Source: T1

Title: CR's to TS 34.121 v.5.2.0 for approval

Agenda item: 5.1.3

Document for: Approval

This document contains the CRs to TS 34.121 v.5.2.0. These CRs have been agreed by T1 and are put forward to TSG T for approval.

| CR R Rel | | Rel | Title | ca | Version | Version | Tdoc # | |
|----------|--------|-------|--|----|---------|---------|------------|--|
| # | e v | | | t | in | out | | |
| 222 | | D 1.5 | Y | - | 5.2.0 | 7.2.0 | FE1 040000 | |
| 332 | - | Rel-5 | Introduction of Test Tolerance to Maximum Input Level test 6.3 | F | 5.2.0 | 5.3.0 | T1-040099 | |
| 340 | - | Rel-5 | Correction of measurement control message in inter frequency measurement test cases. | F | 5.2.0 | 5.3.0 | T1-040100 | |
| 353 | - | Rel-5 | Links to Annex F.6.2 in RRM test cases | F | 5.2.0 | 5.3.0 | T1-040139 | |
| 333 | - | Rel-5 | CPICH_Ec/Io Inter frequency relative accuracy requirements for reported values. | F | 5.2.0 | 5.3.0 | T1-040165 | |
| 341 | - | Rel-5 | Correction to W-CDMA modulated interferer definition | | 5.2.0 | 5.3.0 | T1-040190 | |
| 342 | - | Rel-5 | Removal of square brackets in Annex F.6 | F | 5.2.0 | 5.3.0 | T1-040248 | |
| 354 | - | Rel-5 | Clarify measurement control for FDD/FDD Inter-frequency Hard Handover test case | F | 5.2.0 | 5.3.0 | T1-040252 | |
| 343 | - | Rel-5 | Excess test uncertainties | F | 5.2.0 | 5.3.0 | T1-040279 | |
| 344 | - | Rel-5 | Define TBD message parameters for FDD/FDD Hard Handover test cases | F | 5.2.0 | 5.3.0 | T1-040281 | |
| 345 | - | Rel-5 | Introduction of Test Tolerances to FDD/FDD Hard Handover to intra-frequency cell, test 8.3.2.1 | F | 5.2.0 | 5.3.0 | T1-040282 | |
| 346 | - | Rel-5 | Introduction of Test Tolerances to FDD/FDD Hard Handover to interfrequency cell, test 8.3.2.2 | F | 5.2.0 | 5.3.0 | T1-040284 | |
| 334 | - | Rel-5 | Correction to the meassurement | F | 5.2.0 | 5.3.0 | T1-040288 | |

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| | | | control message in 8.7.2. | | | | |
| 335 | - | Rel-5 | Correction of the TGD value for single gap transmission gap pattern | F | 5.2.0 | 5.3.0 | T1-040289 |
| 336 | - | Rel-5 | Correction to the Measurement Control message in 8.7.6 UE Rx-Tx time difference | F | 5.2.0 | 5.3.0 | T1-040292 |
| 347 | - | Rel-5 | Introduction of PRACH preamble tests | В | 5.2.0 | 5.3.0 | T1-040330 |
| 348 | - | Rel-5 | Correction of requirements of HSDPA CQI reporting in AWGN propagation conditions | F | 5.2.0 | 5.3.0 | T1-040333 |
| 349 | - | Rel-5 | Annex A for HSDPA | F | 5.2.0 | 5.3.0 | T1-040337 |
| 350 | - | Rel-5 | Annex F.1 for HSDPA | F | 5.2.0 | 5.3.0 | T1-040338 |
| 351 | - | Rel-5 | Correction of DL channelisation code value in DL radio resources | F | 5.2.0 | 5.3.0 | T1-040339 |
| 337 | - | Rel-5 | Introduction of correct reporting of GSM neighbours in AWGN propagation condition test case | F | 5.2.0 | 5.3.0 | T1-040341 |
| 338 | - | Rel-5 | Correction to 8.6.2.1 Correct reporting of neighbours in AWGN propagation condition | F | 5.2.0 | 5.3.0 | T1-040345 |
| 339 | - | Rel-5 | Correction to RRC connection control test 1 and 2 | F | 5.2.0 | 5.3.0 | T1-040354 |
| 352 | - | Rel-5 | Correction to F.4.1 | F | 5.2.0 | 5.3.0 | T1-040393 |
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Tdoc **≆** *T1-040099*

| | CHANGE REQUEST | | | | | | |
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| Proposed change a | ffects: | UICC apps# | ME <mark>✓</mark> | Radio Ad | ccess Networ | k Core Ne | twork |
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| Title: 第 | Introducti | on of Test Tolera | ance to Maxim | um Input | Level test 6.3 | } | |
| Source: # | Racal Ins | truments Wireles | ss Solutions | | | | |
| Work item code: ₩ | | | | | <i>Date:</i> ∺ | 26/01/2004 | |
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| Reason for change: | | Test Tolerance in neorporate it. | s defined in A | nnex F, bu | ut the test cor | nditions in claus | se 6.3 do |
| Summary of change | e:Ж <mark>a) I</mark> n | troduction of tab | le 6.3B giving | correct RI | condtions for | or test | |
| Consequences if not approved: | ж A Te | est system may ir | ncorrectly fail a | a good UE | | | |
| Clauses affected: | ₩ 6.3 | | | | | | |
| Other specs affected: | ¥ N ✓ | Other core spe Test specificati O&M Specifica | ons | * | | | |
| Other comments: | x | | | | | | |

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| 3) | With "track changes" disabled, paste the entire CR form the clause containing the first piece of changed text. De the change request. | (use CTRL-A to select it) into the specification just in front of elete those parts of the specification which are not relevant to |
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6.3 Maximum Input Level

6.3.1 Definition and applicability

This is defined as the maximum mean power received at the UE antenna port, which shall not degrade the specified BER performance.

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

6.3.2 Minimum requirements

The BER shall not exceed 0.001 for the parameters specified in table 6.3.

The reference for this requirement is TS 25.101 [1] clause 7.4.1.

NOTE: Since the spreading factor is large (10log(SF)=21dB), the majority of the total input signal consists of the OCNS interference. The structure of OCNS signal is defined in clause E.3.3.

6.3.3 Test purpose

To verify that the UE BER shall not exceed 0,001 for the parameters specified in table 6.3.

The lack of the maximum input level decreases the coverage area at the near side from Node B.

6.3.4 Method of test

6.3.4.1 Initial conditions

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

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

- 1) Connect the SS to the UE antenna connector as shown in figure A.3.
- 2) RF parameters are set up according to table 6.3B and table E.3.3.
- 3) A call is set up according to the Generic call setup procedure specified in TS34.108[3] sub clause 7.3.2, with the following exception for information elements in RADIO BEARER SETUP message. With this exception, the Power Control Algorithm for the Uplink is set to algorithm 2.
- 4) Enter the UE into loopback test mode and start the loopback test.

Table 6.3A Contents of RADIO BEARER SETUP message: AM or UM

| Information Element | Value/Remark | | |
|----------------------------|------------------|--|--|
| CHOICE channel requirement | Uplink DPCH info | | |
| - Power Control Algorithm | Algorithm2 | | |

See TS 34.108 [3] and TS 34.109 [4] for details regarding generic call setup procedure and loopback test.

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Table 6.3: Test parameters for Maximum Input Level

| Parameter | Level / Status | Unit |
|----------------------------|--|---------------|
| î _{or} | -25 | dBm / 3,84MHz |
| $\frac{DPCH_E_c}{I_{or}}$ | -19 | dB |
| UE transmitted mean power | 20 (for Power class 3) 18 (for Power class 4) | dBm |

6.3.4.2 Procedure

- 1) Set the power level of UE according to the table 6.3<u>B</u> or send the power control commands (1dB step size should be used.) to the UE until UE output power measured by Test System shall be kept at the specified power level with ±1dB tolerance.
- 2) Measure the BER of DCH received from the UE at the SS.

6.3.5 Test requirements

The measured BER, derived in step 1), shall not exceed 0,001.

Table 6.3B: Test requirements for Maximum Input Level

| <u>Parameter</u> | Level / Status | <u>Unit</u> |
|----------------------------|--|----------------------|
| <u>Îor</u> | <u>-25.7</u> | <u>dBm / 3,84MHz</u> |
| $\frac{DPCH_E_c}{I_{or}}$ | <u>–19</u> | <u>dB</u> |
| UE transmitted mean power | 20 (for Power class 3) 18 (for Power class 4) | <u>dBm</u> |

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

Annex F (normative): General test conditions and declarations

The requirements of this clause apply to all applicable tests in the present document.

Many of the tests in the present document measure a parameter relative to a value that is not fully specified in the UE specifications. For these tests, the Minimum Requirement is determined relative to a nominal value specified by the manufacturer.

When specified in a test, the manufacturer shall declare the nominal value of a parameter, or whether an option is supported.

In all the relevant clauses in this clause all Bit Error Ratio (BER), Block Error Ratio (BLER), False transmit format Detection Ratio (FDR) measurements shall be carried out according to the general rules for statistical testing in clause F.6.

F.1 Acceptable uncertainty of Test System

The maximum acceptable uncertainty of the Test System is specified below for each test, where appropriate. The Test System shall enable the stimulus signals in the test case to be adjusted to within the specified range, and the equipment under test to be measured with an uncertainty not exceeding the specified values. All ranges and uncertainties are absolute values, and are valid for a confidence level of 95 %, unless otherwise stated.

A confidence level of 95 % is the measurement uncertainty tolerance interval for a specific measurement that contains 95 % of the performance of a population of test equipment.

For RF tests it should be noted that the uncertainties in clause F.1 apply to the Test System operating into a nominal 50 ohm load and do not include system effects due to mismatch between the DUT and the Test System.

F.1.3 Measurement of receiver

Table F.1.3: Maximum Test System Uncertainty for receiver tests

| Clause | Maximum Test System Uncertainty | Derivation of Test System Uncertainty |
|--------------------------|---------------------------------|---|
| 6.3 maximum input level: | ± 0.7 dB | The critical parameter is the overall signal level and not the –19 dB DPCH_Ec/lor ratio. 0.7 dB absolute error due to signal measurement DPCH_Ec/lor ratio error is <0.1 dB but is not important so |
| | | is ignored |

F.2 Test Tolerances (This clause is informative)

The Test Tolerances defined in this clause have been used to relax the Minimum Requirements in the present document to derive the Test Requirements.

The Test Tolerances are derived from Test System uncertainties, regulatory requirements and criticality to system performance. As a result, the Test Tolerances may sometimes be set to zero.

The test tolerances should not be modified for any reason e.g. to take account of commonly known test system errors (such as mismatch, cable loss, etc.).

F.2.2 Receiver

Table F.2.2: Test Tolerances for receiver tests.

| Clause | Test Tolerance | |
|--------------------------|-----------------------|--|
| 6.3 Maximum input level: | 0.7 dB <u>for lor</u> | |

F.4 Derivation of Test Requirements (This clause is informative)

The Test Requirements in the present document have been calculated by relaxing the Minimum Requirements of the core specification using the Test Tolerances defined in clause F.2. When the Test Tolerance is zero, the Test Requirement will be the same as the Minimum Requirement. When the Test Tolerance is non-zero, the Test Requirements will differ from the Minimum Requirements, and the formula used for this relaxation is given in table F.4.

Table F.4.2: Derivation of Test Requirements (Receiver tests)

| Test | Minimum Requirement in TS 25.101 | Test Tolerance (TT) | Test Requirement in TS 34.121 |
|-------------------------|------------------------------------|---------------------------|----------------------------------|
| 6.3 Maximum input level | -25 dBm lor -19 dBc DPCH_Ec/lor | 0.7 dB | Formula: lor-TT lor = -25.7 dBm |

3GPP TSG-T1 Meeting #22 Hyderabad ,India, 02 February – 06 February

| | CHANGE REQUEST | | | | | | |
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| Title: ਮ | Correction | n to F.4.1 | | | | | |
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F.4 Derivation of Test Requirements (This clause is informative)

The Test Requirements in the present document have been calculated by relaxing the Minimum Requirements of the core specification using the Test Tolerances defined in clause F.2. When the Test Tolerance is zero, the Test Requirement will be the same as the Minimum Requirement. When the Test Tolerance is non-zero, the Test Requirements will differ from the Minimum Requirements, and the formula used for this relaxation is given in table F.4.

Table F.4.1: Derivation of Test Requirements (Transmitter tests)

| Test | Minimum Requirement in TS 25.101 | Test Tolerance (TT) | Test Requirement in TS 34.121 |
|---|--|---|---|
| 5.2 Maximum Output Power | Power class 1 (33 dBm) Tolerance = +1/-3 dB Power class 2 (27 dBm) Tolerance = +1/-3 dB Power class 3 (24 dBm) Tolerance = +1/-3 dB Power class 4 (21 dBm) Tolerance = ±2 dB | 0.7 dB | Formula: Upper Tolerance limit + TT Lower Tolerance limit – TT For power classes 1-3: Upper Tolerance limit = +1.7 dB Lower Tolerance limit = -3.7 dB For power class 4: Upper Tolerance limit = +2.7 dB Lower Tolerance limit = -2.7 dB |
| 5.3 Frequency Error | The UE modulated carrier frequency shall be accurate to within ±0.1 ppm compared to the carrier frequency received from the Node B. | 10 Hz | Formula: modulated carrier frequency error + TT modulated carrier frequency error = ±(0.1 ppm + 10 Hz). |
| 5.4.1 Open loop power control in the uplink | Open loop power control tolerance ±9 dB (Normal) Open loop power control tolerance ±12 dB (Normal) | 1.0 dB | Formula: Upper Tolerance limit + TT Lower Tolerance limit – TT For Normal conditions: Upper Tolerance limit = +10 dB Lower Tolerance limit = -10 dB For Extreme conditions: Upper Tolerance limit = +13 dB Lower Tolerance limit = -13 dB |
| 5.4.2 Inner loop power control in uplink | See table 5.4.2.1 and 5,4,2,2 | 0.25 dB 0.1dB 0.15 dB 0.2 dB 0.3 dB | Formula: Upper Tolerance limit + TT Lower Tolerance limit - TT |
| 5.4.3 Minimum Output Power | UE minimum transmit power shall be less than –50 dBm | 1.0 dB | Formula: UE minimum transmit power + TT UE minimum transmit power = -49 dBm |

| DPCCH_E_ levels Commonstration Co | ## AB: -22 dB BD: -28 | 5.4.4 Out-of- | | | Γ |
|---|--|---|---|--|---|
| handling of output power: AB: -22 dB BD: -28 dB DE: -24 dB BD: -28 dB DE: -24 dB DE: -24 dB DE: $-16 $ | AB: 22 dB BD: 28 dB DE: 24 dB DE: 24 dB DE: 18 dB DE: 27 dB BD: 28 dB DE: 18 dB DE: 28 dB DE: 18 dB DE: 28 dB DE: 18 dB DE: 18 dB DE: 200ms DPDCH_E_= = -16.6 dB | | $\underline{DPCCH}_{-}\underline{E_{c}}$ levels | | |
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| | | power. | | I_{or} | |
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| $\frac{DPDCH_E_c}{I_w} = -16.6 \mathrm{dB}$ $\frac{DPDCH_E_c}{I_w} = -16.6 \mathrm{dB}$ $\frac{I_{oc} - 60 \mathrm{dBm}}{I_w/I_{oc}} = -1 \mathrm{dB}$ $\frac{DPCCH_E_c}{I_w} = -1 \mathrm{dB}$ $DPCCH$ | $\frac{DPDCH_E_c}{I_{cc}} = -16.6 \text{ dB}$ $\frac{DPDCH_E_c}{I_{cc}} = -16.6 \text{ dB}$ $\frac{I_{cc}}{I_{cc}} = -60 \text{ dBm}$ $\frac{I_{cc}}{I_{cc}} = -60 \text{ dBm}$ $\frac{I_{cc}}{I_{cc}} = -1 \text{ dB}$ $\frac{DPCCH_E_c}{I_{cc}} = -1 \text{ dB}$ $\frac{DPCCH_E_c}{$ | | EF: -18 dB | 0 ms for | |
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3GPP TSG-T1 Meeting #22 Hyderabad ,India, 02 February – 06 February

| | CHANGE REQUEST | | | | | | |
|----------------------------|---|--|--|--|--|--|--|
| * | 34.121 CR 339 #rev # | Current version: 5.2.0 ** | | | | | |
| For <u>HELP</u> o | n using this form, see bottom of this page or look at the | e pop-up text over the 策 symbols. | | | | | |
| | | | | | | | |
| Proposed chan | ge affects: UICC apps業 ME X Radio A | ccess Network Core Network | | | | | |
| Title: | ★ Correction to RRC connection control test 1 and 2 | | | | | | |
| Source: | ₩ Anritsu, NEC | | | | | | |
| | | D-4 99 04/00/0004 | | | | | |
| Work item code | :第 <mark>TEI</mark> | <i>Date:</i> | | | | | |
| Category: | Use one of the following categories: F (correction) A (corresponds to a correction in an earlier release B (addition of feature), C (functional modification of feature) D (editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900. | Release: # Rel-5 Use one of the following releases: 2 (GSM Phase 2) e) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) Rel-4 (Release 4) Rel-5 (Release 5) Rel-6 (Release 6) | | | | | |
| Reason for cha | nge: 第 7.3.4 is specified in TS34.108 V3.14.0 (2003- | 12). | | | | | |
| Summary of cha | ange: | | | | | | |
| Consequences not approved: | if # Misleading cross-reference. | | | | | | |
| Clauses affecte | d: | | | | | | |
| Other specs affected: | Y N X Other core specifications X Test specifications O&M Specifications | | | | | | |
| Other comment | s: # This CR applies for Rel-99 and later release | S. | | | | | |

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

- 1) Fill out the above form. The symbols above marked \(\mathcal{H} \) contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

8.4.1.1.4.2 Procedure

- 1) The RF parameters are set up according to T1.
- 2) The UE is switched on.
- 3) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.4 without Compressed mode parameters.

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

- 4) The RF parameters are set up according to T1.
- 54) The SS waits for random access requests from the UE on cell 2.
- 5) 10 s after step3 has completed, the parameters are changed to that as described for T2.
- 6) If the UE responds on cell 2 within 2.0 s from the beginning of time period T2 with a CELL_UPDATE command then the number of successful tests is increased by one.
- 7) SS shall transmit a RRC CONNECTION RELEASE message to make the UE transit to idle mode.
- 8) After 6 seconds from the beginning of time period T2, the RF parameters are set up according to T1.
- 9) The SS shall wait for 30s to make the UE complete cell reselection to cell1.
- 10) Repeat step 3-9 [TBD] times.

NOTE: The time required for receiving all the relevant system information data according to the reception procedure and the RRC procedure delay of system information blocks defined in 25.331 for a UTRAN cell. Since the maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell is 1280ms and the maximum RRC procedure delay for reception system information block is 100ms, 1380 ms is assumed in this test case. Therefore this gives a total of 1920ms(Minimum requirement + 100ms), allow 2s in the test case.

8.4.1.2.4.2 Procedure

- 1) The RF parameters are set up according to T1.
- 2) The UE is switched on.
- 3) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.4 without Compressed mode parameters.

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

- 4) The SS waits for random access requests from the UE on cell 2.
- 5) 10 s after step3 has completed, the parameters are changed to that as described for T2.
- 6) If the UE responds on cell 2 within 4.3 s from the beginning of time period T2 with a CELL_UPDATE command then the number of successful tests is increased by one.
- 7) SS shall transmit a RRC CONNECTION RELEASE message to make the UE transit to idle mode.
- 8) After 6 seconds the RF parameters are set up according to T1.
- 9) The SS shall wait for 30s to make the UE complete cell reselection to cell1.
- 10) Repeat step 3-9 [TBD] times

NOTE: The time required for receiving all the relevant system information data according to the reception procedure and the RRC procedure delay of system information blocks defined in 25.331 for a UTRAN cell. Since the maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell is 1280ms and the maximum RRC procedure delay for reception system information block is 100ms, 1380 ms is assumed in this test case. Therefore this gives a total of 4220ms(Minimum requirement + 100ms), allow 4.3s in the test case.

8.4.1.2.5 Test requirements

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

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.

3GPP TSG-T1 Meeting #22 Hyderabad ,India, 02 February – 06 February

| | CHANGE REQUEST | CR-Form-v7 |
|-------------------------------|---|---|
| * | 34.121 CR 338 #rev # | Current version: 5.2.0 |
| For <u>HELP</u> on us | ing this form, see bottom of this page or look at the | e pop-up text over the ₩ symbols. |
| Proposed change a | ·· <u> </u> | ccess Network Core Network |
| Title: ₩ | Correction to 8.6.2.1 Correct reporting of neighbor | urs in AWGN propagation condition |
| Source: # | Anritsu | |
| Work item code: ₩ | | Date: 8 04/02/2004 |
| Category: | Use one of the following categories: F (correction) A (corresponds to a correction in an earlier release B (addition of feature), C (functional modification of feature) D (editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900. | Release: # Rel-5 Use one of the following releases: 2 (GSM Phase 2) e) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) Rel-4 (Release 4) Rel-5 (Release 5) Rel-6 (Release 6) |
| Reason for change | * Measurement resolution less than 10ms is not delays. | t necessary for measuring reporting |
| Summary of chang | The measurement reporting delay of 1036.2m procedure. | s is rounded off to 1040ms in |
| Consequences if not approved: | ★ Test equipment would be unnecessarily comp | lex |
| Clauses affected: | 8.6.2.1.4.2 | |
| Other specs affected: | Y N X Other core specifications | |
| Other comments: | # This CR applies for Rel-99 and later releases | S. |

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8.6.2 FDD inter frequency measurements

8.6.2.1 Correct reporting of neighbours in AWGN propagation condition

8.6.2.1.1 Definition and applicability

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

The requirements and this test apply to the FDD UE.

8.6.2.1.2 Minimum requirements

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

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

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

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

$$T_{\text{measurement inter}} = Max \left\{ T_{\text{Measurement_Period Inter}} \cdot T_{\text{basic measurement FDD inter}} \cdot \frac{T_{\text{Measurement_Period Inter}}}{T_{\text{Inter}}} \cdot N_{\textit{Freq}} \right\} ms$$

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

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

 $X_{basic\ measurement\ FDDinter} = 6$

 $T_{Measurement_Period\ Inter} = 480\ ms.$ The period used for calculating the measurement period $T_{measurement_inter}$ for interfrequency CPICH measurements.

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

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

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

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

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

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

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

8.6.2.1.3 Test purpose

To verify that the UE meets the minimum requirements.

8.6.2.1.4 Method of test

8.6.2.1.4.1 Initial conditions

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

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

The initial test parameters are given in table 8.6.2.1.1

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

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

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

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

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

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

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

8.6.2.1.4.2 Procedure

- 1) The RF parameters are set up according to T0.
- 2) The UE is switched on.
- 3) A call is set up according to the test procedure specified in TS 34.108 [3] sub clause 7.3.2.3.
- 4) SS shall transmit a MEASUREMENT CONTROL message (inter frequency).
- 5) SS shall transmit a MEASUREMENT CONTROL message (intra frequency).
- 6) SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message.
- 7) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.
- 8) 5 seconds after step7 has completed, the SS shall switch the power settings from T0 to T1.

- 9) UE shall transmit a MEASUREMENT REPORT message (inter frequency) triggered by event 2C. The measurement reporting delay from the beginning of T1 shall be less than 9.08 seconds. If the UE fails to report the event within the required delay, then a failure is recorded. If the reporting delay for this event is within the required limit, the number of successfull tests is increased by one.
- 10) After 10 seconds from the beginning of T1, the SS shall switch the power settings from T1 to T2.
- 11)UE shall transmit a MEASUREMENT REPORT message (intra frequency) triggered by event 1A. The measurement reporting delay from the beginning of T2 shall be less than 1036.21040 ms. If the reporting delay for this event is within the required limit, the number of successfull tests is increased by one.
- 12) After 5 seconds from the beginning of T2, the UE is switched off.
- 13) Repeat steps 1-12 [50] times.

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

| | | | CHA | ANGE | REQ | UE | ST | | | | CR-Form-v7 |
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| Source: # | Moto | rola | | | | | | | | | |
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| Summary of chang | | | | | | | | y, Minimum ts were adde | | | |
| Consequences if not approved: | | Correct be tes | | of GSM | neighbou | urs in | AWO | GN propagat | ion co | ndition w | ould not |
| Clauses affected: Other specs affected: | * | ✓ | Other core Test specif O&M Spec | ications | tions | * | | | | | |
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8.6.4.1 Correct reporting of GSM neighbours in AWGN propagation condition

8.6.4.1.1 Definition and applicability

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

The requirements in this section apply only to UE supporting FDD and GSM for Release 99, Release 4, Release 5 and later releases.

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8.6.4.1.2 Minimum requirements

Measurements on GSM cells can be requested with BSIC verified or BSIC non-verified.

- 1) In CELL_DCH state when a transmission gap pattern sequence is provided by the UTRAN the UE shall continuously measure GSM cells and search for new GSM cells given in the monitored set.
- 2) If the UE does not need compressed mode to perform GSM measurements:
 - the UE shall measure all GSM cells present in the monitored set
 - the relevant requirements for GSM dedicated mode when a TCH channel is assigned in TS 45.008 shall apply.

The normative reference for these requirements is TS 25.133 [2] clauses 8.1.2.5 and A.8.4.1.

8.6.4.1.3 Test purpose

To verify that the UE meets the minimum requirements.

8.6.4.1.4 Method of test

8.6.4.1.4.1 Test 1 initial conditions

Test 1 with BSIC verification required case:

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

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

The test parameters are given in table 8.6.4.1, 8.6.4.2 and 8.6.4.3 below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 3B and 3C shall be used. The test consists of three successive time periods, with a time duration of T1, T2 and T3 respectively.

<u>Table 8.6.4.1: General test parameters for Correct reporting of GSM neighbours in AWGN propagation condition, Test 1</u>

| <u>Parameter</u> | <u>Unit</u> | <u>Value</u> | Comment |
|----------------------------|--------------|------------------------------------|---|
| DCH parameters | | DL Reference Measurement Channel | As specified in TS 25.101 section A.3.1 |
| | | 12.2 kbps | |
| Power Control | | <u>On</u> | |
| Target quality value on | BLER | 0.01 | |
| DTCH | | | Only applicable for LIE requiring |
| Compressed mode patterns | | | Only applicable for UE requiring compressed mode patterns |
| - GSM carrier RSSI | | | compressed mode patterns |
| measurement | | DL Compressed mode reference | As specified in table A.22 TS 25.101 |
| <u></u> | | pattern 2 in Set 2 | section A.5 |
| - GSM Initial BSIC | | | |
| <u>identification</u> | | Pattern 2 | As specified in section 8.1.2.5.2.1 table |
| | | | 8.7. |
| Active cell | | Cell 1 | |
| Inter-RAT measurement | | GSM Carrier RSSI | |
| quantity | | B : 1 | |
| BSIC verification required | | Required | |
| Threshold other system | dBm | -80 | Absolute GSM carrier RSSI threshold |
| Threshold other system | <u>ubiii</u> | <u> </u> | for event 3B and 3C. |
| Hysteresis | dB | 0 | 5.5 65 dila 60. |
| Time to Trigger | ms | 0 | |
| Filter coefficient | | 0 | |
| Monitored cell list size | _ | 24 FDD neighbours on Channel 1 | Measurement control information is |
| | | 6 GSM neighbours including ARFCN 1 | sent before the compressed mode |
| | | | patterns starts. |
| N Identify abort | | 66 | Taken from table 8.7. |
| T1 | S | 5 | |
| <u>T2</u> | S | 7 | |
| <u>T3</u> | <u>s</u> | 5 | |

<u>Table 8.6.4.2: Cell specific test parameters for Correct reporting of GSM neighbours in AWGN propagation condition (cell 1)</u>

| Parameter | <u>Unit</u> | <u>Cell 1</u> | | | |
|---|---------------|---|--|--|--|
| | | T1, T2, T3 | | | |
| UTRA RF Channel | | Channel 1 | | | |
| Number | | | | | |
| CPICH_Ec/lor | <u>dB</u> | <u>-10</u> | | | |
| PCCPCH Ec/lor | <u>dB</u> | <u>-12</u> | | | |
| SCH_Ec/lor | <u>dB</u> | <u>-12</u> | | | |
| PICH_Ec/lor | <u>dB</u> | <u>-15</u> | | | |
| DPCH_Ec/lor | <u>dB</u> | Note 1 | | | |
| <u>OCNS</u> | | Note 2 | | | |
| \hat{I}_{or}/I_{oc} | <u>dB</u> | <u>0</u> | | | |
| I_{oc} | dBm/ 3.84 | -85 | | | |
| <u> </u> | MHz | | | | |
| CPICH_Ec/lo | <u>dB</u> | <u>-13</u> | | | |
| <u>Propagation</u> | | <u>AWGN</u> | | | |
| Condition | | | | | |
| Note 1: The DPCH level is controlled by the power control loop. | | | | | |
| Note 2: The power of | the OCNS char | nnel that is added shall make the total power | | | |
| from the cell to be equal to I | | | | | |

<u>Table 8.6.4.3: Cell specific test parameters for Correct reporting of GSM neighbours in AWGN propagation condition (cell 2)</u>

| Parameter | Unit | Cell 2 | | | | |
|---------------------|-------|-----------|------------|------------|--|--|
| <u>Farameter</u> | OIIIL | <u>T1</u> | <u>T2</u> | <u>T3</u> | | |
| Absolute RF Channel | | ^ | RFCN 1 | | | |
| <u>Number</u> | | | KECN | <u>L</u> | | |
| RXLEV | dBm | -Infinity | <u>-75</u> | <u>-85</u> | | |

8.6.4.1.4.2 Test 1 Procedure

- 1) The RF parameters are set up according to T1.
- 2) The UE is switched on.
- 3) A call is set up according to the test procedure specified in TS 34.108 [3] sub clause 7.3.2.3.
- 4) SS shall transmit a MEASUREMENT CONTROL message.
- 5) After 5 seconds from the beginning of T1, the SS shall switch the power settings from T1 to T2.
- 6) UE shall transmit a MEASUREMENT REPORT message triggered by event 3C. The measurement reporting delay from the beginning of T2 shall be less than 6.24s. If the UE fails to report the event within the required delay, then a failure is recorded. If the reporting delay for this event is within the required limit, the number of successfull tests is increased by one.
- 7) After 7 seconds from the beginning of T2, the SS shall switch the power settings from T2 to T3.
- 8) UE shall transmit a MEASUREMENT REPORT message triggered by event 3B. The measurement reporting delay from the beginning of T3 shall be less than 960 ms. If the reporting delay for this event is within the required limit, the number of successfull tests is increased by one.
- 9) After 5 seconds from the beginning of T3, the UE is switched off.
- 10) Repeat steps 1-9 according to Annex F.6.2 Table F.6.2.8.

Specific Message Contents

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

MEASUREMENT CONTROL message:

| Value/Remark |
|---|
| |
| |
| <u>0</u> |
| Not Present |
| |
| 2 |
| 2 Modify |
| |
| AM RLC |
| Event trigger |
| Not Present |
| Inter-RAT measurement |
| |
| Not Present |
| |
| |
| |
| 0 FDD |
| |
| CPICH Ec/N0 |
| GSM |
| GSM Carrier RSSI |
| 0 |
| Required |
| |
| B 4 11 201 2 4 201 |
| Report cells within active set or within |
| virtual active set or of the other RAT |
| 2 |
| Inter-RAT measurement reporting criteria |
| 4 |
| 1 Event 3C |
| Not Present |
| Not Present |
| -80 dBm |
| 0 dB |
| 0 ms |
| <u> </u> |
| Report cells within active set or within |
| virtual active set or of the other RAT |
| 2 |
| = |
| Active (for all three patterns specified in |
| table 8.6.4.1) |
| |

8.6.4.1.4.3 Test 2 initial conditions

Test 2 without BSIC verification required case:

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

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

The test parameters are given in table 8.6.4.4, 8.6.4.5 and 8.6.4.6 below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 3B and 3C shall be used. The test consists of three successive time periods, with a time duration of T1, T2 and T3 respectively.

Table 8.6.4.4: General test parameters for Correct reporting of GSM neighbours in AWGN propagation condition, Test 2

| <u>Parameter</u> | <u>Unit</u> | <u>Value</u> | Comment |
|---|-------------|--|---|
| DCH parameters | | DL Reference Measurement Channel 12.2 kbps | As specified in TS 25.101 section A.3.1 |
| Power Control | | <u>On</u> | |
| Target quality value on DTCH | BLER | 0.01 | |
| Compressed mode patterns - GSM carrier RSSI | | | Only applicable for UE requiring compressed mode patterns |
| <u>measurement</u> | | DL Compressed mode reference pattern 2 in Set 2 | As specified in table A.22 TS 25.101 section A.5 |
| Active cell | | Cell 1 | |
| Inter-RAT measurement quantity | | GSM Carrier RSSI | |
| BSIC verification required | | not required | |
| Threshold other system | <u>dBm</u> | <u>-80</u> | Absolute GSM carrier RSSI threshold for event 3B and 3C. |
| <u>Hysteresis</u> | <u>dB</u> | <u>0</u> | |
| Time to Trigger | <u>Ms</u> | <u>0</u> | |
| Filter coefficient | | <u>0</u> | |
| Monitored cell list size | | 24 FDD neighbours on Channel 1 6 GSM neighbours including ARFCN 1 | Measurement control information is sent before the compressed mode patterns starts. |
| <u>T1</u> | <u>s</u> | <u>5</u> | |
| <u>T2</u> | <u>s</u> | 2 | |
| <u>T3</u> | <u>s</u> | <u>5</u> | |

Table 8.6.4.5: Cell specific test parameters for Correct reporting of GSM neighbours in AWGN propagation condition (cell 1)

| <u>Parameter</u> | <u>Unit</u> | <u>Cell 1</u> |
|-----------------------|-------------|------------------|
| | | T1, T2, T3 |
| UTRA RF Channel | | <u>Channel 1</u> |
| Number | | |
| CPICH_Ec/lor | <u>dB</u> | <u>-10</u> |
| PCCPCH_Ec/lor | <u>dB</u> | <u>-12</u> |
| SCH_Ec/lor | <u>dB</u> | <u>-12</u> |
| PICH_Ec/lor | <u>dB</u> | <u>-15</u> |
| DPCH_Ec/lor | <u>dB</u> | Note 1 |
| <u>OCNS</u> | | Note 2 |
| \hat{I}_{or}/I_{oc} | <u>dB</u> | <u>0</u> |
| I_{oc} | dBm/ 3.84 | <u>-85</u> |
| <u></u> | MHz | |
| CPICH_Ec/lo | <u>dB</u> | <u>-13</u> |
| <u>Propagation</u> | | <u>AWGN</u> |
| Condition | | |

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

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

<u>Table 8.6.4.6: Cell specific test parameters for Correct reporting of GSM neighbours in AWGN propagation condition (cell 2)</u>

| Parameter | Unit | Cell 2 | | | | |
|---------------------|-------|-----------|-----------|------------|--|--|
| <u>rarameter</u> | OIIIL | <u>T1</u> | <u>T2</u> | <u>T3</u> | | |
| Absolute RF Channel | | ^ | RFCN 1 | 1 | | |
| <u>Number</u> | | _ | KECN | <u>L</u> | | |
| RXLEV | dBm | -Infinity | -75 | <u>-85</u> | | |

8.6.4.1.4.4 Test 2 Procedure

- 1) The RF parameters are set up according to T1.
- 2) The UE is switched on.
- 3) A call is set up according to the test procedure specified in TS 34.108 [3] sub clause 7.3.2.3.
- 4) SS shall transmit a MEASUREMENT CONTROL message.
- 5) After 5 seconds from the beginning of T1, the SS shall switch the power settings from T1 to T2.
- 6) UE shall transmit a MEASUREMENT REPORT message triggered by event 3C. The measurement reporting delay from the beginning of T2 shall be less than 960 ms. If the UE fails to report the event within the required delay, then a failure is recorded. If the reporting delay for this event is within the required limit, the number of successfull tests is increased by one.
- 7) After 7 seconds from the beginning of T2, the SS shall switch the power settings from T2 to T3.
- 8) UE shall transmit a MEASUREMENT REPORT message triggered by event 3B. The measurement reporting delay from the beginning of T3 shall be less than 960 ms. If the reporting delay for this event is within the required limit, the number of successfull tests is increased by one.
- 9) After 5 seconds from the beginning of T3, the UE is switched off.
- 10) Repeat steps 1-9 according to Annex F.6.2 Table F.6.2.8.

Specific Message Contents

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

MEASUREMENT CONTROL message:

| Information Element/Group name | Value/Remark |
|--|---|
| Message Type (10.2.17) | |
| UE information elements | |
| -RRC transaction identifier | <u>0</u> |
| -Integrity check info | Not Present |
| Measurement Information elements | |
| -Measurement Identity | 2 |
| -Measurement Command (10.3.7.46) | 2 Modify |
| -Measurement Reporting Mode (10.3.7.49) | |
| -Measurement Report Transfer Mode | AM RLC |
| -Periodical Reporting / Event Trigger Reporting Mode | Event trigger |
| -Additional measurements list (10.3.7.1) | Not Present |
| -CHOICE Measurement type | Inter-RAT measurement |
| -Inter-RAT measurement (10.3.7.27) | |
| -Inter-RAT measurement objects list (10.3.7.23) | Not Present |
| -Inter-RAT measurement quantity (10.3.7.29) | |
| -Measurement quantity for UTRAN quality estimate | |
| (10.3.7.38) | |
| -Filter coefficient | <u>0</u> FDD |
| -CHOICE mode | <u>FDD</u> |
| -Measurement quantity | CPICH Ec/N0 |
| -CHOICE system | <u>GSM</u> |
| -Measurement quantity | GSM Carrier RSSI |
| -Filter coefficient | <u>0</u> |
| -BSIC verification required | Not Required |
| -Inter-RAT reporting quantity (10.3.7.32) | |
| -Reporting cell status (10.3.7.61) | |
| -CHOICE reported cell | Report cells within active set or within |
| | virtual active set or of the other RAT |
| -Maximum number of reported cells | 2 |
| -CHOICE report criteria | Inter-RAT measurement reporting criteria |
| -Inter-RAT measurement reporting criteria (10.3.7.30) | |
| -Parameters required for each event | 1 1 |
| -Inter-RAT event identity (10.3.7.24) | Event 3C |
| -Threshold own system | Not Present |
| <u>-W</u> | Not Present |
| Threshold other system | -80 dBm |
| -Hysteresis | <u>0 dB</u> |
| Time to trigger | <u>0 ms</u> |
| -Reporting cell status (10.3.7.61) | B (11 M) |
| -CHOICE reported cell | Report cells within active set or within |
| Management of the second of th | virtual active set or of the other RAT |
| -Maximum number of reported cells | <u>Z</u> |
| Physical channel information elements | A stine (for all three patterns are siffered) |
| -DPCH compressed mode status info (10.3.6.34) | Active (for all three patterns specified in |
| | table 8.6.4.4) |

MEASUREMENT REPORT message for inter – RAT test cases

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

8.6.4.1.5 Test requirements

8.6.4.1.5.1 TEST 1 With BSIC verification required

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

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

8.6.4.1.5.2 TEST 2 Without BSIC verification required

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

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

3GPP TSG-T1 Meeting #21 Hyderabad, India, 2 - 6 February, 2004

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5.7.4 Method of test

5.7.4.1 Initial conditions

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

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

- 1) Connect the SS to the UE antenna connector as shown in figure A.1.
- 2) A call is set up according to the Generic call setup procedure. The 12,2 kbps UL reference measurement channel is used, with gain factors β_c = 0,5333 and β_d = 1,0 in non-compressed frames. Slot formats 0 and 0B are used on the uplink DPCCH.
- 3) Enter the UE into loopback test mode and start the loopback test.

See TS 34.108 [3] and TS 34.109 [4] for details regarding generic call setup procedure and loopback test.

5.7.4.2 Procedure

NOTE: CFNs are given in this procedure for reference as examples only. A fixed offset may be applied to the CFNs.

- 1) Before proceeding with step (3) below, set the output power of the UE, measured at the UE antenna connector, to be in the range -36 ± 9 dBm. This may be achieved by setting the downlink signal (Îor) to yield an appropriate open loop output power and/or by generating suitable downlink TPC commands from the SS.
- 2) Transmit the PHYSICAL CHANNEL RECONFIGURATION message to set the uplink power control parameters to use Algorithm 1 and a step size of 2 dB, and to set the compressed mode parameters shown in table 5.7.5. The contents of the message are specified in table 5.7.9. This set of compressed mode parameters defines the compressed mode pattern which is used to test the implementation of:
 - a) in steps (3) and (4), upward 3 dB output power steps and the implementation of a downward power change when resuming transmission after a compressed mode gap, and
 - b) in steps (7) and (8), downward 3dB output power steps and the implementation of an upward power change when resuming transmission after a compressed mode gap.

Table 5.7.5: Parameters for pattern A for compressed mode test

| Parameter | Meaning | Value |
|------------------------------------|--|----------------|
| TGPRC | Number of transmission gap patterns within the Transmission Gap Pattern Sequence | 1 |
| TGCFN | Connection Frame Number of the first frame of the first pattern within the Transmission Gap Pattern Sequence | 0 |
| TGSN | Slot number of the first transmission gap slot within the TGCFN | 2 |
| TGL1 | Length of first transmission gap within the transmission gap pattern | 7 slots |
| TGL2 | Length of second transmission gap within the transmission gap pattern | 7 slots |
| TGD | Duration between the starting slots of two consecutive transmission gaps within a transmission gap pattern | 15 slots |
| TGPL1 | Duration of transmission gap pattern 1 | 3 frames |
| TGPL2 | Duration of transmission gap pattern 2 | Omit |
| RPP | Recovery Period Power Control Mode | Mode 1 |
| ITP | Initial Transmit Power Mode | Mode 1 |
| UL/DL Mode | Defines whether only DL, only UL, or combined UL/DL compressed mode is used | UL/DL |
| Downlink Compressed Mode Method | Method for generating downlink compressed mode gap | SF/2 |
| Uplink Compressed Mode Method | Method for generating uplink compressed mode gap | SF/2 |
| Scrambling code change | Indicates whether the alternative scrambling code is used | No code change |
| Downlink frame type | Downlink compressed frame structure | Α |
| DeltaSIR | Delta in DL SIR target value to be set in the UE during compressed frames | 0 |
| DeltaSIRafter | Delta in DL SIR target value to be set in the UE one frame after the compressed frames | 0 |

The resulting compressed mode pattern is shown in figure 5.7.2.

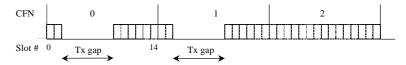


Figure 5.7.2: Pattern A for compressed mode test

3) After the PHYSICAL CHANNEL RECONFIGURATION COMPLETE message from the UE is received, transmit TPC commands on the downlink as shown in table 5.7.6.

Table 5.7.6: TPC commands transmitted in downlink

| CFN | TPC commands in downlink |
|-----|--------------------------|
| 0 | 01111111 |
| 1 | 11101010 |
| 2 | 1010101010101 |

4) Measure the mean power in the following slots, not including the $25 \mu s$ transient periods at the start and end of each slot:

CFN 0: Slots # 9,10,11,12,13,14

CFN 1: Slots # 0,1,9

5) Re-start the test. Before proceeding with step (7) below, set the output power of the UE, measured at the UE antenna connector, to be in the range 2 ± 9 dBm. This may be achieved by setting the downlink signal

(Îor) to yield an appropriate open loop output power and/or by generating suitable downlink TPC commands from the SS.

- 6) Repeat step (2) above, with the exception that TGCFN = 3 in table 5.7.5 and table 5.7.9.
- 7) After the PHYSICAL CHANNEL RECONFIGURATION COMPLETE message from the UE is received, transmit TPC commands on the downlink as shown in table 5.7.7.

Table 5.7.7: TPC commands transmitted in downlink

| CFN | TPC commands in downlink |
|-----|--------------------------|
| 3 | 01000000 |
| 4 | 00010101 |
| 5 | 0101010101010 |

8) Measure the mean power in the following slots, not including the $25~\mu s$ transient periods at the start and end of each slot:

CFN 3: Slots # 9,10,11,12,13,14

CFN 4: Slots # 0,1,9

- 9) Re-start the test. Before proceeding with step (11) below, set the output power of the UE, measured at the UE antenna connector, to be in the range –10 ± 9 dBm. This may be achieved by setting the downlink signal (Îor) to yield an appropriate open loop output power and/or by generating suitable downlink TPC commands from the SS.
- 10) Transmit the PHYSICAL CHANNEL RECONFIGURATION message to set the uplink power control parameters to use Algorithm 1 and a step size of 1 dB, and to set the compressed mode parameters shown in table 5.7.8. The contents of the message are specified in table 5.7.10. This set of compressed mode parameters defines the compressed mode pattern which is used to test the implementation of power steps at the start and end of compressed frames, and the implementation of a zero power change when resuming transmission after a compressed mode gap.

Table 5.7.8: Parameters for pattern B for compressed mode test

| Parameter | Meaning | Value |
|------------------------------------|--|----------------|
| TGPRC | Number of transmission gap patterns within the Transmission Gap Pattern Sequence | 1 |
| TGCFN | Connection Frame Number of the first frame of the first pattern within the Transmission Gap Pattern Sequence | 7 |
| TGSN | Slot number of the first transmission gap slot within the TGCFN | 8 |
| TGL1 | Length of first transmission gap within the transmission gap pattern | 14 slots |
| TGL2 | Length of second transmission gap within the transmission gap pattern | omit |
| TGD | Duration between the starting slots of two consecutive transmission gaps within a transmission gap pattern | 0 |
| TGPL1 | Duration of transmission gap pattern 1 | 4 frames |
| TGPL2 | Duration of transmission gap pattern 2 | Omit |
| RPP | Recovery Period Power Control Mode | Mode 0 |
| ITP | Initial Transmit Power Mode | Mode 0 |
| UL/DL Mode | Defines whether only DL, only UL, or combined UL/DL compressed mode is used | UL/DL |
| Downlink Compressed Mode Method | Method for generating downlink compressed mode gap | SF/2 |
| Uplink Compressed Mode Method | Method for generating uplink compressed mode gap | SF/2 |
| Scrambling code change | Indicates whether the alternative scrambling code is used | No code change |
| Downlink frame type | Downlink compressed frame structure | Α |
| DeltaSIR | Delta in DL SIR target value to be set in the UE during compressed frames | 0 |
| DeltaSIRafter | Delta in DL SIR target value to be set in the UE one frame after the compressed frames | 0 |

The resulting compressed mode pattern is shown in figure 5.7.3.

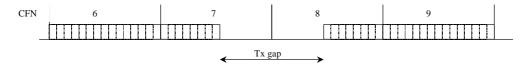


Figure 5.7.3: Pattern B for compressed mode test

11) After the PHYSICAL CHANNEL RECONFIGURATION COMPLETE message from the UE is received, transmit TPC commands on the downlink as shown in table 5.7.8.

Table 5.7.8: TPC commands transmitted in downlink

| CFN | TPC commands in downlink |
|-----|--------------------------|
| 6 | 000000000111 |
| 7 | 11111111 |
| 8 | 00000000 |
| 9 | 0001111111111 |

12) Measure the mean power in the following slots, not including the 25 μ s transient periods at the start and end of each slot:

CFN 6: Slot # 14 CFN 7: Slots # 0 and 7 CFN 8: Slots # 7 and 14

CFN 9: Slot # 0

Table 5.7.9: PHYSICAL CHANNEL RECONFIGURATION message (step 2)

| Information Element | Value/Remark |
|---|--|
| Message Type | |
| UE Information Elements | |
| -RRC transaction identifier | 0 |
| -Integrity check info | Not Present |
| -Integrity protection mode info | Not Present |
| -Ciphering mode info | Not Present |
| -Activation time | 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 | Not Dropont |
| -CN Information info UTRAN mobility information elements | Not Present |
| -URA identity | Not Present |
| RB information elements | Not i lesent |
| -Downlink counter synchronisation info | Not Present |
| PhyCH information elements | Hot i recent |
| -Frequency info | Not Present |
| Uplink radio resources | |
| -Maximum allowed UL TX power | Not Present |
| -CHOICE channel requirement | Uplink DPCH info |
| -Uplink DPCH power control info | |
| -CHOICE mode | FDD |
| -DPCCH Power offset | -6dB |
| -PC Preamble | 1 frame |
| -SRB delay | 7 frames |
| -Power Control Algorithm | Algorithm 1 |
| -TPC step size | 2dB |
| -CHOICE mode | FDD |
| -Scrambling code type -Scrambling code number | Long 0 |
| -Number of DPDCH | 1 |
| -spreading factor | 64 |
| -TFCI existence | TRUE |
| -Number of FBI bits | Not Present(0) |
| -Puncturing Limit | 1 |
| Downlink radio resources | |
| -CHOICE mode | FDD |
| -Downlink PDSCH information | Not Present |
| -Downlink information common for all radio links | |
| -Downlink DPCH info common for all RL | Not Present |
| -CHOICE mode | FDD |
| -DPCH compressed mode info | |
| -Transmission gap pattern sequence -TGPSI | 1 |
| -TGPS Status Flag | Activate |
| -TGCFN | 0 |
| -Transmission gap pattern sequence | , and the second |
| configuration parameters | |
| -TGMP | FDD measurement |
| -TGPRC | 1 |
| -TGSN | 2 |
| -TGL1 | 7 |
| -TGL2 | 7 |
| -TGD | 15 |
| -TGPL1 | 3 |
| -TGPL2 | Not Present |
| -RPP | Mode 1 |
| -ITP | Mode 1 |
| -CHOICE UL/DL mode -Downlink compressed mode method | UL and DL SF/2 |
| -Downlink compressed mode method -Uplink compressed mode method | SF/2 SF/2 |
| -Opinik compressed mode metriod -Downlink frame type | A A |
| Бомпшик паше туре | / A |

| -DeltaSIR1 | 0 |
|---|---|
| -DeltaSIRafter1 | 0 |
| -DeltaSIR2 | Not Present |
| -DeltaSIRafter2 | Not Present |
| -N Identify abort | Not Present |
| -T Reconfirm abort | Not Present |
| -TX Diversity Mode | Not Present |
| -SSDT information | Not Present |
| -Default DPCH Offset Value | Not Present |
| -Downlink information per radio link list | |
| - Downlink information for each radio link | |
| -Choice mode | FDD |
| -Primary CPICH info | |
| -Primary scrambling code | 100 |
| -PDSCH with SHO DCH Info | Not Present |
| -PDSCH code mapping | Not Present |
| -Downlink DPCH info for each RL | |
| -CHOICE mode | FDD |
| -Primary CPICH usage for channel estimation | Primary CPICH may be used |
| -DPCH frame offset | Set to value Default DPCH Offset Value (as |
| | currently stored in SS) mod 38400 |
| -Secondary CPICH info | Not Present |
| -DL channelisation code | |
| -Secondary scrambling code | Not Present |
| -Spreading factor | 128 |
| -Code number | 9 96 |
| -Scrambling code change | No code change |
| -TPC combination index | 0 |
| -SSDT Cell Identity | Not Present |
| -Closed loop timing adjustment mode | Not Present |
| -SCCPCH Information for FACH | Not Present |

Table 5.7.10: PHYSICAL CHANNEL RECONFIGURATION message (step 10)

| Information Element | Value/Remark |
|---|-------------------|
| Message Type | |
| UE Information Elements | |
| -RRC transaction identifier | 0 |
| -Integrity check info | Not Present |
| -Integrity protection mode info | Not Present |
| -Ciphering mode info | Not Present |
| -Activation time | 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 | 1 |
| -CN Information info | Not Present |
| UTRAN mobility information elements | l N . B |
| -URA identity | Not Present |
| RB information elements | Not Descript |
| -Downlink counter synchronisation info | Not Present |
| PhyCH information elements | Not Dropont |
| -Frequency info Uplink radio resources | Not Present |
| -Maximum allowed UL TX power | Not Present |
| -CHOICE channel requirement | Uplink DPCH info |
| -Uplink DPCH power control info | Opinik Di Girinio |
| -CHOICE mode | FDD |
| -DPCCH Power offset | -6dB |
| -PC Preamble | 1 frame |
| -SRB delay | 7 frames |
| -Power Control Algorithm | Algorithm 1 |
| -TPC step size | 1dB |
| -CHOICE mode | FDD |
| -Scrambling code type | Long |
| -Scrambling code number | 0 |
| -Number of DPDCH | 1 |
| -spreading factor | 64 |
| -TFCI existence | TRUE |
| -Number of FBI bits | Not Present(0) |
| -Puncturing Limit Downlink radio resources | 1 |
| -CHOICE mode | FDD |
| -Downlink PDSCH information | Not Present |
| -Downlink information common for all radio links | Not Fresent |
| -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 | 7 |
| -Transmission gap pattern sequence | |
| configuration parameters | |
| -TGMP | FDD measurement |
| -TGPRC | 1 |
| -TGSN | 8 |
| -TGL1 | 14 |
| -TGL2 | Not Present |
| -TGD | 0 |
| -TGPL1 -TGPL2 | 4 Not Procent |
| | Not Present |
| -RPP -ITP | Mode 0 Mode 0 |
| -TIP -CHOICE UL/DL mode | UL and DL |
| | SF/2 |
| -I)ownlink compressed made method | |
| -Downlink compressed mode method -Uplink compressed mode method | SF/2 |

| | T |
|---|---|
| -DeltaSIR1 | 0 |
| -DeltaSIRafter1 | 0 |
| -DeltaSIR2 | Not Present |
| -DeltaSIRafter2 | Not Present |
| -N Identify abort | Not Present |
| -T Reconfirm abort | Not Present |
| -TX Diversity Mode | Not Present |
| -SSDT information | Not Present |
| -Default DPCH Offset Value | Not Present |
| -Downlink information per radio link list | |
| - Downlink information for each radio link | |
| -Choice mode | FDD |
| -Primary CPICH info | |
| -Primary scrambling code | 100 |
| -PDSCH with SHO DCH Info | Not Present |
| -PDSCH code mapping | Not Present |
| -Downlink DPCH info for each RL | |
| -CHOICE mode | FDD |
| -Primary CPICH usage for channel estimation | Primary CPICH may be used |
| -DPCH frame offset | Set to value Default DPCH Offset Value (as |
| | currently stored in SS) mod 38400 |
| -Secondary CPICH info | Not Present |
| -DL channelisation code | |
| -Secondary scrambling code | Not Present |
| -Spreading factor | 128 |
| -Code number | 0 96 |
| -Scrambling code change | No code change |
| -TPC combination index | 0 |
| -SSDT Cell Identity | Not Present |
| -Closed loop timing adjustment mode | Not Present |
| -SCCPCH Information for FACH | Not Present |

Next section

1

7.6.3.3 Test purpose

To verify that UE reliably demodulates the DPCH of the selected Node B while site selection diversity is enabled during soft handover.

7.6.3.4 Method of test

7.6.3.4.1 Initial conditions

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

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

- 1) Connect two SS's, multi-path fading simulators and an AWGN source to the UE antenna connector as shown in figure A.11.
- 2) Activate one of two cells (Cell 1).
- 3) Set up a call according to the Generic call setup procedure specified in TS 34.108 [3] clause 7.3.2, with the exceptions for information elements listed in table 7.6.3.3A. With these exceptions, necessary information for SSDT mode is sent to the UE.
- 4) Activate the other cell (Cell 2) on the other SS.
- 5) RF parameters are set up according to table 7.6.3.4 and table 7.6.3.5

- 6) After receiving MEASUREMENT REPORT message from the UE, send the ACTIVESET UPDATE message from Cell 1 to the UE in order to activate SSDT mode. Contents of the message is specified in table 7.6.3.3B
- 7) Enter the UE into loopback test mode and start the loopback test.
- 8) Set up fading simulators as fading condition case 1, which is described in table D.2.2.1.

Table 7.6.3.3A: Specific Message Contents for SSDT mode

RRC CONNECTION SETUP for Test 1 and Test 2

| Information Element | Value/remark |
|---|--------------|
| Downlink information common for all radio links | |
| - CHOICE mode | FDD |
| - SSDT information | |
| - S field | 1 |
| - Code Word Set | long |
| Downlink DPCH info for each RL | |
| - CHOICE mode | FDD |
| - Downlink DPCH info for each RL | |
| - SSDT Cell Identity | a |

RRC CONNECTION SETUP for Test 3 and Test 4

| Information Element | Value/remark |
|---|--------------|
| Downlink information common for all radio links | |
| - CHOICE mode | FDD |
| - SSDT information | |
| - S field | 2 |
| - Code Word Set | short |
| Downlink DPCH info for each RL | |
| - CHOICE mode | FDD |
| - Downlink DPCH info for each RL | |
| - SSDT Cell Identity | a |

RADIO BEARER SETUP for Test 1 and Test 2

| Information Element | Value/remark |
|---|--------------|
| Downlink information common for all radio links | |
| - CHOICE mode | FDD |
| - SSDT information | |
| - S field | 1 |
| - Code Word Set | long |
| Downlink DPCH info for each RL | |
| - CHOICE mode | FDD |
| - Downlink DPCH info for each RL | |
| - SSDT Cell Identity | а |

RADIO BEARER SETUP for Test 3 and Test 4

| Information Element | Value/remark |
|---|--------------|
| Downlink information common for all radio links | |
| - CHOICE mode | FDD |
| - SSDT information | |
| - S field | 2 |
| - Code Word Set | short |
| Downlink DPCH info for each RL | |
| - CHOICE mode | FDD |
| - Downlink DPCH info for each RL | |
| - SSDT Cell Identity | a |

Table 7.6.3.3B: Message Contents of ACTIVESET UPDATE message

ACTIVESET UPDATE for Test 1 and Test 2

| Information Element/Group name | Value/Remark |
|--|---|
| Message Type (10.2.17) | |
| UE information elements | |
| - RRC transaction identifier | 0 |
| - Integrity check info | Not Present |
| - Activation time | "now". |
| - New U-RNTI | Not Present |
| CN information elements | |
| - CN Information info | Not Present |
| Phy CH information elements | |
| Uplink radio resources | |
| - Maximum allowed UL TX power | 33 dBm |
| Downlink radio resources | |
| - Radio link addition information | 1 |
| - Radio link addition information | |
| - Primary CPICH info | Same as defined in Cell2 |
| - Downlink DPCH info for each RL | |
| - CHOICE mode | FDD |
| - Primary CPICH usage for channel estimation | Primary CPICH may be used |
| - DPCH frame offset | This should be refrlected by the IE" Cell synchronisation |
| | information" in received MEASUREMENT REPORT |
| | message |
| - Secondary CPICH info | Not Present |
| - DL channelisation code | |
| - Secondary scrambling code | Not Present |
| - Spreading factor | 128 |
| - Code number | 0 96 |
| - Scrambling code change | No code change |
| - TPC combination index | 0 |
| - SSDT Cell Identity | b |
| - Closed loop timing adjustment mode | Not Present |
| - TFCI combining indicator | FALSE |
| - SCCPCH Information for FACH | Not Present |
| - Radio link removal information | Not Present |
| - TX Diversity Mode | None |
| - SSDT information | |
| - S field | |
| - Code Word Set | long |

Next section

8.3.1.4.2 Procedure

- 1) The RF parameters are set up according to T1.
- 2) The UE is switched on.
- 3) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.4 without Compressed mode parameters.

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

- 4) SS shall transmit a MEASUREMENT CONTROL message.
- 5) 5 seconds after step4 has completed, the SS shall switch the power settings from T1 to T2.
- 6) UE shall transmit a MEASUREMENT REPORT message triggered by event 1A containing the CFN-SFN observed time difference between cell 1 and cell 2.

- 7) At the beginning of T3 the downlink DPCH of cell 2 shall be activated.
- 8) SS shall send an ACTIVE SET UPDATE message with activation time "now", adding cell 2 to the active set. The ACTIVE SET UPDATE message shall be sent to the UE so that the whole message is available at the UE at the beginning of T4.
- 9) At the beginning of T5 the DPCH from cell 1 shall be switched off.
- 10) The UE downlink BLER shall be measured during time period T6.
- 11)5 seconds after step10 has completed, the UE is switched off. Any timing information of cell 2 is deleted in the UE.
- 12)Repeat step 1-11[TBD] times

Specific Message Contents

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

MEASUREMENT CONTROL message (step 4):

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

| Information Element/Group name | Value/Remark | | | |
|---|--------------|--|--|--|
| -Amount of reporting | Not Present | | | |
| -Reporting interval | Not Present | | | |
| -Reporting cell status | Not Present | | | |
| Physical channel information elements | | | | |
| -DPCH compressed mode status info (10.3.6.34) Not Present | | | | |
| Note 1: The SFN-CFN observed time difference is calculated from the OFF and Tm parameters contained | | | | |
| in the IE "Call avachronication information " TS 25 221, clause 10.2.7.6. According to TS 25 221 | | | | |

in the IE "Cell synchronisation information", TS 25.331, clause 10.3.7.6. According to TS 25.331, 8.6.7.7, this IE is included in MEASUREMENT REPORT if IE "Cell synchronisation information reporting indicator" in IE "Cell reporting quantities" TS 25.331, clause 10.3.7.5 is set to TRUE in MEASUREMENT CONTROL.

Note 2: Reporting interval = 0 ms means no periodical reporting

ACTIVE SET UPDATE message (step 8):

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

Radio link addition information

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

Downlink DPCH info for each RL

| Information Element/Group name | Type and reference | Value/Remark |
|--|--|---|
| CHOICE mode | | |
| >FDD | | |
| >>Primary CPICH usage for channel estimation | Primary CPICH usage for channel estimation 10.3.6.62 | Primary CPICH may be used |
| >>DPCH frame offset | Integer(038144 by step of 256) | This should be refriected by the IE" Cell synchronisation information" in received MEASUREMENT REPORT message |
| >>Secondary CPICH info | Secondary CPICH info 10.3.6.73 | Not Present |
| >>DL channelisation code | | |
| >>>Secondary scrambling code | Secondary scrambling code 10.3.6.74 | Not Present |
| >>>Spreading factor | Integer(4, 8, 16, 32, 64, 128, 256, 512) | 128 |
| >>>Code number | Integer(0Spreading factor - 1) | 0 96 |
| >>>Scrambling code change | Enumerated (code change, no code change) | No code change |
| >>TPC combination index | TPC combination index 10.3.6.85 | 0 |
| >>SSDT Cell Identity | SSDT Cell Identity 10.3.6.76 | Not Present |
| >>Closed loop timing adjustment mode | Integer(1, 2) | Not Present |

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

Next section

8.3.2.1.4.2 Procedure

- 1) The RF parameters are set up according to T1.
- 2) The UE is switched on.
- 3) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.4.
- 4) SS shall transmit a MEASUREMENT CONTROL message.
- 5) 5 seconds after step4 has completed, the SS shall switch the power settings from T1 to T2
- 6) UE shall transmit a MEASUREMENT REPORT message triggered by event 1A
- 7) SS shall transmit a PHYSICAL CHANNEL RECONFIGURATION message with activation time set to "now". SS shall transmit the whole message such that it will be available at the UE no later than a period equals to the RRC procedure delay (= 80 ms) prior to the beginning of T3.
- 8) After 5 seconds from the beginning of time period T2, the SS shall switch the power settings from T2 to T3
- 9) UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the UL DCCH of cell 2. If the UE transmits the UL DPCCH to cell 2 less than 110 ms from the beginning of time period T3 then the number of successful tests is increased by one.

- 10) After 5 seconds from the beginning of time period T3, the UE is switched off. Any timing information of cell 2 is deleted in the UE.
- 11)Repeat step 1-10 [TBD] times

Specific Message Contents

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

MEASUREMENT CONTROL message (step 4):

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

| Information Element/Group name | Value/Remark | |
|---|--------------|--|
| -Amount of reporting | Not Present | |
| -Reporting interval | Not Present | |
| -Reporting cell status | Not Present | |
| Physical channel information elements | | |
| -DPCH compressed mode status info (10.3.6.34) | Not Present | |
| Note 1: The SEN CEN observed time difference is calculated from the OEE and Tm parameters contained | | |

- Note 1: The SFN-CFN observed time difference is calculated from the OFF and Tm parameters contained in the IE "Cell synchronisation information ", TS 25.331, clause 10.3.7.6. According to TS 25.331, 8.6.7.7, this IE is included in MEASUREMENT REPORT if IE "Cell synchronisation information reporting indicator" in IE "Cell reporting quantities" TS 25.331, clause 10.3.7.5 is set to TRUE in MEASUREMENT CONTROL.
- Note 2: Reporting interval = 0 ms means no periodical reporting

PHYSICAL CHANNEL RECONFIGURATION message (step 7):

| Information Element | Value/Remark |
|--|---|
| Message Type | |
| UE Information Elements | |
| -RRC transaction identifier | 0 Not Brocont |
| -Integrity protection mode info | Not Present Not Present |
| -Integrity protection mode info -Ciphering mode info | Not Present |
| -Activation time | "now" |
| -New U-RNTI | Not Present |
| -New C-RNTI | Not Present |
| -RRC State Indicator | CELL_DCH |
| -UTRAN DRX cycle length coefficient | Not Present |
| CN Information Elements | |
| -CN Information info | Not Present |
| UTRAN mobility information elements | |
| -URA identity | Not Present |
| RB information elements | |
| -Downlink counter synchronisation info | Not Present |
| PhyCH information elements | |
| -Frequency info (10.3.6.36) | |
| -CHOICE mode | FDD |
| -UARFCN uplink(Nu) | Same uplink UARFCN as used for cell 2 |
| -UARFCN downlink(Nd) | Same downlink UARFCN as used for cell 2 |
| Uplink radio resources | 22 dD |
| -Maximum allowed UL TX power | 33 dBm |
| -CHOICE channel requirement | Uplink DPCH info |
| -Uplink DPCH info (10.3.6.88) -Uplink DPCH power control info (10.3.6.91) | |
| -CHOICE mode | FDD |
| -DPCCH power offset | -6dB |
| - PC Preamble | 1 frame |
| - SRB delay | 7 frames |
| - Power Control Algorithm | Algorithm1 |
| - TPC step size | 1dB |
| -CHOICE mode | FDD |
| -Scrambling code type | Long |
| -Scrambling code number | 0 (0 to 16777215) |
| -Number of DPDCH | Not Present(1) |
| -Spreading factor | 64 |
| -TFCI existence | TRUE |
| -Number of FBI bit | Not Present(0) |
| -Puncturing Limit | TBD |
| Downlink radio resources | 500 |
| -CHOICE mode | FDD Not Brown and |
| -Downlink PDSCH information Powelink information common for all radio links (10.3.6.34) | Not Present |
| -Downlink information common for all radio links (10.3.6.24) -Downlink DPCH info common for all RL (10.3.6.18) | |
| -Downlink DPCH into common for all RL (10.3.6.18) -Timing indicator | Initialise |
| -Timing indicator -CFN-targetSFN frame offset | Not Present |
| -Downlink DPCH power control information (10.3.6.23) | INOUT TOSCIIL |
| -DOWNINK DECIT power control miloritation (10.3.6.23) | 0 (single) |
| -CHOICE mode | FDD |
| -Power offset P _{Pilot-DPDCH} | TBD |
| -DL rate matching restriction information | Not Present |
| -Spreading factor | 128 |
| -Fixed or Flexible Position | Fixed |
| -TFCI existence | TRUE |
| -CHOICE SF | 128 |
| -Number of bits for Pilot bits(SF=128,256) | 8 |
| -CHOICE mode | FDD |
| -DPCH compressed mode info (10.3.6.33) | Not Present |
| -TX Diversity mode (10.3.6.86) | None |
| -SSDT information (10.3.6.77) | Not Present |
| -Default DPCH Offset Value (10.3.6.16) | 0 |
| -Downlink information per radio link list | 1 |
| -Downlink information for each radio link (10.3.6.27) | |

| Information Element | Value/Remark |
|--|---------------------------|
| -CHOICE mode | FDD |
| -Primary CPICH info (10.3.6.60) | |
| -Primary scrambling code | 350 |
| -PDSCH with SHO DCH info (10.3.6.47) | Not Present |
| -PDSCH code mapping (10.3.6.43) | Not Present |
| -Downlink DPCH info for each RL (10.3.6.21) | |
| -CHOICE mode | FDD |
| -Primary CPICH usage for channel estimation | Primary CPICH may be used |
| -DPCH frame offset | 0 chips |
| -Secondary CPICH info | Not Present |
| -DL channelisation code | |
| -Secondary scrambling code | 4Not Present |
| -Spreading factor | 128 |
| -Code number | 9 96 |
| -Scrambling code change | No change |
| -TPC combination index | 0 |
| - SSDT Cell Identity | Not Present |
| Closed loop timing adjustment mode | Not Present |
| - SCCPCH information for FACH (10.3.6.70) | Not Present |

Next section

8.3.2.2.4 *Method of test*

8.3.2.2.4.1 Initial conditions

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

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

The test parameters are given in table 8.3.2.2.1 and 8.3.2.2.2 below. The test consists of three successive time periods, with a time duration of T1, T2 and T3 respectively. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 2C shall be used. The CPICH Ec/I0 of the best cell on the unused frequency shall be reported together with Event 2C reporting. At the start of time duration T1, the UE may not have any timing information of cell 2.

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

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

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

| Para | meter | Unit | Value | Comment |
|---------------------------|----------------|------|---|--|
| DCH param | eters | | DL and UL Reference Measurement Channel 12.2 kbps | As specified in clause C.3.1 and C.2.1 |
| Power Conti | rol | | On | |
| Target qualit | ty value on | BLER | 0.01 | |
| Compressed | d mode | | A.22 set 1 | As specified in TS 34.121 clause C.5. |
| Initial | Active cell | | Cell 1 | |
| conditions | Neighbour cell | | Cell 2 | |
| Final conditions | Active cell | | Cell 2 | |
| Threshold no frequency | on used | dB | -18 | Absolute Ec/I0 threshold for event 2C |
| Reporting ra | ange | dB | 4 | Applicable for event 1A |
| Hysteresis | | dB | 0 | |
| W | | | 1 | Applicable for event 1A |
| W non-used | frequency | | 1 | Applicable for event 2C |
| Reporting de threshold | eactivation | | 0 | Applicable for event 1A |
| Time to Trig | ger | ms | 0 | |
| Filter coeffic | ient | | 0 | |
| T1 | • | S | 5 | |
| T2 | | S | 10 | |
| T3 | | S | 5 | |

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

| Parameter | Unit | Cell 1 | | Cell 2 | | | |
|-----------------------|------|---------------|-------|--------|-----------|-----------|-------|
| | | T1 | T2 | T3 | T1 | T2 | Т3 |
| UTRA RF Channel | | Channel 1 | | | | Channel 2 | |
| Number | | | | | | | |
| CPICH_Ec/lor | dB | | -10 | | -10 | | |
| PCCPCH_Ec/lor | dB | | -12 | | | -12 | |
| SCH_Ec/lor | dB | | -12 | | | -12 | |
| PICH_Ec/lor | dB | -15 | | | | -15 | |
| DPCH_Ec/lor | dB | Note1 | Note1 | Note3 | N/A | N/A | Note1 |
| OCNS | | Note2 | Note2 | Note2 | -0.941 | -0.941 | Note2 |
| \hat{I}_{or}/I_{oc} | dB | | 0 | | -Infinity | -1.8 | -1.8 |
| I_{oc} | dBm/ | | | - | 70 | | |
| -00 | 3.84 | | | | | | |
| | MHz | | | | | | |
| CPICH_Ec/lo | dB | -13 -Infinity | | | -1 | 14 | |
| Propagation | | · | | AW | VGN | | |
| Condition | | | | | | | |

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

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

Note 3: The DPCH may not be power controlled by the power control loop.

8.3.2.2.4.2 Procedure

- 1) The RF parameters are set up according to T1.
- 2) The UE is switched on.
- 3) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.4 with Compressed mode parameters as in Table 8.3.2.2.1.
- 4) SS shall transmit a MEASUREMENT CONTROL messages.

