, VI, X, XI, XIX, XXI | dBm/3.84 MHz | -51.3 | | -71.7 | | -92.7 | |
| Band IX\* | -91.7 | |
| Band II, V, VII | -90.7 | |
| Band XXV, XXVI | -89.2 (Note 2,3) | |
| Band III, VIII, XII, XIII, XIV, XX, XXII | -89.7 | |
| SFN-CFN observed time difference as specified in TS 25.215 [22] | | chip | x  Note 4 | | | | | |
| Propagation condition | | - | AWGN | | AWGN | | AWGN | |
| NOTE 1: Io level has been calculated from other parameters for information purposes. It is not a settable parameter itself.  \*) 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 2: 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.  NOTE 3: 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. | | | | | | | | |
| NOTE4: For example, x= 491520 or 9830399. This is a calculated value using parameters "OFF" and "Tm" as specified in TS 25.215 [22]. | | | | | | | | |
| Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests. | | | | | | | | |

The accuracy of the SFN-CFN observed time difference measurement value calculated from the reported "OFF" and "Tm" values shall meet the requirements in table 8.7.4.1.5.

Table 8.7.4.1.5: SFN-CFN observed time difference measurement accuracy  
requirements for the reported values

|  |  |  |  |
| --- | --- | --- | --- |
|  | Test 1 | Test 2 | Test 3 |
| Lowest reported value | SFN\_CFN\_TIME (X - 2) | SFN\_CFN\_TIME (X - 2) | SFN\_CFN\_TIME (X - 2) |
| Highest reported value | SFN\_CFN\_TIME (X + 2) | SFN\_CFN\_TIME (X + 2) | SFN\_CFN\_TIME (X + 2) |
| SFN-CFN\_TIME (X) is the reported value for the actual SFN-CFN observed time difference value as defined in table 8.7.4.1.4 | | | |

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

#### 8.7.4.2 Inter frequency measurement requirement

##### 8.7.4.2.1 Definition and applicability

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

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

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

##### 8.7.4.2.2 Minimum requirements

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

CPICH\_RSCP1|dBm according to Annex L.3.9 for a corresponding Band.

| Channel 1\_Io|dBm/3.84 MHz ‑Channel 2\_Io|dBm/3.84 MHz |  20 dB.

Table 8.7.4.2.1: SFN-CFN observed time difference inter frequency accuracy

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter | Accuracy [chip] | Conditions | | |
| SFN-CFN observed time difference is on Band | Io [dBm/3,84 [MHz] | |
| Minimum Io | Maximum Io |
| SFN-CFN observed time difference |  1 | I, IV, VI, X, XI, XIX, XXI and XXXII | -94 | -50 |
| II, V and VII | -92 | -50 |
| XXV and XXVI | -90.5  (Note 1) | -50 |
| III, VIII, XII, XIII, XIV, XX and XXII | -91 | -50 |
| IX | -93 | -50 |
| NOTE 1: The minimum condition is -92 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. | | | | |

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

##### 8.7.4.2.3 Test purpose

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

##### 8.7.4.2.4 Method of test

8.7.4.2.4.1 Initial conditions

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

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

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

In this test case both cells are on different frequencies.

For UEs that require compressed mode, compressed mode is applied. The gap length is 7, detailed definition is in clause C.5, set 1 of table C.5.2 except for TGRRC and TGCFN. TGPRC and TGCFN shall set to "Infinity" and "(Current CFN + (256 – TTI/10msec))mod 256". When compressed mode is in use, the OFF parameter will always be set to 0 as described in TS 25.215 clause 5.1.8

For UEs that do not require compressed mode, compressed mode is not applied and therefore no Physical Channel Reconfiguration message will be sent. In this case, the OFF parameter will be a measured value.

Table 8.7.4.2.2 defines the limits of signal strengths and code powers, where the requirement is applicable.

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

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Parameter | | Unit | Test 1 | | Test 2 | | Test 3 | |
| Cell 1 | Cell 2 | Cell 1 | Cell 2 | Cell 1 | Cell 2 |
| UTRA RF Channel number | |  | Channel 1 | Channel 2 | Channel 1 | Channel 2 | Channel 1 | Channel 2 |
| CPICH\_Ec/Ior | | dB | -10 | | -10 | | -10 | |
| PCCPCH\_Ec/Ior | | dB | -12 | | -12 | | -12 | |
| SCH\_Ec/Ior | | dB | -12 | | -12 | | -12 | |
| PICH\_Ec/Ior | | dB | -15 | | -15 | | -15 | |
| DPCH\_Ec/Ior | | dB | -15 | | -15 | | -15 | |
| OCNS\_Ec/Ior | | dB | -1.11 | | -1.11 | | -1.11 | |
| Îor/Ioc | | dB | 10.1 | | 10.1 | | 10.1 | |
| Ioc | | dBm/ 3.84 MHz | Io –10.6 dB = Ioc, Note 1 | | Io –10.6 dB = Ioc, Note 1 | | Io –10.6 dB = Ioc, Note 1 | |
| Io | Band I, IV, VI, X, XI, XIX, XXI | dBm/3.84 MHz | -50 | | -72 | | -94 | |
| Band IX\* | -93 | |
| Band II, V, VII | -92 | |
| Band XXV, XXVI | -90.5 (Note 2,3) | |
| Band III, VIII, XII, XIII, XIV, XX, XXII | -91 | |
| S FN-CFN observed time difference as specified in TS 25.215 [22] | | chip | x  Note 4 | | | | | |
| Propagation condition | | - | AWGN | | AWGN | | AWGN | |
| NOTE 1: *Ioc* level shall be adjusted in each carrier frequency according the total signal power *Io* at receiver input and the geometry factor *Îor/Ioc*.  \*) 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 2: 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.  NOTE 3: 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. | | | | | | | | |
| NOTE4: For example, x= 491520 or 9830399. This is a calculated value using parameters "OFF" and "Tm" as specified in TS 25.215 [22]. | | | | | | | | |
| Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests. | | | | | | | | |

8.7.4.2.4.2 Procedure

1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2. The RF parameters for Test 1 are set up according to table 8.7.4.2.4.

2) If compressed mode is required, SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message. Otherwise go to step 4.

3) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

4) SS shall transmit MEASUREMENT CONTROL message.

5) UE shall transmit periodically MEASUREMENT REPORT messages.

6) SS shall check "OFF" and "Tm" values in MEASUREMENT REPORT message and calculate SFN-CFN observed time difference value according to the definition in clause 5.1.8 of TS 25.215 [22]. Note that according to TS 25.215 [22] UE will always report the "OFF" parameter as zero in the specific case where compressed mode is in use. In other cases, the "OFF" parameter will be a measured value. This should be taken into account when calculating the SFN-CFN observed time difference value. This calculated value shall be compared to the actual SFN-CFN observed time difference value for each MEASUREMENT REPORT message.

7) SS shall check MEASUREMENT REPORT messages transmitted by UE until statistical significance according to Annex F.6.2.8 is achieved.

8) The RF parameters are set up according to table 8.7.4.2.4 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 5), 6) and 7) above are repeated.

9) The RF parameters are set up according to table 8.7.4.2.4 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 5), 6) and 7) above are repeated.

10) The SS shall transmit RRC CONNECTION RELEASE message.

11) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

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

PHYSICAL CHANNEL RECONFIGURATION message for inter frequency measurement

| Information Element | Value/Remark | Version |
| --- | --- | --- |
| Message Type |  |  |
| UE Information Elements |  |  |
| -RRC transaction identifier | 0 |  |
| -Integrity check info |  |  |
| -message authentication code | SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I. |  |
| -RRC message sequence number | SS provides the value of this IE, from its internal counter. |  |
| -Integrity protection mode info | Not Present |  |
| -Ciphering mode info | Not Present |  |
| -Activation time | Not Present |  |
| -New U-RNTI | Not Present |  |
| -New C-RNTI | Not Present |  |
| -RRC State Indicator | CELL\_DCH |  |
| -UTRAN DRX cycle length coefficient | Not Present |  |
| CN Information Elements |  |  |
| -CN Information info | Not Present |  |
| UTRAN mobility information elements |  |  |
| -URA identity | Not Present |  |
| RB information elements |  |  |
| -Downlink counter synchronisation info | Not Present |  |
| PhyCH information elements |  |  |
| -Frequency info | Not Present |  |
| Uplink radio resources |  |  |
| -Maximum allowed UL TX power | Not Present |  |
| - CHOICE channel requirement | Not Present |  |
| Downlink radio resources |  |  |
| -CHOICE mode | FDD |  |
| -Downlink PDSCH information | Not Present | R99 and Rel-4 only |
| -Downlink information common for all radio links |  |  |
| -Downlink DPCH info common for all RL | Not Present |  |
| -CHOICE mode | FDD |  |
| -DPCH compressed mode info |  |  |
| -Transmission gap pattern sequence |  |  |
| -TGPSI | 1 |  |
| -TGPS Status Flag | Activate |  |
| -TGCFN | (Current CFN + (256 – TTI/10msec))mod 256 |  |
| -Transmission gap pattern sequence configuration parameters |  |  |
| -TGMP | FDD measurement |  |
| -TGPRC | Infinity |  |
| -TGSN | 4 |  |
| -TGL1 | 7 |  |
| -TGL2 | Not Present |  |
| -TGD | UNDEFINED |  |
| -TGPL1 | 3 |  |
| -TGPL2 | Not Present | R99 and Rel-4 only |
| -RPP | Mode 0 |  |
| -ITP | Mode 0 |  |
| -CHOICE UL/DL mode | UL and DL |  |
| -Downlink compressed mode method | SF/2 |  |
| -Uplink compressed mode method | SF/2 |  |
| -Downlink frame type | B |  |
| -DeltaSIR1 | 3.0 |  |
| -DeltaSIRafter1 | 3.0 |  |
| -DeltaSIR2 | Not Present |  |
| -DeltaSIRafter2 | Not Present |  |
| -N Identify abort | Not Present |  |
| -T Reconfirm abort | Not Present |  |
| -TX Diversity Mode | Not Present |  |
| -SSDT information | Not Present | R99 and Rel-4 only |
| -Default DPCH Offset Value | Not Present |  |
| -Downlink information per radio link list |  |  |
| -Downlink information for each radio link |  |  |
| -Choice mode | FDD |  |
| -Primary CPICH info |  |  |
| -Primary scrambling code | 100 |  |
| -PDSCH with SHO DCH Info | Not Present | R99 and Rel-4 only |
| -PDSCH code mapping | Not Present | R99 and Rel-4 only |
| -Downlink DPCH info for each RL |  |  |
| -CHOICE mode | FDD |  |
| -Primary CPICH usage for channel estimation | Primary CPICH may be used |  |
| -DPCH frame offset | Set to value Default DPCH Offset Value ( as currently stored in SS) mod 38400 |  |
| -Secondary CPICH info | Not Present |  |
| -DL channelisation code |  |  |
| -Secondary scrambling code | Not Present |  |
| -Spreading factor | 128 |  |
| -Code number | 96 |  |
| -Scrambling code change | No code change |  |
| -TPC combination index | 0 |  |
| -SSDT Cell Identity | Not Present | R99 and Rel-4 only |
| -Closed loop timing adjustment mode | Not Present |  |
| -SCCPCH Information for FACH | Not Present |  |

MEASUREMENT CONTROL message for Inter frequency measurement

| **Information Element** | **Value/Remark** |
| --- | --- |
| Message Type |  |
| UE information elements  -RRC transaction identifier  -Integrity check info  -message authentication code  -RRC message sequence number | 0    SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.  SS provides the value of this IE, from its internal counter. |
| Measurement Information elements  -Measurement Identity  -Measurement Command  -Measurement Reporting Mode  - Measurement Report Transfer Mode  - Periodical Reporting / Event Trigger Reporting Mode  -Additional measurement list  -CHOICE Measurement Type  -Inter-frequency measurement  -Inter-frequency cell info list  -CHOICE Inter-frequency cell removal  -New inter-frequency cells  -Cell for measurement  -Inter-frequency measurement quantity  -CHOICE reporting criteria  -Filter coefficient  -CHOICE mode  -Measurement quantity for frequency quality estimate  -Inter-frequency reporting quantity  -UTRA Carrier RSSI  -Frequency quality estimate  -Non frequency related cell reporting quantities  -Cell synchronisation information reporting indicator  -Cell Identity reporting indicator  -CHOICE mode  -CPICH Ec/N0 reporting indicator  -CPICH RSCP reporting indicator  -Pathloss reporting indicator  -Reporting cell status  -CHOICE reported cell  -Maximum number of reported cells  -Measurement validity  -Inter-frequency set update  -CHOICE report criteria  -Amount of reporting  -Reporting interval | 2  Setup  Acknowledged mode RLC  Periodical reporting  Not Present  Inter-frequency measurement  Not Present  Cell 2 information is included  Inter-frequency reporting criteria  0  FDD  CPICH RSCP  TRUE  TRUE  TRUE  TRUE  FDD  TRUE  TRUE  FALSE  Report cells within monitored set on non-used frequency  2  Not Present  Not Present  Periodical reporting criteria  Infinity  500 ms |
| Physical channel information elements  -DPCH compressed mode status info | Not Present |

MEASUREMENT REPORT message for Inter frequency test cases

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

##### 8.7.4.2.5 Test requirements

Table 8.7.4.2.3: SFN-CFN observed time difference inter frequency accuracy

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter | Accuracy [chip] | Conditions | | |
| SFN-CFN observed time difference is on Band | Io [dBm/3,84 [MHz] | |
| Minimum Io | Maximum Io |
| SFN-CFN observed time difference |  1.5 | I, IV, VI, X, XI, XIX, XXI and XXXII | -94 | -50 |
| II, V and VII | -92 | -50 |
| XXV and XXVI | -90.5  (Note 1) | -50 |
| III, VIII, XII, XIII, XIV, XX and XXII | -91 | -50 |
| IX | -93 | -50 |
| NOTE 1: The minimum condition is -92 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. | | | | |

Table 8.7.4.2.4: SFN-CFN observed time difference Inter frequency tests parameters

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Parameter | | Unit | Test 1 | | Test 2 | | Test 3 | |
| Cell 1 | Cell 2 | Cell 1 | Cell 2 | Cell 1 | Cell 2 |
| UTRA RF Channel number | |  | Channel 1 | Channel 2 | Channel 1 | Channel 2 | Channel 1 | Channel 2 |
| CPICH\_Ec/Ior | | dB | -10 | | -10 | | -10 | |
| PCCPCH\_Ec/Ior | | dB | -12 | | -12 | | -12 | |
| SCH\_Ec/Ior | | dB | -12 | | -12 | | -12 | |
| PICH\_Ec/Ior | | dB | -15 | | -15 | | -15 | |
| DPCH\_Ec/Ior | | dB | -15 | | -15 | | -15 | |
| OCNS\_Ec/Ior | | dB | -1.11 | | -1.11 | | -1.11 | |
| Îor/Ioc | | dB | 10.4 | | 10.4 | | 10.4 | |
| Ioc | Band I, IV, VI, X, XI, XIX, XXI | dBm/ 3.84 MHz | -62.1 | | -82.6 | | -103.5 | |
| Band IX\* | -102.5 | |
| Band II, V, VII | -101.5 | |
| Band XXV, XXVI | -100.0 (Note 2,3) | |
| Band III, VIII, XII, XIII, XIV, XX, XXII | -100.5 | |
| Io, Note 1 | Band I, IV, VI, X, XI, XIX, XXI | dBm/3.84 MHz | -51.3 | | -71.8 | | -92.7 | |
| Band IX\* | -91.7 | |
| Band II, V, VII | -90.7 | |
| Band XXV, XXVI | -89.2 (Note 2,3) | |
| Band III, VIII, XII, XIII, XIV, XX, XXII | -89.7 | |
| SFN-CFN observed time difference as specified in TS 25.215 [22] | | chip | x  Note 4 | | | | | |
| Propagation condition | | - | AWGN | | AWGN | | AWGN | |
| NOTE 1: Io level has been calculated from other parameters for information purposes. It is not a settable parameter itself.  \*) 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 2: 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.  NOTE 3: 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. | | | | | | | | |
| NOTE4: For example, x= 491520 or 9830399. This is a calculated value using parameters "OFF" and "Tm" as specified in TS 25.215 [22]. | | | | | | | | |
| Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests. | | | | | | | | |

The accuracy of the SFN-CFN observed time difference measurement value calculated from the reported "OFF" and "Tm" values shall meet the requirements in table 8.7.4.2.5.

Table 8.7.4.2.5: SFN-CFN observed time difference measurement accuracy requirements for the reported values

|  |  |  |  |
| --- | --- | --- | --- |
|  | Test 1 | Test 2 | Test 3 |
| Lowest reported value | SFN\_CFN\_TIME (X - 2) | SFN\_CFN\_TIME (X - 2) | SFN\_CFN\_TIME (X - 2) |
| Highest reported value | SFN\_CFN\_TIME (X + 2) | SFN\_CFN\_TIME (X + 2) | SFN\_CFN\_TIME (X + 2) |
| SFN-CFN\_TIME (X) is the reported value for the actual SFN-CFN observed time difference value as defined in table 8.7.4.2.4. Note that the "OFF" parameter is always set to zero in the specific case where compressed mode is in use. | | | |

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

### 8.7.5 SFN-SFN observed time difference

#### 8.7.5.1 SFN-SFN observed time difference type 1

##### 8.7.5.1.1 Definition and applicability

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

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

##### 8.7.5.1.2 Minimum requirements

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

CPICH\_RSCP1|dBm according to Annex L.3.10 for a corresponding Band

is low enough to ensure successful SFN decoding.

Table 8.7.5.1.1: SFN-SFN observed time difference type 1 measurement accuracy

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter | Accuracy [chip] | Conditions | | |
| SFN-SFN observed time difference type 1 is on Band | Io [dBm/3,84 [MHz] | |
| Minimum Io | Maximum Io |
| SFN-SFN observed time difference type1 |  1 | I, IV, VI, X, XI, XIX, XXI and XXXII | -94 | -50 |
| II, V and VII | -92 | -50 |
| XXV and XXVI | -90.5  (Note 1) | -50 |
| III, VIII, XII, XIII, XIV, XX and XXII | -91 | -50 |
| IX | -93 | -50 |
| NOTE 1: The minimum condition is -92 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. | | | | |

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

##### 8.7.5.1.3 Test purpose

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

##### 8.7.5.1.4 Method of test

8.7.5.1.4.1 Initial conditions

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

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

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

1) Connect SS to the UE antenna connector as shown in figure A.14.

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

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

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Parameter | | Unit | Test 1 | | Test 2 | | Test 3 | |
| Cell 1 | Cell 2 | Cell 1 | Cell 2 | Cell 1 | Cell 2 |
| UTRA RF Channel number | |  | Channel 1 | | Channel 1 | | Channel 1 | |
| CPICH\_Ec/Ior | | dB | -10 | | -10 | | -10 | |
| PCCPCH\_Ec/Ior | | dB | -12 | | -12 | | -12 | |
| SCH\_Ec/Ior | | dB | -12 | | -12 | | -12 | |
| PICH\_Ec/Ior | | dB | -15 | | -15 | | -15 | |
| S-CCPCH\_Ec/Ior | | dB | -12 | | -12 | | -12 | |
| OCNS\_Ec/Ior | | dB | -1.29 | | -1.29 | | -1.29 | |
| Îor/Ioc | | dB | 10.5 | | 10.5 | | 10.5 | |
| Ioc | | dBm/ 3.84 MHz | Io –13.7 dB = Ioc, Note 1 | | Io –13.7 dB = Ioc, Note 1 | | Io –13.7 dB = Ioc, Note 1 | |
| Io | Band I, IV, VI, X, XI, XIX, XXI | dBm/3.84 MHz | -50 | | -72 | | -94 | |
| Band IX\* | -93 | |
| Band II, V, VII | -92 | |
| Band XXV, XXVI | -90.5 (Note 2,3) | |
| Band III, VIII, XII, XIII, XIV, XX, XXII | -91 | |
| SFN-SFN observed time difference type 1 as specified in TS 25.215 [22] | | chip | x  Note 4 | | | | | |
| Propagation condition | | - | AWGN | | AWGN | | AWGN | |
| NOTE 1: *Ioc* level shall be adjusted according the total signal power *Io* at receiver input and the geometry factor *Îor/Ioc*.  \*) 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 2: 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.  NOTE 3: 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. | | | | | | | | |
| NOTE4: For example, x= 491520 or 9830399. This is a calculated value using the parameters "OFF" and "Tm" as specified in TS 25.215 [22]. | | | | | | | | |
| Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests. | | | | | | | | |

8.7.5.1.4.2 Procedure

1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.5. The RF parameters for Test 1 are set up according to table 8.7.5.1.4.

2) SS shall transmit MEASUREMENT CONTROL message.

3) UE shall transmit periodically MEASUREMENT REPORT messages.

4) SS shall check "SFN-SFN observed time difference type 1" value in MEASUREMENT REPORT message. The reported value shall be compared to actual SFN-SFN observed time difference type 1 value for each MEASUREMENT REPORT message.

5) SS shall check MEASUREMENT REPORT messages transmitted by UE until statistical significance according to Annex F.6.2.8 is achieved.

6) The RF parameters are set up according to table 8.7.5.1.4 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 4) and 5) above are repeated

7) The RF parameters are set up according to table 8.7.5.1.4 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 4) and 5) above are repeated.

8) The SS shall transmit RRC CONNECTION RELEASE message.

9) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

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

Contents of System Information Block type 11 (FDD) (Step 1):

|  |  |
| --- | --- |
| Information Element | Value/Remark |
| - Intra-frequency measurement system information |  |
| - Intra-frequency reporting quantity for RACH Reporting |  |
| - SFN-SFN observed time difference reporting indicator | type 1 |
| - CHOICE mode | FDD |
| - Reporting quantity | CPICH RSCP |
| - Maximum number of reported cells on RACH | current cell + best neighbour |

MEASUREMENT CONTROL message for Traffic Volume measurement (Step 2):

| Information Element/Group name | Value/Remark |  |
| --- | --- | --- |
| Message Type (10.2.17) |  |  |
| UE information elements |  |  |
| - RRC transaction identifier | 0 |  |
| - Integrity check info |  |  |
| - message authentication code | SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I. |  |
| - RRC message sequence number | SS provides the value of this IE, from its internal counter. |  |
| Measurement Information elements |  |  |
| - Measurement Identity | 4 |  |
| - Measurement Command (10.3.7.46) | Setup |  |
| - Measurement Reporting Mode (10.3.7.49) |  |  |
| - Measurement Report Transfer Mode | AM RLC |  |
| - Periodical Reporting / Event Trigger Reporting Mode | Periodical reporting |  |
| - Additional measurements list (10.3.7.1) | Not Present |  |
| - CHOICE Measurement type (10.3.7.68) | Traffic Volume measurement |  |
| - Traffic volume measurement  Object (10.3.7.70) |  |  |
| - Traffic volume measurement objects | 1 |  |
| - Uplink transport channel type | RACHorCPCH | R99 and Rel-4 only |
| - Uplink transport channel type | RACH | Rel-5 |
| - UL Target Transport Channel ID | Not Present |  |
| - Traffic volume measurement  quantity (10.3.7.71) |  |  |
| - Measurement quantity | RLC Buffer Payload |  |
| - Time Interval to take an average or a variance | Not Present |  |
| - Traffic volume reporting quantity (10.3.7.74) |  |  |
| - RLC Buffer Payload for each RB | FALSE |  |
| - Average of RLC Buffer Payload for each RB | FALSE |  |
| - Variance of RLC Buffer Payload for each RB | FALSE |  |
| - Measurement validity (10.3.7.51) | Not Present |  |
| - CHOICE report criteria (10.3.7.53) | Periodical reporting criteria |  |
| - Amount of reporting | Infinity |  |
| - Reporting interval | 250 ms |  |
| Physical channel information elements |  |  |
| -DPCH compressed mode status info (10.3.6.34) | Not Present |  |

MEASUREMENT REPORT message for SFN-SFN observed time difference type 1 test case (Step 3)

|  |  |
| --- | --- |
| Information Element | Value/remark |
| Message Type |  |
| Integrity check info | The presence of this IE is dependent on IXIT statements in TS 34.123-2. If integrity protection is indicated to be active, this IE shall be present with the values of the sub IEs as stated below. Else, this IE and the sub-IEs shall be absent. |
| - Message authentication code | This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. |
| - RRC Message sequence number | This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value. |
| Measurement identity | 4 |
| Measured Results | Checked that this IE is absent |
| Measured results on RACH | Checked that this IE is present |
| - Measurement result for current cell | Checked that this IE is present |
| - CHOICE mode | FDD |
| - CHOICE measurement quantity | Checked that this IE is present |
| - Measurement results for monitored cells | 1 |
| - SFN-SFN observed time difference | Checked that this IE is present |
| - CHOICE Type | Type 1 |
| - CHOICE mode | FDD |
| - Primary CPICH info | Checked that this IE is present |
| - Primary scrambling code | 150 |
| Additional measured results | Checked that this IE is absent |
| Event results | Checked that this IE is absent |

##### 8.7.5.1.5 Test requirements

Table 8.7.5.1.3: SFN-SFN observed time difference type 1 measurement accuracy

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter | Accuracy [chip] | Conditions | | |
| SFN-SFN observed time difference type 1 is on Band | Io [dBm/3,84 [MHz] | |
| Minimum Io | Maximum Io |
| SFN-SFN observed time difference type1 |  1.5 | I, IV, VI, X, XI, XIX, XXI and XXXII | -94 | -50 |
| II, V and VII | -92 | -50 |
| XXV and XXVI | -90.5  (Note 1) | -50 |
| III, VIII, XII, XIII, XIV, XX and XXII | -91 | -50 |
| IX | -93 | -50 |
| NOTE 1: The minimum condition is -92 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. | | | | |

Table 8.7.5.1.4: SFN-SFN observed time difference type 1 Intra frequency test parameters

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Parameter | | Unit | Test 1 | | Test 2 | | Test 3 | |
| Cell 1 | Cell 2 | Cell 1 | Cell 2 | Cell 1 | Cell 2 |
| UTRA RF Channel number | |  | Channel 1 | | Channel 1 | | Channel 1 | |
| CPICH\_Ec/Ior | | dB | -10 | | -10 | | -10 | |
| PCCPCH\_Ec/Ior | | dB | -12 | | -12 | | -12 | |
| SCH\_Ec/Ior | | dB | -12 | | -12 | | -12 | |
| PICH\_Ec/Ior | | dB | -15 | | -15 | | -15 | |
| S-CCPCH\_Ec/Ior | | dB | -12 | | -12 | | -12 | |
| OCNS\_Ec/Ior | | dB | -1.29 | | -1.29 | | -1.29 | |
| Îor/Ioc | | dB | 10.8 | | 10.8 | | 10.8 | |
| Ioc | Band I, IV, VI, X, XI, XIX, XXI | dBm/ 3.84 MHz | -65.3 dB | | -85.7 | | -106.7 | |
| Band IX\* | -105.7 | |
| Band II, V, VII | -104.7 | |
| Band XXV, XXVI | -103.2 (Note 2,3) | |
| Band III, VIII, XII, XIII, XIV, XX, XXII | -103.7 | |
| Io, Note 1 | Band I, IV, VI, X, XI, XIX, XXI | dBm/3.84 MHz | -51.3 | | -71.7 | | -92.7 | |
| Band IX\* | -91.7 | |
| Band II, V, VII | -90.7 | |
| Band XXV, XXVI | -89.2 (Note 2,3) | |
| Band III, VIII, XII, XIII, XIV, XX, XXII | -89.7 | |
| SFN-SFN observed time difference type 1 as specified in TS 25.215 [22] | | chip | x  Note 4 | | | | | |
| Propagation condition | | - | AWGN | | AWGN | | AWGN | |
| NOTE 1: Io level has been calculated from other parameters for information purposes. It is not a settable parameter itself.  \*) 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 2: 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.  NOTE 3: 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. | | | | | | | | |
| NOTE4: For example, x= 491520 or 9830399. This is a calculated value using the parameters "OFF" and "Tm" as specified in TS 25.215 [22]. | | | | | | | | |
| Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests. | | | | | | | | |

The reported values for SFN-SFN observed time difference type 1 accuracy shall meet the requirements in table 8.7.5.1.5.

Table 8.7.5.1.5: SFN-SFN observed time difference type 1 measurement accuracy requirements for the reported values

|  |  |  |  |
| --- | --- | --- | --- |
|  | Test 1 | Test 2 | Test 3 |
| Lowest reported value | T1\_SFN-SFN\_TIME\_(X – 2) | T1\_SFN-SFN\_TIME\_(X – 2) | T1\_SFN-SFN\_TIME\_(X – 2) |
| Highest reported value | T1\_SFN-SFN\_TIME\_(X + 2) | T1\_SFN-SFN\_TIME\_(X + 2) | T1\_SFN-SFN\_TIME\_(X + 2) |
| T1\_SFN-SFN\_TIME\_(X) is the reporting value corresponding to SFN-SFN observed time difference type 1 measured by system simulator | | | |

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

#### 8.7.5.2 SFN-SFN observed time difference type 2 without IPDL period active

NOTE: This test case is not complete and there are currently no plans to complete it.

##### 8.7.5.2.1 Definition and applicability

This measurement is specified in clause 5.1.9 of TS 25.215 [22]. The reference point for the SFN-SFN observed time difference type 2 shall be the antenna connector of the UE.

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

##### 8.7.5.2.2 Minimum requirements

The accuracy requirement in table 8.7.5.2.1 is valid under the following conditions:

CPICH\_RSCP1,2|dBm according to Annex L.3.11 for a corresponding Band

Table 8.7.5.2.1: SFN-SFN observed time difference type 2 measurement accuracy

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter | Accuracy [chip] | Conditions | | |
| Operating bands | Io [dBm/3,84 [MHz] | |
| Minimum Io | Maximum Io |
| SFN-SFN observed time difference type 2 |  0.5 | I, IV, VI, X, XI, XIX, XXI and XXXII | -94 | -50 |
| II, V and VII | -92 | -50 |
| XXV and XXVI | -90.5  (Note 1) | -50 |
| III, VIII, XII, XIII, XIV, XX and XXII | -91 | -50 |
| IX | -93 | -50 |
| NOTE 1: The minimum condition is -92 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. | | | | |

The normative reference for this requirement is TS 25.133 [2] clause 9.1.8.2.1.

##### 8.7.5.2.3 Test purpose and Environment

The purpose of this test is to verify that the SFN-SFN observed time difference type 2 measurement accuracy without IPDL period active is within the limits specified in clause 8.7.5.2.2.

During the test the time difference between Cell 1 and 2 can be set to value from ‑1279.75 to 1280 chips.

In this case all cells are in the same frequency. Table 8.7.5.2.2 defines the limits of signal strengths and code powers, where the requirements are applicable.

Table 8.7.5.2.2: SFN-SFN observed time difference type 2 Intra frequency test parameters

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter | | Unit | Cell 1 | Cell 2 |
| UTRA RF Channel number | |  | Channel 1 | Channel 1 |
| CPICH\_Ec/Ior | | dB | -10 | -10 |
| PCCPCH\_Ec/Ior | | dB | -12 | -12 |
| SCH\_Ec/Ior | | dB | -12 | -12 |
| PICH\_Ec/Ior | | dB | -15 | -15 |
| DPCH\_Ec/Ior | | dB | -15 | -15 |
| OCNS | | dB | -1.11 | -1.11 |
| Îor/Ioc | | dB | 10.5 | 10.5 |
| Ioc | | dBm/ 3.84 MHz | Io ‑13.7 dB = Ioc, Note 1 | Io ‑13.7 dB = Ioc, Note 1 |
| CPICH\_Ec/Io, Note 4 | | dB | -13.2 | -13.2 |
| Range 1 | Io | dBm/3.84 MHz | -94…-70 (Band I, IV, VI, X, XI, XIX, XXI)  -93...-70 (Band IX\*)  -92…-70 (Band II, V, VII)  -90.5...-70 (Band XXV, XXVI (Note 2))  -91…-70 (Band III, VIII, XII, XIII, XIV, XX, XXII) | 94…-70 (Band I, IV, VI, X, XI, XIX, XXI)  -93...-70 (Band IX\*)  -92…-70 (Band II, V, VII)  -90.5...-70 (Band XXV, XXVI (Note 2))  -91…-70 (Band III, VIII, XII, XIII, XIV, XX, XXII) |
| Range 2 | -94…-50 (Band I, IV, VI, X, XI, XIX, XXI)  -93...-50 (Band IX\*)  -92…-50 (Band II, V, VII,)  -90.5...-50 (Band XXV, XXVI (Note 3))  -91…-50 (Band III, VIII, XII, XIII, XIV, XX, XXII) | -94…-50 (Band I, IV, VI, X, XI, XIX, XXI)  -93...-50 (Band IX\*)  -92…-50 (Band II, V, VII)  -90.5...-50 (Band XXV, XXVI (Note 3))  -91…-50 (Band III, VIII, XII, XIII, XIV, XX, XXII) |
| Propagation condition | | - | AWGN | |
| NOTE 1: *Ioc* level shall be adjusted according the total signal power spectral density *Io* at receiver input and the geometry factor *Îor/Ioc*.  \*) 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 2: 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.  NOTE 3: 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.  NOTE 4: Io and CPICH Ec/Iolevels have been calculated from other parameters for information purposes. They are not settable parameters themselves. | | | | |

#### 8.7.5.3 SFN-SFN observed time difference type 2 with IPDL period active

Note: This test case is not complete and there are currently no plans to complete it.

##### 8.7.5.3.1 Definition and applicability

This measurement is specified in clause 5.1.9 of TS 25.215 [22]. The reference point for the SFN-SFN observed time difference type 2 shall be the antenna connector of the UE.

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

##### 8.7.5.3.2 Minimum requirements

The accuracy requirement in table 8.7.5.3.1 is valid under the following conditions:

CPICH\_RSCP1,2|dBm according to Annex B.3.11 for a corresponding Band

Additionally the accuracy requirement in table 8.7.5.3.1 is also valid for neighbour cells for which the following conditions apply to during idle periods provided idle periods have a length of 1 slot:

CPICH\_RSCPx,y|dBm  -114 dBm.

,

where *x* and *y* represent cells measured using idle periods and Io\_idle-period is the total received power during the idle period.

NOTE: Additional general conditions are needed for the requirements in table 8.7.5.3.1 to be valid.

Table 8.7.5.3.1: SFN-SFN observed time difference type 2 measurement accuracy

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter | Accuracy [chip] | Conditions | | |
| Operating bands | Io [dBm/3,84 [MHz] | |
| Minimum Io | Maximum Io |
| SFN-SFN observed time difference type 2 |  0.5 | I, IV, VI, X, XI, XIX, XXI and XXXII | -94 | -50 |
| II, V and VII | -92 | -50 |
| XXV and XXVI | -90.5  (Note 1) | -50 |
| III, VIII, XII, XIII, XIV, XX and XXII | -91 | -50 |
| IX | -93 | -50 |
| NOTE 1: The minimum condition is -92 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. | | | | |

The normative reference for this requirement is TS 25.133 [2] clause 9.1.8.2.2.

##### 8.7.5.3.3 Test purpose and Environment

The purpose of this test is to verify that the SFN-SFN observed time difference type 2 measurement accuracy without IPDL period active is within the limits specified in clause 8.7.5.2.2.

During the test the time difference between Cell 1 and 2 shall be set according to the assistance data defined in table 8.7.5.3.3.

In this case all cells are in the same frequency. Table 8.7.5.3.2 defines the limits of signal strengths and code powers, where the requirements are applicable.

Table 8.7.5.3.2: SFN-SFN observed time difference type 2 Intra frequency test parameters

| Parameter | Unit | Cell 1 | | Cell 2 | |
| --- | --- | --- | --- | --- | --- |
| Time |  | No idle period | Idle period in Cell 1 | No idle period | Idle period in Cell 1 |
| UTRA RF Channel number |  | Channel 1 | Channel 1 | Channel 1 | Channel 1 |
| CPICH\_Ec/Ior | dB | -10 | -10 | -10 | -10 |
| PCCPCH\_Ec/Ior | dB | -12 | -12 | -12 | -12 |
| SCH\_Ec/Ior | dB | -12 | -12 | -12 | -12 |
| PICH\_Ec/Ior | dB | -15 | -15 | -15 | -15 |
| DPCH\_Ec/Ior | dB | -15 | -15 | - | - |
| OCNS | dB | -1.11 | -1.11 | -0.94 | -0.94 |
| Îor/Ioc | dB | 10.5 | -24.5 | -6 | -6 |
| Ioc | dBm/ 3.84 MHz | -80 | | | |
| Io, Note 1 | dBm/3.84 MHz | -69.04 | -79.01 | -69.04 | -79.01 |
| CPICH\_Ec/Io, Note 1 | dB | -10.46 | -35.49 | -26.96 | -16.99 |
| Propagation condition | - | AWGN | | | |
| NOTE 1: Io and CPICH Ec/Iolevels have been calculated from other parameters for information purposes. They are not settable parameters themselves. | | | | | |

When verifying the SFN-SFN observed time difference type 2 intra frequency measurement accuracy with IPDL period active the idle period parameters in table 8.7.5.3.3 shall be used.