- 5) 5 seconds after step4 has completed, the SS shall switch the power settings from T1 to T2
- 6) UE shall transmit a MEASUREMENT REPORT message triggered by event 2C
- 7) SS shall transmit a PHYSICAL CHANNEL RECONFIGURATION message with activation time "now". SS shall transmit the whole message such that will be is available at the UE no later than a period equals to the RRC procedure delay (= 80 ms) prior to the beginning of T3.
- 8) After 10 seconds from the beginning of time period T2, the SS shall switch the power settings from T2 to T3
- 9) UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the UL DCCH of cell 2. If the UE transmits the UL DPCCH to cell 2 less than 140 ms from the beginning of time period T3 then the number of successful tests is increased by one.
- 10) After 5 seconds from the beginning of time period T3, the UE is switched off. Any timing information of cell 2 is deleted in the UE.
- 11)Repeat step 1-10 [TBD] times

Specific Message Contents

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

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

| Information Element/Group name | Value/Remark |
|--|---|
| Message Type (10.2.17) UE information elements | |
| | |
| -RRC transaction identifier | 0 Not Breeze |
| -Integrity check info | Not Present |
| Measurement Information elements | |
| -Measurement Identity | 2 |
| -Measurement Command (10.3.7.46) | Setup |
| -Measurement Reporting Mode (10.3.7.49) | AMPLO |
| -Measurement Report Transfer Mode | AM RLC |
| -Periodical Reporting / Event Trigger Reporting Mode | Event trigger |
| -Additional measurements list (10.3.7.1) | Not Present |
| -CHOICE Measurement type | Inter-frequency measurement |
| -Inter-frequency measurement (10.3.7.16) | |
| -Inter-frequency measurement objects list (10.3.7.13) | Not Droppet |
| - CHOICE Inter-frequency cell removal | Not Present |
| - New Inter frequency cells | |
| - Inter frequency cell id | 0 |
| - Frequency info | EDD |
| - CHOICE mode | FDD Not Brown |
| - UARFCN uplink(Nu) | Not Present |
| - UARFCN downlink(Nd) | Same frequency as "Channel2" in Table |
| Callinfo | 8.3.2.2.2 |
| - Cell info - Cell individual offset | Not Droppet |
| | Not Present |
| Reference time difference to cell Read SFN indicator | Not Present TRUE |
| - Read SFN Indicator - CHOICE mode | FDD |
| | FUU |
| - Primary CPICH info | Cat to Drimary parambling and of Call? |
| - Primary scrambling code | Set to Primary SCRICH Ty Power of Cell2 |
| - Primary CPICH Tx Power | Set to Primary CPICH Tx Power of Cell2 described in Table 8.3.2.2.2 |
| Tr. Diversity, leadington | FALSE |
| Tx Diversity Indicator Cell Selection and Re-selection info | Set to Cell Selection and Re-selection info |
| - Cell Selection and Re-Selection into | of Cell2 |
| - Cell for measurement | Not Present |
| -Inter-frequency measurement quantity (10.3.7.18) | Not i lesent |
| -CHOICE reporting criteria | Inter-frequency reporting criteria |
| -Inter-frequency reporting criteria | Inter-frequency reporting chiefla |
| -Filter coefficient | 0 |
| -CHOICE mode | FDD |
| -Measurement quantity for frequency quality estimate | CPICH Ec/N0 |
| -Inter-frequency reporting quantity (10.3.7.21) | CHOTILE/NO |
| -UTRA Carrier RSSI | FALSE |
| -Frequency quality estimate | FALSE |
| -Non frequency related cell reporting quantities (10.3.7.5) | FALSE |
| -SFN-SFN observed time difference reporting indicator | Type 1 |
| -Sell synchronisation information reporting indicator | TRUE |
| | TRUE |
| -Cell Identity reporting indicator -CHOICE mode | FDD |
| -CPICH Ec/N0 reporting indicator | TRUE |
| -CPICH EC/No reporting indicator -CPICH RSCP reporting indicator | TRUE |
| | TRUE |
| -Pathloss reporting indicator | INUE |
| -Reporting cell status (10.3.7.61) | Papart calls within manitored act on see |
| -CHOICE reported cell | Report cells within monitored set on non- |
| Maximum number of reported cells not reported not used | used frequency |
| -Maximum number of reported cells per reported non-used | 1 |
| frequency Magaziroment validity (10.3.7.51) | Not Dropont |
| -Measurement validity (10.3.7.51) | Not Present |
| -Inter-frequency set update (10.3.7.22) | Not Present |
| -CHOICE report criteria | Inter-frequency measurement reporting |
| Late- for many many (100 a = 10) | criteria |
| -Inter-frequency measurement reporting criteria (10.3.7.19) | |
| -Parameters required for each event | 1 |
| | E 100 |
| -Inter-frequency event identity (10.3.7.14) -Threshold used frequency | Event 2C Not Present |

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

PHYSICAL CHANNEL RECONFIGURATION message (step 7):

| Information Element | Value/Remark |
|---|---|
| Message Type | |
| UE Information Elements | |
| -RRC transaction identifier | 0 |
| -Integrity check info | Not Present |
| -Integrity protection mode info | Not Present |
| -Ciphering mode info | Not Present |
| -Activation time | "now" |
| -New U-RNTI | Not Present |
| -New C-RNTI | Not Present |
| -RRC State Indicator | CELL_DCH |
| -UTRAN DRX cycle length coefficient | Not Present |
| CN Information Elements | |
| -CN Information info | Not Present |
| UTRAN mobility information elements | |
| -URA identity | Not Present |
| RB information elements | |
| -Downlink counter synchronisation info | Not Present |
| >RB with PDCP information list | Not Present |
| >>RB with PDCP information | Not Present |
| PhyCH information elements | |
| -Frequency info (10.3.6.36) | |
| -CHOICE mode | FDD |
| -UARFCN uplink(Nu) | Same uplink UARFCN as used for cell 2 |
| -UARFCN downlink(Nd) | Same downlink UARFCN as used for cell 2 |
| Uplink radio resources | |
| -Maximum allowed UL TX power | 33 dBm |
| -CHOICE channel requirement | Uplink DPCH info |
| -Uplink DPCH info (10.3.6.88) | |
| -Uplink DPCH power control info (10.3.6.91) | |
| -CHOICE mode | FDD |
| -DPCCH power offset | -6dB |
| - PC Preamble | 1 frame |
| - SRB delay | 7 frames |
| - Power Control Algorithm | Algorithm1 |
| - TPC step size | 1dB |
| -CHOICE mode | FDD |
| -Scrambling code type | Long |
| -Scrambling code number | 0 (0 to 16777215) |
| -Number of DPDCH | Not Present(1) |
| -Spreading factor | 64 |
| -TFCI existence | TRUE |
| -Number of FBI bit | Not Present(0) |
| -Puncturing Limit | TBD |
| Downlink radio resources | |
| -CHOICE mode | FDD |
| -Downlink PDSCH information | Not Present |
| -Downlink information common for all radio links (10.3.6.24) | |
| -Downlink DPCH info common for all RL (10.3.6.18) | |
| -Timing indicator | Initialise |
| -CFN-targetSFN frame offset | Not Present |
| -Downlink DPCH power control information (10.3.6.23) | 110111000111 |
| -DPC mode | 0 (single) |
| -CHOICE mode | FDD |
| -Power offset P _{Pilot-DPDCH} | TBD |
| -DL rate matching restriction information | Not Present |
| -Spreading factor | 128 |
| -Spreading factor -Fixed or Flexible Position | Fixed |
| | TRUE |
| TECL existence | INUE |
| -TFCI existence | 120 |
| -CHOICE SF | 128 |
| -CHOICE SF -Number of bits for Pilot bits(SF=128,256) | 8 |
| -CHOICE SF -Number of bits for Pilot bits(SF=128,256) -CHOICE mode | |
| -CHOICE SF -Number of bits for Pilot bits(SF=128,256) -CHOICE mode -DPCH compressed mode info (10.3.6.33) | 8 FDD |
| -CHOICE SF -Number of bits for Pilot bits(SF=128,256) -CHOICE mode -DPCH compressed mode info (10.3.6.33) - Transmission gap pattern sequence | 8 FDD |
| -CHOICE SF -Number of bits for Pilot bits(SF=128,256) -CHOICE mode -DPCH compressed mode info (10.3.6.33) | 8 FDD |

| Information Element | Value/Remark |
|---|---------------------------|
| - TGCFN | Not Present |
| - Transmission gap pattern sequence configuration | Not Present |
| parameters | |
| -TX Diversity mode (10.3.6.86) | None |
| -SSDT information (10.3.6.77) | Not Present |
| -Default DPCH Offset Value (10.3.6.16) | 0 |
| -Downlink information per radio link list | 1 |
| -Downlink information for each radio link (10.3.6.27) | |
| -CHOICE mode | FDD |
| -Primary CPICH info (10.3.6.60) | |
| -Primary scrambling code | 350 |
| -PDSCH with SHO DCH info (10.3.6.47) | Not Present |
| -PDSCH code mapping (10.3.6.43) | Not Present |
| -Downlink DPCH info for each RL (10.3.6.21) | |
| -CHOICE mode | FDD |
| -Primary CPICH usage for channel estimation | Primary CPICH may be used |
| -DPCH frame offset | 0 chips |
| -Secondary CPICH info | Not Present |
| -DL channelisation code | |
| -Secondary scrambling code | 4Not Present |
| -Spreading factor | 128 |
| -Code number | 9 96 |
| -Scrambling code change | No change |
| -TPC combination index | 0 |
| - SSDT Cell Identity | Not Present |
| - Closed loop timing adjustment mode | Not Present |
| - SCCPCH information for FACH (10.3.6.70) | Not Present |

Next section

8.6.2.1.4.2 Procedure

- 1) The RF parameters are set up according to T0.
- 2) The UE is switched on.
- 3) A call is set up according to the test procedure specified in TS 34.108 [3] sub clause 7.3.2.3.
- 4) SS shall transmit a MEASUREMENT CONTROL message (inter frequency).
- 5) SS shall transmit a MEASUREMENT CONTROL message (intra frequency).
- 6) SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message.
- 7) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.
- 8) 5 seconds after step7 has completed, the SS shall switch the power settings from T0 to T1.
- 9) UE shall transmit a MEASUREMENT REPORT message (inter frequency) triggered by event 2C. The measurement reporting delay from the beginning of T1 shall be less than 9.08 seconds. If the UE fails to report the event within the required delay, then a failure is recorded. If the reporting delay for this event is within the required limit, the number of successfull tests is increased by one.
- 10) After 10 seconds from the beginning of T1, the SS shall switch the power settings from T1 to T2.
- 11) UE shall transmit a MEASUREMENT REPORT message (intra frequency) triggered by event 1A. The measurement reporting delay from the beginning of T2 shall be less than 1036.2 ms. If the reporting delay for this event is within the required limit, the number of successfull tests is increased by one.
- 12) After 5 seconds from the beginning of T2, the UE is switched off.
- 13) Repeat steps 1-12 [50] times.

Specific Message Contents

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

PHYSICAL CHANNEL RECONFIGURATION message for Inter frequency measurement:

| Information Element | Value/Remark |
|--|---|
| Message Type | |
| UE Information Elements | |
| -RRC transaction identifier | 0 |
| -Integrity check info | Not Present |
| -Integrity protection mode info | Not Present |
| -Ciphering mode info | Not Present |
| -Activation time | Not Present |
| -New U-RNTI | Not Present |
| -New C-RNTI | Not Present |
| -RRC State Indicator | CELL DCH |
| -UTRAN DRX cycle length coefficient | Not Present |
| CN Information Elements | 1101111000111 |
| -CN Information info | Not Present |
| UTRAN mobility information elements | |
| -URA identity | Not Present |
| RB information elements | |
| -Downlink counter synchronisation info | Not Present |
| PhyCH information elements | |
| -Frequency info | Not Present |
| Uplink radio resources | |
| -Maximum allowed UL TX power | Not Present |
| Downlink radio resources | |
| -CHOICE mode | FDD |
| -Downlink PDSCH information | Not Present |
| -Downlink information common for all radio links | |
| -Downlink DPCH info common for all RL | Not Present |
| -CHOICE mode | FDD |
| -DPCH compressed mode info | 1.22 |
| -Transmission gap pattern sequence | |
| -TGPSI | 1 |
| -TGPS Status Flag | Activate |
| -TGCFN | (Current CFN + (256 - TTI/10msec))mod 256 |
| | (1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 |
| -Transmission gap pattern sequence | |
| configuration parameters | |
| -TGMP | FDD measurement |
| -TGPRC | Not present |
| -TGSN | 4 |
| -TGL1 | 7 |
| -TGL2 | Not Present |
| -TGD | 0 |
| -TGPL1 | 3 |
| -TGPL2 | Not Present |
| -RPP | Mode 0 |
| -ITP | Mode 0 |
| -CHOICE UL/DL mode | UL and DL |
| -Downlink compressed mode method | SF/2 |
| -Uplink compressed mode method | SF/2 |
| -Downlink frame type | В |
| -DeltaSIR1 | 3.0 |
| -DeltaSIRafter1 | 3.0 |
| -DeltaSIR2 | Not Present |
| -DeltaSIRafter2 | Not Present |
| -N Identify abort | Not Present |
| -T Reconfirm abort | Not Present |
| -TX Diversity Mode | Not Present |
| -SSDT information | Not Present |
| -Default DPCH Offset Value | Not Present |
| -Downlink information per radio link list | |
| - Downlink information for each radio link | |
| -Choice mode | FDD |
| -Primary CPICH info | |
| -Primary scrambling code -PDSCH with SHO DCH Info | 100 Not Present |
| | |

-PDSCH code mapping

-Downlink DPCH info for each RL

-CHOICE mode

-Primary CPICH usage for channel estimation

-DPCH frame offset

-Secondary CPICH info

-DL channelisation code

-Secondary scrambling code

-Spreading factor

-Code number

-Scrambling code change

-TPC combination index

-SSDT Cell Identity

-Closed loop timing adjustment mode

-SCCPCH Information for FACH

Not Present

FDD

Primary CPICH may be used

Set to value Default DPCH Offset Value (as

currently stored in SS) mod 38400

Not Present

Not Present

128 096

No code change

0

Not Present Not Present

Not Present

Next section

8.6.3.1.4.2 Procedure

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

Specific Message Contents

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

MEASUREMENT CONTROL message (step 4):

| Information Element/Group name | Value/Remark |
|--|---|
| Message Type (10.2.17) | Valuomeniain |
| UE information elements | |
| -RRC transaction identifier | 0 |
| -Integrity check info | Not Present |
| Measurement Information elements | |
| -Measurement Identity | 1 |
| -Measurement Command (10.3.7.46) | Modify |
| -Measurement Reporting Mode (10.3.7.49) | |
| -Measurement Report Transfer Mode | AM RLC |
| -Periodical Reporting / Event Trigger Reporting Mode | Event trigger |
| -Additional measurements list (10.3.7.1) | Not Present |
| -CHOICE Measurement type -Inter-frequency measurement (10.3.7.16) | Inter-frequency measurement |
| -Inter-frequency measurement objects list (10.3.7.13) | |
| -CHOICE inter-frequency cell removal | No inter-frequency cells removed |
| -New inter-frequency cells | 1 |
| -Inter-frequency cell id | 1 1 |
| -Frequency info (10.3.6.36) | |
| -CHOICE mode | TDD |
| -UARFCN(Nt) | Same frequency as channel 2 in Table |
| , , | 8.6.2.4.1.2 |
| -Cell info (10.3.7.2) | 1 |
| -Cell individual offset | Not Present |
| -Reference time difference to cell | Not Present |
| -Read SFN indicator | False |
| -CHOICE mode | TDD |
| -Primary CCPCH info (10.3.6.57) -CHOICE mode | TDD |
| -CHOICE Mode -CHOICE Sync case | 2 |
| -Timeslot | 0 |
| -cell parameters ID | Set to cell parameters ID of cell 2 |
| -SCTD indicator | FALSE |
| -Primary CCPCH Tx power | Set to Primary CCPCH Tx power of cell 2 |
| , ' | as described in Table 8.6.2.4.1.2 |
| -Timesllot list | Not Present |
| -Cell selection and re-selection info | Not Present |
| -Cell for measurement | Not Present |
| -Inter-frequency measurement quantity (10.3.7.18) | |
| -CHOICE reporting critera | Inter-frequency reporting criteria |
| -Filter coefficient (10.3.7.9) -CHOICE <i>mode</i> | 0 |
| -CHOICE <i>mode</i> -Measurement quantity for frequency quality estimate | TDD Primary CCPCH RSCP |
| -Inter-frequency reporting quantity (10.3.7.21) | Filliary CCFCIT K3CF |
| -UTRA carrier RSSI | |
| -Frequency quality estimate | |
| -Non frequency related cell reporting quantities (10.3.7.5) | |
| -SFN-SFN observed time difference reporting indicator | No report |
| -Cell synchronisation information reporting indicator | FALSE |
| -Cell identity reporting indicator | FALSE |
| -CHOICE mode | TDD |
| -Timeslot ISCP reporting indicator | FALSE |
| -Proposed TGSN Reporting required | FALSE |
| -Primary CCPCH RSCP reporting indicator | TRUE |
| -Pathloss reporting indicator | FALSE |
| -Reporting cell status (10.3.7.61) | Not Present |
| -Measurement validity (10.3.7.51) | Not Present |
| -CHOICE report criteria | Inter-frequency measurement reporting |
| later francisco de la companya de la | criteria |
| -Inter-frequency measurement reporting criteria (10.3.7.19) | 1 |
| -Parameters required for each event -Intra-frequency event identity | 1 Event 2C |
| -Intra-frequency event identity -Threshold used frequency | Event 2C Not Present |
| - Threshold used frequency -W Used frequency | Not Present Not Present |
| -Hysteresis | 0 dB |
| -Time to trigger | 0 ms |
| 10 10 1119901 | 1 56 |

| Information Element/Group name | Value/Remark |
|---|---|
| -Reporting Cell Status (10.361) | |
| -CHOICE reported cell | Report cells within active and/or monitored set on used frequency or within virtual active and/or monitored set on non-used frequency |
| -Maximum number of reported cells | 3 |
| -Parameters required for each non-used frequenc | |
| - Threshold non-used frequency | -71 |
| - W non-used frequency | 1 |
| Physical channel information elements | |
| -DPCH compressed mode status info (10.3.6.34) | Not Present |

PHYSICAL CHANNEL RECONFIGURATION message (Step 6)

| Information Element | Value/Remark |
|--|---|
| Message Type | |
| UE Information Elements | |
| -RRC transaction identifier | 0 |
| -Integrity check info | Not Present |
| -Integrity protection mode info | Not Present |
| -Ciphering mode info | Not Present |
| -Activation time | 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 | THE |
| -Maximum allowed UL TX power | Not Present |
| Downlink radio resources | THOU TOOCH. |
| -CHOICE mode | FDD |
| -Downlink PDSCH information | Not Present |
| -Downlink information common for all radio links | THOU TOOGHE |
| -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 | Not present |
| -TGSN | 10 |
| -TGL1 | 10 |
| -TGL2 | Not Present |
| -TGD | 0 |
| -TGPL1 | 11 |
| -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 | puncturing |
| -Downlink frame type | A |
| -DeltaSIR1 | 3.0 |
| -DeltaSIRafter1 | 3.0 |
| -DeltaSIR2 | Not Present |
| -DeltaSIRafter2 | Not Present |
| -N Identify abort | Not Present |
| -T Reconfirm abort | Not Present |
| -TX Diversity Mode | Not Present |
| -SSDT information | Not Present |
| -Default DPCH Offset Value | Not Present |
| -Downlink information per radio link list | |
| - Downlink information for each radio link | |
| -Choice mode | FDD |
| -Primary CPICH info | |
| -Primary scrambling code | 100 |
| -PDSCH with SHO DCH Info | Not Present |

-PDSCH code mapping

-Downlink DPCH info for each RL

-CHOICE mode

-Primary CPICH usage for channel estimation

-DPCH frame offset

-Secondary CPICH info

-DL channelisation code

-Secondary scrambling code

-Spreading factor

-Code number

-Scrambling code change

-TPC combination index

-SSDT Cell Identity

-Closed loop timing adjustment mode

-SCCPCH Information for FACH

Not Present

FDD

Primary CPICH may be used

Set to value Default DPCH Offset Value (as

currently stored in SS) mod 38400

Not Present

Not Present

128 096

No code change

0

Not Present Not Present

Not Present

Next section

8.7.1.2.1.4.2 Procedure

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

Specific Message Contents

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

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

| Information Element | Value/Remark |
|--|---|
| Message Type | |
| UE Information Elements | |
| -RRC transaction identifier | 0 |
| -Integrity check info | Not Present |
| -Integrity protection mode info | Not Present |
| -Ciphering mode info | Not Present |
| -Activation time | Not Present |
| -New U-RNTI | Not Present |
| -New C-RNTI -RRC State Indicator | Not Present CELL DCH |
| -UTRAN DRX cycle length coefficient | Not Present |
| CN Information Elements | Not i resent |
| -CN Information info | Not Present |
| UTRAN mobility information elements | THOSE TROOPING |
| -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 | 500 |
| -CHOICE mode | FDD Not Brosont |
| -Downlink PDSCH information -Downlink information common for all radio links | Not Present |
| -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 | 0 3 |
| -TGPL1 | Not Present |
| -TGPL2 -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 | В |
| -DeltaSIR1 | 3.0 |
| -DeltaSIRafter1 | 3.0 |
| -DeltaSIR2 | Not Present |
| -DeltaSIRafter2 | Not Present |
| -N Identify abort -T Reconfirm abort | Not Present |
| | Not Present Not Present |
| -TX Diversity Mode -SSDT information | Not Present Not Present |
| -SSDT Information -Default DPCH Offset Value | Not Present |
| -Downlink information per radio link list | THOU TOUGHT |
| -Downlink information for each radio link | |
| -Choice mode | FDD |
| -Primary CPICH info | |
| -Primary scrambling code | 100 |
| · • • • • • • • • • • • • • • • • • • • | |

-PDSCH with SHO DCH Info Not Present -PDSCH code mapping Not Present -Downlink DPCH info for each RL -CHOICE mode **FDD** -Primary CPICH usage for channel estimation Primary CPICH may be used Set to value Default DPCH Offset Value (as -DPCH frame offset currently stored in SS) mod 38400 -Secondary CPICH info Not Present -DL channelisation code -Secondary scrambling code Not Present -Spreading factor 128 -Code number 096 -Scrambling code change No code change -TPC combination index -SSDT Cell Identity Not Present -Closed loop timing adjustment mode Not Present -SCCPCH Information for FACH

Not Present

Next section

1

8.7.2.2.2.4.2 Procedure

- 1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2.3. The RF parameters for Test 1 are set up according to table 8.7.2.2.2.4.
- 2) SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message.
- 3) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.
- 4) SS shall transmit a MEASUREMENT CONTROL message for intra frequency measurement and transmit another MEASUREMENT CONTROL message for inter frequency measurement.
- 5) UE shall transmit periodically MEASUREMENT REPORT messages.
- 6) SS shall check CPICH_Ec/No value of Cell 1 and Cell 2 in MEASUREMENT REPORT messages. According to table 8.7.2.1.1.3 the SS calculates CPICH_Ec/Io power ratio of Cell 1 and Cell 2. CPICH_Ec/Io power ratio measured from Cell 1 is compared to CPICH_Ec/Io power value measured from Cell 2 for each MEASUREMENT REPORT message.
- 7) The result of step 6) is compared to actual power level difference of CPICH_Ec/Io of Cell 1 and Cell 2.
- 8) SS shall count number of MEASUREMENT REPORT messages transmitted by UE. After 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.2.2.2.4 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 6) and 7) above are repeated. After further 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.2.2.2.4 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 6) and 7) above are repeated.
- 9) After 1000 MEASUREMENT REPORT messages have been received from UE, the SS shall transmit RRC CONNECTION RELEASE message.
- 10) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

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

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

| Information Element | Value/Remark |
|--|---|
| Message Type | |
| UE Information Elements | |
| -RRC transaction identifier | 0 |
| -Integrity check info | Not Present |
| -Integrity protection mode info | Not Present |
| -Ciphering mode info | Not Present |
| -Activation time | Not Present |
| -New U-RNTI | Not Present |
| -New C-RNTI -RRC State Indicator | Not Present CELL DCH |
| -UTRAN DRX cycle length coefficient | Not Present |
| CN Information Elements | Not i resent |
| -CN Information info | Not Present |
| UTRAN mobility information elements | THOSE TROOPING |
| -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 | 500 |
| -CHOICE mode | FDD Not Brosont |
| -Downlink PDSCH information -Downlink information common for all radio links | Not Present |
| -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 | 0 3 |
| -TGPL1 | Not Present |
| -TGPL2 -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 | В |
| -DeltaSIR1 | 3.0 |
| -DeltaSIRafter1 | 3.0 |
| -DeltaSIR2 | Not Present |
| -DeltaSIRafter2 | Not Present |
| -N Identify abort -T Reconfirm abort | Not Present |
| | Not Present Not Present |
| -TX Diversity Mode -SSDT information | Not Present Not Present |
| -SSDT Information -Default DPCH Offset Value | Not Present |
| -Downlink information per radio link list | THOU TOUGHT |
| -Downlink information for each radio link | |
| -Choice mode | FDD |
| -Primary CPICH info | |
| -Primary scrambling code | 100 |
| · • • • • • • • • • • • • • • • • • • • | |

-PDSCH with SHO DCH Info Not Present -PDSCH code mapping Not Present -Downlink DPCH info for each RL -CHOICE mode **FDD** -Primary CPICH usage for channel estimation Primary CPICH may be used Set to value Default DPCH Offset Value (as -DPCH frame offset currently stored in SS) mod 38400 -Secondary CPICH info Not Present -DL channelisation code -Secondary scrambling code Not Present -Spreading factor 128 -Code number 096 -Scrambling code change No code change -TPC combination index -SSDT Cell Identity Not Present -Closed loop timing adjustment mode Not Present -SCCPCH Information for FACH Not Present

Next section

1

8.7.3.1.4.2 Procedure

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

Specific Message Contents

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

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

| Information Element | Value/Remark |
|--|---|
| Message Type | |
| UE Information Elements | |
| -RRC transaction identifier | 0 |
| -Integrity check info | Not Present |
| -Integrity protection mode info | Not Present |
| -Ciphering mode info | Not Present |
| -Activation time | Not Present |
| -New U-RNTI | Not Present |
| -New C-RNTI -RRC State Indicator | Not Present CELL DCH |
| -UTRAN DRX cycle length coefficient | Not Present |
| CN Information Elements | Not i resent |
| -CN Information info | Not Present |
| UTRAN mobility information elements | THOSE TROOPING |
| -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 | 500 |
| -CHOICE mode | FDD Not Brosont |
| -Downlink PDSCH information -Downlink information common for all radio links | Not Present |
| -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 | 0 3 |
| -TGPL1 | Not Present |
| -TGPL2 -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 | В |
| -DeltaSIR1 | 3.0 |
| -DeltaSIRafter1 | 3.0 |
| -DeltaSIR2 | Not Present |
| -DeltaSIRafter2 | Not Present |
| -N Identify abort -T Reconfirm abort | Not Present |
| | Not Present Not Present |
| -TX Diversity Mode -SSDT information | Not Present Not Present |
| -SSDT Information -Default DPCH Offset Value | Not Present |
| -Downlink information per radio link list | THOU TOUGHT |
| -Downlink information for each radio link | |
| -Choice mode | FDD |
| -Primary CPICH info | |
| -Primary scrambling code | 100 |
| · • • • • • • • • • • • • • • • • • • • | |

-PDSCH with SHO DCH Info Not Present -PDSCH code mapping Not Present -Downlink DPCH info for each RL -CHOICE mode **FDD** -Primary CPICH usage for channel estimation Primary CPICH may be used Set to value Default DPCH Offset Value (as -DPCH frame offset currently stored in SS) mod 38400 -Secondary CPICH info Not Present -DL channelisation code -Secondary scrambling code Not Present -Spreading factor 128 -Code number 096 -Scrambling code change No code change -TPC combination index -SSDT Cell Identity Not Present -Closed loop timing adjustment mode Not Present -SCCPCH Information for FACH Not Present

Next section

1

8.7.4.2.4.2 Procedure

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

Specific Message Contents

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

PHYSICAL CHANNEL RECONFIGURATION message for inter frequency measurement

| Information Element | Value/Remark |
|--|---|
| Message Type | , 5, 5, 5, 5, 5, 5, 5, 5, 5, 5, 5, 5, 5, |
| <u> </u> | |
| UE Information Elements -RRC transaction identifier | |
| | 0 Not Present |
| -Integrity check info -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 | N / P |
| -Frequency info | Not Present |
| Uplink radio resources | Not Dropont |
| -Maximum allowed UL TX power - CHOICE channel requirement | Not Present Not Present |
| Downlink radio resources | Not Present |
| -CHOICE mode | FDD |
| -Downlink PDSCH information | Not Present |
| -Downlink information common for all radio links | Not i resent |
| -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 | 500 |
| -TGMP -TGPRC | FDD measurement |
| -TGSN | Infinity 4 |
| -TGI1 | 7 |
| -TGL1 | Not Present |
| -TGD | 0 |
| -TGPL1 | 3 |
| -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 | В |
| -DeltaSIR1 | 3.0 |
| -DeltaSIRafter1 | 3.0 |
| -DeltaSIR2 | Not Present |
| -DeltaSIRafter2 | Not Present |
| -N Identify abort -T Reconfirm abort | Not Present Not Present |
| -TX Diversity Mode | Not Present Not Present |
| -SSDT information | Not Present |
| -Default DPCH Offset Value | Not Present |
| -Downlink information per radio link list | 110011 |
| -Downlink information for each radio link | |
| -Choice mode | FDD |
| -Primary CPICH info | |
| -Primary scrambling code | 100 |
| · · · · · · · · · · · · · · · · · · · | |

-PDSCH with SHO DCH Info Not Present -PDSCH code mapping Not Present -Downlink DPCH info for each RL -CHOICE mode **FDD** -Primary CPICH usage for channel estimation Primary CPICH may be used -DPCH frame offset Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400 -Secondary CPICH info Not Present -DL channelisation code -Secondary scrambling code Not Present -Spreading factor 128 -Code number 096 -Scrambling code change No code change -TPC combination index -SSDT Cell Identity Not Present -Closed loop timing adjustment mode Not Present -SCCPCH Information for FACH Not Present

Next section

1

8.7.8.1.4.2 **Procedure**

- 1) SS shall transmit the PHYSICAL CHANNEL RECONFIGURATION message.
- 2) UE shall transmit the PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.
- 3) SS shall transmit the MEASUREMENT CONTROL message.
- 4) UE shall transmit periodically MEASUREMENT REPORT messages.
- 5) SS shall check P-CCPCH RSCP values of Cell 2 in the MEASUREMENT REPORT messages. P-CCPCH RSCP power level of Cell 2 reported by the UE shall be compared to the actually set P-CCPCH RSCP value of Cell 2 for each MEASUREMENT REPORT message.
- 6) SS shall count number of MEASUREMENT REPORT messages transmitted by UE. After 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.8.1.2 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 4) and 5) above are repeated.
- 7) After further 1000 MEASUREMENT REPORT messages have been received from UE, the SS shall transmit RRC CONNECTION RELEASE message.
- 8) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

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

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

| Information Element | Value/Remark |
|---|---|
| Message Type | ValadyNomark |
| <u> </u> | |
| UE Information Elements | |
| -RRC transaction identifier | 0 Not Present |
| -Integrity check info -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 | N · B |
| -Downlink counter synchronisation info | Not Present |
| PhyCH information elements | Not Proport |
| -Frequency info Uplink radio resources | Not Present |
| -Maximum allowed UL TX power | Not Present |
| - CHOICE channel requirement | Not Present |
| Downlink radio resources | 1.03.7 100011 |
| -CHOICE mode | FDD |
| -Downlink PDSCH information | Not Present |
| -Downlink information common for all radio links | |
| -Downlink DPCH info common for all RL | Not Present |
| -CHOICE mode | FDD |
| -DPCH compressed mode info | |
| -Transmission gap pattern sequence | |
| -TGPSI | 1 |
| -TGPS Status Flag -TGCFN | Activate |
| - IGCFN | (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 | 0 |
| -TGPL1 | 11 |
| -TGPL2 -RPP | Not Present |
| -RPP -ITP | Mode 0 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 -SSDT information | Not Present |
| -SSDT information -Default DPCH Offset Value | Not Present Not Present |
| -Delauit DPCH Offset value -Downlink information per radio link list | NOT LESCH |
| -Downlink information for each radio link | |
| -Choice mode | FDD |
| -Primary CPICH info | |
| -Primary scrambling code | 100 |
| <u> </u> | |

-PDSCH with SHO DCH Info

-PDSCH code mapping

-Downlink DPCH info for each RL

-CHOICE mode

-Primary CPICH usage for channel estimation

-DPCH frame offset

-Secondary CPICH info

-DL channelisation code

-Secondary scrambling code

-Spreading factor -Code number

1

-Scrambling code change

-TPC combination index

-SSDT Cell Identity

-Closed loop timing adjustment mode -SCCPCH Information for FACH

Not Present Not Present

FDD

Primary CPICH may be used

Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400

Not Present

Not Present

128

096

No code change

Not Present

Not Present

Not Present

3GPP TSG-T1 Meeting #22 Hyderabad, India, 2 - 6 February, 2004

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Annex F (normative): General test conditions and declarations

Other comments:

The requirements of this clause apply to all applicable tests in the present document.

Many of the tests in the present document measure a parameter relative to a value that is not fully specified in the UE specifications. For these tests, the Minimum Requirement is determined relative to a nominal value specified by the manufacturer.

When specified in a test, the manufacturer shall declare the nominal value of a parameter, or whether an option is supported.

In all the relevant clauses in this clause all Bit Error Ratio (BER), Block Error Ratio (BLER), False transmit format Detection Ratio (FDR) measurements shall be carried out according to the general rules for statistical testing in clause F.6.

F.1 Acceptable uncertainty of Test System

The maximum acceptable uncertainty of the Test System is specified below for each test, where appropriate. The Test System shall enable the stimulus signals in the test case to be adjusted to within the specified range, and the equipment under test to be measured with an uncertainty not exceeding the specified values. All ranges and uncertainties are absolute values, and are valid for a confidence level of 95 %, unless otherwise stated.

A confidence level of 95 % is the measurement uncertainty tolerance interval for a specific measurement that contains 95 % of the performance of a population of test equipment.

For RF tests it should be noted that the uncertainties in clause F.1 apply to the Test System operating into a nominal 50 ohm load and do not include system effects due to mismatch between the DUT and the Test System.

F.1.1 Measurement of test environments

The measurement accuracy of the UE test environments defined in annex G, Test environments shall be.

- Pressure ±5 kPa.

Temperature ±2 degrees.

- Relative Humidity ±5 %.

DC Voltage $\pm 1.0 \%$.

- AC Voltage $\pm 1.5 \%$.

- Vibration 10 %.

- Vibration frequency 0,1 Hz.

The above values shall apply unless the test environment is otherwise controlled and the specification for the control of the test environment specifies the uncertainty for the parameter.

F.1.2 Measurement of transmitter

Table F.1.2: Maximum Test System Uncertainty for transmitter tests

| Clause | Maximum Test System Uncertainty | Derivation of Test System Uncertainty |
|---|--|---|
| 5.2 Maximum Output Power | ±0,7 dB | , |
| 5.3 Frequency Error | ±10 Hz | |
| 5.4.1 Open loop power control in uplink | ±1,0 dB | The uncertainty of this test is a combination of the downlink level setting error and the uplink power measurement that are uncorrelated. |
| | | Formula = SQRT(source_level_error ² + power_meas_error ²) |
| 5.4.2 Inner loop power control in the uplink - One step | ±0,1 dB relative over a 1,5 dB range (1 dB and 0 dB step) ±0,15 dB relative over a 3,0 dB range (2 dB step) ±0,2 dB relative over a 4.5 dB range (3 dB step) | This accuracy is based on the linearity of the absolute power measurement of the test equipment. |
| 5.4.2 Inner loop power control in the | ±0,3 dB relative over a 26 dB range | |
| uplink – seven and ten steps | 1,1 1 1 1 1 1 1 1 1 1 1 1 1 1 | |
| 5.4.3 Minimum Output Power | ±1,0 dB | Measured on a static signal |
| 5.4.4 Out-of-synchronisation handling of output power: $\underline{DPCCH}_{-}E_{c}$ | ±0,4 dB | 0.1 dB uncertainty in DPCCH ratio |
| I_{or} | | 0.0 dD |
| | | 0.3 dB uncertainty in \hat{I}_{or}/I_{oc} |
| | | based on power meter measurement after the combiner |
| | | Overall error is the sum of the \hat{I}_{or}/I_{oc} ratio error and the |
| | | DPCCH_Ec/lor ratio. The absolute error of the AWGN loc is not important but is specified as 1.0 dB |
| 5.5.1 Transmit OFF Power: (static case) | ±1,0 dB | Measured on a static signal |
| 5.5.2 Transmit ON/OFF time mask (dynamic case) | On power +0,7 dB - 1,0 dB Off power (dynamic case) TBD | Assume asymmetric meas error -1.0 dB / 0.7 dB comprising RSS of: -0.7 dB downlink error plus -0.7 dB meas error, and +0.7 dB for upper limit (assume UE won't go above 24 nominal). For the off power, the accuracy of a two-pass measurement needs to be analysed. |
| 5.6 Change of TFC: power control step size (7 dB step) | ±0,3 dB relative over a 9 dB range | |
| 5.7 Power setting in uplink compressed mode:- UE output power | Will be a subset of 5.4.2. | |
| 5.8 Occupied Bandwidth | ±100 kHz | Accuracy = ± 3 *RBW. Assume 30 kHz bandwidth. |
| 5.9 Spectrum emission mask | ±1,5 dB | |
| 5.10 ACLR | 5 MHz offset: ± 0,8 dB | |
| | 10 MHz offset: ± 0,8 dB | |

| Clause | Maximum Test System Uncertainty | Derivation of Test System Uncertainty |
|--|---|---|
| 5.11 Spurious emissions | ± 2,0 dB for UE and coexistence bands for | - |
| | results > -60 dBm | |
| | | |
| | \pm 3,0 dB for results < -60 dBm | |
| | Outside above: | |
| | f<2.2GHz: ± 1.5 dB | |
| | 2.2 GHz < f < 4 GHz: | |
| | ± 2.0 dB | |
| | f > 4 GHz: ±4.0 dB | |
| 5.12 Transmit Intermodulation | ± 2.2 dB | CW Interferer error is 0.7 dB for the UE power RSS with 0.7 dB for CW setting = 1.0 dB Measurement error of intermod product is 0.7 dB for UE power RSS with 0.7 dB for relative = 1.0 dB Interferer has an effect of 2 times on the intermod product so overall test uncertainty is 2*1.0 RSS with 1.0 = 2.2 dB. Apply half any excess test system uncertainty to increase the interferer level |
| 5.13.1 Transmit modulation: EVM | ±2.5 % | the intellerer level |
| | (for single code) | |
| 5.13.2 Transmit modulation: peak code domain error | ±1.0dB | |

F.1.3 Measurement of receiver

Table F.1.3: Maximum Test System Uncertainty for receiver tests

| Clause | Maximum Test System Uncertainty | Derivation of Test System Uncertainty |
|----------------------------------|--|---|
| 6.2 Reference sensitivity level | ± 0.7 dB | , |
| 6.3 maximum input level: | ± 0.7 dB | The critical parameter is the overall signal level and not the –19 dB DPCH_Ec/lor ratio. |
| | | 0.7 dB absolute error due to signal measurement |
| | | DPCH_Ec/lor ratio error is <0.1 dB but is not important so is ignored |
| 6.4 Adjacent channel selectivity | ± 1.1 dB | Overall system uncertainty comprises three quantities: |
| | | Wanted signal level error |
| | | Interferer signal level error |
| | | 3. Additional impact of interferer ACLR |
| | | Items 1 and 2 are assumed to be uncorrelated so can be root sum squared to provide the ratio error of the two signals. Assume for simplicity this ratio error is linearly added to the interferer ACLR. |
| | | Test System uncertainty = SQRT (wanted_level_error² + interferer_level_error²) + ACLR effect. |
| | | The ACLR effect is calculated by:(Formula to follow) |
| | | (E.g. ACLR at 5 MHz of 51 dB gives additional error of .0765 dB. ACLR of 48 gives error of -0.15 dB.) |
| 6.5 Blocking characteristics | System error with f <15 MHz offset: ± 1.4 dB | Using ± 0.7 dB for signal and interferer as currently defined and 68 dB ACLR @ 10 MHz. |
| | f >= 15 MHz offset and $f_b \le 2.2$ GHz: \pm [1.0] dB | and do do Morit & 10 Mills. |
| | 2.2 GHz < f ≤ 4 GHz: ±[1.7] dB f > 4 GHz: ±[3.1] dB | |
| 6.6 Spurious Response | f ≤ 2.2 GHz: ± 1.0 dB 2.2 GHz < f ≤ 4 GHz: ±1.7 dB | |
| | | |

| Clause | Maximum Test System Uncertainty | Derivation of Test System Uncertainty |
|-------------------------------------|--|---|
| 6.7 Intermodulation Characteristics | ±1.3 dB | Similar issues to 7.4 ACS test. |
| | | ETR028 says impact f the closer signal is twice that of the far signal. If both signals drop 1 dB, intermod product drops 2 dB. |
| | | Formula = $\sqrt{(2 \cdot CW_level_error)^2 + (mod_level_error)^2}$ |
| | | (Using CW interferer ±0.5 dB, modulated interferer ±0.5 dB, wanted signal ±0.7 dB) 1.3 dB! |
| | | Broadband noise/ACLR not considered but may have impact. |
| 6.8 Spurious emissions | ± 3.0 dB for UE receive band (-78 dBm) Outside above: | |
| | f≤2.2GHz: ± 2.0 dB (-57 dBm) | |
| | 2.2 GHz < f ≤ 4 GHz: | |
| | ± 2.0 dB (-47 dBm) | |
| | f > 4 GHz: ±4.0 dB (-47 dBm) | |

F.1.4 Performance requirement

Table F.1.4: Maximum Test System Uncertainty for Performance Requirements

| Clause | Maximum Test Syst | tem Uncertainty | Derivation of Test System Uncertainty |
|--|--------------------------------|--------------------|---|
| 7.2 Demodulation in Static Propagation Condition | \hat{I}_{or}/I_{oc} I_{oc} | ±0.3 dB ±1.0 dB | 0.1 dB uncertainty in DPCH_Ec ratio |
| | $DPCH _E_c$ | ±0.1 dB | 0.3 dB uncertainty in \hat{I}_{or}/I_{oc} |
| | I_{or} | ±0.1 UD | based on power meter measurement after the combiner |
| | | | Overall error is the sum of the |
| | | | \hat{I}_{or}/I_{oc} ratio error and the |
| | | | DPCH_Ec/lor ratio but is not RSS for simplicity. The absolute error of the AWGN loc is not important for any tests in clause 7 but is specified as 1.0 dB. |
| 7.3 Demodulation of DCH in multipath | \hat{I}_{or}/I_{oc} | ±0.56 dB | Worst case gain uncertainty due to the fader from the |
| Fading Propagation conditions | I_{oc} | ±1.0 dB | calibrated static profile is ±0.5 |
| | $DPCH _E_c$ | ±0.1 dB | dB |
| | I_{or} | | In addition the same ±0.3 dB |
| | | | \hat{I}_{or}/I_{oc} ratio error as 7.2. |
| | | | These are uncorrelated so can be RSS. |
| | | | Overall error in \hat{I}_{or}/I_{oc} is $(0.5^2 + 0.3^2)^{0.5} = 0.6$ dB |
| 7.4 Demodulation of DCH in Moving | \hat{I}_{or}/I_{oc} | ±0.6 dB | Same as 7.3 |
| Propagation conditions | I_{oc} | ±1.0 dB | |
| | $\frac{DPCH_E_c}{I_{or}}$ | ±0.1 dB | |
| 7.5 Demodulation of DCH in Birth-Death | \hat{I}_{or}/I_{oc} | ±0.6 dB | Same as 7.3 |
| Propagation conditions | I_{oc} | ±1.0 dB | |
| | $\frac{DPCH_E_c}{I_{or}}$ | ±0.1 dB | |
| 7.6.1 Demodulation of DCH in open loop | \hat{I}_{or}/I_{oc} | ±0.8 dB | Worst case gain uncertainty |
| Transmit diversity mode | I_{oc} | ±1.0 dB | due to the fader from the calibrated static profile is ±0.5 |
| | $DPCH _E_c$ | ±0.1 dB | dB per output |
| | $\overline{I_{or}}$ | ±0.1 UD | In addition the same ±0.3 dB |
| | | | \hat{I}_{or}/I_{oc} ratio error as 7.2. |
| | | | These are uncorrelated so can be RSS. |
| | | | Overall error in \hat{I}_{or}/I_{oc} is $(0.5^2 + 0.5^2 + 0.3^2)^{0.5} = 0.768$ dB. |
| | | | Round up to 0.8 dB |

| Clause | Maximum Test S | System Uncertainty | Derivation of Test System Uncertainty |
|--|--------------------------|--------------------|--|
| 7.6.2 Demodulation of DCH in closed | \hat{I}_{or}/I_{oc} | ±0.8 dB | Same as 7.6.1 |
| loop Transmit diversity mode | I_{oc} | ±1.0 dB | |
| | $DPCH _E_c$ | 0.4.15 | |
| | I_{or} | ±0.1 dB | |
| 7.6.3, Demodulation of DCH in site | \hat{I}_{or}/I_{oc} | ±0.8 dB | Same as 7.6.1 |
| selection diversity Transmission power control mode | I_{oc} | ±1.0 dB | |
| Control mode | $DPCH _E_c$ | | |
| | I_{or} | ±0.1 dB | |
| 7.7.1 Demodulation in inter-cell soft | \hat{I}_{or}/I_{oc} | ±0.8 dB | Same as 7.6.1 |
| Handover | I_{oc} | ±1.0 dB | |
| | $DPCH _E_c$ | - | |
| | $\frac{I_{or}}{I_{or}}$ | ±0.1 dB | |
| 7.7.2 Combining of TPC commands Test | lor1,lor2 | ±1.0 dB | Test is looking for changes in |
| 1 | $\underline{DPCH _E_c}$ | ±0.1 dB | power – need to allow for relaxation in criteria for power |
| | I_{or} | | step of probably 0.1 dB to 0.4 |
| | | | dB |
| 7.7.2 Combining of TPC commands Test 2 | \hat{I}_{or}/I_{oc} | ±0.8 dB | Same as 7.6.1 |
| | I_{oc} | ±1.0 dB | |
| | $DPCH _E_c$ | ±0.1 dB | |
| | Ior | | |
| 7.8.1 Power control in downlink constant BLER target | \hat{I}_{or}/I_{oc} | ±0.6 dB | Same as 7.3 |
| July 1 | I_{oc} | ±1.0 dB | |
| | $\underline{DPCH _E_c}$ | ±0.1 dB | |
| | I _{or} | | |
| 7.8.2, Power control in downlink initial convergence | \hat{I}_{or}/I_{oc} | ±0.6 dB | Same as 7.3 |
| Somergenee | I_{oc} | ±1.0 dB | |
| | $DPCH _E_c$ | ±0.1 dB | |
| | I _{or} | | |
| 7.8.3, Power control in downlink: wind up effects | \hat{I}_{or}/I_{oc} | ±0.6 dB | Same as 7.3 |
| one of | I_{oc} | ±1.0 dB | |
| | $DPCH _E_c$ | ±0.1 dB | |
| | I _{or} | | |
| 7.9 Downlink compressed mode | \hat{I}_{or}/I_{oc} | ±0.6 dB | Same as 7.3 |
| | I_{oc} | ±1.0 dB | |
| | $DPCH _E_c$ | ±0.1 dB | |
| - 10 Pli 11 | Ior | | |
| 7.10 Blind transport format detection Tests 1, 2, 3 | \hat{I}_{or}/I_{oc} | ±0.3 dB | Same as 7.2 |
| | I_{oc} | ±1.0 dB | |
| | $DPCH _E_c$ | ±0.1 dB | |
| | I_{or} | - | |
| | | | |
| | I | | |

| Clause | Maximum Tes | t System Uncertainty | Derivation of Test System Uncertainty |
|---|----------------------------|----------------------|--|
| 7.10 Blind transport format detection Tests 4, 5, 6 | \hat{I}_{or}/I_{oc} | ±0.6 dB | Same as 7.3 |
| | I_{oc} | ±1.0 dB | |
| | $\frac{DPCH_E_c}{I_{or}}$ | ±0.1 dB | |
| | | | |
| 7.11 Demodulation of paging channel (PCH) | TBD | | |
| 7.12 Detection of acquisition indicator (AI) | TBD | | |

F.1.5 Requirements for support of RRM

Table F.1.5: Maximum Test System Uncertainty for Radio Resource Management Tests

| Clause | Maximum Test System Uncertaint | y Derivation of Test System Uncertainty |
|---|---|--|
| 8.2 Idle Mode Tasks | | |
| 8.2.2 Cell Re-Selection | | |
| 8.2.2.1 Scenario 1: Single carrier case | During T1 and T2: | |
| | $\frac{CPICH _E_c}{I_{or}} = \pm 0.1 \text{ dB}$ | |
| | <i>I_{oc}</i> ±1.0 dB | |
| | $\frac{\text{During T1:}}{I_{or}(\text{2})} \qquad \qquad \pm 0.7 \text{ dB}$ | |
| | I_{or} (1, 3, 4, 5, 6) relative to I_{or} (2) ±0.3 | 3 dB |
| | $\frac{\text{During T2:}}{I_{or}(\text{1})} \qquad \qquad \pm 0.7 \text{ dB}$ | |
| | I_{or} (2, 3, 4, 5, 6) relative to I_{or} (1) ±0.3 | 3 dB |

| Clause | Maximum Test System Uncertainty | Derivation of Test System Uncertainty | |
|--------|---|--|--|
| | Assumptions: a) The contributing uncertainties for lor(n), channel power ratio, a loc are derived according to ETR 273-1-2 [16], with a coverage factor of k=2. | | |
| | b) Within each cell, the uncertainty for lo ratio are uncorrelated to each other. | or(n), and channel power | |
| | c) The relative uncertainties for lor(n) across different cells may have any amount of positive correlation from zero (uncorrelated one (fully correlated). | | |
| | d) Across different cells, the channel por have any amount of positive correlation one (fully correlated). | | |
| | e) The uncertainty for loc and lor(n) may positive correlation from zero (uncorrelation) | | |
| | f) The absolute uncertainty of lor(2) at T uncertainty of lor(1, 3, 4, 5, 6), are uncon Similarly, the absolute uncertainty of lor(2, 3, 4, 5, 6), are uncon uncertainty of lor(2, 3, 4, 5, 6), are uncon | rrelated to each other. (1) at T2 and the relative | |
| | An explanation of correlation between unrationale behind the assumptions, is received. | | |

| Clause | Maximum Test System Uncertainty | Derivation of Test System Uncertainty |
|--|---|--|
| 8.2.2.2 Scenario 2: Multi carrier case | Channel 1 during T1 and T2: | |
| | $\frac{CPICH _E_c}{I_{or}}$ ±0.1 dB | |
| | I_{oc} (1) $\pm 1.0 \text{ dB}$ | |
| | $ \frac{ \text{Channel 1 during T1:} }{ I_{or} \text{(1)} } \\ \pm 0.7 \text{ dB} $ | |
| | I_{or} (3, 4) relative to I_{or} (1) ±0.3 dB | |
| | $\frac{\text{Channel 1 during T2:}}{I_{or}(\text{1})} \qquad \qquad \pm 0.7 \text{ dB}$ | |
| | I_{or} (3, 4) relative to I_{or} (1) $\pm 0.3 \text{ dB}$ | |
| | Channel 2 during T1 and T2: | |
| | $\frac{CPICH _E_c}{I_{or}} $ ±0.1 dB | |
| | I _{oc} (2) ±1.0 dB | |
| | $\frac{\text{Channel 2 during T1:}}{I_{or}(\text{2})} \qquad \qquad \pm 0.7 \text{ dB}$ | |
| | I_{or} (5, 6) relative to I_{or} (2) ±0.3 dB | |
| | $ \frac{ \text{Channel 2 during T2:}}{I_{or}(\text{2})} \\ \pm 0.7 \text{ dB} $ | |
| | I_{or} (5, 6) relative to I_{or} (2) ± 0.3 dB | |
| | Assumptions: a) to e): Same as for the one-frequency | test 8.2.2.1. |
| | f) The absolute uncertainty of lor(1) and lor(3, 4), are uncorrelated to each other. uncertainty of lor(2) and the relative uncorrelated to each other. | Similarly, the absolute |
| | g) The absolute uncertainties for lor(1) a amount of positive correlation from zero correlated). | |
| | h) The absolute uncertainties for loc(1) a amount of positive correlation from zero correlated). | |
| | An explanation of correlation between ur rationale behind the assumptions, is received. | |

| Clause | Maximum Test S | ystem Uncertainty | Derivation of Test System Uncertainty |
|---|---------------------------------|-------------------|---|
| 8.2.2.1 Scenario 1: Single carrier case | \hat{I}_{or}/I_{oc} | ±0.3 dB | 0.1 dB uncertainty in |
| | I_{oc} | ±1.0 dB | CPICH_Ec ratio |
| | CPICH _ E _c | | |
| | $\frac{I_{or}}{I_{or}}$ | ±0.1 dB | |
| | 1 or | | 0.3 dB uncertainty in \hat{I}_{or}/I_{oc} |
| | | | based on power meter measurement after the combiner |
| | | | The absolute error of the AWGN is specified as 1.0 dB. |
| 8.2.2.2 Scenario 2: Multi carrier case | \hat{I}_{or}/I_{oc} | ±0.3 dB | 0.1 dB uncertainty in CPICH_Ec ratio |
| | I_{oc} | ±1.0 dB | or ion_coratio |
| | I_{oc1}/I_{oc2} | ±0.3 dB | 0.3 dB uncertainty in \hat{I}_{or}/I_{oc} |
| | $\frac{CPICH _{E_{c}}}{I_{or}}$ | ±0.1 dB | based on power meter measurement after the combiner |
| | | | 0.3 dB uncertainty in loc1/loc2 based on power meter measurement after the combiner |
| | | | Overall error for the CPICH_Ec/lo is the sum of the \hat{I}_{or}/I_{oc} ratio error and the CPICH_Ec/lor ratio. |
| | | | The absolute error of the AWGN is specified as 1.0 dB. |
| 8.2.3 UTRAN to GSM Cell Re-Selection | | | |
| 8.2.3.1 Scenario 1: Both UTRA and GSM | \hat{I}_{or}/I_{oc} | ±0.3 dB | 0.1 dB uncertainty in |
| level changed | $I_{oc}/RXLEV$ | ±0.3 dB | CPICH_Ec ratio |
| | I_{oc} | ±1.0 dB | |
| | RXLEV | ±1.0 dB | 0.3 dB uncertainty in \hat{I}_{or}/I_{oc} |
| | CDICH F | | based on power meter |
| | $\frac{CPICH _{E_{c}}}{I_{or}}$ | ±0.1 dB | measurement after the combiner |
| | | | 0.3 dB uncertainty in loc/RXLEV based on power meter measurement after the combiner |
| | | | The absolute error of the AWGN is specified as 1.0 dB. |
| | | | The absolute error of the RXLEV is specified as 1.0 dB. |

| Clause | Maximum Test Sys | stem Uncertainty | Derivation of Test System Uncertainty |
|---|---------------------------------------|--------------------------------|--|
| 8.2.3.2 Scenario 2: Only UTRA level | \hat{I}_{or}/I_{oc} | ±0.3 dB | Same as 8.2.3.1 |
| changed | $I_{oc}/RXLEV$ | ±0.3 dB | |
| | I_{oc} | ±1.0 dB | |
| | RXLEV | ±1.0 dB | |
| | $\frac{CPICH _E_c}{I_{or}}$ | ±0.1 dB | |
| 8.2.4 FDD/TDD cell re-selection | \hat{I}_{or}/I_{oc} | ±0.3 dB | Same as 8.2.2.2 |
| | I_{oc} | ±1.0 dB | |
| | I_{oc1}/I_{oc2} | ±0.3 dB | |
| | $\frac{CPICH _E_c}{I_{or}}$ | ±0.1 dB | |
| 8.3 UTRAN Connected Mode Mobility | | | |
| 8.3.1 FDD/FDD Soft Handover | TBD | | |
| 8.3.2 FDD/FDD Hard Handover | TBD | | |
| 8.3.3 FDD/TDD Handover | TBD | | |
| 8.3.4 Inter-system Handover from UTRAN FDD to GSM | TBD | | |
| 8.3.5 Cell Re-selection in CELL_FACH | | | |
| 8.3.5.1 One frequency present in the neighbour list | During T1 and T2: | | |
| | $\frac{CPICH _E_c}{I_{or}}$ | ±0.1 dB | |
| | I_{oc} | ±1.0 dB | |
| | $\frac{\text{During T1:}}{I_{or}(2)}$ | ±0.7 dB | |
| | I_{or} (1, 3, 4, 5, 6) relati | ve to $I_{\it or}$ (2) ±0.3 dB | |
| | $\frac{\text{During T2:}}{I_{or}(1)}$ | ±0.7 dB | |
| | I_{or} (2, 3, 4, 5, 6) relati | ve to $I_{\it or}$ (1) ±0.3 dB | |

| Clause | Maximum Test System Uncertainty | Derivation of Test System Uncertainty |
|--------|--|---|
| | Assumptions: a) The contributing uncertainties for lor(loc are derived according to ETR 273-1-factor of k=2. | • |
| | b) Within each cell, the uncertainty for loratio are uncorrelated to each other. | or(n), and channel power |
| | c) The relative uncertainties for lor(n) achave any amount of positive correlation one (fully correlated). | |
| | d) Across different cells, the channel por have any amount of positive correlation one (fully correlated). | • |
| | e) The uncertainty for loc and lor(n) may positive correlation from zero (uncorrela | • |
| | f) The absolute uncertainty of lor(2) at T uncertainty of lor(1, 3, 4, 5, 6), are unco Similarly, the absolute uncertainty of lor(2, 3, 4, 5, 6), are unco | rrelated to each other. (1) at T2 and the relative |
| | An explanation of correlation between uncer behind the assumptions, is recorded in 3GPI | * |

| Clause | Maximum Test System Uncertainty | Derivation of Test System Uncertainty |
|--|--|--|
| 8.3.5.2 Two frequencies present in the | Channel 1 during T1 and T2: | Sincontaining |
| neighbour list | | |
| | $CPICH_E_c$ | |
| | $\frac{1}{I_{or}} = 0.1 \text{ dB}$ | |
| | - or | |
| | I_{oc} (1) ±1.0 dB | |
| | oc C 7 | |
| | Channel 1 during T1: | |
| | I_{or} (1) ±0.7 dB | |
| | | |
| | I_{or} (3, 4) relative to I_{or} (1) ±0.3 dB | |
| | | |
| | Channel 1 during T2: | |
| | I_{or} (1) ±0.7 dB | |
| | | |
| | I_{or} (3, 4) relative to I_{or} (1) ±0.3 dB | |
| | | |
| | Channel 2 during T1 and T2: | |
| | CDICH E | |
| | $CPICH_E_c$ ±0.1 dB | |
| | I_{or} | |
| | | |
| | I_{oc} (2) ±1.0 dB | |
| | Observation T4: | |
| | Channel 2 during T1: | |
| | I_{or} (2) ±0.7 dB | |
| | | |
| | I_{or} (5, 6) relative to I_{or} (2) ±0.3 dB | |
| | Channel 2 during T2 | |
| | Channel 2 during T2: | |
| | I_{or} (2) $\pm 0.7 \text{ dB}$ | |
| | I (5.0) L (1. (2) | |
| | I_{or} (5, 6) relative to I_{or} (2) ±0.3 dB | |
| | Accumptions | |
| | Assumptions: a) to e): Same as for the one-frequency | test 8.3.5.1. |
| | | |
| | f) The absolute uncertainty of lor(1) and lor(3, 4), are uncorrelated to each other. | |
| | uncertainty of lor(2) and the relative unc | |
| | uncorrelated to each other. | , - (-, -,, |
| | g) The absolute uncertainties for lor(1) a | and lor(2) may have any |
| | amount of positive correlation from zero | |
| | correlated). | |
| | h) The absolute uncertainties for loc(1) a | and loc(2) may have any |
| | amount of positive correlation from zero | |
| | correlated). | |
| | An explanation of correlation between uncert | tainties, and of the rationale |
| | behind the assumptions is recorded in 3GPF | |
| 8.3.5.3 Cell Re-selection to GSM | TBD | |
| 8.3.6 Cell Re-selection in CELL_PCH 8.3.6.1 One frequency present in the | Same as 8.2.2.1 | Same as 8.2.2.1 |
| neighbour list | Jamo 43 0.2.2.1 | Jamo 45 0.2.2. I |
| <u> </u> | • | |

| Clause | Maximum Test System Uncertainty | Derivation of Test System Uncertainty |
|--|---|---|
| 8.3.6.2 Two frequencies present in the neighbour list | Same as 8.2.2.2 | Same as 8.2.2.2 |
| 8.3.7 Cell Re-selection in URA_PCH | | |
| 8.3.7.1 One frequency present in the neighbour list | Same as 8.2.2.1 | Same as 8.2.2.1 |
| 8.3.7.2 Two frequencies present in the neighbour list | Same as 8.2.2.2 | Same as 8.2.2.2 |
| 8.4 RRC Connection Control | | |
| 8.4.1 RRC Re-establishment delay | TBD | |
| 8.4.2 Random Access | Settings. | 0.1 dB uncertainty in AICH_Ec |
| | \hat{I}_{or}/I_{oc} ±0.3 dB | ratio |
| | I_{oc} ±1.0 dB | 0.3 dB uncertainty in \hat{I}_{or}/I_{oc} |
| | $\frac{AICH _E_c}{I_{or}}$ ±0.1 dB | based on power meter measurement after the combiner |
| | | Overall error is the sum of the \hat{I}_{or}/I_{oc} ratio error and the AICH_Ec/lor ratio. |
| | | The absolute error of the AWGN is specified as 1.0 dB |
| | Measurements: Power difference. ± 1dB Maximum Power: same as 5.5.2 | Power difference: Assume symmetric meas error ±1.0 dB comprising RSS of: - 0.7 dB downlink error plus -0.7 dB meas error. |
| | | Maximum Power: Assume asymmetric meas error -1.0 dB / 0.7 dB comprising RSS of: -0.7 dB downlink error plus -0.7 dB meas error, and +0.7 dB for upper limit |
| 8.4.3 Transport format combination | TBD | |
| 8.5 Timing and Signalling Characteristics | | |
| 8.5.1 UE Transmit Timing | - | 0.1 dB uncertainty in |
| 0.3.1 GE Transmit Timing | $ \begin{bmatrix} I_{or} & & \pm 1.0 \text{ dB} \\ I_{or1}/I_{or2} & & \pm 0.3 \text{ dB} \end{bmatrix} $ | DPCH_Ec ratio |
| | $\frac{DPCH_E_c}{I_{or}}$ ±0.1 dB | 0.3 dB uncertainty in Ior1/Ior2 based on power meter measurement after the combiner |
| | | The absolute error of the lor is specified as 1.0 dB. |
| 8.6 UE Measurements Procedures | | |
| 8.6.1 FDD intra frequency measurements | | |
| 8.6.1.1 Event triggered reporting in AWGN propagation conditions | TBD | |
| 8.6.1.2 Event triggered reporting of multiple neighbours in AWGN propagation condition | TBD | |
| 8.6.1.3 Event triggered reporting of two detectable neighbours in AWGN propagation condition | TBD | |

| Clause | Maximum Test System Uncer | tainty Derivation of Test System Uncertainty |
|--|---|---|
| 8.6.1.4 Correct reporting of neighbours in fading propagation condition | TBD | • |
| 8.6.2 FDD inter frequency measurements | | |
| 8.6.2.1 Correct reporting of neighbours in AWGN propagation condition | TBD | |
| 8.6.2.2 Correct reporting of neighbours in Fading propagation condition | TBD | |
| 8.6.3 TDD measurements | | |
| 8.6.3.1Correct reporting of TDD neighbours in AWGN propagation condition | TBD | |
| 8.6.4 GSM Measurement | TBD | |
| 8.7 Measurements Performance | | |
| Requirements | | |
| 8.7.1 CPICH RSCP | | 0.004 |
| 8.7.1.1 Intra frequency measurements | \hat{I}_{or}/I_{oc} ±0.3 dB | Same as 8.2.2.1 |
| accuracy | I_{oc} ±1.0 dB | |
| | $\frac{CPICH _E_c}{I} = \pm 0.1 \text{ dB}$ | |
| 8.7.1.2 Inter frequency measurement | I_{or} \hat{I}_{or}/I_{oc} ±0.3 dB | Same as 8.2.2.2 |
| accuracy | | |
| | I_{oc} ±1.0 dB | |
| | I_{oc1}/I_{oc2} ±0.3 dB | |
| | $\frac{CPICH _E_c}{I_{or}} = \pm 0.1 \text{ dB}$ | |
| 8.7.2 CPICH Ec/Io | Of Control | |
| 8.7.2.1 Intra frequency measurements | \hat{I}_{or}/I_{oc} ±0.3 dB | Same as 8.2.2.1 |
| accuracy | I_{oc} ±1.0 dB | |
| | $\frac{CPICH _E_c}{I_{or}}$ ±0.1 dB | |
| 8.7.2.2 Inter frequency measurement | \hat{I}_{or}/I_{oc} ±0.3 dB | Same as 8.2.2.2 |
| accuracy | I_{oc} ±1.0 dB | |
| | I_{oc1}/I_{oc2} ±0.3 dB | |
| | $CPICH _E_c$ | |
| | $\frac{1}{I_{or}} = \pm 0.1 \text{ dB}$ | |
| 8.7.3 UTRA Carrier RSSI | \hat{I}_{or}/I_{oc} ±0.3 dB | 0.3 dB uncertainty in \hat{I}_{or}/I_{oc} |
| | I _{oc} ±1.0 dB | |
| | I_{oc1}/I_{oc2} ±0.3 dB | maggurament after the |
| | | 0.3 dB uncertainty in loc1/loc2 based on power meter measurement after the combiner |
| | | The absolute error of the AWGN is specified as 1.0 dB |
| 8.7.3A GSM Carrier RSSI | TBD | |
| 8.7.3C UE Transmitted power | Mean power measurement ±0,7 dl | Downlink parameters are unimportant. |
| 8.7.4 SFN-CFN observed time difference | TBD | |
| 8.7.5 SFN-SFN observed time difference | TBD | |

| Clause | Maximum Test Syste | em Uncertainty | Derivation of Test System Uncertainty |
|--------------------------------|--|--------------------|---|
| 8.7.6 UE Rx-Tx time difference | \hat{I}_{or}/I_{oc} I_{oc} Rx-Tx Timing Accuracy [±0.5 chip] | ±0.3 dB ±1.0 dB | 0.3 dB uncertainty in \hat{I}_{or}/I_{oc} based on power meter measurement after the combiner The absolute error of the AWGN is specified as 1.0 dB. |
| 8.7.8 P-CCPCH RSCP | TBD | | · |

F.1.6 Performance requirement (HSDPA)

Table F.1.6: Maximum Test System Uncertainty for Performance Requirements (HSDPA)

| Clause | Maximum Test System Uncertainty | Derivation of Test System Uncertainty |
|-----------------------------------|---|---|
| 9.2.1 Single Link Performance | $ \begin{array}{c c} $ | 0.1 dB uncertainty in Ec/lor ratio 0.3 dB uncertainty in \hat{I}_{or}/I_{oc} based on power meter measurement after the combiner The absolute error of the AWGN loc is not important for any tests in clause 9 but is |
| 9.3.1 AWGN propagation conditions | No test system uncertainty applied | specified as 1.0 dB. |

F.2 Test Tolerances (This clause is informative)

The Test Tolerances defined in this clause have been used to relax the Minimum Requirements in the present document to derive the Test Requirements.

The Test Tolerances are derived from Test System uncertainties, regulatory requirements and criticality to system performance. As a result, the Test Tolerances may sometimes be set to zero.

The test tolerances should not be modified for any reason e.g. to take account of commonly known test system errors (such as mismatch, cable loss, etc.).