Table 8.7.5.3.3: SFN-SFN observed time difference type 2 Intra frequency test parameters

|  |  |  |
| --- | --- | --- |
| Parameter | Unit | Cell 1 |
| Search Window Size | Chips | 80 |
| IP\_Status | - | Continuous |
| IP\_Spacing | Frames | 10 |
| IP\_Lenght | Symbols | 10 |
| IP\_Offset | frame | NA |
| Seed | integer | 13 |
| Burst\_Start |  | NA |
| Burst\_Length |  | NA |
| Burst\_Freq |  | NA |

### 8.7.6 UE Rx-Tx time difference

#### 8.7.6.1 UE Rx-Tx time difference type 1 (Release 5 and earlier)

##### 8.7.6.1.1 Definition and applicability

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

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

##### 8.7.6.1.2 Minimum requirements

Table 8.7.6.1.1: UE Rx-Tx time difference type 1 measurement accuracy

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter | Accuracy [chip] | Conditions | | |
| Operating bands | Io [dBm/3,84 [MHz] | |
| Minimum Io | Maximum Io |
| UE RX-TX time difference |  1.5 | I, IV, VI, X, XI, XIX and XXI | -94 | -50 |
| II, V and VII | -92 | -50 |
| XXV and XXVI | -90.5  (Note 1) | -50 |
| III, VIII, XII, XIII, XIV, XX and XXII | -91 | -50 |
| IX | -93 | -50 |
| NOTE 1: The minimum condition is -92 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. | | | | |

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

##### 8.7.6.1.3 Test purpose

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

##### 8.7.6.1.4 Method of test

8.7.6.1.4.1 Initial conditions

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

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

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

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

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Parameter | | Unit | Test 1 | Test 2 | Test 3 |
| Cell 1 | Cell 1 | Cell 1 |
| UTRA RF Channel number | |  | Channel 1 | Channel 1 | Channel 1 |
| CPICH\_Ec/Ior | | dB | -10 | -10 | -10 |
| PCCPCH\_Ec/Ior | | dB | -12 | -12 | -12 |
| SCH\_Ec/Ior | | dB | -12 | -12 | -12 |
| PICH\_Ec/Ior | | dB | -15 | -15 | -15 |
| DPCH\_Ec/Ior | | dB | -15 | -15 | -15 |
| OCNS\_Ec/Ior | | dB | -1.11 | -1.11 | -1.11 |
| Îor/Ioc | | dB | 10.5 | 10.5 | 10.5 |
| Ioc | | dBm/ 3.84 MHz | Io –10.9 dB = Ioc, Note 1 | Io –10.9 dB = Ioc, Note 1 | Io –10.9 dB = Ioc, Note 1 |
| Io | Band I, IV, VI, X, XI, XIX, XXI | dBm/3.84 MHz | -94 | -72 | -50 |
| Band IX\* | -93 |
| Band II, V, VII | -92 |
| Band XXV, XXVI | -90.5 (Note 2) |
| Band III, VIII, XII, XIII, XIV, XX, XXII | -91 |
| Propagation condition | | - | AWGN | AWGN | AWGN |
| NOTE 1: *Ioc* level shall be adjusted according the total signal power spectral density *Io* at receiver input and the geometry factor *Îor/Ioc*.  \*) 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 2: 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. | | | | | |

8.7.6.1.4.2 Procedure

1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2. The RF parameters are set up according to table 8.7.6.1.4 for Test 1.

2) SS shall transmit MEASUREMENT CONTROL message.

3) UE shall transmit periodically MEASUREMENT REPORT message.

4) SS shall check "UE Rx-Tx time difference type 1" value in MEASUREMENT REPORT message. The reported value shall be compared to actual UE Rx-Tx time difference value for each MEASUREMENT REPORT message. The comparison should be repeated until statistical significance according to Annex F.6.2.8 is achieved.

5) The RF parameters are set up according table 8.7.6.1.4 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period.

6) SS shall check "UE Rx-Tx time difference type 1" value in MEASUREMENT REPORT message. The reported value shall be compared to actual UE Rx-Tx time difference value for each MEASUREMENT REPORT message. The comparison should be repeated until statistical significance according to Annex F.6.2.8 is achieved .

7) The RF parameters are set up according table 8.7.6.1.4 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period.

8) SS shall check "UE Rx-Tx time difference type 1" value in MEASUREMENT REPORT message. The reported value shall be compared to actual UE Rx-Tx time difference value for each MEASUREMENT REPORT message. The comparison should be repeated until statistical significance according to Annex F.6.2.8 is achieved.

9) SS shall transmit RRC CONNECTION RELEASE message.

Specific Message Contents

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

MEASUREMENT CONTROL message for Intra frequency measurement (Step 2):

|  |  |
| --- | --- |
| **Information Element** | **Value/Remark** |
| Message Type |  |
| UE information elements |  |
| -RRC transaction identifier | 0 |
| -Integrity check info |  |
| -message authentication code | SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I. |
| -RRC message sequence number | SS provides the value of this IE, from its internal counter. |
| Measurement Information elements |  |
| -Measurement Identity | 5 |
| -Measurement Command | SETUP |
| - Additional measurements list | Not Present |
| -Measurement Reporting Mode |  |
| -Measurement Report Transfer Mode | AM RLC |
| -Periodical Reporting / Event Trigger Reporting Mode | Periodical reporting |
| -CHOICE Measurement type | UE Internal measurement |
| -UE Internal measurement quantity |  |
| -CHOICE mode | FDD |
| -Measurement quantity | UE Rx-Tx time difference |
| -Filter coefficient | 0 |
| -UE Internal reporting quantity |  |
| -UE Transmitted power | FALSE |
| -CHOICE mode | FDD |
| -UE Rx-Tx time difference | TRUE |
| -CHOICE report criteria | Periodical reporting criteria |
| -Amount of reporting | Infinity |
| -Reporting interval | 250 |
| Physical channel information elements |  |
| -DPCH compressed mode status info | Not Present |

MEASUREMENT REPORT message

|  |  |
| --- | --- |
| **Information Element** | **Value/remark** |
| Message Type |  |
| Integrity check info | The presence of this IE is dependent on IXIT statements in TS 34.123-2. If integrity protection is indicated to be active, this IE shall be present with the values of the sub IEs as stated below. Else, this IE and the sub-IEs shall be absent. |
| - Message authentication code | This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. |
| - RRC Message sequence number | This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value. |
| Measurement identity | 5 |
| Measured Results |  |
| - CHOICE Measurement | UE Internal measured results |
| - Choice mode | FDD |
| - UE Transmitted power | Checked that this IE is absent |
| - UE Rx-Tx report entries |  |
| - Primary CPICH info | Checked that this IE is present |
| - Primary scrambling code | 100 |
| - UE Rx-Tx time difference type 1 | Checked that this IE is present |
| Measured results on RACH | Checked that this IE is absent |
| Additional measured results | Checked that this IE is absent |
| Event results | Checked that this IE is absent |

##### 8.7.6.1.5 Test requirements

Table 8.7.6.1.3 UE Rx-Tx time difference type 1 measurement accuracy

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter | Accuracy [chip] | Conditions | | |
| Operating bands | Io [dBm/3,84 [MHz] | |
| Minimum Io | Maximum Io |
| UE RX-TX time difference |  2.0 | I, IV, VI, X, XI, XIX and XXI | -94 | -50 |
| II, V and VII | -92 | -50 |
| XXV and XXVI | -90.5  (Note 1) | -50 |
| III, VIII, XII, XIII, XIV, XX and XXII | -91 | -50 |
| IX | -93 | -50 |
| NOTE 1: The minimum condition is -92 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. | | | | |

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

| Parameter | | Unit | Test 1 | Test 2 | Test 3 |
| --- | --- | --- | --- | --- | --- |
| Cell 1 | Cell 1 | Cell 1 |
| UTRA RF Channel number | |  | Channel 1 | Channel 1 | Channel 1 |
| CPICH\_Ec/Ior | | dB | -10 | -10 | -10 |
| PCCPCH\_Ec/Ior | | dB | -12 | -12 | -12 |
| SCH\_Ec/Ior | | dB | -12 | -12 | -12 |
| PICH\_Ec/Ior | | dB | -15 | -15 | -15 |
| DPCH\_Ec/Ior | | dB | -15 | -15 | -15 |
| OCNS\_Ec/Ior | | dB | -1.11 | -1.11 | -1.11 |
| Îor/Ioc | | dB | 10.5 | 10.5 | 10.5 |
| Ioc | Band I, IV, VI, X, XI, XIX, XXI | dBm/ 3.84 MHz | -103.6 | -82.9 | -62.2 |
| Band IX\* | -102.6 |
| Band II, V, VII | -101.6 |
| Band XXV, XXVI | -100.1 (Note 2) |
| Band III, VIII, XII, XIII, XIV, XX, XXII | -100.6 |
| Io | Band I, IV, VI, X, XI, XIX, XXI | dBm/3.84 MHz | -92.7 | -72 | -51.3 |
| Band IX\* | -91.7 |
| Band II, V, VII | -90.7 |
| Band XXV, XXVI | -89.2 (Note 2) |
| Band III, VIII, XII, XIII, XIV, XX, XXII | -89.7 |
| Propagation condition | | - | AWGN | AWGN | AWGN |
| NOTE 1: *Ioc* level shall be adjusted according the total signal power spectral density *Io* at receiver input and the geometry factor *Îor/Ioc*.  \*) 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 2: 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. | | | | | |

The reported values for UE Rx-Tx time difference accuracy shall meet the requirements in table 8.7.6.1.5.

Table 8.7.6.1.5: UE Tx-Rx time difference type 1 measurement accuracy requirements for the reported values

|  |  |  |  |
| --- | --- | --- | --- |
|  | Test 1 | Test 2 | Test 3 |
| Lowest reported value | RX-TX\_TIME\_(X – 2) | RX-TX\_TIME\_(X – 2) | RX-TX\_TIME\_(X – 2) |
| Highest reported value | RX-TX\_TIME\_(X + 2) | RX-TX\_TIME\_(X + 2) | RX-TX\_TIME\_(X + 2) |
| RX-TX\_TIME\_(X) is the reporting value corresponding to UE Rx-Tx time difference measured by system simulator | | | |

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

#### 8.7.6.1A UE Rx-Tx time difference type 1 (Release 6 and later)

##### 8.7.6.1A.1 Definition and applicability

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

The connection is started using Cell 1, and then Cell 2 is added to the active set so that Cell 1 is the timing reference. During the test the downlink DPCH time difference between Cell 1 and Cell 2 can be set to any value from ‑148 to +148 chips.

The requirements and this test apply to all types of UTRA for the FDD UE for Release 6 and later releases.

##### 8.7.6.1A.2 Minimum requirements

Table 8.7.6.1A.1: UE Rx-Tx time difference type 1 measurement accuracy

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter | Accuracy [chip] | Conditions | | |
| Operating bands | Io [dBm/3,84 [MHz] | |
| Minimum Io | Maximum Io |
| UE RX-TX time difference |  1.5 | I, IV, VI, X, XI, XIX and XXI | -94 | -50 |
| II, V and VII | -92 | -50 |
| XXV and XXVI | -90.5  (Note 1) | -50 |
| III, VIII, XII, XIII, XIV, XX and XXII | -91 | -50 |
| IX | -93 | -50 |
| NOTE 1: The minimum condition is -92 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. | | | | |

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

##### 8.7.6.1A.3 Test purpose

The purpose of this test is to verify that the measurement accuracy measured for Cell 2 of Rx-Tx time difference is within the limit specified in clause 8.7.6.1A.2. This measurement is used for call setup purposes to compensate propagation delay of DL and UL.

##### 8.7.6.1A.4 Method of test

8.7.6.1A.4.1 Initial conditions

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

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

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

Table 8.7.6.1A.2: UE Rx-Tx time difference type 1 intra frequency test parameters

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Parameter | | Unit | Test 1 | | Test 2 | | Test 3 | |
| Cell 1 | Cell 2 | Cell 1 | Cell 2 | Cell 1 | Cell 2 |
| UTRA RF Channel number | |  | Channel 1 | | Channel 1 | | Channel 1 | |
| Downlink DPCH timing | | Chips | Timing Reference | Note 2 | Timing Reference | Note 2 | Timing Reference | Note 2 |
| CPICH\_Ec/Ior | | dB | -10 | | -10 | | -10 | |
| PCCPCH\_Ec/Ior | | dB | -12 | | -12 | | -12 | |
| SCH\_Ec/Ior | | dB | -12 | | -12 | | -12 | |
| PICH\_Ec/Ior | | dB | -15 | | -15 | | -15 | |
| DPCH\_Ec/Ior | | dB | -15 | | -15 | | -15 | |
| OCNS\_Ec/Ior | | dB | -1.11 | | -1.11 | | -1.11 | |
| Îor/Ioc | | dB | 10.5 | | 10.5 | | 10.5 | |
| Ioc | | dBm/ 3.84 MHz | Io –13.7 dB = Ioc, Note 1 | | Io –13.7 dB = Ioc, Note 1 | | Io –13.7 dB = Ioc, Note 1 | |
| Io | Band I, IV, VI, X, XI, XIX, XXI | dBm/3.84 MHz | -94 | | -72 | | -50 | |
| Band IX\* | -93 | |
| Band II, V, VII | -92 | |
| Band XXV, XXVI | -90.5 (Note 3) | |
| Band III, VIII, XII, XIII, XIV, XX, XXII | -91 | |
| Propagation condition | | - | AWGN | | AWGN | | AWGN | |
| NOTE 1: *Ioc* level shall be adjusted according the total signal power spectral density *Io* at receiver input and the geometry factor *Îor/Ioc*.  \*) 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 2: From reference timing -148 to reference timing +148  NOTE 3: 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. | | | | | | | | |

8.7.6.1A.4.2 Procedure

1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2. The RF parameters are set up according to table 8.7.6.1A.4 for Test 1.

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

3) SS shall transmit MEASUREMENT CONTROL message.

4) UE shall transmit periodically MEASUREMENT REPORT message.

5) SS shall check "UE Rx-Tx time difference type 1" value in MEASUREMENT REPORT message. The reported value shall be compared to actual UE Rx-Tx time difference value for each MEASUREMENT REPORT message. The "UE Rx-Tx time difference type 1" measurement is measured for Cell 2. The comparison should be repeated until statistical significance according to Annex F.6.2.8 is achieved.

6) The RF parameters are set up according table 8.7.6.1A.4 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period.

7) SS shall check "UE Rx-Tx time difference type 1" value in MEASUREMENT REPORT message. The reported value shall be compared to actual UE Rx-Tx time difference value for each MEASUREMENT REPORT message. The "UE Rx-Tx time difference type 1" measurement is measured for Cell 2. The comparison should be repeated until statistical significance according to Annex F.6.2.8 is achieved.

8) The RF parameters are set up according table 8.7.6.1A.4 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period.

9) SS shall check "UE Rx-Tx time difference type 1" value in MEASUREMENT REPORT message. The reported value shall be compared to actual UE Rx-Tx time difference value for each MEASUREMENT REPORT message. The "UE Rx-Tx time difference type 1" measurement is measured for Cell 2. The comparison should be repeated until statistical significance according to Annex F.6.2.8 is achieved .

10) SS shall transmit RRC CONNECTION RELEASE message.

11) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

NOTE 1: Only one value from -148 to +148 chips need to be set during the test for the downlink DPCH time difference between Cell 1 and Cell 2.

Specific Message Contents

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

MEASUREMENT CONTROL message for Intra frequency measurement (Step 2):

|  |  |
| --- | --- |
| Information Element | Value/Remark |
| Message Type |  |
| UE information elements |  |
| -RRC transaction identifier | 0 |
| -Integrity check info |  |
| -message authentication code | SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I. |
| -RRC message sequence number | SS provides the value of this IE, from its internal counter. |
| Measurement Information elements |  |
| -Measurement Identity | 5 |
| -Measurement Command | SETUP |
| - Additional measurements list | Not Present |
| -Measurement Reporting Mode |  |
| -Measurement Report Transfer Mode | AM RLC |
| -Periodical Reporting / Event Trigger Reporting Mode | Periodical reporting |
| -CHOICE Measurement type | UE Internal measurement |
| -UE Internal measurement quantity |  |
| -CHOICE mode | FDD |
| -Measurement quantity | UE Rx-Tx time difference |
| -Filter coefficient | 0 |
| -UE Internal reporting quantity |  |
| -UE Transmitted power | FALSE |
| -CHOICE mode | FDD |
| -UE Rx-Tx time difference | TRUE |
| -CHOICE report criteria | Periodical reporting criteria |
| -Amount of reporting | Infinity |
| -Reporting interval | 250 |
| Physical channel information elements |  |
| -DPCH compressed mode status info | Not Present |

MEASUREMENT REPORT message

|  |  |
| --- | --- |
| Information Element | Value/remark |
| Message Type |  |
| Integrity check info | The presence of this IE is dependent on IXIT statements in TS 34.123-2. If integrity protection is indicated to be active, this IE shall be present with the values of the sub IEs as stated below. Else, this IE and the sub-IEs shall be absent. |
| - Message authentication code | This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. |
| - RRC Message sequence number | This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value. |
| Measurement identity | 5 |
| Measured Results |  |
| - CHOICE Measurement | UE Internal measured results |
| - Choice mode | FDD |
| - UE Transmitted power | Checked that this IE is absent |
| - UE Rx-Tx report entries |  |
| - Primary CPICH info | Checked that this IE is present |
| - Primary scrambling code | 100 |
| - UE Rx-Tx time difference type 1 | Checked that this IE is present |
| - UE Rx-Tx report entries |  |
| - Primary CPICH info | Checked that this IE is present |
| - Primary scrambling code | 150 |
| - UE Rx-Tx time difference type 1 | Checked that this IE is present |
| Measured results on RACH | Checked that this IE is absent |
| Additional measured results | Checked that this IE is absent |
| Event results | Checked that this IE is absent |

##### 8.7.6.1A.5 Test requirements

Table 8.7.6.1A.3: UE Rx-Tx time difference type 1 measurement accuracy

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter | Accuracy [chip] | Conditions | | |
| Operating bands | Io [dBm/3,84 [MHz] | |
| Minimum Io | Maximum Io |
| UE RX-TX time difference |  2.0 | I, IV, VI, X, XI, XIX and XXI | -94 | -50 |
| II, V and VII | -92 | -50 |
| XXV and XXVI | -90.5  (Note 1) | -50 |
| III, VIII, XII, XIII, XIV, XX and XXII | -91 | -50 |
| IX | -93 | -50 |
| NOTE 1: The minimum condition is -92 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. | | | | |

Table 8.7.6.1A.4: UE Rx-Tx time difference type 1 intra frequency test parameters

| Parameter | | Unit | Test 1 | | Test 2 | | Test 3 | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Cell 1 | Cell 2 | Cell 1 | Cell 2 | Cell 1 | Cell 2 |
| UTRA RF Channel number | |  | Channel 1 | | Channel 1 | | Channel 1 | |
| Downlink DPCH timing | | Chips | Timing Reference | Note 2 | Timing Reference | Note 2 | Timing Reference | Note 2 |
| CPICH\_Ec/Ior | | dB | -10 | | -10 | | -10 | |
| PCCPCH\_Ec/Ior | | dB | -12 | | -12 | | -12 | |
| SCH\_Ec/Ior | | dB | -12 | | -12 | | -12 | |
| PICH\_Ec/Ior | | dB | -15 | | -15 | | -15 | |
| DPCH\_Ec/Ior | | dB | -15 | | -15 | | -15 | |
| OCNS\_Ec/Ior | | dB | -1.11 | | -1.11 | | -1.11 | |
| Îor/Ioc | | dB | 10.8 | | 10.8 | | 10.8 | |
| Ioc | Band I, IV, VI, X, XI, XIX, XXI | dBm/ 3.84 MHz | -106.7 | | -85.7 | | -65.3 | |
| Band IX\* | -105.7 | |
| Band II, V, VII | -104.7 | |
| Band XXV, XXVI | -103.2 (Note 3) | |
| Band III, VIII, XII, XIII, XIV, XX, XXII | -103.7 | |
| Io | Band I, IV, VI, X, XI, XIX, XXI | dBm/3.84 MHz | -92.7 | | -71.7 | | -51.3 | |
| Band IX\* | -91.7 | |
| Band II, V, VII | -90.7 | |
| Band XXV, XXVI | -89.2 (Note 3) | |
| Band III, VIII, XII, XIII, XIV, XX, XXII | -89.7 | |
| Propagation condition | | - | AWGN | | AWGN | | AWGN | |
| NOTE 1: *Ioc* level shall be adjusted according the total signal power spectral density *Io* at receiver input and the geometry factor *Îor/Ioc*.  \*) 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 2: From reference timing -148 to reference timing +148.  NOTE 3: 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. | | | | | | | | |

The reported values for UE Rx-Tx time difference accuracy shall meet the requirements in table 8.7.6.1A.5.