F.2.1 Transmitter

Table F.2.1: Test Tolerances for transmitter tests.

| Clause | Test Tolerance |
|--|---|
| 5.2 Maximum Output Power | 0.7 dB |
| 5.3 Frequency error | 10 Hz |
| 5.4.1 Open loop power control in uplink | 1.0 dB |
| 5.4.2 Inner loop power control in the | 0.1 dB (1 dB and 0 dB step) |
| uplink - One step | 0.15 dB (2 dB step) |
| | 0.2 dB (3 dB step) |
| 5.4.2 Inner loop power control in the | 0.3 dB |
| uplink - seven and ten steps | |
| 5.4.3 Minimum Output Power | 1.0 dB |
| 5.4.4 Out-of-synchronisation handling of | 0.4 dB |
| output power: $\frac{DPCCH_{-}E_{c}}{}$ | |
| I_{or} | |
| 5.4.4 Out-of-synchronisation handling of | 0 ms |
| output power: transmit ON/OFF time | o mo |
| 5.5.1 Transmit OFF power | 1.0 dB |
| 5.5.2 Transmit ON/OFF time mask | On power +0.7 dB / -1.0 dB |
| (dynamic case) | · |
| | Off power TT [] dB |
| 5.6 Change of TFC: power control step | 0.3 dB |
| size | |
| 5.7 Power setting in uplink compressed | See subset of 5.4.2 |
| mode:- UE output power | |
| 5.8 Occupied Bandwidth | 0 kHz |
| 5.9 Spectrum emission mask | 1.5 dB (0 dB for additional requirements for Band II) |
| 5.10 ACLR | 0.8 dB for ratio |
| | 0.0 dB for absolute power |
| 5.11 Spurious emissions | 0 dB |
| 5.12 Transmit Intermodulation | 0 dB |
| 5.13.1 Transmit modulation: EVM | 0% |
| 5.13.2 Transmit modulation: peak code | 1.0 dB |
| domain error | |

F.2.2 Receiver

Table F.2.2: Test Tolerances for receiver tests.

| Clause | Test Tolerance |
|-------------------------------------|----------------|
| 6.2 Reference sensitivity level | 0.7 dB |
| 6.3 Maximum input level: | 0.7 dB |
| 6.4 Adjacent channel selectivity | 0 dB |
| 6.5 Blocking characteristics | 0 dB |
| 6.6 Spurious Response | 0 dB |
| 6.7 Intermodulation Characteristics | 0 dB |
| 6.8 Spurious emissions | 0 dB |

F.2.3 Performance requirements

Table F.2.3: Test Tolerances for Performance Requirements.

| Clause | Test Tolerance |
|---|--|
| 7.2 Demodulation in Static Propagation | 0.3 dB for \hat{I}_{or}/I_{oc} |
| Condition | 0.1 dB for DPCH_Ec/lor |
| 7.3 Demodulation of DCH in multipath | 0.6 dB for \hat{I}_{or}/I_{oc} |
| Fading Propagation conditions | 0.1 dB for DPCH_Ec/lor |
| 7.4 Demodulation of DCH in Moving | 0.6 dB for \hat{I}_{or}/I_{oc} |
| Propagation conditions | 0.1 dB for DPCH_Ec/lor |
| 7.5 Demodulation of DCH in Birth-Death | 0.6 dB for \hat{I}_{or}/I_{oc} |
| Propagation conditions | 0.1 dB for DPCH_Ec/lor |
| 7.6.1 Demodulation of DCH in open loop | 0.8 dB for \hat{I}_{or}/I_{oc} |
| Transmit diversity mode | 0.1 dB for DPCH_Ec/lor |
| 7.6.2 Demodulation of DCH in closed | 0.8 dB for \hat{I}_{or}/I_{oc} |
| loop Transmit diversity mode | 0.1 dB for DPCH_Ec/lor |
| 7.6.3, Demodulation of DCH in site | 0.8 dB for \hat{I}_{or}/I_{oc} |
| selection diversity Transmission power control mode | 0.1 dB for DPCH_Ec/lor |
| 7.7.1 Demodulation in inter-cell soft | 0.8 dB for \hat{I}_{or}/I_{oc} |
| Handover conditions | 0.6 dB for I_{or}/I_{oc} 0.1 dB for DPCH_Ec/lor |
| 7.7.2 Combining of TPC commands Test | 0 dB for lor1, lor2 |
| 1 | 0.1 dB for DPCH_Ec/lor |
| 7.7.2 Combining of TPC commands Test | 0.8 dB for \hat{I}_{or}/I_{oc} |
| 2 | 0.1 dB for DPCH_Ec/lor |
| 7.8.1 Power control in downlink constant | 0.6 dB for \hat{I}_{or}/I_{oc} |
| BLER target | 0.1 dB for DPCH_Ec/lor |
| 7.8.2, Power control in downlink initial | 0.6 dB for \hat{I}_{or}/I_{oc} |
| convergence | 0.1 dB for DPCH_Ec/lor |
| 7.8.3, Power control in downlink: wind up | 0.6 dB for \hat{I}_{or}/I_{oc} |
| effects | 0.1 dB for DPCH_Ec/lor |
| 7.9 Downlink compressed mode | 0.6 dB for \hat{I}_{or}/I_{oc} |
| | 0.1 dB for DPCH_Ec/lor |
| 7.10 Blind transport format detection | 0.3 dB for \hat{I}_{or}/I_{oc} |
| Tests 1, 2, 3 | 0.1 dB for DPCH_Ec/lor |
| 7.10 Blind transport format detection | 0.6 dB for \hat{I}_{or}/I_{oc} |
| Tests 4, 5, 6 | 0.1 dB for DPCH_Ec/lor |
| 7.11 Demodulation of paging channel (PCH) | TBD |
| 7.12 Detection of acquisition indicator (AI) | TBD |

F.2.4 Requirements for support of RRM

Table F.2.4: Test Tolerances for Radio Resource Management Tests

| Clause | Test Tolerance |
|-------------------------|----------------|
| 8.2 Idle Mode Tasks | |
| 8.2.2 Cell Re-Selection | |

| Clause | Test Tolerance |
|---|---|
| 8.2.2.1 Scenario 1: Single carrier case | During T1 and T2: |
| 6.2.2.1 Scenario 1. Single camer case | +0.60 dB for all Cell 1 and 2 Ec/lor ratios |
| | -0.50 dB for all Cell 3, 4,5, 6 Ec/lor ratios |
| | +0.03 dB for lor(3, 4, 5, 6) |
| | 10.00 ab 101 101(0, 1, 0, 0) |
| | During T1: |
| | -0.27 dB for lor(1) |
| | +0.13 dB for lor(2) |
| | , , |
| | During T2: |
| | +0.13 dB for lor(1) |
| | -0.27 dB for lor(2) |
| 8.2.2.2 Scenario 2: Multi carrier case | Channel 1 during T1 and T2: |
| | +0.70 dB for all Cell 1 Ec/lor ratios |
| | -0.80 dB for all Cell 3 and 4 Ec/lor ratios |
| | S |
| | Channel 1 during T1: |
| | -0.01 dB for lor(1) |
| | -0.01 dB for lor(3, 4) |
| | No change for loc(1) |
| | Channel 1 during T2: |
| | +0.75 dB for lor(1) |
| | -0.05 dB for lor(3, 4) |
| | -1.80 dB for loc(1) |
| | 1.00 dB 101 100(1) |
| | Channel 2 during T1 and T2: |
| | +0.70 dB for all Cell 2 Ec/lor ratios |
| | -0.80 dB for all Cell 5 and 6 Ec/lor ratios |
| | |
| | Channel 2 during T1: |
| | +0.75 dB for lor(2) |
| | -0.05 dB for lor(5, 6) |
| | -1.80 dB for loc(2) |
| | 0, 10,1,1, 70 |
| | Channel 2 during T2: |
| | -0.01 dB for lor(2) |
| | -0.01 dB for lor(5, 6) |
| 9 2 2 LITPAN to CSM Coll Po Soloction | No change for loc(2) |
| 8.2.3 UTRAN to GSM Cell Re-Selection 8.2.3.1 Scenario 1: Both UTRA and GSM | <u> </u> |
| level changed | 0.3 dB for I_{or}/I_{oc} |
| | 0.1 dB for CPICH Ec/lor |
| | 0.3 dB for loc/RXLEV |
| 8.2.3.2 Scenario 2: Only UTRA level | ^ / |
| changed | 0.3 dB for \hat{I}_{or}/I_{oc} |
| | 0.1 dB for CPICH_Ec/lor |
| 0.04 EDD TDD | 0.3 dB for loc/RXLEV |
| 8.2.4 FDD/TDD cell re-selection | 0.3 dB for \hat{I}_{or}/I_{oc} |
| | 0.1 dB for CPICH Ec/lor |
| | 0.1 dB for CPICH_Ec/lor 0.3 dB for loc1/loc2 |
| 8.3 UTRAN Connected Mode Mobility | 0.5 GD 101 10C1/10G2 |
| 8.3.1 FDD/FDD Soft Handover | |
| 8.3.2 FDD/FDD Hard Handover | TBD |
| 8.3.3 FDD/TDD Hardover | TBD |
| 8.3.4 Inter-system Handover form | TBD |
| UTRAN FDD to GSM | |
| 8.3.5 Cell Re-selection in CELL_FACH | |
| 0.0.0 Dell Ne-Selection III OLLL_I AOIT | l |

| Clause | Test Tolerance |
|---|--|
| 8.3.5.1 One frequency present in the | During T1 and T2: |
| neighbour list | +0.60 dB for all Cell 1 and 2 Ec/lor ratios |
| Theighbour hat | -0.50 dB for all Cell 3, 4 ,5, 6 Ec/lor ratios |
| | +0.03 dB for lor(3, 4, 5, 6) |
| | 10.00 ab for for(0, 4, 0, 0) |
| | During T1: |
| | -0.27 dB for lor(1) |
| | +0.13 dB for lor(2) |
| | (=) |
| | During T2: |
| | +0.13 dB for lor(1) |
| | -0.27 dB for lor(2) |
| | . , |
| 8.3.5.2 Two frequencies present in the | Channel 1 during T1 and T2: |
| neighbour list | +0.60 dB for all Cell 1 Ec/lor ratios |
| | -0.70 dB for all Cell 3 and 4 Ec/lor ratios |
| | |
| | Channel 1 during T1: |
| | +0.05 dB for lor(1) |
| | +0.05 dB for lor(3, 4) |
| | No change for loc(1) |
| | |
| | Channel 1 during T2: |
| | +0.75 dB for lor(1) |
| | -0.05 dB for lor(3, 4) |
| | -1.60 dB for loc(1) |
| | 01 101 74 170 |
| | Channel 2 during T1 and T2: |
| | +0.60 dB for all Cell 2 Ec/lor ratios |
| | -0.70 dB for all Cell 5 and 6 Ec/lor ratios |
| | Channel 2 during T1: |
| | Channel 2 during T1: +0.75 dB for lor(2) |
| | -0.05 dB for lor(5, 6) |
| | -1.60 dB for loc(2) |
| | -1.00 dB for loc(2) |
| | Channel 2 during T2: |
| | +0.05 dB for lor(2) |
| | +0.05 dB for lor(5, 6) |
| | No change for loc(2) |
| | , , , , , , , , , , , , , , , , , , , |
| 8.3.6 Cell Re-selection in CELL_PCH | |
| 8.3.6.1 One frequency present in the | Same as 8.2.2.1 |
| neighbour list | |
| 8.3.6.2 Two frequencies present in the | Same as 8.2.2.2 |
| neighbour list | |
| 8.3.7 Cell Re-selection in URA_PCH | |
| 8.3.7.1 One frequency present in the | Same as 8.2.2.1 |
| neighbour list | 0 |
| 8.3.7.2 Two frequencies present in the | Same as 8.2.2.2 |
| neighbour list | |
| 8.4 RRC Connection Control | TRD |
| 8.4.1 RRC Re-establishment delay 8.4.2 Random Access | TBD Settings: |
| 0.4.2 Natiouth Access | Settings: |
| | 0.3 dB for \hat{I}_{or}/I_{oc} |
| | 0.1 dB for AICH Ec/lor |
| | Measurements: |
| | Power difference: ± 1dB |
| | Maximum Power: -1dB / +0.7dB |
| 8.5 Timing and Signalling Characteristics | INIAAIIIIUIII I OWCI IUD / TU./ UD |
| 8.5.1 UE Transmit Timing | TBD |
| 8.6 UE Measurements Procedures | 100 |
| | |
| 8.6.1 FDD intra frequency measurements 8.6.1.1 Event triggered reporting in | TBD |
| | טטו ן |
| AWGN propagation conditions | |

| Clause | Test Tolerance |
|---|---|
| 8.6.1.2 Event triggered reporting of | TBD |
| multiple neighbours in AWGN | |
| propagation condition | |
| 8.6.1.3 Event triggered reporting of two | TBD |
| detectable neighbours in AWGN | |
| propagation condition | TDD |
| 8.6.1.4 Correct reporting of neighbours in | TBD |
| fading propagation condition | |
| 8.6.2 FDD inter frequency measurements 8.6.2.1 Correct reporting of neighbours in | TBD |
| AWGN propagation condition | IBD |
| 8.6.2.2 Correct reporting of neighbours in | TBD |
| Fading propagation condition | |
| 8.6.3 TDD measurements | |
| 8.6.3.1Correct reporting of TDD | TBD |
| neighbours in AWGN propagation | |
| condition | |
| 8.7 Measurements Performance | TBD |
| Requirements | |
| 8.7.1 CPICH RSCP | |
| 8.7.2.1 Intra frequency measurements | 0.3 dB for \hat{I}_{or}/I_{oc} |
| accuracy | |
| | 0.1 dB for CPICH_Ec/lor 1.0 dB for loc |
| 8.7.2.2 Inter frequency measurement | |
| accuracy | 0.3 dB for \hat{I}_{or}/I_{oc} |
| dodiady | 0.1 dB for CPICH_Ec/lor |
| | 0.3 dB for loc1/loc2 |
| | 1.0 dB for loc |
| 8.7.2 CPICH Ec/lo | |
| 8.7.1.1 Intra frequency measurements | 0.3 dB for \hat{I}_{or}/I_{oc} |
| accuracy | 0.7 00 |
| 0.7.4.2 Interfrequency management | 0.1 dB for CPICH_Ec/lor |
| 8.7.1.2 Inter frequency measurement | 0.3 dB for \hat{I}_{or}/I_{oc} |
| accuracy | 0.1 dB for CPICH_Ec/lor |
| 8.7.3A UTRA Carrier RSSI | _ , |
| | 0.3 dB for \hat{I}_{or}/I_{oc} |
| | 1.0 dB for loc |
| 8.7.3B Transport channel BLER | TBD |
| 8.7.3C UE Transmitted power | 0.7 dB for mean power measurement by |
| | test system |
| 8.7.4 SFN-CFN observed time difference | |
| 8.7.5 SFN-SFN observed time difference | 2 / |
| 8.7.6 UE Rx-Tx time difference | 0.3 dB for \hat{I}_{or}/I_{oc} |
| | 1.0 dB for loc |
| | [0.5 chip] for Rx-Tx Timing Accuracy |
| 8.7.7 Observed time difference to GSM | TBD |
| cell | |
| 8.7.8 P-CCPCH RSCP | TBD |

F.2.5 Performance requirements (HSDPA)

Table F.2.5: Test Tolerances for Performance Requirements (HSDPA).

| Clause | Test Tolerance |
|-------------------------------|---|
| 9.2.1 Single Link Performance | $0.3 \text{ dB for } \hat{I}_{or}/I_{oc}$ |
| | 0.1 dB for Ec/lor |

F.3 Interpretation of measurement results

The measurement results returned by the Test System are compared – without any modification – against the Test Requirements as defined by the shared risk principle.

The Shared Risk principle is defined in ETR 273-1-2 clause 6.5.

The actual measurement uncertainty of the Test System for the measurement of each parameter shall be included in the test report.

The recorded value for the Test System uncertainty shall be, for each measurement, equal to or lower than the appropriate figure in clause F.1 of the present document.

If the Test System for a test is known to have a measurement uncertainty greater than that specified in clause F.1, it is still permitted to use this apparatus provided that an adjustment is made value as follows.

Any additional uncertainty in the Test System over and above that specified in clause F.1 shall be used to tighten the Test Requirement – making the test harder to pass. (For some tests e.g. receiver tests, this may require modification of stimulus signals). This procedure will ensure that a Test System not compliant with clause F.1does not increase the chance of passing a device under test where that device would otherwise have failed the test if a Test System compliant with clause F.1 had been used.

F.4 Derivation of Test Requirements (This clause is informative)

The Test Requirements in the present document have been calculated by relaxing the Minimum Requirements of the core specification using the Test Tolerances defined in clause F.2. When the Test Tolerance is zero, the Test Requirement will be the same as the Minimum Requirement. When the Test Tolerance is non-zero, the Test Requirements will differ from the Minimum Requirements, and the formula used for this relaxation is given in table F.4.

Table F.4.1: Derivation of Test Requirements (Transmitter tests)

| Test | Minimum Requirement in TS 25.101 | Test Tolerance (TT) | Test Requirement in TS 34.121 |
|---|--|---------------------------------------|---|
| 5.2 Maximum Output Power | Power class 1 (33 dBm) Tolerance = +1/-3 dB Power class 2 (27 dBm) Tolerance = +1/-3 dB Power class 3 (24 dBm) Tolerance = +1/-3 dB Power class 4 (21 dBm) Tolerance = ±2 dB | 0.7 dB | Formula: Upper Tolerance limit + TT Lower Tolerance limit – TT For power classes 1-3: Upper Tolerance limit = +1.7 dB Lower Tolerance limit = -3.7 dB For power class 4: Upper Tolerance limit = +2.7 dB Lower Tolerance limit = -2.7 dB |
| 5.3 Frequency Error | The UE modulated carrier frequency shall be accurate to within ±0.1 ppm compared to the carrier frequency received from the Node B. | 10 Hz | Formula: modulated carrier frequency error + TT modulated carrier frequency error = ±(0.1 ppm + 10 Hz). |
| 5.4.1 Open loop power control in the uplink | Open loop power control tolerance ±9 dB (Normal) Open loop power control tolerance ±12 dB (Normal) | 1.0 dB | Formula: Upper Tolerance limit + TT Lower Tolerance limit – TT For Normal conditions: Upper Tolerance limit = +10 dB Lower Tolerance limit = -10 dB For Extreme conditions: Upper Tolerance limit = +13 dB Lower Tolerance limit = -13 dB |
| 5.4.2 Inner loop power control in uplink | See table 5.4.2.1 and 5,4,2,2 | 0.25dB 0.15 dB 0.2 dB 0.3 dB | Formula: Upper Tolerance limit + TT Lower Tolerance limit - TT |
| 5.4.3 Minimum Output Power | UE minimum transmit power shall be less than –50 dBm | 1.0 dB | Formula: UE minimum transmit power + TT UE minimum transmit power = -49 dBm |

| Test | Minimum Requirement in TS 25.101 | Test Tolerance (TT) | Test Requirement in TS 34.121 |
|--|--|--|---|
| 5.4.4 Out-of-synchronisation handling of output power: | $\frac{DPCCH_E_c}{I_{or}} \text{ levels }$ I_{or} AB: -22 dB BD: -28 dB DE: -24 dB EF: -18 dB transmit ON/OFF time 200ms $\frac{DPDCH_E_c}{I_{or}} = -16.6 \text{ dB}$ $I_{oc} - 60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = -1 \text{ dB}$ | 0.4 dB for | Formulas: Ratio between A and B + TT Ratio between B and D – TT Ratio between D and E – TT Ratio between E and F + TT transmit ON/OFF time + TT timing $\frac{DPDCH_{-}E_{c}}{I_{or}} = -16.6 \text{ dB}$ $\frac{DPCCH_{-}E_{c}}{I_{or}} = -1 \text{ dB}$ $DPCCH_{$ |
| 5.5.1 Transmit OFF power (static case) | Transmit OFF power shall be less than -56 dBm | 1.0 dB | Formula: Transmit OFF power + TT Transmit OFF power = -55dBm. |
| 5.5.2 Transmit ON/OFF time mask (dynamic case) | Transmit ON power shall be the target value as defined in clause 5.5.2.2 Transmit OFF power shall be less than -56 dBm | On power upper TT = 0.7 dB On power lower TT = 1.0 dB Off power TT [] dB | Formula for transmit ON power: Transmit ON power target upper limit + On power upper TT Transmit ON power target lower limit - On power lower TT To calculate Transmit ON power target value range take the nominal TX power range from Table 5.5.2.3 then apply table 5.4.1.1 open limits then apply table 5.7.1 (only if there has been a transmission gap) then cap the upper value using table 5.2.1. Formula for transmit OFF power: Transmit OFF power + Off power TT Transmit OFF power = []dBm |
| 5.6 Change of TFC: power control step size | TFC step size = +5 to +9 dB | 0.3 dB | Formula: Upper Tolerance limit + TT Lower Tolerance limit – TT Upper limit = -4.7 dB Lower limit = -9.3 dB |
| 5.7 Power setting in uplink compressed mode | Various | TBD (Subset of 5.4.2) | TBD |

| Test | Minimum Require 25.101 | | Test Tolerance (TT) | Test Requirement in TS 34.121 | |
|--|---|----------------------------|---------------------------|---|--|
| 5.8 Occupied Bandwidth | The occupied channel bandwidth shall be less than 5 MHz based on a chip rate of | | 0 kHz | Formula: occupied channel bandwidth: + TT occupied channel bandwidth = 5.0 MHz | |
| 5.9 Spectrum emission mask | 3.84 Mcps. Minimum requirement defined in TS25.101 Table 6.10. The lower limit shall be –50 dBm / 3.84 MHz or which ever is higher. | | 1.5 dB | Formula: Minimum require Lower limit + TT Add 1.5 to Minimum require in TS25.101 Table 6.10. Zero test tolerance is appli Additional requirements for to FCC regulatory requiren The lower limit shall be -48 MHz or which ever is higher | ment + TT ement entries ed for r Band II due nents. 3.5 dBm / 3.84 |
| 5.10 Adjacent Channel Leakage Power Ratio (ACLR) | If the adjacent chan greater than -50 dB ACLR shall be highe values specified bel | m then the er than the | 0.0 dB | Formula: Absolute power t | hreshold + TT |
| | Power Classes 3 and 4: UE channel +5 MHz or -5 MHz, ACLR limit: 33 dB UE channel +10 MHz or -10 MHz, ACLR limit: 43 dB | | 0.8 dB | Formula: ACLR limit - TT Power Classes 3 and 4: UE channel +5 MHz or -5 I limit: 32.2 dB UE channel +10 MHz or -1 limit: 42.2 dB | · |
| 5.11 Spurious Emissions | | | | Formula: Minimum Require Add zero to all the values of Requirements in table 5.11 5.11.1b. | of Minimum |
| | Frequency Band | Minimum Requireme nt | | Frequency Band | Minimum Requirement |
| | 9 kHz ≤ f < 150 kHz | -36dBm /1kHz | 0 dB | 9kHz ≤ f < 1GHz | -36dBm /1kHz |
| | 150 kHz ≤ f < 30 MHz | –36dBm /10kHz | 0 dB | 150 kHz ≤ f < 30 MHz | -36dBm /10kHz |
| | 30 MHz ≤ f < 1000 MHz | –36dBm /100kHz | 0 dB | 30 MHz ≤ f < 1000 MHz | –36dBm /100kHz |
| | 1 GHz ≤ f < 12.75 GHz | -30dBm /1MHz | 0 dB | 1 GHz ≤ f < 2.2 GHz | -30dBm /1MHz |
| | | | 0 dB | 2.2 GHz ≤ f < 4 GHz | -30dBm /1MHz |
| | | | 0 dB | 4 GHz ≤ f < 12.75 GHz | -30dBm /1MHz |
| | 1893.5 MHz < f < 1919.6 MHz | –41dBm /300kHz | 0 dB | 1893.5 MHz < f < 1919.6 MHz | –41dBm /300kHz |
| | 925 MHz ≤ f ≤ 935 MHz | –67dBm /100kHz | 0 dB | 925 MHz ≤ f ≤ 935 MHz | –67dBm /100kHz |
| | 935 MHz < f ≤ 960 MHz | –79dBm /100kHz | 0 dB | 935 MHz < f ≤ 960 MHz | –79dBm /100kHz |
| | 1805 MHz ≤ f ≤ 1880 MHz | –71dBm /100kHz | 0 dB | 1805 MHz ≤ f ≤ 1880 MHz | –71dBm /100kHz |
| 5.12 Transmit Intermodulation | Intermodulation Product 5MHz -31 dBc 10MHz -41 dBc CW Interferer level = -40 dBc | | 0 dB | Formula: CW interferer lev Intermod Products limits re unchanged. | |
| 5.13.1 Transmit modulation: EVM | The measured EVM shall not exceed 17.5%. | | 0% | CW interferer level = -40 d Formula: EVM limit + TT EVM limit = 17.5 % | Bc |
| 5.13.2 Transmit modulation: peak code domain error | The measured Peak domain error shall n -15 dB. | | 1.0 dB | Formula: Peak code domain error + TT Peak code domain error = -14 dB | |

Table F.4.2: Derivation of Test Requirements (Receiver tests)

| Test | Minimum Requi 25.10 | | Test Tolerance (TT) | Test Requirement in | TS 34.121 |
|--|--|-------------------|---------------------------|---|---|
| 6.2 Reference sensitivity level | for = -106.7 dBm / 3.84 MHz DPCH_Ec = -117 dBm / 3.84 MHz BER limit = 0.001 | | 0.7 dB | TT BER limit unchand Îor = 3.84 MHz | DPCH_Ec + ged -106 dBm / Bm / 3.84 MHz |
| 6.3 Maximum input level | -25 dBm lor -19 dBc DPCH_E | c/lor | 0.7 dB | Formula: lor-TT lor = -25.7 dBm | |
| 6.4 Adjacent Channel Selectivity | for = -92.7 dBm / 3.84 MHz DPCH_Ec = -103 dBm / 3.84 MHz loac (modulated) = -52 dBm/3.84 MHz BER limit = 0.001 | | 0 dB | Formula: Îor unchanged DPCH_Ec unchar loac - TT BER limit unchan | - |
| 6.5 Blocking Characteristics | See Table 6.5.3 and 6.5.4. in TS34.121 BER limit = 0.001 | | 0 dB | Formula: I _{blocking} (modulated) - TT (d I _{blocking} (CW) - TT (dBm) BER limit unchanged | IBm/3.84MHz) |
| 6.6 Spurious Response | Iblocking(CW) –44 dBm Fuw: Spurious response frequencies BER limit = 0.001 | | 0 dB | Formula: I blocking (CW) - TI Fuw unchanged BER limit unchanged Iblocking(CW) = -44 dBm | (dBm) |
| 6.7 Intermodulation Characteristics | louw1 (CW) -46 dBm louw2 (modulated) -46 dBm / 3.84 MHz Fuw1 (offset) 10 MHz Fuw2 (offset) 20 MHz lor = -103.7 dBm/3.84 MHz DPCH_Ec = -114 dBm/3.84 BER limit = 0.001 | | 0 dB | Formula: lor + TT DPCH_Ec + TT louw1 level uncha louw2 level uncha BER limit unchan lor = -114 dBm BER limit. = 0.001 | anged |
| 6.8 Spurious Emissions | | | | Formula: Maximum level + Add zero to all the values of Level in table 6.8.1. | |
| | Frequency Band | Maximum level | | Frequency Band | Maximum level |
| | 9kHz ≤ f < 1GHz | -57dBm /100kHz | 0 dB | 9kHz ≤ f < 1GHz | -57dBm /100kHz |
| | 1GHz ≤ f ≤ 12.75GHz | -47dBm /1MHz | 0 dB | 1GHz ≤ f ≤ 2.2GHz | -47dBm /1MHz |
| | | | 0 dB | 2.2GHz < f ≤ 4GHz 4GHz < f ≤ 12.75GHz | -47dBm /1MHz -47dBm |
| | 1920MHz ≤ f ≤ | -60dBm | 0 dB | 4GHZ < f ≤ 12.75GHZ 1920MHz ≤ f ≤ 1980MHz | /1MHz -60dBm |
| | 1980MHz | /3.84MHz | | | /3.84MHz |

| Test | Minimum Requirement in TS 25.101 | | Test Tolerance (TT) | Test Requirement in TS 34.121 | |
|------|----------------------------------|--------------------|---------------------------|-------------------------------|--------------------|
| | 2110MHz ≤ f ≤ 2170MHz | -60dBm /3.84MHz | 0 dB | 2110MHz ≤ f ≤ 2170MHz | -60dBm /3.84MHz |

Table F.4.3: Derivation of Test Requirements (Performance tests)

| Test | Minimum Requirement in TS 25.101 | Test Tolerance (TT) | Test Requirement in TS 34.121 |
|---|---|--|---|
| 7.2 Demodulation of DPCH in static conditions | $\frac{DPCH_E_c}{I_{or}} -5.5 \text{ to -16.6 dB}$ $I_{oc} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = -1 \text{ dB}$ | 0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.3 dB for \hat{I}_{or}/I_{oc} | Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ $I_{oc} \text{ unchanged}$ $\hat{I}_{or}/I_{oc} = \text{-0.7 dB}$ $\frac{DPCH_E_c}{I_{or}} \text{ -5.4 to -16.5 dB:}$ |
| 7.3 Demodulation of DPCH in multi-path fading propagation conditions Tests 1-4 | $\frac{DPCH_E_c}{I_{or}} -2.2 \text{ to -15.0}$ $I_{oc} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = 9 \text{ dB to -3 dB}$ | 0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.6 dB for \hat{I}_{or}/I_{oc} | Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} + \text{ratio} + \text{TT}$ $I_{oc} \text{ unchanged}$ $\hat{I}_{or}/I_{oc} = 9.6 \text{ to } -2.4 \text{ dB}$ $\frac{DPCH_E_c}{I_{or}} \text{ -2.1 to -14.9 dB:}$ |
| 7.3 Demodulation of DPCH in multi-path fading propagation conditions Tests 5-8 | $\frac{DPCH_E_c}{I_{or}} -3.2 \text{ to -7.7 dB}$ $I_{oc} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = 6 \text{ dB to -3 dB}$ | I_{or} 0.6 dB for \hat{I}_{or}/I_{oc} | Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ $I_{oc} \text{ unchanged}$ $\hat{I}_{or}/I_{oc} = 6.6 \text{ to -2.4 dB}$ $\frac{DPCH_E_c}{I_{or}} \text{ -3.1 to -7.6 dB:}$ |
| 7.3 Demodulation of DPCH in multi-path fading propagation conditions Tests 9-12 | $\frac{DPCH_E_c}{I_{or}}$ -4.4 to -11.8 dB I_{oc} = -60 dBm \hat{I}_{or}/I_{oc} = 6 dB to -3 dB | 0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.6 dB for \hat{I}_{or}/I_{oc} | Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ $I_{oc} \text{ unchanged}$ $\hat{I}_{or}/I_{oc} = 6.6 \text{ to} -2.4 \text{ dB}$ $\frac{DPCH_E_c}{I_{or}} \text{ -4.3 to} -11.7 \text{ dB}:$ |

| Test | Minimum Requirement in TS 25.101 | Test Tolerance (TT) | Test Requirement in TS 34.121 |
|---|--|--|--|
| 7.3 Demodulation of DPCH in multi-path fading propagation conditions Tests 13-16 | $\frac{DPCH_E_c}{I_{or}}$ -2.2 to -15.0 dB $I_{oc} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = 9 \text{ dB}$ | 0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.6 dB for \hat{I}_{or}/I_{oc} | Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ $I_{oc} \text{ unchanged}$ $\hat{I}_{or}/I_{oc} = 9.6$ $\frac{DPCH_E_c}{I_{or}} \text{-2.1 to -14.9 dB:}$ |
| 7.3 Demodulation of DPCH in multi-path fading propagation conditions Tests 17-20 | $\frac{DPCH_E_c}{I_{or}} -1.4 \text{ to -8.8 dB}$ $I_{oc} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = 6 \text{ to -3 dB}$ | 0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.6 dB for \hat{I}_{or}/I_{oc} | \hat{I}_{or}/I_{oc} = ratio + TT I_{oc} unchanged \hat{I}_{or}/I_{oc} = 6.6 to -2.4 dB $\frac{DPCH_E_c}{I_{or}}$ -1.3 to -8.7 dB: |
| 7.4 Demodulation of DPCH in moving propagation conditions | $\frac{DPCH_E_c}{I_{or}}$ -10.9 to -14.5 I_{oc} = - 60 dBm \hat{I}_{or}/I_{oc} = -1 dB | I_{or} 0.6 dB for \hat{I}_{or}/I_{oc} | Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ $I_{oc} \text{ unchanged}$ $\hat{I}_{or}/I_{oc} = \text{-0.4 dB}$ $\frac{DPCH_E_c}{I_{or}} \text{ -10.8 to -14.4 dB:}$ |
| 7.5 Demodulation of DPCH birth-death propagation conditions | $\frac{DPCH_E_c}{I_{or}}$ -8.7 to -12.6 dB I_{oc} = - 60 dBm \hat{I}_{or}/I_{oc} = -1 dB | 0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.6 dB for \hat{I}_{or}/I_{oc} | Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ $I_{oc} \text{ unchanged}$ $\hat{I}_{or}/I_{oc} = \text{-0.4 dB}$ $\frac{DPCH_E_c}{I_{or}} \text{ -18.6 to -12.5 dB:}$ |

| Test | Minimum Requirement in TS 25.101 | Test Tolerance (TT) | Test Requirement in TS 34.121 |
|--|--|--|--|
| 7.6.1 Demodulation of DPCH in transmit diversity propagation conditions | $\frac{DPCH_E_c}{I_{or}}$ -16.8 dB I_{oc} = - 60 dBm \hat{I}_{or}/I_{oc} = 9 dB | 0.1 dB | Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ $I_{oc} \text{ unchanged}$ $\hat{I}_{or}/I_{oc} = 9.8 \text{ dB}$ $\frac{DPCH_E_c}{I_{or}} \text{ -16.7 dB:}$ |
| 7.6.2 Demodulation of DCH in closed loop Transmit diversity mode | $\frac{DPCH_E_c}{I_{or}} - 18 \text{ to } -18.3 \text{ dB}$ $I_{oc} = -60 \text{ dBm}$ $\hat{I}_{or}/I_{oc} = 9 \text{ dB}$ | 0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.8 dB for \hat{I}_{or}/I_{oc} | Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ $I_{oc} \text{ unchanged}$ $\hat{I}_{or}/I_{oc} = 9.8 \text{ dB}$ $\frac{DPCH_E_c}{I_{or}} \text{ -17.9 to -18.2 dB:}$ |
| 7.6.3, Demodulation of DCH in site selection diversity Transmission power control mode | $\frac{DPCH_E_c}{I_{or}}$ -5.0 to -10.5 dB I_{oc} = - 60 dBm \hat{I}_{or}/I_{oc} = 0 to -3 dB | 0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.8 dB for \hat{I}_{or}/I_{oc} | Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ $I_{oc} \text{ unchanged}$ $\hat{I}_{or}/I_{oc} = 0.8 \text{ to } -2.2 \text{ dB}$ $\frac{DPCH_E_c}{I_{or}} \text{ -4.9 to -10.4 dB:}$ |
| 7.7.1 Demodulation in inter-cell soft Handover | $\frac{DPCH_E_c}{I_{or}}$ -5.5 to -15.2 dB I_{oc} = - 60 dBm \hat{I}_{or}/I_{oc} = lor2/loc = 6 to 0 dB | 0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ 0.8 dB for \hat{I}_{or}/I_{oc} | Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ $I_{oc} \text{ unchanged}$ $\hat{I}_{or}/I_{oc} = 6.8 \text{ to } 0.8 \text{ dB}$ $\frac{DPCH_E_c}{I_{or}} \text{ -5.4 to -15.4 dB:}$ |

| Test | Minimum Requirement in TS 25.101 | Test Tolerance (TT) | Test Requirement in TS 34.121 |
|--|--|---|--|
| 7.7.2 Combining of TPC commands Test 1 | $\frac{DPCH_E_c}{I_{or}}$ -12 dB Ior1 and Ior2 -60dBm | 0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ | Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ |
| | | 0dB for lor1 and lor2 | $\frac{DPCH_E_c}{I_{or}} = -11,9 \text{ dB}:$ $lor1 = -60 \text{dBm}$ $lor2 = -60 \text{dBm}$ |
| | | | The absolute levels of lor1 and lor2 are not important to this test. |
| 7.7.2 Combining of TPC commands Test 2 | $\frac{DPCH_E_c}{I_{or}}$ -12 dB | 0.1 dB for $\frac{DPCH_E_c}{I_{or}}$ | |
| | I_{oc} = - 60 dBm \hat{I}_{or}/I_{oc} = 0 dB | 0.8 dB for | \hat{I}_{or}/I_{oc} = ratio + TT |
| | $I_{or}/I_{oc} = 0 \text{ dB}$ | \hat{I}_{or}/I_{oc} | I_{oc} unchanged |
| | | | $\hat{I}_{or}/I_{oc} = 0.8 \text{ dB}$ |
| | | | $rac{DPCH_E_c}{I_{or}}$ -11,9 dB: |
| 7.8.1 Power control in downlink constant BLER target | $rac{DPCH_E_c}{I_{or}}$ -9 to -16 dB | 0.1 dB for $\underline{DPCH}_{\underline{E}_c}$ | Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ |
| | I_{oc} = - 60 dBm | I_{or} | \hat{I}_{or}/I_{oc} = ratio + TT |
| | \hat{I}_{or}/I_{oc} = 9 to -1 dB | 0.6 dB for \hat{I}_{or}/I_{oc} | I_{oc} unchanged |
| | | | $\hat{I}_{or}/I_{oc} = 9.6 \text{ to -0.4 dB}$ |
| | | | $\frac{DPCH_E_c}{I_{or}}$ -8.9 to –15.9 dB: |
| 7.8.2, Power control in downlink initial convergence | $\frac{DPCH_E_c}{I_{or}}$ -8.1 to –18.9 dB | 0.1 dB for $\underline{DPCH}_{-}E_{c}$ | Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ |
| | I_{oc} = - 60 dBm | I_{or} | \hat{I}_{or}/I_{oc} = ratio + TT |
| | \hat{I}_{or}/I_{oc} = -1 dB | 0.6 dB for \hat{I}_{or}/I_{oc} | I_{oc} unchanged |
| | | | $\hat{I}_{or}/I_{oc} = -0.4 \text{ dB}$ |
| | | | $\frac{DPCH_E_c}{I_{or}}$ -8.0 to -18.8 dB: |

| Test | Minimum Requirement in TS 25.101 | Test Tolerance (TT) | Test Requirement in TS 34.121 |
|---|--|--|--|
| 7.8.3, Power control in downlink: wind up effects | $\frac{DPCH_E_c}{I_{or}} \text{ -13.3 dB}$ $I_{oc} = \text{- 60 dBm}$ | 0.1 dB | Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ |
| | $\hat{I}_{or}/I_{oc} = 5 \text{ dB}$ | 0.6 dB for \hat{I}_{or}/I_{oc} | I_{oc} unchanged |
| | | | \hat{I}_{or}/I_{oc} = 5.6 dB $PPCH_{-}E_{c}$ -13.2 dB: |
| 7.9 Downlink compressed mode | $rac{DPCH_E_c}{I_{or}}$ | 0.1 dB for | I_{or} Formulas: |
| | Test 1 -14.6 dB Test 3 -15.2 dB I_{oc} = -60 dBm \hat{I}_{or}/I_{oc} = 9 dB | $rac{DPCH_E_c}{I_{or}}$ 0.6 dB for \hat{I}_{or}/I_{oc} | $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ |
| | | | I_{oc} unchanged \hat{I}_{or}/I_{oc} = 9.6 dB |
| | | | $\frac{DPCH_E_c}{I_{or}}$ Test 1 -14.5 dB |
| 7.10 Blind transport format detection Tests 1, 2, 3 | $\frac{DPCH_E_c}{I_{or}}$ -17.7 to -18.4 dB | 0.1 dB for $\frac{DPCH_E_c}{I}$ | Test 3 -15.1 dB: Formulas: $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\hat{I}_{or}/I_{oc} = \text{ratio} + \text{TT}$ |
| | I_{oc} = - 60 dBm \hat{I}_{or}/I_{oc} = -1 dB | 0.3 dB for \hat{I}_{or}/I_{oc} | \hat{I}_{or}/I_{oc} = ratio + TT I_{oc} unchanged |
| | | | $\hat{I}_{or}/I_{oc} = -0.7 \text{ dB}$ |
| 7.10 Blind transport format detection Tests 4, 5, 6 | $\frac{DPCH_{-}E_{c}}{I}$ -13.0 to -13.8 dB | 0.1 dB | $\frac{DPCH_E_c}{I_{or}}$ -17.6 to –18.3 dB: |
| | I_{or} $I_{oc} = -60 \text{ dBm}$ | $\frac{DPCH_E_c}{I_{or}}$ | $\frac{DPCH_E_c}{I_{or}} = \text{ratio} + TT$ $\hat{I}_{or}/I_{oc} = \text{ratio} + TT$ |
| | $\hat{I}_{or}/I_{oc} = -3 \text{ dB}$ | 0.6 dB for \hat{I}_{or}/I_{oc} | I_{oc} unchanged \hat{I}_{or}/I_{oc} = -2.4 dB |
| | | | I_{or}/I_{oc} = -2.4 dB $\frac{DPCH_E_c}{I_{or}}$ -12.9 to -13.7 dB: |
| 7.11 Demodulation of paging channel (PCH) | TBD | | 1 or |
| 7.12 Detection of acquisition indicator (AI) | TBD | | |

Table F.4.4: Derivation of Test Requirements (RRM tests)

| Test | Test Parameters in TS 25.133 | Test Tolerance (TT) | Test Requirement in TS 34.121 | | |
|--|---|--|---|--|--|
| 8.2 Idle Mode Tasks | | | | | |
| 8.2.2 Cell Re-Selection | | | | | |
| 8.2.2.1 Scenario 1: Single carrier case | are complex, it is not possible | Because the relationships between the Test system uncertainties and the Test Tolerances are complex, it is not possible to give a simple derivation of the Test Requirement in this document. The analysis is recorded in 3GPP TR 34 902 [24]. | | | |
| | During T1 and T2: | During T1 and T2: | During T1 and T2: | | |
| | Cells 1 and 2: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB | +0.60 dB +0.60 dB +0.60 dB +0.60 dB | Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT | | |
| | Cells 3, 4, 5, 6: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB | -0.50 dB -0.50 dB -0.50 dB -0.50 dB | Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT | | |
| | lor(3, 4, 5, 6) = -69.73 dBm | +0.03 dB for lor(3, 4, 5, 6) | lor(3, 4, 5, 6) + TT | | |
| | During T1: | During T1: | During T1: | | |
| | lor(1) = -62.73 dBm lor(2) = -59.73 dBm | -0.27 dB for lor(1) +0.13 dB for lor(2) | lor(1) + TT lor(2) + TT | | |
| | During T2: | During T2: | During T2: | | |
| | lor(1) = -59.73 dBm lor(2) = -62.73 dBm | +0.13 dB for lor(1) -0.27 dB for lor(2) | lor(1) + TT lor(2) + TT | | |
| 8.2.2.2 Scenario 2: Multi carrier case Because the relationships between the Test system are complex, it is not possible to give a simple of document. The analysis is recorded in 3GPP Till | | e to give a simple deriva | ation of the Test Requirement in this | | |
| | Channel 1 during T1 and T2: | Channel 1 during T1 and T2: | Channel 1 during T1 and T2: | | |
| | Cell 1: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB | +0.70 dB +0.70 dB +0.70 dB +0.70 dB | Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT | | |
| | Cells 3 and 4: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB | -0.80 dB -0.80 dB -0.80 dB -0.80 dB | Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT | | |
| | Channel 1 during T1: | Channel 1 during T1: | Channel 1 during T1: | | |
| | lor(1) = -73.39 dBm lor(3, 4) = -77.39 dBm loc(1) = -70.00 dBm | -0.01 dB for lor(1) -0.01 dB for lor(3,4) 0.00 dB for loc(1) | lor(1) + TT lor(3, 4) + TT loc(1) + TT | | |
| | Channel 1 during T2: | Channel 1 during T2: | Channel 1 during T2: | | |
| | lor(1) = -67.75 dBm lor(3, 4) = -74.75 dBm loc(1) = -70.00 dBm | +0.75 dB for lor(1) -0.05 dB for lor(3, 4) -1.80 dB for loc(1) | lor(1) + TT lor(3, 4) + TT loc(1) + TT | | |

| Test | Test Parameters in TS 25.133 | Test Tolerance (TT) | Test Requirement in TS 34.121 |
|---|--|---|---|
| | Channel 2 during T1 and | Channel 2 during | Channel 2 during T1 and T2: |
| | <u>T2:</u> | T1 and T2: | |
| | Cell 2: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB | +0.70 dB +0.70 dB +0.70 dB +0.70 dB | Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT |
| | Cells 5 and 6: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB | -0.80 dB -0.80 dB -0.80 dB -0.80 dB | Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT |
| | Channel 2 during T1: | Channel 2 during | Channel 2 during T1: |
| | lor(2) = -67.75 dBm lor(5, 6) = -74.75 dBm loc(2) = -70.00 dBm | T1: +0.75 dB for lor(2) -0.05 dB for lor(5, 6) -1.80 dB for loc(2) | lor(2) + TT lor(5, 6) + TT loc(2) + TT |
| | Channel 2 during T2: | Channel 2 during | Channel 2 during T2: |
| | lor(2) = -73.39 dBm lor(5, 6) = -77.39 dBm loc(2) = -70.00 dBm | T2: -0.01 dB for lor(2) -0.01 dB for lor(5,6) 0.00 dB for loc(2) | lor(2) + TT lor(5, 6) + TT loc(2) + TT |
| 8.2.3 UTRAN to GSM Cell Re-Selection | TBD | | |
| 8.2.3.1 Scenario 1: Both UTRA and GSM level changed | $\frac{CPICH _E_c}{I_{or}} = -10 \text{ dB}$ $Ior/Ioc = 0 \text{ dB}$ | 0.1 dB for $CPICH_E_c$ I_{or} 0.3 dB for loc/RXLEV | Formulas: $\frac{CPICH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $I_{or} = \text{ratio} + \text{TT}$ $(Ioc/Rxlev)_{\text{test requirement}} = (Ioc/Rxlev)_{\text{minimum requirement}} + \text{TT}$ $Ior/Ioc = 0.3 \text{ dB}$ $\frac{CPICH_E_c}{I_{or}} = -9.9 \text{ dB}$ |
| | $\frac{CPICH _E_c}{I_{or}} = -10 \text{ dB}$ $Ior/loc = -5 \text{ dB}$ | 0.1 dB for $\frac{CPICH_E_c}{I_{or}}$ 0.3 dB for loc/RXLEV | Formulas: $\frac{CPICH_E_c}{I_{or}} = \text{ratio} - \text{TT}$ $\text{lor/loc} = \text{ratio} - \text{TT}$ $(\text{loc/Rxlev})_{\text{test requirement}} = (\text{loc/Rxlev})_{\text{minimum requirement}} - \text{TT}$ $\text{lor/loc} = -5.3 \text{ dB}$ $\frac{CPICH_E_c}{I_{or}} -10.1 \text{ dB}$: |

| Test | Test Parameters in TS 25.133 | Test Tolerance (TT) | Test Requirement in TS 34.121 |
|---|--|---|---|
| 8.2.3.2 Scenario 2: Only UTRA level changed | $\frac{CPICH_E_c}{I_{or}} = -10 \text{ dB}$ $Ior/loc = 20 \text{ dB}$ | 0.1 dB for CPICH_E _c I _{or} 0.3 dB for lor/loc 0.3 dB for loc/RXLEV | Formulas: $\frac{CPICH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\text{lor/loc} = \text{ratio} + \text{TT}$ $(\text{loc/Rxlev})_{\text{test requirement}} = (\text{loc/Rxlev})_{\text{minimum requirement}} + \text{TT}$ $\text{lor/loc} = 20.3 \text{ dB}$ $\frac{CPICH_E_c}{I_{or}} = -9.9 \text{ dB}$: |
| | $\frac{CPICH _E_c}{I_{or}} = -10 \text{ dB}$ $Ior/Ioc = 20 \text{ dB}$ | 0.1 dB for $\frac{CPICH_E_c}{I_{or}}$ 0.3 dB for lor/loc 0.3 dB for loc/RXLEV | Formulas: $\frac{CPICH_E_c}{I_{or}} = \text{ratio} + \text{TT}$ $\text{Ior/loc} = \text{ratio} + \text{TT}$ $(\text{loc/Rxlev})_{\text{test requirement}} = \\ (\text{loc/Rxlev})_{\text{minimum requirement}} + \text{TT}$ $\text{Ior/loc} = 20.3 \text{ dB}$ $\frac{CPICH_E_c}{I_{or}} = -9.9 \text{ dB}$: |
| 8.2.4 FDD/TDD cell re- selection | TBD | | |
| 8.3 UTRAN Connected Mode Mobility | TBD | | |
| 8.3.1 FDD/FDD Soft Handover | TBD | | |
| 8.3.2 FDD/FDD Hard Handover | TBD | | |
| 8.3.3 FDD/TDD Handover | TBD | | |
| 8.3.4 Inter-system Handover form UTRAN FDD to GSM | TBD | | |
| 8.3.5 Cell Re-selection in CELL_FACH | | | |
| 8.3.5.1 One frequency present in the neighbour list | | e to give a simple deriva | uncertainties and the Test Tolerances ation of the Test Requirement in this 902 [24]. |
| | During T1 and T2: | During T1 and T2: | During T1 and T2: |
| | Cells 1 and 2: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB S-CCPCH_Ec/lor = -12 dB | +0.60 dB +0.60 dB +0.60 dB +0.60 dB +0.60 dB | Ec/lor ratio + TT |
| | Cells 3, 4, 5, 6: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB S-CCPCH_Ec/lor = -12 dB lor(3, 4, 5, 6) = -69.73 dBm | -0.50 dB -0.50 dB -0.50 dB -0.50 dB -0.50 dB +0.03 dB for lor(3, | Ec/lor ratio + TT |
| | 101(0, 4, 0, 0) = -08.73 UDIII | 4, 5, 6) | 101(0, 7, 0, 0) T 11 |

| Test | Test Parameters in TS 25.133 | Test Tolerance (TT) | Test Requirement in TS 34.121 |
|---|---|---|--|
| | During T1: | During T1: | During T1: |
| | lor(1) = -62.73 dBm lor(2) = -59.73 dBm | -0.27 dB for lor(1) +0.13 dB for lor(2) | lor(1) + TT lor(2) + TT |
| | During T2: | During T2: | During T2: |
| | lor(1) = -59.73 dBm lor(2) = -62.73 dBm | +0.13 dB for lor(1) -0.27 dB for lor(2) | lor(1) + TT lor(2) + TT |
| 8.3.5.2 Two frequencies present in the neighbour list | | e to give a simple deriva | uncertainties and the Test Tolerances ation of the Test Requirement in this 902 [24]. Channel 1 during T1 and T2: |
| | <u>T2:</u> | T1 and T2: | |
| | Cell 1: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB S-CCPCH_Ec/lor = -12 dB | +0.60 dB +0.60 dB +0.60 dB +0.60 dB +0.60 dB | Ec/lor ratio + TT |
| | Cells 3 and 4: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB S-CCPCH_Ec/lor = -12 dB | -0.70 dB -0.70 dB -0.70 dB -0.70 dB -0.70 dB | Ec/lor ratio + TT |
| | Channel 1 during T1: | Channel 1 during T1: | Channel 1 during T1: |
| | lor(1) = -71.85 dBm lor(3, 4) = -76.85 dBm loc(1) = -70.00 dBm | +0.05 dB for lor(1) +0.05 dB for lor(3,4) 0.00 dB for loc(1) | lor(1) + TT lor(3, 4) + TT loc(1) + TT |
| | Channel 1 during T2: | Channel 1 during | Channel 1 during T2: |
| | lor(1) = -67.75 dBm lor(3, 4) = -74.75 dBm loc(1) = -70.00 dBm | T2: +0.75 dB for lor(1) -0.05 dB for lor(3, 4) -1.60 dB for loc(1) | lor(1) + TT lor(3, 4) + TT loc(1) + TT |
| | Channel 2 during T1 and T2: | Channel 2 during T1 and T2: | Channel 2 during T1 and T2: |
| | Cell 2: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB S-CCPCH_Ec/lor = -12 dB | +0.60 dB +0.60 dB +0.60 dB +0.60 dB +0.60 dB | Ec/lor ratio + TT |
| | Cells 5 and 6: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB S-CCPCH_Ec/lor = -12 dB | -0.70 dB -0.70 dB -0.70 dB -0.70 dB -0.70 dB | Ec/lor ratio + TT |

| Test | Test Parameters in TS 25.133 | Test Tolerance (TT) | Test Requirement in TS 34.121 |
|---|---|-----------------------------------|--|
| | Channel 2 during T1: | Channel 2 during | Channel 2 during T1: |
| | lor(2) = -67.75 dBm | T1: +0.75 dB for lor(2) | lor(2) + TT |
| | lor(5, 6) = -74.75 dBm | -0.05 dB for lor(5, 6) | lor(5, 6) + TT |
| | loc(2) = -70.00 dBm | -1.60 dB for loc(2) | loc(2) + TT |
| | Channel 2 during T2: | Channel 2 during | Channel 2 during T2: |
| | lor(2) = -71.85 dBm | <u>T2:</u> +0.05 dB for lor(2) | lor(2) + TT |
| | lor(5, 6) = -76.85 dBm | +0.05 dB for lor(5,6) | lor(5, 6) + TT |
| | loc(2) = -70.00 dBm | 0.00 dB for loc(2) | loc(2) + TT |
| 8.3.6 Cell Re-selection in CELL_PCH | | | |
| 8.3.6.1 One frequency present in the | Same as 8.2.2.1 | Same as 8.2.2.1 | Same as 8.2.2.1 |
| neighbour list | $\underline{CPICH}_{-}\underline{E_{c}}$ = -10 dB | 0.1 dB for | Formulas: |
| | I_{or} | $\frac{CPICH_E_c}{I_{or}}$ | $CPICH_{-}E_{c}$ = ratio + TT |
| | $I_{oc} = -70 \text{ dBm}$ | 0.3 dB for lor/loc | I_{or} |
| | lor/loc = 10.27 dB | | lor/loc = ratio + TT |
| | Note: Parameters are valid | | loc unchanged |
| | for cell 1 at time T2 and cell 2 at time T1 | | lor/loc = 10.57 dB |
| | Z dt dillo 11 | | $CPICH_E_c$ -9.9 dB: |
| | | | $\frac{1}{I_{or}}$ -9.9 dB. |
| | | | |
| 8.3.6.2 Two frequencies present in the neighbour list | Same as 8.2.2.2 | Same as 8.2.2.2 | Same as 8.2.2.2 |
| | $\underline{CPICH}_{\underline{E}_{c}} = -10 \text{ dB}$ | 0.1 dB for | Formulas: |
| | I_{or} | $\frac{CPICH_{-}E_{c}}{I}$ | $CPICH_{-}E_{c}$ = ratio + TT |
| | I - 70 dPm | I_{or} 0.3 dB for lor/loc | $\frac{e^{r_1er_2} - e^r}{I_{er}} = \text{ratio} + 11$ |
| | $I_{oc} = -70 \text{ dBm}$ | 0.0 42 101 101/100 | lor/loc = ratio + TT |
| | Ior/Ioc = 2.2 dB | | loc unchanged |
| | Note: Parameters are valid for cell 1 at time T2 and cell | | loc ratio unchanged |
| | 2 at time T1 | | lor/loc = 2.5 dB |
| | | | $\underline{CPICH}_{-}\underline{E_{c}}_{-}$ -9.9 dB: |
| | | | I_{or} |
| 8.3.7 Cell Re-selection | | | |
| in URA_PCH 8.3.7.1 One frequency | Same as 8.2.2.1 | Same as 8.2.2.1 | Same as 8.2.2.1 |
| present in the neighbour list | Camo do 0.2.2.1 | Samo do 0.2.2.1 | 03.110 40 0.2.2.1 |
| | | | |
| 8.3.7.2 Two frequencies present in the neighbour list | Same as 8.2.2.2 | Same as 8.2.2.2 | Same as 8.2.2.2 |
| | | | |

| Test | Test Parameters in TS 25.133 | Test Tolerance (TT) | Test Requirement in TS 34.121 |
|--|--|---|---|
| 8.4 RRC Connection Control | TBD | | |
| 8.4.1 RRC Re- | TBD | | |
| establishment delay 8.4.2 Random Access | RACH power difference nominal 3dB ± 2dB UE setting uncertainty | Measurement TT:Power difference ± 1dBMaximum Power-1dB / +0.7dB | Test parameter settings unchanged.Power measurement:Upper limit +TT Lower limit -TT |
| 8.5 Timing and Signalling Characteristics | TBD | | |
| 8.5.1 UE Transmit Timing | TBD | | |
| 8.6 UE Measurements Procedures | TBD | | |
| 8.6.1 FDD intra frequency measurements | TBD | | |
| 8.6.1.1 Event triggered reporting in AWGN propagation conditions | TBD | | |
| 8.6.1.2 Event triggered reporting of multiple neighbours in AWGN propagation condition | TBD | | |
| 8.6.1.3 Event triggered reporting of two detectable neighbours in AWGN propagation condition | TBD | | |
| 8.6.1.4 Correct reporting of neighbours in fading propagation condition | TBD | | |
| 8.6.2 FDD inter frequency measurements | TBD | | |
| 8.6.2.1 Correct reporting of neighbours in AWGN propagation condition | TBD | | |
| 8.6.2.2 Correct reporting of neighbours in Fading propagation condition | TBD | | |
| 8.6.3 TDD measurements | TBD | | |
| 8.6.3.1Correct reporting of TDD neighbours in AWGN propagation condition | TBD | | |
| 8.7 Measurements Performance Requirements | TBD | | |
| 8.7.1 CPICH RSCP | TBD | | |
| 8.7.1.1 Intra frequency measurements accuracy | TBD | | |
| 8.7.1.2 Inter frequency measurement accuracy | TBD | | |
| 8.7.2 CPICH Ec/lo | | | |

| Test | Test Parameters in TS 25.133 | Test Tolerance (TT) | Test Requirement in TS 34.121 |
|---|---|--|---|
| 8.7.1.1 Intra frequency measurements accuracy | see table 8.7.1.1.1 andtable 8.7.1.1.2 | ±1 dB for loc±0.3 dB for lor/loc±0.1dB forEc/lor | Any TT applied to the nominal setting shall fulfil:Test 1 (absolute and relative): lo shall not go below - 69dBm Test 2(absolute and relative): lo shall not go above -50 dBmTest 3 (absolute and relative): lo shall not go below -94 dBm lor/loc + TTTT on top of UE measurement accuracy:Absolute±1.0 dB for loc±0.3 dB for lor/loc ±0.1dB for CPICH_Ec/lor ∑ 1.4dBRelative±0.3 dB for lor/loc (cell1)±0.3 dB for lor/loc (cell2)±0.1dB for CPICH_Ec/lor (cell1)±0.1dB for CPICH_Ec/lor (cell2)∑ 0.8dB |
| 8.7.1.2 Inter frequency measurement accuracy | See table 8.7.1.2.1.1 andtable 8.7.1.2.1.2 | ±1 dB for loc±0.3 dB for loc1/loc2±0.3 dB for lor/loc±0.1dB forEc/lor | Any TT applied to the nominal setting shall fulfil:Test 1: Io shall not go above -50 dBmTest 2: Io shall not go below -94 dBmIor/loc + TTTT on top of UE measurement accuracy:±0.3 dB for loc1/loc2±0.3 dB for lor/loc (cell1)±0.3 dB for lor/loc (cell2)±0.1dB for CPICH_Ec/lor (cell1)±0.1dB for CPICH_Ec/lor (cell2)∑ 1.1 dB |
| 8.7.2 CPICH Ec/lo | | | |

| Test | Test Parameters in TS 25.133 | Test Tolerance (TT) | Test Requirement in TS 34.121 |
|---|---|--------------------------------------|---|
| 8.7.2.1 Intra frequency measurements accuracy | table 8.7.2.1.1.1 and table 8.7.2.1.1.2 | ±1 dB for Ioc ±0.3 dB for Ior/Ioc | Any TT applied to the nominal setting shall fulfil: |
| | | ±0.1dB forEc/lor | Test 1(absolute and relative): Io shall not go above -50 dBm |
| | | | Test 2 (absolute and relative): Io shall not go below -87dBm |
| | | | Test 3 (absolute and relative): Io shall not go below -94 dBm |
| | | | CPICH Ec/Io shall stay in the UE accuracy ranges |
| | | | Ior/Ioc + TT |
| | | | TT on top of UE measurement accuracy: |
| | | | Absolute |
| | | | ±0.3 dB for Ior/Ioc |
| | | | ±0.1dB for CPICH_Ec/Ior |
| | | | ∑ 0.4dB |
| | | | Relative |
| | | | Ioc1=Ioc2 |
| | | | ±0.3 dB for Ior/Ioc (cell1) |
| | | | ±0.3 dB for Ior/Ioc (cell2) |
| | | | ±0.1dB for CPICH_Ec/Ior (cell1) |
| | | | ±0.1dB for CPICH_Ec/Ior (cell2) |
| | | | ∑ 0.8dB |
| | | | |

| Test | Test Parameters in TS 25.133 | Test Tolerance (TT) | Test Requirement in TS 34.121 |
|--|--|---|--|
| 8.7.2.2 Inter frequency measurement accuracy | table 8.7.2.2.2.1 and table 8.7.2.2.2.2 | ±1 dB for Ioc ±0.3 dB for Ioc1/Ioc2 ±0.3 dB for Ior/Ioc ±0.1dB forEc/Ior | Any TT applied to the nominal setting shall fulfil: Test 1: Io shall not go above -50 dBm Test 2: Io shall not go below -87 dBm Test 3: Io shall not go below -94 dBm Ior/Ioc + TT TT on top of UE measurement accuracy: Ioc1=Ioc2. ±0.3 dB for Ior/Ioc (cell1) ±0.3 dB for CPICH_Ec/Ior (cell1) ±0.1dB for CPICH_Ec/Ior (cell2) ∑0.1dB for CPICH_Ec/Ior (cell2) |
| 8.7.3A UTRA Carrier RSSI | TBD | | |
| 8.7.3B Transport channel BLER | TBD | | |
| 8.7.3C UE Transmitted power | Accuracy upper limit Accuracy lower limit Depends on PUEMAX see table 8.7.3C.2.1 | 0.7 dB | Formula: Upper accuracy limit + TT Lower accuracy limit – TT Add and subtract TT to all the values in table 8.7.3C.2.1. |
| 8.7.4 SFN-CFN observed time difference | TBD | | |
| 8.7.5 SFN-SFN observed time difference | TBD | | |

| Test | Test Parameters in TS 25.133 | Test Tolerance (TT) | Test Requirement in TS 34.121 |
|---|--|--|---|
| 8.7.6 UE Rx-Tx time difference | Is 25.133 Io -10.9 dB = Ioc, Test 1: Io = -94 dBm Test2: Io = -72dBm Test3: Io = -50dBm Timing Accuracy ± 1.5 chip | 1 dB for loc 0.3 dB for lor/loc [0.5 chip for timing accuracy] | Test 1: lo = -92.7 dBm, loc = -103.6 dBm Formula: loc*(1-TT $_{loc}$ + (lor/loc-TT $_{lor/loc}$)) \geq -94 Test 2: unchanged (no critical RF parameters) Test 3: lo = -51.3 dBm, loc = -62.2 dBm Formula: loc*(1+TT $_{loc}$ + (lor/loc+TT $_{lor/loc}$)) \leq -50 Timing accuracy [\pm 2.0] chip Formulas: Upper limit +TT Lower limit -TT |
| 8.7.7 Observed time difference to GSM cell | TBD | | |
| 8.7.8 P-CCPCH RSCP | TBD | | |

Table F.4.5: Derivation of Test Requirements (Performance tests HSDPA)

| | <u>Test</u> | Minimum Requirement in TS 25.101 | <u>Test</u> Tolerance | Test Requirement in TS 34.121 |
|-----|--------------------|-------------------------------------|------------------------------------|------------------------------------|
| | | <u>=</u> | <u>(TT)</u> | |
| - 1 | 9.2.1 Single Link | $\frac{E_c}{}$ -6 and -3 dB | <u>0.1 dB</u> | Formulas: |
| | <u>Performance</u> | I_{or} | $\underline{for}\ \underline{E_c}$ | $\underline{E_c}$ = ratio + TT |
| | | | I_{or} | I_{or} |
| | | I_{oc} = -60 dBm | 0.0 10.6 | \hat{I}_{or}/I_{oc} = ratio + TT |
| | | | 0.3 dB for | |
| | | $\hat{I}_{or}/I_{oc} = 0$ and 10 dB | $\frac{I_{or}/I_{oc}}{}$ | I_{oc} unchanged |

F.5 Acceptable uncertainty of Test Equipment (This clause is informative)

This informative clause specifies the critical parameters of the components of an overall Test System (e.g. Signal generators, Signal Analysers etc.) which are necessary when assembling a Test System that complies with clause F.1 Acceptable Uncertainty of Test System. These Test Equipment parameters are fundamental to the accuracy of the overall Test System and are unlikely to be improved upon through System Calibration.

F.5.1 Transmitter measurements

Table F.5.1: Equipment accuracy for transmitter measurements

| Test | Equipment accuracy | Test conditions |
|---|--|--|
| 5.2 Maximum Output Power | Not critical | 19 to 25 dBm |
| 5.3 Frequency error | ± 10 Hz | 0 to 500 Hz. |
| 5.4.1 Open loop power control in uplink | Not critical | -43.7 dBm to 25 dBm |
| 5.4.2 Inner loop power control in the uplink – single step | ±0.1 dB relative over a 1.5 dB range ±0.15 dB relative over a 3.0 range ±0.2 dB relative over a 4.5 dB range | +25 dBm to -50 dBm |
| 5.4.2 Inner loop power control in the uplink – seven and ten steps | ±0.3 dB relative over a 26 dB range | +25 dBm to -50 dBm |
| 5.4.3 Minimum Output Power | Not critical | |
| 5.4.4 Out-of-synchronisation handling of output power: $\frac{DPCCH - E_c}{I_{or}}$ | ±0.1 dB uncertainty in DPCCH_Ec/lor ratio | Ratio from –16.6 dB to –28 dB |
| 5.5.1 Transmit ON/OFF Power: UE transmit OFF power | Not critical | -56 dBm (static power) |
| 5.5.2 Transmit ON/OFF Power: transmit ON/OFF time mask | TBD | -56 dBm (dynamic power over approx. 70 dB range) |
| 5.6 Change of TFC: power control step size | ±0.3 dB relative over a 9 dB range | +25 dBm to -50 dBm |
| 5.7 Power setting in uplink compressed mode:- UE output power | Subset of 5.4.2 | +25 dBm to -50 dBm |
| 5.8 Occupied Bandwidth | ±100 kHz | For results between 4 and 6 MHz? |
| 5.9 Spectrum emission mask | Not critical | P_Max Accuracy applies ± 5 dB either side of UE requirements |
| 5.10 ACLR | 5 MHz offset \pm 0.8 dB 10 MHz offset \pm 0.8 dB | 19 to 25 dBm at 5 MHz offset for results between 40 dB and 50 dB. 25 dBm at 10 MHz offset for results between 45 dB and 55 dB. |
| 5.11 Spurious emissions | Not critical | 19 to 25 dBm |
| 5.12 Transmit Intermodulation | Not critical | 19 to 25 dBm |
| 5.13.1 Transmit modulation: EVM | ±2.5 % (for single code) | 25 dBm to –21 dBm |
| 5.13.2 Transmit modulation: peak code domain error | ±1.0dB | For readings between -10 dB to -20 dB. |

F.5.2 Receiver measurements

Table F.5.2: Equipment accuracy for receiver measurements

| Clause | Equipment accuracy | Test conditions |
|----------------------------------|--------------------|-----------------|
| 6.2 Reference sensitivity level | Not critical | |
| 6.3 Maximum input level: | Not critical | |
| 6.4 Adjacent channel selectivity | Not critical | |
| 6.5 Blocking characteristics | Not critical | |
| 6.6 Spurious Response | Not critical | |
| 6.7 Intermod Characteristics | Not critical | |
| 6.8 Spurious emissions | Not critical | |

F.5.3 Performance measurements

Table F.5.3: Equipment accuracy for performance measurements

| Clause | Equipment accuracy | Test conditions | | |
|-------------|------------------------------------|------------------|--|--|
| 7.2 to 7.10 | $\frac{DPCH_E_c}{I_{or}}$ ±0.1 dB | -2.2 to -18.9 dB | | |

F.5.4 Requirements for support of RRM

Table F.5.4: Equipment accuracy for RRM

| Clause | Equip | ment accuracy | Test conditions |
|----------------|------------|---------------|-----------------|
| 8.2.2 to 8.7.8 | any_Ec/lor | ±0.1 dB | |
| | lor//loc | ±0.3 dB | |
| | loc1/loc2 | ±0.3 dB | |
| | loc | ±1 dB | |

F.5.5 Performance measurements (HSDPA)

Table F.5.5: Equipment accuracy for performance measurements (HSDPA)

| <u>Clause</u> | Equipment accuracy | Test conditions |
|---------------|------------------------------|---------------------|
| 9.2.1 | $\frac{E_c}{I_{or}}$ ±0.1 dB | <u>-6 and -3 dB</u> |

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| CHANGE REQUEST | | | | | | | CR-Form-v7 | | | | | | | | |
|--|------------|--------|---------|--------------|--|------------|-------------------|--------|--------------|-----------|-------------|------|-------|-------|--------|
| * | | 34. | 121 | CR | 349 | жr | ev | - | \mathbb{H} | Current | vers | ion: | 5.2 | 2.0 | * |
| For <u>HELP</u> or | า นรเ | ing th | is for | m, see | e bottom o | of this pa | ge or | look a | at the | e pop-up | text | over | the 8 | ₭ syr | nbols. |
| Proposed chang | je af | ffects | s: l | JICC a | apps# |] 1 | ИЕ <mark>Х</mark> |] Rad | lio A | ccess Ne | etwor | k |] Co | re Ne | etwork |
| Title: | ¥ | Anne | ex A f | for HS | DPA | | | | | | | | | | |
| Source: | ¥ | Roh | de & | Schwa | ırz | | | | | | | | | | |
| Work item code: | :# | | | | | | | | | Dat | e: ૠ | 26/ | 01/20 | 004 | |
| | | _ | | | | | | | | | | | | | |
| Category:Release: \Re R5Use one of the following categories:Use one of the following releases:F (correction)2 (GSM Phase 2)A (corresponds to a correction in an earlier release)R96 (Release 1996)B (addition of feature),R97 (Release 1997)C (functional modification of feature)R98 (Release 1998)D (editorial modification)R99 (Release 1999)Detailed explanations of the above categories can be found in 3GPP TR 21.900.Rel-4 (Release 4) | | | | | | | eases: | | | | | | | | |
| | | | | | | | | | | | | | | | |
| Reason for chan | ige: | ж 📉 | Conr | nection | diagrams | s for HS | DPA i | s mis | sing | | | | | | |
| Summary of cha | nge | e: # | Conr | nection | diagrams | s for HSE | PA v | was ir | nsert | ted | | | | | |
| Consequences i not approved: | f | Ħ | No ir | nforma | tion about | HSDPA | conn | ectio | n set | tup in 34 | .121. | | | | |
| | | | _ | _ | | | | | | | | | | | |
| Clauses affected Other specs affected: | 1 : | * | Y N X X | Othe Test | new figure r core spe specificati Specifica | cification | | * | | | | | | | |

Annex A (informative): Connection Diagrams

Definition of Terms

Other comments:

System Simulator or SS – A device or system, that is capable of generating simulated Node B signalling and analysing UE signalling responses on one or more RF channels, in order to create the required test environment for the UE under test. It will also include the following capabilities:

- 1. Measurement and control of the UE Tx output power through TPC commands
- 2. Measurement of Rx BLER and BER
- 3. Measurement of signalling timing and delays
- 4. Ability to simulate UTRAN and/or GERAN signalling

Test System – A combination of devices brought together into a system for the purpose of making one or more measurements on a UE in accordance with the test case requirements. A test system may include one or more System Simulators if additional signalling is required for the test case. The following diagrams are all examples of Test Systems.

Note: The above terms are logical definitions to be used to describe the test methods used in this document (TS34.121), in practice, real devices called 'System Simulators' may also include additional measurement capabilities or may only support those features required for the test cases they are designed to perform.

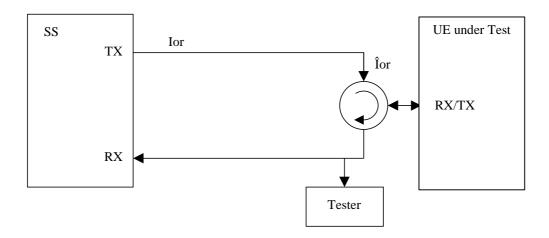


Figure A.1: Connection for Basic TX Test

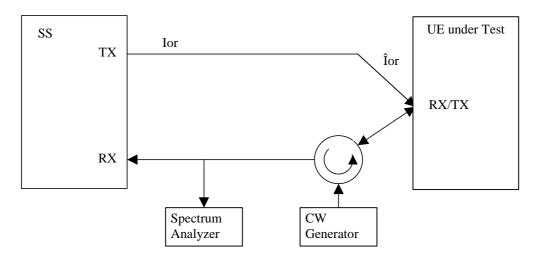


Figure A.2: Connection for TX Intermodulation Test

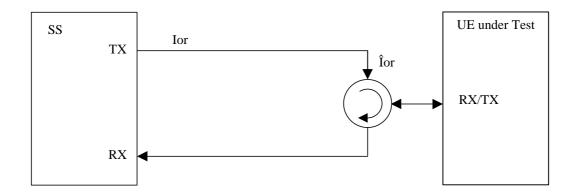


Figure A.3: Connection for Basic RX Test

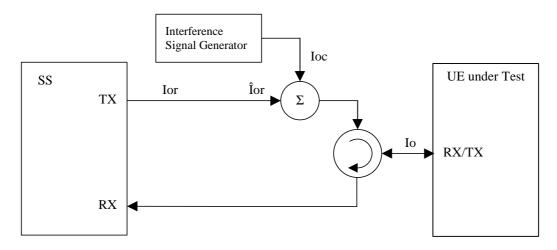


Figure A.4: Connection for RX Test with Interference

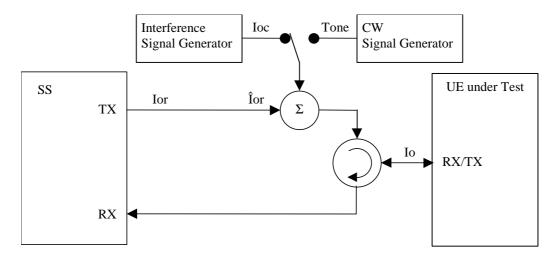


Figure A.5: Connection for RX Test with Interference or additional CW

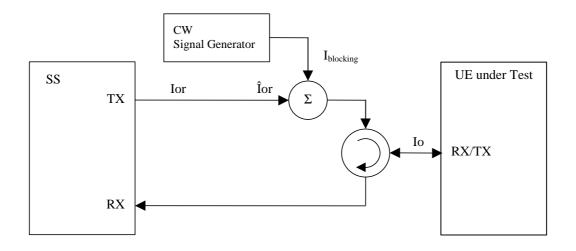


Figure A.6: Connection for RX Test with additional CW

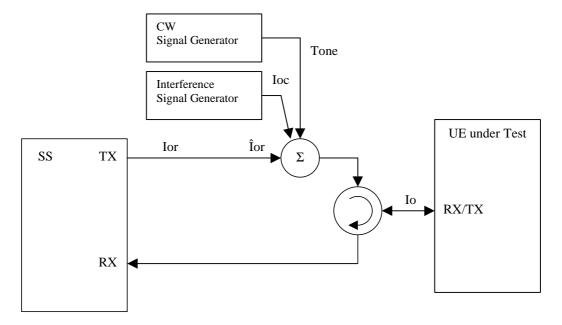


Figure A.7: Connection for RX Test with both Interference and additional CW

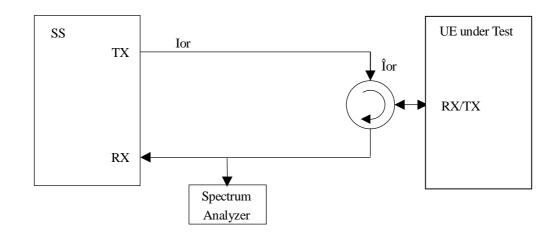


Figure A.8: Connection for Spurious Emission Test

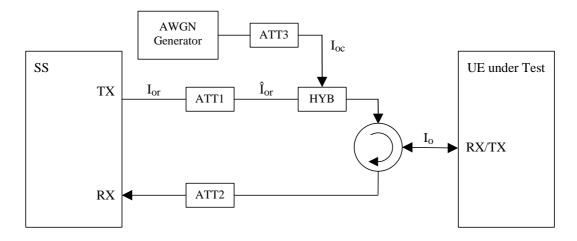


Figure A.9: Connection for Static Propagation Test

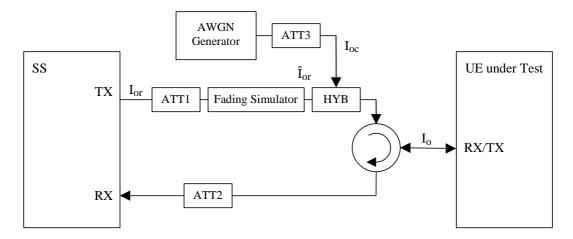


Figure A.10: Connection for Multi-path Fading Propagation Test

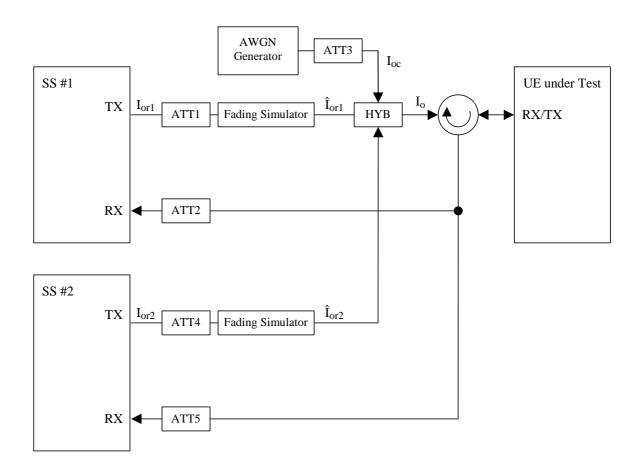


Figure A.11: Connection for Inter-Cell Soft Handover Test

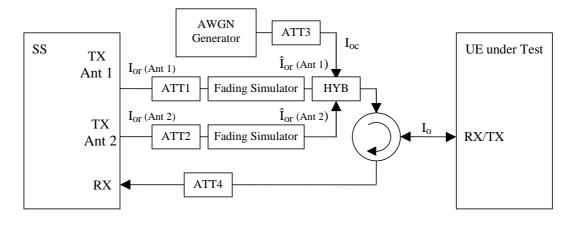


Figure A.12: Connection for Demodulation of DCH in open and closed loop transmit diversity modes

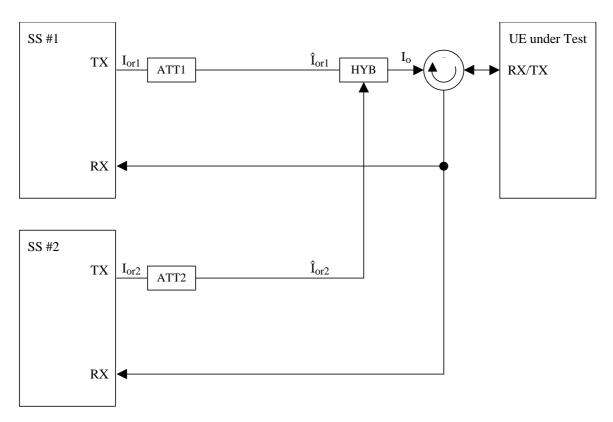


Figure A.13: Connection for Combining of TPC commands in Soft Handover Test 1

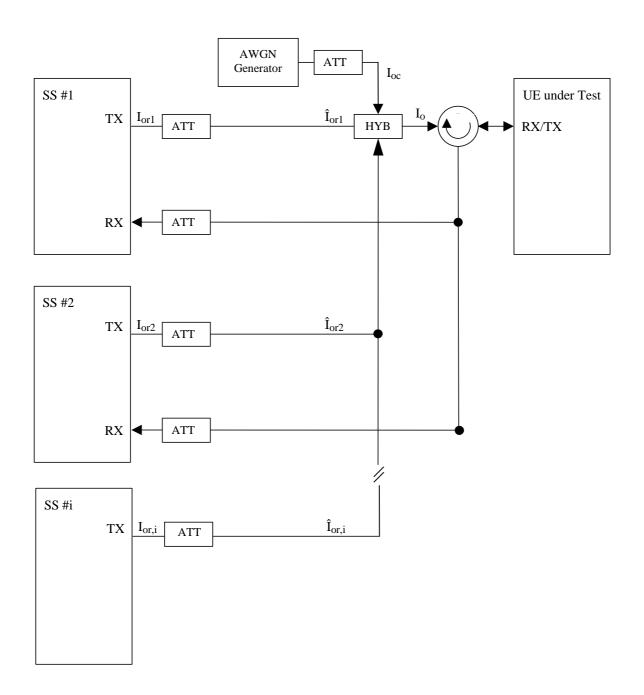


Figure A.14: Connection for cell reselection single carrier multi cell

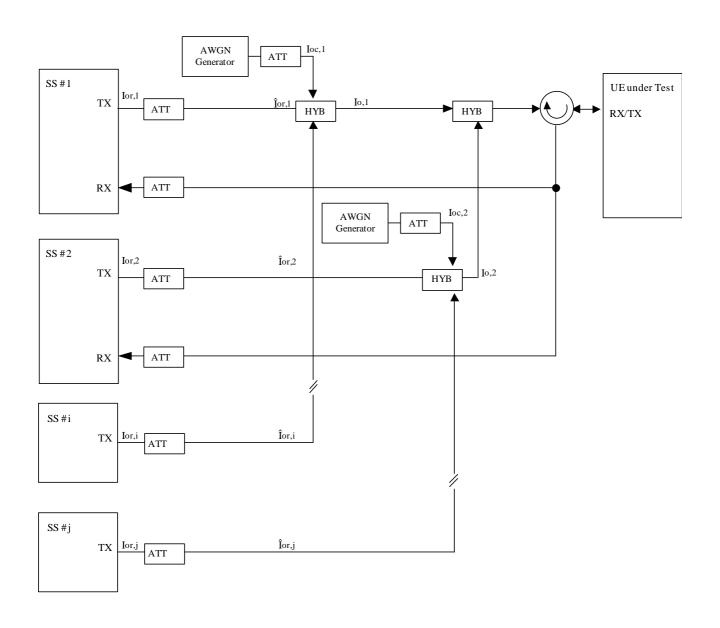


Figure A.15: Connection for cell reselection multi carrier multi cell

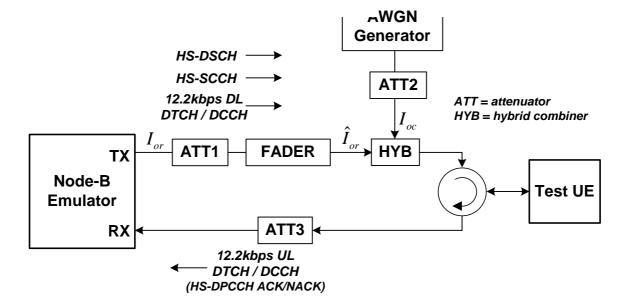


Figure A.16: Connection setup for HSDPA fixed reference channel

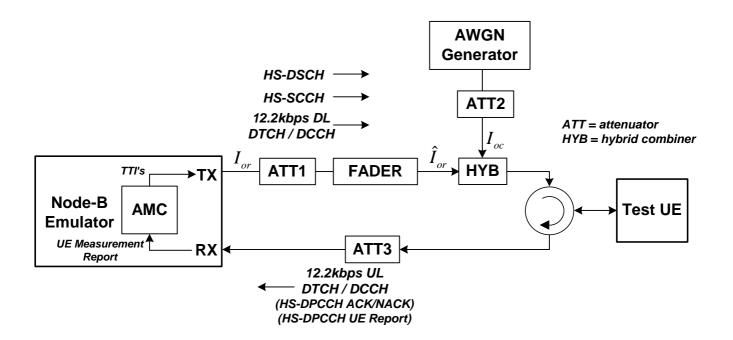


Figure A.17: Connection setup for HSDPA Reporting of Channel Quality Indicator

3GPP TSG-T1 Meeting #22 Hyderabad, India, 2nd - 6th February 2004

Tdoc **#** *T1-040333*

| CHANGE REQUEST | | | | | | | | |
|---|--|---|--|--|--|--|--|--|
| * | 34.121 CR 348 | t version: 5.2.0 | | | | | | |
| For <u>HELP</u> on using this form, see bottom of this page or look at the pop-up text over the ♯ symbols. | | | | | | | | |
| Proposed change a | Iffects: UICC apps光 ME X Radio Access N | letwork Core Network | | | | | | |
| Title: % | Correction of requirements of HSDPA CQI reporting in A | WGN propagation conditions | | | | | | |
| Source: # | Nokia | | | | | | | |
| Work item code: ₩ | HSDPA-Test Da | nte: # 04/02/2004 | | | | | | |
| Category: | F (correction) 2 A (corresponds to a correction in an earlier release) RS B (addition of feature), RS C (functional modification of feature) RS D (editorial modification) RS Detailed explanations of the above categories can be found in 3GPP TR 21.900. RS | one of the following releases: (GSM Phase 2) | | | | | | |
| Reason for change | # 1) The value of measurement power offset Γ to be significant is currently unspecified. 2) Number of tests in categories 11 and 12 are increased. All changes in this CR are based on changes in core | ased to three. | | | | | | |
| Summary of chang | It is clarified that measurement power offset Γ to be difference in dB between HS-DSCH and CPICH powspecified in TS25.331. Also HS-SCCH is replaced by HS-SCCH_1 and PEI maintain the consistency with other tables and section Also number of CQI tests for UE capability categories from two to three under AWGN conditions. | wer in the test set up and is R is replaced by BLER to ons. | | | | | | |
| Consequences if not approved: | * Test specification and core specification will be inco | nsistent. | | | | | | |
| Clauses affected: | 第 9.3.1 | | | | | | | |
| Other specs affected: | Y N X Other core specifications Test specifications O&M Specifications | | | | | | | |
| Other comments: | 策 This CR is applicable for UE's supporting Rel-5 or la | ater. | | | | | | |

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- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

9.3.1 AWGN Propagation Conditions

9.3.1.1 Definition and applicability

The reporting accuracy of channel quality indicator (CQI) under AWGN environments is determined by the reporting variance and the BLER performance using the transport format indicated by the reported CQI median.