Table 8.7.6.1A.5: UE Tx-Rx time difference type 1 measurement accuracy requirements for the reported values

|  |  |  |  |
| --- | --- | --- | --- |
|  | Test 1 | Test 2 | Test 3 |
| Lowest reported value | RX-TX\_TIME\_(X – 2) | RX-TX\_TIME\_(X – 2) | RX-TX\_TIME\_(X – 2) |
| Highest reported value | RX-TX\_TIME\_(X + 2) | RX-TX\_TIME\_(X + 2) | RX-TX\_TIME\_(X + 2) |
| RX-TX\_TIME\_(X) is the reporting value corresponding to UE Rx-Tx time difference measured by system simulator | | | |

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

#### 8.7.6.2 UE Rx-Tx time difference type 2

NOTE: This test case is not complete and there are currently no plans to complete it.

##### 8.7.6.2.1 Definition and applicability

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

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

##### 8.7.6.2.2 Minimum requirements

Table 8.7.6.2.1: UE Rx-Tx time difference type 2 measurement accuracy

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter | Accuracy [chip] | Conditions | | |
| Operating bands | Io [dBm/3,84 [MHz] | |
| Minimum Io | Maximum Io |
| UE RX-TX time difference |  1.0 | I, IV, VI, X, XI, XIX and XXI | -94 | -50 |
| II, V and VII | -92 | -50 |
| XXV and XXVI | -90.5  (Note 1) | -50 |
| III, VIII, XII, XIII, XIV, XX and XXII | -91 | -50 |
| IX | -93 | -50 |
| NOTE 1: The minimum condition is -92 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. | | | | |

The normative reference for this requirement is TS 25.133 [2] clause 9.1.9.2.1.

##### 8.7.6.2.3 Test purpose

The purpose of this test is to verify that the measurement accuracy of Rx-Tx time difference type 2 is within the limit specified in clause 8.7.6.2.2.

The connection is started using cell 1, then cell 2 is added to the active set so that cell 1 is the timing reference. During the test the downlink DPCH time difference between Cell 1 and 2 can be set to any value from ‑148 to 148 chips.

Table 8.7.6.2.2 defines the limits of signal strengths and code powers, where the requirements are applicable.

Table 8.7.6.2.2: UE Rx-Tx time difference type 2 measurement parameters

|  |  |  |  |
| --- | --- | --- | --- |
| Parameter | Unit | Cell 1 | Cell 2 |
| UTRA RF Channel number |  | Channel 1 | Channel 1 |
| Downlink DPCH timing | Chips | Timing reference | From reference timing –148 to reference timing+148 |
| CPICH\_Ec/Ior | dB | -10 | -10 |
| PCCPCH\_Ec/Ior | dB | -12 | -12 |
| SCH\_Ec/Ior | dB | -12 | -12 |
| PICH\_Ec/Ior | dB | -15 | -15 |
| DPCH\_Ec/Ior | dB | -15 | -15 |
| OCNS | dB | -1.11 | -1.11 |
| Îor/Ioc | dB | 10.5 | 10.5 |
| Ioc | dBm/ 3.84 MHz | Io –10.9 dB = Ioc, Note 1 | Io-13.7 dB = Ioc, Note 1 |
| Io | dBm/ 3.84 MHz | -94…-50 (Band I, IV, VI, X, XI, XIX, XXI)  -93...-50 (Band IX\*)  -92…-50 (Band II, V, VII)  -90.5...-50 (Band XXV, XXVI (Note 2))  -91…-50 (Band III, VIII, XII, XIII, XIV, XX, XXII) | -94…-50 (Band I, IV, VI, X, XI, XIX, XXI)  -93...-50 (Band IX\*)  -92…-50 (Band II, V, VII)  -90.5...-50 (Band XXV, XXVI (Note 2))  -91…-50 (Band III, VIII, XII, XIII, XIV, XX, XXII) |
| Propagation condition | - | AWGN | |
| NOTE 1: Ioc level shall be adjusted according the total signal power spectral density Io at receiver input and the geometry factor Îor/Ioc.  \*) 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 2: 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. | | | |

### 8.7.7 Observed time difference to GSM cell (R99 and Rel-4 only)

Void

### 8.7.8 P-CCPCH RSCP

#### 8.7.8.1 Absolute measurement accuracy

##### 8.7.8.1.1 Definition and applicability

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

The requirements and this test apply only to UE supporting both UTRA FDD and UTRA TDD for Release 99 and Release 4 only.

##### 8.7.8.1.2 Minimum Requirements

8.7.8.1.2.1 3.84Mcps TDD option

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

P-CCPCH\_RSCP  -102 dBm,

Table 8.7.8.1.1: P-CCPCH RSCP inter frequency absolute accuracy

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter | Unit | Accuracy [dB] | | Conditions |
| Normal conditions | Extreme conditions | Io [dBm/3.84 MHz] |
| P-CCPCH\_RSCP | dBm |  6 |  9 | -94...-70 |
| dBm |  8 |  11 | -70...-50 |

8.7.8.1.2.2 1.28Mcps TDD option

The accuracy requirement in table 9.31A is valid under the following conditions:

P-CCPCH RSCP  -102 dBm

P-CCPCH Ec/Io > -8 dB

Table 8.7.8.1.1A: P-CCPCH RSCP inter frequency absolute accuracy

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter | Unit | Accuracy [dB] | | Conditions |
| Normal conditions | Extreme conditions | Io [dBm/1.28 MHz] |
| P-CCPCH\_RSCP | dBm |  6 |  9 | -94...-70 |
| dBm |  8 |  11 | -70...-50 |

The normative reference for this requirement is TS 25.133 [2] clauses 9.1.11.1 and A.9.1.8.

##### 8.7.8.1.3 Test purpose

The purpose of this test is to verify that the P-CCPCH RSCP absolute measurement accuracy is within the specified limits.

##### 8.7.8.1.4 Method of test

8.7.8.1.4.1 Initial conditions

8.7.8.1.4.1.1 3.84Mcps TDD option

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

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

In this case both cells are on different frequencies. Cell 1 is a UTRA FDD cell and cell 2 is a 3.84Mcps TDD cell. The second Beacon timeslot shall be provided for cell 2 in timeslot 8. Compressed mode as specified in TS 25.101 [1] section A.5, set 3 of table A.22, is applied. TGPRC and TGCFN shall be set to "Infinity" and "(Current CFN + (256 – TTI/10msec)) mod 256". P-CCPCH RSCP inter frequency absolute accuracy requirements are tested by using test parameters in Table 8.7.8.1.2.

Table 8.7.8.1.2: P-CCPCH RSCP inter frequency tests parameters

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Parameter | Unit | | Test 1 | | | Test 2 | | | |
| Cell 1 | Cell 2 | | Cell 1 | Cell 2 | | |
| DL timeslot number |  | n.a. | | 0 | 8 | n.a. | 0 | 8 | |
| UTRA RF Channel number |  | Channel 2 | | Channel 1 | | Channel 2 | Channel 1 | | |
| CPICH\_Ec/Ior | dB | -10 | | n.a. | | -10 | n.a. | | |
| P-CCPCH\_Ec/Ior | dB | -12 | | -3 | n.a. | -12 | -3 | n.a | |
| SCH\_Ec/Ior | dB | -12 | | -9 | | -12 | -9 | | |
| SCH\_toffset |  | n.a. | | 5 | | n.a. | 5 | | |
| PICH\_Ec/Ior | dB | -15 | | n.a. | -3 | -15 | n.a. | -3 | |
| DPCH\_Ec/Ior | dB | -15 | | n.a. | | -15 | n.a. | | |
| OCNS\_Ec/Ior | dB | -1.11 | | -3.12 | | -1.11 | -3.12 | | |
| Ioc | dBm/ 3.84 MHz | -60 | | -57.7 | | -84 | -84.7 | | |
| Îor/Ioc | dB | 9.54 | | 7 | | 0 | 3 | | |
| P-CCPCH RSCP, Note 1 | dBm | n.a. | | -53.7 | n.a. | n.a. | -84.7 | | n.a. |
| CPICH RSCP, Note 1 | dBm | -60.46 | | n.a. | | -94 | n.a. | | |
| Io, Note 1 | dBm/3.84 MHz | -50 | | -50 | | -81 | -80 | | |
| Propagation condition | - | AWGN | | | | AWGN | | | |
| NOTE 1: P-CCPCH RSCP, CPICH RSCP and Iolevels have been calculated from other parameters for information purposes. They are not settable parameters themselves.  Note that the transmit energy per PN chip for the SCH is averaged over the 256 chip duration when the SCH is present in the time slot. | | | | | | | | | |
| Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed, test parameters for test 2 shall be set within 5 seconds so that the UE does not lose the Cell 2 in between the test. | | | | | | | | | |

8.7.8.1.4.1.2 1.28Mcps TDD option

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

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

In this case both cells are on different frequencies. Cell 1 is a UTRA FDD cell and cell 2 is a 1.28McpsTDD cell. The second Beacon timeslot shall be provided for cell 2 in timeslot 2. Compressed mode as specified in TS 25.101 [1] section A.5, set 3 of table A.22, is applied. TGPRC and TGCFN shall be set to "Infinity" and "(Current CFN + (256 – TTI/10msec)) mod 256". P-CCPCH RSCP inter frequency absolute accuracy requirements are tested by using test parameters in Table 8.7.8.1.2A.

Table 8.7.8.1.2A: P-CCPCH RSCP inter frequency tests parameters

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Parameter | Unit | | Test 1 | | | Test 2 | | | |
| Cell 1 | Cell 2 | | Cell 1 | Cell 2 | | |
| DL timeslot number |  | n.a. | | 0 | DwPTs | n.a. | 0 | DwPTs | |
| UTRA RF Channel number |  | Channel 2 | | Channel 1 | | Channel 2 | Channel 1 | | |
| CPICH\_Ec/Ior | dB | -10 | | n.a. | | -10 | n.a. | | |
| P-CCPCH\_Ec/Ior | dB | -12 | | -3 |  | -12 | -3 |  | |
| DwPCH \_Ec/Ior | dB | n.a. | |  | 0 | n.a. |  | 0 | |
| PICH\_Ec/Ior | dB | -15 | | n.a. | n.a. | -15 | n.a. | n.a. | |
| DPCH\_Ec/Ior | dB | -15 | | n.a. | n.a. | -15 | n.a. | n.a. | |
| OCNS\_Ec/Ior | dB | -1.11 | | -3 |  | -1.11 | -3 |  | |
| Ioc |  | -60 dBm/ 3.84 MHz | | -57.7 dBm/1.28 MHz | | -84 dBm/ 3.84 MHz | -84.7 dBm/1.28 MHz | | |
| Îor/Ioc | dB | 9.54 | | 7 | | 0 | 3 | | |
| P-CCPCH RSCP, Note 1 | dBm | n.a. | | -53.7 |  | n.a. | -84.7 | |  |
| CPICH RSCP, Note 1 | dBm | -60.46 | | n.a. | | -94 | n.a. | | |
| Io, Note 1 |  | -50 dBm/ 3.84 MHz | | -50 dBm/1.28 MHz | | -81 dBm/ 3.84 MHz | -80 dBm/1.28 MHz | | |
| Propagation condition | - | AWGN | | | | AWGN | | | |
| NOTE 1: P-CCPCH RSCP, CPICH RSCP and Iolevels have been calculated from other parameters for information purposes. They are not settable parameters themselves. | | | | | | | | | |
| Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed, test parameters for test 2 shall be set within 5 seconds so that the UE does not lose the Cell 2 in between the test. | | | | | | | | | |

1) A call is set up according to the test procedure specified in TS 34.108 [3] clause 7.3.2. The RF parameters for Test 1 are set up according to table 8.7.8.1.2.

8.7.8.1.4.2 Procedure

1) SS shall transmit the PHYSICAL CHANNEL RECONFIGURATION message.

2) UE shall transmit the PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

3) SS shall transmit the MEASUREMENT CONTROL message.

4) UE shall transmit periodically MEASUREMENT REPORT messages.

5) SS shall check P-CCPCH RSCP values of Cell 2 in the MEASUREMENT REPORT messages. P-CCPCH RSCP power level of Cell 2 reported by the UE shall be compared to the actually set P-CCPCH RSCP value of Cell 2 for each MEASUREMENT REPORT message.

6) SS shall check MEASUREMENT REPORT messages transmitted by UE until statistical significance according to Annex F.6.2.8 is achieved.

7) The RF parameters are set up according to table 8.7.8.1.2 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 4), 5) and 6) above are repeated.

8) The SS shall transmit RRC CONNECTION RELEASE message.

9) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

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

PHYSICAL CHANNEL RECONFIGURATION message for inter frequency measurement (Step 1):

| Information Element | Value/Remark | Revision |
| --- | --- | --- |
| Message Type |  |  |
| UE Information Elements |  |  |
| -RRC transaction identifier | 0 |  |
| -Integrity check info |  |  |
| -message authentication code | SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I. |  |
| -RRC message sequence number | SS provides the value of this IE, from its internal counter. |  |
| -Integrity protection mode info | Not Present |  |
| -Ciphering mode info | Not Present |  |
| -Activation time | Not Present |  |
| -New U-RNTI | Not Present |  |
| -New C-RNTI | Not Present |  |
| -RRC State Indicator | CELL\_DCH |  |
| -UTRAN DRX cycle length coefficient | Not Present |  |
| CN Information Elements |  |  |
| -CN Information info | Not Present |  |
| UTRAN mobility information elements |  |  |
| -URA identity | Not Present |  |
| RB information elements |  |  |
| -Downlink counter synchronisation info | Not Present |  |
| PhyCH information elements |  |  |
| -Frequency info | Not Present |  |
| Uplink radio resources |  |  |
| -Maximum allowed UL TX power | Not Present |  |
| - CHOICE channel requirement | Not Present |  |
| Downlink radio resources |  |  |
| -CHOICE mode | FDD |  |
| -Downlink PDSCH information | Not Present | R99 and Rel-4 only |
| -Downlink information common for all radio links |  |  |
| -Downlink DPCH info common for all RL | Not Present |  |
| -CHOICE mode | FDD |  |
| -DPCH compressed mode info |  |  |
| -Transmission gap pattern sequence |  |  |
| -TGPSI | 1 |  |
| -TGPS Status Flag | Activate |  |
| -TGCFN | (Current CFN + (256 – TTI/10msec))mod 256 |  |
| -Transmission gap pattern sequence configuration parameters |  |  |
| -TGMP | TDD measurement |  |
| -TGPRC | Infinity |  |
| -TGSN | 10 |  |
| -TGL1 | 10 |  |
| -TGL2 | Not Present |  |
| -TGD | UNDEFINED |  |
| -TGPL1 | 11 |  |
| -TGPL2 | Not Present | R99 and Rel-4 only |
| -RPP | Mode 0 |  |
| -ITP | Mode 0 |  |
| -CHOICE UL/DL mode | UL and DL |  |
| -Downlink compressed mode method | Puncturing |  |
| -Uplink compressed mode method | SF/2 |  |
| -Downlink frame type | A |  |
| -DeltaSIR1 | 3.0 |  |
| -DeltaSIRafter1 | 3.0 |  |
| -DeltaSIR2 | Not Present |  |
| -DeltaSIRafter2 | Not Present |  |
| -N Identify abort | Not Present |  |
| -T Reconfirm abort | Not Present |  |
| -TX Diversity Mode | Not Present |  |
| -SSDT information | Not Present | R99 and Rel-4 only |
| -Default DPCH Offset Value | Not Present |  |
| -Downlink information per radio link list |  |  |
| -Downlink information for each radio link |  |  |
| -Choice mode | FDD |  |
| -Primary CPICH info |  |  |
| -Primary scrambling code | 100 |  |
| -PDSCH with SHO DCH Info | Not Present | R99 and Rel-4 only |
| -PDSCH code mapping | Not Present | R99 and Rel-4 only |
| -Downlink DPCH info for each RL |  |  |
| -CHOICE mode | FDD |  |
| -Primary CPICH usage for channel estimation | Primary CPICH may be used |  |
| -DPCH frame offset | Set to value Default DPCH Offset Value ( as currently stored in SS) mod 38400 |  |
| -Secondary CPICH info | Not Present |  |
| -DL channelisation code |  |  |
| -Secondary scrambling code | Not Present |  |
| -Spreading factor | 128 |  |
| -Code number | 96 |  |
| -Scrambling code change | No code change |  |
| -TPC combination index | 0 |  |
| -SSDT Cell Identity | Not Present | R99 and Rel-4 only |
| -Closed loop timing adjustment mode | Not Present |  |
| -SCCPCH Information for FACH | Not Present |  |

MEASUREMENT CONTROL message for inter frequency measurement (Step 3):

| **Information Element** | **Value/Remark** |
| --- | --- |
| Message Type |  |
| UE information elements  -RRC transaction identifier  -Integrity check info  -message authentication code  -RRC message sequence number | 0    SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.  SS provides the value of this IE, from its internal counter. |
| Measurement Information elements  -Measurement Identity  -Measurement Command  -Measurement Reporting Mode  - Measurement Report Transfer Mode  - Periodical Reporting / Event Trigger Reporting Mode  -Additional measurement list  -CHOICE Measurement Type  -Inter-frequency measurement  -Inter-frequency cell info list  -CHOICE Inter-frequency cell removal  -New inter-frequency cells  -Cell for measurement  -Inter-frequency measurement quantity  -CHOICE reporting criteria  -Filter coefficient  -CHOICE mode  -Measurement quantity for frequency quality estimate  -Inter-frequency reporting quantity  -UTRA Carrier RSSI  -Frequency quality estimate  -Non frequency related cell reporting quantities  -Cell synchronisation information reporting indicator  -Cell Identity reporting indicator  -CHOICE mode  -Timeslot ISCP reporting indicator  -Proposed TGSN Reporting required  -Primary CCPCH RSCP reporting indicator  -Pathloss reporting indicator  -Reporting cell status  -CHOICE reported cell  -Maximum number of reported cells  -Measurement validity  -Inter-frequency set update  -CHOICE report criteria  -Amount of reporting  -Reporting interval | 2  Setup  Acknowledged mode RLC  Periodical reporting  Not Present  Inter-frequency measurement  Not Present  Cell 2 information is included.  Not Present  Inter-frequency reporting criteria  0  TDD  Primary CCPCH RSCP  FALSE  TRUE  FALSE  FALSE  TDD  FALSE  FALSE  TRUE  FALSE  Report cells within monitored set on non-used frequency  2  Not Present  Not Present  Periodical reporting criteria  Infinity  500 ms |
| Physical channel information elements  -DPCH compressed mode status info | Not Present |

##### 8.7.8.1.5 Test requirements

The PCCPCH RSCP measurement accuracy shall meet the requirements in clause 8.7.8.1.2.

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

### 8.7.9 UE Transmission Power Headroom

#### 8.7.9.1 Definition and applicability

The accuracy requirements for the UE transmission power headroom depends on the total power transmitted by the UE as defined in the functionality in section 9.2.5.3.2 of TS 25.321 [13], section 9.1.13.4 of TS 25.133 [2] and section 5.1.14 of TS 25.215 [22]. The requirements and this test apply to Release 6 and later releases for all types of UTRA for the FDD UE that support E-DCH and HSDPA.

#### 8.7.9.2 Minimum Requirements

The UE transmission power headroom (UPH) is defined in section 5.1.14 of TS 25.215 [22] as the ratio of the maximum UE transmission power and the corresponding DPCCH code power, and shall be calculated as following:

where:

Pmax,tx = min {Maximum allowed UL TX Power, Pmax} is the UE maximum transmission power;

Maximum allowed UL TX Power is set by UTRAN and defined in [8];

Pmax is the UE nominal maximum output power according to the UE power class and specified in [1] table 6.1;

PDPCCH is the transmitted code power on DPCCH.

The accuracy requirements for UE transmission power headroom depends on the total power transmitted by the UE. Table 8.7.9.1 defines the accuracy of the measured quantity as defined in section 9.1.13.4 of TS 25.133 [2].

Table 8.7.9.1: UPH reporting accuracy

|  |  |
| --- | --- |
| Total UE output power value (dBm) | UPH reporting accuracy(dB) (note 1) |
| 25<= total output power <34 | note 2 |
| 24<= total output power <25 | ±2.0 |
| 23<= total output power <24 | ±2.0 |
| 22<= total output power <23 | ±2.0 |
| 21<= total output power <22 | ±2.0 |
| 20<= total output power < 21 | ±2.5 |
| 19<= total output power <20 | ±3.0 |
| 18<= total output power <19 | ±3.5 |
| 17<= total output power <18 | ±4.0 |
| 16<= total output power <17 | ±4.0 |
| 15<= total output power <16 | ±4.0 |
| 14<= total output power <15 | ±4.0 |
| 13<= total output power <14 | ±4.0 (power class 4)  ±6.0 (power class 3) |
| 12<= total output power <13 | ±4.0 (power class 4)  ±6.0 (power class 3) |
| 11<= total output power <12 | ±4.0 (power class 4)  ±6.0 (power class 3) |
| -50<= total output power <11 | ±6.0 |
| Note 1 : UPH reporting accuracy is the difference between the UPH reported by the UE and the actual uplink power headroom  Note 2 : No accurancy limit is applied. | |

#### 8.7.9.3 Test purpose

The purpose of this test case is to verify that the UE transmission power headroom measurement report accuracy is within the specified limits defined in section 9.1.13.4 of 25.133 [2] shown in table 8.7.9.1.

#### 8.7.9.4 Method of test

##### 8.7.9.4.1 Initial conditions

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

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

1) Connect the SS (node B emulator) to the UE antenna connector as shown in figure A.1.

2) The beta factors for E-DPCCH & HS-DPCCH, Reference E-TFCI index, and E-DCH configurations are set as in table 8.7.9.2.

Table 8.7.9.2: General test parameters for UE transmission power headroom

|  |  |  |  |
| --- | --- | --- | --- |
| Parameter | Unit | Value | Comment |
| DL DCH configuration |  | DL Reference Measurement Channel 12.2 kbps | As specified in Annex C.3.1 of the present document |
| DL configuration |  | DL Fixed Reference Channel (FRC H-Set 1, QPSK version) | As specified in Annex C.8.1.1 of the present document |
| E-DCH TTI | ms | 10 |  |
| E-DCH configuration |  | 10 ms TTI E-DCH Transport Block Size Table 0 according to TS 25.321 [13] annex B.3. |  |
| DL Power Control |  | Off |  |
| Active cell |  | Cell 1 |  |
| bc |  | 8 | As specified in 34.108 section 9.2.1 RADIO BEARER SETUP message: AM or UM (Test Loop Mode1) |
| bd |  | 15 | As specified in 34.108 section 9.2.1 RADIO BEARER SETUP message: AM or UM (Test Loop Mode1) |
| bec/bc |  | 5/15 |  |
| bed\_ref/bc |  | 5/15 |  |
| Ahs |  | 5/15 | ACK = NACK = CQI |
| Reference E-TFCI index |  | 0 as per Table 0 according to TS 25.321 [13] annex B.3. |  |

3) The power levels and cell specific parameters are set as in table 8.7.9.3.

Table 8.7.9.3: Cell Specific parameters for UE transmission power headroom

|  |  |  |
| --- | --- | --- |
| Parameter | Unit | Cell 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 | -10 |
| HS-SCCH\_Ec/Ior | dB | -8 |
| HS-PDSCH \_Ec/Ior | dB | -3 |
| E-AGCH\_Ec/Ior | dB | DTX’d |
| E-HICH\_Ec/Ior | dB | DTX’d |
| E-RGCH\_Ec/Ior | dB | DTX’d |
| OCNS | dB | Note 1 |
| Îor | dBm/3.84 MHz | -70 |
| NOTE 1: The power of the OCNS channel that is added shall make the total power from the cell to be equal to Ior. | | |

4) The UE is switched on.

5) An E-DCH call is set up according to TS 34.108 [3] 7.3.9 with the following exceptions in the RADIO BEARER SETUP message. These exceptions are derived from Table 8.7.9.2, and in addition allow the beta values to be set and each UL physical channel to be at constant power during the measurement.

Table 8.7.9.4: Contents of RADIO BEARER SETUP message: AM or UM (E-DCH and HSDPA)

| Information Element | Value/Remark |
| --- | --- |
| Uplink DPCH info |  |
| - Power Control Algorithm | Algorithm 2 |
| - ACK | 0, giving Ahs = 5/15 |
| - NACK | 0, giving Ahs = 5/15 |
| - Ack-Nack repetition factor | 3 (required for continuous HS-DPCCH signal) |
| E-DCH info | Uplink DPCH info |
| - E-DPCCH info |  |
| - E-DPCCH/DPCCH power offset | 0, giving Aec = 5/15 |
| - E-DPDCH info |  |
| - Reference E-TFCIs | 1 E-TFCI |
| - Reference E-TFCI | 0 |
| - Reference E-TFCI PO | 0, giving Aed\_ref = 5/15 |
| - Scheduling Information Configuration |  |
| - Periodicity for Scheduling Info – no grant | 10 ms |
| Downlink HS-PDSCH Information |  |
| - Measurement Feedback Info |  |
| - CQI Feedback cycle, k | 4 ms |
| - CQI repetition factor | 2 (required for continuous HS-DPCCH signal) |
| - CQI | 0, giving Ahs = 5/15 |

##### 8.7.9.4.2 Test procedure

1) The Scheduling Information configuration for the E-DCH indicates to the UE that it shall periodically report Scheduling Information, which contains UPH measurement every E-DCH TTI. During the test the system simulator shall not send any scheduling grant to the UE, and therefore the UE will not send any payload data on the E-DCH.

2) The SS shall set the UE DPCCH power to be between -11.1 dBm and -8 dBm for a power class 3 UE, or between -14.1 dBm and -11dBm for a power class 4 UE by using uplink power control.

3) The SS measures both the power transmitted by the UE on DPCCH and the total output power of the UE every time slot. The SS averages both the DPCCH output power and total output power of the UE over 100 ms.

4) The SS estimates the UE transmission power headroom as the difference between the maximum allowed uplink transmit power (*P*max) and the average DPCCH power measured in step 3.

5) The SS notes the UE transmission power headroom value reported in the Scheduling Information.

6) The SS calculates the difference between the UE transmission power headroom value estimated in step 4 and the reported UE transmission power headroom noted in step 5. The SS notes this as the UE transmission power headroom accuracy, and compares it to the applicable limit according to the total output power measured in step 3.

7) If the UE transmission power headroom accuracy exceeds the value in Table 8.7.9.5 count a bad result, otherwise a good result with respect to the actually set TX power (DTX on E-DPDCH is not considered a bad result).

8) Repeat steps 3 to 7 in order to collect more good or bad results for the currently set power level. Continue the repetition, until statistical significance according to Annex F.6.2.8 is achieved.

9) The SS sends 5 up TPC commands at the frame boundary to bring the Tx power of the UE up by a nominal 1 dB step, then alternate UP/DOWN to maintain constant Tx power.

10) Repeat steps 3 through 9 and note the UE transmission power headroom accuracy for each UE total power value until the UE stops reporting UPH or does not give lower UPH values for 8 consecutive repetitions of steps 3 through 9. If the lowest reported UPH is UE\_POWER\_HEADROOM\_13 or higher for a power class 3 UE, or UE\_POWER\_HEADROOM\_14 or higher for a power class 4 UE, then count a bad result (DTX on E-DPDCH is not considered a bad result).

#### 8.7.9.5 Test requirements

The UE transmission power headroom measurement report accuracy recorded in steps 6, 9 and 10 above shall meet the requirements in table 8.7.9.5. The rate of correct measurements observed during repeated tests shall be at least 90%. To pass the test, the UE transmission power headroom accuracy for each power level in the reporting range must pass. Once a power level is passed, no more results need be collected on this power level.

Table 8.7.9.5: Test requirement for UPH reporting accuracy

|  |  |
| --- | --- |
| Total UE output power value (dBm) | UPH reporting accuracy(dB) (note 1) |
| 25<= total output power <34 | note 2 |
| 24<= total output power <25 | ±2.8 |
| 23<= total output power <24 | ±2.8 |
| 22<= total output power <23 | ±2.8 |
| 21<= total output power <22 | ±2.8 |
| 20<= total output power < 21 | ±3.3 |
| 19<= total output power <20 | ±3.8 |
| 18<= total output power <19 | ±4.3 |
| 17<= total output power <18 | ±4.8 |
| 16<= total output power <17 | ±4.8 |
| 15<= total output power <16 | ±4.8 |
| 14<= total output power <15 | ±4.8 |
| 13<= total output power <14 | ±4.8 (power class 4)  ±6.8 (power class 3) |
| 12<= total output power <13 | ±4.8 (power class 4)  ±6.8 (power class 3) |
| 11<= total output power <12 | ±4.8 (power class 4)  ±6.8 (power class 3) |
| -50<= total output power <11 | ±6.8 |
| NOTE 1: UPH reporting accuracy is the difference between the UPH reported by the UE and the actual uplink power headroom  NOTE 2: No accurancy limit is applied. | |

NOTE1: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

### 8.7.10 E-UTRAN FDD RSRP absolute accuracy (CELL\_DCH)

##### 8.7.10.1 Definition and applicability

The absolute accuracy of RSRP is defined as the RSRP measured from a cell that has different carrier frequency from the serving cell.

The E-UTRAN FDD RSRP absolute accuracy measurement is used for handover between UTRAN FDD and E-UTRAN FDD.

The requirements and this test apply to the combined UTRAN FDD and E-UTRAN FDD UE for Rel.9 and later.

##### 8.7.10.2 Minimum Requirements

The accuracy requirements for E-UTRA RSRP measurements in CELL\_DCH state shall be the same as the inter-frequency RSRP accuracy requirements in3GPP TS36.133[34], as follows:

Cell specific reference signals are transmitted either from one, two or four antenna ports.

Conditions defined in TS 36.101 [37] clause 7.3 for reference sensitivity are fulfilled.

RSRP|dBm according to TS 36.133 [34] Annex B.3.3 for a corresponding Band

Table 8.7.10.2.1: E-UTRAN FDD RSRP absolute accuracy

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Accuracy | | Conditions | | | | |
| Normal condition | Extreme condition | Ês/Iot | Io Note 1 range | | | |
| E-UTRA operating band groups Note 3 | Minimum Io | | Maximum Io |
| dB | dB | dB |  | dBm/15kHz Note 2 | dBm/BWChannel | dBm/BWChannel |
| 4.5 | 9 | -6 dB | FDD\_A, TDD\_A | -121 | N/A | -70 |
| FDD\_C, TDD\_C | -120 | N/A | -70 |
| FDD\_D | -119.5 | N/A | -70 |
| FDD\_E, TDD\_E | -119 | N/A | -70 |
| FDD\_F | -118.5 | N/A | -70 |
| FDD\_G | -118 | N/A | -70 |
| FDD\_H | -117.5 | N/A | -70 |
| FDD\_N | -114.5 | N/A | -70 |
| 8 | 11 | -6 dB | FDD\_A, TDD\_A, FDD\_C, TDD\_C, FDD\_D, FDD\_E, TDD\_E, FDD\_F, FDD\_G, FDD\_H, FDD\_N | N/A | -70 | -50 |
| NOTE 1: Io is assumed to have constant EPRE across the bandwidth.  NOTE 2: The condition level is increased by ∆>0, when applicable, as described in TS 36.521-3 [38] Sections I.4.2 and I.4.3.  NOTE 3: E-UTRA operating band groups are as defined in TS 36.133[34], Section 3.5. | | | | | | |

The normative reference for this requirement is TS 25.133 [2] clause 9.1.4a and A.9.1.10

##### 8.7.10.3 Test purpose

The purpose of this test is to verify that the E-UTRAN FDD RSRP measurement accuracy in CELL\_DCH state, for UE that needs compressed mode to perform E-UTRAN FDD measurements, is within the specified limits. This measurement is for UTRAN FDD to E-UTRAN FDD handover evaluation.

##### 8.7.10.4 Method of test

8.7.10.4.1 Initial conditions

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

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

In the test in Cell\_DCH state compressed mode with purpose "E-UTRAN FDD RSRP Measurement" is applied to measure on E-UTRAN FDD. The compressed mode pattern repeats every 80 ms and uses a gap length of 10 slots. Further details are found in TS 25.101 annex A.5.

Tables 8.7.10.4.1.1 and 8.7.10.4.1.2 define the limits of signal strengths and code powers on the UTRA FDD cell where requirements are applicable. In the measurement control information periodic reporting of E-UTRAN FDD RSRP is indicated to the UE. The E-UTRAN FDD test parameters are given in Table 8.7.10.4.1.3.

Table 8.7.10.4.1.1: General test parameters for E-UTRAN FDD RSRP absolute accuracy tests

|  |  |  |  |
| --- | --- | --- | --- |
| Parameter | Unit | Value | Comment |
| DCH parameters |  | DL Reference Measurement Channel 12.2 kbps | As specified in TS 25.101 section A.3.1 |
| Power Control |  | On |  |
| Target quality value on DTCH | BLER | 0.01 |  |
| Active cell |  | Cell 1 | UTRA FDD cell |
| Neighbour cell |  | Cell 2 | E-UTRA FDD cell |
| CP length of cell 2 |  | normal |  |
| Filter coefficient |  | 0 | L3 filtering is not used |
| Compressed mode patterns - E-UTRAN measurement |  | Compressed mode reference pattern 2 Set 5 | As specified in table A.22 TS 25.101 section A.5 |
| Inter-RAT measurement quantity |  | E-UTRAN FDD RSRP |  |
| Monitored cell list size |  | 1 E-UTRAN FDD neighbour cell | Measurement control information is sent before the compressed mode pattern starts. |

Table 8.7.10.4.1.2: UTRAN FDD cell specific test parameters  
for E-UTRAN FDD RSRP absolute accuracy tests

|  |  |  |
| --- | --- | --- |
| Parameter | Unit | Cell 1 |
| UTRA RF Channel number | - | Channel 1 |
| CPICH\_Ec/Ior | dB | -10 |
| PCCPCH\_Ec/Ior | dB | -12 |
| SCH\_Ec/Ior | dB | -12 |
| PICH\_Ec/Ior | dB | -15 |
| DCH\_Ec/Ior | dB | Note 1 |
| OCNS\_Ec/Ior | dB | Note 2 |
| Îor/Ioc | dB | -1 |
| Ioc | dBm/ 3.84 MHz | -70 |
| CPICH\_Ec/Io | dB | -13.54 |
| Propagation condition | - | AWGN |
| NOTE 1: The DPCH level is controlled by the power control loop  NOTE 2: The power of the OCNS channel that is added shall make the total power from the cell to be equal to Ior. | | |

Table 8.7.10.4.1.3: E-UTRAN FDD cell specific test parameters  
for E-UTRAN FDD RSRP absolute accuracy tests

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter | | Unit | Test 1 | Test 2 |
| BWchannel | | MHz | 10 | 10 |
| Measurement bandwidth | |  | 22—27 | 22—27 |
| PDCCH/PCFICH/PHICH Reference measurement channel as defined in TS 36.133 A.3.1.2.1 | |  | R.6 FDD | R.6 FDD |
| OCNG Pattern as defined in TS 36.133 A.3.2.1.2 | |  | OP.2 FDD | OP.2 FDD |
| 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\_RANote1 | |
| OCNG\_RBNote1 | |
| Note2 | Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24 | dBm/15 kHz | -88.65 | -117 |
| Bands 2, 5, 7, 26 and 27 (Note 5) | -115 |
| Band 25 | -113.5 |
| Band 28 | -115.5 |
| Bands 3, 8, 12, 13, 14, 20 and 22 | -114 |
| Band 9 | -116 |
|  | | dB | 10 | -4 |
| RSRPNote3 | Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24 | dBm/15 kHz | -78.65 | -121 |
| Bands 2, 5, 7, 26 and 27 (Note 5) | -119 |
| Band 25 | -117.5 |
| Band 28 | -119.5 |
| Bands 3, 8, 12, 13, 14, 20 and 22 | -118 |
| Band 9 | -120 |
| IoNote3 | Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24. | dBm/9 MHz | -50.45 | -87.76 |
| Bands 2, 5, 7, 26 and 27 (Note 5) | -85.76 |
| Band 25 | -84.26 |
| Band 28 | -86.26 |
| Bands 3, 8, 12, 13, 14, 20 and 22 | -84.76 |
| Band 9 | -86.76 |
|  | | dB | 10 | -4 |
| 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 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 assigned E-UTRA channel bandwidth within 865-894 | | | | |

8.7.10.4.2 Test Procedure

1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2. The RF parameters for Test 1 are set up according to table 8.7.10.5.2 and table 8.7.10.5.3.

2) If compressed mode is required,SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message (compressed gaps). Otherwise, Go to Step4.

3) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message (compressed gaps).

4) SS shall transmit MEASUREMENT CONTROL message for inter RAT measurement. In the measurment control information periodic reporting of the E-UTRAN FDD RSRP is requested to the UE.

5) After sending the measurement control message, wait for 10s, UE shall transmit periodically MEASUREMENT REPORT messages.