The UE shall be tested only according to the data rate, supported. The data-rate-corresponding requirements shall apply to the UE.

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

9.3.1.2 Minimum requirements

For the parameters specified in Table 9.3.1.1 and 9.3.1.2, the the reported CQI value shall be in the range of +/-2 of the reported median more than 90% of the time. If the HS-PDSCH packet error rate (PER)BLER using transport format indicated by median CQI is less than 0.1, PER-BLER using transport format indicated by (median CQI +2) shall be larger than 0.1. If the HS-PDSCH packet error rate (PER)BLER using transport format indicated by median CQI is larger than 0.1, PER-BLER using transport format indicated by (median CQI -1) shall be less than 0.1.

Table 9.3.1.1: Test Parameter for CQI: categories 1-6

| Parameter | Parameter Unit | | Test 2 | Test 3 | |
|---|----------------|------------|--|----------------------------------|--|
| \hat{I}_{or} / I_{oc} | dB | 0 | 5 | 10 | |
| I_{oc} | dBm/3.84 MHz | | -60 | | |
| Phase reference | - | | P-CPICH | | |
| $HS	ext{-}PDSCHE_c/I_{or}(^*)$ | dB | | -3 | | |
| $HS	ext{-}SCCH$ 1 E_c/I_{or} | dB | -10 | | | |
| $DPCH\ E_c/I_{or}$ | dB | -10 | | | |
| Maximum number of H-ARQ transmission | - | 1 | | | |
| Number of HS-SCCH set to be monitored | - | 1 | | | |
| CQI feedback cycle | ms | | 2 | | |
| CQI repetition factor | - | 1 | | | |
| HS-DSCH transmission pattern | - | UEs, where | DX" to incorpora e "X" indicates T s allocated to the indicates DTX | TI in which HS- e UE, and "O" | |

Note1: Measurement power offset "Γ" is configured by RRC accordingly and as defined in [8].

in [8] Note2: TF fo

TF for HS-PDSCH is configured according to the reported CQI statistics. TF based on median CQI, median CQI -1, median CQI+2 are used. Other physical channel parameters are configured according to the CQI maping table described in TS25.214

Table 9.3.1.2: Test Parameter for CQI: categories 11,12

| Parameter | Unit | Test 1 | Test 2 | Test 3 | | |
|--|--------------|--|-----------|--------|--|--|
| \hat{I}_{or} / I_{oc} | dB | 0 | <u>10</u> | | | |
| I_{oc} | dBm/3.84 MHz | -60 | | | | |
| Phase reference | - | | P-CPICH | | | |
| $HS	ext{-}PDSCHE_c/I_{or}(^*)$ | dB | | -3 | | | |
| $HS	ext{-}SCCH$ $\underline{1}$ E_c/I_{or} | dB | | -10 | | | |
| $DPCH\ E_{c}/I_{or}$ | dB | -10 | | | | |
| Maximum number of H-ARQ transmission | - | 1 | | | | |
| Number of HS-SCCH set to be monitored | - | 1 | | | | |
| CQI feedback cycle | ms | 2 | | | | |
| CQI repetition factor | | 1 | | | | |
| HS-DSCH transmission pattern | - | "XOOXOOX", where "X" indicates TTI in which HS-PDSCH is allocated to the UE, and "O" indicates DTX | | | | |

Note1: Measurement power offset "Γ" is configured by RRC accordingly and as

defined in [8].

Note2: TF for HS-PDSCH is configured according to the reported CQI statistics. TF based on median CQI, median CQI -1, median CQI+2 are used. Other

physical channel parameters are configured according to the CQI maping

table described in TS25.214

The reference for this requirement is TS 25.101 [1] clauses 9.3.1.1 and 9.32.1.2.

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| | CHANGE REQUEST | | | | | | | CR-Form-v7 | | | | |
|-------------------------------|--------------------|---|--|---|--|-------------------|--------|----------------|---------------------------|---|--|-------------|
| * | 34 | .121 | CR | 347 | жI | rev | - | \mathfrak{H} | Current ve | rsion: | 5.2.0 | ¥ |
| For <u>HELP</u> on | using | this for | m, see | bottom c | of this pa | ge or l | look a | at the | e pop-up te | xt ove | r the | mbols. |
| Proposed change | e affec | <i>ts:</i> (| JICC a | pps# |] N | ИЕ <mark>Х</mark> | Rad | lio A | ccess Netw | ork | Core N | etwork |
| Title: | 光 Intr | oducti | on of F | RACH pr | eamble 1 | tests | | | | | | |
| Source: | 器 <mark>Agi</mark> | lent Te | echnolo | ogies | | | | | | | | |
| Work item code: | ¥ | | | | | | | | Date: | ₩ 4/2 | 2/2004 | |
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| Summary of char | nge: ૠ | A ne | w subo | clause is a | added wh | nich wi | ill be | appl | icable for F | tel-5 a | nd beyond | d. |
| Consequences if not approved: | * * | | | | | | | | nd timing issolity proble | | ould impa | ct |
| Clauses affected | : ¥ | 5.13 | .4 | | | | | | | | | |
| Other specs affected: | Ж | Y N X X | Test | core spe specificati Specifica | ions | าร | * | | | | | |
| Other comments | <i>:</i> | | _ | e test is o | • | | | | 5 and beyo | ond, th | e test is a | correct |

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5.13.4 PRACH preamble quality

5.13.4.1 Definition and applicability

PRACH preamble quality is a measure of the ability of the UE to transmit the PRACH preamble in accordance with the core requirements so that the Node B can reliably decode the PRACH.

This test applies to all types of UTRA for the FDD UE from Release 5 onwards.

5.13.4.2 Minimum requirements

The EVM of the PRACH preamble observed over the interval of 3904 chips (i.e. excluding the transient periods) shall not exceed 17.5%.

The reference for this requirement is TS 25.101 [1] clause 6.8.2.

The UE modulated carrier frequency used to transmit the PRACH preamble observed over the interval of 3904 chips (i.e. excluding the transient periods) shall be within \pm 0.1 PPM compared to the carrier frequency received from the Node B.

The reference for this requirement is TS 25.101 [1] clause 6.3.

The PRACH preamble shall be transmitted in the correct access slot using the correct signature as defined by the parameters signalled to the UE.

The reference for this requirement is TS 25.214 [5] clause 6.1 physical random access procedure.

<u>5.13.4.3 Test purpose</u>

The test purpose is to verify that the transmission quality of the first PRACH preamble meets the minimum requirements for modulation quality, carrier frequency, access slot and signature as defined in 5.13.4.2. The UE is tested at nominal maximum output power and nominally 5 dB above reference sensitivity, which simulates operation towards the cell boundary. The access slot and signature are chosen randomly from the allowed possibilities for each execution of the RACH procedure. There are 384 possible configurations that could be chosen, but only 10 of these are randomly selected for test in order to minimize the test time.

5.13.4.4 Method of test

5.13.4.4.1 Initial conditions

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

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

- 1) Connect the SS to the UE antenna connector as shown in figure A.1.
- 2) A call is set up according to the Generic call setup procedure, using the modified parameters according to table 5.13.4.1 and table 5.13.4.2. The relative power levels of the downlink physical channels to I_{or} are set up according to clause E.2.1. The physical random access procedure within the call setup is used for the test.

See TS 34.108 [3] for details regarding generic call setup procedure and 25.214 [5] for details of the physical random access procedure.

Table 5.13.4.1: Static test parameters for PRACH quality

| Static Parameters | Power Class 1 | Power Class 2 | Power Class 3 | Power Class 4 | <u>Unit</u> |
|---|---------------|---------------|---------------|---------------|-----------------------|
| <u>Îor</u> | <u>-101,7</u> | <u>-101,7</u> | <u>–101,7</u> | <u>–101,7</u> | <u>dBm / 3,84 MHz</u> |
| Nominal CPICH RSCP | <u>-105</u> | <u>–105</u> | <u>–105</u> | <u>–105</u> | <u>dBm</u> |
| Primary CPICH TX power | <u>+24</u> | <u>+24</u> | <u>+24</u> | <u>+24</u> | <u>dBm</u> |
| Simulated path loss = Primary CPICH TX power – CPICH_RSCP | <u>+129</u> | <u>+129</u> | <u>+129</u> | <u>+129</u> | <u>dB</u> |
| <u>UL interference</u> | <u>-86</u> | <u>–92</u> | <u>–95</u> | <u>–98</u> | <u>dBm</u> |
| Constant Value | <u>-10</u> | <u>–10</u> | <u>-10</u> | <u>-10</u> | <u>dB</u> |
| Expected nominal UE TX power ¹ | <u>+33</u> | <u>+27</u> | <u>+24</u> | <u>+21</u> | <u>dBm</u> |
| Preamble Retrans Max | | | <u>1</u> | | |

NOTE 1: The Expected nominal UE TX power is calculated by using the equation in the clause 8.5.7 Open Loop Power Control of TS 25.331 [8].

Table 5.13.4.2: Random test parameters for PRACH quality

| Random Parameters ¹ | <u>Value</u> | | | | |
|---|--|--|--|--|--|
| Available RACH Sub Channels | One sub-channel chosen at random from the 12-bit Available sub channel number | | | | |
| Available PRACH Signatures | | | | | |
| AICH transmission timing | Chosen at random from the range 0 to1 | | | | |
| NOTE 1: In order to avoid a s | NOTE 1: In order to avoid a static test configuration, each time the RACH procedure is executed, the parameters in | | | | |
| this table are to be chosen at random from the defined range. The random function used shall be such that | | | | | |
| each of the allowed selections is chosen with equal probability. | | | | | |

Table 5.13.4.3: PAGING TYPE 1 Message content

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

5.13.4.4.2 Procedure

- 1) Set the TX output level of the SS to obtain $\hat{\mathbf{I}}_{\underline{or}}$ at the UE antenna connector. $\hat{\mathbf{I}}_{\underline{or}}$ shall be according to table 5.13.4.1 depending on the power class of the UE.
- 2) The SS shall initiate a call and measure the first RF transmission from the UE.
- 3) The SS shall determine the access slot used, the received signature, the EVM and the frequency error.
- 4) Choose a new set of parameters from table 5.13.4.2
- 5) Send PAGING TYPE 1 message with BCCH modification info as per table 5.13.4.3.
- 6) Wait 5seconds to allow the UE to read the new SIB 5.
- 7) Repeat from step number 2) ten times.

5.13.4.5 Test requirements

For all the transmitted PRACH preambles measured in 5.13.4.4.2 step 3:

- 1) The EVM shall not exceed 17,5 %.
- 2) The frequency error shall not exceed $\pm (0.1 \text{ ppm} + 10 \text{ Hz})$.

3) The detected access slot and signature shall be correct according to the physical random access procedure defined in [5].

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

F.1.2 Measurement of transmitter

Table F.1.2: Maximum Test System Uncertainty for transmitter tests

| Clause | Maximum Test System Uncertainty | Derivation of Test System Uncertainty |
|---|--|---|
| 5.2 Maximum Output Power | ±0,7 dB | - |
| 5.3 Frequency Error | ±10 Hz | |
| 5.4.1 Open loop power control in uplink | ±1,0 dB | The uncertainty of this test is a combination of the downlink level setting error and the uplink power measurement that are uncorrelated. |
| | | Formula = SQRT(source_level_error² + power_meas_error²) |
| 5.4.2 Inner loop power control in the uplink - One step | ±0,1 dB relative over a 1,5 dB range (1 dB and 0 dB step) ±0,15 dB relative over a 3,0 dB range (2 dB step) ±0,2 dB relative over a 4.5 dB range (3 dB step) | This accuracy is based on the linearity of the absolute power measurement of the test equipment. |
| 5.4.2 Inner loop power control in the uplink – seven and ten steps | ±0,3 dB relative over a 26 dB range | |
| 5.4.3 Minimum Output Power | ±1,0 dB | Measured on a static signal |
| 5.4.4 Out-of-synchronisation handling of output power: $\frac{DPCCH_{E_c}}{}$ | ±0,4 dB | 0.1 dB uncertainty in DPCCH ratio |
| I_{or} | | 0.3 dB uncertainty in \hat{I}_{or}/I_{oc} based on power meter |
| | | measurement after the combiner |
| | | Overall error is the sum of the \hat{I}_{or}/I_{oc} ratio error and the |
| | | DPCCH_Ec/lor ratio. The absolute error of the AWGN loc is not important but is specified as 1.0 dB |
| 5.5.1 Transmit OFF Power: (static case) | ±1,0 dB | Measured on a static signal |
| 5.5.2 Transmit ON/OFF time mask (dynamic case) | On power +0,7 dB – 1,0 dB Off power (dynamic case) TBD | Assume asymmetric meas error -1.0 dB / 0.7 dB comprising RSS of: -0.7 dB downlink error plus -0.7 dB meas error, and +0.7 dB for upper limit (assume UE won't go above 24 nominal). For the off power, the accuracy of a two-pass measurement needs to be analysed. |
| 5.6 Change of TFC: power control step size (7 dB step) | ±0,3 dB relative over a 9 dB range | |
| 5.7 Power setting in uplink compressed mode:-UE output power | Will be a subset of 5.4.2. | |
| 5.8 Occupied Bandwidth | ±100 kHz | Accuracy = ±3*RBW. Assume 30 kHz bandwidth. |
| 5.9 Spectrum emission mask | ±1,5 dB | |
| 5.10 ACLR | 5 MHz offset: ± 0,8 dB | |
| | 10 MHz offset: ± 0,8 dB | |

| Clause | Maximum Test System Uncertainty | Derivation of Test System Uncertainty |
|--|--|---|
| 5.11 Spurious emissions | $\pm2,\!0$ dB for UE and coexistence bands for results > -60 dBm | |
| | ± 3,0 dB for results < -60 dBm | |
| | Outside above: | |
| | f≤2.2GHz: ± 1.5 dB | |
| | 2.2 GHz < f ≤ 4 GHz: | |
| | ± 2.0 dB | |
| | f > 4 GHz: ±4.0 dB | |
| 5.12 Transmit Intermodulation | ± 2.2 dB | CW Interferer error is 0.7 dB for the UE power RSS with 0.7 dB for CW setting = 1.0 dB |
| | | Measurement error of intermod product is 0.7 dB for UE power RSS with 0.7 dB for relative = 1.0 dB |
| | | Interferer has an effect of 2 times on the intermod product so overall test uncertainty is 2*1.0 RSS with 1.0 = 2.2 dB. |
| | | Apply half any excess test system uncertainty to increase the interferer level |
| 5.13.1 Transmit modulation: EVM | ±2.5 % | |
| | (for single code) | |
| 5.13.2 Transmit modulation: peak code | ±1.0dB | |
| domain error | 0.50/ | |
| 5.13.4 PRACH quality (EVM) | <u>±2.5 %</u> | |
| 5.13.4 PRACH quality (Frequency error) | <u>±10 Hz</u> | |

F.2.1 Transmitter

Table F.2.1: Test Tolerances for transmitter tests.

| Clause | Test Tolerance |
|---|---|
| 5.2 Maximum Output Power | 0.7 dB |
| 5.3 Frequency error | 10 Hz |
| 5.4.1 Open loop power control in uplink | 1.0 dB |
| 5.4.2 Inner loop power control in the | 0.1 dB (1 dB and 0 dB step) |
| uplink - One step | 0.15 dB (2 dB step) |
| | 0.2 dB (3 dB step) |
| 5.4.2 Inner loop power control in the | 0.3 dB |
| uplink - seven and ten steps | |
| 5.4.3 Minimum Output Power | 1.0 dB |
| 5.4.4 Out-of-synchronisation handling of | 0.4 dB |
| output power: $\underline{DPCCH}_{\underline{E}_{c}}$ | |
| I_{or} | |
| 5.4.4 Out-of-synchronisation handling of | 0 ms |
| output power: transmit ON/OFF time | UTIIS |
| 5.5.1 Transmit OFF power | 1.0 dB |
| 5.5.2 Transmit ON/OFF time mask | On power +0.7 dB / -1.0 dB |
| (dynamic case) | On power +0.7 db7 -1.0 db |
| (dynamic case) | Off power TT [] dB |
| 5.6 Change of TFC: power control step | 0.3 dB |
| size | |
| 5.7 Power setting in uplink compressed | See subset of 5.4.2 |
| mode:-UE output power | |
| 5.8 Occupied Bandwidth | 0 kHz |
| 5.9 Spectrum emission mask | 1.5 dB (0 dB for additional requirements for Band II) |
| 5.10 ACLR | 0.8 dB for ratio |
| | 0.0 dB for absolute power |
| 5.11 Spurious emissions | 0 dB |
| 5.12 Transmit Intermodulation | 0 dB |
| 5.13.1 Transmit modulation: EVM | 0% |
| 5.13.2 Transmit modulation: peak code | 1.0 dB |
| domain error | |
| 5.13.4 PRACH preamble quality (EVM) | 0% |
| 5.13.4 PRACH preamble quality | 10 Hz |
| (Frequency error) | |

F.4 Derivation of Test Requirements (This clause is informative)

The Test Requirements in the present document have been calculated by relaxing the Minimum Requirements of the core specification using the Test Tolerances defined in clause F.2. When the Test Tolerance is zero, the Test Requirement will be the same as the Minimum Requirement. When the Test Tolerance is non-zero, the Test Requirements will differ from the Minimum Requirements, and the formula used for this relaxation is given in table F.4.

Table F.4.1: Derivation of Test Requirements (Transmitter tests)

| Test | Minimum Requirement in TS 25.101 | Test Tolerance (TT) | Test Requirement in TS 34.121 |
|---|--|---------------------------------------|---|
| 5.2 Maximum Output Power | Power class 1 (33 dBm) Tolerance = +1/-3 dB Power class 2 (27 dBm) Tolerance = +1/-3 dB Power class 3 (24 dBm) Tolerance = +1/-3 dB Power class 4 (21 dBm) Tolerance = ±2 dB | 0.7 dB | Formula: Upper Tolerance limit + TT |
| 5.3 Frequency Error | The UE modulated carrier frequency shall be accurate to within ±0.1 ppm compared to the carrier frequency received from the Node B. | 10 Hz | Formula: modulated carrier frequency error + TT modulated carrier frequency error = $\pm (0.1 \text{ ppm} + 10 \text{ Hz})$. |
| 5.4.1 Open loop power control in the uplink | Open loop power control tolerance ±9 dB (Normal) Open loop power control tolerance ±12 dB (Normal) | 1.0 dB | Formula: Upper Tolerance limit + TT Lower Tolerance limit – TT For Normal conditions: Upper Tolerance limit = +10 dB Lower Tolerance limit = -10 dB For Extreme conditions: Upper Tolerance limit = +13 dB Lower Tolerance limit = -13 dB |
| 5.4.2 Inner loop power control in uplink | See table 5.4.2.1 and 5,4,2,2 | 0.25dB 0.15 dB 0.2 dB 0.3 dB | Formula: Upper Tolerance limit + TT Lower Tolerance limit - TT |
| 5.4.3 Minimum Output Power | UE minimum transmit power shall be less than –50 dBm | 1.0 dB | Formula: UE minimum transmit power + TT UE minimum transmit power = -49 dBm |

| Test | Minimum Requirement in TS 25.101 | Test Tolerance (TT) | Test Requirement in TS 34.121 |
|--|--|--|---|
| 5.4.4 Out-of-synchronisation handling of output power: | $\frac{DPCCH_E_c}{I_{or}} \text{ levels } \\ I_{or} \\ \text{AB: -22 dB} \\ \text{BD: -28 dB} \\ \text{DE: -24 dB} \\ \text{EF: -18 dB} \\ \text{transmit ON/OFF time } \\ 200\text{ms} \\ \\ \frac{DPDCH_E_c}{I_{or}} = -16.6 \text{ dB} \\ I_{oc} - 60 \text{ dBm} \\ \hat{I}_{or}/I_{oc} = -1 \text{ dB} \\ \\$ | 0.4 dB for DPCCH_B I_or 0 ms for timing measurem ent | Formulas: Ratio between A and B + TT Ratio between B and D – TT Ratio between D and E – TT Ratio between E and F + TT transmit ON/OFF time + TT timing $\frac{DPDCH_E_c}{I_{or}} = -16.6 \text{ dB}$ $\frac{DPCCH_E_c}{I_{or}} = -1 \text{ dB}$ $\frac{DPCCH_E_c}{I_{or}} \text{ levels:}$ |
| 5.5.1 Transmit OFF power (static case) | Transmit OFF power shall be less than -56 dBm | 1.0 dB | Formula: Transmit OFF power + TT Transmit OFF power = -55dBm. |
| 5.5.2 Transmit ON/OFF time mask (dynamic case) | Transmit ON power shall be the target value as defined in clause 5.5.2.2 Transmit OFF power shall be less than -56 dBm | On power upper TT = 0.7 dB On power lower TT = 1.0 dB Off power TT [] dB | Formula for transmit ON power: Transmit ON power target upper limit + On power upper TT Transmit ON power target lower limit - On power lower TT To calculate Transmit ON power target value range take the nominal TX power range from Table 5.5.2.3 then apply table 5.4.1.1 open limits then apply table 5.7.1 (only if there has been a transmission gap) then cap the upper value using table 5.2.1. Formula for transmit OFF power: Transmit OFF power + Off power TT Transmit OFF power = []dBm |
| 5.6 Change of TFC: power control step size | TFC step size = +5 to +9 dB | 0.3 dB | Formula: Upper Tolerance limit + TT Lower Tolerance limit – TT Upper limit = -4.7 dB |
| 5.7 Power setting in uplink compressed mode | Various | TBD (Subset of 5.4.2) | Lower limit = -9.3 dB TBD |

| Test | Minimum Require 25.101 | | Test Tolerance (TT) | Test Requirement in TS 34.121 | | |
|--|---|----------------------------|---------------------------|---|--|--|
| 5.8 Occupied Bandwidth | The occupied channel bandwidth shall be I MHz based on a chi | ess than 5 | 0 kHz | Formula: occupied channe TT occupied channel bandwid | | |
| 5.9 Spectrum emission mask | 3.84 Mcps. Minimum requirement defined in TS25.101 Table 6.10. The lower limit shall be –50 dBm / 3.84 MHz or which ever is higher. | | 1.5 dB | Formula: Minimum require Lower limit + TT Add 1.5 to Minimum require in TS25.101 Table 6.10. Zero test tolerance is appli Additional requirements for to FCC regulatory requirements for the lower limit shall be -48 MHz or which ever is higher | ment + TT ement entries ed for Band II due nents. 3.5 dBm / 3.84 | |
| 5.10 Adjacent Channel Leakage Power Ratio (ACLR) | If the adjacent chan greater than –50 dB ACLR shall be highe values specified bel | m then the er than the | 0.0 dB | Formula: Absolute power t | | |
| | Power Classes 3 and 4: UE channel +5 MHz or -5 MHz, ACLR limit: 33 dB UE channel +10 MHz or -10 MHz, ACLR limit: 43 dB | | 0.8 dB | Formula: ACLR limit - TT Power Classes 3 and 4: UE channel +5 MHz or -5 I limit: 32.2 dB UE channel +10 MHz or -1 limit: 42.2 dB | | |
| 5.11 Spurious Emissions | | | | Formula: Minimum Requirement+ T Add zero to all the values of Minimu Requirements in table 5.11.1a and 5.11.1b. | | |
| | Frequency Band | Minimum Requireme nt | | Frequency Band | Minimum Requirement | |
| | 9 kHz ≤ f < 150 kHz | -36dBm /1kHz | 0 dB | 9kHz ≤ f < 1GHz | -36dBm /1kHz | |
| | 150 kHz ≤ f < 30 MHz | -36dBm /10kHz | 0 dB | 150 kHz ≤ f < 30 MHz | -36dBm /10kHz | |
| | 30 MHz ≤ f < 1000 MHz | –36dBm /100kHz | 0 dB | 30 MHz ≤ f < 1000 MHz | -36dBm /100kHz | |
| | 1 GHz ≤ f < 12.75 GHz | -30dBm /1MHz | 0 dB | 1 GHz ≤ f < 2.2 GHz | -30dBm /1MHz | |
| | | | 0 dB | 2.2 GHz ≤ f < 4 GHz | -30dBm /1MHz | |
| | | | 0 dB | 4 GHz ≤ f < 12.75 GHz | -30dBm /1MHz | |
| | 1893.5 MHz < f < 1919.6 MHz | -41dBm /300kHz | 0 dB | 1893.5 MHz < f < 1919.6 MHz | –41dBm /300kHz | |
| | 925 MHz ≤ f ≤ 935 MHz | -67dBm /100kHz | 0 dB | 925 MHz ≤ f ≤ 935 MHz | –67dBm /100kHz | |
| | 935 MHz < f ≤ 960 MHz | -79dBm /100kHz | 0 dB | 935 MHz < f ≤ 960 MHz | –79dBm /100kHz | |
| | 1805 MHz ≤ f ≤ 1880 MHz | –71dBm /100kHz | 0 dB | 1805 MHz ≤ f ≤ 1880 MHz | –71dBm /100kHz | |
| 5.12 Transmit Intermodulation | Intermodulation Product 5MHz -31 dBc 10MHz -41 dBc CW Interferer level = -40 dBc | | 0 dB | Formula: CW interferer lev Intermod Products limits reunchanged. | | |
| 5.13.1 Transmit modulation: EVM | The measured EVM exceed 17.5%. | shall not | 0% | CW interferer level = -40 d Formula: EVM limit + TT EVM limit = 17.5 % | Bc | |
| 5.13.2 Transmit modulation: peak code domain error | The measured Peak domain error shall n -15 dB. | | 1.0 dB | EVM limit = 17.5 % Formula: Peak code domain error + TT Peak code domain error = -14 dB | | |

| Test | Minimum Requirement in TS 25.101 | Test Tolerance (TT) | Test Requirement in TS 34.121 |
|---|---|---------------------------|--|
| 5.13.4 PRACH preamble quality (EVM) | The measured EVM shall not exceed 17.5%. | <u>0%</u> | Formula: EVM limit + TT EVM limit = 17.5 % |
| 5.13.4 PRACH preamble quality (Frequency error) | The UE modulated carrier frequency shall be accurate to within ±0.1 ppm compared to the carrier frequency received from the Node B. | 10 Hz | Formula: modulated carrier frequency error + TT modulated carrier frequency error = ±(0.1 ppm + 10 Hz). |

F.5 Acceptable uncertainty of Test Equipment (This clause is informative)

This informative clause specifies the critical parameters of the components of an overall Test System (e.g. Signal generators, Signal Analysers etc.) which are necessary when assembling a Test System that complies with clause F.1 Acceptable Uncertainty of Test System. These Test Equipment parameters are fundamental to the accuracy of the overall Test System and are unlikely to be improved upon through System Calibration.

F.5.1 Transmitter measurements

Table F.5.1: Equipment accuracy for transmitter measurements

| Test | Equipment accuracy | Test conditions |
|--|--|--|
| 5.2 Maximum Output Power | Not critical | 19 to 25 dBm |
| 5.3 Frequency error | ± 10 Hz | 0 to 500 Hz. |
| 5.4.1 Open loop power control in uplink | Not critical | -43.7 dBm to 25 dBm |
| 5.4.2 Inner loop power control in the uplink – single step | ±0.1 dB relative over a 1.5 dB range ±0.15 dB relative over a 3.0 range ±0.2 dB relative over a 4.5 dB range | +25 dBm to -50 dBm |
| 5.4.2 Inner loop power control in the uplink – seven and ten steps | ±0.3 dB relative over a 26 dB range | +25 dBm to -50 dBm |
| 5.4.3 Minimum Output Power | Not critical | |
| 5.4.4 Out-of-synchronisation handling of output power: $\frac{DPCCH_E_c}{I_{or}}$ | ±0.1 dB uncertainty in DPCCH_Ec/lor ratio | Ratio from –16.6 dB to –28 dB |
| 5.5.1 Transmit ON/OFF Power: UE transmit OFF power | Not critical | -56 dBm (static power) |
| 5.5.2 Transmit ON/OFF Power: transmit ON/OFF time mask | TBD | -56 dBm (dynamic power over approx. 70 dB range) |
| 5.6 Change of TFC: power control step size | ±0.3 dB relative over a 9 dB range | +25 dBm to -50 dBm |
| 5.7 Power setting in uplink compressed mode:-UE output power | Subset of 5.4.2 | +25 dBm to -50 dBm |
| 5.8 Occupied Bandwidth | ±100 kHz | For results between 4 and 6 MHz? |
| 5.9 Spectrum emission mask | Not critical | P_Max Accuracy applies ± 5 dB either side of UE requirements |
| 5.10 ACLR | 5 MHz offset ± 0.8 dB | 19 to 25 dBm at 5 MHz offset for results between 40 dB and 50 |
| | 10 MHz offset ± 0.8 dB | dB. 25 dBm at 10 MHz offset for results between 45 dB and 55 dB. |
| 5.11 Spurious emissions | Not critical | 19 to 25 dBm |
| 5.12 Transmit Intermodulation | Not critical | 19 to 25 dBm |
| 5.13.1 Transmit modulation: EVM | ±2.5 % (for single code) | 25 dBm to -21 dBm |
| 5.13.2 Transmit modulation: peak code domain error | ±1.0dB | For readings between -10 dB to -20 dB. |
| 5.13.4 PRACH preamble quality (EVM) | <u>±2.5 %</u> | 25 dBm to -21 dBm |
| 5.13.4 PRACH preamble quality (Frequency error) | ± 10 Hz | <u>0 to 500 Hz.</u> |

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| | CHANGE REQUEST | | | | | | | CR-Form-v7 |
|---|----------------|---------------------|------|---|----------------|------------------|-------|------------|
| ж | 34.121 | CR <mark>336</mark> | жrev | - | \mathfrak{H} | Current version: | 5.2.0 | ¥ |

For <u>HELP</u> on using this form, see bottom of this page or look at the pop-up text over the \mathbb{H} symbols.

| Proposed chang | e affects: UICC apps器 ME X Radio Ac | cess Netwo | rk Core Network |
|-----------------|---|-------------------|---------------------------|
| | | | |
| | | | |
| Title: | 策 Correction to the Measurement Control message in | n 8.7.6 UE I | Rx-Tx time difference |
| 0 | OO Dal to O Oak and Analtha Da Oakk | | |
| Source: | 策 Rohde & Schwarz, Anritsu, DoCoMo | | |
| Work item code: | * | Date: ₩ | 4/02/2004 |
| | | | |
| Category: | 策 <mark>F</mark> | Release: # | R5 |
| | Use one of the following categories: | Use <u>one</u> of | f the following releases: |
| | F (correction) | 2 | (GSM Phase 2) |
| | A (corresponds to a correction in an earlier release) | R96 | (Release 1996) |
| | B (addition of feature), | R97 | (Release 1997) |
| | C (functional modification of feature) | R98 | (Release 1998) |
| | D (editorial modification) | R99 | (Release 1999) |
| | Detailed explanations of the above categories can | Rel-4 | (Release 4) |
| | be found in 3GPP <u>TR 21.900</u> . | Rel-5 | (Release 5) |
| | | Rel-6 | (Release 6) |

Reason for change: ₩

This document is revised from T1-040151.

- 1. Measurement Identity is aligned with other test cases.
- 2. Editorial correction;
 - Two IEs of "Measurement Reporting Mode" in "Measurement Control message" exist.

The measurement command "modify" should not be used to change the measurement type. See 25.331:

8.4.1.2 Initiation

The UTRAN may request a measurement by the UE to be setup, modified or released with a MEASUREMENT CONTROL message, which is transmitted on the downlink DCCH using AM RLC.

The UTRAN should take the UE capabilities into account when a measurement is requested from the UE.

When a new measurement is created, UTRAN should set the IE "Measurement identity" to a value, which is not used for other measurements. UTRAN may use several "Measurement identity" for the same "Measurement type". In case of setting several "Measurement identity" within a same "Measurement type", the measurement object or the list of measurement objects can be set differently for each measurement with different "Measurement identity".

When a current measurement is modified or released, UTRAN should set the IE "Measurement identity" to the value, which is used for the measurement being modified or released. In case of modifying IEs within a "Measurement identity", it is not needed for UTRAN to indicate the IEs other than modified IEs, and the UE continues to use the

current values of the IEs that are not modified. UTRAN should not use "modify" to change the type of measurement stored in the variable MEASUREMENT_IDENTITY for a given measurement identity.

1111

Summary of change:
1. The measurement control message is changed to setup a new measurement (with a new measurement identity "default 5") instead of modifying the existing UE measurement.

2. Unnecessary IEs in "measurement control message" are deleted.

Consequences if not approved:

The measurement control message is not in line with the core specification. The UE could fail the test as the measurement is not set up properly.

| Clauses affected: Other specs affected: | 第 8.7.6 |
|---|--------------------------------------|
| Other comments: | * |

8.7.6 UE Rx-Tx time difference

8.7.6.1 UE Rx-Tx time difference type 1

8.7.6.1.1 Definition and applicability

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

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

8.7.6.1.2 Minimum requirements

Table 8.7.6.1.1

| Parameter Unit Accuracy [chip] | | Conditions | |
|--------------------------------|-------|-----------------|-----------------|
| Farameter | Oilit | Accuracy [cnip] | lo [dBm/3.84Mz] |
| UE RX-TX time difference | chip | ± 1.5 | -9450 |

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

| Unit | Test 1 | Test 2 | Test 3 | |
|---------------------|---|---|---|--|
| Offic | Cell 1 | Cell 1 | Cell 1 | |
| | Channel 1 | Channel 1 | Channel 1 | |
| dB | -10 | -10 | -10 | |
| dB | -12 | -12 | -12 | |
| dB | -12 | -12 | -12 | |
| dB | -15 | -15 | -15 | |
| dB | -15 | -15 | -15 | |
| dB | -1.11 | -1.11 | -1.11 | |
| dB | 10.5 | 10.5 | 10.5 | |
| dBm/ 2 94 MHz | lo -10.9 dB = loc, | lo -10.9 dB = loc, | lo -10.9 dB = loc, | |
| UDITI/ 3.04 IVII IZ | Note 1 | Note 1 | Note 1 | |
| dBm/3.84 MHz | -94 | -72 | -50 | |
| - | AWGN | AWGN | AWGN | |
| | dB dB dB dB dB dB dBm/ 3.84 MHz dBm/3.84 MHz | Cell 1 Channel 1 dB -10 dB -12 dB -15 dB -15 dB -1.11 dB 10.5 dBm/ 3.84 MHz Io -10.9 dB = loc, Note 1 dBm/3.84 MHz -94 - AWGN | Cell 1 Cell 1 Channel 1 Channel 1 dB -10 -10 dB -12 -12 dB -15 -15 dB -15 -15 dB -1.11 -1.11 dB 10.5 10.5 dBm/ 3.84 MHz 10 - 10.9 dB = loc, Note 1 dBm/3.84 MHz -94 -72 | |

NOTE 1: loc level shall be adjusted according the total signal power spectral density lo at receiver input and the geometry factor lor/loc.

8.7.6.1.4.2 Procedure

- 1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2.3. The RF parameters are set up according to table 8.7.6.1.4 for Test 1.
- 2) SS shall transmit MEASUREMENT CONTROL message.

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

Specific Message Contents

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

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

| Information Element | Value/Remark |
|--|-------------------------------|
| Message Type | |
| UE information elements | |
| -RRC transaction identifier | 0 |
| -Integrity check info | Not Present |
| Measurement Information elements | |
| -Measurement Identity | 45 |
| -Measurement Command | ModifySETUP |
| - Additional measurements list | Not Present |
| -Measurement Reporting Mode | AM RLC |
| -Measurement Report Transfer Mode | Periodical reporting |
| -Periodical Reporting / Event Trigger Reporting Mode | UE Internal measurement |
| -CHOICE Measurement type | |
| -UE Internal measurement quantity | FDD |
| -CHOICE mode | UE Rx-Tx time difference |
| -Measurement quantity | 0 |
| -Filter coefficient | |
| -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 |
| -Measurement Reporting Mode | |
| -Measurement Report Transfer Mode | AM RLC |
| -Periodical Reporting / Event Trigger Reporting Mode | Periodical reporting |
| Physical channel information elements | |
| -DPCH compressed mode status info | Not Present |

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| CHANGE REQUEST | | | | | | | CR-Form-v7 | | |
|---|-----------------|-----------|-------------------|------|-----|----------------|------------------|---------|--------|
| * | 34.121 | CR 33 | 35 | жrev | - | \mathfrak{H} | Current version: | 5.2.0 | ¥ |
| For <u>HELP</u> on using this form, see bottom of this page or look at the pop-up text over the # sym | | | | | | | mbols. | | |
| Proposed cha | nnge affects: \ | JICC apps | s# <mark>_</mark> | ME X | Rad | dio A | ccess Network | Core Ne | etwork |

| Title: | \aleph | Correction of the TGD value for single gap transmission gap pattern | | |
|----------------|---------------|---|-------------------|-------------------------|
| | | | | |
| Source: | \aleph | Rohde & Schwarz | | |
| | | | | |
| Work item code | :: ₩ | | Date: ∺ | 27/01/2004 |
| | | | | |
| Category: | ${\mathbb H}$ | F | Release: ₩ | R5 |
| | | lse <u>one</u> of the following categories: | Use <u>one</u> of | the following releases: |
| | | F (correction) | 2 | (GSM Phase 2) |
| | | A (corresponds to a correction in an earlier releas | e) R96 | (Release 1996) |
| | | B (addition of feature), | R97 | (Release 1997) |
| | | C (functional modification of feature) | R98 | (Release 1998) |
| | | D (editorial modification) | R99 | (Release 1999) |
| | | etailed explanations of the above categories can | Rel-4 | (Release 4) |
| | | e found in 3GPP <u>TR 21.900</u> . | Rel-5 | (Release 5) |
| | | | Rel-6 | (Release 6) |

| Reason for change: # | the value TGD = 0 is not valid. For a single gap in a transmission gap patter the value TGD = UNDEFINED should be used | | |
|----------------------|--|--|--|
| | | | |
| Summary of change: 第 | The value of TGD is changed from 0 to UNDEFINED for single transmission gap pattern. | | |
| | | | |
| | The signalling of compressed mode remains invalid for the indicated cases. | | |
| not approved: | | | |

| Clauses affected: | 策 5.7.4 Y N | 2, 8.6.2.1.4.2, 8.6.3.1.4.2 | | |
|-----------------------|----------------|--|---|--|
| Other specs affected: | 米 X | Other core specifications Test specifications O&M Specifications | ¥ | |
| Other comments: | X | | | |

5.7.4 Method of test

5.7.4.1 Initial conditions

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

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

- 1) Connect the SS to the UE antenna connector as shown in figure A.1.
- 2) A call is set up according to the Generic call setup procedure. The 12,2 kbps UL reference measurement channel is used, with gain factors β_c = 0,5333 and β_d = 1,0 in non-compressed frames. Slot formats 0 and 0B are used on the uplink DPCCH.
- 3) Enter the UE into loopback test mode and start the loopback test.

See TS 34.108 [3] and TS 34.109 [4] for details regarding generic call setup procedure and loopback test.

5.7.4.2 Procedure

NOTE: CFNs are given in this procedure for reference as examples only. A fixed offset may be applied to the CFNs.

- 1) Before proceeding with step (3) below, set the output power of the UE, measured at the UE antenna connector, to be in the range -36 ± 9 dBm. This may be achieved by setting the downlink signal (Îor) to yield an appropriate open loop output power and/or by generating suitable downlink TPC commands from the SS.
- 2) Transmit the PHYSICAL CHANNEL RECONFIGURATION message to set the uplink power control parameters to use Algorithm 1 and a step size of 2 dB, and to set the compressed mode parameters shown in table 5.7.5. The contents of the message are specified in table 5.7.9. This set of compressed mode parameters defines the compressed mode pattern which is used to test the implementation of:
 - a) in steps (3) and (4), upward 3 dB output power steps and the implementation of a downward power change when resuming transmission after a compressed mode gap, and
 - b) in steps (7) and (8), downward 3dB output power steps and the implementation of an upward power change when resuming transmission after a compressed mode gap.

Table 5.7.5: Parameters for pattern A for compressed mode test

| Parameter | Meaning | Value |
|------------------------------------|--|----------------|
| TGPRC | Number of transmission gap patterns within the Transmission Gap Pattern Sequence | 1 |
| TGCFN | Connection Frame Number of the first frame of the first pattern within the Transmission Gap Pattern Sequence | 0 |
| TGSN | Slot number of the first transmission gap slot within the TGCFN | 2 |
| TGL1 | Length of first transmission gap within the transmission gap pattern | 7 slots |
| TGL2 | Length of second transmission gap within the transmission gap pattern | 7 slots |
| TGD | Duration between the starting slots of two consecutive transmission gaps within a transmission gap pattern | 15 slots |
| TGPL1 | Duration of transmission gap pattern 1 | 3 frames |
| TGPL2 | Duration of transmission gap pattern 2 | Omit |
| RPP | Recovery Period Power Control Mode | Mode 1 |
| ITP | Initial Transmit Power Mode | Mode 1 |
| UL/DL Mode | Defines whether only DL, only UL, or combined UL/DL compressed mode is used | UL/DL |
| Downlink Compressed Mode Method | Method for generating downlink compressed mode gap | SF/2 |
| Uplink Compressed Mode Method | Method for generating uplink compressed mode gap | SF/2 |
| Scrambling code change | Indicates whether the alternative scrambling code is used | No code change |
| Downlink frame type | Downlink compressed frame structure | Α |
| DeltaSIR | Delta in DL SIR target value to be set in the UE during compressed frames | 0 |
| DeltaSIRafter | Delta in DL SIR target value to be set in the UE one frame after the compressed frames | 0 |

The resulting compressed mode pattern is shown in figure 5.7.2.

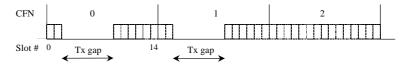


Figure 5.7.2: Pattern A for compressed mode test

3) After the PHYSICAL CHANNEL RECONFIGURATION COMPLETE message from the UE is received, transmit TPC commands on the downlink as shown in table 5.7.6.

Table 5.7.6: TPC commands transmitted in downlink

| CFN | TPC commands in downlink |
|-----|--------------------------|
| 0 | 01111111 |
| 1 | 11101010 |
| 2 | 1010101010101 |

4) Measure the mean power in the following slots, not including the $25 \mu s$ transient periods at the start and end of each slot:

CFN 0: Slots # 9,10,11,12,13,14

CFN 1: Slots # 0,1,9

5) Re-start the test. Before proceeding with step (7) below, set the output power of the UE, measured at the UE antenna connector, to be in the range 2 ± 9 dBm. This may be achieved by setting the downlink signal

(Îor) to yield an appropriate open loop output power and/or by generating suitable downlink TPC commands from the SS.

- 6) Repeat step (2) above, with the exception that TGCFN = 3 in table 5.7.5 and table 5.7.9.
- 7) After the PHYSICAL CHANNEL RECONFIGURATION COMPLETE message from the UE is received, transmit TPC commands on the downlink as shown in table 5.7.7.

Table 5.7.7: TPC commands transmitted in downlink

| CFN | TPC commands in downlink |
|-----|--------------------------|
| 3 | 01000000 |
| 4 | 00010101 |
| 5 | 0101010101010 |

8) Measure the mean power in the following slots, not including the $25~\mu s$ transient periods at the start and end of each slot:

CFN 3: Slots # 9,10,11,12,13,14

CFN 4: Slots # 0,1,9

- 9) Re-start the test. Before proceeding with step (11) below, set the output power of the UE, measured at the UE antenna connector, to be in the range –10 ± 9 dBm. This may be achieved by setting the downlink signal (Îor) to yield an appropriate open loop output power and/or by generating suitable downlink TPC commands from the SS.
- 10) Transmit the PHYSICAL CHANNEL RECONFIGURATION message to set the uplink power control parameters to use Algorithm 1 and a step size of 1 dB, and to set the compressed mode parameters shown in table 5.7.8. The contents of the message are specified in table 5.7.10. This set of compressed mode parameters defines the compressed mode pattern which is used to test the implementation of power steps at the start and end of compressed frames, and the implementation of a zero power change when resuming transmission after a compressed mode gap.

Table 5.7.8: Parameters for pattern B for compressed mode test

| Parameter | Meaning | Value |
|------------------------------------|--|-------------------|
| TGPRC | Number of transmission gap patterns within the Transmission Gap Pattern Sequence | 1 |
| TGCFN | Connection Frame Number of the first frame of the first pattern within the Transmission Gap Pattern Sequence | 7 |
| TGSN | Slot number of the first transmission gap slot within the TGCFN | 8 |
| TGL1 | Length of first transmission gap within the transmission gap pattern | 14 slots |
| TGL2 | Length of second transmission gap within the transmission gap pattern | omit |
| TGD | Duration between the starting slots of two consecutive transmission gaps within a transmission gap pattern | 0270UNDEFINE D |
| TGPL1 | Duration of transmission gap pattern 1 | 4 frames |
| TGPL2 | Duration of transmission gap pattern 2 | Omit |
| RPP | Recovery Period Power Control Mode | Mode 0 |
| ITP | Initial Transmit Power Mode | Mode 0 |
| UL/DL Mode | Defines whether only DL, only UL, or combined UL/DL compressed mode is used | UL/DL |
| Downlink Compressed Mode Method | Method for generating downlink compressed mode gap | SF/2 |
| Uplink Compressed Mode Method | Method for generating uplink compressed mode gap | SF/2 |
| Scrambling code change | Indicates whether the alternative scrambling code is used | No code change |
| Downlink frame type | Downlink compressed frame structure | Α |
| DeltaSIR | Delta in DL SIR target value to be set in the UE during compressed frames | 0 |
| DeltaSIRafter | Delta in DL SIR target value to be set in the UE one frame after the compressed frames | 0 |

The resulting compressed mode pattern is shown in figure 5.7.3.

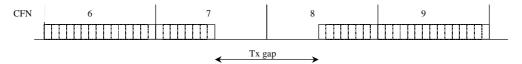


Figure 5.7.3: Pattern B for compressed mode test

11) After the PHYSICAL CHANNEL RECONFIGURATION COMPLETE message from the UE is received, transmit TPC commands on the downlink as shown in table 5.7.8.

Table 5.7.8: TPC commands transmitted in downlink

| CFN | TPC commands in downlink |
|-----|--------------------------|
| 6 | 000000000111 |
| 7 | 11111111 |
| 8 | 00000000 |
| 9 | 0001111111111 |

12) Measure the mean power in the following slots, not including the 25 μ s transient periods at the start and end of each slot:

CFN 6: Slot # 14 CFN 7: Slots # 0 and 7 CFN 8: Slots # 7 and 14

CFN 9: Slot # 0

Table 5.7.9: PHYSICAL CHANNEL RECONFIGURATION message (step 2)

| Information Element | Value/Remark |
|---|--|
| Message Type | |
| UE Information Elements | |
| -RRC transaction identifier | 0 |
| -Integrity check info | Not Present |
| -Integrity protection mode info | Not Present |
| -Ciphering mode info | Not Present |
| -Activation time | 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 | Not Dropont |
| -CN Information info UTRAN mobility information elements | Not Present |
| -URA identity | Not Present |
| RB information elements | Not i lesent |
| -Downlink counter synchronisation info | Not Present |
| PhyCH information elements | Hot i recent |
| -Frequency info | Not Present |
| Uplink radio resources | |
| -Maximum allowed UL TX power | Not Present |
| -CHOICE channel requirement | Uplink DPCH info |
| -Uplink DPCH power control info | |
| -CHOICE mode | FDD |
| -DPCCH Power offset | -6dB |
| -PC Preamble | 1 frame |
| -SRB delay | 7 frames |
| -Power Control Algorithm | Algorithm 1 |
| -TPC step size | 2dB |
| -CHOICE mode | FDD |
| -Scrambling code type -Scrambling code number | Long 0 |
| -Number of DPDCH | 1 |
| -spreading factor | 64 |
| -TFCI existence | TRUE |
| -Number of FBI bits | Not Present(0) |
| -Puncturing Limit | 1 |
| Downlink radio resources | |
| -CHOICE mode | FDD |
| -Downlink PDSCH information | Not Present |
| -Downlink information common for all radio links | |
| -Downlink DPCH info common for all RL | Not Present |
| -CHOICE mode | FDD |
| -DPCH compressed mode info -Transmission gap pattern sequence | |
| -Transmission gap pattern sequence -TGPSI | 1 |
| -TGPS Status Flag | Activate |
| -TGCFN | 0 |
| -Transmission gap pattern sequence | , and the second |
| configuration parameters | |
| -TGMP | FDD measurement |
| -TGPRC | 1 |
| -TGSN | 2 |
| -TGL1 | 7 |
| -TGL2 | 7 |
| -TGD | 15 |
| -TGPL1 | 3 |
| -TGPL2 | Not Present |
| -RPP | Mode 1 |
| -ITP | Mode 1 |
| -CHOICE UL/DL mode -Downlink compressed mode method | UL and DL SF/2 |
| -Downlink compressed mode method -Uplink compressed mode method | SF/2 SF/2 |
| -Opinik compressed mode metriod -Downlink frame type | A A |
| Бомпшик паше туре | / A |

-DeltaSIR1 0 -DeltaSIRafter1 -DeltaSIR2 Not Present -DeltaSIRafter2 Not Present -N Identify abort Not Present -T Reconfirm abort Not Present -TX Diversity Mode Not Present -SSDT information Not Present -Default DPCH Offset Value Not Present -Downlink information per radio link list - Downlink information for each radio link -Choice mode FDD -Primary CPICH info -Primary scrambling code 100 -PDSCH with SHO DCH Info Not Present -PDSCH code mapping Not Present -Downlink DPCH info for each RL -CHOICE mode **FDD** -Primary CPICH usage for channel estimation Primary CPICH may be used -DPCH frame offset Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400 -Secondary CPICH info Not Present -DL channelisation code -Secondary scrambling code Not Present -Spreading factor 128 -Code number 0 -Scrambling code change No code change -TPC combination index 0 -SSDT Cell Identity Not Present -Closed loop timing adjustment mode Not Present

Not Present

-SCCPCH Information for FACH

Table 5.7.10: PHYSICAL CHANNEL RECONFIGURATION message (step 10)

| Information Element | Value/Remark |
|--|---------------------------|
| Message Type | |
| UE Information Elements | |
| -RRC transaction identifier | 0 |
| -Integrity check info | Not Present |
| -Integrity crieck into -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 | 140t i resent |
| -CN Information info | Not Present |
| UTRAN mobility information elements | Not i resent |
| -URA identity | Not Present |
| RB information elements | Not i resent |
| -Downlink counter synchronisation info | Not Present |
| | Not Fresent |
| PhyCH information elements | Not Procent |
| -Frequency info | Not Present |
| Uplink radio resources | Not Drocont |
| -Maximum allowed UL TX power | Not Present |
| -CHOICE channel requirement | Uplink DPCH info |
| -Uplink DPCH power control info | 500 |
| -CHOICE mode | FDD |
| -DPCCH Power offset | -6dB |
| -PC Preamble | 1 frame |
| -SRB delay | 7 frames |
| -Power Control Algorithm | Algorithm 1 |
| -TPC step size | 1dB |
| -CHOICE mode | FDD |
| -Scrambling code type | Long |
| -Scrambling code number | 0 |
| -Number of DPDCH | 1 |
| -spreading factor | 64 |
| -TFCI existence | TRUE |
| -Number of FBI bits | Not Present(0) |
| -Puncturing Limit | 1 |
| Downlink radio resources | 500 |
| -CHOICE mode | FDD |
| -Downlink PDSCH information | Not Present |
| -Downlink information common for all radio links | N . B |
| -Downlink DPCH info common for all RL | Not Present |
| -CHOICE mode | FDD |
| -DPCH compressed mode info | |
| -Transmission gap pattern sequence | |
| -TGPSI | |
| -TGPS Status Flag | Activate |
| -TGCFN | 7 |
| -Transmission gap pattern sequence | |
| configuration parameters | 500 |
| -TGMP | FDD measurement |
| -TGPRC | 1 |
| -TGSN | 8 |
| -TGL1 | 14 |
| -TGL2 | Not Present |
| -TGD | 0270 UNDEFINED |
| -TGPL1 | 4 |
| -TGPL2 | Not Present |
| -RPP | Mode 0 |
| -ITP | Mode 0 |
| -CHOICE UL/DL mode | UL and DL |
| -Downlink compressed mode method | SF/2 |
| -Uplink compressed mode method | SF/2 |
| -Downlink frame type | A |

-DeltaSIR1 0 -DeltaSIRafter1 Not Present -DeltaSIR2 -DeltaSIRafter2 Not Present -N Identify abort Not Present Not Present -T Reconfirm abort -TX Diversity Mode Not Present -SSDT information Not Present -Default DPCH Offset Value Not Present -Downlink information per radio link list - Downlink information for each radio link FDD -Choice mode -Primary CPICH info -Primary scrambling code 100 -PDSCH with SHO DCH Info Not Present -PDSCH code mapping Not Present -Downlink DPCH info for each RL -CHOICE mode -Primary CPICH usage for channel estimation Primary CPICH may be used -DPCH frame offset Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400 -Secondary CPICH info Not Present -DL channelisation code -Secondary scrambling code Not Present -Spreading factor 128 -Code number 0 -Scrambling code change No code change -TPC combination index -SSDT Cell Identity Not Present -Closed loop timing adjustment mode Not Present -SCCPCH Information for FACH Not Present

Next section

8.6.2.1.4.2 Procedure

- 1) The RF parameters are set up according to T0.
- 2) The UE is switched on.
- 3) A call is set up according to the test procedure specified in TS 34.108 [3] sub clause 7.3.2.3.
- 4) SS shall transmit a MEASUREMENT CONTROL message (inter frequency).
- 5) SS shall transmit a MEASUREMENT CONTROL message (intra frequency).
- 6) SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message.
- 7) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.
- 8) 5 seconds after step7 has completed, the SS shall switch the power settings from T0 to T1.
- 9) UE shall transmit a MEASUREMENT REPORT message (inter frequency) triggered by event 2C. The measurement reporting delay from the beginning of T1 shall be less than 9.08 seconds. If the UE fails to report the event within the required delay, then a failure is recorded. If the reporting delay for this event is within the required limit, the number of successfull tests is increased by one.
- 10) After 10 seconds from the beginning of T1, the SS shall switch the power settings from T1 to T2.
- 11) UE shall transmit a MEASUREMENT REPORT message (intra frequency) triggered by event 1A. The measurement reporting delay from the beginning of T2 shall be less than 1036.2 ms. If the reporting delay for this event is within the required limit, the number of successfull tests is increased by one.
- 12) After 5 seconds from the beginning of T2, the UE is switched off.

13)Repeat steps 1-12 [50] times.

Specific Message Contents

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

PHYSICAL CHANNEL RECONFIGURATION message for Inter frequency measurement:

| Information Element | Value/Remark |
|--|---|
| Message Type | |
| UE Information Elements | |
| -RRC transaction identifier | 0 |
| -Integrity check info | Not Present |
| -Integrity protection mode info | Not Present |
| -Ciphering mode info | Not Present |
| -Activation time | Not Present |
| -New U-RNTI | Not Present |
| | |
| -New C-RNTI | Not Present |
| -RRC State Indicator | CELL_DCH |
| -UTRAN DRX cycle length coefficient | Not Present |
| CN Information Elements | |
| -CN Information info | Not Present |
| UTRAN mobility information elements | |
| -URA identity | Not Present |
| RB information elements | |
| -Downlink counter synchronisation info | Not Present |
| PhyCH information elements | |
| -Frequency info | Not Present |
| Uplink radio resources | |
| -Maximum allowed UL TX power | Not Present |
| Downlink radio resources | Not i resent |
| -CHOICE mode | FDD |
| -Downlink PDSCH information | Not Present |
| | Not Present |
| -Downlink information common for all radio links | N (B) |
| -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 | Not present |
| -TGSN | 4 |
| -TGL1 | 7 |
| -TGL2 | Not Present |
| -TGD | 0270 UNDEFINED |
| -TGPL1 | 3 |
| -TGPL2 | Not Present |
| -RPP | Mode 0 |
| -ITP | Mode 0 |
| -CHOICE UL/DL mode | UL and DL |
| -Downlink compressed mode method | SF/2 |
| -Uplink compressed mode method | SF/2 |
| | |
| -Downlink frame type | B |
| -DeltaSIR1 | 3.0 |
| -DeltaSIRafter1 | 3.0 |
| -DeltaSIR2 | Not Present |
| -DeltaSIRafter2 | Not Present |
| -N Identify abort | Not Present |
| -T Reconfirm abort | Not Present |
| -TX Diversity Mode | Not Present |
| -SSDT information | Not Present |
| -Default DPCH Offset Value | Not Present |
| -Downlink information per radio link list | |
| - Downlink information for each radio link | |
| -Choice mode | FDD |
| -Primary CPICH info | |
| | 100 |
| -Primary scrambling code | 100 |
| -PDSCH with SHO DCH Info | Not Present |

-PDSCH code mapping Not Present -Downlink DPCH info for each RL -CHOICE mode **FDD** -Primary CPICH usage for channel estimation Primary CPICH may be used -DPCH frame offset Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400 -Secondary CPICH info Not Present -DL channelisation code -Secondary scrambling code Not Present -Spreading factor 128 -Code number -Scrambling code change No code change -TPC combination index -SSDT Cell Identity Not Present -Closed loop timing adjustment mode Not Present -SCCPCH Information for FACH Not Present

Next section

8.6.3.1.4.2 Procedure

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

Specific Message Contents

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

MEASUREMENT CONTROL message (step 4):

| Information Element/Group name | Value/Remark |
|--|---|
| Message Type (10.2.17) | Valuomeniain |
| UE information elements | |
| -RRC transaction identifier | 0 |
| -Integrity check info | Not Present |
| Measurement Information elements | |
| -Measurement Identity | 1 |
| -Measurement Command (10.3.7.46) | Modify |
| -Measurement Reporting Mode (10.3.7.49) | |
| -Measurement Report Transfer Mode | AM RLC |
| -Periodical Reporting / Event Trigger Reporting Mode | Event trigger |
| -Additional measurements list (10.3.7.1) | Not Present |
| -CHOICE Measurement type -Inter-frequency measurement (10.3.7.16) | Inter-frequency measurement |
| -Inter-frequency measurement objects list (10.3.7.13) | |
| -CHOICE inter-frequency cell removal | No inter-frequency cells removed |
| -New inter-frequency cells | 1 |
| -Inter-frequency cell id | 1 1 |
| -Frequency info (10.3.6.36) | |
| -CHOICE mode | TDD |
| -UARFCN(Nt) | Same frequency as channel 2 in Table |
| , , | 8.6.2.4.1.2 |
| -Cell info (10.3.7.2) | 1 |
| -Cell individual offset | Not Present |
| -Reference time difference to cell | Not Present |
| -Read SFN indicator | False |
| -CHOICE mode | TDD |
| -Primary CCPCH info (10.3.6.57) -CHOICE mode | TDD |
| -CHOICE Mode -CHOICE Sync case | 2 |
| -Timeslot | 0 |
| -cell parameters ID | Set to cell parameters ID of cell 2 |
| -SCTD indicator | FALSE |
| -Primary CCPCH Tx power | Set to Primary CCPCH Tx power of cell 2 |
| , ' | as described in Table 8.6.2.4.1.2 |
| -Timesllot list | Not Present |
| -Cell selection and re-selection info | Not Present |
| -Cell for measurement | Not Present |
| -Inter-frequency measurement quantity (10.3.7.18) | |
| -CHOICE reporting critera | Inter-frequency reporting criteria |
| -Filter coefficient (10.3.7.9) -CHOICE <i>mode</i> | 0 |
| -CHOICE <i>mode</i> -Measurement quantity for frequency quality estimate | TDD Primary CCPCH RSCP |
| -Inter-frequency reporting quantity (10.3.7.21) | Filliary CCFCIT K3CF |
| -UTRA carrier RSSI | |
| -Frequency quality estimate | |
| -Non frequency related cell reporting quantities (10.3.7.5) | |
| -SFN-SFN observed time difference reporting indicator | No report |
| -Cell synchronisation information reporting indicator | FALSE |
| -Cell identity reporting indicator | FALSE |
| -CHOICE mode | TDD |
| -Timeslot ISCP reporting indicator | FALSE |
| -Proposed TGSN Reporting required | FALSE |
| -Primary CCPCH RSCP reporting indicator | TRUE |
| -Pathloss reporting indicator | FALSE |
| -Reporting cell status (10.3.7.61) | Not Present |
| -Measurement validity (10.3.7.51) | Not Present |
| -CHOICE report criteria | Inter-frequency measurement reporting |
| later francisco de la companya de la | criteria |
| -Inter-frequency measurement reporting criteria (10.3.7.19) | 1 |
| -Parameters required for each event -Intra-frequency event identity | 1 Event 2C |
| -Intra-frequency event identity -Threshold used frequency | Event 2C Not Present |
| - Threshold used frequency -W Used frequency | Not Present Not Present |
| -Hysteresis | 0 dB |
| -Time to trigger | 0 ms |
| 10 10 1119901 | 1 56 |

| Information Element/Group name | Value/Remark |
|---|---|
| -Reporting Cell Status (10.361) | |
| -CHOICE reported cell | Report cells within active and/or monitored set on used frequency or within virtual active and/or monitored set on non-used frequency |
| -Maximum number of reported cells | 3 |
| -Parameters required for each non-used frequenc | |
| - Threshold non-used frequency | -71 |
| - W non-used frequency | 1 |
| Physical channel information elements | |
| -DPCH compressed mode status info (10.3.6.34) | Not Present |

| Information Element | Value/Remark |
|--|---|
| Message Type | |
| UE Information Elements | |
| -RRC transaction identifier | 0 |
| -Integrity check info | Not Present |
| -Integrity protection mode info | Not Present |
| -Ciphering mode info | Not Present |
| -Activation time | Not Present |
| -New U-RNTI | Not Present |
| -New C-RNTI | Not Present |
| -RRC State Indicator | CELL_DCH |
| -UTRAN DRX cycle length coefficient | Not Present |
| CN Information Elements | |
| -CN Information info | Not Present |
| UTRAN mobility information elements | |
| -URA identity | Not Present |
| RB information elements | |
| -Downlink counter synchronisation info | Not Present |
| PhyCH information elements | |
| -Frequency info | Not Present |
| Uplink radio resources | |
| -Maximum allowed UL TX power | Not Present |
| Downlink radio resources | |
| -CHOICE mode | FDD |
| -Downlink PDSCH information | Not Present |
| -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 |
| Tananairaina ann agus | |
| -Transmission gap pattern sequence | |
| configuration parameters | TDD |
| -TGMP | TDD measurement |
| -TGPRC -TGSN | Not present |
| | 10 |
| -TGL1 | 10 |
| -TGL2 -TGD | Not Present 0270UNDEFINED |
| -TGPL1 | 11 |
| -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 | puncturing |
| -Downlink frame type | A |
| -DeltaSIR1 | 3.0 |
| -DeltaSIRafter1 | 3.0 |
| -DeltaSIR2 | Not Present |
| -DeltaSIRafter2 | Not Present |
| -N Identify abort | Not Present |
| -T Reconfirm abort | Not Present |
| -TX Diversity Mode | Not Present |
| -SSDT information | Not Present |
| -Default DPCH Offset Value | Not Present |
| -Downlink information per radio link list | |
| - Downlink information for each radio link | |
| -Choice mode | FDD |
| -Primary CPICH info | |
| -Primary scrambling code | 100 |
| -PDSCH with SHO DCH Info | Not Present |

-PDSCH code mapping

-Downlink DPCH info for each RL

-CHOICE mode

-Primary CPICH usage for channel estimation

-DPCH frame offset

-Secondary CPICH info

-DL channelisation code

-Secondary scrambling code

-Spreading factor

-Code number

-Scrambling code change

-TPC combination index

-SSDT Cell Identity

-Closed loop timing adjustment mode

-SCCPCH Information for FACH

Not Present

FDD

Primary CPICH may be used

Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400

Not Present

Not Present

128

No code change

Not Present

Not Present

Not Present

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| | , | , - | | | , | | | | | | | | | | CR-Form-v7 |
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| Work item | code: ૠ | | | | | | | | | Date | e: # | 27/ | 01/200 | 4 | |
| Category: # F Use one of the following categories: F (correction) A (corresponds to a correction in an earlier release) B (addition of feature), C (functional modification of feature) P (editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900. Release: # R5 Use one of the following releases 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) Rel-4 (Release 4) Rel-5 (Release 5) Rel-6 (Release 6) | | | | | | | ases: | | | | | | | | |
| Reason for change: The measurement control message defined in 8.7.2.1.1.4.2 is used in the absolute and the relative accuracy measurement. The measurement control message as defined does not initiate measurement reports on the monitored cell. But this report is needed for the relative accuray measurement in 8.7.2.1.2. | | | | | | | | | | | | | | | |
| Summary o | of chang | :e: ₩ | The | | of CPICH | l_Ec/lo ar | nd CP | ICH_ | RSC | CP is activ | /atec | l for | the mo | nito | red set |
| Consequen | | ¥ | CPIC | | e accurac C/lo of the | | | | | | | | | | eport |
| Clauses aff | fected: | Ж | 8.7.2 |) | | | | | | | | | | | |
| Other spec affected: | s | ¥ | Y N X X | Test | r core spe specificat Specifica | ions | S | ¥ | | | | | | | |

Other comments: # Additional: Minor editorials in table 8.7.1.1.2 and 8.7.1.1.5

8.7.2 CPICH Ec/lo

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 $|_{dBm} \ge -114 dBm$.