6) After 10s wait in step 5, SS shall check E-UTRAN FDD RSRP value of Cell 2 in periodical MEASUREMENT REPORT messages. E-UTRAN FDD RSRP power of Cell 2 reported by UE is compared to actual E-UTRAN FDD RSRP value of Cell 2 for each MEASUREMENT REPORT message. If the UE fails to report the measurement values including neighbor cell RSRP, the number of failure tests is increased by one.

7) SS shall check MEASUREMENT REPORT messages transmitted by UE until statistical significance according to Tables G.2.3-1 in TS36.521-3 [38] is achieved.

8) The RF parameters are set up according to table 8.7.10.5.3 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 3s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 5) to 7) above are repeated.

9) The SS shall transmit RRC CONNECTION RELEASE message.

10) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

All messages indicated above shall use the same content as described in default message content in clause 9 of TS 34.108 [3] and clause 4.4 and 4.7B.1 of TS 36.508 [33], with the following exceptions:

PHYSICAL CHANNEL RECONFIGURATION message for Inter-RAT measurement (step 2):

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 36.508 [33], clause 4.7B.1 Table 4.7B.1-5: PHYSICAL CHANNEL RECONFIGURATION | | | |
| Information Element | Value/remark | Comment | Condition |
| Message Type |  |  |  |
| RRC transaction identifier | 0 |  |  |
| Downlink information common for all radio links |  |  |  |
| - Downlink DPCH info common for all RL | Not Present |  |  |
| - DPCH compressed mode info |  |  |  |
| - TGPSI | 1 |  |  |
| - TGPS Status Flag | Activate |  |  |
| - TGCFN | (Current CFN + (256 – TTI/10msec))mod 256 |  |  |
| - Transmission gap pattern sequence configuration parameters | 1 |  |  |
| - TGMP | E-UTRA measurement |  |  |
| - TGPRC | Infinity |  |  |
| - TGSN | 10 |  |  |
| - TGL1 | 10 |  |  |
| - TGL2 | Not Present |  |  |
| - TGD | 0 |  |  |
| - TGPL1 | 8 |  |  |
| - TGPL2 | Not Present |  |  |
| - RPP | mode 0 |  |  |
| - ITP | mode 0 |  |  |
| - CHOICE UL/DL Mode | UL and DL |  |  |
| - Downlink compressed mode method | SF/2 |  |  |
| - Uplink compressed mode method | SF/2 |  |  |
| - Downlink frame type | B |  |  |
| - DeltaSIR1 | 3.0 |  |  |
| - DeltaSIRAfter1 | 3.0 |  |  |
| - DeltaSIR2 | Not Present |  |  |
| - DeltaSIRAfter2 | Not Present |  |  |
| - N identify abort | Not Present |  |  |
| - T Reconfirm abort | Not Present |  |  |
| - TX Diversity mode | Not Present |  |  |
| - SSDT information | Not Present |  |  |
| - Default DPCH Offset Value | Not Present |  |  |
| Downlink information for each radio link | Not Present |  |  |
| MBMS PL Service Restriction Information | Not Present |  |  |

MEASUREMENT CONTROL message for Inter-RAT measurement (step 4):

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 36.508 [33], clause 4.7B.1 Table 4.7B.1-3: MEASUREMENT CONTROL | | | |
| Information Element | Value/remark | Comment | Condition |
| Message Type |  |  |  |
| RRC transaction identifier | 0 |  |  |
| Measurement Identity | 2 |  |  |
| Measurement Reporting Mode |  |  |  |
| - Periodical Reporting/Event Trigger Reporting Mode | Periodical reporting |  |  |
| CHOICE Measurement type | Inter-RAT measurement |  |  |
| - CHOICE Inter-RAT measurement objects | E-UTRA frequency list |  |  |
| - New frequencies |  |  |  |
| - E-UTRA carrier frequency | Downlink EARFCN of E-UTRA Cell |  |  |
| - Measurement bandwidth | 6 |  |  |
| - Inter-RAT reporting quantity |  |  |  |
| - CHOICE system | E-UTRA |  |  |
| - Reporting quantity | Measurement quantity |  |  |
| - CHOICE report criteria | Periodical reporting criteria |  |  |
| - Reporting amount | Infinity |  |  |
| - Reporting interval | 500 ms |  |  |
| - Reporting cell status |  |  |  |
| - CHOICE reported cell | Report cells within active set or within virtual active set or of the other RAT |  |  |
| - Maximum number of reported cells | 1 |  |  |
| DPCH Compressed mode status info | Not present |  |  |

MEASUREMENT REPORT message for inter-RAT test cases

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

##### 8.7.10.5 Test requirements

Table 8.7.10.5.2 and table 8.7.10.5.3 defines the primary level settings including test tolerances for all tests.

For the test to pass, the ratio of successful reported values according to table 8.7.10.5.4 in each test shall be more than 90% with a confidence level of 95%.

Table 8.7.10.5.1: Void

Table 8.7.10.5.2: UTRAN FDD cell specific test parameters  
for E-UTRAN FDD RSRP absolute accuracy tests

|  |  |  |
| --- | --- | --- |
| Parameter | Unit | Cell 1 |
| UTRA RF Channel number | - | Channel 1 |
| CPICH\_Ec/Ior | dB | -10 |
| PCCPCH\_Ec/Ior | dB | -12 |
| SCH\_Ec/Ior | dB | -12 |
| PICH\_Ec/Ior | dB | -15 |
| DCH\_Ec/Ior | dB | Note 1 |
| OCNS\_Ec/Ior | dB | Note 2 |
| Îor/Ioc | dB | -1 |
| Ioc | dBm/ 3.84 MHz | -70 |
| CPICH\_Ec/Io | dB | -13.54 |
| Propagation condition | - | AWGN |
| NOTE 1: The DPCH level is controlled by the power control loop  NOTE 2: The power of the OCNS channel that is added shall make the total power from the cell to be equal to Ior. | | |

Table 8.7.10.5.3: E-UTRAN FDD cell specific test parameters  
for E-UTRAN FDD RSRP absolute accuracy tests

| Parameter | | Unit | Test 1 | Test 2 |
| --- | --- | --- | --- | --- |
| BWchannel | | MHz | 10 | 10 |
| Measurement bandwidth | |  | 22—27 | 22—27 |
| PDCCH/PCFICH/PHICH Reference measurement channel as defined in TS 36.133 A.3.1.2.1 | |  | R.6 FDD | R.6 FDD |
| OCNG Pattern as defined in TS 36.133 A.3.2.1.2 | |  | OP.2 FDD | OP.2 FDD |
| 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\_RANote1 | |
| OCNG\_RBNote1 | |
| Note2 | Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24 | dBm/15 kHz | -89.25 | -117.00 |
| Bands 2, 5, 7, 26 and 27 (Note 5) | -115.00 |
| Band 25 | -113.50 |
| Band 28 | -115.50 |
| Bands 3, 8, 12, 13, 14, 17, 20 and 22 | -114.00 |
| Band 9 | -116.00 |
|  | | dB | 10.00 | -3.20 |
| RSRPNote3 | Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24 | dBm/15 kHz | -79.25 | -120.20 |
| Bands 2, 5, 7, 26 and 27 (Note 5) | -118.20 |
| Band 25 | -116.70 |
| Band 28 | -118.70 |
| Bands 3, 8, 12, 13, 14, 17, 20 and 22 | -117.20 |
| Band 9 | -119.20 |
| IoNote3 | Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24 | dBm/9 MHz | -51.05 | -87.52 |
| Bands 2, 5, 7, 26 and 27 (Note 5) | -85.52 |
| Band 25 | -84.02 |
| Band 28 | -86.02 |
| Bands 3, 8, 12, 13, 14, 17, 20 and 22 | -84.52 |
| Band 9 | -86.52 |
|  | | dB | 10.00 | -3.20 |
| 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 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 assigned E-UTRA channel bandwidth within 865-894 | | | | |

Table 8.7.10.5.4: E-UTRAN FDD RSRP absolute accuracy requirements for the reported values

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Test 1 |  | Test 2 | | | | | |
|  | 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 28 | Band 9 |
| Normal Conditions | | | | | | | | |
| Lowest reported value (Cell 2) | RSRP\_52 | RSRP\_13 | RSRP\_15 | | RSRP\_16 | RSRP\_16 | RSRP\_14 | RSRP\_14 |
| Highest reported value (Cell 2) | RSRP\_71 | RSRP\_28 | RSRP\_30 | | RSRP\_31 | RSRP\_31 | RSRP\_29 | RSRP\_29 |
| Extreme Conditions | | | | | | | | |
| Lowest reported value (Cell 2) | RSRP\_49 | RSRP\_10 | RSRP\_12 | | RSRP\_13 | RSRP\_13 | RSRP\_11 | RSRP\_11 |
| Highest reported value (Cell 2) | RSRP\_74 | RSRP\_31 | RSRP\_33 | | RSRP\_34 | RSRP\_34 | RSRP\_32 | RSRP\_32 |

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

### 8.7.11 E-UTRAN TDD RSRP absolute accuracy (CELL\_DCH)

##### 8.7.11.1 Definition and applicability

The absolute accuracy of RSRP is defined as the RSRP measured from a cell that has different carrier frequency from the serving cell.

The E-UTRAN TDD RSRP absolute accuracy measurement is used for handover between UTRAN FDD and E-UTRAN TDD.

The requirements and this test apply to the combined UTRAN FDD and E-UTRAN TDD UE Release 9 and later.

##### 8.7.11.2 Minimum Requirements

The accuracy requirements for E-UTRA RSRP measurements in CELL\_DCH state shall be the same as the inter-frequency RSRP accuracy requirements in3GPP TS36.133[34], as follows:

- 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 36.133 Annex B.3.3 for a corresponding Band

Table 8.7.11.2.1: E-UTRAN TDD RSRP absolute accuracy

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Accuracy | | Conditions | | | | |
| Normal condition | Extreme condition | Ês/Iot | Io Note 1 range | | | |
| E-UTRA operating band groups Note 3 | Minimum Io | | Maximum Io |
| dB | dB | dB |  | dBm/15kHz Note 2 | dBm/BWChannel | dBm/BWChannel |
| 4.5 | 9 | -6 dB | FDD\_A, TDD\_A | -121 | N/A | -70 |
| FDD\_C, TDD\_C | -120 | N/A | -70 |
| FDD\_D | -119.5 | N/A | -70 |
| FDD\_E, TDD\_E | -119 | N/A | -70 |
| FDD\_F | -118.5 | N/A | -70 |
| FDD\_G | -118 | N/A | -70 |
| FDD\_H | -117.5 | N/A | -70 |
| FDD\_N | -114.5 | N/A | -70 |
| 8 | 11 | -6 dB | FDD\_A, TDD\_A, FDD\_C, TDD\_C, FDD\_D, FDD\_E, TDD\_E, FDD\_F, FDD\_G, FDD\_H, FDD\_N | N/A | -70 | -50 |
| NOTE 1: Io is assumed to have constant EPRE across the bandwidth.  NOTE 2: The condition level is increased by ∆>0, when applicable, as described in in TS 36.521-3 [38] Sections I.4.2 and I.4.3.  NOTE 3: E-UTRA operating band groups are as defined in TS 36.133[34], Section 3.5. | | | | | | |

The normative reference for this requirement is TS 36.133 [34] clause 9.1.3.1.

##### 8.7.11.3 Test purpose

The purpose of this test is to verify that the E-UTRAN TDD RSRP measurement accuracy in CELL\_DCH state, for UE that needs compressed mode to perform E-UTRAN TDD measurements, is within the specified limits. This measurement is for UTRAN FDD to E-UTRAN TDD handover evaluation.

##### 8.7.11.4 Method of test

8.7.11.4.1 Initial conditions

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

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

In the test in Cell\_DCH state compressed mode with purpose "E-UTRAN TDD RSRP Measurement" is applied to measure on E-UTRAN TDD. The compressed mode pattern repeats every 80 ms and uses a gap length of 10 slots. Further details are found in table A.22 in annex A.5 of 3GPP TS 25.101.

Tables 8.7.11.4.1.1 and 8.7.11.4.1.2 define the limits of signal strengths and code powers on the UTRA FDD cell where requirements are applicable. In the measurement control information periodic reporting of E-UTRAN TDD RSRP is indicated to the UE. The E-UTRAN TDD test parameters are given in Table 8.7.11.4.1.3.

Table 8.7.11.4.1.1: General test parameters for E-UTRAN TDD RSRP absolute accuracy tests

|  |  |  |  |
| --- | --- | --- | --- |
| Parameter | Unit | Value | Comment |
| DCH parameters |  | DL Reference Measurement Channel 12.2 kbps | As specified in 3GPP TS 25.101 section A.3.1 |
| Power Control |  | On |  |
| Target quality value on DTCH | BLER | 0.01 |  |
| Active cell |  | Cell 1 | UTRA FDD cell |
| Neighbour cell |  | Cell 2 | E-UTRA TDD cell |
| CP length of cell 2 |  | normal |  |
| Filter coefficient |  | 0 | L3 filtering is not used |
| Compressed mode patterns - E-UTRAN measurement |  | Compressed mode reference pattern 2 Set 5 | As specified in table A.22 3GPP TS 25.101 section A.5 |
| Inter-RAT measurement quantity |  | E-UTRAN TDD RSRP |  |
| Monitored cell list size |  | 1 E-UTRAN TDD neighbour cell | Measurement control information is sent before the compressed mode pattern starts. |

Table 8.7.11.4.1.2: UTRAN FDD cell specific test parameters  
for E-UTRAN TDD RSRP absolute accuracy tests

|  |  |  |
| --- | --- | --- |
| Parameter | Unit | Cell 1 |
| UTRA RF Channel number | - | Channel 1 |
| CPICH\_Ec/Ior | dB | -10 |
| PCCPCH\_Ec/Ior | dB | -12 |
| SCH\_Ec/Ior | dB | -12 |
| PICH\_Ec/Ior | dB | -15 |
| DCH\_Ec/Ior | dB | Note 1 |
| OCNS\_Ec/Ior | dB | Note 2 |
| Îor/Ioc | dB | -1 |
| Ioc | dBm/ 3.84 MHz | -70 |
| CPICH\_Ec/Io | dB | -13.54 |
| Propagation condition | - | AWGN |
| NOTE 1: The DPCH level is controlled by the power control loop  NOTE 2: The power of the OCNS channel that is added shall make the total power from the cell to be equal to Ior. | | |

Table 8.7.11.4.1.3: E-UTRAN TDD cell specific test parameters  
for E-UTRAN TDD RSRP absolute accuracy tests

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter | | Unit | Test 1 | Test 2 |
| E-UTRA RF Channel Number | |  | 1 | 1 |
| BWchannel | | MHz | 10 | 10 |
| Special subframe configurationNote1 | |  | 6 | 6 |
| Uplink-downlink configurationNote1 | |  | 1 | 1 |
| Measurement bandwidth | |  | 22—27 | 22—27 |
| PDCCH/PCFICH/PHICH Reference measurement channel as defined in TS 36.133 A.3.1.2.2 | |  | R.6 TDD | R.6 TDD |
| OCNG Pattern as defined in TS 36.133 A.3.2.2.2 | |  | 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\_RANote2 | |
| OCNG\_RBNote2 | |
| Note3 | Bands 33 ~ 40 | dBm/15 kHz | -88.65 | -117.00 |
| Bands 42 and 43 | -116.00 |
| Bands 41 and 44 | -115.00 |
|  | | dB | 10 | -4 |
| RSRPNote4 | Bands 33 ~ 40 | dBm/15 kHz | -78.65 | -121.00 |
| Bands 42 and 43 | -120.00 |
| Bands 41 and 44 | -119.00 |
| IoNote4 | Bands 33 ~ 40 | dBm/9 MHz | -50.45 | -87.76 |
| Bands 42 and 43 | -86.76 |
| Bands 41 and 44 | -85.76 |
|  | | dB | 10.0 | -4.0 |
| 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 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. | | | | |

8.7.11.4.2 Procedure

1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2. The RF parameters for Test 1 are set up according to table 8.7.11.5.2 and table 8.7.11. 5.3.

2) If compressed mode is required, SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message (compressed gaps). Otherwise, Go to Step4.

3) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

4) SS shall transmit MEASUREMENT CONTROL message for inter RAT measurement. In the measurment control information periodic reporting of the E-UTRAN TDD RSRP is requested to the UE.

5) After sending the measurement control message, wait for 10s, UE shall transmit periodically MEASUREMENT REPORT messages.

6) After 10s wait in step 5, SS shall check E-UTRAN TDD RSRP value of Cell 2 in periodical MEASUREMENT REPORT messages. E-UTRAN TDD RSRP power of Cell 2 reported by UE is compared to actual E-UTRAN TDD RSRP value of Cell 2 for each MEASUREMENT REPORT message. If the UE fails to report the measurement values including neighbor cell RSRP, the number of failure tests is increased by one.

7) SS shall check MEASUREMENT REPORT messages transmitted by UE until statistical significance according to Tables G.2.3-1 in TS36.521-3 [38] is achieved.

8) The RF parameters are set up according to table 8.7.11.5.3 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 3s and ignore the MEASUREMENT REPORT messages during this period. Then, step 5) to 7) above are repeated.

9) The SS shall transmit RRC CONNECTION RELEASE message.

10) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

All messages indicated above shall use the same content as described in default message content in clause 9 of 34.108 [3] and clause 4.4 and 4.7B.1 of TS 36.508 [33], with the following exceptions:

PHYSICAL CHANNEL RECONFIGURATION message for Inter-RAT measurement (step 2):

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 36.508 [33], clause 4.7B.1 Table 4.7B.1-5: PHYSICAL CHANNEL RECONFIGURATION | | | |
| Information Element | Value/remark | Comment | Condition |
| Message Type |  |  |  |
| RRC transaction identifier | 0 |  |  |
| Downlink information common for all radio links |  |  |  |
| - Downlink DPCH info common for all RL | Not Present |  |  |
| - DPCH compressed mode info |  |  |  |
| - TGPSI | 1 |  |  |
| - TGPS Status Flag | Activate |  |  |
| - TGCFN | (Current CFN + (256 – TTI/10msec))mod 256 |  |  |
| - Transmission gap pattern sequence configuration parameters | 1 |  |  |
| - TGMP | E-UTRA measurement |  |  |
| - TGPRC | Infinity |  |  |
| - TGSN | 10 |  |  |
| - TGL1 | 10 |  |  |
| - TGL2 | Not Present |  |  |
| - TGD | 0 |  |  |
| - TGPL1 | 8 |  |  |
| - TGPL2 | Not Present |  |  |
| - RPP | mode 0 |  |  |
| - ITP | mode 0 |  |  |
| - CHOICE UL/DL Mode | UL and DL |  |  |
| - Downlink compressed mode method | SF/2 |  |  |
| - Uplink compressed mode method | SF/2 |  |  |
| - Downlink frame type | B |  |  |
| - DeltaSIR1 | 3.0 |  |  |
| - DeltaSIRAfter1 | 3.0 |  |  |
| - DeltaSIR2 | Not Present |  |  |
| - DeltaSIRAfter2 | Not Present |  |  |
| - N identify abort | Not Present |  |  |
| - T Reconfirm abort | Not Present |  |  |
| - TX Diversity mode | Not Present |  |  |
| - SSDT information | Not Present |  |  |
| - Default DPCH Offset Value | Not Present |  |  |
| Downlink information for each radio link | Not Present |  |  |
| MBMS PL Service Restriction Information | Not Present |  |  |

MEASUREMENT CONTROL message for Inter-RAT measurement (step 4):

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 36.508 [33], clause 4.7B.1 Table 4.7B.1-3: MEASUREMENT CONTROL | | | |
| Information Element | Value/remark | Comment | Condition |
| Message Type |  |  |  |
| RRC transaction identifier | 0 |  |  |
| Measurement Identity | 2 |  |  |
| Measurement Reporting Mode |  |  |  |
| - Periodical Reporting/Event Trigger Reporting Mode | Periodical reporting |  |  |
| CHOICE Measurement type | Inter-RAT measurement |  |  |
| - CHOICE Inter-RAT measurement objects | E-UTRA frequency list |  |  |
| - New frequencies |  |  |  |
| - E-UTRA carrier frequency | Downlink EARFCN of E-UTRA Cell |  |  |
| - Measurement bandwidth | 6 |  |  |
| - Inter-RAT reporting quantity |  |  |  |
| - CHOICE system | E-UTRA |  |  |
| - Reporting quantity | Measurement quantity |  |  |
| - CHOICE report criteria | Periodical reporting criteria |  |  |
| - Reporting amount | Infinity |  |  |
| - Reporting interval | 500 ms |  |  |
| - Reporting cell status |  |  |  |
| - CHOICE reported cell | Report cells within active set or within virtual active set or of the other RAT |  |  |
| - Maximum number of reported cells | 1 |  |  |
| DPCH Compressed mode status info | Not present |  |  |

MEASUREMENT REPORT message for inter-RAT test cases

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

##### 8.7.11.5 Test requirements

Table 8.7.11.5.2 and table 8.7.11.5.3 define the primary level settings including test tolerances for all tests.