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

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

| | | Accuracy [dB] | Conditions | | |
|-------------|------|--|-------------------|----------------------|--|
| Parameter | Unit | Normal condition | Extreme condition | lo [dBm/3.84 MHz] | |
| CPICH_Ec/lo | dB | \pm 1,5 for -14 \leq CPICH Ec/lo \pm 2 for -16 \leq CPICH Ec/lo $<$ -14 \pm 3 for -20 \leq CPICH Ec/lo $<$ -16 | ±3 | -9450 | |

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/lo Intra frequency parameters

| Parameter | Unit | Unit Test 1 | | Tes | st 2 | Test 3 | | | |
|------------------------|---------------|-------------|--------|--------|--------|------------------|---------|--|---|
| Parameter | Onit | Cell 1 | Cell 2 | Cell 1 | Cell 2 | Cell 1 | Cell 2 | | |
| UTRA RF Channel number | | Char | nel 1 | Char | nel 1 | Char | nel 1 | | |
| CPICH_Ec/lor | dB | -1 | 0 | -10 | | -10 | | | |
| PCCPCH_Ec/lor | dB | -1 | 2 | -12 | | -12 | | | |
| SCH_Ec/lor | dB | -1 | -12 | | -12 | | -12 -12 | | 2 |
| PICH_Ec/lor | dB | -1 | -15 | | -15 | | 5 | | |
| DPCH_Ec/lor | dB | -15 | - | -15 | - | -6 | - | | |
| OCNS_Ec/lor | dB | -1.11 | -0.94 | -1.11 | -0.94 | 2.56 | -0.94 | | |
| loc | dBm/ 3.84 MHz | -56 | .98 | -89.07 | | -94.98 | | | |
| Îor/loc | dB | 3.0 | 3.0 | -2.9 | -2.9 | -9.0 | -9.0 | | |
| CPICH Ec/Io, Note 1 | dBm | -14.0 | -14.0 | -16.0 | -16.0 | -20.0 | -20.0 | | |
| Io, Note 1 | dBm/3.84 MHz | -5 | -50 | | -86 | |)4 | | |
| Propagation condition | - | AW | 'GN | AWGN | | AWGN | | | |

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

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

8.7.2.1.1.4.2 Procedure

- 1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2.3. The RF parameters for Test 1 are set up according to table 8.7.2.1.1.5.
- 2) SS shall transmit MEASUREMENT CONTROL message.
- 3) UE shall transmit periodically MEASUREMENT REPORT messages.
- 4) SS shall check CPICH_Ec/No value in MEASUREMENT REPORT messages. According to table 8.7.2.1.1.3 the SS calculates CPICH_Ec/Io power ratio of Cell 1, which is compared to the actual CPICH Ec/Io power ratio from the same cell for each MEASUREMENT REPORT message.
- 5) SS shall count number of MEASUREMENT REPORT messages transmitted by UE. After 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.2.1.1.5 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 4) above is repeated. After further 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.2.1.1.5 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 4) above is repeated.
- 6) After further 1000 MEASUREMENT REPORT messages have been received from UE, the SS shall transmit RRC CONNECTION RELEASE message.
- 7) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Table 8.7.2.1.1.3: CPICH Ec/lo measurement report mapping

| Reported value | Measured quantity value | Unit |
|-----------------|---------------------------|------|
| CPICH_Ec/No _00 | CPICH Ec/lo < -24 | dB |
| CPICH_Ec/No _01 | -24 ≤ CPICH Ec/lo < -23.5 | dB |
| CPICH_Ec/No _02 | -23.5 ≤ CPICH Ec/lo < -23 | dB |
| | | |
| CPICH_Ec/No _47 | -1 ≤ CPICH Ec/lo < -0.5 | dB |
| CPICH_Ec/No _48 | -0.5 ≤ CPICH Ec/lo < 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 Not Decomp |
| -Integrity check info | Not Present |
| Measurement Information elements | |
| -Measurement Identity | 1 |
| -Measurement Command | Modify |
| -Measurement Reporting Mode | Acknowledged mode RLC |
| - Measurement Report Transfer Mode | Periodical reporting |
| - Periodical Reporting / Event Trigger Reporting | N (B |
| Mode | Not Present |
| -Additional measurement list | Intra-frequency measurement |
| -CHOICE Measurement Type | |
| -Intra-frequency measurement | |
| - Intra-frequency measurement objects list | Not Present |
| -Intra-frequency measurement quantity | |
| -Filter coefficient | 0 |
| -CHOICE mode | FDD |
| -Measurement quantity | CPICH RSCP |
| -Intra-frequency reporting quantity | |
| -Reporting quantities for active set cells | |
| -SFN-SFN observed time difference reporting | |
| indicator | No report |
| -Cell synchronisation information reporting | TDUE |
| indicator | TRUE |
| -Cell Identity reporting indicator | TRUE |
| -CHOICE mode | FDD |
| -CPICH Ec/N0 reporting indicator | TRUE |
| -CPICH RSCP reporting indicator | TRUE TRUE |
| -Pathloss reporting indicator | IRUE |
| -Reporting quantities for monitored set cells | No report |
| -SFN-SFN observed time difference reporting indicator | No report |
| -Cell synchronisation information reporting | FALSE |
| indicator | FALSE |
| -Cell Identity reporting indicator | FALSE |
| -CHOICE mode | FDD |
| -CPICH Ec/N0 reporting indicator | FALSETRUE |
| -CPICH RSCP reporting indicator | FALSETRUE |
| -Pathloss reporting indicator | FALSE |
| -Reporting quantities for detected set cells | Not Present |
| -Reporting quantities for detected set cells -Reporting cell status | Not Flesent |
| -CHOICE reported cell | Report all active set cells + cells within |
| -Onotoe reported cell | 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 |
| 21 311 compressed mede status into | 1101.1.1000111 |

MEASUREMENT REPORT message for Intra frequency test cases

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

8.7.2.1.1.5 Test requirements

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

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

| | | Accuracy [dB] | | Conditions |
|-------------|-----------------------------|---|-------------------|----------------------|
| Parameter | meter Unit Normal condition | | Extreme condition | lo [dBm/3.84 MHz] |
| ODIOU Ea/Io | dB | -3.11.9 for -14 ≤ CPICH Ec/lo -3.62.4 for -16 ≤ CPICH Ec/lo < -14 -4.63.4 for -20 ≤ CPICH Ec/lo < -16 | -4.63.4 | -9487 |
| CPICH_Ec/Io | UD | ± 1.95 for -14 ≤ CPICH Ec/lo ± 2.4 for -16 ≤ CPICH Ec/lo < -14 ± 3.4 for -20 ≤ CPICH Ec/lo < -16 | ± 3.4 | -8750 |

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/lo Intra frequency tests parameters

| Parameter | Unit | Tes | st 1 | Tes | st 2 | Tes | st 3 | | |
|------------------------|---------------|--------|--------|--------|--------|---------------|--------|--|-----|
| Parameter | Onit | Cell 1 | Cell 2 | Cell 1 | Cell 2 | Cell 1 | Cell 2 | | |
| UTRA RF Channel number | | Char | nel 1 | Char | nel 1 | Channel 1 | | | |
| CPICH_Ec/lor | dB | -6 | .7 | -9.8 | | -9.9 | | | |
| PCCPCH_Ec/lor | dB | -1° | 1.7 | -11.8 | | -11.9 | | | |
| SCH_Ec/lor | dB | -1° | -11.7 | | -11.8 | | -11.8 | | 1.9 |
| PICH_Ec/lor | dB | -14 | -14.7 | | -14.8 | | 1.9 | | |
| DPCH_Ec/lor | dB | -14.7 | - | -14.8 | - | -5.9 | • | | |
| OCNS_Ec/lor | dB | -1.2 | -1.02 | -1.17 | -0.99 | <u>-</u> 2.64 | -0.97 | | |
| loc | dBm/ 3.84 MHz | -58 | 3.5 | -89 | -89.07 | | .98 | | |
| Îor/loc | dB | 3.3 | 3.3 | -2.6 | -2.6 | -8.7 | -8.7 | | |
| CPICH Ec/lo, Note 1 | dBm | -13.6 | -13.6 | -15.6 | -15.6 | -19.6 | -19.6 | | |
| Io, Note 1 | dBm | -5 | -51.3 | | -85.85 | | 2.9 | | |
| Propagation condition | _ | AW | AWGN | | AWGN | | GN | | |

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

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

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

Table 8.7.2.1.1.6: CPICH_Ec/lo 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 $|_{dBm} \ge -114 dBm$.

-
$$\left| CPICH _RSCP1 \right|_{in \ dBm} - CPICH _RSCP2 \Big|_{in \ dBm} \right| \le 20 dB$$
.

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

Table 8.7.2.1.2.1: CPICH_Ec/lo Intra frequency relative accuracy

| | | Accuracy [dB | Conditions | |
|-------------|------|---|-------------------|----------------------|
| Parameter | Unit | Normal condition | Extreme condition | lo [dBm/3.84 MHz] |
| | dB | \pm 1,5 for -14 \leq CPICH Ec/lo | | -9450 |
| CPICH_Ec/lo | | ±2 for -16 ≤ CPICH Ec/lo < -14 | ±3 | |
| | | ± 3 for $-20 \le CPICH Ec/lo < -16$ | | |

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

8.7.2.1.2.3 Test purpose

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

8.7.2.1.2.4 Method of test

8.7.2.1.2.4.1 Initial conditions

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

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

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

8.7.2.1.2.4.2 Procedure

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

- CPICH_Ec/Io power ratio value measured from Cell 1 is compared to CPICH_Ec/Io power ratio value measured from Cell 2 for each MEASUREMENT REPORT message.
- 5) The result of step 3) is compared to actual power level difference of CPICH_Ec/Io of Cell 1 and Cell 2.
- 6) SS shall count number of MEASUREMENT REPORT messages transmitted by UE. After 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.2.1.1.3 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 4) and 5) above are repeated. After further 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.2.1.1.3 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 4) and 5) above are repeated.
- 7) After further 1000 MEASUREMENT REPORT messages have been received from UE, the SS shall transmit RRC CONNECTION RELEASE message.
- 8) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

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

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

MEASUREMENT REPORT message for Intra frequency test cases

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

8.7.2.1.2.5 Test requirements

Table 8.7.2.1.2.2: CPICH_Ec/lo Intra frequency relative accuracy

| Parameter | Unit | Accuracy [dB] | Conditions | |
|---------------|------|--|-------------------|----------|
| r ai ailletei | Onit | Normal condition | Extreme condition | lo [dBm] |
| | dB | ± 2.3 for -14 \leq CPICH Ec/lo | | -9450 |
| CPICH_Ec/lo | | ± 2.8 for -16 \leq CPICH Ec/lo $<$ -14 | ±3.8 | |
| | | ± 3.8 for $-20 \le CPICH Ec/lo < -16$ | | |

Table 8.7.2.1.2.3: CPICH_Ec/lo 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/lor | dB | -9.7 | | -9.8 | | -9.9 | |
| PCCPCH_Ec/lor | dB | -11.7 | | -11.8 | | -11.9 | |
| SCH_Ec/lor | dB | -11.7 | | -11.8 | | -11.9 | |
| PICH_Ec/lor | dB | -14.7 | | -14.8 | | -14.9 | |
| DPCH_Ec/lor | dB | -14.7 | - | -14.8 | - | -5.9 | • |
| OCNS_Ec/lor | dB | -1.2 | - 1.02 | -1.17 | -0.99 | -2.64 | -0.97 |
| loc | dBm/ 3.84 MHz | -58.5 | | -89.07 | | -93.98 | |
| Îor/loc | dB | 3.3 | 3.3 | -2.6 | -2.6 | -8.7 | -8.7 |
| CPICH Ec/Io, Note 1 | dBm | -13.6 | -13.6 | -15.6 | -15.6 | -19.6 | -19.6 |
| Io, Note 1 | dBm | -51,3 | | -85.85 | | -92.9 | |
| Propagation condition | - | AWGN | | AWGN | | AWGN | |

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

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

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/lo Intra frequency relative accuracy requirements for the reported values

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

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

8.7.2.2 Inter frequency measurement accuracy

8.7.2.2.1 Void

8.7.2.2.2 Relative accuracy requirement

8.7.2.2.2.1 Definition and applicability

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

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

8.7.2.2.2.2 Minimum Requirements

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

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

-
$$|CPICH _RSCP1|_{in \, dBm} - CPICH _RSCP2|_{in \, dBm}| \le 20 dB$$
.

- | Channel 1_Io|_dBm/3.84 MHz - Channel 2_Io|_dBm/3.84 MHz | $\leq 20~dB$.

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

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

| | | Accuracy [dB | Conditions | |
|-------------|------|--|-------------------|----------------------|
| Parameter | Unit | Normal condition | Extreme condition | lo [dBm/3.84 MHz] |
| | dB | ± 1.5 for -14 \leq CPICH Ec/lo | | -9450 |
| CPICH_Ec/lo | | ± 2 for -16 \leq CPICH Ec/lo $<$ -14 | ±3 | |
| | | ± 3 for $-20 \le CPICH Ec/lo < -16$ | | |

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

8.7.2.2.2.3 Test purpose

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

8.7.2.2.2.4 Method of test

8.7.2.2.2.4.1 Initial conditions

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

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

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

Table 8.7.2.2.2: CPICH Ec/lo 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/lor | dB | -10 | | -10 | | -10 | |
| PCCPCH_Ec/lor | dB | -12 | | -12 | | -12 | |
| SCH_Ec/lor | dB | -12 | | -12 | | -12 | |
| PICH_Ec/lor | dB | -15 | | -15 | | -15 | |
| DPCH_Ec/lor | dB | -15 | - | -6 | - | -6 | - |
| OCNS_Ec/lor | dB | -1.11 | -0.94 | -2.56 | -0.94 | -2.56 | -0.94 |
| loc | dBm/ 3.84 MHz | -52.22 | -52.22 | -87.27 | -87.27 | -94.46 | -94.46 |
| Îor/loc | dB | -1.75 | -1.75 | -4.7 | -4.7 | -9.54 | -9.54 |
| CPICH Ec/Io, Note 1 | dBm | -14.0 | -14.0 | -16.0 | -16.0 | -20.0 | -20.0 |
| Io, Note 1 | dBm/3.84 MHz | -50 | -50 | -86 | -86 | -94 | -94 |
| Propagation condition | - | AWGN | | AWGN | | AWGN | |

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

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

8.7.2.2.4.2 Procedure

- 1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2.3. The RF parameters for Test 1 are set up according to table 8.7.2.2.2.4.
- 2) SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message.
- 3) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.
- 4) SS shall transmit a MEASUREMENT CONTROL message for intra frequency measurement and transmit another MEASUREMENT CONTROL message for inter frequency measurement.
- 5) UE shall transmit periodically MEASUREMENT REPORT messages.
- 6) SS shall check CPICH_Ec/No value of Cell 1 and Cell 2 in MEASUREMENT REPORT messages. According to table 8.7.2.1.1.3 the SS calculates CPICH_Ec/Io power ratio of Cell 1 and Cell 2. CPICH_Ec/Io power ratio measured from Cell 1 is compared to CPICH_Ec/Io power value measured from Cell 2 for each MEASUREMENT REPORT message.
- 7) The result of step 6) is compared to actual power level difference of CPICH_Ec/Io of Cell 1 and Cell 2.
- 8) SS shall count number of MEASUREMENT REPORT messages transmitted by UE. After 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.2.2.2.4 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 6) and 7) above are repeated. After further 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.2.2.2.4 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 6) and 7) above are repeated.
- 9) After 1000 MEASUREMENT REPORT messages have been received from UE, the SS shall transmit RRC CONNECTION RELEASE message.
- 10) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

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

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

| Information Element | Value/Remark |
|---|---|
| Message Type | |
| UE Information Elements | |
| -RRC transaction identifier | 0 |
| -Integrity check info | Not Present |
| -Integrity protection mode info | Not Present |
| -Ciphering mode info | Not Present |
| -Activation time | 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 |
| -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 | 0 |
| -TGPL1 | 3 |
| -TGPL2 | Not Present |
| -RPP | Mode 0 |
| -ITP | Mode 0 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 |
| -Derault DPCH Offset value -Downlink information per radio link list | NOLI ICSCIIL |
| -Downlink information for each radio link | |
| -Choice mode | FDD |
| -Primary CPICH info | |
| -Primary CPICH into -Primary scrambling code | 100 |
| I minary scrambling code | 100 |

-PDSCH with SHO DCH Info Not Present -PDSCH code mapping Not Present -Downlink DPCH info for each RL -CHOICE mode FDD -Primary CPICH usage for channel estimation Primary CPICH may be used Set to value Default DPCH Offset Value (as -DPCH frame offset currently stored in SS) mod 38400 -Secondary CPICH info Not Present -DL channelisation code -Secondary scrambling code Not Present -Spreading factor 128 -Code number 0 -Scrambling code change No code change -TPC combination index 0 -SSDT Cell Identity Not Present

-Closed loop timing adjustment mode Not Present -SCCPCH Information for FACH Not Present

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

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

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

| Information Element | Value/Remark |
|--|--|
| Message Type | |
| UE information elements | |
| -RRC transaction identifier | 0 |
| -Integrity check info | Not Present |
| Measurement Information elements | THOU TOOGHT |
| -Measurement Identity | 2 |
| -Measurement Command | Setup |
| -Measurement Reporting Mode | Cotap |
| - Measurement Report Transfer Mode | Acknowledged mode RLC |
| - Periodical Reporting / Event Trigger Reporting | Periodical reporting |
| Mode | T official reporting |
| -Additional measurement list | Not Present |
| -CHOICE Measurement Type | Inter-frequency measurement |
| -Inter-frequency measurement | med medicine, medicarement |
| -Inter-frequency cell info list | |
| -CHOICE Inter-frequency cell removal | Not Present |
| -New inter-frequency cells | Cell 2 information is included |
| -Cell for measurement | Not Present |
| -Inter-frequency measurement quantity | 110111000111 |
| -CHOICE reporting criteria | Inter-frequency reporting criteria |
| -Filter coefficient | 0 |
| -CHOICE mode | FDD |
| -Measurement quantity for frequency quality | CPICH RSCP |
| estimate | or remined. |
| -Inter-frequency reporting quantity | |
| -UTRA Carrier RSSI | TRUE |
| -Frequency quality estimate | TRUE |
| -Non frequency related cell reporting quantities | |
| -SFN-SFN observed time difference reporting | No report |
| indicator | The report |
| -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 | TRUE |
| -Reporting cell status | |
| -CHOICE reported cell | Report all active set cells + cells within |
| 1 | monitored set on used frequency |
| -Maximum number of reported cells | Virtual/active set cells + 2 |
| -Measurement validity | Not Present |
| -Inter-frequency set update | Not Present |
| -CHOICE report criteria | Periodical reporting criteria |
| -Amount of reporting | Infinity |
| -Reporting interval | 500 ms |
| Physical channel information elements | |
| -DPCH compressed mode status info | Not Present |
| 21 311 3311 processa mode statas imo | THOU TOOUTH |

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.

8.7.2.2.5 Test requirements

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

Table 8.7.2.2.2.3: CPICH_Ec/lo Inter frequency relative accuracy, test requirements

| | | Accuracy [dB] | • | Conditions |
|-------------|------|--|-------------------|----------------------|
| Parameter | Unit | Normal condition | Extreme condition | lo [dBm/3.84 MHz] |
| | | -3.52.3 for -14 ≤ CPICH Ec/lo -4.02.8 for -16 ≤ CPICH Ec/lo < - 14 -5.03.8 for -20 ≤ CPICH Ec/lo < - 16 | -5.03.8 | -9487 |
| CPICH_Ec/lo | dB | ± 2.3 for -14 \leq CPICH Ec/lo ± 2.8 for -16 \leq CPICH Ec/lo $<$ -14 ± 3.8 for -20 \leq CPICH Ec/lo $<$ -16 | ± 3.8 | -8750 |

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/lo Inter frequency tests parameters

| Parameter | Unit | Tes | st 1 | Tes | st 2 | Tes | st 3 |
|------------------------|------------------|---------------|-----------|-------------|-----------|-----------|-----------|
| Farameter | Onit | Cell 1 | Cell 2 | Cell 1 | Cell 2 | Cell 1 | Cell 2 |
| UTRA RF Channel number | | Channel 1 | Channel 2 | Channel 1 | Channel 2 | Channel 1 | Channel 2 |
| CPICH_Ec/lor | dB | -1 | 0 | -1 | 0 | -1 | 10 |
| PCCPCH_Ec/lor | dB | -1 | 2 | -1 | 2 | -1 | 12 |
| SCH_Ec/lor | dB | -12 | | -12 | | -12 | |
| PICH_Ec/lor | dB | -1 | 15 | -15 | | -15 | |
| DPCH_Ec/lor | dB | -15 | - | -6 | ı | -6 | - |
| OCNS_Ec/lor | dB | -1.12 | -0.95 | -2.55 | -0.94 | -2.55 | -0.94 |
| loc | dBm/ 3.84 MHz | -53.5 -53.5 | | -86.27 | -86.27 | -93.46 | -93.46 |
| Îor/loc | dB | -1.45 | -1.45 | -4.4 | -4.4 | -9.24 | -9.24 |
| CPICH Ec/Io, Note 1 | dBm | -13.8 | -13.8 | -15.7 | -15.7 | -19.7 | -19.7 |
| Io, Note 1 | dBm | -51.15 -51.15 | | -84.9 -84.9 | | -93 | -93 |
| Propagation condition | - | AW | 'GN | AWGN | | AWGN | |

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

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

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/lo 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) | tbd |
| Highest reported value cell 2 | CPICH_Ec/No_(x+5) | CPICH_Ec/No_(x + 6) | tbd |
| Extreme Conditions | | | |
| Lowest reported value cell2 | CPICH_Ec/No_(x - 8) | CPICH_Ec/No_(x - 8) | tbd |
| Highest reported value cell2 | CPICH_Ec/No_(x + 8) | CPICH_Ec/No_(x + 8) | tbd |
| CPICH_Ec/No_x is the reporte | d value of cell 1 | · · · · | |

| | | | | (| CHAN | IGE | REQ | UE | ST | • | | | | CR-F | Form-v7 |
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| Reason | for chang | ge: ૠ | The | Test re | quiremer | nts do | not allo | w for | the e | effects of | test s | ysten | n uncert | aintie | es |
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| Consequence not appr | uences if roved: | Ж | АТе | st syst | em may i | incorre | ectly fail | a god | od UI | E. | | | | | |
| Clauses | affected: | \mathfrak{H} | 8.3.2 | 2.2 and | Annex F | | | | | | | | | | |
| Other sp | oecs | X | Y N | Other | core spe specificat Specifica | ecifications | tions | æ | | | | | | | |
| Other co | omments: | ¥ | New | section | n in TR 3 | 4.902 | to cove | r this | test | | | | | | |

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

- 1) Fill out the above form. The symbols above marked # contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be

- downloaded from the 3GPP server under $\underline{\text{ftp://ftp.3gpp.org/specs/}}$. For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

8.3.2 FDD/FDD Hard Handover

8.3.2.2 FDD/FDD Hard Handover to inter-frequency cell

8.3.2.2.1 Definition and applicability

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

The requirements and this test apply to the FDD UE.

8.3.2.2.2 Minimum requirement

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

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

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

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

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

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

The phase reference is the primary CPICH.

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

8.3.2.2.3 Test purpose

To verify that the UE meets the minimum requirement.

8.3.2.2.4 Method of test

8.3.2.2.4.1 Initial conditions

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

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

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

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

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

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

| Para | Parameter Unit V | | Value | Comment |
|---------------------------|------------------|------|---|--|
| DCH param | eters | | DL and UL Reference Measurement Channel 12.2 kbps | As specified in clause C.3.1 and C.2.1 |
| Power Cont | rol | | On | |
| Target quali | ty value on | BLER | 0.01 | |
| Compressed | d mode | | A.22 set 1 | As specified in TS 34.121 clause C.5. |
| Initial | Active cell | | Cell 1 | |
| conditions | Neighbour cell | | Cell 2 | |
| Final conditions | Active cell | | Cell 2 | |
| Threshold n frequency | on used | dB | -18 | Absolute Ec/I0 threshold for event 2C |
| Reporting ra | inge | dB | 4 | Applicable for event 1A |
| Hysteresis | | dB | 0 | |
| W | | | 1 | Applicable for event 1A |
| W non-used | frequency | | 1 | Applicable for event 2C |
| Reporting de threshold | eactivation | | 0 | Applicable for event 1A |
| Time to Trig | ger | ms | 0 | |
| Filter coeffic | ient | | 0 | |
| T1 | | S | 5 | |
| T2 | | S | 10 | |
| T3 | | S | 5 | |

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

| Parameter | Unit | Cell 1 | | | | Cell 2 | |
|---------------------------------------|------------|-------------------|--------------|-------|-----------|--------------|--------------|
| | Ī | T1 | T2 | T3 | T1 | T2 | T3 |
| UTRA RF Channel | | | Channel 1 | | | Channel 2 | |
| Number | | | | | | | |
| CPICH_Ec/lor | dB | | -10 | | | -10 | |
| PCCPCH_Ec/lor | dB | | -12 | | | -12 | |
| SCH_Ec/lor | dB | | -12 | | | -12 | |
| PICH_Ec/lor | dB | -15 | | | | -15 | |
| DPCH_Ec/lor | dB | Note1 | Note1 | Note3 | N/A | N/A | Note1 |
| OCNS | | Note2 | Note2 | Note2 | -0.941 | -0.941 | Note2 |
| \hat{I}_{or}/I_{oc} | dB | | 0 | | -Infinity | -1.8 | -1.8 |
| $\hat{\underline{I}}_{or\ (Note\ 4)}$ | <u>dBm</u> | | <u>-70.0</u> | | -Infinity | <u>-71.8</u> | <u>-71.8</u> |
| I_{oc} | dBm/ | | | - | 70 | | |
| oc | 3.84 | | | | | | |
| | MHz | | | | | | |
| CPICH_Ec/lo | dB | -13 -Infinity -14 | | | | | 14 |
| Propagation Condition | | | | AW | /GN | | |

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

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

Note 3: The DPCH may not be power controlled by the power control loop.

Note 4: The nominal Îor values, although not explicitly defined in 25.133 are added here since they are implied and need to be identified so that the test equipment can be configured.

8.3.2.2.4.2 Procedure

- 1) The RF parameters are set up according to T1 in table 8.3.2.2.3.
- 2) The UE is switched on.
- 3) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.4 with Compressed mode parameters as in Table 8.3.2.2.1.

- 4) SS shall transmit a MEASUREMENT CONTROL messages.
- 5) 5 seconds after step_4 has completed, the SS shall switch the power settings from T1 to T2 in table 8.3.2.2.3.
- 6) UE shall transmit a MEASUREMENT REPORT message triggered by event 2C
- 7) SS shall transmit a PHYSICAL CHANNEL RECONFIGURATION message with activation time "now". SS shall transmit the whole message such that will be is available at the UE no later than a period equals to the RRC procedure delay (= 80 ms) prior to the beginning of T3.
- 8) After 10 seconds from the beginning of time period T2, the SS shall switch the power settings from T2 to T3 in table 8.3.2.2.3.
- 9) UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the UL DCCH of cell 2. If the UE transmits the UL DPCCH to cell 2 less than 140 ms from the beginning of time period T3 then the number of successful tests is increased by one.
- 10) After 5 seconds from the beginning of time period T3, the UE is switched off. Any timing information of cell 2 is deleted in the UE.
- 11) Repeat step 1-10 [TBD] times

Specific Message Contents

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

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

| Information Element/Group name | Value/Remark |
|---|---|
| Message Type (10.2.17) | |
| UE information elements | |
| -RRC transaction identifier | 0 |
| -Integrity check info | Not Present |
| Measurement Information elements | |
| -Measurement Identity | 2 |
| -Measurement Command (10.3.7.46) | Setup |
| -Measurement Reporting Mode (10.3.7.49) | AM RLC |
| -Measurement Report Transfer Mode -Periodical Reporting / Event Trigger Reporting Mode | Event trigger |
| -Additional measurements list (10.3.7.1) | Not Present |
| -CHOICE Measurement type | Inter-frequency measurement |
| -Inter-frequency measurement (10.3.7.16) | miler mequency measurement |
| -Inter-frequency measurement objects list (10.3.7.13) | |
| - CHOICE Inter-frequency cell removal | Not Present |
| - New Inter frequency cells | |
| - Inter frequency cell id | 0 |
| - Frequency info | |
| - CHOICE mode | FDD |
| - UARFCN uplink(Nu) | Not Present |
| - UARFCN downlink(Nd) | Same frequency as "Channel2" in Table |
| Callinfo | 8.3.2.2.2 |
| - Cell info - Cell individual offset | Not Present |
| - Reference time difference to cell | Not Present |
| - Read SFN indicator | TRUE |
| - CHOICE mode | FDD |
| - Primary CPICH info | |
| - Primary scrambling code | Set to Primary scrambling code of Cell2 |
| - Primary CPICH Tx Power | Set to Primary CPICH Tx Power of Cell2 |
| • | described in Table 8.3.2.2.2 |
| - Tx Diversity Indicator | FALSE |
| - Cell Selection and Re-selection info | Set to Cell Selection and Re-selection info |
| | of Cell2 |
| - Cell for measurement | Not Present |
| -Inter-frequency measurement quantity (10.3.7.18) | lates from a conservation or exites in |
| -CHOICE reporting criteria -Inter-frequency reporting criteria | Inter-frequency reporting criteria |
| -Filter coefficient | 0 |
| -CHOICE mode | FDD |
| -Measurement quantity for frequency quality estimate | CPICH Ec/N0 |
| -Inter-frequency reporting quantity (10.3.7.21) | 01101120110 |
| -UTRA Carrier RSSI | FALSE |
| -Frequency quality estimate | FALSE |
| -Non frequency related cell reporting quantities (10.3.7.5) | |
| -SFN-SFN observed time difference reporting indicator | Type 1 |
| -Cell synchronisation information reporting indicator | TRUE |
| -Cell Identity reporting indicator | TRUE |
| -CHOICE mode | FDD |
| -CPICH Ec/N0 reporting indicator | TRUE |
| -CPICH RSCP reporting indicator | TRUE TRUE |
| -Pathloss reporting indicator -Reporting cell status (10.3.7.61) | INUE |
| -Reporting cell status (10.3.7.61) -CHOICE reported cell | Report cells within monitored set on non- |
| On TOTOL TOPOLICA GOII | used frequency |
| -Maximum number of reported cells per reported non-used | 1 |
| frequency | |
| -Measurement validity (10.3.7.51) | Not Present |
| -Inter-frequency set update (10.3.7.22) | Not Present |
| -CHOICE report criteria | Inter-frequency measurement reporting |
| | criteria |
| -Inter-frequency measurement reporting criteria (10.3.7.19) | _ |
| -Parameters required for each event | 1 |
| -Inter-frequency event identity (10.3.7.14) | Event 2C |
| -Threshold used frequency | Not Present |

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

PHYSICAL CHANNEL RECONFIGURATION message (step 7):

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

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

MEASUREMENT REPORT message for Inter frequency test cases

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

8.3.2.2.5 Test requirements

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

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

| <u>Parameter</u> | <u>Unit</u> | | <u>Cell 1</u> | | | Cell 2 | | |
|--|-------------|---|-------------------|------------------|------------------|--------------|--------------|--|
| | | <u>T1 </u> | | | <u>T1</u> | <u>T2</u> | <u>T3</u> | |
| UTRA RF Channel | | | Channel 1 | | | Channel 2 | | |
| <u>Number</u> | | | | | | | | |
| CPICH_Ec/lor | <u>dB</u> | | <u>-9.2</u> | | | <u>-9.2</u> | | |
| PCCPCH_Ec/lor | <u>dB</u> | | <u>-11.2</u> | | | <u>-11.2</u> | | |
| SCH_Ec/lor | <u>dB</u> | | <u>-11.2</u> | | | <u>-11.2</u> | | |
| PICH_Ec/lor | <u>dB</u> | | <u>-14.2</u> | | | <u>-14.2</u> | | |
| DPCH_Ec/lor | <u>dB</u> | Note1 | Note1 | Note3 | <u>N/A</u> | <u>N/A</u> | Note1 | |
| <u>OCNS</u> | | Note2 | Note2 | Note2 | <u>-1.16</u> | <u>-1.16</u> | Note2 | |
| \hat{I}_{or}/I_{oc} (Note 4) | <u>dB</u> | | <u>0</u> | | <u>-Infinity</u> | <u>-1.8</u> | <u>-1.8</u> | |
| $\hat{\underline{I}}_{or}$ | <u>dBm</u> | <u>-70.0</u> <u>-Infinity</u> <u>-71.8</u> | | | | <u>-71.8</u> | <u>-71.8</u> | |
| I_{oc} | dBm/ | | | <u>-7</u> | <u>70</u> | | | |
| | 3.84 | | | | | | | |
| | <u>MHz</u> | | | | | | | |
| CPICH_Ec/lo | <u>dB</u> | | <u>-12.2</u> | | <u>-Infinity</u> | <u>-13</u> | <u>.2</u> | |
| (Note 4) | | | | | | | | |
| Propagation | | AWGN | | | | | | |
| Condition | | | | | | | | |
| Note 1: The DPC | H level is | controlled by th | ne power control | loop | | | | |
| Note 2: The power of the OCNS channel that is added shall make the total power from the cell to be equal to I_{or} | | | | | | | | |
| Note 3: The DPC | H may no | t be power con | trolled by the po | wer control loop | <u>).</u> | | | |

Note:

Note 4:

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.

These parameters are not directly settable, but are derived by calculation from the settable parameters

Annex F (normative): General test conditions and declarations

The requirements of this clause apply to all applicable tests in the present document.

Many of the tests in the present document measure a parameter relative to a value that is not fully specified in the UE specifications. For these tests, the Minimum Requirement is determined relative to a nominal value specified by the manufacturer.

When specified in a test, the manufacturer shall declare the nominal value of a parameter, or whether an option is supported.

In all the relevant clauses in this clause all Bit Error Ratio (BER), Block Error Ratio (BLER), False transmit format Detection Ratio (FDR) measurements shall be carried out according to the general rules for statistical testing in clause F.6.

F.1 Acceptable uncertainty of Test System

The maximum acceptable uncertainty of the Test System is specified below for each test, where appropriate. The Test System shall enable the stimulus signals in the test case to be adjusted to within the specified range, and the equipment under test to be measured with an uncertainty not exceeding the specified values. All ranges and uncertainties are absolute values, and are valid for a confidence level of 95 %, unless otherwise stated.

A confidence level of 95 % is the measurement uncertainty tolerance interval for a specific measurement that contains 95 % of the performance of a population of test equipment.

For RF tests it should be noted that the uncertainties in clause F.1 apply to the Test System operating into a nominal 50 ohm load and do not include system effects due to mismatch between the DUT and the Test System.

F.1.5 Requirements for support of RRM

Table F.1.5: Maximum Test System Uncertainty for Radio Resource Management Tests

| Clause | Maximum Test System Uncertainty | Derivation of Test System Uncertainty | | | |
|--|--|--|--|--|--|
| 8.3.2 FDD/FDD Hard Handover | TBD | | | | |
| 8.3.2.1 Handover to intra-frequency cell | | | | | |
| | | T | | | |
| 8.3.2.2 Handover to inter-frequency cell | Channel 1 during T1 and T2 / T3: | | | | |
| | $CPICH _E_c$ +0.1 dB | | | | |
| | $\frac{CPICH _E_c}{I_{or}} = \pm 0.1 \text{ dB}$ | | | | |
| | | | | | |
| | I_{or} (1) ±0.7 dB | | | | |
| | I_{oc} (1) ±1.0 dB | | | | |
| | | | | | |
| | Channel 2 during T1 and T2 / T3: | | | | |
| | I_{oc} (2) ±1.0 dB | | | | |
| | | | | | |
| | Channel 2 during T1: | | | | |
| | Already covered above | | | | |
| | Channel 2 during T2 / T3: | | | | |
| | | | | | |
| | $\frac{CPICH _E_c}{I_{or}} = \frac{\pm 0.1 \text{ dB}}{1}$ | | | | |
| | I_{or} | | | | |
| | I_{or} (2) ±0.7 dB | | | | |
| | | | | | |
| | Assumptions: | | | | |
| | a) The contributing uncertainties for lor(| n), channel power ratio, and | | | |
| | loc are derived according to ETR 273-1- | | | | |
| | factor of k=2. | | | | |
| | b) Within each cell, the uncertainty for lo | or(n) and channel nower | | | |
| | b) Within each cell, the uncertainty for lor(n), and channel power ratio are uncorrelated to each other. | | | | |
| | c) Across different cells, the channel po- | wer ratio uncertainties may | | | |
| | have any amount of positive correlation | | | | |
| | one (fully correlated). | zoro (ancomolatou) to | | | |
| | | nov hove ony amount of | | | |
| | d) The uncertainty for loc(n) and lor(n) repositive correlation from zero (uncorrelation from zero). | | | | |
| | | | | | |
| | e) The absolute uncertainties for lor(1) and lor(2) may have any | | | | |
| | amount of positive correlation from zero (uncorrelated) to one (fully correlated). | | | | |
| | | | | | |
| | f) The absolute uncertainties for loc(1) and loc(2) may have any | | | | |
| | amount of positive correlation from zero (uncorrelated) to one (fully | | | | |
| | correlated). | | | | |
| | An explanation of correlation between uncer | | | | |
| | behind the assumptions, is recorded in 3GP | <u>P TR 34 902 [24].</u> | | | |

F.2 Test Tolerances (This clause is informative)

The Test Tolerances defined in this clause have been used to relax the Minimum Requirements in the present document to derive the Test Requirements.

The Test Tolerances are derived from Test System uncertainties, regulatory requirements and criticality to system performance. As a result, the Test Tolerances may sometimes be set to zero.

The test tolerances should not be modified for any reason e.g. to take account of commonly known test system errors (such as mismatch, cable loss, etc.).

F.2.4 Requirements for support of RRM

Table F.2.4: Test Tolerances for Radio Resource Management Tests

| Clause | Test Tolerance |
|--|---|
| 8.3.2 FDD/FDD Hard Handover | TBD |
| 8.3.2.1 Handover to intra-frequency cell | |
| 8.3.2.2 Handover to inter-frequency cell | Channel 1 during T1 and T2 / T3: +0.80 dB for all Cell 1 Ec/lor ratios Channel 2 during T1: Not applicable |
| | Channel 2 during T2 / T3: +0.80 dB for all Cell 2 Ec/lor ratios |

F.4 Derivation of Test Requirements (This clause is informative)

The Test Requirements in the present document have been calculated by relaxing the Minimum Requirements of the core specification using the Test Tolerances defined in clause F.2. When the Test Tolerance is zero, the Test Requirement will be the same as the Minimum Requirement. When the Test Tolerance is non-zero, the Test Requirements will differ from the Minimum Requirements, and the formula used for this relaxation is given in table F.4.

Table F.4.4: Derivation of Test Requirements (RRM tests)

| Test | Test Parameters in TS 25.133 | Test Tolerance (TT) | Test Requirement in TS 34.121 |
|--|--|--|---|
| 8.3.2 FDD/FDD Hard | TBD | | |
| Handover 8.3.2.1 Handover to intra-frequency cell | | | |
| 8.3.2.2 Handover to inter-frequency cell | - | e to give a simple deriv | uncertainties and the Test Tolerances ation of the Test Requirement in this 902 [24]. |
| | Channel 1 during T1 and T2 / T3: | Channel 1 during T1 and T2 / T3: | Channel 1 during T1 and T2 / T3: |
| | Cell 1: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB | +0.80 dB +0.80 dB +0.80 dB +0.80 dB | Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT |
| | Channel 2 during T1: Not applicable | Channel 2 during T1: Not applicable | Channel 2 during T1: Not applicable |
| | Channel 2 during T2 / T3: Cell 2: CDICH Follow 40 dB | Channel 2 during T2 / T3: | Channel 2 during T2 / T3: |
| | CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB | +0.80 dB +0.80 dB +0.80 dB +0.80 dB | Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT |

| | | | (| CHANG | GE R | EQ | UE | ST | | | | | CR-Form-v/ |
|-------------------------------|-------------|---|---|--|----------------------------------|-----------------------------|------------------------|-----------------|------------------------------------|---|---|----------|------------|
| * | 34 | .121 | CR | 345 | жr | rev | - | ¥ | Current | versio | n: 5 | .2.0 | ¥ |
| For <u>HELP</u> on | using | this fo | rm, see | bottom of | f this pa | ge or I | ook | at the | е рор-ир | text o | ver the | e ₩ syr | nbols. |
| Proposed change | e affec | ts: | UICC a | pps# | N | ΛΕ <mark>✓</mark> | Rac | dio A | ccess Ne | etwork | <u> </u> | Core Ne | etwork |
| Title: | | oducti t 8.3.2 | | est Tolera | nces to | FDD/F | -DD | Hard | d Handov | er to in | ntra-fr | equenc | cy cell, |
| Source: | ∺ Ra | cal Ins | trumen | ts Wireles | s Soluti | ons | | | | | | | |
| Work item code: | ¥ | | | | | | | | Date | e: Ж | 26/01/ | 2004 | |
| Category: | Deta | F (cor A (cor B (add C (fur D (edi iled ex | rection) rrespond dition of actional i itorial m planatio | ds to a correfeature), modification) ns of the above. | ection in | ıre) | | elease | 2 | n <u>e</u> of the (0 6 (F 7 (F 8 (F 9 (F -4 (F -5 (F | GSM Pi Release Release Release | e 5) | eases: |
| Reason for chang | ge: Ж | The | Test re | quirement | ts do no | t allow | for t | the e | ffects of | test sy | stem (| uncerta | inties |
| Summary of char | nge: Ж | b) R c) R d) R | evision evision evision | ion of table of table 8 of Annex of Annex of Annex | .3.2.1.2 F.1.5 ta F.2 tabl | giving ble F.1 e F2.4 | corr 1.5 to to d | ect Food define | RF condti ine Test e Test To | ions fo Systen Ieranc | r test n Unc es | ertainty | |
| Consequences if not approved: | * | АТє | est syst | em may in | correctl | y fail a | goo | d UE | Ξ. | | | | |
| Clauses affected: | : # | 8.3.1 | 1.2 and | Annex F | | | | | | | | | |
| Other specs affected: | ж | YN | Other Test | core spec specification Specificat | ons | าร | # | | | | | | |
| Other comments: | : ¥ | New | section | n in TR 34 | .902 to | cover | this t | test | | | | | |

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

- 1) Fill out the above form. The symbols above marked # contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be

- downloaded from the 3GPP server under $\underline{\text{ftp://ftp.3gpp.org/specs/}}$. For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

8.3.2 FDD/FDD Hard Handover

8.3.2.1 FDD/FDD Hard Handover to intra-frequency cell

8.3.2.1.1 Definition and applicability

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

The requirements and this test apply to the FDD UE.

8.3.2.1.2 Minimum requirement

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

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

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

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

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

where

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

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

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

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

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

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

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

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

8.3.2.1.3 Test purpose

To verify that the UE meets the minimum requirement.

8.3.2.1.4 Method of test

8.3.2.1.4.1 Initial conditions

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

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

The test parameters are given in tables 8.3.2.1.1 to and 8.3.2.1.32 below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 1A and 1B shall be used, and that CPICH Ec/Io and SFN-CFN observed timed difference shall be reported together with Event 1A. The test consists of three successive time periods, with a time duration of T1, T2 and T3 respectively. At the start of time duration T1, the UE may not have any timing information of cell 2.

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

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

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

| Para | Parameter Unit | | Parameter Unit Value | | Value | Comment |
|----------------------------------|-----------------------|------|-------------------------------|--|-------|---------|
| DCH parameters | | | DL and UL Reference | As specified in clause C.3.1 and C.2.1 | | |
| - | | | Measurement Channel 12.2 kbps | | | |
| Power Contro | ol | | On | | | |
| Target quality | y value on | BLER | 0.01 | | | |
| Initial | Active cell | | Cell 1 | | | |
| conditions | Neighbourin g cell | | Cell 2 | | | |
| Final condition | Active cell | | Cell 2 | | | |
| Reporting rar | nge | dB | 3 | Applicable for event 1A and 1B | | |
| Hysteresis | | dB | 0 | | | |
| W | | | 1 | Applicable for event 1A and 1B | | |
| Reporting deactivation threshold | | | 0 | Applicable for event 1A | | |
| Time to Trigger ms | | ms | 0 | | | |
| Filter coefficient | | | 0 | | | |
| T1 | | S | 5 | | | |
| T2 | | S | 5 | · | | |
| T3 | | S | 5 | | | |

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

| Parameter | Unit | Cell 1 | | | | Cell 2 | |
|---------------------------------------|---------------------|---------------|-------------|-------------|-----------|------------|-------|
| | | T1 | T2 | T3 | T1 | T2 | T3 |
| CPICH_Ec/lor | dB | | -10 | | | -10 | |
| PCCPCH_Ec/lor | dB | | -12 | | | -12 | |
| SCH_Ec/lor | dB | | -12 | | | -12 | |
| PICH_Ec/lor | dB | | -15 | | | -15 | |
| DPCH_Ec/lor | dB | Note1 | Note1 Note3 | | N/A | N/A | Note1 |
| OCNS | | Note2 | Note2 | Note2 | -0.941 | -0.941 | Note2 |
| \hat{I}_{or}/I_{oc} | dB | 0 | 6. | 97 | -Infinity | 5.97 | |
| $\hat{\underline{I}}_{or\ (Note\ 4)}$ | <u>dBm</u> | <u>-70.00</u> | <u>-63</u> | <u>3.03</u> | -Infinity | <u>-64</u> | .03 |
| I_{oc} | dBm/ 3.84 MHz | -70 | | | | | |
| CPICH_Ec/lo | dB | -13 | | | -Infinity | -1 | 4 |
| Propagation Condition | | AWGN | | | | | |

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

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

Note 3: The DPCH may not be power controlled by the power control loop.

Note 4: The nominal Îor values, although not explicitly defined in 25.133 are added here since they are implied and need to be identified so that the test equipment can be configured.

8.3.2.1.4.2 Procedure

- 1) The RF parameters are set up according to T1 in table 8.3.2.1.3.
- 2) The UE is switched on.
- 3) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.4.
- 4) SS shall transmit a MEASUREMENT CONTROL message.
- 5) 5 seconds after step_4 has completed, the SS shall switch the power settings from T1 to T2 in table 8.3.2.1.3.
- 6) UE shall transmit a MEASUREMENT REPORT message triggered by event 1A
- 7) SS shall transmit a PHYSICAL CHANNEL RECONFIGURATION message with activation time set to "now". SS shall transmit the whole message such that it will be available at the UE no later than a period equals to the RRC procedure delay (= 80 ms) prior to the beginning of T3.
- 8) After 5 seconds from the beginning of time period T2, the SS shall switch the power settings from T2 to T3 in table 8.3.2.1.3.
- 9) UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the UL DCCH of cell 2. If the UE transmits the UL DPCCH to cell 2 less than 110 ms from the beginning of time period T3 then the number of successful tests is increased by one.
- 10) After 5 seconds from the beginning of time period T3, the UE is switched off. Any timing information of cell 2 is deleted in the UE.
- 11) Repeat step 1-10 [TBD] times

Specific Message Contents

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

MEASUREMENT CONTROL message (step 4):

| Information Element/Group name | Value/Remark |
|---|--|
| Message Type (10.2.17) | raidomentara |
| UE information elements | |
| -RRC transaction identifier | 0 |
| -Integrity check info | Not Present |
| Measurement Information elements | |
| -Measurement Identity | 1 |
| -Measurement Command (10.3.7.46) | Modify |
| -Measurement Reporting Mode (10.3.7.49) | AMBLO |
| -Measurement Report Transfer Mode | AM RLC |
| -Periodical Reporting / Event Trigger Reporting Mode -Additional measurements list (10.3.7.1) | Event trigger Not Present |
| -CHOICE Measurement type | Intra-frequency measurement |
| -Intra-frequency measurement (10.3.7.36) | milia frequency measurement |
| -Intra-frequency measurement objects list (10.3.7.33) | Not Present |
| -Intra-frequency measurement quantity (10.3.7.38) | |
| -Filter coefficient (10.3.7.9) | 0 |
| -CHOICE mode | FDD |
| -Measurement quantity | CPICH_Ec/N0 |
| -Intra-frequency reporting quantity (10.3.7.41) | |
| -Reporting quantities for active set cells (10.3.7.5) | No report |
| -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator | No report TRUE (Note 1) |
| -Cell Identity reporting indicator | TRUE |
| -CHOICE mode | FDD |
| -CPICH Ec/N0 reporting indicator | TRUE |
| -CPICH RSCP reporting indicator | TRUE |
| -Pathloss reporting indicator | TRUE |
| -Reporting quantities for monitored set cells (10.3.7.5) | |
| -SFN-SFN observed time difference reporting indicator | No report |
| -Cell synchronisation information reporting indicator | TRUE (Note 1) |
| -Cell Identity reporting indicator | TRUE FDD |
| -CHOICE mode -CPICH Ec/N0 reporting indicator | TRUE |
| -CPICH RSCP reporting indicator | TRUE |
| -Pathloss reporting indicator | TRUE |
| -Reporting quantities for detected set cells (10.3.7.5) | Not Present |
| -Reporting cell status (10.3.7.61) | Not Present |
| -Measurement validity (10.3.7.51) | Not Present |
| -CHOICE report criteria | Intra-frequency measurement reporting |
| 1 | criteria |
| -Intra-frequency measurement reporting criteria (10.3.7.39) | |
| -Parameters required for each event -Intra-frequency event identity | 2 Event 1A |
| -Triggering condition 2 | Active set cells and monitored set cells |
| -Reporting Range Constant | 3 dB |
| -Cells forbidden to affect Reporting Range | Not Present |
| -W | 1.0 |
| -Hysteresis | 0 dB |
| -Threshold used frequency | Not Present |
| -Reporting deactivation threshold | 0 |
| -Replacement activation threshold | Not Present |
| -Time to trigger -Amount of reporting | 0 ms Infinity |
| -Amount of reporting -Reporting interval | 0 ms (Note 2) |
| -Reporting interval -Reporting cell status | Not Present |
| -Intra-frequency event identity | Event 1B |
| -Triggering condition 1 | Active set cells and monitored set cells |
| -Reporting Range Constant | 3 dB |
| -Cells forbidden to affect Reporting Range | Not Present |
| -W | 1.0 |
| -Hysteresis | 0 dB |
| -Threshold used frequency | Not Present |
| -Reporting deactivation threshold -Replacement activation threshold | Not Present Not Present |
| -Time to trigger | 0 ms |
| I mile to trigger | 1 0 1110 |

| | Information Element/Group name | Value/Remark | | | | |
|----------|---|--------------|--|--|--|--|
| -Amou | nt of reporting | Not Present | | | | |
| -Repor | rting interval | Not Present | | | | |
| | rting cell status | Not Present | | | | |
| Physical | channel information elements | | | | | |
| -DPCH co | -DPCH compressed mode status info (10.3.6.34) Not Present | | | | | |
| Note 1: | 1: The SFN-CFN observed time difference is calculated from the OFF and Tm parameters contained | | | | | |
| | in the IE "Cell synchronisation information ", TS 25.331, clause 10.3.7.6. According to TS 25.33 | | | | | |
| | 8.6.7.7, this IE is included in MEASUREMENT REPORT if IE "Cell synchronisation information | | | | | |
| | reporting indicator" in IE "Cell reporting quantities" TS 25.331, clause 10.3.7.5 is set to TRUE in | | | | | |
| | MEASUREMENT CONTROL. | | | | | |
| Note 2: | Reporting interval = 0 ms means no periodical reporting | ng | | | | |

PHYSICAL CHANNEL RECONFIGURATION message (step 7):

| Information Element | Value/Remark |
|--|---|
| Message Type | |
| UE Information Elements | |
| -RRC transaction identifier | 0 |
| -Integrity check info | Not Present |
| -Integrity protection mode info | Not Present |
| -Ciphering mode info | Not Present |
| -Activation time | "now" |
| -New U-RNTI | Not Present |
| -New C-RNTI | Not Present |
| -RRC State Indicator | CELL_DCH |
| -UTRAN DRX cycle length coefficient | Not Present |
| CN Information Elements | |
| -CN Information info | Not Present |
| UTRAN mobility information elements | |
| -URA identity | Not Present |
| RB information elements | |
| -Downlink counter synchronisation info | Not Present |
| PhyCH information elements | |
| -Frequency info (10.3.6.36) | 500 |
| -CHOICE mode | FDD |
| -UARFCN uplink(Nu) | Same uplink UARFCN as used for cell 2 |
| -UARFCN downlink(Nd) | Same downlink UARFCN as used for cell 2 |
| Uplink radio resources | 22 dD |
| -Maximum allowed UL TX power | 33 dBm |
| -CHOICE channel requirement | Uplink DPCH info |
| -Uplink DPCH info (10.3.6.88) | |
| -Uplink DPCH power control info (10.3.6.91) | EDD |
| -CHOICE mode | FDD -6dB |
| -DPCCH power offset - PC Preamble | 1 frame |
| - PC Pleamble - SRB delay | 7 frames |
| - Power Control Algorithm | Algorithm1 |
| - TPC step size | 1dB |
| -CHOICE mode | FDD |
| -Scrambling code type | Long |
| -Scrambling code number | 0 (0 to 16777215) |
| -Number of DPDCH | Not Present(1) |
| -Spreading factor | 64 |
| -TFCI existence | TRUE |
| -Number of FBI bit | Not Present(0) |
| -Puncturing Limit | TBD |
| Downlink radio resources | |
| -CHOICE mode | FDD |
| -Downlink PDSCH information | Not Present |
| -Downlink information common for all radio links (10.3.6.24) | |
| -Downlink DPCH info common for all RL (10.3.6.18) | |
| -Timing indicator | Initialise |
| -CFN-targetSFN frame offset | Not Present |
| -Downlink DPCH power control information (10.3.6.23) | |
| -DPC mode | 0 (single) |
| -CHOICE mode | FDD |
| -Power offset Ppilot-DPDCH | TBD |
| -DL rate matching restriction information | Not Present |
| -Spreading factor | 128 |
| -Fixed or Flexible Position | Fixed |
| -TFCI existence | TRUE |
| -CHOICE SF | 128 |
| -Number of bits for Pilot bits(SF=128,256) | 8 |
| -CHOICE mode | FDD |
| -DPCH compressed mode info (10.3.6.33) | Not Present |
| -TX Diversity mode (10.3.6.86) | None |
| -SSDT information (10.3.6.77) | Not Present |
| -Default DPCH Offset Value (10.3.6.16) | 0 |
| -Downlink information per radio link list | 1 |
| -Downlink information for each radio link (10.3.6.27) | |

| Information Element | Value/Remark |
|--|---------------------------|
| -CHOICE mode | FDD |
| -Primary CPICH info (10.3.6.60) | |
| -Primary scrambling code | 350 |
| -PDSCH with SHO DCH info (10.3.6.47) | Not Present |
| -PDSCH code mapping (10.3.6.43) | Not Present |
| -Downlink DPCH info for each RL (10.3.6.21) | |
| -CHOICE mode | FDD |
| -Primary CPICH usage for channel estimation | Primary CPICH may be used |
| -DPCH frame offset | 0 chips |
| -Secondary CPICH info | Not Present |
| -DL channelisation code | |
| -Secondary scrambling code | 1 |
| -Spreading factor | 128 |
| -Code number | 0 |
| -Scrambling code change | No change |
| -TPC combination index | 0 |
| - SSDT Cell Identity | Not Present |
| Closed loop timing adjustment mode | Not Present |
| - SCCPCH information for FACH (10.3.6.70) | Not Present |

MEASUREMENT REPORT message for Intra frequency test cases

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

The DPCH may not be power controlled by the power control loop.

8.3.2.1.5 Test requirements

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

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

| <u>Parameter</u> | <u>Unit</u> | Cell 1 | | | Cell 2 | | | | |
|--------------------------------|---------------------|--|-----------------|------------|------------------|--------------|------------|--|--|
| | | <u>T1</u> | <u>T2</u> | <u>T3</u> | <u>T1</u> | <u>T2</u> | <u>T3</u> | | |
| CPICH Ec/lor | <u>dB</u> | -9.3 | | | -9. <u>3</u> | | | | |
| PCCPCH Ec/lor | <u>dB</u> | | <u>-11.3</u> | | <u>-11.3</u> | | | | |
| SCH_Ec/lor | <u>dB</u> | | <u>-11.3</u> | | <u>-11.3</u> | | | | |
| PICH_Ec/lor | <u>dB</u> | | <u>-14.3</u> | | | <u>-14.3</u> | | | |
| DPCH_Ec/lor | <u>dB</u> | Note1 | Note1 | Note3 | <u>N/A</u> | <u>N/A</u> | Note1 | | |
| <u>OCNS</u> | | Note2 | Note2 | Note2 | <u>-1.13</u> | <u>-1.13</u> | Note2 | | |
| \hat{I}_{or}/I_{oc} (Note 4) | <u>dB</u> | <u>0</u> | 7 | <u>'.0</u> | <u>-Infinity</u> | <u>6.0</u> | | | |
| $\hat{\underline{I}}_{or}$ | <u>dBm</u> | <u>-70.0</u> | <u>-6</u> | 3.0 | -Infinity | <u>-64.0</u> | | | |
| I_{oc} | dBm/ 3.84 MHz | | | Ĕ | <u>70</u> | | | | |
| CPICH Ec/lo (Note 4) | <u>dB</u> | <u>-12.3</u> <u>-Infinity</u> <u>-13.3</u> | | | | | <u>3.3</u> | | |
| Propagation Condition | | <u>AWGN</u> | | | | | | | |
| | | | ne power contro | | al power from th | | 14-1 | | |

Note:

Note 3:

Note 4:

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.

These parameters are not directly settable, but are derived by calculation from the settable parameters

Annex F (normative): General test conditions and declarations

The requirements of this clause apply to all applicable tests in the present document.

Many of the tests in the present document measure a parameter relative to a value that is not fully specified in the UE specifications. For these tests, the Minimum Requirement is determined relative to a nominal value specified by the manufacturer.

When specified in a test, the manufacturer shall declare the nominal value of a parameter, or whether an option is supported.

In all the relevant clauses in this clause all Bit Error Ratio (BER), Block Error Ratio (BLER), False transmit format Detection Ratio (FDR) measurements shall be carried out according to the general rules for statistical testing in clause F.6.

F.1 Acceptable uncertainty of Test System

The maximum acceptable uncertainty of the Test System is specified below for each test, where appropriate. The Test System shall enable the stimulus signals in the test case to be adjusted to within the specified range, and the equipment under test to be measured with an uncertainty not exceeding the specified values. All ranges and uncertainties are absolute values, and are valid for a confidence level of 95 %, unless otherwise stated.

A confidence level of 95 % is the measurement uncertainty tolerance interval for a specific measurement that contains 95 % of the performance of a population of test equipment.

For RF tests it should be noted that the uncertainties in clause F.1 apply to the Test System operating into a nominal 50 ohm load and do not include system effects due to mismatch between the DUT and the Test System.

F.1.5 Requirements for support of RRM

Table F.1.5: Maximum Test System Uncertainty for Radio Resource Management Tests

| Clause | Maximum Test System Uncertainty | Derivation of Test System Uncertainty |
|--|---|--|
| 8.3.2 FDD/FDD Hard Handover | TBD | |
| 8.3.2 FDD/FDD Hard Handover 8.3.2.1 Handover to intra-frequency cell | During T1 and T2 / T3: $\frac{CPICH _E_c}{I_{or}} = \pm 0.1 \text{ dB}$ $\frac{I_{or}}{I_{or}} = 1.0 \text{ dB}$ During T1: Already covered above During T2 / T3: $\frac{I_{or}}{I_{or}} = 1.0 \text{ dB}$ Assumptions: a) The contributing uncertainties for lor(1 loc are derived according to ETR 273-1-factor of k=2. b) Within each cell, the uncertainty for loratio are uncorrelated to each other. c) Across different cells, the channel powhave any amount of positive correlation one (fully correlated). d) The uncertainty for loc and lor(n) may positive correlation from zero (uncorrelated). e) The absolute uncertainty of lor(1) and lor(2), are uncorrelated to each other. | n), channel power ratio, and 2 [16], with a coverage or(n), and channel power wer ratio uncertainties may from zero (uncorrelated) to have any amount of ted) to one (fully correlated). |
| | An explanation of correlation between uncert | tainties, and of the rationals |
| | behind the assumptions, is recorded in 3GPI | |
| 8.3.2.2 Handover to inter-frequency cell | | |

F.2 Test Tolerances (This clause is informative)

The Test Tolerances defined in this clause have been used to relax the Minimum Requirements in the present document to derive the Test Requirements.

The Test Tolerances are derived from Test System uncertainties, regulatory requirements and criticality to system performance. As a result, the Test Tolerances may sometimes be set to zero.

The test tolerances should not be modified for any reason e.g. to take account of commonly known test system errors (such as mismatch, cable loss, etc.).

F.2.4 Requirements for support of RRM

Table F.2.4: Test Tolerances for Radio Resource Management Tests

| Clause | Test Tolerance |
|--|---|
| 8.3.2 FDD/FDD Hard Handover | TBD |
| 8.3.2.1 Handover to intra-frequency cell | During T1 and T2 / T3: +0.70 dB for all Cell 1 Ec/lor ratios During T1: Already covered above |
| | During T2 / T3: +0.70 dB for all Cell 2 Ec/lor ratios |
| 8.3.2.2 Handover to inter-frequency cell | |

F.4 Derivation of Test Requirements (This clause is informative)

The Test Requirements in the present document have been calculated by relaxing the Minimum Requirements of the core specification using the Test Tolerances defined in clause F.2. When the Test Tolerance is zero, the Test Requirement will be the same as the Minimum Requirement. When the Test Tolerance is non-zero, the Test Requirements will differ from the Minimum Requirements, and the formula used for this relaxation is given in table F.4.

Table F.4.4: Derivation of Test Requirements (RRM tests)

| Test | Test Parameters in TS 25.133 | Test Tolerance (TT) | Test Requirement in TS 34.121 |
|--|--|--|--|
| 8.3.2 FDD/FDD Hard Handover | TBD | | |
| 8.3.2.1 Handover to intra-frequency cell | Because the relationships between the Test system are complex, it is not possible to give a simple deriva document. The analysis is recorded in 3GPP TR 34 | | ation of the Test Requirement in this |
| | During T1 and T2 / T3: Cell 1: | <u>During T1 / T2 / T3:</u> | During T1 and T2 / T3: |
| | CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB | +0.70 dB +0.70 dB +0.70 dB +0.70 dB | Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT |
| | During T1: | During T1: | During T1: |
| | Already covered above | Covered above | Already covered above |
| | During T2 / T3: | During T2 / T3: | During T2 / T3: |
| | Cell 2: CPICH Ec/lor = -10 dB PCCPCH Ec/lor = -12 dB SCH Ec/lor = -12 dB PICH Ec/lor = -15 dB | +0.70 dB +0.70 dB +0.70 dB +0.70 dB | Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT Ec/lor ratio + TT |
| 8.3.2.2 Handover to inter-frequency cell | | | |

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| | | | C | HANG | E REQ | UE | ST | | | | CR-Form-v7 |
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| Reason for ch | nange: 米 | PHYS resou the U Down | SICAL (lrces - l L referentink rad | CHANNEL Puncturing ence meas dio resource | RECONFICE Limit is set urement ches - Power | SURA to the annel offset | TION valu 12.2 P _{Pilo} | Handover test N message. The "1" (no pur Las defined in the set of | he Uplir ncturing) n Annex to the va | nk radio accoro C2.1. alue "0" | ding to The ' (no |
| Summary of c | hange: ૠ | | | arameters | for FDD/FD | DD Ha | rd H | andover test | cases as | s follow | /s: |
| | | 8.3.2.1 | | | | | | | | | |
| | | | | | ECONFIGUTE TECNION TO THE LEGISTE TO THE LEGIST THE LEG | | ON 1 | message: Uplir | ık radio r | esource | es - |

PHYSICAL CHANNEL RECONFIGURATION message: Uplink radio resources - Puncturing Limit is set to the value "1"

PHYSICAL CHANNEL RECONFIGURATION message: Downlink radio resources -

PHYSICAL CHANNEL RECONFIGURATION message: Downlink radio resources -

Power offset P_{Pilot-DPDCH} is set to the value "0"

Power offset $P_{\text{Pilot-DPDCH}}$ is set to the value "0"

Consequences if not approved:

置 Test cases will not be fully defined.

Clauses affected: # 8.3.2.1.4.2, 8.3.2.2.4.2

8.3.2.2.4.2:

| Other specs affected: | ¥ | X | Other core specifications # Test specifications O&M Specifications |
|-----------------------|-----|------|--|
| Other comments: | ₩ 7 | This | CR is applicable for UE's supporting Rel-99 or later. |

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

8.3.2.1.4.2 Procedure

- 1) The RF parameters are set up according to T1.
- 2) The UE is switched on.
- 3) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.4.
- 4) SS shall transmit a MEASUREMENT CONTROL message.
- 5) 5 seconds after step4 has completed, the SS shall switch the power settings from T1 to T2
- 6) UE shall transmit a MEASUREMENT REPORT message triggered by event 1A
- 7) SS shall transmit a PHYSICAL CHANNEL RECONFIGURATION message with activation time set to "now". SS shall transmit the whole message such that it will be available at the UE no later than a period equals to the RRC procedure delay (= 80 ms) prior to the beginning of T3.
- 8) After 5 seconds from the beginning of time period T2, the SS shall switch the power settings from T2 to T3
- 9) UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the UL DCCH of cell 2. If the UE transmits the UL DPCCH to cell 2 less than 110 ms from the beginning of time period T3 then the number of successful tests is increased by one.
- 10) After 5 seconds from the beginning of time period T3, the UE is switched off. Any timing information of cell 2 is deleted in the UE.
- 11) Repeat step 1-10 [TBD] times

Specific Message Contents

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

MEASUREMENT CONTROL message (step 4):

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

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

PHYSICAL CHANNEL RECONFIGURATION message (step 7):

| Information Element | Value/Remark |
|--|---|
| Message Type | |
| UE Information Elements | |
| -RRC transaction identifier | 0 |
| -Integrity check info | Not Present |
| -Integrity protection mode info -Ciphering mode info | Not Present Not Present |
| -Activation time | "now" |
| -New U-RNTI | Not Present |
| -New C-RNTI | Not Present |
| -RRC State Indicator | CELL_DCH |
| -UTRAN DRX cycle length coefficient | Not Present |
| CN Information Elements | |
| -CN Information info | Not Present |
| UTRAN mobility information elements | |
| -URA identity | Not Present |
| RB information elements | |
| -Downlink counter synchronisation info | Not Present |
| PhyCH information elements | |
| -Frequency info (10.3.6.36) -CHOICE mode | FDD |
| -UARFCN uplink(Nu) | Same uplink UARFCN as used for cell 2 |
| -UARFCN downlink(Nd) | Same downlink UARFCN as used for cell 2 |
| Uplink radio resources | 2 377 43 4334 137 431 2 |
| -Maximum allowed UL TX power | 33 dBm |
| -CHOICE channel requirement | Uplink DPCH info |
| -Uplink DPCH info (10.3.6.88) | · |
| -Uplink DPCH power control info (10.3.6.91) | |
| -CHOICE mode | FDD |
| -DPCCH power offset | -6dB |
| - PC Preamble | 1 frame |
| - SRB delay | 7 frames |
| - Power Control Algorithm - TPC step size | Algorithm1 1dB |
| -CHOICE mode | FDD |
| -Scrambling code type | Long |
| -Scrambling code number | 0 (0 to 16777215) |
| -Number of DPDCH | Not Present(1) |
| -Spreading factor | 64 |
| -TFCI existence | TRUE |
| -Number of FBI bit | Not Present(0) |
| -Puncturing Limit | TBD1 |
| Downlink radio resources | FDD |
| -CHOICE mode | FDD Not Present |
| -Downlink PDSCH information -Downlink information common for all radio links (10.3.6.24) | Not Present |
| -Downlink Information common for all RL (10.3.6.18) | |
| -Timing indicator | Initialise |
| -CFN-targetSFN frame offset | Not Present |
| -Downlink DPCH power control information (10.3.6.23) | |
| -DPC mode | 0 (single) |
| -CHOICE mode | FDD |
| -Power offset P _{Pilot-DPDCH} | <u>TBD0</u> |
| -DL rate matching restriction information | Not Present |
| -Spreading factor | 128 |
| -Fixed or Flexible Position -TFCI existence | Fixed TRUE |
| -CHOICE SF | 128 |
| -Number of bits for Pilot bits(SF=128,256) | 8 |
| -CHOICE mode | FDD |
| -DPCH compressed mode info (10.3.6.33) | Not Present |
| -TX Diversity mode (10.3.6.86) | None |
| -SSDT information (10.3.6.77) | Not Present |
| -Default DPCH Offset Value (10.3.6.16) | 0 |
| -Downlink information per radio link list | 1 |
| -Downlink information for each radio link (10.3.6.27) | |

| Information Element | Value/Remark |
|--|---------------------------|
| -CHOICE mode | FDD |
| -Primary CPICH info (10.3.6.60) | |
| -Primary scrambling code | 350 |
| -PDSCH with SHO DCH info (10.3.6.47) | Not Present |
| -PDSCH code mapping (10.3.6.43) | Not Present |
| -Downlink DPCH info for each RL (10.3.6.21) | |
| -CHOICE mode | FDD |
| -Primary CPICH usage for channel estimation | Primary CPICH may be used |
| -DPCH frame offset | 0 chips |
| -Secondary CPICH info | Not Present |
| -DL channelisation code | |
| -Secondary scrambling code | 1 |
| -Spreading factor | 128 |
| -Code number | 0 |
| -Scrambling code change | No change |
| -TPC combination index | 0 |
| - SSDT Cell Identity | Not Present |
| Closed loop timing adjustment mode | Not Present |
| - SCCPCH information for FACH (10.3.6.70) | Not Present |

MEASUREMENT REPORT message for Intra frequency test cases

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

8.3.2.2.4.2 Procedure

- 1) The RF parameters are set up according to T1.
- 2) The UE is switched on.
- 3) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.4 with Compressed mode parameters as in Table 8.3.2.2.1.
- 4) SS shall transmit a MEASUREMENT CONTROL messages.
- 5) 5 seconds after step4 has completed, the SS shall switch the power settings from T1 to T2
- 6) UE shall transmit a MEASUREMENT REPORT message triggered by event 2C
- 7) SS shall transmit a PHYSICAL CHANNEL RECONFIGURATION message with activation time "now". SS shall transmit the whole message such that will be is available at the UE no later than a period equals to the RRC procedure delay (= 80 ms) prior to the beginning of T3.
- 8) After 10 seconds from the beginning of time period T2, the SS shall switch the power settings from T2 to T3
- 9) UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the UL DCCH of cell 2. If the UE transmits the UL DPCCH to cell 2 less than 140 ms from the beginning of time period T3 then the number of successful tests is increased by one.
- 10) After 5 seconds from the beginning of time period T3, the UE is switched off. Any timing information of cell 2 is deleted in the UE.
- 11) Repeat step 1-10 [TBD] times

Specific Message Contents

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

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

| Information Element/Group name | Value/Remark |
|--|---|
| Message Type (10.2.17) | |
| UE information elements | |
| -RRC transaction identifier | 0 |
| -Integrity check info | Not Present |
| Measurement Information elements | |
| -Measurement Identity | 2 |
| -Measurement Command (10.3.7.46) | Setup |
| -Measurement Reporting Mode (10.3.7.49) | |
| -Measurement Report Transfer Mode | AM RLC |
| -Periodical Reporting / Event Trigger Reporting Mode | Event trigger |
| -Additional measurements list (10.3.7.1) | Not Present |
| -CHOICE Measurement type | Inter-frequency measurement |
| -Inter-frequency measurement (10.3.7.16) | |
| -Inter-frequency measurement objects list (10.3.7.13) | l |
| - CHOICE Inter-frequency cell removal | Not Present |
| - New Inter frequency cells | |
| - Inter frequency cell id | 0 |
| - Frequency info | 500 |
| - CHOICE mode | FDD |
| - UARFCN uplink(Nu) | Not Present |
| - UARFCN downlink(Nd) | Same frequency as "Channel2" in Table |
| 0 11: (| 8.3.2.2.2 |
| - Cell info | Not Decemb |
| - Cell individual offset | Not Present |
| - Reference time difference to cell | Not Present |
| - Read SFN indicator | TRUE |
| - CHOICE mode | FDD |
| - Primary CPICH info | |
| - Primary scrambling code | Set to Primary scrambling code of Cell2 |
| - Primary CPICH Tx Power | Set to Primary CPICH Tx Power of Cell2 |
| T 50 % 1 % 1 | described in Table 8.3.2.2.2 |
| - Tx Diversity Indicator | FALSE |
| - Cell Selection and Re-selection info | Set to Cell Selection and Re-selection info |
| 0.114 | of Cell2 |
| - Cell for measurement | Not Present |
| -Inter-frequency measurement quantity (10.3.7.18) | lates for successive and artists with all |
| -CHOICE reporting criteria | Inter-frequency reporting criteria |
| -Inter-frequency reporting criteria | 0 |
| -Filter coefficient -CHOICE mode | 0 |
| | FDD |
| -Measurement quantity for frequency quality estimate | CPICH Ec/N0 |
| -Inter-frequency reporting quantity (10.3.7.21) | EALOE |
| -UTRA Carrier RSSI | FALSE |
| -Frequency quality estimate | FALSE |
| -Non frequency related cell reporting quantities (10.3.7.5) | Type 4 |
| -SFN-SFN observed time difference reporting indicator | Type 1 |
| -Cell synchronisation information reporting indicator | TRUE |
| -Cell Identity reporting indicator | TRUE |
| -CHOICE mode | FDD |
| -CPICH Ec/N0 reporting indicator -CPICH RSCP reporting indicator | TRUE TRUE |
| | TRUE TRUE |
| -Pathloss reporting indicator | TRUE |
| -Reporting cell status (10.3.7.61) -CHOICE reported cell | Papart calls within manitored set on non |
| -GHOIGE reported cell | Report cells within monitored set on non- used frequency |
| -Maximum number of reported cells per reported non-used | 1 1 |
| frequency | ' |
| -Measurement validity (10.3.7.51) | Not Present |
| -inter-frequency set update (10.3.7.22) | Not Present |
| -CHOICE report criteria | Inter-frequency measurement reporting |
| Onoto report official | criteria |
| -Inter-frequency measurement reporting criteria (10.3.7.19) | ontona |
| -Parameters required for each event | 1 |
| -Inter-frequency event identity (10.3.7.14) | Event 2C |
| -Threshold used frequency | Not Present |
| I meanou uaeu nequency | I NOT I TESETIL |

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

PHYSICAL CHANNEL RECONFIGURATION message (step 7):

| Information Element | Value/Remark |
|--|---|
| Message Type | |
| UE Information Elements | |
| -RRC transaction identifier | 0 |
| -Integrity check info | Not Present |
| -Integrity protection mode info | Not Present |
| -Ciphering mode info | Not Present |
| -Activation time -New U-RNTI | "now" Not Present |
| -New C-RNTI | Not Present |
| -RRC State Indicator | CELL_DCH |
| -UTRAN DRX cycle length coefficient | Not Present |
| CN Information Elements | 110111100111 |
| -CN Information info | Not Present |
| UTRAN mobility information elements | |
| -URA identity | Not Present |
| RB information elements | |
| -Downlink counter synchronisation info | Not Present |
| >RB with PDCP information list | Not Present |
| >>RB with PDCP information | Not Present |
| PhyCH information elements | |
| -Frequency info (10.3.6.36) -CHOICE mode | EDD |
| -UARFCN uplink(Nu) | FDD Same uplink HARECN as used for cell 2 |
| -UARFCN downlink(Nd) | Same uplink UARFCN as used for cell 2 Same downlink UARFCN as used for cell 2 |
| Uplink radio resources | Came downlink OANFON as used for cell 2 |
| -Maximum allowed UL TX power | 33 dBm |
| -CHOICE channel requirement | Uplink DPCH info |
| -Uplink DPCH info (10.3.6.88) | Spinin 21 Strains |
| -Uplink DPCH power control info (10.3.6.91) | |
| -CHOICE mode | FDD |
| -DPCCH power offset | -6dB |
| - PC Preamble | 1 frame |
| - SRB delay | 7 frames |
| - Power Control Algorithm | Algorithm1 |
| - TPC step size | 1dB |
| -CHOICE mode | FDD |
| -Scrambling code type -Scrambling code number | Long 0 (0 to 16777215) |
| -Number of DPDCH | Not Present(1) |
| -Spreading factor | 64 |
| -TFCI existence | TRUE |
| -Number of FBI bit | Not Present(0) |
| -Puncturing Limit | TBD1 |
| Downlink radio resources | _ |
| -CHOICE mode | FDD |
| -Downlink PDSCH information | Not Present |
| -Downlink information common for all radio links (10.3.6.24) | |
| -Downlink DPCH info common for all RL (10.3.6.18) | 1.00 |
| -Timing indicator | Initialise |
| -CFN-targetSFN frame offset -Downlink DPCH power control information (10.3.6.23) | Not Present |
| -Downlink DPCH power control information (10.3.6.23) -DPC mode | ((single) |
| -CHOICE mode | 0 (single) FDD |
| -Power offset P _{Pilot-DPDCH} | TBD0 |
| -DL rate matching restriction information | Not Present |
| -Spreading factor | 128 |
| -Fixed or Flexible Position | Fixed |
| -TFCI existence | TRUE |
| -CHOICE SF | 128 |
| -Number of bits for Pilot bits(SF=128,256) | 8 |
| -CHOICE mode | FDD |
| -DPCH compressed mode info (10.3.6.33) | |
| - Transmission gap pattern sequence | 1 |
| - TGPSI | 1 |
| - TGPS Status Flag | deactivate |

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

MEASUREMENT REPORT message for Inter frequency test cases

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

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F.3 Interpretation of measurement results

The measurement results returned by the Test System are compared – without any modification – against the Test Requirements as defined by the shared risk principle.