For the test to pass, the ratio of successful reported values according to table 8.7.10.5.4 in each test shall be more than 90% with a confidence level of 95%.

Table 8.7.11.5.1: Void

Table 8.7.11.5.2: UTRAN FDD cell specific test parameters  
for E-UTRAN TDD RSRP absolute accuracy tests

|  |  |  |
| --- | --- | --- |
| Parameter | Unit | Cell 1 |
| UTRA RF Channel number | - | Channel 1 |
| CPICH\_Ec/Ior | dB | -10 |
| PCCPCH\_Ec/Ior | dB | -12 |
| SCH\_Ec/Ior | dB | -12 |
| PICH\_Ec/Ior | dB | -15 |
| DCH\_Ec/Ior | dB | Note 1 |
| OCNS\_Ec/Ior | dB | Note 2 |
| Îor/Ioc | dB | -1 |
| Ioc | dBm/ 3.84 MHz | -70 |
| CPICH\_Ec/Io | dB | -13.54 |
| Propagation condition | - | AWGN |
| NOTE 1: The DPCH level is controlled by the power control loop  NOTE 2: The power of the OCNS channel that is added shall make the total power from the cell to be equal to Ior. | | |

Table 8.7.11.5.3: E-UTRAN TDD cell specific test parameters  
for E-UTRAN TDD RSRP absolute accuracy tests

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter | | Unit | Test 1 | Test 2 |
| E-UTRA RF Channel Number | |  | 1 | 1 |
| BWchannel | | MHz | 10 | 10 |
| Special subframe configurationNote1 | |  | 6 | 6 |
| Uplink-downlink configurationNote1 | |  | 1 | 1 |
| Measurement bandwidth | |  | 22—27 | 22—27 |
| PDCCH/PCFICH/PHICH Reference measurement channel as defined in TS 36.133 A.3.1.2.2 | |  | R.6 TDD | R.6 TDD |
| OCNG Pattern as defined in TS 36.133 A.3.2.2.2 | |  | 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\_RANote2 | |
| OCNG\_RBNote2 | |
| Note3 | Bands 33 ~ 40 | dBm/15 kHz | -89.25 | -117.00 |
| Bands 42 and 43 | -116.00 |
| Bands 41 and 44 | -115.00 |
|  | | dB | 10.00 | -3.20 |
| RSRPNote4 | Bands 33 ~ 40. | dBm/15 kHz | -79.25 | -120.20 |
| Bands 42 and 43 | -119.20 |
| Bands 41 and 44 | -118.20 |
| IoNote4 | Bands 33 ~ 40 | dBm/9 MHz | -51.05 | -87.52 |
| Bands 42 and 43 | -86.52 |
| Bands 41 and 44 | -85.52 |
|  | | 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 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 8.7.11.5.4: E-UTRAN TDD RSRP absolute accuracy requirements for the reported values

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Test 1 | Test 2 | | |
|  | All bands | Bands 33 ~ 40 | Bands 42 and 43 | Bands 41 and 44 |
| Normal Conditions | | | | |
| Lowest reported value (Cell 2) | RSRP\_52 | RSRP\_13 | RSRP\_14 | RSRP\_15 |
| Highest reported value (Cell 2) | RSRP\_71 | RSRP\_28 | RSRP\_29 | RSRP\_30 |
| Extreme Conditions | | | | |
| Lowest reported value (Cell 2) | RSRP\_49 | RSRP\_10 | RSRP\_11 | RSRP\_12 |
| Highest reported value (Cell 2) | RSRP\_74 | RSRP\_31 | RSRP\_32 | RSRP\_33 |

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

### 8.7.12 E-UTRAN FDD RSRQ absolute accuracy (CELL\_DCH)

##### 8.7.12.1 Definition and applicability

The absolute accuracy of RSRQ is defined as the RSRQ measured from a cell that has different carrier frequency from the serving cell.

The E-UTRAN FDD RSRQ absolute accuracy measurement is used for handover between UTRAN FDD and E-UTRAN FDD.

The requirements and this test apply to the combined UTRAN FDD and E-UTRAN FDD UE for Rel.9 and later.

##### 8.7.12.2 Minimum Requirements

The accuracy requirements for E-UTRA RSRQ measurements in CELL\_DCH state shall be the same as the inter-frequency RSRQ accuracy requirements in3GPP TS36.133[34], as follows:

- Cell specific reference signals are transmitted either from one, two or four antenna ports.

- Conditions defined in TS 36.101 [37] clause 7.3 for reference sensitivity are fulfilled.

- RSRP|dBm according to TS 36.133 Annex B.3.3 [34] for a corresponding Band.

Table 8.7.12.2.1: E-UTRAN FDD RSRQ absolute accuracy

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Accuracy | | Conditions | | | |
| Normal condition | Extreme condition | Ês/Iot | Io Note 1 range | | |
| E-UTRA operating band groups Note 4 | Minimum Io | Maximum Io |
| dB | dB | dB |  | dBm/15kHz Note 3 | dBm/BWChannel |
| 2.5 | 4 | -3 dB | FDD\_A, TDD\_A | -121 | -50 |
| FDD\_C, TDD\_C | -120 | -50 |
| FDD\_D | -119.5 | -50 |
| FDD\_E, TDD\_E | -119 | -50 |
| FDD\_F | -118.5 | -50 |
| FDD\_G | -118 | -50 |
| FDD\_H | -117.5 | -50 |
| FDD\_N | -114.5 | -50 |
| 3.5 | 4 | -6 dB | Note 2 | Note 2 | Note 2 |
| NOTE 1: Io is assumed to have constant EPRE across the bandwidth.  NOTE 2: The same bands and the same Io conditions for each band apply for this requirement as for the corresponding highest accuracy requirement.  NOTE 3: The condition level is increased by ∆>0, when applicable, as described in TS 36.521-3 [38] Sections I.4.2 and I.4.3.  NOTE 4: E-UTRA operating band groups are as defined in TS36.133 [34], Section 3.5. | | | | | |

The normative reference for this requirement is TS 25.133 [2] clause 9.1.4b and A.9.1.12.

##### 8.7.12.3 Test purpose

The purpose of this test is to verify that the E-UTRAN FDD RSRQ measurement accuracy in CELL\_DCH state, for UE that needs compressed mode to perform E-UTRAN FDD measurements, is within the specified limits. This measurement is for UTRAN FDD to E-UTRAN FDD handover evaluation.

##### 8.7.12.4 Method of test

8.7.12.4.1 Initial conditions

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

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

In the test in Cell\_DCH state compressed mode with purpose "E-UTRAN FDD RSRQ Measurement" is applied to measure on E-UTRAN FDD. The compressed mode pattern repeats every 80 ms and uses a gap length of 10 slots. Further details are found in TS 25.101 annex A.5.

Tables 8.7.12.4.1.1 and 8.7.12.4.1.2 define the limits of signal strengths and code powers on the UTRA FDD cell where the UTRA Carrier RSSI absolute accuracy requirements are applicable. In the measurement control information periodic reporting of E-UTRAN FDD RSRQ is indicated to the UE. The E-UTRAN FDD test parameters are given in Table 8.7.12.4.1.3.

Table 8.7.12.4.1.1: General test parameters for E-UTRAN FDD RSRQ absolute accuracy tests

|  |  |  |  |
| --- | --- | --- | --- |
| Parameter | Unit | Value | Comment |
| DCH parameters |  | DL Reference Measurement Channel 12.2 kbps | As specified in TS 25.101 section A.3.1 |
| Power Control |  | On |  |
| Target quality value on DTCH | BLER | 0.01 |  |
| Active cell |  | Cell 1 | UTRA FDD cell |
| Neighbour cell |  | Cell 2 | E-UTRA FDD cell |
| CP length of cell 2 |  | normal |  |
| Filter coefficient |  | 0 | L3 filtering is not used |
| Compressed mode patterns - E-UTRAN measurement |  | Compressed mode reference pattern 2 Set 5 | As specified in table A.22 TS 25.101 section A.5 |
| Inter-RAT measurement quantity |  | E-UTRAN FDD RSRQ |  |
| Monitored cell list size |  | 1 E-UTRAN FDD neighbour cell | Measurement control information is sent before the compressed mode pattern starts. |

Table 8.7.12.4.1.2: UTRAN FDD cell specific test parameters  
for E-UTRAN FDD RSRQ absolute accuracy tests

|  |  |  |
| --- | --- | --- |
| Parameter | Unit | Cell 1 |
| UTRA RF Channel number | - | Channel 1 |
| CPICH\_Ec/Ior | dB | -10 |
| PCCPCH\_Ec/Ior | dB | -12 |
| SCH\_Ec/Ior | dB | -12 |
| PICH\_Ec/Ior | dB | -15 |
| DCH\_Ec/Ior | dB | Note 1 |
| OCNS\_Ec/Ior | dB | Note 2 |
| Îor/Ioc | dB | -1 |
| Ioc | dBm/ 3.84 MHz | -70 |
| CPICH\_Ec/Io | dB | -13.54 |
| Propagation condition | - | AWGN |
| NOTE 1: The DPCH level is controlled by the power control loop  NOTE 2: The power of the OCNS channel that is added shall make the total power from the cell to be equal to Ior. | | |

Table 8.7.12.4.1.3: E-UTRAN FDD cell specific test parameters  
for E-UTRAN FDD RSRQ absolute accuracy tests

| Parameter | | Unit | Test 1 | Test 2 | Test 3 |
| --- | --- | --- | --- | --- | --- |
| BWchannel | | MHz | 10 | 10 | 10 |
| Measurement bandwidth | |  | 22—27 | 22—27 | 22—27 |
| PDCCH/PCFICH/PHICH Reference measurement channel as defined in TS 36.133[34] A.3.1.2.1 | |  | R.6 FDD | R.6 FDD | R.6 FDD |
| OCNG Pattern as defined in TS 36.133[34] A.3.2.1.2 | |  | OP.2 FDD | OP.2 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\_RBNote1 | |
| Note2 | Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24. | dBm/15 kHz | -80.00 | -104.70 | -119.50 |
| Bands 2, 5, 7, 26 and 27 (Note 5) | -117.50 |
| Band 25 | -116.00 |
| Band 28 | -118.00 |
| Bands 3, 8, 12, 13, 14, 17, 20 and 22 | -116.50 |
| Band 9 | -118.50 |
|  | | dB | -1.75 | -4.0 | -4.0 |
| RSRPNote3 | Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24 | dBm/15 kHz | -81.75 | -108.70 | -123.50 |
| Bands 2, 5, 7, 26 and 27 (Note 5) | -121.50 |
| Band 25 | -120.00 |
| Band 28 | -122.00 |
| Bands 3, 8, 12, 13, 14, 17, 2 and 0 22 | -120.50 |
| Band 9 | -122.50 |
| RSRQNote3 | Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24 | dB | -14.76 | -16.25 | -16.25 |
| Bands 2, 5, 7, 26 and 27 (Note 5) |
| Band 25 |
| Band 28 |
| Bands 3, 8, 12, 13, 14, 17, 20 and 22 |
| Band 9 |
| IoNote3 | Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24 | dBm/9 MHz | -50.00 | -75.46 | -90.26 |
| Bands 2, 5, 7, 26 and 27 (Note 5) | -88.26 |
| Band 25 | -86.76 |
| Band 28 | -88.76 |
| Bands 3, 8, 12, 13, 14, 17, 20 and 22 | -87.26 |
| Band 9 | -89.26 |
|  | | 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 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 assigned E-UTRA channel bandwidth within 865-894 | | | | | |

8.7.12.4.2 Test Procedure

1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2. The RF parameters for Test 1 are set up according to tables 8.7.12.5.2 and 8.7.12. 5.3.

2) If compressed mode is required, SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message (compressed gaps). Otherwise, Go to Step4.

3) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message (compressed gaps).

4) SS shall transmit MEASUREMENT CONTROL message for inter RAT measurement. In the measurment control information periodic reporting of the E-UTRAN FDD RSRQ is requested to the UE.

5) After sending the measurement control message, wait for 10s, UE shall transmit periodically MEASUREMENT REPORT messages.

6) After 10s wait in step 5, SS shall check E-UTRAN FDD RSRQ value of Cell 2 in periodical MEASUREMENT REPORT messages. The E-UTRAN FDD RSRQ value of Cell 2 reported by UE is compared to actual E-UTRAN FDD RSRQ value of Cell 2 for each MEASUREMENT REPORT message. If the UE fails to report the measurement values including neighbor cell RSRQ, the number of failure tests is increased by one.

7) SS shall check MEASUREMENT REPORT messages transmitted by UE until statistical significance according to Tables G.2.3-1 in TS36.521-3 [38] is achieved.

8) The RF parameters are set up according to table 8.7.12. 5.3 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 3s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 5) to 7) above are repeated.

9) The RF parameters are set up according to table 8.7.12. 5.3 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 3s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 5) to 7) above are repeated.

10) The SS shall transmit RRC CONNECTION RELEASE message.

11) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

All messages indicated above shall use the same content as described in default message content in clause 9 of TS 34.108 [3] and clause 4.4 and 4.7B.1 of TS 36.508 [33], with the following exceptions:

PHYSICAL CHANNEL RECONFIGURATION message for Inter-RAT measurement (step 2):

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 36.508 [33], clause 4.7B.1 Table 4.7B.1-5: PHYSICAL CHANNEL RECONFIGURATION | | | |
| Information Element | Value/remark | Comment | Condition |
| Message Type |  |  |  |
| RRC transaction identifier | 0 |  |  |
| Downlink information common for all radio links |  |  |  |
| - Downlink DPCH info common for all RL | Not Present |  |  |
| - DPCH compressed mode info |  |  |  |
| - TGPSI | 1 |  |  |
| - TGPS Status Flag | Activate |  |  |
| - TGCFN | (Current CFN + (256 – TTI/10msec))mod 256 |  |  |
| - Transmission gap pattern sequence configuration parameters | 1 |  |  |
| - TGMP | E-UTRA measurement |  |  |
| - TGPRC | Infinity |  |  |
| - TGSN | 10 |  |  |
| - TGL1 | 10 |  |  |
| - TGL2 | Not Present |  |  |
| - TGD | 0 |  |  |
| - TGPL1 | 8 |  |  |
| - TGPL2 | Not Present |  |  |
| - RPP | mode 0 |  |  |
| - ITP | mode 0 |  |  |
| - CHOICE UL/DL Mode | UL and DL |  |  |
| - Downlink compressed mode method | SF/2 |  |  |
| - Uplink compressed mode method | SF/2 |  |  |
| - Downlink frame type | B |  |  |
| - DeltaSIR1 | 3.0 |  |  |
| - DeltaSIRAfter1 | 3.0 |  |  |
| - DeltaSIR2 | Not Present |  |  |
| - DeltaSIRAfter2 | Not Present |  |  |
| - N identify abort | Not Present |  |  |
| - T Reconfirm abort | Not Present |  |  |
| - TX Diversity mode | Not Present |  |  |
| - SSDT information | Not Present |  |  |
| - Default DPCH Offset Value | Not Present |  |  |
| Downlink information for each radio link | Not Present |  |  |
| MBMS PL Service Restriction Information | Not Present |  |  |

MEASUREMENT CONTROL message for Inter-RAT measurement (step 4):

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 36.508 [33], clause 4.7B.1 Table 4.7B.1-3: MEASUREMENT CONTROL | | | |
| Information Element | Value/remark | Comment | Condition |
| Message Type |  |  |  |
| RRC transaction identifier | 0 |  |  |
| Measurement Identity | 2 |  |  |
| Measurement Reporting Mode |  |  |  |
| - Periodical Reporting/Event Trigger Reporting Mode | Periodical reporting |  |  |
| CHOICE Measurement type | Inter-RAT measurement |  |  |
| - CHOICE Inter-RAT measurement objects | E-UTRA frequency list |  |  |
| - New frequencies |  |  |  |
| - E-UTRA carrier frequency | Downlink EARFCN of E-UTRA Cell |  |  |
| - Measurement bandwidth | 6 |  |  |
| - Inter-RAT measurement quantity |  |  |  |
| - CHOICE system | E-UTRA |  |  |
| - Measurement quantity | RSRQ |  |  |
| - Inter-RAT reporting quantity |  |  |  |
| - CHOICE system | E-UTRA |  |  |
| - Reporting quantity | Measurement quantity |  |  |
| - CHOICE report criteria | Periodical reporting criteria |  |  |
| - Reporting amount | Infinity |  |  |
| - Reporting interval | 500 ms |  |  |
| - Reporting cell status |  |  |  |
| - CHOICE reported cell | Report cells within active set or within virtual active set or of the other RAT |  |  |
| - Maximum number of reported cells | 1 |  |  |
| DPCH Compressed mode status info | Not present |  |  |

MEASUREMENT REPORT message for inter-RAT test cases

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

##### 8.7.12.5 Test requirements

Table 8.7.12.5.2 and table 8.7.12.5.3 define the primary level settings including test tolerances for all tests.

For the test to pass, the ratio of successful reported values according to table 8.7.12.5.4 in each test shall be more than 90% with a confidence level of 95%.

Table 8.7.12.5.1: Void

Table 8.7.12.5.2: UTRAN FDD cell specific test parameters  
for E-UTRAN FDD RSRQ absolute accuracy tests

|  |  |  |
| --- | --- | --- |
| Parameter | Unit | Cell 1 |
| UTRA RF Channel number | - | Channel 1 |
| CPICH\_Ec/Ior | dB | -10 |
| PCCPCH\_Ec/Ior | dB | -12 |
| SCH\_Ec/Ior | dB | -12 |
| PICH\_Ec/Ior | dB | -15 |
| DCH\_Ec/Ior | dB | Note 1 |
| OCNS\_Ec/Ior | dB | Note 2 |
| Îor/Ioc | dB | -1 |
| Ioc | dBm/ 3.84 MHz | -70 |
| CPICH\_Ec/Io | dB | -13.54 |
| Propagation condition | - | AWGN |
| NOTE 1: The DPCH level is controlled by the power control loop  NOTE 2: The power of the OCNS channel that is added shall make the total power from the cell to be equal to Ior. | | |

Table 8.7.12.5.3: E-UTRAN FDD cell specific test parameters  
for E-UTRAN FDD RSRQ absolute accuracy tests

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Parameter | | Unit | Test 1 | Test 2 | Test 3 |
| BWchannel | | MHz | 10 | 10 | 10 |
| Measurement bandwidth | |  | 22—27 | 22—27 | 22—27 |
| PDCCH/PCFICH/PHICH Reference measurement channel as defined in TS 36.133 A.3.1.2.1 | |  | R.6 FDD | R.6 FDD | R.6 FDD |
| OCNG Pattern as defined in TS 36.133 A.3.2.1.2 | |  | OP.2 FDD | OP.2 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\_RBNote1 | |
| Note2 | Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24 | dBm/15 kHz | -81.10 | -104.70 | -119. 20 |
| Bands 2, 5, 7, 26 and 27 (Note 5) | -117.20 |
| Band 25 | -115.70 |
| Band 28 | -117.70 |
| Bands 3, 8, 12, 13, 14, 17, 20 and 22 | -11620 |
| Band 9 | -118.20 |
|  | | dB | -1.75 | -3.20 | -3.20 |
| RSRPNote3 | Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24 | dBm/15 kHz | -82.85 | -107.90 | -122.40 |
| Bands 2, 5, 7, 26 and 27 (Note 5) | -120.40 |
| Band 25 | -118.90 |
| Band 28 | -120.90 |
| Bands 3, 8, 12, 13, 14, 17, 20 and 22 | -119.40 |
| Band 9 | -121.40 |
| RSRQNote3 | Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24 | dB | -14.76 | -15.69 | -15.69 |
| Bands 2, 5 and 7, 26 and 27 (Note 5) |
| Band 25 |
| Band 28 |
| Bands 3, 8, 12, 13, 14, 17, 20 and 22 |
| Band 9 |
| IoNote3 | Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24 | dBm/9 MHz | -51.10 | -75.22 | -89.72 |
| Bands 2, 5, 7, 26 and 27 (Note 5) | -87.72 |
| Band 25 | -86.22 |
| Band 28 | -88.22 |
| Bands 3, 8, 12, 13, 14, 17, 20 and 22 | -86.72 |
| Band 9 | -88.72 |
|  | | dB | -1.75 | -3.20 | -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 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 assigned E-UTRA channel bandwidth within 865-894 | | | | | |

Table 8.7.12.5.4: E-UTRAN FDD RSRQ 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\_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 |

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

### 8.7.13 E-UTRAN TDD RSRQ absolute accuracy (CELL\_DCH)

##### 8.7.13.1 Definition and applicability

The absolute accuracy of RSRQ is defined as the RSRQ measured from a cell that has different carrier frequency from the serving cell.

The E-UTRAN TDD RSRQ absolute accuracy measurement is used for handover between UTRAN FDD and E-UTRAN TDD.

The requirements and this test apply to the combined UTRAN FDD and E-UTRAN TDD UE for Rel.9 and later.

##### 8.7.13.2 Minimum Requirements

The accuracy requirements for E-UTRA RSRQ measurements in CELL\_DCH state shall be the same as the inter-frequency RSRQ accuracy requirements in3GPP TS36.133[34], as follows:

- 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 36.133 Annex B.3.3 for a corresponding Band.

Table 8.7.13.2.1: E-UTRAN TDD RSRQ absolute accuracy

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Accuracy | | Conditions | | | | |
| Normal condition | Extreme condition | Ês/Iot | Io Note 1 range | | | |
| E-UTRA operating band groups Note 3 | Minimum Io | | Maximum Io |
| dB | dB | dB |  | dBm/15kHz Note 2 | dBm/BWChannel | dBm/BWChannel |
| 4.5 | 9 | -6 dB | FDD\_A, TDD\_A | -121 | N/A | -70 |
| FDD\_C, TDD\_C | -120 | N/A | -70 |
| FDD\_D | -119.5 | N/A | -70 |
| FDD\_E, TDD\_E | -119 | N/A | -70 |
| FDD\_F | -118.5 | N/A | -70 |
| FDD\_G | -118 | N/A | -70 |
| FDD\_H | -117.5 | N/A | -70 |
| FDD\_N | -114.5 | N/A | -70 |
| 8 | 11 | -6 dB | FDD\_A, TDD\_A, FDD\_C, TDD\_C, FDD\_D, FDD\_E, TDD\_E, FDD\_F, FDD\_G, FDD\_H, FDD\_N | N/A | -70 | -50 |
| NOTE 1: Io is assumed to have constant EPRE across the bandwidth.  NOTE 2: The condition level is increased by ∆>0, when applicable, as described in TS 36.521-3 [38] Sections I.4.2 and I.4.3.  NOTE 3: E-UTRA operating band groups are as defined in TS 36.133 [34] Section 3.5. | | | | | | |

The normative reference for this requirement is TS 36.133 [34] clause 9.1.3.1.

##### 8.7.13.3 Test purpose

The purpose of this test is to verify that the E-UTRAN TDD RSRQ measurement accuracy in CELL\_DCH state, for UE that needs compressed mode to perform E-UTRAN TDD measurements, is within the specified limits. This measurement is for UTRAN FDD to E-UTRAN TDD handover evaluation.

##### 8.7.13.4 Method of test

8.7.13.4.1 Initial conditions

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

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

In the test in Cell\_DCH state compressed mode with purpose "E-UTRAN TDD RSRQ Measurement" is applied to measure on E-UTRAN TDD. The compressed mode pattern repeats every 80 ms and uses a gap length of 10 slots. Further details are found in table A.22 in annex A.5 of 3GPP TS 25.101.

Tables 8.7.13.4.1.1 and 8.7.13.4.1.2 define the limits of signal strengths and code powers on the UTRA FDD cell where the UTRA Carrier RSSI absolute accuracy requirements are applicable. In the measurement control information periodic reporting of E-UTRAN TDD RSRQ is indicated to the UE. The E-UTRAN TDD test parameters are given in Table 8.7.13.4.1.3.

Table 8.7.13.4.1.1: General test parameters for E-UTRAN TDD RSRQ absolute accuracy tests

|  |  |  |  |
| --- | --- | --- | --- |
| Parameter | Unit | Value | Comment |
| DCH parameters |  | DL Reference Measurement Channel 12.2 kbps | As specified in 3GPP TS 25.101 section A.3.1 |
| Power Control |  | On |  |
| Target quality value on DTCH | BLER | 0.01 |  |
| Active cell |  | Cell 1 | 1.28Mcps UTRA TDD cell |
| Neighbour cell |  | Cell 2 | E-UTRA TDD cell |
| CP length of cell 2 |  | Normal |  |
| Uplink-downlink configuration of cell 2 |  | 1 | As specified in table 4.2.2 in TS 36.211 [35] |
| Special subframe configuration of cell 2 |  | 6 | As specified in table 4.2.1 in TS 36.211 [35] |
| Filter coefficient |  | 0 | L3 filtering is not used |
| Compressed mode patterns - E-UTRAN measurement |  | Compressed mode reference pattern 2 Set 5 | As specified in table A.22 3GPP TS 25.101 section A.5 |
| Inter-RAT measurement quantity |  | E-UTRAN TDD RSRQ |  |
| Monitored cell list size |  | 1 E-UTRAN TDD neighbour cell | Measurement control information is sent before the compressed mode pattern starts. |

Table 8.7.13.4.1.2: UTRAN FDD cell specific test parameters  
for E-UTRAN TDD RSRQ absolute accuracy tests

|  |  |  |
| --- | --- | --- |
| Parameter | Unit | Cell 1 |
| UTRA RF Channel number | - | Channel 1 |
| CPICH\_Ec/Ior | dB | -10 |
| PCCPCH\_Ec/Ior | dB | -12 |
| SCH\_Ec/Ior | dB | -12 |
| PICH\_Ec/Ior | dB | -15 |
| DCH\_Ec/Ior | dB | Note 1 |
| OCNS\_Ec/Ior | dB | Note 2 |
| Îor/Ioc | dB | -1 |
| Ioc | dBm/ 3.84 MHz | -70 |
| CPICH\_Ec/Io | dB | -13.54 |
| Propagation condition | - | AWGN |
| NOTE 1: The DPCH level is controlled by the power control loop  NOTE 2: The power of the OCNS channel that is added shall make the total power from the cell to be equal to Ior. | | |

Table 8.7.13.4.1.3: E-UTRA TDD RSRQ measurement tests parameters

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Parameter | | Unit | Test 1 | Test 2 | Test 3 |
| E-UTRA RF Channel Number | |  | 2 | 2 | 2 |
| BWchannel | | MHz | 10 | 10 | 10 |
| Measurement bandwidth | |  | 22—27 | 22—27 | 22—27 |
| PDCCH/PCFICH/PHICH Reference measurement channel defined in A.2.2 in TS 36.521-3 [38] | |  | R.6 TDD | R.6 TDD | R.6 TDD |
| OCNG Patterns defined in D.2.2 (OP.2 TDD) in TS 36.521-3 [38] | |  | OP.2 TDD | OP.2 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\_RANote1 | |
| OCNG\_RBNote1 | |
| Note2 | Bands 33 – 40 | dBm/15 kHz | -80 | -104.70 | -119.50 |
| Bands 42 and 43 | -118.50 |
| Bands 41 and 44 | -117.50 |
|  | | dB | -1.75 | -4.0 | -4.0 |
| RSRPNote3 | Bands 33 – 40 | dBm/15 kHz | -81.75 | -108.70 | -123.50 |
| Bands 42 and 43 | -122.50 |
| Bands 41 and 44 | -121.50 |
| RSRQNote3 | Bands 33 – 43 | dB | -14.76 | -16.25 | -16.25 |
| IoNote3 | Bands 33 – 40 | dBm/9 MHz | -50 | -75.46 | -90.26 |
| Bands 42 and 43 | -89.26 |
| Bands 41 and 44 | -88.26 |
|  | | 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 to be fulfilled.  NOTE 3: RSRP, RSRQ 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. | | | | | |

8.7.13.4.2 Test Procedure

1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2. The RF parameters for Test 1 are set up according to tables 8.7.13.5.2 and 8.7.13.5.3.

2) If compressed mode is required, SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message(compressed gaps). Otherwise, Go to Step4.

3) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

4) SS shall transmit MEASUREMENT CONTROL message for inter RAT measurement. In the measurment control information periodic reporting of the E-UTRAN TDD RSRQ is requested to the UE.

5) After sending the measurement control message, wait for 10s, UE shall transmit periodically MEASUREMENT REPORT messages.

6) After 10s wait in step 5, SS shall check E-UTRAN TDD RSRQ value of Cell 2 in MEASUREMENT REPORT messages. The E-UTRAN TDD RSRQ value of Cell 2 reported by UE is compared to actual E-UTRAN TDD RSRQ value of Cell 2 for each MEASUREMENT REPORT message. If the UE fails to report the measurement values including neighbor cell RSRQ, the number of failure tests is increased by one.

7) SS shall check MEASUREMENT REPORT messages transmitted by UE until statistical significance according to Tables G.2.3-1 in TS36.521-3 [38] is achieved.

8) The RF parameters are set up according to table 8.7.13.5.3 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 3s and ignore the MEASUREMENT REPORT messages during this period. Then, step 5) to 7) above are repeated.

9) The RF parameters are set up according to table 8.7.13.5.3 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 3s and ignore the MEASUREMENT REPORT messages during this period. Then, step 5) to 7) above are repeated.

10) The SS shall transmit RRC CONNECTION RELEASE message.

11) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

All messages indicated above shall use the same content as described in default message content in clause 9 of TS 34.108 [3] and clause 4.4 and 4.7B.1 of TS 36.508 [33], with the following exceptions:

PHYSICAL CHANNEL RECONFIGURATION message for Inter-RAT measurement (step 2):

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 36.508 [33], clause 4.7B.1 Table 4.7B.1-5: PHYSICAL CHANNEL RECONFIGURATION | | | |
| Information Element | Value/remark | Comment | Condition |
| Message Type |  |  |  |
| RRC transaction identifier | 0 |  |  |
| Downlink information common for all radio links |  |  |  |
| - Downlink DPCH info common for all RL | Not Present |  |  |
| - DPCH compressed mode info |  |  |  |
| - TGPSI | 1 |  |  |
| - TGPS Status Flag | Activate |  |  |
| - TGCFN | (Current CFN + (256 – TTI/10msec))mod 256 |  |  |
| - Transmission gap pattern sequence configuration parameters | 1 |  |  |
| - TGMP | E-UTRA measurement |  |  |
| - TGPRC | Infinity |  |  |
| - TGSN | 10 |  |  |
| - TGL1 | 10 |  |  |
| - TGL2 | Not Present |  |  |
| - TGD | 0 |  |  |
| - TGPL1 | 8 |  |  |
| - TGPL2 | Not Present |  |  |
| - RPP | mode 0 |  |  |
| - ITP | mode 0 |  |  |
| - CHOICE UL/DL Mode | UL and DL |  |  |
| - Downlink compressed mode method | SF/2 |  |  |
| - Uplink compressed mode method | SF/2 |  |  |
| - Downlink frame type | B |  |  |
| - DeltaSIR1 | 3.0 |  |  |
| - DeltaSIRAfter1 | 3.0 |  |  |
| - DeltaSIR2 | Not Present |  |  |
| - DeltaSIRAfter2 | Not Present |  |  |
| - N identify abort | Not Present |  |  |
| - T Reconfirm abort | Not Present |  |  |
| - TX Diversity mode | Not Present |  |  |
| - SSDT information | Not Present |  |  |
| - Default DPCH Offset Value | Not Present |  |  |
| Downlink information for each radio link | Not Present |  |  |
| MBMS PL Service Restriction Information | Not Present |  |  |

MEASUREMENT CONTROL message for Inter-RAT measurement (step 4):

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 36.508 [33], clause 4.7B.1 Table 4.7B.1-3: MEASUREMENT CONTROL | | | |
| Information Element | Value/remark | Comment | Condition |
| Message Type |  |  |  |
| RRC transaction identifier | 0 |  |  |
| Measurement Identity | 2 |  |  |
| Measurement Reporting Mode |  |  |  |
| - Periodical Reporting/Event Trigger Reporting Mode | Periodical reporting |  |  |
| CHOICE Measurement type | Inter-RAT measurement |  |  |
| - CHOICE Inter-RAT measurement objects | E-UTRA frequency list |  |  |
| - New frequencies |  |  |  |
| - E-UTRA carrier frequency | Downlink EARFCN of E-UTRA Cell |  |  |
| - Measurement bandwidth | 6 |  |  |
| - Inter-RAT measurement quantity |  |  |  |
| - CHOICE system | E-UTRA |  |  |
| - Measurement quantity | RSRQ |  |  |
| - Inter-RAT reporting quantity |  |  |  |
| - CHOICE system | E-UTRA |  |  |
| - Reporting quantity | Measurement quantity |  |  |
| - CHOICE report criteria | Periodical reporting criteria |  |  |
| - Reporting amount | Infinity |  |  |
| - Reporting interval | 500 ms |  |  |
| - Reporting cell status |  |  |  |
| - CHOICE reported cell | Report cells within active set or within virtual active set or of the other RAT |  |  |
| - Maximum number of reported cells | 1 |  |  |
| DPCH Compressed mode status info | Not present |  |  |

MEASUREMENT REPORT message for inter-RAT test cases

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

##### 8.7.13.5 Test requirements

Table 8.7.13.5.2 and table 8.7.13.5.3 define the primary level settings including test tolerances for all tests.

For the test to pass, the ratio of successful reported values according to table 8.7.13.5.4 in each test shall be more than 90% with a confidence level of 95%.

Table 8.7.13.5.1: Void

Table 8.7.13.5.2: UTRAN FDD cell specific test parameters  
for E-UTRAN TDD RSRQ absolute accuracy tests

|  |  |  |
| --- | --- | --- |
| Parameter | Unit | Cell 1 |
| UTRA RF Channel number | - | Channel 1 |
| CPICH\_Ec/Ior | dB | -10 |
| PCCPCH\_Ec/Ior | dB | -12 |
| SCH\_Ec/Ior | dB | -12 |
| PICH\_Ec/Ior | dB | -15 |
| DCH\_Ec/Ior | dB | Note 1 |
| OCNS\_Ec/Ior | dB | Note 2 |
| Îor/Ioc | dB | -1 |
| Ioc | dBm/ 3.84 MHz | -70 |
| CPICH\_Ec/Io | dB | -13.54 |
| Propagation condition | - | AWGN |
| NOTE 1: The DPCH level is controlled by the power control loop  NOTE 2: The power of the OCNS channel that is added shall make the total power from the cell to be equal to Ior. | | |

Table 8.7.13.5.3: E-UTRAN TDD cell specific test parameters  
for E-UTRAN TDD RSRQ absolute accuracy tests

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Parameter | | Unit | Test 1 | Test 2 | Test 3 |
| BWchannel | | MHz | 10 | 10 | 10 |
| Measurement bandwidth | |  | 22—27 | 22—27 | 22—27 |
| PDCCH/PCFICH/PHICH Reference measurement channel as defined in A.2.2 in TS 36.521-3 [38] | |  | R.6 TDD | R.6 TDD | R.6 TDD |
| OCNG Patterns defined in D.2.2 (OP.2 TDD) in TS 36.521-3 [38] | |  | OP.2 TDD | OP.2 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\_RANote1 | |
| OCNG\_RBNote1 | |
| Note2 | Bands 33-40 | dBm/15 kHz | -81.10 | -104.70 | -119.20 |
| Bands 42 and 43 | -118.20 |
| Bands 41 and 44 | -117.20 |
|  | | dB | -1.75 | -3.20 | -3.20 |
| RSRPNote3 | Bands 33- 40 | dBm/15 kHz | -82.85 | -107.90 | -122.40 |
| Bands 42 and 43 | -121.40 |
| Bands 41 and 44 | -120.40 |
| RSRQNote3 | Bands 33-40 | dB | -14.76 | -15.69 | -15.69 |
| Bands 42 and 43 |
| Bands 41 and 44 |
| IoNote3 | Bands 33-40 | dBm/9 MHz | -51.10 | -75.22 | -89.72 |
| Bands 42 and 43 | -88.72 |
| Bands 41 and 44 | -87.72 |
|  | | dB | -1.75 | -3.20 | -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 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 8.7.13.5.4: E-UTRAN TDD RSRQ 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\_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 |

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