The Shared Risk principle is defined in ETR 273-1-2 clause 6.5.

The actual measurement uncertainty of the Test System for the measurement of each parameter shall be included in the test report.

The recorded value for the Test System uncertainty shall be, for each measurement, equal to or lower than the appropriate figure in clause F.1 of the present document.

If the Test System for a test is known to have a measurement uncertainty greater than that specified in clause F.1, it is still permitted to use this apparatus provided that an adjustment is made value as follows.

Any additional uncertainty in the Test System over and above that specified in clause F.1 shall be used to tighten the Test Requirement – making the test harder to pass. (For some tests e.g. receiver tests, this may require modification of stimulus signals). This procedure will ensure that a Test System not compliant with clause F.1does not increase the chance of passing a device under test where that device would otherwise have failed the test if a Test System compliant with clause F.1 had been used.

For some of the more complex tests e.g. RRM, deriving the overall test system uncertainty is not straightforward. In such cases the derivation is given in TR 34.902 [24] rather than in subclause F.1. If it is deemed necessary to apply the additional test system uncertainty rules to these tests, the formula for deriving the new overall uncertainty from any excess fundamental test system uncertainties, shall use the formulas provided in 34.902.

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How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked # contain pop-up help information about the field that they are closest to.

- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

8.3.2.2.4 Method of test

8.3.2.2.4.1 Initial conditions

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

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

The test parameters are given in table 8.3.2.2.1 and 8.3.2.2.2 below. The test consists of three successive time periods, with a time duration of T1, T2 and T3 respectively. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 2C shall be used. The CPICH Ec/I0 of the best cell on the unused frequency shall be reported together with Event 2C reporting. At the start of time duration T1, the UE may not have any timing information of cell 2.

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

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

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

| Para | meter | Unit | Value | Comment |
|------------------------|-----------------|------|---|--|
| DCH parame | eters | | DL and UL Reference Measurement Channel 12.2 kbps | As specified in clause C.3.1 and C.2.1 |
| Power Contr | rol | | On | |
| Target qualit | ty value on | BLER | 0.01 | |
| Compressed | d mode | | A.22 set 1 | As specified in TS 34.121 clause C.5. |
| Initial | Active cell | | Cell 1 | |
| conditions | Neighbour cell | | Cell 2 | |
| Final conditions | Active cell | | Cell 2 | |
| Threshold no frequency | on used | dB | -18 | Absolute Ec/I0 threshold for event 2C |
| Reporting ra | inge | d₿ | 4 | Applicable for event 1A |
| Hysteresis | | dB | 0 | |
| ₩ | | | 4 | Applicable for event 1A |
| W non-used | frequency | | 1 | Applicable for event 2C |
| Reporting de threshold | eactivation | | 0 | Applicable for event 1A |
| Time to Trig | ger | ms | 0 | |
| Filter coeffic | ient | | 0 | |
| T1 | | S | 5 | |
| T2 | | S | 10 | |
| T3 | • | S | 5 | |

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

| Parameter | Unit | Cell 1 | | | | Cell 2 | |
|-----------------------|------|-------------------|-----------|-------|-----------|-----------|-------|
| | | T1 | T2 | T3 | T1 | T2 | T3 |
| UTRA RF Channel | | | Channel 1 | | | Channel 2 | |
| Number | | | | | | | |
| CPICH_Ec/lor | dB | | -10 | | | -10 | |
| PCCPCH_Ec/lor | dB | | -12 | | | -12 | |
| SCH_Ec/lor | dB | | -12 | | | -12 | |
| PICH_Ec/lor | dB | B -15 -15 | | | | | |
| DPCH_Ec/lor | dB | Note1 | Note1 | Note3 | N/A | N/A | Note1 |
| OCNS | | Note2 | Note2 | Note2 | -0.941 | -0.941 | Note2 |
| \hat{I}_{or}/I_{oc} | dB | 0 | | | -Infinity | -1.8 | -1.8 |
| I_{oc} | dBm/ | | | _' | 70 | | |
| oc . | 3.84 | | | | | | |
| | MHz | | | | | | |
| CPICH_Ec/lo | dB | -13 -Infinity -14 | | | | | 14 |
| Propagation | | AWGN | | | | | |
| Condition | | | | | | | |

Note 1:

The DPCH level is controlled by the power control loop

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

Note 3: The DPCH may not be power controlled by the power control loop.

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| Title: | Removal of square brackets in Annex F.6 |
| Source: # | Rohde & Schwarz |
| Work item code: ₩ | Date: # 27/01/2004 |
| Category: 第 | F Release: ₩ R5 |
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| | F (correction) 2 (GSM Phase 2) A (corresponds to a correction in an earlier release) R96 (Release 1996) |
| | B (addition of feature), R97 (Release 1997) |
| | C (functional modification of feature)R98 (Release 1998)D (editorial modification)R99 (Release 1999) |
| | Detailed explanations of the above categories can Rel-4 (Release 4) |
| | be found in 3GPP TR 21.900. Rel-5 (Release 5) Rel-6 (Release 6) |
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| Other comments: | 策 Triggered by T1-040139 |

F.6 General rules for statistical testing

F.6.1 Statistical testing of receiver BER/BLER performance

F.6.1.1 Error Definition

1) Bit Error Ratio (BER)

The Bit Error Ratio is defined as the ratio of the bits wrongly received to all data bits sent. The bits are the information bits above the convolutional/turbo decoder

2) Block Error Ratio (BLER)

A Block Error Ratio is defined as the ratio of the number of erroneous blocks received to the total number of blocks sent. An erroneous block is defined as a Transport Block, the cyclic redundancy check (CRC) of which is wrong.

F.6.1.2 Test Method

Each test is performed in the following manner:

- a) Setup the required test conditions.
- b) Record the number of samples tested and the number of occurred events (bit error or block error)
- c) Stop the test at a stop criterion which is minimum test time or an early pass or an early fail event.
- d) Once the test is stopped decide according to the pass fail decision rules (subclause F.6.1.7)

F.6.1.3 Test Criteria

The test shall fulfil the following requirements:

- a) good pass fail decision
 - 1) to keep reasonably low the probability (risk) of passing a bad unit for each individual test;
 - 2) to have high probability of passing a good unit for each individual test;
- b) good balance between testtime and statistical significance
 - 3) to perform measurements with a high degree of statistical significance;
 - 4) to keep the test time as low as possible.

F.6.1.4 Calculation assumptions

F.6.1.4.1 Statistical independence

- (a) It is assumed, that error events are rare (lim BER BLER → 0) independent statistical events. However the memory of the convolutional /turbo coder is terminated after one TTI. Samples and errors are summed up every TTI. So the assumption of independent error events is justified.
- (b) In the BLER test with fading there is the memory of the multipath fading channel which interferes the statistical independence. A minimum test time is introduced to average fluctuations of the multipath fading channel. So the assumption of independent error events is justified approximately.

F.6.1.4.2 Applied formulas

The formulas, applied to describe the BER BLER test, are based on the following experiments:

(1) After having observed a certain number of errors (ne) the number of samples are counted to calculate BER BLER. Provisions are made (note 1) such that the complementary experiment is valid as well: (2) After a certain number of samples (ns) the number of errors, occurred, are counted to calculate BER

Experiment (1) stipulates to use the following Chi Square Distribution with degree of freedom ne: 2*dchisq(2*NE,2*ne).

Experiment (2) stipulates to use the Poisson Distribution: dpois(ne,NE)

(NE: mean of the distribution)

BLER.

To determine the early stop conditions, the following inverse cumulative operation is applied:

0.5 * qchisq(D,2*ne). This is applicable for experiment (1) and (2).

D: wrong decision risk per test step

Note: other inverse cumulative operations are available, however only this is suited for experiment (1) and (2).

F.6.1.4.3 Approximation of the distribution

The test procedure is as follows:

During a running measurement for a UE ns (number of samples) and ne (number of errors) are accumulated and from this the preliminary BER BLER is calculated. Then new samples up to the next error are taken. The entire past and the new samples are basis for the next preliminary BER BLER. Depending on the result at every step, the UE can pass, can fail or must continue the test. As early pass- and early fail-UEs leave the statistical totality under consideration, the experimental conditions are changed every step resulting in a distribution that is truncated more and more towards the end of the entire test. Such a distribution can not any more be handled analytically. The unchanged distribution is used as an approximation to calculate the early fail and early pass bounds.

F.6.1.5 Definition of good pass fail decision.

This is defined by the probability of wrong decision F at the end of the test. The probability of a correct decision is 1-F.

The probability (risk) to fail a good DUT shall be ≤ F according to the following definition: A DUT is failed, accepting a probability of \leq F that the DUT is still better than the specified error ratio (Test requirement).

The probability to pass a bad DUT shall be \leq F according to the following definition: A DUT is passed, accepting a probability of $\leq F$ that the DUT is still worse than M times the specified error ratio. (M>1 is the bad DUT factor).

This definitions lead to an early pass and an early fail limit:

Early fail: ber≥ berlim_{fail}

$$ber \lim_{fail} (D, ne) = \frac{2 * ne}{qchisq(D, 2 * ne)}$$
(1)

For ne ≥ 17

Early pass: ber
$$\leq$$
 berlimbad_{pass}

$$ber \lim bad_{pass}(D, ne) = \frac{2 * ne * M}{qchisq(1 - D, 2 * ne)}$$

(2)

For ne >1

With

ber (normalized BER,BLER): BER,BLER according to F.6.1.1 divided by Test requirement

D: wrong decision probability for a test step. This is a numerically evaluated fraction of F, the wrong decision probability at the end of the test. See table F.6.1.6.1.

ne: Number of error events

M: bad DUT factor see table F.6.1.6.1.

qchisq: inverse cumulative chi squared distribution

F.6.1.6 Good balance between testtime and statistical significance

Three independent test parameters are introduced into the test and shown in Table F.6.1.6.1. These are the obvious basis of test time and statistical significance. From the first two of them four dependent test parameters are derived. The third independent test parameter is justified separately.

Table F.6.1.6.1 independent and dependent test parameters

| Independ | Independent test parameters | | | Dependent test parameters | | | |
|---|--------------------------------|-------------------|--|--|-----------------------------------|--|--|
| Test Parameter | Value | Reference | Test parameter | Value | Reference | | |
| Bad DUT factor M | <u>{</u> _1.5 } | Table F.6.1.8 | Early pass/fail condition | Curves | Subclause F.6.1.5 Figure 6.1.9 | | |
| Final probability of wrong pass/fail decision F | {_0.2%} {_0.02%, note 2} | Subclause F.6.1.5 | Target number of error events | [_345] | Table 6.1.8 | | |
| | | | Probability of wrong pass/fail decision per test step D | {_0.0085%} {_0.0008% and 0.008%, note 2} | | | |
| | | | Test limit factor TL | [_1.234] | Table 6.1.8 | | |
| Minimum test time | | Table F.6.1.6.2 | | | · | | |

The minimum test time is derived from the following justification:

1) For no propagation conditions and static propagation condition

No early fail calculated from fractional number of errors <1 (see note 1)

2) For multipath fading condition

No stop of the test until 990 wavelengths are crossed with the speed given in the fading profile.

3) For birth death propagation conditions

No stop of the test until 200 birth death transitions occur

4) For moving propagation conditions: 628 sec

This is necessary in order to pass all potential critical points in the moving propagation profile 4 times:

Maximum rake window

Maximum adjustment speed

Intersection of moving taps

Table F.6.1.6.2: minimum Test time

| Fading profile | Minimum test time |
|--------------------------------|-------------------|
| Multipath propagation 3 km/h | 164 sec |
| Multipath propagation 50 km/h | 9.8 sec |
| Multipath propagation 120 km/h | 4.1 sec |
| Multipath propagation 250 km/h | 2 sec |
| Birth Death propagation | 38.2 sec |
| Moving propagation | 628 sec |

In table F.6.1.8the minimum test time is converted in minimum number of samples.

F.6.1.7 Pass fail decision rules

No decision is allowed before the minimum test time is elapsed.

1) If minimum Test time < time for target number of error events then the following applies: The required confidence level 1-F (= correct decision probability) shall be achieved. This is fulfilled at an early pass or early fail event.

For BER:

For every TTI (Transmit Time Interval) sum up the number of bits (ns) and the number if errors (ne) from the beginning of the test and calculate

BER₁ (including the artificial error at the beginning of the test (Note 1))and

BER₀ (excluding the artificial error at the beginning of the test (Note 1)).

If BER₀ is above the early fail limit, fail the DUT.

If BER₁ is below the early pass limit, pass the DUT.

Otherwise continue the test

For BLER:

For every block sum up the number of blocks (ns) and the number of erroneous blocks (ne) from the beginning of the test and calculate

BLER₁ (including the artificial error at the beginning of the test (Note 1))and

BLER₀ (excluding the artificial error at the beginning of the test (Note 1)).

If BLER₁ is below the early pass limit, pass the DUT.

If BLER₀ is above the early fail limit, fail the DUT.

Otherwise continue the test

2) If the minimum test time ≥ time for target error events, then the test runs for the minimum test time and the decision is done by comparing the result with the test limit.

For BER:

For every TTI (Transmit Time Interval) sum up the number of bits (ns) and the number if errors (ne) from the beginning of the test and calculate BER_0

For BLER:

For every block sum up the number of blocks (ns) and the number of erroneous blocks (ne) from the beginning of the test and calculate $BLER_0$

If BER₀/BLER₀ is above the test limit, fail the DUT.

If BER₀/BLER₀ is on or below the test limit, pass the DUT.

F.6.1.8 Test conditions for BER, BLER tests

Table F.6.1.8: Test conditions for a single BER/BLER tests

| Type of test (BER) | Test requirement (BER/BLER) | Test limit (BER/BLER) = Test requirement (BER/BLER) x TL TL | Target number of error events (time) | Minimum number of samples | Prob that good unit will fail = Prob that bad unit will pass [%] | Bad unit BER/BLE R factor M |
|---|-----------------------------------|---|--|---------------------------------|--|-----------------------------------|
| Reference Sensitivity Level | 0.001 | [_1.234] | [_345] (22.9s) | Note 1 | [_0.2] | <mark>{</mark> _1.5 } |
| Maximum Input Level | 0.001 | [_1.234] | [_345] (22.9s) | Note 1 | <u>{</u> _0.2 } | <u>{</u> _1.5 } |
| Adjacent Channel Selectivity | 0.001 | <u>[</u> 1.234] | [_345] (22.9s) | Note 1 | [_0.2] | <u>{</u> _1.5 } |
| Blocking Characteristics Pass condition Note 2 | 0.001 | <u></u> 1.251] | [_403] (26.4s) | Note 1 | {_0.2 } | <u>{</u> _1.5 } |
| Blocking Characteristics Fail condition Note 2 | 0.001 | <u></u> | [_403] (26.4s) | Note 1 | ₹_0.02 } | {_1.5} |
| Spurious Response | 0.001 | [_1.23 4] | [_345] (22.9s) | Note 1 | <u>{</u> _0.2 } | {_1.5 } |
| Intermodulation Characteristics | 0.001 | [_1.234] | [345] (22.9s) | Note 1 | <u></u> €0.2 } | <u>{</u> _1.5 } |

Table F.6.1.8-2: Test conditions for BLER tests

| Type of test (BLER) | Information Bit rate | Test requirement (BER/BLER) | Test limit (BER/B LER)= Test require ment (BER/B LER)x TL | Target number of error events (time) | Minimum number of samples | Prob that bad unit will pass = Prob that good unit will fail [%] | Bad unit BER/BL ER factor M |
|---|-------------------------|-----------------------------------|---|--------------------------------------|--|--|--------------------------------------|
| Demodulation in | | | TL [1.234] | <u></u> 4345] | Note1 | [_0.2] | {_1.5} |
| Static Propagation | 12.2 | 0.01 | [| (559.16s) | | [20.2] | [2.10] |
| conditions | 64 | 0.1 | | (55.92s) | | | |
| | 144 | 0.01 0.1 | | (559.16s) (55.92s) | | | |
| | 144 | 0.01 | | (559.16s) | | | |
| | 384 | 0.1 | | (27.96s) | | | |
| | | 0.01 | | (279.58s) | | | |
| Demodulation of DCH in Multi-path Fading Propagation conditions | | | | | | | |
| 3km/h | | | <u>[</u> 1.234] | [_345] | | [_0.2] | <u>{</u> 1.5 } |
| (Case 1, Case 2, Case 4) | 12.2 64 | 0.01 0.1 | | (559.16s) | [_8200] | | |
| Case 4) | 04 | 0.01 | | (55.92s) (559.16s) | [_8200] [8200] | | |
| | 144 | 0.1 | | (55.92s) | -8200] | | |
| | | 0.01 | | (559.16s) | <u>[</u> 8200] | | |
| | 384 | 0.1 0.01 | | (27.96s) (279.58s) | [_16400] [_16400] | | |
| 120 km/h | | 0.01 | [1.234] | (279.30s) | [_10400] | [0.2] | [_1.5] |
| (Case3) | 12.2 | 0.01 | [0., | (559.16s) | <u>{</u> 205 } | [20.2] | [] |
| | 64 | 0.1 | | (55.92s) | <u>[</u> 205] | | |
| | 444 | 0.01 | | (559.16s) | [_205] | | |
| | 144 | 0.1 0.01 | | (55.92s) (559.16s) | {_205 } {_205 } | | |
| | 384 | 0.1 | | (27.96s) | 410] | | |
| | | 0.01 | | (279.58s) | - 410] | | |
| 250 km/h | 40.0 | 0.04 | <u>[</u> 1.234] | [_345] | [400] | <mark>-</mark> _0.2] | <u>{</u> _1.5 } |
| (Case 6) | 12.2 64 | 0.01 0.1 | | (559.16s) (55.92s) | <u>{</u> 100 } <u>{</u> 100 } | | |
| | 04 | 0.01 | | (55.92s) (559.16s) | £100] £100] | | |
| | 144 | 0.1 | | (55.92s) | <u>[</u> 100] | | |
| | 00.4 | 0.01 | | (559.16s) | [100] | | |
| | 384 | 0.1 0.01 | | (27.96s) (279.58s) | {_200 } {_200 } | | |
| Demodulation of DCH | | 0.01 | £1.234] | (279.568) | [_ZUU] | [_0.2] | {_1.5} |
| in Moving | 12.2 | 0.01 | | (559.16) | [_31400] | [_:j | 12 191 |
| Propagation | 64 | 0.01 | | | [_31400] | | |
| conditions Demodulation of DCH | | | <u>[</u> 1.234] | <u></u> 4345] € | | <u>{</u> _0.2 } | <u>{</u> 1.5 } |
| in Birth-Death | 12.2 | 0.01 | <u>L</u> 1.23 4] | (559.16s) | <u>[</u> 1910] | t_U.2 | t_1.0 1 |
| Propagation | 64 | 0.01 | | (559.16s) | [_1910] | | |
| conditions | | | | | | | |

| Danie dalada a at DOLL | | 1 | | T 4 00 41 | [0.45] | I 00001 | [0.0] | [4 5] |
|------------------------------------|------------|--------------------------------------|--------------------------------------|-----------------------------|--------------------------------|--|----------------------------------|----------------------------|
| Demodulation of DCH | 12.2 | 0.0 | 4 | <u>[</u> 1.234] | [_345] | [_8200] | <mark>{</mark> _0.2] | <u>{</u> _1.5 } |
| in Base Station Transmit diversity | 12.2 | 0.0 | ļ | | (559.16s) | | | |
| modes (3 km/h, | | | | | | | | |
| case1) | | | | | | | | |
| Demodulation of DCH | | | | <u>[</u> 1.234] | <u>[</u> 345] | | [_0.2] | <u>{</u> 1.5 } |
| in closed loop | | | | [1.201] | [0 10] | | [_0.2] | [_1.0] |
| transmit diversity | | | | | | | | |
| mode (3 km/h, case1) | | | | | | | | |
| Mode 1 | 12.2 | 0.0 | 1 | | (559.16s) | [_8200] | | |
| | | | | | , | - | | |
| Mode 2 | 12.2 | 0.0 | 1 | | (559.16s) | <u>{</u> 8200 } | | |
| Demodulation of DCH | | | | [_1.234] | [_345] | <u>{</u> 8200 } | [_0.2] | <u></u> 1.5] |
| in Site Selection | 12.2 | 0.0 | 1 | | (559.16) | | | |
| Diversity | | | | | | | | |
| Transmission Power | | | | | | | | |
| Control mode | | | | [4 00 4] | 1.0.451 | | 1.0.03 | [4.5] |
| Demodulation of DCH | 40.0 | 0.0 | 4 | <u>-</u> 1.234] | [_345] | [005] | [_0.2] | <u>{</u> _1.5 } |
| in Inter-Cell Soft Handover | 12.2 64 | 0.0 | | | (559.16s) (55.92s) | [205] | | |
| | 04 | 0.0 | | | , | [_205] | | |
| (120 km/h, case3) | 144 | 0.0 | | | (559.16s) (55.92s) | {_205 } {_205 } | | |
| | 177 | 0.0 | | | (559.16s) | [205] | | |
| | 384 | 0.1 | | | (27.96s) | 410 | | |
| | 00. | 0.0 | | | (279.58s) | 410 | | |
| Combining of TPC | | | | | Not applicable | , | | |
| commands from radio | | | | | | | | |
| links of different radio | | | | | | | | |
| link sets | | | | | | | | |
| Power control in the | | | | | Not applicable | | | |
| downlink, constant | | | | | | | | |
| BLER target | | | | | | | | |
| Power control in the | | | | | Not applicable | | | |
| downlink, initial | | | | | | | | |
| convergence | | | | | Not opplisable | | | |
| Power control in the | | | | | Not applicable | | | |
| downlink, wind up effects | | | | | | | | |
| Downlink compressed | | | | | Not applicable | | | |
| mode | | | | | Not applicable | | | |
| Blind transport format | | | | | | | | |
| detection | | | | | [_345] | | | |
| | Static | BLER | FDR | [1.234] | BLER FDR | | [_0.2] | <u>[</u> 1.5] |
| | 12.2 | 10 ⁻² | 10 ⁻⁴ | - 1 | 559.16s 932min | Note 1 | | |
| | 7.95 | 10 ⁻² | 10 ⁻⁴ | | 559.16s 932min | Note 1 | | |
| | 1.95 | 10 ⁻² | 10 ⁻⁴ | | 559.16s 932min | Note 1 | | |
| | | | | | | | | |
| | Multipath | 4.5-2 | 4 | | | | | |
| | 12.2 | 10 ⁻² 10 ⁻² | 10 ⁻⁴ | | 559.16s 932min | [_205] | | |
| | 7.95 | 10 ⁻² | 10 ⁻⁴ 10 ⁻⁴ | | 559.16s 932min | [_205] | | |
| | 1.98 | 10 | 10 | | 559.16s 932min | [_205] | | |
| | | | | | | | | |
| | | 1 | | | | | I | |

F.6.1.9 Practical Use (informative)

See figure F.6.1.9: The early fail limit represents formula (1) in F.6.1.5. The range of validity is $\{ e^n = 345 \}$

The early pass limit represents the formula (2) in F.6.1.5. The range of validity is ne=1 to [_ne =345]_. See note 1

The intersection co-ordinates of both curves are: number of errors ne = $\frac{1}{2}$ 345 and test limit TL = $\frac{1}{2}$ 1.234

The range of validity for TL is ne>345.

A typical BER BLER test, calculated form the number of samples and errors (F.6.1.2.(b)) using experimental method (1) or (2) (see F.6.1.4. calculation assumptions) runs along the yellow trajectory. With an errorless sample the trajectory goes down vertically. With an erroneous sample it jumps up right. The tester checks if the BER BLER test intersects the early fail or early pass limits. The real time processing can be reduced by the following actions:

 $BLER_0$ (excluding the artificial error at the beginning of the test (Note 1)). is calculated only in case of an error event.

BER₀ (excluding the artificial error at the beginning of the test (Note 1)). is calculated only in case of an error event within a TTI.

So the early fail limit cannot be missed by errorless samples.

The check against the early pass limit may be done by transforming formula (2) in F.6.1.5 such that the tester checks against a \underline{L} imit- \underline{N} umber-of-samples (NL(ne)) depending on the current number of errors (including the artificial error at the beginning of the test (Note 1)). Early pass if

$$NL(ne) \ge \frac{qchisq(1-D,2*ne)}{2*TR*M}$$

TR: test requirement (0.001)

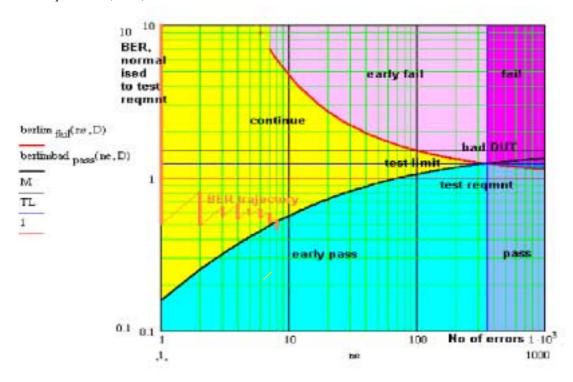


Figure F.6.1.9

Note 1: At the beginning of the test, an artificial error is introduced. This ensures that an ideal DUT meets the valid range of the early pass limit. In addition this ensures that the complementary experiment (F.6.1.4. bullet point (2)) is applicable as well.

For the check against the early fail limit the artificial erroneous sample, introduced at the beginning of the test, is disregarded.

Due to the nature of the test, namely discrete error events, the early fail condition shall not be valid, when fractional errors <1 are used to calculate the early fail limit: Any early fail decision is postponed until number of errors ne ≥ 1.71 . In the blocking test any early fail decision is postponed until number of errors ne ≥ 1.81 .

Note2: F=[0.2%]_ is intended to be used for a test containing a few BER/BLER tests (e.g. receiver sensitivity is repeated 12 times). For a test containing many BER/BLER tests (e.g. blocking test) this value is not appropriate for a single BER/BLER test.

The blocking test contains approx. 12750 single BER tests. A DUT on the limit will fail approx. 25 to 26 times due to statistical reasons (wrong decision probability at the end of the test $F = \{0.2\}$ _%). 24 fails are allowed in the blocking test but they are reserved for spurious responses. This shall be solved by the following rule:

All passes (based on F=[0.2]_%) are accepted, including the wrong decisions due to statistical reasons.

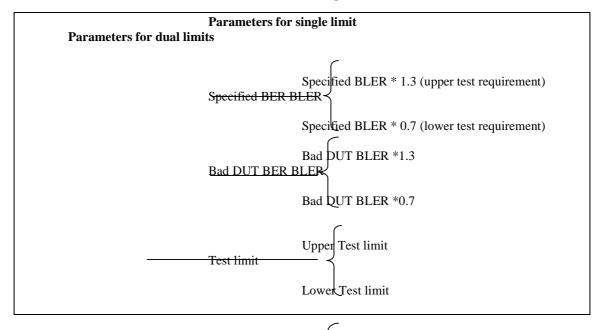
An early fail limit based on F=[0.02%] instead of [0.2%] is established, that ensures that wrong decisions due to statistical reasons are reduced to 2 to 3.

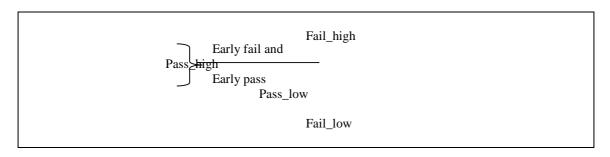
These asymmetric test conditions ensure that a DUT on the test limit consumes hardly more test time for a blocking test than in the symmetric case and on the other hand discriminates sufficiently between statistical fails and spurious response cases.

F.6.1.10 Dual limit BLER tests

This annex is applicable for subclause 7.8.1 Power control in the downlink constant BLER target and subclause 7.9 Downlink compressed mode. In this tests the BLER shall stay between two limits.

Table F.6.1.10. Parameters for single and dual limit BLER





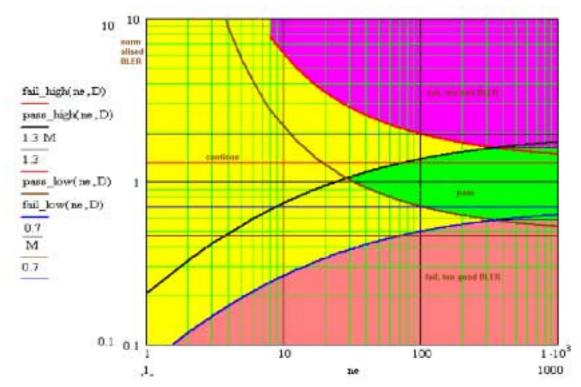


Figure F.6.1.10: Dual limit BLER

F.6.1.10.1 Description of the parameters for dual limit BLER tests

(refer figure F.6.1.10)

The origin

1 (black horizontal line in the centre): this is the normalised origin BLER

The assymptotes

- 1.3 (red horizontal line): this is the specified upper limit of the range (BLER +30%) (upper test requirement)
- 0.7(blue horizontal line): this is the specified lower limit of the range (BLER-30%)(lower test requirement)
- 1.3*M (black horizontal line): this is M times the specified upper limit of the range (Bad DUT BLER)
- 0.7/M (brown horizontal line): this is 1/M times the specified lower limit. (Bad DUT BLER)

The pass/fail limits

Fail_high (bold red curve):

Definition: A momentary BLER value above this curve is with high probability above the specified upper limit: BLER +30%.

Verdict: Above: Fail due to bad BLER

Below: continue

It approaches towards 1.3(red).

Validity range 7< errors <345.

Formula:

$$fail_high(ne, D) := 2 \cdot \frac{ne \cdot 1.3}{qchisq(D, 2 \cdot ne)}$$

Fail_low (bold blue curve):

Definition: A momentary BLER value below this curve is with high probability below the specified lower limit: BLER -30%).

Verdict: Above: continue

Below: Fail due to too good BLER

It approaches towards 0.7(blue).

Validity range $1 \le \text{errors} < 343$.

Formula:

$$fail_low(ne\,,D) := 2 \cdot \frac{ne \cdot 0.7}{qchisq\,(1-D,2 \cdot ne)}$$

Pass_high (bold black curve):

Definition: a momentary BLER value on and below this curve is with high probability below M times the specified upper limit.

Verdict: Above: continue

Below: pass for ne ≥ 29

continue for ne < 29

It approaches 1.3*M(black).

Validity range $1 \le errors < 345$.

Formula:

$$pass_high \; (ne\,,D) \coloneqq 2 \cdot \frac{ne}{qchisq(1-D,2\cdot ne)} \cdot M \cdot 1.3$$

Pass_low (bold brown curve):

Definition: a momentary BLER value on and above this curve is with high probability above 1/M times the specified lower limit of the range.

Verdict: Above: pass for $ne \ge 29$,

continue for ne < 29

Below: continue

It approaches 0.7/M(brown).

Validity range 7< errors <343.

$$pass_low (ne, D) := 2 \cdot \frac{ne \cdot \frac{0.7}{M}}{qchisq(D, 2 \cdot ne)}$$

Legende formulas:

D: wrong decision risk per test step: 0.000085

M: bad DUT factor: 1.5

ne: number of errors

qchisq: inverse cumulative chi square function

Upper test limit (boarder between pink and green)1.3*1.234 = 1.6

Validity range: $345 \le \text{errors}$.

Verdict: Above: fail due to bad BLER

Below: pass

Lower test limit (boarder between green and orange) 0.7/1.234 = 0.567

Validity range: 343 ≤ errors

Verdict: Above: pass

Below: fail due to too good BLER

The intersection co-ordinates:

Fail_high (bold red curve) and Pass_high (bold black curve):

Upper target number of errors (345) and upper test limit: 1.3* 1.234

Fail_low (bold blue curve) and Pass_high (bold black curve):

Lower target number of errors (343) and lower test limit: $0.7 \, / \, 1.234$

Pass_high (bold black curve) and Pass_low (bold brown curve)

Minimum number of errors (29) and optimum normalised BLER (1.049)

The ranges:

is achieved.

Range (pink): in this range the measurement can be stopped and the DUT is failed due to too high BLER. Range (orange): in this range the measurement can be stopped and the DUT is failed due to too low BLER. Range (yellow): in this range the measurement is undecided and must be continued. Range (green): in this range the measurement can be stopped and the DUT is passed. No final BLER result

F.6.1.10.2 Pass fail decision rules

No decision is allowed before the minimum test time (Table F.6.1.6.2) has elapsed

1) If minimum Test time < time for target number of error events then the following applies: The required confidence level 1-F (= correct decision probability, Table F.6.1.6.2) shall be achieved. This is fulfilled at

```
fail_high
pass_high
pass_low
fail_low
```

For every block sum up the number of blocks (ns) and the number of erroneous blocks (ne) from the beginning of the test and calculate

BLER₁ (including the artificial error at the beginning of the test (Note 1, F.6.1.9))and

BLER₀ (excluding the artificial error at the beginning of the test (Note 1, F.6.1.9)).

If BLER₀ is above fail_high, fail the test due to too bad BLER

If BLER₁ is below fail_low, fail the test due to too good BLER

```
If BLER<sub>0</sub> is on or below fail_high and if BLER<sub>1</sub> is above pass_high, continue the test

If BLER<sub>0</sub> is below pass_low and if BLER<sub>1</sub> is above or on fail low, continue the test
```

If BLER₁ is below or on *pass_high* and if BLER₀ is on or above *pass_high*, pass the test

2) If the minimum test time ≥ time for target error events, then the test runs for the minimum test time and the decision is done by comparing the result with the upper and lower test limit.

If BLER₀ is above the upper test limit, fail the DUT due to too bad BLER

If BLER₁ is below the lower test limit, fail the DUT due to too good BLER

If $BLER_0$ is on or below the upper test limit and if $BLER_1$ is on or above the lower test limit, pass the DUT

F.6.1.10.3 Test conditions for dual limit BLER tests

Table F.6.1.10.3 Test conditions for dual limit BLER tests

| Type of test (BLER) | Data rate, Propagation condition | Test requirement (BLER) | Test limit = Test requirement * TL TL | Target number of error events (time) | Minimum number of samples | Prob that a good unit will fail = prob that a bad unit will pass: F[%] | Bad unit factor M |
|---|--|-------------------------------|---|--|---------------------------------|--|---------------------------------|
| Power control in the downlink, constant BLER target | 12.2 kbit/s, 3km/h (case4) | 0.01±30% | Upper TL: 1.3*1.234 Lower TL 0.7/1.234 | Upper: 345 (431.25s) Lower 343 (1191s) | 8200 | 0.2 | Upper: 1.5 Lower 1/1.5 |
| Downlink compressed mode | 12.2kbit/s, 3km/h (case 2) | 0.01±30% | Upper TL: 1.3*1.234 Lower TL 0.7/1.234 | Upper: 345 (431.25s) Lower 343 (1191s) | 8200 | 0.2 | Upper: 1.5 Lower 1/1.5 |

F.6.2 Statistical testing of RRM delay performance

F.6.2.1 Test Method

Each test is performed in the following manner:

- a) Setup the required test conditions.
- b) Measure the delay repeated times. Start each repetition after sufficient time, such that each delay test is independent from the previous one. The delay-times, measured, are simplified to:
 - a good delay, if the measured delay is \leq limit.
 - a bad delay, if the measured delay is > limit
- c) Record the number of delays (ns), tested, and the number of bad delays (ne)
- d) Stop the test at an early pass or an early fail event.
- e) Once the test is stopped, decide according to the pass fail decision rules (subclause F.6.2.7)

F.6.2.2 Bad Delay Ratio (ER)

The Bad Delay Ratio (ER) is defined as the ratio of bad delays (ne) to all delays (ns). (1-ER is the success ratio)

F.6.2.3 Test Criteria

The test shall fulfil the following requirements:

- a) good pass fail decision
 - 1) to keep reasonably low the probability (risk) of passing a bad unit for each individual test;
 - 2) to have high probability of passing a good unit for each individual test;
- b) good balance between test-time and statistical significance

- 3) to perform measurements with a high degree of statistical significance;
- 4) to keep the test time as low as possible.

F.6.2.4 Calculation assumptions

F.6.2.4.1 Statistical independence

It is arranged by test conditions, that bad delays are independent statistical events.

F.6.2.4.2 Applied formulas

The specified ER is 10% in most of the cases. This stipulates to use the binomial distribution to describe the RRM delay statistics. With the binomial distribution optimal results can be achieved. However the inverse cumulative operation for the binomial distribution is not supported by standard mathematical tools. The use of the Poisson or Chi Square Distribution requires $ER \rightarrow 0$. Using one of this distributions instead of the binomial distribution gives sub-optimal results in the conservative sense: a pass fail decision is done later than optimal and with a lower wrong decision risk than predefined.

The formulas, applied to describe the RRM delay statistics test, are based on the following experiment: (1) After having observed a certain number of bad delays (**ne**) the number of all delays (**ns**) are counted to calculate ER. Provisions are made (note 1) such that the complementary experiment is valid as well:

(2) After a certain number of delays (**ns**) the number of bad delays (**ne**), occurred, are counted to calculate **FP**

Experiment (1) stipulates to use the Chi Square Distribution with degree of freedom ne: 2*dchisq(2*NE,2*ne).

Experiment (2) stipulates to use the Poisson Distribution: dpois(ne,NE)

(NE: mean value of the distribution)

To determine the early stop conditions, the following inverse cumulative operation is applied:

0.5 * qchisq(D,2*ne) for experiment (1) and (2)

D: wrong decision risk per test step

Note: Other inverse cumulative operations are available, however only this is suited for experiment (1) and (2).

F.6.2.4.3 Approximation of the distribution

The test procedure is as follows:

During a running measurement for a UE ns (Number of Delays) and ne (Number of bad delays) are accumulated and from this the preliminary ER is calculated. Then new samples up to the next bad delay are taken. The entire past and the new samples are basis for the next preliminary ER. Depending on the result at every step, the UE can pass, can fail or must continue the test.

As early pass- and early fail-UEs leave the statistical totality under consideration, the experimental conditions are changed every step resulting in a distribution that is truncated more and more towards the end of the entire test. Such a distribution can not any more be handled analytically. The unchanged distribution is used as an approximation to calculate the early fail and early pass bounds.

F.6.2.5 Definition of good pass fail decision.

This is defined by the probability of wrong decision F at the end of the test. The probability of a correct decision is 1-F.

The probability (risk) to fail a good DUT shall be \leq F according to the following definition: A DUT is failed, accepting a probability of \leq F that the DUT is still better than the specified bad delay ratio (Test requirement).

The probability (risk) to pass a bad DUT shall be \leq F according to the following definition: A DUT is passed, accepting a probability of \leq F that the DUT is still worse than M times the specified bad delay ratio. (M>=1 is the bad DUT factor).

This definitions lead to an early pass and an early fail limit:

Early fail: er≥ er**lim**_{fail}

$$er \lim_{fail} (D, ne) = \frac{2 * ne}{qchisq(D, 2 * ne)}$$
 (1)

For ne $\geq \frac{1}{5}$

Early pass: $er \le er$ **lim**bad_{pass}

$$er \lim bad_{pass}(D, ne) = \frac{2 * ne * M}{qchisq(1 - D, 2 * ne)}$$
(2)

For ne ≥1

With

er (normalized ER): ER according to F.6.2.2 divided by specified ER

D: wrong decision probability for a test step . This is a numerically evaluated fraction of F, the wrong decision probability at the end of the test. see table F.6.2.6.1

ne: Number of bad delays

M: bad DUT factor see table F.6.2.6.1

qchisq: inverse cumulative chi squared distribution

F.6.2.6 Good balance between test-time and statistical significance

Two independent test parameters are introduced into the test and shown in Table F.6.2.6.1. These are the obvious basis of test time and statistical significance. From them four dependent test parameters are derived.

Table F.6.2.6 independent and dependent test parameters

| Independent test parameters | | | Dependent test parameters | | | |
|--------------------------------------|----------------------------------|---------------|--|------------------------------|-----------------------------------|--|
| Test Parameter | Value | Reference | Test parameter | Value | Reference | |
| Bad DUT factor M | <mark>-</mark> _1.5] | Table F.6.1.8 | Early pass/fail condition | Curves | Subclause F.6.2.5 Figure 6.2.9 | |
| Final probability of wrong pass/fail | <u>{</u> 5% } | Table F.6.2.8 | Target number of bad delays | <u>{</u> 154 } | Table 6.2.8 | |
| decision F | | | Probability of wrong pass/fail decision per test step D | <u>{</u> _0.6 % } | | |
| | | | Test limit factor TL | [1.236] | Table 6.2.8 | |

F.6.2.7 Pass fail decision rules

The required confidence level 1-F (= correct decision probability) shall be achieved. This is fulfilled at an early pass or early fail event. Sum up the number of all delays (ns) and the number of bad delays from the beginning of the test and calculate:

ER₁ (including the artificial error at the beginning of the test (Note 1))and

 ER_0 (excluding the artificial error at the beginning of the test (Note 1)).

If ER₀ is on or above the early fail limit, fail the DUT.

If ER₁ is on or below the early pass limit, pass the DUT.

Otherwise continue the test

F.6.2.8 Test conditions for RRM delay tests, Combining of TPC commands test 1, Demodulation of Paging channel and Detection of acquisition indicator tests.

Table F.6.2.8: Test conditions for a single RRM delay tests, Combining of TPC commands test 1, Demodulation of Paging channel and Detection of Acquisition indicator tests.

| Type of test | Test requirement Delay (s) | Test requirement (ER= 1- success ratio) | Testlimit(ER) = Test requirement (ER)x TL TL | Target number of bad delays | Prob that good unit will fail = Prob that bad unit will pass [%] | Bad unit factor M |
|---|----------------------------------|---|--|--------------------------------------|--|--------------------------------|
| 8.2.2 Cell recelection | 8 | 0.1 | <u>{</u> _1.236 } | <mark>[</mark> _154] | <u>[_</u> 5] | <u>{</u> 1.5 } |
| 8.2.3.1 UTRAN to GSM cell reselection, scenario 1 | 27.9 | 0.1 | €_1.236 } | <u>{</u> 154 } | £5] | <u>{</u> 1.5 } |
| 8.2.3.2 UTRAN to GSM cell reselection, scenario 2 | 9.6 | 0.1 | <u>{</u> _1.236 } | <u>[</u> 154] | <u>[_5]</u> | <u>{</u> 1.5 } |
| 8.2.4 FDD/TDD Cell reselection | 8 | 0.1 | <u>{</u> 1.236 } | <u>{</u> 154 } | <u>{</u> .5 } | [1.5] |
| 8.3.1 FDD/FDD Soft handover | 50+10*KC +100*OC msN.A. | 0.1 | [1.236] | [154] | [5] | [1.5] |
| 8.3.2 FDD FDD Hard Handover 8.3.2.1 Handover to intra frequency cell | <u>110</u> 70 ms | 0.1 | <mark>[</mark> _1.236] | <u>[</u> 154] | <u>{</u> .5} | <u>[</u> 1.5] |
| 8.3.2.2 Handover to interfrequency cell | <u>140</u> 100ms | 0.1 | €_1.236 } | <u>[</u> 154] | £5 } | [_1.5] |
| 7.7.2 Combining of TPC commands Test 1 Note: The theory of statistical testing of RRM delay performance in clause F.6.2 is applied for test case 7.7.2 Combining of TPC commands Test 1. The success ratio for delay is replaced by the success ratio for power control sequence. | Not applicable | 0.01 | <u>{</u> 1.236} | <u>[</u> 154] | <u>{.</u> 5 } | <u>{</u> _1.5} |

| 7.11 Demodulation of Paging Channel (PCH) Note: The theory of statistical testing of RRM delay performance in clause F.6.2 is applied for test case 7.11 Demodulation of Paging Channel. The success ratio for delay is replaced by the success ratio for procedure step 4. | Not applicable | 0.01 | <u>{</u> 1.236} | [_154] | <u>{</u> .5 } | <u>{</u> 1.5 } |
|---|---|------|----------------------------------|--------------------------------|--------------------------|----------------------------|
| 7.12 Detection of Acquisition indicatior (AI). Note: The theory of statistical testing of RRM delay performance in clause F.6.2 is applied for test case 7.12. The success ratio for delay is replaced by the success ratio for procedure steps 5, 6 and 12. | Not applicable | 0.01 | {_1.236} | <u>{</u> .154 } | <u>{</u> _5 } | <u>{</u> _1.5 } |
| 8.4.3. Transport format combination selection in UE. | 140ms (see 8.4.3.1.4.2 step 5) | 0.1 | [_1.236] | <u>[</u> 154] | <u>{</u> .5} | <u>{</u> 1.5 } |
| 8.6.2.2 correct reporting of neighbours in fading propagation condition. | 36.4 s (see procedure 8.6.2.2.4.2 step 6.) | 0.1 | [_1.236] | [_154] | <u>{</u> .5} | <u>{</u> 1.5} |

F.6.2.9 Practical Use (informative)

See figure F.6.2.9:

The early fail limit represents formula (1) in F.6.2.5. The range of validity is $\frac{1}{2}$ ne $\frac{154}{2}$. The early pass limit represents the formula (2) in F.6.2.5. The range of validity is ne=1 to $\frac{1}{2}$ ne =154 $\frac{1}{2}$. See note 1. The intersection co-ordinates of both curves are: target number of bad delays ne = $\frac{1}{2}$ 154 $\frac{1}{2}$ and test limit TL = $\frac{1}{2}$ 1.236 $\frac{1}{2}$.

A typical delay test, calculated form the number of samples and errors (F.6.2.2) using experimental method (1) or (2) (see F.6.2.4.2. calculation assumptions) runs along the yellow trajectory. With an good delay the trajectory goes down vertically. With a bad delay it jumps up right. The tester checks if the ER test intersects the early fail or early pass limits.

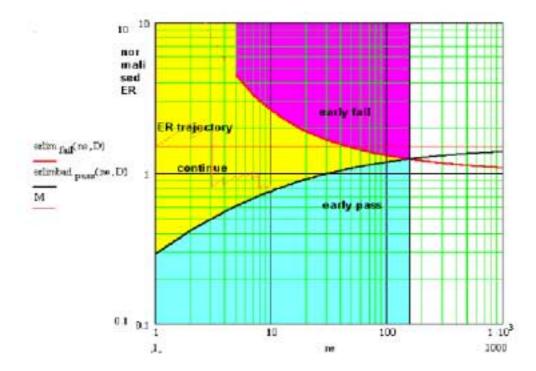


Figure F.6.2.9

Note 1: At the beginning of the test, an artificial bad delay is introduced. This ensures that an ideal DUT meets the valid range of the early pass limit. In addition this ensures that the complementary experiment (F.6.2.4.2. bullet point (2)) is applicable as well. For the check against the early fail limit the artificial bad delay sample, introduced at the beginning of the test, is disregarded.

Due to the nature of the test, namely discrete bad delay events, the early fail condition shall not be valid, when fractional bad delays <1 are used to calculate the early fail limit: Any early fail decision is postponed until number of errors ne $\geq \frac{1}{2}$.

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| | CHANGE REQUEST |
|--------------------------------|--|
| ж 3 | 34.121 CR 341 |
| For <u>HELP</u> on usir | ng this form, see bottom of this page or look at the pop-up text over the 光 symbols. |
| Proposed change aff | rects: UICC apps第 ME X Radio Access Network Core Network |
| Title: 第(| Correction to W-CDMA modulated interferer definition |
| Source: # | Agilent Technologies |
| Work item code: ₩ | Date: |
| D | Release: \$\mathbb{R} \text{ Rel-5}\$ Ise one of the following categories: Use one of the following releases: F (correction) 2 (GSM Phase 2) A (corresponds to a correction in an earlier release) R96 (Release 1996) B (addition of feature), R97 (Release 1997) C (functional modification of feature) R98 (Release 1998) D (editorial modification) R99 (Release 1999) etailed explanations of the above categories can Rel-4 (Release 4) e found in 3GPP TR 21.900. Rel-5 (Release 5) Rel-6 (Release 6) |
| Reason for change: | # The control channels for the W-CDMA modulated interferer definition are not defined relative to the overall interferer power level. |
| Summary of change: | In table E.4 the power of the control channels is modified to be relative to the power of the interferer. A note is added to table E.3.6 to indicate that the power levels of the OCNS channels are relative to each other and that they need to be modified relative to lor depending on which signal they are to be used in so that the total power adds to one (0 dB). |
| Consequences if not approved: | ## The current definition does not define the relative power between the control channel part and the OCNS part of the modulated interferer. Without this change the signal cannot be reliably generated and this may have consequences on the reliability of the tests that use the W-CDMA modulated interferer. |
| Clauses affected: | 第 Annex E.3.6, E.4 |
| Other specs affected: | Y N X Other core specifications X Test specifications X O&M Specifications 34.121 |
| Other comments: | X |

Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

- 1) Fill out the above form. The symbols above marked \(\mathcal{H} \) contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

E.3 During connection

The following clauses describe the downlink Physical Channels that are transmitted during a connection i.e., when measurements are done. For these measurements the offset between DPCH and SCH shall be zero chips at base station meaning that SCH is overlapping with the first symbols in DPCH in the beginning of DPCH slot structure.

E.3.1 Measurement of Tx Characteristics

Table E.3.1 is applicable for measurements on the Transmitter Characteristics (clause 5) with the exception of clauses 5.3, 5.4.1, 5.4.4 and 5.5.2.

NOTE: Applicability to clause 5.7 (Power setting in uplink compressed mode) is FFS.

Table E.3.1: Downlink Physical Channels transmitted during a connection

| Physical Channel | Power | | | | | |
|------------------|-----------------------------|--|--|--|--|--|
| Îor | -93 dBm / 3,84MHz | | | | | |
| CPICH | CPICH_Ec / DPCH_Ec = 7 dB | | | | | |
| P-CCPCH | P-CCPCH_Ec / DPCH_Ec = 5 dB | | | | | |
| SCH | SCH_Ec / DPCH_Ec = 5 dB | | | | | |
| PICH | PICH_Ec / DPCH_Ec = 2 dB | | | | | |
| DPCH | -103,3 dBm / 3,84MHz | | | | | |

E.3.2 Measurement of Rx Characteristics

Table E.3.2.1 is applicable for measurements on the Receiver Characteristics (clause 6) with the exception of clauses 6.3 and 6.8.

Table E.3.2.1: Downlink Physical Channels transmitted during a connection

| Physical Channel | Power | | | | |
|------------------|----------------------|--------|--|--|--|
| CPICH | CPICH_Ec / DPCH_Ec | = 7 dB | | | |
| P-CCPCH | P-CCPCH_Ec/ DPCH_Ec | = 5 dB | | | |
| SCH | SCH_Ec / DPCH_Ec | = 5 dB | | | |
| PICH | PICH_Ec / DPCH_Ec | = 2 dB | | | |
| DPCH | Test dependent power | | | | |

Table E.3.2.2 describes the downlink Physical Channels that are required for the test of Spurious Emissions (clause 6.8). The UE is in the CELL_FACH state during the measurement.

Table E.3.2.2: Downlink Physical Channels transmitted during the measurement for Rx Spurious Emissions

| Physical Channel | Power | | | | |
|------------------|----------------------|---------|--|--|--|
| CPICH | –96 dBm / 3,84MHz | | | | |
| P-CCPCH | P-CCPCH_Ec/ CPICH_Ec | = -2 dB | | | |
| SCH | SCH_Ec / CPICH_Ec | = -2 dB | | | |
| PICH | PICH_Ec / CPICH_Ec | = -5 dB | | | |

E.3.3 Measurement of Performance requirements

Table E.3.3 is applicable for measurements on the Performance requirements (clause 7), including clauses 6.3 and 5.4.4, excluding clauses 7.6.1 and 7.6.2.

Table E.3.3: Downlink Physical Channels transmitted during a connection¹

| Physical Channel | Power | | Note | | | |
|------------------|--|-----------|---|--|--|--|
| P-CPICH | P-CPICH_Ec/lor | = -10 dB | Use of P-CPICH or S-CPICH as phase reference is specified for | | | |
| | | | each requirement and is also set by | | | |
| | | | higher layer signalling. | | | |
| S-CPICH | S-CPICH_Ec/lor | = -10 dB | When S-CPICH is the phase | | | |
| | | | reference in a test condition, the | | | |
| | | | phase of S-CPICH shall be | | | |
| | | | 180 degrees offset from the phase of P-CPICH. When S-CPICH is not | | | |
| | | | the phase reference, it is not | | | |
| | | | transmitted. | | | |
| P-CCPCH | P-CCPCH_Ec/lor | = -12 dB | | | | |
| SCH | SCH_Ec/lor | = -12 dB | This power shall be divided equally | | | |
| | | | between Primary and Secondary | | | |
| | | | Synchronous channels | | | |
| PICH | $PICH_Ec/lor = -15 dB$ | | | | | |
| DPCH | Test dependent power | er | When S-CPICH is the phase | | | |
| | | | reference in a test condition, the | | | |
| | | | phase of DPCH shall be | | | |
| | | | 180 degrees offset from the phase | | | |
| | | | of D ODIOL | | | |
| | | | P-CPICH. | | | |
| OCNS | Necessary power so that total | | OCNS interference consists of 16 | | | |
| | transmit power spectral density | | dedicated data channels as | | | |
| NOTE: Fandan : | of Node B (lor) adds to one specified in table E.3.6. | | | | | |
| | or dynamic power correction required to compensate for the presence of transient | | | | | |
| channels, e.g. | nnels, e.g. control channels, a subset of the DPCH channels may be used. | | | | | |

1 Power levels are based on the assumption that multipath propagation conditions and noise source representing interference from other cells Ioc are turned on after the call set-up phase.

E.3.4 Connection with open-loop transmit diversity mode

Table E.3.4 is applicable for measurements for clause 7.6.1.

Table E.3.4: Downlink Physical Channels transmitted during a connection²

| Physical Channel | Power | Note | | | | | |
|---------------------|--|--|--|--|--|--|--|
| P-CPICH (antenna 1) | P-CPICH_E _{c1} /I _{or} = -13 dB | 1. Total P-CPICH_E _C /I _{or} = −10 dB | | | | | |
| P-CPICH (antenna 2) | P-CPICH_E _{c2} /I _{or} = -13 dB | | | | | | |
| P-CPICH (antenna 1) | P-CPICH_E _{c1} /I _{or} = -13 dB | 1. Total P-CPICH_E _C /I _{or} = −10 dB | | | | | |
| P-CPICH (antenna 2) | P-CPICH_E _{c2} / I_{or} = -13 dB | | | | | | |
| P-CCPCH (antenna 1) | P-CCPCH_Ec ₁ / I_{or} = -15 dB | STTD applied | | | | | |
| P-CCPCH (antenna 2) | P-CCPCH_Ec ₂ /I _{or} = -15 dB | 2. Total P-CCPCH_Ec/I _{or} = -12 dB | | | | | |
| SCH (antenna 1 / 2) | $SCH_E_C/I_{Or} = -12 dB$ | TSTD applied. This power shall be divided equally between Primary and Secondary Synchronous channels | | | | | |
| PICH (antenna 1) | $PICH_{E_{C1}}/I_{or} = -18 \text{ dB}$ | 1. STTD applied | | | | | |
| PICH (antenna 2) | $PICH_{E_{c2}}/I_{or} = -18 \text{ dB}$ | 2. Total PICH_E _c /l _{or} = −15 dB | | | | | |
| DPCH | Test dependent power | STTD applied Total power from both antennas | | | | | |
| OCNS | Necessary power so that total transmit power spectral density of Node B (I _{or}) adds to one | This power shall be divided equally between antennas OCNS interference consists of 16 dedicated data channels as specified in Table E.3.6. | | | | | |
| | | | | | | | |

E.3.5 Connection with closed loop transmit diversity mode

table E.3.5 is applicable for measurements for clause 7.6.2.

Table E.3.5: Downlink Physical Channels transmitted during a connection³

| Physical Channel | Power | Note | | | |
|---|-----------------------------------|---|--|--|--|
| P-CPICH (antenna 1) | P-CPICH_Ec1/lor = -13 dB | 1. Total P-CPICH_Ec/lor = -10 dB | | | |
| P-CPICH (antenna 2) | P-CPICH_Ec2/lor = -13 dB | | | | |
| P-CCPCH (antenna 1) | P-CCPCH_Ec1/lor = -15 dB | STTD applied | | | |
| P-CCPCH (antenna 2) | P-CCPCH_Ec2/lor = -15 dB | STTD applied, total | | | |
| | | P-CCPCH_Ec/lor = -12 dB | | | |
| SCH (antenna 1 / 2) | $SCH_Ec/lor = -12 dB$ | TSTD applied | | | |
| PICH (antenna 1) | PICH_Ec1/lor = -18 dB | STTD applied | | | |
| PICH (antenna 2) | PICH_Ec2/lor = -18 dB | STTD applied, total | | | |
| | _ | PICH_Ec/lor = -15 dB | | | |
| DPCH | Test dependent power | Total power from both antennas | | | |
| OCNS | Necessary power so that total | This power shall be divided | | | |
| | transmit power spectral density | equally between antennas | | | |
| | of Node B (lor) adds to one | OCNS interference consists of | | | |
| | | 16 dedicated data channels as | | | |
| | | specified in Table E.3.6. | | | |
| NOTE: For dynamic po | wer correction required to compen | sate for the presence of transient | | | |
| channels, e.g. control channels, a subset of the DPCH channels may be used. | | | | | |

² Power levels are based on the assumption that multipath propagation conditions and noise source representing interference from other cells Ioc are turned on after the call set-up phase.

³ Power levels are based on the assumption that multipath propagation conditions and noise source representing interference from other cells Ioc are turned on after the call set-up phase.

Table E.3.6: DPCH Channelization Code and relative level settings for OCNS signal.

| Channelization Code at SF=128 ¹ | Relative Level setting (dB) 1.2 | DPCH Data |
|---|---------------------------------|-----------------|
| 2 | -1 | The DPCH data |
| 11 | -3 | for each |
| 17 | -3 | channelization |
| 23 | -5 | code shall be |
| 31 | -2 | uncorrelated |
| 38 | -4 | with each other |
| 47 | -8 | and with any |
| 55 | -7 | wanted signal |
| 62 | -4 | over the period |
| 69 | -6 | of any |
| 78 | -5 | measurement. |
| 85 | -9 | |
| 94 | -10 | |
| 125 | -8 | |
| 113 | -6 | |
| 119 | 0 | |

NOTE_1: -The DPCH Channelization Codes and relative level settings are chosen to simulate a signal with realistic Peak to Average Ratio.

NOTE 2: The relative level setting specified in dB refers only to the relationship between the OCNS channels. The level of the OCNS channels relative to the Ior of the complete signal is a function of the power of the other channels in the signal with the intention that the power of the group of OCNS channels is used to make the total signal add up to 1.

E.4 W-CDMA Modulated Interferer

Table E.4.1 describes the downlink Physical Control Channels that are transmitted as part of the W-CDMA modulated interferer.

Table E.4.1: Spreading Code, Timing offsets and relative level settings for W-CDMA Modulated Interferer signal control channels.

| Channel Type | Spreading Factor | Channelization Code | Timing offset (x256T _{chip}) | Relative level setting (dB)Power | NOTE |
|--------------|---------------------|------------------------|--|---|---|
| P-CCPCH | 256 | 1 | 0 | $\frac{P\text{-CCPCH} Ec/lor = -10}{dB-1}$ | |
| SCH | 256 | - | 0 | SCH_Ec/lor = -10 dB-4 | The SCH power shall be divided equally between Primary and Secondary Synchronous channels |
| P-CPICH | 256 | 0 | 0 | $\frac{\text{P-CPICH Ec/lor} = -10}{\text{dB-1}}$ | |
| PICH | 256 | 16 | 16 | PICH Ec/lor = -15 dB -6 | |
| <u>OCNS</u> | | See table E.3.6 | | Necessary power so that total transmit power spectral density of Node B (lor) adds to one | ocns interference consists of the dedicated data channels. as specified in Table E.3.6. |

See table E.3.6 for the definition of the 16 DPCH portion of the W CDMA modulated interferer.

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| Other specs affected: | ** | 8.7.2 Y N X X | Test | core specific specifications Specification | | H | | | | | | |

8.7.2 CPICH Ec/lo

Other comments:

- 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 $|_{dBm} \ge -114 \text{ dBm}$.

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

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

| | | Accuracy [dB] | | Conditions |
|-------------|------|--|-------------------|----------------------|
| Parameter | Unit | Normal condition | Extreme condition | lo [dBm/3.84 MHz] |
| CPICH_Ec/lo | dB | $\pm 1,5$ for -14 \leq CPICH Ec/lo ± 2 for -16 \leq CPICH Ec/lo $<$ -14 ± 3 for -20 \leq CPICH Ec/lo $<$ -16 | ±3 | -9450 |

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/lo Intra frequency parameters

| Parameter | Unit | Tes | st 1 | Tes | st 2 | Tes | st 3 | |
|------------------------|---------------|--------|---------------|---------|--------|-----------|--------|----|
| Parameter | Onit | Cell 1 | Cell 2 | Cell 1 | Cell 2 | Cell 1 | Cell 2 | |
| UTRA RF Channel number | | Char | nel 1 | Char | nel 1 | Channel 1 | | |
| CPICH_Ec/lor | dB | -1 | 0 | -1 | 10 | -1 | 0 | |
| PCCPCH_Ec/lor | dB | -1 | 2 | -1 | 12 | -1 | 2 | |
| SCH_Ec/lor | dB | -1 | 2 | -12 | | -12 | | |
| PICH_Ec/lor | dB | -1 | 5 | -15 | | -15 | | |
| DPCH_Ec/lor | dB | -15 | - | -15 | - | -6 | - | |
| OCNS_Ec/lor | dB | -1.11 | -0.94 | -1.11 | -0.94 | .2.56 | -0.94 | |
| loc | dBm/ 3.84 MHz | -56 | -56.98 -89.07 | | -94 | .98 | | |
| Îor/loc | dB | 3.0 | 3.0 | -2.9 | -2.9 | -9.0 | -9.0 | |
| CPICH Ec/lo, Note 1 | dBm | -14.0 | -14.0 | -16.0 | -16.0 | -20.0 | -20.0 | |
| Io, Note 1 | dBm/3.84 MHz | -50 | | -50 -86 | | 36 | -6 | 94 |
| Propagation condition | - | AW | AWGN AWGN | | AW | GN | | |

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

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

8.7.2.1.1.4.2 Procedure

1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2.3. The RF parameters for Test 1 are set up according to table 8.7.2.1.1.5.

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

Table 8.7.2.1.1.3: CPICH Ec/lo measurement report mapping

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

8.7.2.1.1.5 Test requirements

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

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

| | | Accuracy [dB] | | Conditions |
|--------------|------|---|-------------------|----------------------|
| Parameter | Unit | Normal condition | Extreme condition | lo [dBm/3.84 MHz] |
| CPICH Ec/Io | dB | -3.11.9 for -14 ≤ CPICH Ec/lo -3.62.4 for -16 ≤ CPICH Ec/lo < -14 -4.63.4 for -20 ≤ CPICH Ec/lo < -16 | -4.63.4 | -9487 |
| CFICIL_EC/10 | | \pm 1.95 for -14 \leq CPICH Ec/lo \pm 2.4 for -16 \leq CPICH Ec/lo $<$ -14 \pm 3.4 for -20 \leq CPICH Ec/lo $<$ -16 | ± 3.4 | -8750 |

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/lo Intra frequency tests parameters

| Parameter | Unit | Tes | st 1 | Tes | st 2 | Test 3 | |
|------------------------|---------------|--------|--------|--------|--------|-----------|--------|
| Farameter | Oilit | Cell 1 | Cell 2 | Cell 1 | Cell 2 | Cell 1 | Cell 2 |
| UTRA RF Channel number | | Chan | nel 1 | Char | nel 1 | Channel 1 | |
| CPICH_Ec/lor | dB | -9 | .7 | -9 | .8 | -9 | .9 |
| PCCPCH_Ec/lor | dB | -11 | 1.7 | -11 | 1.8 | -11 | 1.9 |
| SCH_Ec/lor | dB | -11 | 1.7 | -11.8 | | -11.9 | |
| PICH_Ec/lor | dB | -14.7 | | -14.8 | | -14.9 | |
| DPCH_Ec/lor | dB | -14.7 | | -14.8 | - | -5.9 | • |
| OCNS_Ec/lor | dB | -1.2 | -1.02 | -1.17 | -0.99 | 2.64 | -0.97 |
| loc | dBm/ 3.84 MHz | -58 | 3.5 | -89.07 | | -93.98 | |
| Îor/loc | dB | 3.3 | 3.3 | -2.6 | -2.6 | -8.7 | -8.7 |
| CPICH Ec/Io, Note 1 | dBm | -13.6 | -13.6 | -15.6 | -15.6 | -19.6 | -19.6 |
| Io, Note 1 | dBm | -51.3 | | -85.85 | | -92.9 | |
| Propagation condition | - | AW | GN | AW | 'GN | AW | GN |

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

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

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

Table 8.7.2.1.1.6: CPICH_Ec/lo 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 $|_{dBm} \ge -114 dBm$.

-
$$\left| CPICH _RSCP1 \right|_{in \, dBm} - CPICH _RSCP2 \right|_{in \, dBm} \le 20 dB$$
.

$$- \frac{I_o}{\left(\hat{I}_{or}\right)_{in\ dB}} - \left(\frac{CPICH _E_c}{I_{or}}\right)_{in\ dB} \le 20dB.$$

Table 8.7.2.1.2.1: CPICH_Ec/lo Intra frequency relative accuracy

| | | Accuracy [dB | Conditions | |
|-------------|------|--|-----------------------|-------|
| Parameter | Unit | Normal condition | ion Extreme condition | |
| | dB | \pm 1,5 for -14 \leq CPICH Ec/lo | | -9450 |
| CPICH_Ec/Io | | ± 2 for -16 \leq CPICH Ec/lo $<$ -14 | ±3 | |
| | | ± 3 for $-20 \le CPICH Ec/lo < -16$ | | |

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

8.7.2.1.2.3 Test purpose

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

8.7.2.1.2.4 Method of test

8.7.2.1.2.4.1 Initial conditions

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

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

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

8.7.2.1.2.4.2 Procedure

- 1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2.3. The RF parameters for Test 1 are set up according to table 8.7.2.1.1.3.
- 2) SS shall transmit MEASUREMENT CONTROL message.
- 3) UE shall transmit periodically MEASUREMENT REPORT messages.
- 4) SS shall check CPICH_Ec/No value of Cell 1 and Cell 2 in MEASUREMENT REPORT messages. According to table 8.7.2.1.1.3 the SS calculates CPICH_Ec/Io power ratio of Cell 1 and Cell 2. CPICH_Ec/Io power ratio value measured from Cell 1 is compared to CPICH_Ec/Io power ratio value measured from Cell 2 for each MEASUREMENT REPORT message.
- 5) The result of step 3) is compared to actual power level difference of CPICH_Ec/Io of Cell 1 and Cell 2.
- 6) SS shall count number of MEASUREMENT REPORT messages transmitted by UE. After 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.2.1.1.3 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 4) and 5) above are repeated. After further 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.2.1.1.3 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 4) and 5) above are repeated.
- 7) After further 1000 MEASUREMENT REPORT messages have been received from UE, the SS shall transmit RRC CONNECTION RELEASE message.
- 8) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

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

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

MEASUREMENT REPORT message for Intra frequency test cases

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

8.7.2.1.2.5 Test requirements

Table 8.7.2.1.2.2: CPICH_Ec/lo Intra frequency relative accuracy

| Parameter | Unit | Accuracy [dB | Conditions | |
|-------------|------|--|-------------------|----------|
| Farameter | Onit | Normal condition | Extreme condition | lo [dBm] |
| | dB | ± 2.3 for -14 \leq CPICH Ec/lo | | -9450 |
| CPICH_Ec/lo | | ± 2.8 for -16 \leq CPICH Ec/lo $<$ -14 | ±3.8 | |
| | | ± 3.8 for $-20 \le CPICH Ec/lo < -16$ | | |

Table 8.7.2.1.2.3: CPICH_Ec/lo Intra frequency tests parameters

| Parameter | Unit | Tes | st 1 | Tes | st 2 | Tes | st 3 |
|------------------------|---------------|--------|--------|--------|--------|-----------|--------|
| Farameter | Offic | Cell 1 | Cell 2 | Cell 1 | Cell 2 | Cell 1 | Cell 2 |
| UTRA RF Channel number | | Char | nel 1 | Char | nel 1 | Channel 1 | |
| CPICH_Ec/lor | dB | -9 | .7 | -9 | .8 | -9 | .9 |
| PCCPCH_Ec/lor | dB | -11 | 1.7 | -11 | 1.8 | -11 | 1.9 |
| SCH_Ec/lor | dB | -11.7 | | -11.8 | | -11.9 | |
| PICH_Ec/lor | dB | -14.7 | | -14.8 | | -14.9 | |
| DPCH_Ec/lor | dB | -14.7 | - | -14.8 | - | -5.9 | - |
| OCNS_Ec/lor | dB | -1.2 | - 1.02 | -1.17 | -0.99 | -2.64 | -0.97 |
| loc | dBm/ 3.84 MHz | -58 | 3.5 | -89.07 | | -93 | .98 |
| Îor/loc | dB | 3.3 | 3.3 | -2.6 | -2.6 | -8.7 | -8.7 |
| CPICH Ec/Io, Note 1 | dBm | -13.6 | -13.6 | -15.6 | -15.6 | -19.6 | -19.6 |
| Io, Note 1 | dBm | -51,3 | | -85 | .85 | -92 | 2.9 |
| Propagation condition | - | AW | 'GN | AW | 'GN | AW | 'GN |

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

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

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/lo Intra frequency relative accuracy requirements for the reported values

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

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

8.7.2.2 Inter frequency measurement accuracy

8.7.2.2.1 Void

8.7.2.2.2 Relative accuracy requirement

8.7.2.2.2.1 Definition and applicability

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

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

8.7.2.2.2.2 Minimum Requirements

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

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

-
$$\left| CPICH _RSCP1 \right|_{in \ dBm} - CPICH _RSCP2 \right|_{in \ dBm} \le 20 dB$$
.

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

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

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

| | | Accuracy [dB | Conditions | |
|-------------|------|--|-------------------|----------------------|
| Parameter | Unit | Normal condition | Extreme condition | lo [dBm/3.84 MHz] |
| | dB | ± 1.5 for -14 \leq CPICH Ec/lo | | -9450 |
| CPICH_Ec/lo | | ± 2 for -16 \leq CPICH Ec/lo $<$ -14 | ±3 | |
| | | ± 3 for $-20 \le CPICH Ec/lo < -16$ | | |

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.

8.7.2.2.4 Method of test

8.7.2.2.2.4.1 Initial conditions

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

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

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

Table 8.7.2.2.2: CPICH Ec/lo Inter frequency parameters

| Parameter | Unit | Tes | st 1 | Tes | Test 2 | | Test 3 | |
|------------------------|------------------|-----------|-----------|-----------|-----------|-----------|-----------|--|
| Parameter | Onit | Cell 1 | Cell 2 | Cell 1 | Cell 2 | Cell 1 | Cell 2 | |
| UTRA RF Channel number | | Channel 1 | Channel 2 | Channel 1 | Channel 2 | Channel 1 | Channel 2 | |
| CPICH_Ec/lor | dB | -1 | 0 | -1 | 10 | -1 | 10 | |
| PCCPCH_Ec/lor | dB | -1 | 2 | -1 | 12 | -1 | 12 | |
| SCH_Ec/lor | dB | -1 | 2 | -1 | 12 | -12 | | |
| PICH_Ec/lor | dB | -1 | 15 | -1 | 15 | -15 | | |
| DPCH_Ec/lor | dB | -15 | - | -6 | - | -6 | - | |
| OCNS_Ec/lor | dB | -1.11 | -0.94 | -2.56 | -0.94 | -2.56 | -0.94 | |
| loc | dBm/ 3.84 MHz | -52.22 | -52.22 | -87.27 | -87.27 | -94.46 | -94.46 | |
| Îor/loc | dB | -1.75 | -1.75 | -4.7 | -4.7 | -9.54 | -9.54 | |
| CPICH Ec/Io, Note 1 | dBm | -14.0 | -14.0 | -16.0 | -16.0 | -20.0 | -20.0 | |
| Io, Note 1 | dBm/3.84 MHz | -50 | -50 | -86 | -86 | -94 | -94 | |
| Propagation condition | - | AW | 'GN | AW | 'GN | AW | 'GN | |

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

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

8.7.2.2.4.2 Procedure

- 1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2.3. The RF parameters for Test 1 are set up according to table 8.7.2.2.2.4.
- 2) SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message.
- 3) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.
- 4) SS shall transmit a MEASUREMENT CONTROL message for intra frequency measurement and transmit another MEASUREMENT CONTROL message for inter frequency measurement.
- 5) UE shall transmit periodically MEASUREMENT REPORT messages.
- 6) SS shall check CPICH_Ec/No value of Cell 1 and Cell 2 in MEASUREMENT REPORT messages. According to table 8.7.2.1.1.3 the SS calculates CPICH_Ec/Io power ratio of Cell 1 and Cell 2. CPICH_Ec/Io power ratio measured from Cell 1 is compared to CPICH_Ec/Io power value measured from Cell 2 for each MEASUREMENT REPORT message.
- 7) The result of step 6) is compared to actual power level difference of CPICH_Ec/Io of Cell 1 and Cell 2.
- 8) SS shall count number of MEASUREMENT REPORT messages transmitted by UE. After 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.2.2.2.4 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 6) and 7) above are repeated. After further 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.2.2.2.4 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 6) and 7) above are repeated.
- 9) After 1000 MEASUREMENT REPORT messages have been received from UE, the SS shall transmit RRC CONNECTION RELEASE message.
- 10) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

8.7.2.2.5 Test requirements

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

Table 8.7.2.2.2.3: CPICH_Ec/lo Inter frequency relative accuracy, test requirements

| | | Accuracy [dB] | | Conditions |
|-------------|------|---|-----------------------|----------------------|
| Parameter | Unit | Normal condition | Extreme condition | lo [dBm/3.84 MHz] |
| CPICH_Ec/lo | dB | ±3.5 for -14 ≤ CPICH Ec/lo ±4 for -16 ≤ CPICH Ec/lo < -14 ±5 for -20 ≤ CPICH Ec/lo < -16- 3.52.3 for -14 ≤ CPICH Ec/lo -4.02.8 for -16 ≤ CPICH Ec/lo <- 14 -5.03.8 for -20 ≤ CPICH Ec/lo <- 16 | ± <u>5</u> -5.03.8 | -9487 |
| | | ± 2.3 for -14 \leq CPICH Ec/lo ± 2.8 for -16 \leq CPICH Ec/lo $<$ -14 ± 3.8 for -20 \leq CPICH Ec/lo $<$ -16 | ± 3.8 | -8750 |

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/lo Inter frequency tests parameters

| Parameter | Unit | Tes | st 1 | Test 2 | | Test 3 | |
|------------------------|------------------|-----------|-----------|-----------|-----------|-----------|-----------|
| raiailletei | Onit | Cell 1 | Cell 2 | Cell 1 | Cell 2 | Cell 1 | Cell 2 |
| UTRA RF Channel number | | Channel 1 | Channel 2 | Channel 1 | Channel 2 | Channel 1 | Channel 2 |
| CPICH_Ec/lor | dB | -1 | 0 | -1 | 10 | -1 | 10 |
| PCCPCH_Ec/lor | dB | -1 | 12 | -1 | 12 | -12 | |
| SCH_Ec/lor | dB | -1 | 2 | -12 | | -12 | |
| PICH_Ec/lor | dB | -1 | 15 | -1 | 15 | -15 | |
| DPCH_Ec/lor | dB | -15 | - | -6 | - | -6 | - |
| OCNS_Ec/lor | dB | -1.12 | -0.95 | -2.55 | -0.94 | -2.55 | -0.94 |
| loc | dBm/ 3.84 MHz | -53.5 | -53.5 | -86.27 | -86.27 | -93.46 | -93.46 |
| Îor/loc | dB | -1.45 | -1.45 | -4.4 | -4.4 | -9.24 | -9.24 |
| CPICH Ec/lo, Note 1 | dBm | -13.8 | -13.8 | -15.7 | -15.7 | -19.7 | -19.7 |
| Io, Note 1 | dBm | -51.15 | -51.15 | -84.9 | -84.9 | -93 | -93 |
| Propagation condition | - | AW | 'GN | AWGN | | AWGN | |

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

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

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 8.7.2.2.5: CPICH_Ec/lo 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) tbd | | | | | |
| 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) tbd | | | | | |
| Highest reported value cell2 | CPICH_Ec/No_(x + 8) | CPICH_Ec/No_(x + 8) | CPICH Ec/No (x + 10) tbd | | | | | |
| CPICH_Ec/No_x is the reported | CPICH_Ec/No_x is the reported value of cell 1 | | | | | | | |

3GPP TSG-T1 Meeting #22 Hyderabad, India, 2 - 6 February, 2004

Tdoc **#***T1-040139*

| | CHANGE REQUEST | <i>π-ν</i> / |
|-------------------------------|---|--------------|
| * | 34.121 CR 353 | |
| For <u>HELP</u> on u | sing this form, see bottom of this page or look at the pop-up text over the 業 symbols. | |
| Proposed change | affects: UICC apps第 ME X Radio Access Network Core Network | |
| Title: # | Links to Annex F.6.2 in RRM test cases | |
| Source: # | Rohde & Schwarz | |
| Work item code: ₩ | Date: ≋ 26/01/2004 | |
| Category: ₩ | F | |
| Reason for change | Many RRM testcases are statistical tests. Annex F.6.2 contains rules for statistical testing. The references from the tests to the annex are missing. | |
| Summary of chang | ge: ☆ Provides references from the statistical RRM tests to annex F.6.3 | |
| Consequences if not approved: | 光 Tests ambigous | |
| Clauses affected: | 器 8.2.2 8.2.3, 8.2.4, 8.3.1, 8.3.2, 8.3.3, 8.3.4, 8.3.5, 8.3.6, 8.3.7, 8.4.6 8.4.2, 8.4.3, 8.6.1, 8.6.2, 8.6.3, | 1, |
| Other specs affected: | Y N | |
| Other comments: | ¥ | |

8 Requirements for support of RRM

8.1 General

8.2 Idle Mode Tasks

8.2.1 Cell Selection

Void.

8.2.2 Cell Re-Selection

8.2.2.1 Scenario 1: Single carrier case

8.2.2.1.1 Definition and applicability

The cell re-selection delay is defined as the time from a change of cell levels to the moment when this change makes the UE camp on a new cell, and starts to send preambles on the PRACH for the RRC CONNECTION REQUEST message to perform a Location Updating procedure (MM) or Routing Area Updating procedure (GMM) on the new cell.

The requirements and this test apply to the FDD UE.

8.2.2.1.2 Minimum requirement

The cell re-selection delay shall be less than 8 s with a DRX cycle length of 1.28 s.

The rate of correct cell reselections observed during repeated tests shall be at least 90% with a confidence level of [FFFS]95 %.

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

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

T_{SI} Maximum repetition period of relevant system info blocks that needs to be received

by the UE to camp on a cell. 1280 ms is assumed in this test case.

This gives a total of 7.68 s, allow 8s in the test case.

The normative reference for this requirement is TS 25.133 [2] clauses 4.2.2.2 and A.4.2.1.

8.2.2.1.3 Test purpose

To verify that the UE meets the minimum requirement.

8.2.2.1.4 Method of test

8.2.2.1.4.1 Initial conditions

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

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

This scenario implies the presence of 1 carrier and 6 cells as given in tables 8.2.2.1.1 to 8.2.2.1.3. The UE is requested to monitor neighbouring cells on 1 carrier. The maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell shall be 1 280 ms. Cell 1 and cell 2 shall belong to different Location Areas.

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

| | Parameter | Unit | Value | Comment |
|--------------------------|---|------|--|--|
| Initial | Active cell | | Cell2 | |
| condition | Neighbour cells | | Cell1, Cell3, Cell4, Cell5, Cell6 | |
| Final condition | Active cell | | Cell1 | |
| TYPE 1 | NFORMATION BLOCK non GSM-MAP NAS system | - | 00 80(H) → Cell 1 00 81(H) → Cell 2 | This identity should be set as different value from the neigbour cell so that a Location Updating procedure(MM) or a Routing Area Updating procedure(GMM) is performed when UE selects more suitable cell in idle state. |
| Access Se - Persisten | rvice Class (ASC#0) nce value | - | 1 | Selected so that no additional delay is caused by the random access procedure. The value shall be used for all cells in the test. |
| HCS | | | | Not used |
| DRX cycle | length | S | 1,28 | The value shall be used for all cells in the test. |
| T1 | | S | 15 | T1 need to be defined so that cell reselection reaction time is taken into account. |
| T2 | | S | 15 | T2 need to be defined so that cell reselection reaction time is taken into account. |

Table 8.2.2.1.2: Scenario 1: Test parameters for Cell re-selection single carrier multi cell

| | Parameter | Unit | С | ell 1 | Ce | ell 2 | Се | II 3 | Cel | I 4 | С | ell 5 | Ce | ell 6 |
|-----------------------|--|-------------------|---|---------|-------------------|---|---|----------------------------------|---|--------------------------------|-------------------|---|-------------------|---|
| | | | T1 | T2 | T1 | T2 | T1 | T2 | T1 | T2 | T1 | T2 | T1 | T2 |
| | UTRA RF Channe Number | | Chan | nel 1 | Chann | el 1 | Chann | Channel 1 | | el 1 | Chan | nel 1 | Chanr | nel 1 |
| | CPICH_Ec/lor | dB | -10 | | -10 | | -10 | | -10 | | -10 | | -10 | |
| | PCCPCH_Ec/lor | dB | -12 | | -12 | | -12 | | -12 | | -12 | | -12 | |
| | SCH_Ec/lor | dB | -12 | | -12 | | -12 | | -12 | | -12 | | -12 | |
| | PICH_Ec/lor | dB | -15 | | -15 | | -15 | | -15 | | -15 | | -15 | |
| | OCNS_Ec/lor | dB | -0,94 | 1 | -0,941 | | -0,941 | | -0,941 | | -0,94 | 1 | -0,941 | |
| | \hat{I}_{or}/I_{oc} | dB | 7,3 | 10,27 | 10,27 | 7,3 | 0,27 | | 0,27 | | 0,27 | | 0,27 | |
| \hat{I}_{or} (| (Note 1) | dBm 62.7 | -59. | 73 -59 | .73 -62. | .73 -69 | .73 | -69. | .73 | -69. | .73 | -69 | .73 | |
| | I_{oc} | dBm / 3,84 MHz | -70 | | | | | | | | | | | |
| | CPICH_Ec/Io | dB | -16 | -13 | -13 | -16 | -23 | | -23 | | -23 | | -23 | |
| Propagation Condition | | | | | | GN | | | | | | | | |
| | Cell_selection_and reselection_quality measure | _ | CPIC | H E₀/N₀ | СРІСН | I E _c /N ₀ | CPICH | I E _c /N ₀ | СРІСН | E _c /N ₀ | CPIC | H E₀/N₀ | CPICH | H E₀/N₀ |
| | Qqualmin | dB | | -20 | - | 20 | -2 | 20 | -20 | 0 | | -20 | -: | 20 |
| | Qrxlevmin | dBm | - | 115 | -1 | 115 | -1 | 15 | -11 | 5 | - | 115 | -1 | 15 |
| | UE_TXPWR_MAX RACH | dB | | 21 | 2 | 21 | 2 | 1 | 21 | | | 21 | 2 | 21 |
| | Qoffset2 _{s, n} | dB | C1, C2: 0 C1, C3: 0 C1, C4: 0 C1, C5: 0 C1, C6: 0 | | C2, C2, C2, | C1: 0 C3: 0 C4: 0 C5: 0 C6: 0 | C3, 0 C3, 0 C3, 0 C3, 0 C3, 0 | C2: 0 C4: 0 C5: 0 | C4, C C4, C C4, C C4, C C4, C | 2: 0 3: 0 5: 0 | C5, C5, C5, | C1: 0 C2: 0 C3: 0 C4: 0 C6: 0 | C6, C6, C6, | C1: 0 C2: 0 C3: 0 C4: 0 C5: 0 |
| | Qhyst2 | dB | , | 0 | | 0 | (| | 0 | | 0 | | 0 | |
| | Treselection | S | | 0 | | 0 | (|) | 0 | | 0 | | 0 | |
| | Sintrasearch | dB | no | t sent | not | sent | not | sent | not s | ent | no | t sent | not | sent |

Note 1 The nominal Îor values, although not explicitly defined in 25.133 are added here since they are implied and need to be identified so that the test equipment can be configured.

8.2.2.1.4.2 Procedure

- 1) The SS activates cell 1-6 with T1 defined parameters in table 8.2.2.1.3 and monitors cell 1 and 2 for random access requests from the UE.
- 2) The UE is switched on.
- 3) The SS and the UE shall perform a first registration procedure on cell2.
- 4) 15 s after step 3 has completed, the parameters are changed to that as described for T2 in table 8.2.2.1.3.
- 5) The SS waits for random access requests from the UE. If the UE responds on cell 1 within 8 s from the beginning of time period T2 then the number of successful tests is increased by one. The SS and the UE shall perform a Location Updating procedure (MM) or a Routing Area Updating procedure (GMM) on cell1.
- 6) After 15 s from the beginning of time period T2, the parameters are changed to that as described for T1 in table 8.2.2.1.3.
- 7) The SS waits for random access requests from the UE. If the UE responds on cell 2 within 8 s from the beginning of time period T1 then the number of successful tests is increased by one. The SS and the UE shall perform a Location Updating procedure(MM) or a Routing Area Updating procedure (GMM) on cell 2.
- 8) After 15 s from the beginning of time period T1, the parameters are changed to that as described for T2.
- 9) Repeat step 5) to 8) until the confidence level according to annex F.6.2 is achieved [TBD] times.

NOTE: The time required for receiving all the relevant system information data according to the reception procedure and the RRC procedure delay of system information blocks defined in 25.331 for a UTRAN cell. Since the maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell is 1280ms and the maximum RRC procedure delay for reception system information block is 100ms, 1380 ms is assumed in this test case. Therefore this gives a total of 7.78s.(Minimum requirement + 100ms), allow 8s in the test case.

8.2.2.1.5 Test requirements

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

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

| Parameter | Unit | Ce | ell 1 | Cell 2 | | Ce | ell 3 | Cel | 4 | Ce | ell 5 | Ce | ell 6 |
|------------------------------|-------------------|-----------|-------|-----------|-------|-------|-----------|-------|-----------|-------|-------|-------|-------|
| | | T1 | T2 | T1 | T2 | T1 | T2 | T1 | T2 | T1 | T2 | T1 | T2 |
| UTRA RF Channel Number | | Chani | nel 1 | Channel 1 | | Chani | Channel 1 | | Channel 1 | | nel 1 | Chanr | nel 1 |
| CPICH_Ec/lor | dB | -9.4 | | -9.4 | | -10.5 | | -10.5 | | -10.5 | | -10.5 | |
| PCCPCH_Ec/lor | dB | -11.4 | | -11.4 | | -12.5 | | -12.5 | | -12.5 | | -12.5 | |
| SCH_Ec/lor | dB | -11.4 | | -11.4 | | -12.5 | | -12.5 | | -12.5 | | -12.5 | |
| PICH_Ec/lor | dB | -14.4 | | -14.4 | | -15.5 | | -15.5 | | -15.5 | | -15.5 | |
| OCNS_Ec/lor | dB | -1.10 | | -1.10 | | -0.83 | | -0.83 | | -0.83 | | -0.83 | |
| \hat{I}_{or}/I_{oc} Note 1 | dB | 7.00 | 10.40 | 10.40 | 7.00 | 0.30 | | 0.30 | | 0.30 | | 0.30 | |
| \hat{I}_{or} | dBm | - 63.0 | -59.6 | -59.6 | -63.0 | -69.7 | | -69.7 | | -69.7 | | -69.7 | |
| I_{oc} | dBm / 3,84 MHz | | | | | | -7 | 0 | | | | | |
| CPICH_Ec/lo Note 1 | dB | - 15.7 | -12.3 | -12.3 | -15.7 | -23.5 | | -23.5 | | -23.5 | | -23.5 | |

All other parameters and conditions specified in table 8.2.2.1.2 are unchanged.

NOTE 1: These parameters are not directly settable, but are derived by calculation from the settable parameters.

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

8.2.2.2 Scenario 2: Multi carrier case

8.2.2.2.1 Definition and applicability

The cell re-selection delay is defined as the time from a change of cell levels to the moment when this change makes the UE camp on a new cell, and starts to send preambles on the PRACH for the RRC CONNECTION REQUEST message to perform a Location Updating procedure(MM) or Routing Area Updating procedure (GMM) on the new cell.

The requirements and this test apply to the FDD UE.

8.2.2.2.2 Minimum requirement

The cell re-selection delay shall be less than 8 s with a DRX cycle length of 1.28 s.

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

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

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

T_{SI} Maximum repetition period of relevant system info blocks that needs to be received by

the UE to camp on a cell. 1280 ms is assumed in this test case.

This gives a total of 7.68 s, allow 8s in the test case.

The normative reference for this requirement is TS 25.133 [2] clauses 4.2.2.3 and A.4.2.2.

8.2.2.2.3 Test purpose

To verify that the UE meets the minimum requirement.

8.2.2.2.4 Method of test

8.2.2.2.4.1 Initial conditions

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

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

This scenario implies the presence of 2 carriers and 6 cells as given in tables 8.2.2.2.1 to 8.2.2.2.3. The UE is requested to monitor neighbouring cells on 2 carriers. The maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell shall be 1 280 ms. Cell 1 and cell 2 shall belong to different Location Areas.

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

| F | Parameter | Unit | Value | Comment | | | | |
|-----------------|--------------------------------|------|--|--|------|--|----|--|
| Initial | Active cell | | Cell2 | | | | | |
| condition | Neighbour cells | | Cell1, Cell3,Cell4, Cell5, Cell6 | | | | | |
| Final condition | Active cell | | Cell1 | | | | | |
| BLOCK TY | on GSM-MAP NAS | - | 00 80(H) → Cell 1 00 81(H) → Cell 2 | This identity should be set as different value from the neigbour cell so that a Location Updating procedure (MM) or a Routing Area Updating procedure (GMM) is performed when UE selects more suitable cell in idle state. | | | | |
| - Persistend | vice Class (ASC#0) ce value | - | 1 | Selected so that no additional delay is caused by the random access procedure. The value shall be used for all cells in the test. | | | | |
| HCS | | | | Not used | | | | |
| DRX cycle | length | S | 1,28 | The value shall be used for all cells in the test. | | | | |
| | T1 | | , , | | T1 s | | 30 | T1 need to be defined so that cell re-selection reaction time is taken into account. |
| | T2 | S | 15 | T2 need to be defined so that cell re-selection reaction time is taken into account. | | | | |

Table 8.2.2.2: Scenario 2: Test parameters for Cell re-selection multi carrier multi cell

| | Param | eter | Unit | С | ell | 1 | | Cell 2 | | | Cell 3 | | С | ell 4 | | Cell | 5 | С | ell 6 |
|------------------------|---|--------|-----------------|----------------|---|----------------------|----------------|--|-------------|-----------------|--|-------------|----------------|---|--------------------------------|---|----------------------|----------------|----------------------------------|
| | | | | T1 | | T2 | T1 | | Γ2 | T1 | | T2 | T1 | T2 | T′ | 1 | T2 | T1 | T2 |
| | UTRA RF C Number | | | Cha | ann | el 1 | Ch | Channel 2 | | Ch | Channel 1 Cha | | Channel 1 | | nann | el 2 | Channel 2 | | |
| | CPICH_Ec/ | lor | dB | | -10 | | | -10 | | | -10 | | | -10 | | -10 |) | -10 | |
| | PCCPCH_E | Ec/lor | dB | | -12 |) | | -12 | | | -12 | | | -12 | | -12 | 2 | | -12 |
| | SCH_Ec/loi | r | dB | | -12 |) | | -12 | | | -12 | | | -12 | | -12 | 2 | | -12 |
| | PICH_Ec/lo | r | dB | | -15 |) | | -15 | | | -15 | | | -15 | | -15 | 5 | | -15 |
| | OCNS_Ec/I | or | dB | -(|).94 | .1 | - | 0.941 | | - | 0.941 | | -(|).941 | | -0.94 | 11 | -(|).941 |
| | \hat{I}_{or}/I_{oc} | | dB | -3.4 | | 2.2 | 2.2 | 2 -: | 3.4 | -7.4 | 1 - | 4.8 | -7.4 | -4.8 | -4. | 8 | -7.4 | -4.8 | -7.4 |
| $\hat{I}_{or\ (Note)}$ | 1) | dBm | -73.39 | - 67.7 5 | -67 | 7.75 | - 73.3 9 | -77.3 | 9 | - 74.7 5 | - 77.3 9 | -7 | 4.75 | -74.75 | - 77.3 9 | - 74. 5 | 7 -7 | 7.39 | |
| | I_{oc} | | m / 3.84 MHz | | | | | | ı | | | -7 | 70 | Į. | | | | | |
| | CPICH_Ec/ | lo | dB | -16 | | -13 | -13 | 3 - | 16 | | -20 | | | -20 | | -20 |) | | -20 |
| Propagation Condition | | | | | | | | | ΑV | /GN | | | | | | | | | |
| | Cell_selecti reselection_ measure | | | CPIC | CPICH E ₀ /N ₀ CPICH E ₀ /N ₀ | | | CPI | CH E | /N ₀ | CPIC | CH E₀/N₀ | СРІ | ICH I | E _o /N ₀ | CPIC | CH E₀/N₀ | | |
| | Qqualmin | | dB | | -20 | | | -20 | | | -20 | | | -20 | | -20 | | | -20 |
| | Qrxlevmin | | dBm | | 115 | 5 | | -115 | | | -115 | | - | 115 | | -115 | 5 | - | 115 |
| | UE_TXPWF RACH | R_MAX_ | dB | | 21 | | | 21 | | | 21 | | | 21 | | 21 | | | 21 |
| | Qoffset2 _{s, n} | | dB | C1 C1 C1 | , C2 , C3 , C4 , C5 , C6 | 3: 0 1: 0 5: 0 | C2 C2 C2 | 2, C1: 2, C3: 2, C4: 2, C5: 2, C6: | 0 0 0 | C3 C3 | 3, C1: 3, C2: 3, C4: 3, C5: 3, C6: | 0 0 0 | C4 C4 C4 | , C1: 0 , C2: 0 , C3: 0 , C5: 0 , C6: 0 | C | 5, C ² 5, C ² 5, C ² 5, C ² 5, C ⁶ | 2: 0 3: 0 4: 0 | C6 C6 C6 | C1: 0 C2: 0 C3: 0 C4: 0 |
| | Qhyst2 | | dB | | 0 | | | 0 | | | 0 | | | 0 | | 0 | | | 0 |
| | Treselection | า | S | | 0 | | | 0 | | | 0 | | | 0 | | 0 | | | 0 |
| | Sintrasearc | h | dB | nc | t se | ent | no | ot sen | | n | ot ser | nt | no | t sent | n | ot se | ent | no | t sent |
| | Sintersearc | h | dB | nc | t se | ent | no | ot sen | | n | ot ser | nt | no | t sent | n | ot se | ent | no | t sent |

Note 1 The nominal Îor values, although not explicitly defined in 25.133 are added here since they are implied and need to be identified so that the test equipment can be configured.

8.2.2.2.4.2 Procedures

- 1) The SS activates cell 1-6 with T1 defined parameters in table 8.2.2.2.3 and monitors cell 1 and 2 for random access requests from the UE.
- 2) The UE is switched on.
- 3) The SS and the UE shall perform a first location registration procedure on cell2.
- 4) 30 s after step3 has completed, the parameters are changed to that as described for T2 in table 8.2.2.2.3.
- 5) The SS waits for random access request from the UE. If the UE responds on cell 1 within 8 s from the beginning of time period T2 then the number of successful tests is increased by one. The SS and the UE shall perform a Location Updating procedure (MM) or a Routing Area Updating procedure (GMM) on cell1.
- 6) After another 15 s from the beginning of time period T2, the parameters are changed to that as described for T1 in table 8.2.2.2.3.
- 7) The SS waits for random access requests from the UE. If the UE responds on cell 2 within 8 s from the beginning of time period T1 then the number of successful tests is increased by one. The SS and the UE shall perform a Location Updating procedure (MM) or a Routing Area Updating procedure (GMM) on cell2.
- 8) After 15 s from the beginning of time period T1, the parameters are changed as described for T2.
- 9) Repeat step 5) to 8) [TBD] times until the confidence level according to annex F.6.2 is achieved.
- NOTE 1: T1 is initially 30 s to allow enough time for the UE to search for cells as it has no prior knowledge of these.
- NOTE 2: The time required for receiving all the relevant system information data according to the reception procedure and the RRC procedure delay of system information blocks defined in 25.331 for a UTRAN cell. Since the maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell is 1280ms and the maximum RRC procedure delay for reception system information block is 100ms, 1380 ms is assumed in this test case. Therefore this gives a total of 7.78s.(Minimum requirement + 100ms), allow 8s in the test case.

8.2.2.2.5 Test requirements

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

Table 8.2.2.2.3: Scenario 2: Test parameters for Cell re-selection multi carrier multi cell, test requirements

| Parameter | Unit | Се | II 1 | Се | Cell 2 | | II 3 | Се | II 4 | Cell 5 | | Cell 6 | |
|------------------------------|------------------|-------|-------|-----------|--------|-------|----------|-------|-------|--------|-------|--------|-------|
| | | T1 | T2 | T1 | T2 | T1 | T2 | T1 | T2 | T1 | T2 | T1 | T2 |
| UTRA RF Channel Number | | Chann | el 1 | Channel 2 | | Chann | nannel 1 | | el 1 | Chann | el 2 | Chann | el 2 |
| CPICH_Ec/lor | dB | -9 | .3 | -6 | -9.3 | | -10.8 | | -10.8 | | 0.8 | -10 | 0.8 |
| PCCPCH_Ec/lor | dB | -1 | 1.3 | -1 | 1.3 | -12 | -12.8 | | -12.8 | | 2.8 | -12.8 | |
| SCH_Ec/lor | dB | -1 | 1.3 | -1 | 1.3 | -12 | 2.8 | -12 | 2.8 | -12 | 2.8 | -12 | 2.8 |
| PICH_Ec/lor | dB | -14 | 4.3 | -1 | 4.3 | -18 | 5.8 | -18 | 5.8 | -18 | 5.8 | -18 | 5.8 |
| OCNS_Ec/lor | dB | -1. | .13 | -1 | .13 | -0. | .77 | -0. | 77 | -0. | 77 | -0. | 77 |
| \hat{I}_{or}/I_{oc} Note 1 | dB | -3.40 | +4.80 | +4.80 | -3.40 | -7.40 | -3.00 | -7.40 | -3.00 | -3.00 | -7.40 | -3.00 | -7.40 |
| \hat{I}_{or} | dBm | -73.4 | -67.0 | -67.0 | -73.4 | -77.4 | -74.8 | -77.4 | -74.8 | -74.8 | -77.4 | -74.8 | -77.4 |
| I_{oc} | dBm/3.8 4 MHz | -70.0 | -71.8 | -71.8 | -70.0 | -70.0 | -71.8 | -70.0 | -71.8 | -71.8 | -70.0 | -71.8 | -70.0 |
| CPICH_Ec/lo Note 1 | dB | -15.3 | -11.5 | -11.5 | -15.3 | -20.8 | -20.8 | -20.8 | -20.8 | -20.8 | -20.8 | -20.8 | -20.8 |

All other parameters and conditions specified in table 8.2.2.2.2 are unchanged.

- NOTE 1: These parameters are not directly settable, but are derived by calculation from the settable parameters.
- NOTE 2: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.2.3 UTRAN to GSM Cell Re-Selection

8.2.3.1 Scenario 1: Both UTRA and GSM level changed

8.2.3.1.1 Definition and applicability

The cell re-selection delay is defined as the time from a change of cell levels to the moment when this change makes the UE camp on a new cell and starts to send the RR Channel Request message for location update to the new cell.

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

8.2.3.1.2 Minimum requirement

The cell re-selection delay shall be less than $26 \text{ s} + T_{BCCH}$, where TBCCH is the maximum time allowed to read BCCH data from GSM cell TS 05.08 [20].

The rate of correct cell reselections observed during repeated tests shall be at least 90% with a confidence level of [FFS]95_%.

NOTE: The cell re-selection delay can be expressed as: $4*T_{measureGSM} + T_{BCCH}$, where:

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

T_{BCCH} Maximum time allowed to read BCCH data from GSM cell TS 05.08 [20].

According to [20], the maximum time allowed to read the BCCH data, when being

synchronized to a BCCH carrier, is 1.9 s.

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

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

8.2.3.1.3 Test purpose

To verify that the UE meets the minimum requirement.

8.2.3.1.4 Method of test

8.2.3.1.4.1 Initial conditions

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

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

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

Table 8.2.3.1.1: Scenario 1: General test parameters for UTRAN to GSM Cell Re-selection

| Pa | rameter | Unit | Value | Comment |
|-----------|----------------|------|-------|----------|
| Initial | Active cell | | Cell1 | |
| condition | Neighbour cell | | Cell2 | |
| Final | Active cell | | Cell2 | |
| condition | | | | |
| HCS | | | | Not used |
| DRX cycle | length | S | 1.28 | |
| T1 | | S | 45 | |
| T2 | | S | 35 | |

Table 8.2.3.1.2: Scenario 1: Cell re-selection UTRAN to GSM cell case (cell 1), initial conditions

| Parameter | Unit | Cell 1 (l | JTRA) |
|--|-----------------|-------------------------|-----------------------|
| | | T1 | T2 |
| UTRA RF Channel Number | | Channel 1 | |
| CPICH_Ec/lor | dB | -10 | |
| PCCPCH_Ec/lor | dB | -12 | |
| SCH_Ec/lor | dB | -12 | |
| PICH_Ec/lor | dB | -15 | |
| OCNS_Ec/lor | dB | -0.941 | |
| \hat{I}_{or}/I_{oc} | dB | 0 | -5 |
| I_{oc} | dBm/3.84 MHz | -70 | |
| CPICH_Ec/lo | dB | -13 | -16.2 |
| CPICH_RSCP | dBm | -80 | -85 |
| Propagation Condition | | AWGN | |
| Cell_selection_and_ reselection_quality_measure | | CPICH E ₀ /I | V ₀ |
| Qqualmin | dB | -20 | |
| Qrxlevmin | dBm | -115 | |
| UE_TXPWR_MAX_RACH | dBm | 21 | |
| Qoffset1 _{s, n} | dB | C1, C2: 0 | |
| Qhyst1 | dB | 0 | |
| Treselection | S | 0 | |
| Ssearch _{RAT} | dB | not sent | |

Table 8.2.3.1.3: Scenario 1: Cell re-selection UTRAN to GSM cell case (cell 2), initial conditions

| Parameter | Unit | Cell 2 | (GSM) | |
|-------------------------------|-------|---------|-------|--|
| rarameter | Offic | T1 | T2 | |
| Absolute RF Channel Number | | ARFCN 1 | | |
| RXLEV | dBm | -90 | -75 | |
| RXLEV_ACCESS_MIN | dBm | -104 | | |
| MS_TXPWR_MAX_CCH | dBm | 33 | | |

8.2.3.1.4.2 Procedure

- 1) The SS activates cell 1 and 2 with T1 defined parameters in tables 8.2.3.1.4 and 8.2.3.1.5 and monitors cell 1 and 2 for random access requests from the UE.
- 2) The UE is switched on.
- 3) The SS waits for random access requests from the UE on cell 1.
- 4) After 45 s, the parameters are changed as described for T2 in tables 8.2.3.1.4 and 8.2.3.1.5.
- 5) The SS waits for random access requests from the UE. If the UE responds on cell 2 within 28 s then the number of successful tests is increased by one.

- 6) After 35 s, the parameters are changed as described for T1 in tables 8.2.3.1.4 and 8.2.3.1.5.
- 7) The SS waits for random access requests from the UE on cell 1.
- 8) Repeat step 4) to 7) [TBD] times until the confidence level according to annex F.6.2 is achieved.

8.2.3.1.5 Test requirements

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

| Parameter | Unit | Cell 1 | (UTRA) |
|--|-----------------|-----------|------------------|
| | | T1 | T2 |
| UTRA RF Channel Number | | Channel | 1 |
| CPICH_Ec/lor | dB | -9.9 | -10.1 |
| PCCPCH_Ec/lor | dB | -12 | |
| SCH_Ec/lor | dB | -12 | |
| PICH_Ec/lor | dB | -15 | |
| OCNS_Ec/lor | dB | -0.953 | -0,928 |
| \hat{I}_{or}/I_{oc} | dB | 0.3 | -5.3 |
| I_{oc} (Note 1) | dBm/3.84 MHz | -70 | |
| CPICH_Ec/lo (Note 2) | dB | -12.8 | -16.5 |
| CPICH_RSCP (Note2) | dBm | -79.6 | -85.4 |
| Propagation Condition | | AWGN | |
| Cell_selection_and_ reselection_quality_measure | | CPICH E | c/N ₀ |
| Qqualmin | dB | -20 | |
| Qrxlevmin | dBm | -115 | |
| UE_TXPWR_MAX_RACH | dBm | 21 | |
| Qoffset1 _{s, n} | dB | C1, C2: 0 | |
| Qhyst1 | dB | 0 | |
| Treselection | S | 0 | |
| Ssearch _{RAT} | dB | not sent | |

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

| Parameter | Unit | Cell 2 | (GSM) |
|-------------------------------|-------|--------|-------|
| raiailletei | Offic | T1 | T2 |
| Absolute RF Channel Number | | ARFCN | 1 |
| RXLEV (Note 1) | dBm | -90 | -75 |
| RXLEV_ACCESS_MIN | dBm | -1 | 04 |
| MS_TXPWR_MAX_CCH | dBm | 3 | 3 |

NOTE 1: For T1 the the ratio $(Ioc/Rxlev)_{test\ requirement} = (Ioc/Rxlev)_{minimum\ requirement} + 0.3\ dB$

For T2 the the ratio (Ioc/Rxlev) $_{test\ requirement} = (Ioc/Rxlev)_{minimum\ requirement}$ - 0.3 dB

NOTE 2: CPICH_Ec/Io and CPICH_RSCP levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.

For the test to pass, the total number of successful tests shall be at least 90% of the cases with a confidence level of [FFFS]95 %.

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

8.2.3.2 Scenario 2: Only UTRA level changed

8.2.3.2.1 Definition and applicability

The cell re-selection delay is defined as the time from a change of cell levels to the moment when this change makes the UE camp on a new cell and starts to send the RR Channel Request message for location update to the new cell.

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

8.2.3.2.2 Minimum requirement

The cell re-selection delay shall be less than $7.7 \text{ s} + T_{BCCH}$, where TBCCH is the maximum time allowed to read BCCH data from GSM cell TS 05.08 [20].

The rate of correct cell reselections observed during repeated tests shall be at least 90% with a confidence level of [FFS]95 %.

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

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

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

DRX cycle 1.28s see Table A.4.7.A in TS 25.133 [2] clause A.4.3.2.

length

T_{BCCH} Maximum time allowed to read BCCH data from GSM cell TS 05.08 [20].

According to [20], the maximum time allowed to read the BCCH data, when being

synchronized to a BCCH carrier, is 1.9 s.

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

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

8.2.3.2.3 Test purpose

To verify that the UE meets the minimum requirement.

8.2.3.2.4 Method of test

8.2.3.2.4.1 Initial conditions

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

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

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

Table 8.2.3.2.1: Scenario 2: General test parameters for UTRAN to GSM Cell Re-selection

| Pa | arameter | Unit | Value | Comment |
|-----------------|----------------|------|-------|----------|
| Initial | Active cell | | Cell1 | |
| condition | Neighbour cell | | Cell2 | |
| Final condition | Active cell | | Cell2 | |
| HCS | | | | Not used |
| DRX cycle | length | S | 1.28 | |
| T1 | | S | 45 | |
| T2 | | S | 12 | |

Table 8.2.3.2.2: Scenario 2: Cell re-selection UTRAN to GSM cell case (cell 1), initial conditions

| Parameter | Unit | Cell 1 | (UTRA) |
|--|-----------------|-----------|-----------------|
| | | T1 | T2 |
| UTRA RF Channel Number | | Channel 1 | |
| CPICH_Ec/lor | dB | -10 | |
| PCCPCH_Ec/lor | dB | -12 | |
| SCH_Ec/lor | dB | -12 | |
| PICH_Ec/lor | dB | -15 | |
| OCNS_Ec/lor | dB | -0.941 | |
| \hat{I}_{or}/I_{oc} | dB | 20 | -9 |
| I_{oc} | dBm/3.84 MHz | -81 | |
| CPICH_Ec/lo | dB | -10.0 | -19.5 |
| CPICH_RSCP | dBm | -70 | -100 |
| Propagation Condition | | AWGN | |
| Cell_selection_and_ reselection_quality_measure | | CPICH E | /N ₀ |
| Qqualmin | dB | -20 | |
| Qrxlevmin | dBm | -115 | |
| UE_TXPWR_MAX_RACH | dBm | 21 | |
| Qoffset1 _{s, n} | dB | C1, C2: 0 | |
| Qhyst1 | dB | 0 | |
| Treselection | S | 0 | |
| Ssearch _{RAT} | dB | not sent | |

Table 8.2.3.2.3: Scenario 2: Cell re-selection UTRAN to GSM cell case (cell 2), initial conditions

| Parameter | Unit | Cell 2 | (GSM) |
|-------------------------------|------|--------------------|-------|
| | | T1 | T2 |
| Absolute RF Channel Number | | ARFCN ² | 1 |
| RXLEV | dBm | -80 | -80 |
| RXLEV_ACCESS_MIN | dBm | -104 | |
| MS_TXPWR_MAX_CCH | dBm | 33 | |

8.2.3.2.4.2 Procedure

- 1) The SS activates cell 1 and 2 with T1 defined parameters in tables 8.2.3.2.4 and 8.2.3.2.5 and monitors cell 1 and 2 for random access requests from the UE.
- 2) The UE is switched on.
- 3) The SS waits for random access requests from the UE on cell 1.
- 4) After 45 s, the parameters are changed as described for T2 in tables 8.2.3.2.4 and 8.2.3.2.5.
- 5) The SS waits for random access requests from the UE. If the UE responds on cell 2 within 9.7 s then the number of successful tests is increased by one.
- 6) After 12 s, the parameters are changed as described for T1 in tables 8.2.3.2.4 and 8.2.3.2.5.
- 7) The SS waits for random access requests from the UE on cell 1.
- 8) Repeat step 4) to 7) [TBD] times until the confidence level according to annex F.6.2 is achieved.

8.2.3.2.5 Test requirements

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

| Parameter | Unit | Cell 1 | (UTRA) |
|--|-----------------|-----------|-----------------|
| | | T1 | T2 |
| UTRA RF Channel Number | | Channel 1 | |
| CPICH_Ec/lor | dB | -9.9 | -10.1 |
| PCCPCH_Ec/lor | dB | -12 | |
| SCH_Ec/lor | dB | -12 | |
| PICH_Ec/lor | dB | -15 | |
| OCNS_Ec/lor | dB | -0.953 | -0.941 |
| \hat{I}_{or}/I_{oc} | dB | 20.3 | -9.3 |
| I_{oc} (Note1) | dBm/3.84 MHz | -81 | |
| CPICH_Ec/lo (Note2) | dB | -9.9 | -19.9 |
| CPICH_RSCP (Note2) | dBm | -70.6 | -100.4 |
| Propagation Condition | | AWGN | |
| Cell_selection_and_ reselection_quality_measure | | CPICH E | /N ₀ |
| Qqualmin | dB | -20 | |
| Qrxlevmin | dBm | -115 | |
| UE_TXPWR_MAX_RACH | dBm | 21 | |
| Qoffset1 _{s, n} | dB | C1, C2: 0 | |
| Qhyst1 | dB | 0 | |
| Treselection | S | 0 | |
| Ssearch _{RAT} | dB | not sent | |

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

| Parameter | Unit | Cell 2 | (GSM) |
|-------------------------------|------|---------|-------|
| | | T1 | T2 |
| Absolute RF Channel Number | | ARFCN 1 | |
| RXLEV (Note1) | dBm | -80 | -80 |
| RXLEV_ACCESS_MIN | dBm | -104 | |
| MS_TXPWR_MAX_CCH | dBm | 33 | |

NOTE 1: For T1 the the ratio $(Ioc/Rxlev)_{test\ requirement} = (Ioc/Rxlev)_{minimum\ requirement} + 0.3\ dB$

For T2 the the ratio $(Ioc/Rxlev)_{test\ requirement} = (Ioc/Rxlev)_{minimum\ requirement} - 0.3\ dB$

NOTE 2: CPICH_Ec/Io and CPICH_RSCP levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.

For the test to pass, the total number of successful tests shall be at least 90% of the cases with a confidence level of [FFS]95 %.

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

8.2.4 FDD/TDD Cell Re-selection

8.2.4.1 Definition and applicability

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

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

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

8.2.4.2 Minimum requirement

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

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

8.2.4.3 Test purpose

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

8.2.4.4 Method of test

8.2.4.4.1 Initial conditions

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

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

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

| | Parameter | Unit | Value | Comment |
|-------------------|--|------|-------|---|
| Initial | Active cell | | Cell1 | FDD cell |
| condition | Neighbour cells | | Cell2 | TDD cell |
| Final condition | Active cell | | Cell2 | TDD cell |
| UE_TXPWR_MAX_RACH | | dBm | 21 | The value shall be used for all cells in the test. |
| | Access Service Class (ASC#0) - Persistence value | | 1 | Selected so that no additional delay is caused by the random access procedure. The value shall be used for all cells in the test. |
| HCS | | | | Not used |
| DRX cycle length | | S | 1.28 | The value shall be used for all cells in the test. |
| | T1 | S | 15 | |
| | T2 | S | 15 | |

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

| Parameter | Unit | Ce | ell 1 | |
|--|-------------------|---------------|--------|--|
| | | T1 | T2 | |
| UTRA RF Channel Number | | Char | nnel 1 | |
| CPICH_Ec/lor | dB | -10 | | |
| P-CCPCH_Ec/lor | dB | -12 | | |
| SCH_Ec/lor | dB | -12 | | |
| PICH_Ec/lor | dB | -15 -0.941 | | |
| OCNS_Ec/lor | dB | -0.9 | 941 | |
| \hat{I}_{or}/I_{oc} | dB | 9 | 3 | |
| I_{oc} | dBm / 3.84 MHz | -70 | | |
| CPICH_RSCP | dBm | -71 | -77 | |
| Propagation Condition | | AW | 'GN | |
| Cell_selection_and_reselection_quality_mea | | CPICH | _Ec/No | |
| sure | | | | |
| Qrxlevmin | dBm | -1 | 15 | |
| Qoffset1 _{s,n} | dB | (|) | |
| Qhyst1 | dB | | 0 | |
| Treselection | S | 0 | | |
| Sintrasearch | dB | not | sent | |
| Sintersearch | dB | not | sent | |

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

| Parameter | Unit | Cell 2 | | | | |
|-------------------------|------|---------|-----|--------|------|--|
| DL timeslot number | | | 0 | | 3 | |
| | | T1 | T2 | T1 | T2 | |
| UTRA RF Channel Number | | | Cha | nnel 2 | | |
| P-CCPCH_Ec/lor | dB | -3 n.a. | | | | |
| PICH_Ec/lor | dB | n. | a. | -3 | | |
| SCH_Ec/lor | dB | | | -9 | | |
| SCH_t _{offset} | dB | | • | 10 | | |
| OCNS_Ec/lor | dB | -3.12 | | | | |
| \hat{I}_{or}/I_{oc} | dB | -4 | 2 | -4 | 2 | |
| P-CCPCH RSCP | dBm | -77 | -71 | n.a. | n.a. | |

| I_{oc} | dBm/ 3,84 MHz | -70 |
|-------------------------|------------------|----------|
| Propagation Condition | | AWGN |
| Qrxlevmin | dBm | -103 |
| Qoffset2 _{s,n} | dB | 0 |
| Qhyst2 | dB | 0 |
| Treselection | S | 0 |
| Sintrasearch | dB | not sent |
| Sintersearch | dB | not sent |

Note that the transmit energy per PN chip for the SCH is averaged over the 256 chip duration when the SCH is present in the time slot.

8.2.4.4.2 Procedures

- a) The SS activates cell 1 and cell 2 with T1 defined parameters and monitors them for random access requests from the UE.
- b) The UE is switched on.
- c) The SS waits for random access requests from the UE.
- d) After 15 s, the parameters are changed as described for T2.
- e) The SS waits for random access request from the UE.
- f) After another 15 s, the parameters are changed as described for T1.

- g) The SS waits for random access requests from the UE.
- h) Repeat step d) to g) [TBD] times until the confidence level according to annex F.6.2 is achieved.

8.2.4.5 Test requirements

- 1) In step c), after the UE has responded on cell 1, it shall not respond on any other cell (cell selection).
- 2) In step e), the UE shall respond on cell 2 within 8 s in more than [FFS] 90 % of the cases.
- 3) In step g), the UE shall respond on cell 1.

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

8.3 UTRAN Connected Mode Mobility

8.3.1 FDD/FDD Soft Handover

8.3.1.1 Definition and applicability

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

The requirements and this test apply to the FDD UE.

8.3.1.2 Minimum requirement

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

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

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

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

And the phase reference is the primary CPICH.

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

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

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

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

8.3.1.3 Test purpose

To verify that the UE meets the minimum requirement.

8.3.1.4 Method of test

8.3.1.4.1 Initial conditions

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

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

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

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

Table 8.3.1.1.1: General test parameters for Soft handover

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

Table 8.3.1.1.2: Cell specific test parameters for Soft handover

| Parameter | Unit | Unit Cell 1 | | | | | | | | Cell 2 | | | Cell 2 | | | | | |
|---|---------------------|----------------------|-------|-------|------|----------------|---------------|--------|--------|--------|-------|--------|--------|--|--|--|--|--|
| | | T1 | T2 | Т3 | T4 | T5 | T6 | T1 | T2 | Т3 | T4 | T 5 | T 6 | | | | | |
| CPICH_Ec/lor | dB | | l. | -10 | -10 | | | | | -10 | · I | | | | | | | |
| PCCPCH_Ec/lor | dB | | | -12 | | | | | | -12 | | | | | | | | |
| SCH_Ec/lor | dB | | | -12 | | | | | | -12 | | | | | | | | |
| PICH_Ec/lor | dB | | | -15 | | | | | | -15 | | | | | | | | |
| DPCH_Ec/lor | dB | Note1 | Note1 | Note1 | | N/ A | N/ A | N/A | N/A | Note3 | Note1 | Not | e1 | | | | | |
| OCNS | | Note2 | Note2 | Note2 | | - 0.9 41 | - 0.9 4 | -0.941 | -0.941 | Note2 | Note2 | Not | e2 | | | | | |
| \hat{I}_{or}/I_{oc} | dB | 0 | 2.91 | 2. | 2.91 | | 2.9 1 | -Inf | 2.91 | 2.91 | 2.91 | 2.9 | 1 | | | | | |
| I_{oc} | dBm/3. 84 MHz | | | | | | | -70 | | | | | | | | | | |
| CPICH_Ec/lo | dB | -13 | -14 | -1 | 14 | -14 | -14 | -Inf | -14 | -14 | -14 | -1 | 14 | | | | | |
| Propagation Condition | | AWGN | | | | | | | | | | | | | | | | |
| Relative delay of paths received from cell 2 with respect to cell 1 | chips | {-148 148} Note 4 | | | | | | | | | | | | | | | | |

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

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

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

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

8.3.1.4.2 Procedure

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

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

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

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

Specific Message Contents

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

MEASUREMENT CONTROL message (step 4):

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

| Information Element/Group name | Value/Remark | | | |
|---|--------------|--|--|--|
| -Amount of reporting | Not Present | | | |
| -Reporting interval | Not Present | | | |
| -Reporting cell status | Not Present | | | |
| Physical channel information elements | | | | |
| -DPCH compressed mode status info (10.3.6.34) | Not Present | | | |
| Note 1: The SFN-CFN observed time difference is calculated from the OFF and Tm parameters contained | | | | |
| in the IE "Cell synchronisation information", TS 25.331, clause 10.3.7.6. According to TS 25.331, | | | | |

in the IE "Cell synchronisation information", TS 25.331, clause 10.3.7.6. According to TS 25.331 8.6.7.7, this IE is included in MEASUREMENT REPORT if IE "Cell synchronisation information reporting indicator" in IE "Cell reporting quantities" TS 25.331, clause 10.3.7.5 is set to TRUE in MEASUREMENT CONTROL.

Note 2: Reporting interval = 0 ms means no periodical reporting

ACTIVE SET UPDATE message (step 8):

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

Radio link addition information

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

Downlink DPCH info for each RL

| Information Element/Group name | Type and reference | Value/Remark |
|--|--|---|
| CHOICE mode | | |
| >FDD | | |
| >>Primary CPICH usage for channel estimation | Primary CPICH usage for channel estimation 10.3.6.62 | Primary CPICH may be used |
| >>DPCH frame offset | Integer(038144 by step of 256) | This should be refriected by the IE" Cell synchronisation information" in received MEASUREMENT REPORT message |
| >>Secondary CPICH info | Secondary CPICH info 10.3.6.73 | Not Present |
| >>DL channelisation code | | |
| >>>Secondary scrambling code | Secondary scrambling code 10.3.6.74 | Not Present |
| >>>Spreading factor | Integer(4, 8, 16, 32, 64, 128, 256, 512) | 128 |
| >>>Code number | Integer(0Spreading factor - 1) | 0 |
| >>>Scrambling code change | Enumerated (code change, no code change) | No code change |
| >>TPC combination index | TPC combination index 10.3.6.85 | 0 |
| >>SSDT Cell Identity | SSDT Cell Identity 10.3.6.76 | Not Present |
| >>Closed loop timing adjustment mode | Integer(1, 2) | Not Present |

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

8.3.1.5 Test requirements

The average measured quality on the DTCH of the UE downlink during T6 shall be BLER =0.01(±30%. (The <u>final BLER measured quality</u> shall be <u>achieved by integrating averaged</u> over <u>a</u> number of repetitions of procedure step 10).

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

8.3.2 FDD/FDD Hard Handover

8.3.2.1 FDD/FDD Hard Handover to intra-frequency cell

8.3.2.1.1 Definition and applicability

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

The requirements and this test apply to the FDD UE.

8.3.2.1.2 Minimum requirement

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

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

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

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

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

where

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

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

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

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

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

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

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

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

8.3.2.1.3 Test purpose

To verify that the UE meets the minimum requirement.

8.3.2.1.4 Method of test

8.3.2.1.4.1 Initial conditions

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

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

The test parameters are given in table 8.3.2.1.1 and 8.3.2.1.2 below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 1A and 1B shall be used, and that CPICH Ec/Io and SFN-CFN observed timed difference shall be reported together with Event 1A. The test consists of three successive time periods, with a time duration of T1, T2 and T3 respectively. At the start of time duration T1, the UE may not have any timing information of cell 2.

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

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

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

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

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

| Parameter | Unit | | Cell 1 | | | Cell 2 | |
|--------------------------|---------------------|-------|--------|-------|-----------|--------|-------|
| | • | T1 | T2 | Т3 | T1 | T2 | T3 |
| CPICH_Ec/lor | dB | | -10 | | | -10 | |
| PCCPCH_Ec/lor | dB | | -12 | | | -12 | |
| SCH_Ec/lor | dB | | -12 | | | -12 | |
| PICH_Ec/lor | dB | | -15 | | | -15 | |
| DPCH_Ec/lor | dB | Note1 | Note1 | Note3 | N/A | N/A | Note1 |
| OCNS | | Note2 | Note2 | Note2 | -0.941 | -0.941 | Note2 |
| \hat{I}_{or}/I_{oc} | dB | 0 | 6. | 97 | -Infinity | 5. | 97 |
| I_{oc} | dBm/ 3.84 MHz | | | | 70 | | |
| CPICH_Ec/lo | dB | -13 | | | -Infinity | -1 | 4 |
| Propagation Condition | | AWGN | | | | | |

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

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

Note 3: The DPCH may not be power controlled by the power control loop.

8.3.2.1.4.2 Procedure

- 1) The RF parameters are set up according to T1.
- 2) The UE is switched on.
- 3) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.4.
- 4) SS shall transmit a MEASUREMENT CONTROL message.
- 5) 5 seconds after step4 has completed, the SS shall switch the power settings from T1 to T2
- 6) UE shall transmit a MEASUREMENT REPORT message triggered by event 1A
- 7) SS shall transmit a PHYSICAL CHANNEL RECONFIGURATION message with activation time set to "now". SS shall transmit the whole message such that it will be available at the UE no later than a period equals to the RRC procedure delay (= 80 ms) prior to the beginning of T3.

- 8) After 5 seconds from the beginning of time period T2, the SS shall switch the power settings from T2 to T3
- 9) UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the UL DCCH of cell 2. If the UE transmits the UL DPCCH to cell 2 less than 110 ms from the beginning of time period T3 then the number of successful tests is increased by one.
- 10) After 5 seconds from the beginning of time period T3, the UE is switched off. Any timing information of cell 2 is deleted in the UE.
- 11) Repeat step 1-10 [TBD] until the confidence level according to annex F.6.2 is achieved times

Specific Message Contents

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

MEASUREMENT CONTROL message (step 4):

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

| | Information Element/Group name | Value/Remark | |
|----------|--|--|--|
| -Amoi | unt of reporting | Not Present | |
| -Repo | orting interval | Not Present | |
| -Repo | orting cell status | Not Present | |
| Physical | channel information elements | | |
| -DPCH c | ompressed mode status info (10.3.6.34) | Not Present | |
| Note 1: | The SFN-CFN observed time difference is calculated in the IE "Cell synchronisation information ", TS 25.33 8.6.7.7, this IE is included in MEASUREMENT REPO reporting indicator" in IE "Cell reporting quantities" TS MEASUREMENT CONTROL. | 1, clause 10.3.7.6. According to TS 25.331, RT if IE "Cell synchronisation information | |
| Note 2: | Note 2: Reporting interval = 0 ms means no periodical reporting | | |

PHYSICAL CHANNEL RECONFIGURATION message (step 7):

| Information Element | Value/Remark |
|---|---|
| Message Type | |
| UE Information Elements | |
| -RRC transaction identifier | 0 |
| -Integrity check info | Not Present |
| -Integrity protection mode info | Not Present |
| -Ciphering mode info | Not Present |
| -Activation time | "now" |
| -New U-RNTI | Not Present |
| -New C-RNTI | Not Present |
| -RRC State Indicator | CELL_DCH |
| -UTRAN DRX cycle length coefficient | Not Present |
| CN Information Elements | |
| -CN Information info | Not Present |
| UTRAN mobility information elements | |
| -URA identity | Not Present |
| RB information elements | |
| -Downlink counter synchronisation info | Not Present |
| PhyCH information elements | |
| -Frequency info (10.3.6.36) | |
| -CHOICE mode | FDD |
| -UARFCN uplink(Nu) | Same uplink UARFCN as used for cell 2 |
| -UARFCN downlink(Nd) | Same downlink UARFCN as used for cell 2 |
| Uplink radio resources | 00 15 |
| -Maximum allowed UL TX power | 33 dBm |
| -CHOICE channel requirement | Uplink DPCH info |
| -Uplink DPCH info (10.3.6.88) | |
| -Uplink DPCH power control info (10.3.6.91) | |
| -CHOICE mode | FDD |
| -DPCCH power offset | -6dB |
| - PC Preamble | 1 frame |
| - SRB delay | 7 frames |
| - Power Control Algorithm | Algorithm1 |
| - TPC step size | 1dB |
| -CHOICE mode | FDD |
| -Scrambling code type | Long |
| -Scrambling code number | 0 (0 to 16777215) |
| -Number of DPDCH | Not Present(1) 64 |
| -Spreading factor -TFCI existence | |
| -Number of FBI bit | TRUE |
| | Not Present(0) |
| -Puncturing Limit Downlink radio resources | TBD |
| -CHOICE mode | FDD |
| -Downlink PDSCH information | Not Present |
| -Downlink PDSCH information -Downlink information common for all radio links (10.3.6.24) | INOUT TESCHIL |
| -Downlink DPCH info common for all RL (10.3.6.18) | |
| -Timing indicator | Initialise |
| -CFN-targetSFN frame offset | Not Present |
| -Downlink DPCH power control information (10.3.6.23) | NOCE TOSOILE |
| -Downlink DF G11 power control information (10.3.6.23) -DPC mode | 0 (single) |
| -CHOICE mode | FDD |
| -Power offset P _{Pilot-DPDCH} | TBD |
| -DL rate matching restriction information | Not Present |
| -Spreading factor | 128 |
| -Fixed or Flexible Position | Fixed |
| -TFCI existence | TRUE |
| -CHOICE SF | 128 |
| -Number of bits for Pilot bits(SF=128,256) | 8 |
| -CHOICE mode | FDD |
| -DPCH compressed mode info (10.3.6.33) | Not Present |
| -TX Diversity mode (10.3.6.86) | None |
| -SSDT information (10.3.6.77) | Not Present |
| -33D1 mornation (10.3.6.17) -Default DPCH Offset Value (10.3.6.16) | 0 |
| -Downlink information per radio link list | 1 |
| -Downlink information per radio link list -Downlink information for each radio link (10.3.6.27) | ' |
| -DOWNINK INIONNATION FACILIATION HIRK (10.3.0.21) | |

| Information Element | Value/Remark |
|--|---------------------------|
| -CHOICE mode | FDD |
| -Primary CPICH info (10.3.6.60) | |
| -Primary scrambling code | 350 |
| -PDSCH with SHO DCH info (10.3.6.47) | Not Present |
| -PDSCH code mapping (10.3.6.43) | Not Present |
| -Downlink DPCH info for each RL (10.3.6.21) | |
| -CHOICE mode | FDD |
| -Primary CPICH usage for channel estimation | Primary CPICH may be used |
| -DPCH frame offset | 0 chips |
| -Secondary CPICH info | Not Present |
| -DL channelisation code | |
| -Secondary scrambling code | 1 |
| -Spreading factor | 128 |
| -Code number | 0 |
| -Scrambling code change | No change |
| -TPC combination index | 0 |
| - SSDT Cell Identity | Not Present |
| Closed loop timing adjustment mode | Not Present |
| - SCCPCH information for FACH (10.3.6.70) | Not Present |

MEASUREMENT REPORT message for Intra frequency test cases

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

8.3.2.1.5 Test requirements

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

Note:

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

8.3.2.2 FDD/FDD Hard Handover to inter-frequency cell

8.3.2.2.1 Definition and applicability

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

The requirements and this test apply to the FDD UE.

8.3.2.2.2 Minimum requirement

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

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

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

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

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

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

The phase reference is the primary CPICH.

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

8.3.2.2.3 Test purpose

To verify that the UE meets the minimum requirement.

8.3.2.2.4 Method of test

8.3.2.2.4.1 Initial conditions

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

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

The test parameters are given in table 8.3.2.2.1 and 8.3.2.2.2 below. The test consists of three successive time periods, with a time duration of T1, T2 and T3 respectively. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 2C shall be used. The CPICH Ec/I0 of the best cell on the unused frequency shall be reported together with Event 2C reporting. At the start of time duration T1, the UE may not have any timing information of cell 2.

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

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

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

| Parameter | | Unit | Value | Comment |
|----------------------------------|----------------|------|---|--|
| DCH parameters | | | DL and UL Reference Measurement Channel 12.2 kbps | As specified in clause C.3.1 and C.2.1 |
| Power Cont | rol | | On | |
| Target quali DTCH | ty value on | BLER | 0.01 | |
| Compressed | d mode | | A.22 set 1 | As specified in TS 34.121 clause C.5. |
| Initial | Active cell | | Cell 1 | |
| conditions | Neighbour cell | | Cell 2 | |
| Final conditions | Active cell | | Cell 2 | |
| Threshold n frequency | on used | dB | -18 | Absolute Ec/I0 threshold for event 2C |
| Reporting ra | ange | dB | 4 | Applicable for event 1A |
| Hysteresis | | dB | 0 | |
| W | | | 1 | Applicable for event 1A |
| W non-used | frequency | | 1 | Applicable for event 2C |
| Reporting deactivation threshold | | | 0 | Applicable for event 1A |
| Time to Trigger | | ms | 0 | |
| Filter coefficient | | | 0 | |
| T1 | | S | 5 | |
| T2 | | S | 10 | |
| T3 | | S | 5 | |

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

| Parameter | Unit | Cell 1 | | | Cell 2 | | | |
|-----------------------|------|-------------------|-----------|-------|-----------|--------|-------|--|
| | | T1 | T2 | T3 | T1 | T2 | Т3 | |
| UTRA RF Channel | | | Channel 1 | | Channel 2 | | | |
| Number | | | | | | | | |
| CPICH_Ec/lor | dB | | -10 | | -10 | | | |
| PCCPCH_Ec/lor | dB | | -12 | | -12 | | | |
| SCH_Ec/lor | dB | | -12 | | | -12 | | |
| PICH_Ec/lor | dB | | -15 | | -15 | | | |
| DPCH_Ec/lor | dB | Note1 | Note1 | Note3 | N/A | N/A | Note1 | |
| OCNS | | Note2 | Note2 | Note2 | -0.941 | -0.941 | Note2 | |
| \hat{I}_{or}/I_{oc} | dB | | 0 | | -Infinity | -1.8 | -1.8 | |
| I_{oc} | dBm/ | | | -7 | 70 | | • | |
| - <i>0c</i> | 3.84 | | | | | | | |
| | MHz | | | | | | | |
| CPICH_Ec/lo | dB | -13 -Infinity -14 | | | | 14 | | |
| Propagation | | AWGN | | | | | | |
| Condition | | | | | | | | |

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

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

Note 3: The DPCH may not be power controlled by the power control loop.

8.3.2.2.4.2 Procedure

- 1) The RF parameters are set up according to T1.
- 2) The UE is switched on.
- 3) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.4 with Compressed mode parameters as in Table 8.3.2.2.1.
- 4) SS shall transmit a MEASUREMENT CONTROL messages.
- 5) 5 seconds after step4 has completed, the SS shall switch the power settings from T1 to T2
- 6) UE shall transmit a MEASUREMENT REPORT message triggered by event 2C
- 7) SS shall transmit a PHYSICAL CHANNEL RECONFIGURATION message with activation time "now". SS shall transmit the whole message such that will be is available at the UE no later than a period equals to the RRC procedure delay (= 80 ms) prior to the beginning of T3.
- 8) After 10 seconds from the beginning of time period T2, the SS shall switch the power settings from T2 to T3
- 9) UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the UL DCCH of cell 2. If the UE transmits the UL DPCCH to cell 2 less than 140 ms from the beginning of time period T3 then the number of successful tests is increased by one.
- 10) After 5 seconds from the beginning of time period T3, the UE is switched off. Any timing information of cell 2 is deleted in the UE.
- 11) Repeat step 1-10 [TBD] times until the confidence level according to annex F.6.2 is achieved

Specific Message Contents

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

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

| Information Element/Group name | Value/Remark |
|---|---|
| Message Type (10.2.17) | |
| UE information elements | |
| -RRC transaction identifier | 0 |
| -Integrity check info | Not Present |
| Measurement Information elements | |
| -Measurement Identity | 2 |
| -Measurement Command (10.3.7.46) | Setup |
| -Measurement Reporting Mode (10.3.7.49) | |
| -Measurement Report Transfer Mode | AM RLC |
| -Periodical Reporting / Event Trigger Reporting Mode | Event trigger |
| -Additional measurements list (10.3.7.1) | Not Present |
| -CHOICE Measurement type | Inter-frequency measurement |
| -Inter-frequency measurement (10.3.7.16) | |
| -Inter-frequency measurement objects list (10.3.7.13) | |
| - CHOICE Inter-frequency cell removal | Not Present |
| - New Inter frequency cells | |
| - Inter frequency cell id | 0 |
| - Frequency info | |
| - CHOICE mode | FDD |
| - UARFCN uplink(Nu) | Not Present |
| - UARFCN downlink(Nd) | Same frequency as "Channel2" in Table |
| ` ´ | 8.3.2.2.2 |
| - Cell info | |
| - Cell individual offset | Not Present |
| - Reference time difference to cell | Not Present |
| - Read SFN indicator | TRUE |
| - CHOICE mode | FDD |
| - Primary CPICH info | |
| - Primary scrambling code | Set to Primary scrambling code of Cell2 |
| - Primary CPICH Tx Power | Set to Primary CPICH Tx Power of Cell2 |
| Timidity of fort fixt ower | described in Table 8.3.2.2.2 |
| - Tx Diversity Indicator | FALSE |
| - Cell Selection and Re-selection info | Set to Cell Selection and Re-selection info |
| Con Colocion and the Colocion into | of Cell2 |
| - Cell for measurement | Not Present |
| -Inter-frequency measurement quantity (10.3.7.18) | |
| -CHOICE reporting criteria | Inter-frequency reporting criteria |
| -Inter-frequency reporting criteria | I man nequency reporting emena |
| -Filter coefficient | 0 |
| -CHOICE mode | FDD |
| -Measurement quantity for frequency quality estimate | CPICH Ec/N0 |
| -Inter-frequency reporting quantity (10.3.7.21) | CITOTI EC/NO |
| -UTRA Carrier RSSI | FALSE |
| -Frequency quality estimate | FALSE |
| -Non frequency related cell reporting quantities (10.3.7.5) | I ALGE |
| -Normequency related cell reporting quantities (10.5.7.5) -SFN-SFN observed time difference reporting indicator | Type 1 |
| -Cell synchronisation information reporting indicator | TRUE |
| | TRUE |
| -Cell Identity reporting indicator | FDD |
| -CHOICE mode | |
| -CPICH Ec/N0 reporting indicator | TRUE |
| -CPICH RSCP reporting indicator | TRUE |
| -Pathloss reporting indicator | TRUE |
| -Reporting cell status (10.3.7.61) | Depart cells with in secretary 1 |
| -CHOICE reported cell | Report cells within monitored set on non- |
| Marting was assumed as of several and an element | used frequency |
| -Maximum number of reported cells per reported non-used | 1 |
| frequency | Not Decomp |
| -Measurement validity (10.3.7.51) | Not Present |
| -Inter-frequency set update (10.3.7.22) | Not Present |
| -CHOICE report criteria | Inter-frequency measurement reporting |
| | criteria |
| -Inter-frequency measurement reporting criteria (10.3.7.19) | |
| -Parameters required for each event | 1 |
| | E 100 |
| -Inter-frequency event identity (10.3.7.14) -Threshold used frequency | Event 2C Not Present |

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

PHYSICAL CHANNEL RECONFIGURATION message (step 7):

| Information Element | Value/Remark |
|--|---|
| Message Type | |
| UE Information Elements | |
| -RRC transaction identifier | 0 |
| -Integrity check info | Not Present |
| -Integrity protection mode info | Not Present |
| -Ciphering mode info | Not Present |
| -Activation time | "now" |
| -New U-RNTI | Not Present |
| -New C-RNTI | Not Present |
| -RRC State Indicator | CELL_DCH |
| -UTRAN DRX cycle length coefficient CN Information Elements | Not Present |
| -CN Information Elements | Not Present |
| UTRAN mobility information elements | Not Present |
| -URA identity | Not Present |
| RB information elements | Not i resent |
| -Downlink counter synchronisation info | Not Present |
| >RB with PDCP information list | Not Present |
| >>RB with PDCP information | Not Present |
| PhyCH information elements | |
| -Frequency info (10.3.6.36) | |
| -CHOICE mode | FDD |
| -UARFCN uplink(Nu) | Same uplink UARFCN as used for cell 2 |
| -UARFCN downlink(Nd) | Same downlink UARFCN as used for cell 2 |
| Uplink radio resources | |
| -Maximum allowed UL TX power | 33 dBm |
| -CHOICE channel requirement | Uplink DPCH info |
| -Uplink DPCH info (10.3.6.88) | · |
| -Uplink DPCH power control info (10.3.6.91) | |
| -CHOICE mode | FDD |
| -DPCCH power offset | -6dB |
| - PC Preamble | 1 frame |
| - SRB delay | 7 frames |
| - Power Control Algorithm | Algorithm1 |
| - TPC step size | 1dB |
| -CHOICE mode | FDD |
| -Scrambling code type | Long |
| -Scrambling code number | 0 (0 to 16777215) |
| -Number of DPDCH | Not Present(1) |
| -Spreading factor | 64 TDUE |
| -TFCI existence -Number of FBI bit | TRUE |
| | Not Present(0) |
| -Puncturing Limit Downlink radio resources | TBD |
| -CHOICE mode | FDD |
| -Downlink PDSCH information | Not Present |
| -Downlink information common for all radio links (10.3.6.24) | 1.00.1.100011. |
| -Downlink DPCH info common for all RL (10.3.6.18) | |
| -Timing indicator | Initialise |
| -CFN-targetSFN frame offset | Not Present |
| -Downlink DPCH power control information (10.3.6.23) | |
| -DPC mode | 0 (single) |
| -CHOICE mode | FDD |
| -Power offset P _{Pilot-DPDCH} | TBD |
| -DL rate matching restriction information | Not Present |
| -Spreading factor | 128 |
| -Fixed or Flexible Position | Fixed |
| -TFCI existence | TRUE |
| -CHOICE SF | 128 |
| -Number of bits for Pilot bits(SF=128,256) | 8 |
| -CHOICE mode | FDD |
| -DPCH compressed mode info (10.3.6.33) | |
| - Transmission gap pattern sequence | 1 |
| - TGPSI | 1 |
| - TGPS Status Flag | deactivate |

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

MEASUREMENT REPORT message for Inter frequency test cases

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

8.3.2.2.5 Test requirements

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

Note:

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

8.3.3 FDD/TDD Handover

8.3.3.1 Definition and applicability

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

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

8.3.3.2 Minimum requirement

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

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

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

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

where,

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

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

The phase reference is the primary CPICH.

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

8.3.3.3 Test purpose

To verify that the UE meets the minimum requirement.

8.3.3.4 Method of test

8.3.3.4.1 Initial conditions

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

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

The test parameters are given in Table 8.3.2.2.1 and 8.3.2.2.2 below. The test consists of three successive time periods, with a time duration of T1, T2 and T3 respectively. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 2C shall be used. The Primary CCPCH RSCP of the best cell on the unused frequency shall be reported together with Event 2C reporting. At the start of time duration T1, the UE may not have any timing information of cell 2.

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

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

Table 8.3.3.1: General test parameters for Handover to TDD cell

| Parar | Parameter Unit | | Value | Comment |
|--------------------------|------------------------------|-------------------|---|---|
| DCH par | DCH parameters | | DL Reference Measurement | As specified in TS 34.121 clause C.3.1 |
| | | Channel 12.2 kbps | | and in TS 34.122 clause C.2.2 |
| Power | Control | | On | |
| | ity value on CH | BLER | 0.01 | |
| Compress | sed mode | | A.22 set 3 | As specified in TS 34.121 clause C.5 |
| Initial | Active cell | | Cell 1 | FDD cell |
| conditions | Neighbour cell | | Cell 2 | TDD cell |
| Final condition | Active cell | | Cell 2 | TDD cell |
| | Ó | | 0 | Cell individual offset. This value shall be used for all cells in the test. |
| Hyste | Hysteresis | | 0 | Hysteresis parameter for event 2C |
| Time to | Trigger | ms | 0 | |
| | Threshold non-used frequency | | -75 | Applicable for Event 2C |
| Filter co | efficient | | 0 | |
| Monitored cell list size | | | 6 FDD neighbours on Channel 1 6 TDD neighbours on Channel 2 | |
| Т | T_{SI} | | 1.28 | The value shall be used for all cells in the test |
| Т | T1 | | 5 | |
| Т | T2 | | 15 | |
| Т | T3 | | 5 | |

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

| Parameter | Unit | Cell 1 | |
|---------------------------|-----------------|-----------|------|
| | | T1, T2 | T3 |
| UTRA RF Channel Number | | Channel 1 | |
| CPICH_Ec/lor | dB | -10 | |
| P-CCPCH_Ec/lor | dB | -12 | |
| SCH_Ec/lor | dB | -12 | |
| PICH_Ec/lor | dB | -15 | |
| DPCH_Ec/lor | dB | Note 1 | n.a. |
| OCNS_Ec/lor | dB | Note 2 | |
| \hat{I}_{or}/I_{oc} | dB | 0 | |
| I_{oc} | dBm/3.84 MHz | -70 | |
| CPICH_Ec/lo | dB | -13 | |
| Propagation Condition | | AWGN | |

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

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

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

| Parameter | Unit | Cell 2 | | | | | | | | |
|---------------------------|------|----------|------|------|-----------|--------|--------|-------|------|----|
| DL timeslot number | | | 0 | | 2 | | | 8 | | |
| | | T1 | T2 | T3 | T1 | T2 | T3 | T1 | T2 | T3 |
| UTRA RF Channel Number | | | | | Channel 2 | | | | | |
| P-CCPCH_Ec/lor | dB | | -3 | | n.a. | | n.a. | | | |
| PICH_Ec/lor | dB | | n.a. | | n.a. | | -3 | | | |
| SCH_Ec/lor | dB | | -9 | | n.a. | | -9 | | | |
| SCH_t _{offset} | dB | | 5 | | n.a. | | 5 | | | |
| DPCH_Ec/lor | dB | | n.a. | | n. | a. | Note 1 | | n.a. | |
| OCNS_Ec/lor | dB | -3.12 | | (|) | Note 2 | | -3.12 | | |
| \hat{I}_{or}/I_{oc} | dB | -Inf 6 | | -Inf | | 6 | -Inf | 6 | | |
| P-CCPCH RSCP | dBm | -Inf -67 | | n a | | n a | | | | |

 $\begin{array}{c|c} & \text{dBm/} \\ 3,84 & -70 \\ \text{MHz} \\ \hline \text{Propagation Condition} & AWGN \\ \end{array}$

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 lor.

Note that the transmit energy per PN chip for the SCH is averaged over the 256 chip duration when the SCH is present in the time slot.

8.3.3.4.2 Procedure

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

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

Specific Message Contents

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

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

| Information Element/Group name | Value/Remark |
|--|--|
| Message Type (10.2.17) | |
| UE information elements | |
| -RRC transaction identifier | 0 |
| -Integrity check info | Not Present |
| Measurement Information elements | |
| -Measurement Identity | 1 |
| -Measurement Command (10.3.7.46) | Modify |
| -Measurement Reporting Mode (10.3.7.49) | |
| -Measurement Report Transfer Mode | AM RLC |
| -Periodical Reporting / Event Trigger Reporting Mode | Event trigger |
| -Additional measurements list (10.3.7.1) | Not Present |
| -CHOICE Measurement type | Inter-frequency measurement |
| -Inter-frequency measurement (10.3.7.16) | |
| -Inter-frequency measurement objects list (10.3.7.13) | Not Present |
| -Inter-frequency measurement quantity (10.3.7.18) | |
| -CHOICE reporting criteria | Inter-frequency reporting criteria |
| -Inter-frequency reporting criteria | |
| -Filter coefficient | 0 |
| -CHOICE mode | TDD |
| -Measurement quantity for frequency quality estimate | Primary CCPCH RSCP |
| -Inter-frequency reporting quantity (10.3.7.21) | |
| -UTRA Carrier RSSI | FALSE |
| -Frequency quality estimate | FALSE |
| -Non frequency related cell reporting quantities (10.3.7.5) | |
| -SFN-SFN observed time difference reporting indicator | Type 1 |
| -Cell synchronisation information reporting indicator | TRUE |
| -Cell Identity reporting indicator | TRUE |
| -CHOICE mode | TDD |
| -Timeslot ISCP reporting indicator | TRUE |
| -Proposed TGSN reporting required | FALSE |
| -Primary CCPCH RSCP reporting indicator | TRUE |
| -Pathloss reporting indicator | TRUE |
| -Reporting cell status (10.3.7.61) | D |
| -CHOICE reported cell | Report cells within monitored set on non- |
| | used frequency |
| -Maximum number of reported cells per reported non-used | 1 |
| frequency | N . 5 |
| -Measurement validity (10.3.7.51) | Not Present |
| -Inter-frequency set update (10.3.7.22) | Not Present |
| -CHOICE report criteria | Inter-frequency measurement reporting |
| Interference of the control of the c | criteria |
| -Inter-frequency measurement reporting criteria (10.3.7.19) | |
| -Parameters required for each event | 1 5 |
| -Inter-frequency event identity (10.3.7.14) | Event 2C |
| -Threshold used frequency | Not Present |
| -W used frequency | Not Present |
| -Hysteresis | 0 dB |
| -Time to trigger | 0 ms |
| -Reporting cell status (10.3.7.61) | Poport collo within monitore diset are res |
| -CHOICE reported cell | Report cells within monitored set on non- |
| Maximum number of reported cells have reported to a constant | used frequency |
| -Maximum number of reported cells per reported non-used | 1 |
| frequency | |
| -Parameters required for each non-used frequency | 1 00 dD |
| -Threshold non-used frequency | -80 dBm |
| -W non-used frequency | 1 |
| Physical channel information elements | Not Descript |
| -DPCH compressed mode status info (10.3.6.34) | Not Present |

PHYSICAL CHANNEL RECONFIGURATION message (step 7):

| Message Type | |
|---|-------------------|
| | |
| UE Information Elements | |
| -RRC transaction identifier 0 | |
| -Integrity check info Not Present | |
| -Integrity protection mode info | |
| -Ciphering mode info Activation time "activities time" | |
| -Activation time "now" -New U-RNTI Not Present | |
| -New C-RNTI Not Present | |
| -RRC State Indicator CELL DCH | |
| -UTRAN DRX cycle length coefficient Not Present | |
| CN Information Elements | |
| -CN Information info Not Present | |
| UTRAN mobility information elements | |
| -URA identity Not Present | |
| RB information elements | |
| -Downlink counter synchronisation info Not Present | |
| -RB with PDCP information list Not Present | |
| -RB with PDCP information Not Present | |
| PhyCH information elements | |
| -Frequency info (10.3.6.36) | |
| -CHOICE mode | d f U O |
| -UARFCN (Nt) Same UARFCN as | s used for cell 2 |
| Uplink radio resources | |
| -Maximum allowed UL TX power -CHOICE channel requirement 33 dBm Uplink DPCH info | |
| -Uplink DPCH info (10.3.6.88) | |
| -Uplink DPCH power control info (10.3.6.91) | |
| -CHOICE mode TDD | |
| -CHOICE TDD option 3.84 Mcps TDD | |
| -UL Target SIR Not Present | |
| -CHOICE UL OL PC info Individually signall | ed |
| -CHOICE TDD option 3.84 Mcps TDD | |
| -Indivdual Timeslot interference info 1 | |
| -Individual timeslot interference (10.3.6.38) | |
| -Timeslot Number (10.3.6.84) | |
| -CHOICE <i>TDD option</i> 3.84 Mcps TDD | |
| -Timeslot number | |
| - UL Timeslot Interference -90 dBm | |
| -CHOICE mode TDD | |
| -Uplink timing advance control (10.3.6.96) -CHOICE <i>Timing Advance</i> Disabled | |
| -UL CCTrCH list 1 | |
| -UL Target SIR TBD dB | |
| -Time Info (10.3.6.83) | |
| -Activation Time "now" | |
| -Duration Infinite | |
| -Common timeslot info Not Present | |
| -Uplink DPCH timeslots and codes (10.3.6.94) | |
| -Dynamic SF Usage False | |
| -First individual timeslot info (10.3.6.37) | |
| -Timeslot Number (10.3.6.84) | |
| -CHOICE TDD option 3.84 Mcps | |
| -Timeslot number 10 | |
| -TFCI existence True | |
| -Midamble shift and burst type (10.3.6.41) -CHOICE <i>TDD option</i> 3.84 Mcps | |
| -CHOICE TOD option 3.64 Mcps -CHOICE Burst Type Type 1 | |
| -Midamble Allocation Mode Pefault | |
| -Midamble configuration burst type 1 and 3 | |
| -Midamble shift Not present | |
| -CHOICE <i>TDD option</i> 3.84 Mcps | |
| -First timeslot code list | |
| -Channelisation code 8/1 | |
| -CHOICE more timeslots No more timeslots | <u> </u> |

| Information Element | Value/Remark |
|--|-------------------|
| Downlink radio resources | value/Neillai k |
| | TDD |
| -CHOICE mode | TDD |
| -Downlink information common for all radio links (10.3.6.24) | |
| -Downlink DPCH info common for all RL (10.3.6.18) | 1 11 11 |
| -Timing indicator | Initialise |
| -CFN-targetSFN frame offset | Not Present |
| -Downlink DPCH power control information (10.3.6.23) | |
| -CHOICE mode | TDD |
| -TPC Step size | 1 dB |
| -CHOICE mode | TDD |
| -CHOICE mode | TDD |
| -CHOICE TDD option | 3.84 Mcps |
| -TX Diversity mode (10.3.6.86) | None |
| -Default DPCH Offset Value (10.3.6.16) | 0 |
| -Downlink information per radio link list | 1 |
| -Downlink information for each radio link (10.3.6.27) | |
| -CHOICE mode | TDD |
| -Primary CCPCH info (10.3.6.57) | |
| - CHOICE mode | TDD |
| - CHOICE TDD option | 3.84 Mcps |
| - CHOICE sync case | Case 2 |
| - Timeslot | 0 |
| - Cell parameters ID | 20 |
| - SCTD indicator | False |
| -Downlink DPCH info for each RL (10.3.6.21) | 1 dioo |
| -CHOICE mode | TDD |
| - DL CCTrCH list | 1 |
| -TFCS ID | Not Present |
| -Time Info (10.3.6.83) | Not i resent |
| -Activation Time | "now" |
| -Duration | Infinite |
| -Common timeslot info | Not Present |
| - Downlink DPCH timeslots and codes (10.3.6.32) | Not Flesent |
| - First individual timeslot info (10.3.6.37) | |
| - Timeslot Number (10.3.6.84) | |
| | 3.84 Mcps |
| - CHOICE <i>TDD option</i> - Timeslot number | 2 |
| | |
| - TFCI existence | True |
| - Midamble shift and burst type (10.3.6.41) | 0.04 Mana |
| - CHOICE TDD option | 3.84 Mcps |
| - CHOICE Burst Type | Type 1 |
| - Midamble Allocation Mode | Default |
| - Midamble configuration burst type 1 and 3 | 16 |
| - Midamble shift | Not present |
| - CHOICE TDD option | 3.84 Mcps |
| - First timeslot channelisation codes (10.3.6.17) | |
| - CHOICE codes representation | Consecutive codes |
| - First channelisation code | 16/1 |
| - Last channelisation code | 16/2 |
| - CHOICE more timeslots | No more timeslots |
| - SCCPCH information for FACH (10.3.6.70) | Not Present |

MEASUREMENT REPORT message for Inter frequency test cases

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

8.3.3.5 Test requirements

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

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

8.3.4 Inter-system Handover from UTRAN FDD to GSM

8.3.4.1 Definition and applicability

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

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

8.3.4.2 Minimum requirement

The hard handover delay shall be less than 40 ms. The rate of correct handovers observed during repeated tests shall be at least 90% with a confidence level of FFS 95 %.

The hard handover delay as listed in table 8.3.4.1 equals the RRC procedure delay plus the interruption time listed in table 8.3.4.2. The UE shall process the RRC procedures for the RRC HANDOVER FROM UTRAN COMMAND within 50 ms.

Table 8.3.4.1: FDD/GSM handover - handover delay

| UE synchronisation status | handover delay [ms] |
|--|---------------------|
| The UE has synchronised to the GSM cell before the | 90 |
| HANDOVER FROM UTRAN COMMAND is received | |
| The UE has not synchronised to the GSM cell before | 190 |
| the HANDOVER FROM UTRAN COMMAND is received | |

Table 8.3.4.2: FDD/GSM handover - interruption time

| Synchronisation status | Interruption time [ms] |
|--|------------------------|
| The UE has synchronised to the GSM cell before the | 40 |
| HANDOVER FROM UTRAN COMMAND is received | |
| The UE has not synchronised to the GSM cell before | 140 |
| the HANDOVER FROM UTRAN COMMAND is received | |

The normative reference for this requirement is TS 25.133 [2] clauses 5.4.2 and A.5.4.

8.3.4.3 Test purpose

To verify that the UE meets the minimum requirement.

8.3.4.4 Method of test

8.3.4.4.1 Initial conditions

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

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

[Editor's Note: Annex G.2 must be specified also for GSM; for instance as a reference to TS 51.010-1 clause A1.2]

The test parameters are given in table 8.3.4.3, 8.3.4.4 and 8.3.4.5 below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 3C shall be used.. The test consists of three successive time periods, with a time duration of T1, T2 and T3 respectively. At the start of time duration T1, the UE may not have any timing information of cell 2.

UTRAN shall send a HANDOVER FROM UTRAN COMMAND in advance to T3 with activation time "now". In GSM Handover command contained in that message, IE starting time shall not be included. The RRC HANDOVER FROM UTRAN COMMAND message shall be sent to the UE so that the whole message is available at the UE the RRC procedure delay prior to the beginning of T3. The RRC procedure delay is defined in TS 25.331 [8].

The requirements are also applicable for a UE not requiring compressed mode, in which case no compressed mode pattern should be sent for the parameters specifed in table 8.3.4.3.

Table 8.3.4.3: General test parameters for Correct reporting of GSM neighbours in AWGN propagation condition

| Parameter | Unit | Value | Comment |
|-----------------------------------|------|---|---|
| DCH parameters | | DL Reference Measurement Channel 12.2 kbps | As specified in TS 34.121 clause C.3.1 |
| Power Control | | On | |
| Target quality value on DTCH | BLER | 0.01 | |
| Compressed mode patterns | | | Only applicable for UE requiring compressed mode patterns |
| - GSM carrier RSSI measurement | | DL Compressed mode reference pattern 2 in Set 2 | As specified in TS 34.121 [1] clause C.5, table C.5.2 |
| - GSM Initial BSIC identification | | Pattern 2 | As specified in clause TS 25.133 [2] 8.1.2.5.2.1 table 8.7. |
| - GSM BSIC re- confirmation | | Pattern 2 | As specified in clause TS 25.133 [2] 8.1.2.5.2.2 table 8.8. |
| Active cell | | Cell 1 | |
| Inter-RAT | | GSM Carrier RSSI | |
| measurement quantity | | | |
| BSIC verification required | | Required | |
| Threshold other system | dBm | -80 | Absolute GSM carrier RSSI threshold for event 3B and 3C. |
| Hysteresis | dB | 0 | |
| Time to Trigger | ms | 0 | |
| Filter coefficient | | 0 | |
| Monitored cell list | | 24 FDD neighbours on Channel 1 | Measurement control information is |
| size | | 6 GSM neighbours including ARFCN 1 | sent before the compressed mode patterns starts. |
| N Identify abort | | 66 | Taken from TS 25.133 [2] 8.1.2.5.2.1 table 8.7. |
| T Reconfirm abort | | 5.5 | Taken from TS 25.133 [2] 8.1.2.5.2.2 table 8.8. |
| T1 | s | 20 | |
| T2 | S | 5 | |
| T3 | S | 5 | |

Table 8.3.4.4: Cell Specific Parameters for Handover UTRAN to GSM cell case (cell 1)

| Parameter | Unit | Cell 1 (UTRA) |
|--------------------------|------------------|-------------------------------|
| | | T1, T2, T3 |
| CPICH_Ec/lor | dB | -10 |
| PCCPCH_Ec/lor | dB | -12 |
| SCH_Ec/lor | dB | -12 |
| PICH_Ec/lor | dB | -15 |
| DCH_Ec/lor | dB | Note 1 |
| OCNS_Ec/lor | dB | Note 2 |
| \hat{I}_{or}/I_{oc} | dB | 0 |
| I_{oc} | dBm/3. 84 MHz | -70 |
| CPICH_Ec/lo | dB | -13 |
| Propagation Condition | | AWGN |
| Note 1: The DDCH love | l ic control | lad by the newer central lean |

Note 1: The DPCH level is controlled by the power control loop Note 2: The power of the OCNS channel that is added shall make the total power from the cell to be equal to I_{or}.

Table 8.3.4.5: Cell Specific Parameters for Handover UTRAN to GSM cell case (cell 2)

| Parameter | Unit | Cell 2 (GSM) | | | | | |
|---------------------|------|--------------|--------|--|--|--|--|
| Parameter | Unit | T1 | T2, T3 | | | | |
| Absolute RF Channel | | ARFCN 1 | | | | | |
| Number | | ARFON I | | | | | |
| RXLEV | dBm | -85 -75 | | | | | |

8.3.4.4.2 Procedure

- 1) The RF parameters for cell 1 are set up according to T1.
- 2) The UE is switched on
- 3) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.4 and compressed mode parameters are configured as in the table 8.3.4.3. The compressed mode shall remain inactive.
- 4) The RF parameters for cell 2 are set up according to T1 and the SS configures a traffic channel
- 5) SS shall transmit a MEASUREMENT CONTROL message to cell 1
- 6) After 20 seconds, the SS shall switch the power settings from T1 to T2
- 7) UE shall transmit a MEASUREMENT REPORT message triggered by event 3C
- 8) SS shall transmit a HANDOVER FROM UTRAN COMMAND message with activation time "now" and indicating the traffic channel of the target GSM cell to the UE through DCCH of the serving UTRAN cell.
- 9) After 5 seconds, the time period T3 starts
- 10) UE shall transmit a burst on the traffic channel of cell 2 implying that it has switched to the GSM cell. The UE sends a HANDOVER ACCESS message. If the UE transmits access bursts on the new DCCH of the target cell less than 40 ms from the beginning of time period T3, then the number of successful tests is increased by one.

[Editor's note: TS 34.108, 7.3.4 shall specify the messages HANDOVER ACCESS, PHYSICAL INFORMATION, SABM, UA and HANDOVER COMPLETE]

- 11) After 5 seconds, the UE is switched off. Any timing information of cell 2 is deleted in the UE.
- 12) Repeat step 1-11 [TBD] times until the confidence level according to annex F.6.2 is achieved.

Specific Message Contents

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

MEASUREMENT CONTROL message (step 5):

| Information Element/Group name | Value/Remark |
|---|---|
| Message Type (10.2.17) | |
| UE information elements | |
| -RRC transaction identifier | 0 |
| -Integrity check info | Not Present |
| Measurement Information elements | |
| -Measurement Identity | 2 |
| -Measurement Command (10.3.7.46) | Setup |
| -Measurement Reporting Mode (10.3.7.49) | |
| -Measurement Report Transfer Mode | AM RLC |
| -Periodical Reporting / Event Trigger Reporting Mode | Event trigger |
| -Additional measurements list (10.3.7.1) | Not Present |
| -CHOICE Measurement type | Inter-RAT measurement |
| -Inter-RAT measurement (10.3.7.27) | |
| -Inter-RAT measurement objects list (10.3.7.23) | Not Present |
| -Inter-RAT measurement quantity (10.3.7.29) | |
| -Measurement quantity for UTRAN quality estimate | |
| (10.3.7.38) | |
| -Filter coefficient | 0 |
| -CHOICE mode | FDD |
| -Measurement quantity | CPICH Ec/N0 |
| -CHOICE system | GSM |
| -Measurement quantity | GSM Carrier RSSI |
| -Filter coefficient | 0 |
| -BSIC verification required | Required |
| -Inter-RAT reporting quantity (10.3.7.32) | |
| -Reporting cell status (10.3.7.61) | |
| -CHOICE reported cell | Report cells within active set or within |
| ' | virtual active set or of the other RAT |
| -Maximum number of reported cells | 2 |
| -CHOICE report criteria | Inter-RAT measurement reporting criteria |
| -Inter-RAT measurement reporting criteria (10.3.7.30) | |
| -Parameters required for each event | 1 |
| -Inter-RAT event identity (10.3.7.24) | Event 3C |
| -Threshold own system | Not Present |
| -W | Not Present |
| -Threshold other system | -80 dBm |
| -Hysteresis | 0 dB |
| -Time to trigger | 0 ms |
| -Reporting cell status (10.3.7.61) | |
| -CHOICE reported cell | Report cells within active set or within |
| · | virtual active set or of the other RAT |
| -Maximum number of reported cells | 2 |
| Physical channel information elements | |
| -DPCH compressed mode status info (10.3.6.34) | Active (for all three patterns specified in |
| | table 8.3.4.3) |

HANDOVER FROM UTRAN COMMAND message (step 8):

| Information Element | Value/remark |
|-----------------------------|--------------------------------------|
| Message Type | |
| UE information elements | |
| -RRC transaction identifier | 0 |
| -Integrity check info | Not Present |
| -Activation time | "now" |
| RB information elements | |
| -RAB information list | 1 |
| -RAB Info | Not present |
| Other information elements | |
| -CHOICE System type | GSM |
| -Frequency Band | GSM/DCS 1800 Band |
| -GSM message | |
| -Single GSM message | [TBD] |
| -GSM message List | GSM HANDOVER COMMAND formatted |
| | as BIT STRING(1512). The contents of |
| | the HANDOVER COMMAND see next |
| | table. |

HANDOVER COMMAND

Same as the HANDOVER COMMAND for M = 2 in clause 26.6.5.1 of TS 51.010, except that the CHANNEL MODE IE is included with value = speech full rate or half rate version 3

MEASUREMENT REPORT message for Inter-RAT test cases

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

8.3.4.5 Test requirements

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

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

8.3.5 Cell Re-selection in CELL_FACH

8.3.5.1 One frequency present in neighbour list

8.3.5.1.1 Definition and applicability

The cell re-selection delay is defined as the time between the occurrence of an event which will trigger Cell Reselection process and the moment in time when the UE starts sending the the preambles on the PRACH for sending RRC CELL UPDATE message to the UTRAN.

The requirements and this test apply to the FDD UE.

8.3.5.1.2 Minimum requirements

The cell re-selection delay shall be less than 1.6 s.

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

If a cell has been detectable at least $T_{identify,intra}$, the cell reselection delay in CELL_FACH state to a cell in the same frequency shall be less than

$$T_{\text{reselection.intra}} = T_{\text{Measurement Period Intra}} + T_{\text{IU}} + 20 + T_{\text{SI}} + T_{\text{RA}} \text{ ms}$$

where

 $T_{\text{Measurement Period Intra}} = 200 \text{ ms.}$

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

 T_{SI} = The time required for receiving all the relevant system information data according to the reception procedure and the RRC procedure delay of system information blocks defined in 25.331 for a UTRAN cell. 1280 ms is assumed in this test case.

 T_{RA} = The additional delay caused by the random access procedure. T_{RA} is a delay is caused by the physical random access procedure described in TS 25.214 clause 6.1. A persistence value is assumed to be 1 in this test case and therefore T_{RA} in this test case is 40 ms.

These requirements assume radio conditions to be sufficient, so reading of system information can be done without errors.

The normative reference for this requirement is TS 25.133 [2] clauses 5.5.2.1.1 and A.5.5.1.

8.3.5.1.3 Test purpose

The purpose of this test is to verify the requirement for the cell re-selection delay in CELL_FACH state in the single carrier case

8.3.5.1.4 Method of test

8.3.5.1.4.1 Initial conditions

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

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

The test parameters are given in table 8.3.5.1.1 to 8.3.5.1.5. The UE is requested to monitor neighbouring cells on 1 carrier. The maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell shall be 1280 ms.

Table 8.3.5.1.1: General test parameters for Cell Re-selection in CELL_FACH, one freq. in neighbour list

| Parameter | | Unit | Value | Comment |
|---|-------------|-------------------------------------|-------|---|
| Initial | Active cell | | Cell2 | |
| condition Neighbour cells Cell1, Cel Cell6 | | Cell1, Cell3,Cell4, Cell5, Cell6 | | |
| Final Active cell condition | | | Cell1 | |
| Access Service Class (ASC#0) – Persistence value | | - | 1 | Selected so that no additional delay is caused by the random access procedure. The value shall be used for all cells in the test. |
| HCS | | | | Not used |
| T1 | T1 | | 15 | |
| T2 | | S | 15 | |

The transport and physical parameters of the S-CCPCH carrying the FACH are defined in table 8.3.5.1.2 and table 8.3.5.1.3.

Cell 5

Channel 1

T2

T1

Cell 6

Channel 1

T2

T1

Parameter

UTRA RF Channel

Number

Unit

Table 8.3.5.1.2: Physical channel parameters for S-CCPCH, one freq. in neighbour list

| Parameter | Unit | Level |
|---|------|-------|
| Channel bit rate | kbps | 60 |
| Channel symbol rate | ksps | 30 |
| Slot Format #I | - | 4 |
| TFCI | - | OFF |
| Power offsets of TFCI and Pilot fields relative to data field | dB | 0 |

Table 8.3.5.1.3: Transport channel parameters for S-CCPCH, one freq. in neighbour list

| Parameter | FACH |
|---------------------------------|--------------------|
| Transport Channel Number | 1 |
| Transport Block Size | 240 |
| Transport Block Set Size | 240 |
| Transmission Time Interval | 10 ms |
| Type of Error Protection | Convolution Coding |
| Coding Rate | 1/2 |
| Rate Matching attribute | 256 |
| Size of CRC | 16 |
| Position of TrCH in radio frame | Fixed |

Table 8.3.5.1.4: Cell specific conditions for Cell Re-selection in CELL_FACH, one freq. in neighbour list

T1

Cell 2

Channel 1

T2

Cell 3

Channel 1

T1

T2

Cell 4

Channel 1

T2

T1

Cell 1

Channel 1

T2

T1

| | Number | | | I | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------------|--|-----------------|-------------------------|--|-------------|-------------------------------------|---|-------------------------------------|-------------|---|--|------------------------|--|-------------------------------------|--|-------------------------------------|--|-------------------------------------|--|-------------------------------------|--|-------------------------------------|--|-------------------------------------|--|-------------------------------------|--|-------------------------------------|--|-------------------------------------|--|---|---|---|---|---|
| | CPICH_Ec/lor | dB | - | 10 | -1 | 0 | -10 | -10 | -10 | -10 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | PCCPCH_Ec/lor | dB | - | 12 | -1 | 2 | -12 | -12 | -12 | -12 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | SCH_Ec/lor | dB | - | 12 | -1 | 2 | -12 | -12 | -12 | -12 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | PICH_Ec/lor | dB | - | 15 | -1 | 5 | -15 | -15 | -15 | -15 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | S-CCPCH_Ec/lor | dB | -1 | -12 | | 2 | -12 | -12 | -12 | -12 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | OCNS_Ec/lor | dB | -1.2 | 295 | -1.2 | 95 | -1.295 | -1.295 | -1.295 | -1.295 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | \hat{I}_{or}/I_{oc} | dB | 7.3 | 10.27 | 10.27 | 7.3 | 0.27 | 0.27 | 0.27 | 0.27 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | $\hat{I}_{or(Note1)}$ | dBm | -62.73 | -59.73 | -59.73 | -62.73 | -69.73 | -69.73 | -69.73 | -69.73 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | I_{oc} | dBm/3.84 MHz | | | | | -7 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | CPICH_Ec/lo | dB | -16 | -13 | -13 | -16 | -23 | -23 | -23 | -23 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ropagation ondition | | | | | | AWGI | N | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Cell_selection_and_ reselection_quality_ measure | | CPICH E₀/N₀ | | CPICH E₀/N₀ | | CPICH E ₀ /N ₀ | CPICH E₀/N₀ | CPICH E₀/N₀ | CPICH E _o /N ₀ | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Qqualmin | dB | -2 | 20 | -20 |) | -20 | -20 | -20 | -20 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Qrxlevmin | dBm | -1 | 15 | -11 | 5 | -115 | -115 | -115 | -115 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | UE_TXPWR_ MAX_RACH | dBm | 2 | 21 | | | 21 | 21 | 21 | 21 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Qoffset 2 _{s, n} | dB | C1, 0 C1, 0 C1, 0 | C1, C2: 0 C1, C3: 0 C1, C4: 0 C1, C5: 0 | | C1, C3: 0 C1, C4: 0 C1, C5: 0 | | C1, C3: 0 C1, C4: 0 C1, C5: 0 | | C1, C3: 0 C1, C4: 0 C1, C5: 0 | | C1, C3: 0 C1, C4: 0 | | C1, C3: 0 C1, C4: 0 C1, C5: 0 | | C1, C3: 0 C1, C4: 0 C1, C5: 0 | | C1, C3: 0 C1, C4: 0 C1, C5: 0 | | C1, C3: 0 C1, C4: 0 C1, C5: 0 | | C1, C3: 0 C1, C4: 0 C1, C5: 0 | | C1, C3: 0 C1, C4: 0 C1, C5: 0 | | C1, C3: 0 C1, C4: 0 C1, C5: 0 | | C1, C3: 0 C1, C4: 0 C1, C5: 0 | | C1, C3: 0 C1, C4: 0 C1, C5: 0 | | C2, C1: 0 C2, C3: 0 C2, C4: 0 C2, C5: 0 C2, C6: 0 | C3, C1: 0 C3, C2: 0 C3, C4: 0 C3, C5: 0 C3, C6: 0 | C4, C1: 0 C4, C2: 0 C4, C3: 0 C4, C5: 0 C4, C6: 0 | C5, C1: 0 C5, C2: 0 C5, C3: 0 C5, C4: 0 C5, C6: 0 | C6, C1: 0 C6, C2: 0 C6, C3: 0 C6, C4: 0 C6, C5: 0 |
| | Qhyst | dB | (|) | 0 | | 0 | 0 | 0 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Treselection | S | (|) | 0 | | 0 | 0 | 0 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Sintrasearch | dB | not | sent | not s | ent | not sent | not sent | not sent | not sent | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | IE "FACH Measurement occasion info" | | not | sent | not s | ent | not sent | not sent | not sent | not sent | | | | | | | | | | | | | | | | | | | | | | | | | | |

Note 1 The nominal Îor values, although not explicitly defined in 25.133 are added here since they are implied and need to be identified so that the test equipment can be configured.

8.3.5.1.4.2 Procedure

- 1) The SS activates cell 1-6 with RF parameters set up according to T1 in table 8.3.5.1.5.
- 2) The UE is switched on.
- 3) An RRC connection is set up according to the signalling sequence in the generic set-up procedure specified in TS 34.108 [3] subclause 7.3.3 to place the UE in the CELL_FACH state on Cell 2 and the SS waits for this process to complete.
- 4) After 15 seconds from completion of step 3 or the beginning of T1, the parameters are changed to those defined for T2 in table 8.3.5.1.5.
- 5) If the UE responds on Cell 1 with a PRACH (CELL UPDATE message cause "cell reselection") within 1.7 s, then the success is recorded, the SS shall transmit a CELL UPDATE CONFIRM message and then the procedure moves to step 7.
- 6) Since the UE has failed to respond with the correct message within the allowed time, a failure is recorded. The SS shall then wait for a total of 15 s from the beginning of T2 and if no response is received, the UE shall be switched off and the procedure returns to step 1. Otherwise the SS shall transmit a CELL UPDATE CONFIRM message and then the procedure continues with step 7.
- 7) After total of 15 s from the beginning of T2, the parameters are changed to those defined for T1 in table 8.3.5.1.5.
- 8) If the UE responds on Cell 2 with a PRACH (CELL UPDATE message cause "cell reselection") within 1.7 s, then a success is recorded and the procedure moves to step 10.
- 9) Since the UE has failed to respond with the correct message within the allowed time, a failure is recorded. The SS shall then wait for a total of 15 s from the beginning of T1 and if no response is received the UE shall be switched off and the procedure returns to step 1. Otherwise the SS shall transmit a CELL UPDATE CONFIRM message and then the procedure continues with step 10.
- 10) Steps 4 to 10 are repeated until the confidence level according to annex F.6.2 is achieved a total of [TBD] successes and failures have been recorded.
- NOTE: The time required for receiving all the relevant system information data according to the reception procedure and the RRC procedure delay of system information blocks defined in 25.331 for a UTRAN cell. Since the maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell is 1280ms and the maximum RRC procedure delay for reception system information block is 100ms, 1380 ms is assumed in this test case. Therefore the cell re-selection delay shall be less than 1.7 s.(Minimum requirement + 100ms).

8.3.5.1.5 Test requirements

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

Table 8.3.5.1.5: Cell specific test requirements for Cell Re-selection in CELL_FACH, one freq. in neighbour list

| Parameter | Unit | Ce | II 1 | Ce | Cell 2 | | ell 3 | Се | II 4 | Се | II 5 | Cell 6 | | |
|------------------------------|-----------------|-----------------|-------|-------|-------------|-------|-------------|-------|-----------|-------|-----------|--------|-------|--|
| | | T1 | T2 | T1 | T2 | T1 | T2 | T1 | T2 | T1 | T2 | T1 | T2 | |
| UTRA RF Channel Number | | Char | nel 1 | Char | Channel 1 | | Channel 1 | | Channel 1 | | Channel 1 | | nel 1 | |
| CPICH_Ec/lor | dB | -9 | .4 | -6 |).4 | -1 | -10.5 | | -10.5 | | 0.5 | -10.5 | | |
| PCCPCH_Ec/lor | dB | -1 ⁻ | 1.4 | -1 | 1.4 | -1 | 2.5 | -12 | 2.5 | -12 | 2.5 | -12.5 | | |
| SCH_Ec/lor | dB | -11 | 1.4 | -1 | -11.4 | | -12.5 | | -12.5 | | -12.5 | | -12.5 | |
| PICH_Ec/lor | dB | -14 | 4.4 | -1 | 4.4 | -1 | 5.5 | -15.5 | | -15.5 | | -15.5 | | |
| S-CCPCH_Ec/lor | dB | -11 | 1.4 | -1 | 1.4 | -1 | 2.5 | -12.5 | | -12.5 | | -12.5 | | |
| OCNS_Ec/lor | dB | -1. | 52 | -1 | .52 | -1.13 | | -1.13 | | -1.13 | | -1.13 | | |
| \hat{I}_{or}/I_{oc} Note 1 | dB | 7.0 | 10.4 | 10.4 | 10.4 7.0 | | 0.3 | | 0.3 | | .3 | 0.3 | | |
| \hat{I}_{or} | dBm | -63.0 | -59.6 | -59.6 | -59.6 -63.0 | | -69.7 -69.7 | | 9.7 | -69.7 | | -69.7 | | |
| I_{oc} | dBm/3.84 MHz | | | -70 | | | | | | | | | | |
| CPICH_Ec/lo Note 1 | dB | -15.7 | -12.3 | -12.3 | -15.7 | -23.5 | | -23.5 | | -23.5 | | -23 | .5 | |

All other parameters and conditions specified in table 8.3.5.1.4 are unchanged.

Note 1: These parameters are not directly settable, but are derived by calculation from the settable parameters.

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

8.3.5.2 Two frequencies present in the neighbour list

8.3.5.2.1 Definition and applicability

The cell re-selection delay is defined as the time between the occurrence of an event which will trigger Cell Reselection process and the moment in time when the UE starts sending the the preambles on the PRACH for sending RRC CELL UPDATE message to the UTRAN.

The requirements and this test apply to the FDD UE.

8.3.5.2.2 Minimum requirements

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

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

If a cell has been detectable at least $T_{identify,inter}$, the cell reselection delay in CELL_FACH state to a FDD cell on a different frequency shall be less than

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

where

 $T_{Measurement_inter}$ is 480 ms in this case

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

 T_{SI} = The time required for receiving all the relevant system information data according to the reception procedure and the RRC procedure delay of system information blocks defined in 25.331 for a UTRAN cell. 1280 ms is assumed in this test case.

 T_{RA} = The additional delay caused by the random access procedure. T_{RA} is a delay is caused by the physical random access procedure described in TS 25.214 clause 6.1. A persistence value is assumed to be 1 in this test case and therefore T_{RA} in this test case is 40 ms.

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These requirements assume radio conditions to be sufficient, so that reading of system information can be done without errors.

The normative reference for this requirement is TS 25.133 [2] clauses 5.5.2.1.2 and A.5.5.2.

8.3.5.2.3 Test purpose

The purpose of this test is to verify the requirement for the cell re-selection delay in CELL_FACH state in the single carrier case

8.3.5.2.4 Method of test

8.3.5.2.4.1 Initial conditions

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

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

The test parameters are given in table 8.3.5.2.1 to 8.3.5.2.5. The UE is requested to monitor neighbouring cells on 2 carriers. The maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell shall be 1280 ms

Table 8.3.5.2.1: General test parameters for Cell Re-selection in CELL_FACH, two freqs. in neighbour list

| | Parameter | Unit | Value | Comment | | | | | |
|---|-----------------|------|-------------------------------------|---|--|--|--|--|--|
| Initial | Active cell | | Cell2 | | | | | | |
| condition | Neighbour cells | | Cell1, Cell3,Cell4, Cell5, Cell6 | | | | | | |
| Final condition | Active cell | | Cell1 | | | | | | |
| Access Service Class (ASC#0) – Persistence value | | - | 1 | Selected so that no additional delay is caused by the random access procedure. The value shall be used for all cells in the test. | | | | | |
| HCS | | | | Not used | | | | | |
| T1 | | S | 15 | | | | | | |
| T2 | · | S | 15 | | | | | | |

The transport and physical parameters of the S-CCPCH carrying the FACH are defined in table 8.3.5.2.2 and table 8.3.5.2.3.

Table 8.3.5.2.2: Physical channel parameters for S-CCPCH, two freqs. in neighbour list

| Parameter | Unit | Level |
|---|------|-------|
| Channel bit rate | kbps | 60 |
| Channel symbol rate | ksps | 30 |
| Slot Format #I | - | 4 |
| TFCI | - | OFF |
| Power offsets of TFCI and Pilot fields relative to data field | dB | 0 |

Table 8.3.5.2.3: Transport channel parameters for S-CCPCH, two freqs. in neighbour list

| Parameter | FACH |
|---------------------------------|--------------------|
| Transport Channel Number | 1 |
| Transport Block Size | 240 |
| Transport Block Set Size | 240 |
| Transmission Time Interval | 10 ms |
| Type of Error Protection | Convolution Coding |
| Coding Rate | 1/2 |
| Rate Matching attribute | 256 |
| Size of CRC | 16 |
| Position of TrCH in radio frame | Fixed |

Propagation Condition

Table 8.3.5.2.4: Cell specific conditions for Cell re-selection in CELL_FACH state, two freqs. in neighbour list

| Parameter | | Unit | Cell 1 | | Cell 2 | | Cell 3 | | Cell 4 | | | Cell 5 | | | Cell 6 | | |
|-----------|--|------------------|-----------------------------|-------------------------------------|----------------|---|----------------|---|--------------------------------------|---|------|---|------------|------------|---|------------|--|
| | | | T1 T2 | | T1 T2 | | T1 T2 | | T1 T2 | | | T1 T2 | | | T1 T2 | | |
| | UTRA RF Channel Number | | Channel 1 | | Channel 2 | | Channel 1 | | Cł | Channel 1 | | | nannel 2 | 2 | Channel 2 | | |
| | CPICH_Ec/lor | dB | -10 | | -10 | -10 | | -10 | | -10 | | | 10 | | -10 | | |
| | PCCPCH_Ec/lor | dB | -12 | | -12 | | -12 | | -12 | | | -12 | | | -12 | | |
| | SCH_Ec/lor | dB | -12 | | -12 | | -12 | | -12 | | | -12 | | | -12 | | |
| | PICH_Ec/lor | dB | -15 | | -15 | | -15 | | -15 | | | -15 | | | -15 | | |
| | S-CCPCH_Ec/lor | dB | -12 | | -12 | | -12 | | -12 | | | -12 | | | -12 | | |
| | OCNS_Ec/lor | dB | -1.295 | | -1.295 | -1.295 | | -1.295 | | -1.295 | | | .295 | | -1.295 | | |
| | \hat{I}_{or}/I_{oc} | dB | -1.8 | 2.2 | 2.2 | -1.8 | -6.8 | -4.8 | -6 | .8 - | 4.8 | -4 | .8 | -6.8 | -4.8 | -6.8 | |
| | $\hat{I}_{or\ (Note\ 1)}$ | dBm | - 71.85 | - 67.75 | 67.75 | - 5 71.8 | - 5 76.8 | - 5 74. | 75 | - 76.85 | 74. | 75 | - 74.75 | - 76.85 | - 74.75 | - 76.85 | |
| | I_{oc} | dBm/3.8 4 MHz | -70 | | | | | | | | | | | | | | |
| | CPICH_Ec/lo | dB | -15 | -13 | -13 | -15 | -2 | 0 | | -20 | | | -20 | | -2 | 20 | |
| | | /GN | | | | | | | | | | | | | • | | |
| | Cell_selection_ and_reselection_ | | CPICH E _o /N₀ | | CPICH E₀/N₀ | | CPICH E₀/N₀ | | CPICH E _c /N ₀ | | | CPICH E₀/N₀ | | | CPICH E₀/N₀ | | |
| | quality_measure Qqualmin | dB | -20 | | -20 | | -20 | | -20 | | | -20 | | | -20 | | |
| | Qrxlevmin | dBm | -115 | | -115 | | -115 | | -115 | | | -115 | | | -115 | | |
| | UE_TXPWR_ MAX_RACH | dBm | 21 | | 21 | | 21 | | 21 | | | 21 | | | 21 | | |
| | Qoffset2 _{s, n} | dB | C1, C3 C1, C4 C1, C5 | C1, C3: 0 C1, C4: 0 C1, C5: 0 | | C2, C1: 0 C2, C3: 0 C2, C4: 0 C2, C5: 0 C2, C6: 0 | | C3, C1: 0 C3, C2: 0 C3, C4: 0 C3, C5: 0 C3, C6: 0 | | C4, C1: 0 C4, C2: 0 C4, C3: 0 C4, C5: 0 C4, C6: 0 | | C5, C1: 0 C5, C2: 0 C5, C3: 0 C5, C4: 0 C5, C6: 0 | | | C6, C1: 0 C6, C2: 0 C6, C3: 0 C6, C4: 0 C6, C5: 0 | | |
| | Qhyst2 | dB | 0 | | | 0 | | 0 | | 0 | | | , | | 0 | | |
| | Treselection | S | 0 | 0 | | 0 | | 0 | | | | 0 | | | 0 | | |
| | Sintrasearch | dB | not se | nt | not se | not sent | | not sent | | not sent | | | t sent | | not sent | | |
| | Sintersearch | dB | not se | nt | not sent | | not se | not sent | | t sent | | not sent | | | not sent | | |
| | IE "FACH Measurement occasion info" | | sent | | sent | | sent | | sent | | Sent | | | sent | | | |
| | FACH Measurement occasion cycle length coefficient | | 3 | | 3 | | 3 | | 3 | | 3 | | | 3 | | | |
| | Inter-frequency FDD measurement indicator | | TRUE | | TRUE | | TRUE | | TRUE | | | TRUE | | | TRUE | | |
| | Inter-frequency TDD measurement | | FALSE | <u> </u> | FALSI | FALSE | | FALSE | | FALSE | | | ALSE | | FALSE | | |

Note 1 The nominal for values, although not explicitly defined in 25.133 are added here since they are implied and need to be identified so that the test equipment can be configured.

8.3.5.2.4.2 Procedure

indicator

- 1) The RF parameters for cell 1 are set up according to T1 in table 8.3.5.2.5.
- 2) The UE is switched on.
- 3) An RRC connection is set up according to the signalling sequence in the generic set-up procedure specified in TS 34.108 [3] subclause 7.3.3 to place the UE in the CELL_FACH state on Cell 2 and the SS waits for this process to complete.
- 4) After 15 seconds from completion of step3 or the beginning of T1, the parameters are changed to those defined for T2 in table 8.3.5.2.5.

- 5) If the UE responds on Cell 1 with a PRACH (CELL UPDATE message cause "cell reselection") within 2.0 s, then the success is recorded, the SS shall transmit a CELL UPDATE CONFIRM message and then the procedure moves to step 7.
- 6) Since the UE has failed to respond with the correct message within the allowed time, a failure is recorded. The SS shall then wait for a total of 15 s from the beginning of T2 and if no response is received, the UE shall be switched off and the procedure returns to step 1. Otherwise the SS shall transmit a CELL UPDATE CONFIRM message and then the procedure continues with step 7.
- 7) After total of 15 s from the beginning of T2, the parameters are changed to those defined for T1 in table 8.3.5.2.5.
- 8) If the UE responds on Cell 2 with a PRACH (CELL UPDATE message cause "cell reselection") within 2.0 s, then a success is recorded and the procedure moves to step 10.
- 9) Since the UE has failed to respond with the correct message within the allowed time, a failure is recorded. The SS shall then wait for a total of 15 s from the beginning of T1 and if no response is received the UE shall be switched off and the procedure returns to step 1. Otherwise the SS shall transmit a CELL UPDATE CONFIRM message and then the procedure continues with step 10.
- 10) Steps 4 to 10 are repeated until the confidence level according to annex F.6.2 is achieved a total of [TBD] successes and failures have been recorded.

NOTE: The time required for receiving all the relevant system information data according to the reception procedure and the RRC procedure delay of system information blocks defined in 25.331 for a UTRAN cell. Since the maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell is 1280ms and the maximum RRC procedure delay for reception system information block is 100ms, 1380 ms is assumed in this test case. Therefore the cell re-selection delay shall be less than 2.0 s.(Minimum requirement + 100ms).

8.3.5.2.5 Test requirements

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

Table 8.3.5.2.5: Cell specific test requirements for Cell re-selection in CELL_FACH state, two freqs. in neighbour list

| | | | | _ | | _ | | | | _ | | _ | | | | | |
|------------------------------|---------------------|---------------------|-------|-------|-------|-------------|-------|-----------|--------|-----------|--------|-----------|--------|-----------|--------|-----------|--|
| | Parame | Parameter | | Unit | Ce | II 1 | Ce | II 2 | Cell 3 | | Cell 4 | | Cell 5 | | Cell 6 | | |
| | | | | | T1 | T2 | T1 | T2 | T1 | T2 | T1 | T2 | T1 | T2 | T1 | T2 | |
| | UTRA RF C Number | RA RF Channel Imber | | el | | Channel 1 | | Channel 2 | | Channel 1 | | Channel 1 | | Channel 2 | | Channel 2 | |
| CPICH_Ec/lor | dB | | -9.4 | | -9.4 | | -10.7 | | -10.7 | | -10.7 | | -10.7 | | · | | |
| PCCPCH_Ec/lo | r dB | dB - | | 1.4 | -11.4 | | -12.7 | | -12.7 | | -12.7 | | -12.7 | | i | | |
| SCH_Ec/lor | lor dB | | -11 | 1.4 | -1 | 1.4 | -12.7 | | -12.7 | | -12.7 | | -12.7 | | i | | |
| PICH_Ec/lor | dB | | -14 | 4.4 | -1- | -14.4 -15.7 | | 5.7 | -15.7 | | -15.7 | | -15.7 | | i | | |
| S-CCPCH_Ec/ld | or dB | | -11 | 1.4 | -11.4 | | -12.7 | | -12.7 | | -12.7 | | -12.7 | | i | | |
| OCNS_Ec/lor | dB | | -1. | 52 | -1.52 | | -1.08 | | -1.08 | | -1.08 | | -1.08 | | L | | |
| \hat{I}_{or}/I_{oc} Note 1 | dB | - | -1.80 | +4.64 | +4.64 | -1.80 | -6.80 | -3.16 | -6.80 | -3.16 | -3.16 | -6.80 | -3.16 | -6.80 | | | |
| \hat{I}_{or} | dBm | - | -71.8 | -67.0 | -67.0 | -71.8 | -76.8 | -74.8 | -76.8 | -74.8 | -74.8 | -76.8 | -74.8 | -76.8 | | | |
| I_{oc} | dBm/ 4 MH | | -70.0 | -71.6 | -71.6 | -70.0 | -70.0 | -71.6 | -70.0 | -71.6 | -71.6 | -70.0 | -71.6 | -70.0 | | | |
| CPICH_Ec/lo Note dB - | | -14.4 | -11.6 | -11.6 | -14.4 | -20.7 | -20.7 | -20.7 | -20.7 | -20.7 | -20.7 | -20.7 | -20.7 | | | | |

All other parameters and conditions specified in table 8.3.5.2.4 are unchanged.

Note 1: These parameters are not directly settable, but are derived by calculation from the settable parameters.

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

8.3.5.3 Cell Reselection to GSM

8.3.5.3.1 Definition and applicability

The cell re-reselection delay is defined as the time from the beginning of time period T2, to the moment when the UE starts to transmit the random access in Cell 2 (the GSM cell).

This requirements and this test apply to UE supporting FDD PS and GSM GPRS.

8.3.5.3.2 Minimum requirements

The cell re-selection delay shall be less than $5.5 + T_{RA}$ s.

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

NOTE: The cell re-selection delay can be expressed

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

where:

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

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

T_{BCCH} According to TS 05.08 [xx], the maximum time allowed to read the BCCH data, when

being synchronized to a BCCH carrier, is 1.9 s.

T_{RA} The additional delay caused by the random access procedure in the GSM cell, is 10 ms (2

GSM radio frames).

These requirements assume radio conditions to be sufficient, so reading of system information can be done without errors.

The normative reference for this requirement is TS 25.133 [2] clauses 5.5.2.1.4 and A.5.5.3.

8.3.5.3.3 Test purpose

The purpose of this test is to verify the requirement for the cell re-selection delay in CELL_FACH state.

8.3.5.3.4 Method of test

8.3.5.3.4.1 Initial conditions

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

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

The test parameters are given in table 8.3.5.3.1 to 8.3.5.3.5. This scenario implies the presence of 1 UTRAN serving cell, and 1 GSM cell to be re-selected. The UTRAN cell and the GSM cell are set to belong to different location areas. The GSM cell shall be set up to allow UE to transmit radio access burst in every GSM radio frame. The UE is requested to monitor neighbouring cells on 1 UMTS carrier and 6 GSM cells.

Table 8.3.5.3.1: General test parameters for UTRAN to GSM Cell Re-selection

| Para | ameter | Unit | Value | Comment |
|--------------------|----------------|------|------------------------------------|----------|
| Initial condition | Active cell | | Cell1 | |
| | Neighbour cell | | Cell2 | |
| Final condition | Active cell | | Cell2 | |
| HCS | | | | Not used |
| Neighbour cell lis | st size | | 24 FDD neighbours on Channel 1 | |
| | | | 6 GSM neighbours including ARFCN 1 | |
| T1 | | S | 5 | |
| T2 | • | S | 10 | |

The transport and physical parameters of the S-CCPCH carrying the FACH are defined in Table 8.3.5.3.2 and Table 8.3.5.3.3.

Table 8.3.5.3.2: Physical channel parameters for S-CCPCH.

| Parameter | Unit | Level |
|---|------|-------|
| Channel bit rate | kbps | 60 |
| Channel symbol rate | ksps | 30 |
| Slot Format #I | - | 4 |
| TFCI | - | OFF |
| Power offsets of TFCI and Pilot fields relative to data field | dB | 0 |

Table 8.3.5.3.3: Transport channel parameters for S-CCPCH

| Parameter | FACH |
|---------------------------------|--------------------|
| Transport Channel Number | 1 |
| Transport Block Size | 240 |
| Transport Block Set Size | 240 |
| Transmission Time Interval | 10 ms |
| Type of Error Protection | Convolution Coding |
| Coding Rate | 1/2 |
| Rate Matching attribute | 256 |
| Size of CRC | 16 |
| Position of TrCH in radio frame | Fixed |

Table 8.3.5.3.4: Cell re-selection UTRAN to GSM cell case (cell 1)

| UTRA RF Channel Number Channel 1 | Parameter | Unit | Cell 1 (| UTRA) | |
|---|-------------------------|------|----------|---------|--|
| Number | | | T1 | T2 | |
| Number | UTRA RF Channel | | Chan | nol 1 | |
| PCCPCH_Ec/lor dB -12 SCH_Ec/lor dB -12 PICH_Ec/lor dB -15 S-CCPCH_Ec/lor dB -12 OCNS_Ec/lor dB -1.295 Î _{or} /I _{oc} dB 0 -5 I dBm/3.84 MHz -70 CPICH_Ec/lo dB -13 -16.2 CPICH_Ec/lo dB -80 -85 Propagation Condition AWGN AWGN Cell_selection_and_reselection_and_reselection_quality_mea CPICH Ec/lo -85 Qqualmin dB -20 -20 Qrxlevmin dBm -115 -15 UE_TXPWR_MAX_RACH dBm 21 -15 Qoffset1_s, n dB C1, C2: 0 0 Qhyst1 dB 0 -15 Treselection s 0 0 Search_RAT dB Not sent Sent IE "FACH Measurement occasion info" Sent Sent FACH Meas | | | Chan | nei i | |
| SCH_Ec/lor dB -12 PICH_Ec/lor dB -15 S-CCPCH_Ec/lor dB -12 OCNS_Ec/lor dB -1.295 \$\hat{l}_{or}/I_{oc}\$ dB 0 -5 \$I_{oc}\$ dBM/3.84 MHz -70 \$CPICH_Ec/lo dB -13 -16.2 \$CPICH_Ec/lo dB -80 -85 Propagation Condition AWGN \$CPICH_RSCP dBm -80 -85 Propagation Condition AWGN \$CPICH_Ec/lo AWGN CPICH Ec/lo \$UE_Selection_and_reselection_quality_mea CPICH Ec/lo CPICH Ec/lo \$UE_TXPWR_MAX_ARCH dBm -115 -115 \$UE_TXPWR_MAX_ARCH dBm 21 -115 -115 \$UE_TXPWR_MAX_ARCH dB C1, C2: 0 -115 -115 -115 -115 -115 -115 -115 -115 -115 -115 -115 -115 -115 -115 -115 -115 -115 - | | dB | | | |
| PICH_Ec/lor dB -15 S-CCPCH_Ec/lor dB -12 OCNS_Ec/lor dB -1.295 Î _{or} /I _{oc} dB 0 -5 I dBm/3.84 MHz -70 CPICH_Ec/lo dB -13 -16.2 CPICH_RSCP dBm -80 -85 Propagation Condition AWGN CPICH Ec/lo Cell_selection_and_reselection_quality_mea CPICH Ec/lo CPICH Ec/lo Sure Qqualmin dB -20 Qrxlevmin dBm -115 UE_TXPWR_MAX_RACH dBm 21 Qoffset1 _{s,n} dB C1, C2: 0 Qhyst1 dB 0 Treselection s 0 Search _{RAT} dB Not sent IE "FACH Measurement occasion info" Sent FACH Measurement indicator FALSE Inter-frequency FDD measurement indicator FALSE Inter-FRAT measurement indicator Included | | | -1 | 2 | |
| $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$ | | dB | | | |
| $\begin{array}{c ccccccccccccccccccccccccccccccccccc$ | PICH_Ec/lor | | -1 | 5 | |
| $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$ | | | | | |
| I oc dBm/3.84 MHz -70 CPICH_Ec/Io dB -13 -16.2 CPICH_RSCP dBm -80 -85 Propagation Condition AWGN Cell_selection_and_reselection_quality_measure CPICH Ec/Io Sure CPICH Ec/Io Qqualmin dB -20 Qrxlevmin dBm -115 UE_TXPWR_MAX_RACH dBm 21 Qoffset1s,n dB C1, C2: 0 Qhyst1 dB 0 Treselection s 0 SearchRAT dB Not sent IE "FACH Measurement occasion info" Sent FACH Measurement occasion cycle length coefficient 3 Inter-frequency FDD measurement indicator FALSE Inter-frequency TDD measurement indicator Included | OCNS_Ec/lor | dB | -1.2 | 295 | |
| CPICH_Ec/lo dB -13 -16.2 CPICH_RSCP dBm -80 -85 Propagation Condition Cell_selection_and_ reselection_quality_mea sure Qqualmin dB -20 Qrxlevmin dBm -115 UE_TXPWR_MAX_ RACH dBm 21 Qoffset1_s, n dB C1, C2: 0 Qhyst1 dB 0 Treselection s 0 Ssearch_RAT dB Not sent IE "FACH Measurement occasion info" FACH Measurement occasion cycle length coefficient Inter-frequency FDD measurement indicator Inter-FRAT measurement indicator Inter-RAT measurement indicator Inter-RAT measurement indicator Inter-RAT measurement indicator Included | \hat{I}_{or}/I_{oc} | dB | 0 | -5 | |
| CPICH_RSCP | | MHz | _ | _ | |
| Propagation Condition Cell_selection_and_ reselection_quality_mea sure Qqualmin Qrxlevmin UE_TXPWR_MAX_ RACH Qoffset1_s,n Qhyst1 Treselection Ssearch_RAT IE "FACH Measurement occasion info" FACH Measurement occasion cycle length coefficient Inter-frequency FDD measurement indicator Inter-RAT measurement indicator Inter-RAT measurement indicator Included CPICH Ec/lo AWGN CPICH Ec/lo AWGN CPICH Ec/lo ABB -20 dBm -115 dB C1, C2: 0 dB Not sent Sent Sent FACH Measurement occasion info" FACH Measurement occasion cycle length coefficient Inter-frequency TDD measurement indicator Included | | dB | -13 | -16.2 | |
| Cell_selection_and_ reselection_quality_mea sure Qqualmin Qrxlevmin UE_TXPWR_MAX_ RACH Qoffset1_s,n Qhyst1 Treselection Ssearch_RAT IE "FACH Measurement occasion info" FACH Measurement occasion cycle length coefficient Inter-frequency FDD measurement indicator Inter-RAT measurement indicator Inter-RAT measurement indicator Included CPICH Ec/lo AB -20 CPICH Ec/lo EALSE Included | | dBm | | | |
| reselection_quality_mea sure Qqualmin dB -20 Qrxlevmin dBm -115 UE_TXPWR_MAX_ RACH dBm 21 Qoffset1s,n dB C1, C2: 0 Qhyst1 dB 0 Treselection s 0 Ssearch_RAT dB Not sent IE "FACH Measurement occasion info" FACH Measurement occasion cycle length coefficient Inter-frequency FDD measurement indicator Inter-frequency TDD measurement indicator Inter-RAT measurement indicator Included | | | AW | GN | |
| sure Qqualmin dB -20 Qrxlevmin dBm -115 UE_TXPWR_MAX_RACH dBm 21 Qoffset1_s,n dB C1, C2: 0 Qhyst1 dB 0 Treselection s 0 Ssearch_RAT dB Not sent IE "FACH Measurement occasion info" Sent FACH Measurement occasion cycle length coefficient 3 Inter-frequency FDD measurement indicator FALSE Inter-frequency TDD measurement indicator FALSE Inter-RAT measurement indicators Included | | | | | |
| Qqualmin dB -20 Qrxlevmin dBm -115 UE_TXPWR_MAX_ RACH dBm 21 Qoffset1 _{s,n} dB C1, C2: 0 Qhyst1 dB 0 Treselection s 0 Ssearch _{RAT} dB Not sent IE "FACH Measurement occasion info" Sent FACH Measurement occasion cycle length coefficient 3 Inter-frequency FDD measurement indicator FALSE Inter-frequency TDD measurement indicator FALSE Inter-RAT measurement indicators Included | reselection_quality_mea | | CPICH | l Ec/lo | |
| Qrxlevmin dBm -115 UE_TXPWR_MAX_ RACH dBm 21 Qoffset1 _{S, n} dB C1, C2: 0 Qhyst1 dB 0 Treselection s 0 Ssearch _{RAT} dB Not sent IE "FACH Measurement occasion info" Sent FACH Measurement occasion cycle length coefficient 3 Inter-frequency FDD measurement indicator FALSE Inter-frequency TDD measurement indicator FALSE Inter-RAT measurement indicators Included | | | | | |
| UE_TXPWR_MAX_ RACH Qoffset1 _{s,n} Qhyst1 dB Treselection Ssearch _{RAT} IE "FACH Measurement occasion info" FACH Measurement occasion cycle length coefficient Inter-frequency FDD measurement indicator Inter-frequency TDD measurement indicator Inter-RAT measurement indicator Included | | | | | |
| RACH Qoffset1 _{s,n} Qhyst1 Ghyst1 Ghyst2 Ghyst1 Ghyst2 Ghyst1 Ghyst2 G | | dBm | -115 | | |
| Qhyst1 dB 0 Treselection s 0 Ssearch _{RAT} dB Not sent IE "FACH Measurement occasion info" Sent FACH Measurement occasion cycle length coefficient 3 Inter-frequency FDD measurement indicator FALSE Inter-frequency TDD measurement indicator FALSE Inter-RAT measurement indicators Included | | dBm | 21 | | |
| Qhyst1 dB 0 Treselection s 0 Ssearch _{RAT} dB Not sent IE "FACH Measurement occasion info" Sent FACH Measurement occasion cycle length coefficient 3 Inter-frequency FDD measurement indicator FALSE Inter-frequency TDD measurement indicator FALSE Inter-RAT measurement indicators Included | Qoffset1 _{s.n} | dB | C1, (| C2: 0 | |
| Ssearch _{RAT} dB Not sent IE "FACH Measurement occasion info" FACH Measurement occasion cycle length coefficient Inter-frequency FDD measurement indicator Inter-frequency TDD measurement indicator Inter-RAT measurement indicator Included | | dB | | | |
| IE "FACH Measurement occasion info" FACH Measurement occasion cycle length coefficient Inter-frequency FDD measurement indicator Inter-frequency TDD measurement indicator Inter-RAT measurement indicator Included | Treselection | S | (|) | |
| occasion info" FACH Measurement occasion cycle length coefficient Inter-frequency FDD measurement indicator Inter-frequency TDD measurement indicator Inter-RAT measurement indicator Included | Ssearch _{RAT} | dB | Not | sent | |
| FACH Measurement occasion cycle length coefficient Inter-frequency FDD measurement indicator Inter-frequency TDD measurement indicator Inter-RAT measurement indicator Included | IE "FACH Measurement | | C. | nt | |
| occasion cycle length coefficient Inter-frequency FDD measurement indicator Inter-frequency TDD measurement indicator Inter-RAT measurement indicators Included | occasion info" | | 36 | rit | |
| coefficient Inter-frequency FDD measurement indicator Inter-frequency TDD measurement indicator Inter-RAT measurement indicators FALSE Included | FACH Measurement | | | | |
| Inter-frequency FDD measurement indicator Inter-frequency TDD measurement indicator Inter-RAT measurement indicators Included | occasion cycle length | | 3 | 3 | |
| measurement indicator Inter-frequency TDD measurement indicator Inter-RAT measurement indicators Included | | | | | |
| Inter-frequency TDD measurement indicator Inter-RAT measurement indicator Inter-RAT measurement indicators Included | | | ΕΛΙ | QE | |
| measurement indicator Inter-RAT measurement indicators Included | | | i AL | JOL | |
| Inter-RAT measurement indicator Included | | | FΔI | SE | |
| indicators | | | i AL | JOL | |
| | | | Inclu | ıded | |
| | >RAT type | | GS | SM | |

Table 8.3.5.3.5: Cell re-selection UTRAN to GSM cell case (cell 2)

| Parameter | Unit | Cell 2 | (GSM) |
|----------------------------|------|--------|-------|
| | | T1 | T2 |
| Absolute RF Channel Number | | ARFCN | l 1 |
| RXLEV | dBm | -90 | -75 |
| RXLEV_ACCESS_ MIN | dBm | -104 | |
| MS_TXPWR_MAX_ CCH | dBm | 33 | |

8.3.5.3.4.2 Procedure

- 1) The SS activates cell 1-2 with RF parameters set up according to T1 in tables 8.3.5.3.4 and 8.3.5.3.5.
- 2) The UE is switched on.
- 3) An RRC connection is set up according to the signalling sequence in the generic set-up procedure specified in TS 34.108 [3] subclause 7.3.3 to place the UE in CELL_FACH and the SS waits for this process to complete.

- 4) After 5 seconds from completion of step3 or the beginning of T1, the parameters are changed to those defined for T2 in tables 8.3.5.1.4 and 8.3.5.1.5.
- 5) The SS waits for random access requests from the UE. If the UE responds on cell 2 within 5.51 s (=5.5 s + T_{RA} s) from the beginning of time period T2 then a success is recorded and the SS completes the location update procedure in GSM and the procedure continues with step 7.
- 6) Since the UE has failed to respond with the correct message within the allowed time, a failure is recorded. The SS shall then wait for a total of 10s from the beginning of T2 and if no response is received, the UE shall be switched off and the procedure returns to step 1. Otherwise the SS completes the location update procedure in GSM and the procedure continues with step 7.
- 7) After 10 s from the beginning of time period T2, the parameters are changed to those defined for T1 in tables 8.3.5.1.4 and 8.3.5.1.5.
- 8) The SS waits for random access requests from the UE on cell 1. The SS completes the location update procedure in UTRA
- 9) Repeat step 3) to 8) [TBD] times until the confidence level according to annex F.6.2 is achieved.

8.3.5.3.5 Test requirements

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

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

8.3.6 Cell Re-selection in CELL PCH

8.3.6.1 One frequency present in the neighbour list

8.3.6.1.1 Definition and applicability

The cell re-selection delay is defined as the time from a change of cell levels to the moment when this change makes the UE camp on a new cell, and starts to send preambles on the PRACH for the CELL UPDATE message with cause value "cell reselection" in the new cell.

The requirements and this test apply to the FDD UE.

8.3.6.1.2 Minimum requirements

The cell re-selection delay shall be less than 8 s with a DRX cycle length of 1.28 s.

The rate of correct cell reselections observed during repeated tests shall be at least 90% with a confidence level of [FFFS]95 %.

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

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

T_{SI} Maximum repetition period of relevant system info blocks that needs to be received

by the UE to camp on a cell. 1280 ms is assumed in this test case.

This gives a total of 7.68 s, allow 8s in the test case.

The normative reference for this requirement is TS 25.133 [2] clauses 5.6.2 and A.5.6.1.

8.3.6.1.3 Test purpose

To verify that the UE meets the minimum requirements and is capable of camping on to a new cell, within the required time, when the preferred cell conditions change.

8.3.6.1.4 Method of test

8.3.6.1.4.1 Initial conditions

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

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

This scenario implies the presence of 1 carrier and 6 cells as given in tables 8.3.6.1.1 to 8.3.6.1.3. The UE is requested to monitor neighbouring cells on 1 carrier. The maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell shall be 1280 ms.

Table 8.3.6.1.1: General test parameters for Cell Re-selection in CELL_PCH, one freq. in neighbour list

| | Parameter | | Value | Comment |
|-------------|---------------------|---|---------------------|--|
| initial | Active cell | | Cell2 | |
| condition | Neighbour cells | | Cell1, Cell3,Cell4, | |
| | | | Cell5, Cell6 | |
| final | Active cell | | Cell1 | |
| condition | | | | |
| Access Se | rvice Class (ASC#0) | | | Selected so that no additional delay is caused by the |
| - Persisten | ce value | - | 1 | random access procedure. The value shall be used for |
| | | | | all cells in the test. |
| HCS | | | | Not used |
| DRX cycle | length | S | 1.28 | The value shall be used for all cells in the test. |
| T1 | | S | 15 | T1 need to be defined so that cell re-selection reaction |
| | | | | time is taken into account. |
| T2 | · | S | 15 | T2 need to be defined so that cell re-selection reaction |
| | | | | time is taken into account. |

Cell 4

Cell 6

Cell 5

l Init

Table 8.3.6.1.2: Cell specific test parameters for Cell re-selection in CELL_PCH state, one freq. in neighbour list

Cell 1

Cell 2

Cell 3

| | Darameter | l IIni+ | | | | | | | | | | | | | |
|-------------------|--|-----------------|---------|-----------------------------------|---------|-------------------------|--------------------|------------------------|----------|-------|----------------|-----------|--------------------|--|----------------|
| | Parameter | Unit | T1 | T2 | | T1 | T2 | T1 | T2 | T1 | T2 | T1 | T2 | T1 | T2 |
| | UTRA RF Channel Number | | Char | nnel 1 | | Chan | nel 1 | Cha | innel 1 | Chan | nel 1 | Channel 1 | | Chan | nel 1 |
| | CPICH_Ec/lor | dB | -10 | | | -10 | | -10 | | -10 | | -10 | | -10 | |
| | PCCPCH_Ec/lor | dB | -12 | -12 | | -12 | | -12 | | -12 | | -12 | | -12 | |
| | SCH_Ec/lor | dB | -12 | | | -12 | | -12 | | -12 | | -12 | | -12 | |
| | PICH_Ec/lor | dB | -15 | | | -15 | | -15 | | -15 | | -15 | | -15 | |
| | OCNS_Ec/lor | dB | -0.94 | ŀ1 | | -0.94 | 1 | -0.9 | 41 | -0.94 | 1 | -0.94 | 1 | -0.94 | 1 |
| | \hat{I}_{or}/I_{oc} | dB | 7.3 | 10.2 | 7 | 10.27 | 7.3 | 0.27 | 7 | 0.27 | | 0.27 | | 0.27 | |
| | $\hat{I}_{or(Note1)}$ | dB | m | -62.73 | -59. | .73 | -59.73 | - 62.73 | -69.73 | - | 69.73 | | -69.73 | | -69.73 |
| | I_{oc} | dBm/ 3.84MHz | -70 | | | • | | | | | | | | | |
| | CPICH_Ec/Io | dB | -16 -13 | | } | -13 -16 | | -23 | -23 -23 | | -23 -23 | | | -23 | |
| agation dition | | | | | | | AW | GN | | | | | | i | |
| | Cell_selection_and_ reselection_quality_ measure | | CPIC | CH E ₀ /N ₀ | , | CPICH E ₀ /N | | CPI E₀/N | | CPIC | H E₀/N₀ | CPIC | H E₀/N₀ | CPIC E _c /N ₀ | |
| | Qqualmin | dB | | -20 | | | -20 | | -20 | -20 | | | -20 | -20 | |
| | Qrxlevmin | dBm | | -115 | | - | ·115 | | -115 | -1 | 115 | - | 115 | -1 | 15 |
| | UE_TXPWR_ MAX_RACH | dBm | | 21 | | | 21 | | 21 | | 21 | | 21 | | 21 |
| | | | | C1, C2: 0 C1, C3: 0 | | | , C1: 0 , C3: 0 | C3, C1: 0 C3, C2: 0 | | | C1: 0 C2: 0 | | , C1: 0 , C2: 0 | | C1: 0 C2: 0 |
| | Qoffset2 _{s, n} | | | | , C4: 0 | C3 | , C4: 0 | C4, | C3: 0 | C5 | , C3: 0 | C6, C3: 0 | | | |
| | | | | 1, C5: 0 | | C2, C5: 0 | | | , C5: 0 | | C5: 0 | | , C4: 0 | C6, C4: 0 | |
| | | | C1 | C1, C6: 0 | | C2 | , C6: 0 | C3 | , C6: 0 | C4, | C6: 0 | C5, C6: 0 | | C6, | C5: 0 |
| | Qhyst2 | dB | | 0 | | | 0 | | 0 | | 0 | 0 | | 0 | |
| | Treselection | S | | 0 | | | 0 | | 0 | | 0 | | 0 | | 0 |
| | Sintrasearch | dB | no | ot sent | | no | t sent | no | not sent | | not sent | | not sent | | sent |
| | | | | | | | | | | | | | | | |

Note 1 The nominal lor values, although not explicitly defined in 25.133 are added here since they are implied and need to be identified so that the test equipment can be configured.

8.3.6.1.4.2 Procedure

- 1) The SS activates cell 1-6 with T1 defined parameters in table 8.3.6.1.3 and monitors cell 1 and 2 for random access requests from the UE.
- 2) The UE is switched on.
- 3) An RRC connection is set up according to the generic set-up procedure specified in TS 34.108 [3] subclause 7.3.3 to place the UE in the CELL_PCH state on Cell 2 and then the SS waits for this process to complete.
- 4) After 15 s from the completion of step 3 or the beginning of T1, the parameters are changed to those defined for T2 in table 8.3.6.1.3.
- 5) If the UE responds on Cell 1 with a PRACH (CELL UPDATE message cause "cell reselection") within 8s, then a success is recorded, the SS shall transmit a CELL UPDATE CONFIRM message and then the procedure moves to step 7.
- 6) Since the UE has failed to respond with the correct message within the allowed time, a failure is recorded. The SS shall then wait for a total of 15s from the beginning of T2 and if no response is received, the UE shall be switched off and the procedure returns to step 1. Otherwise the SS shall transmit a CELL UPDATE CONFIRM message and then the procedure continues with step 7.
- 7) After a total of 15 s from the beginning of T2, the parameters are changed to those defined for T1 in table 8.3.6.1.3.

- 8) If the UE responds on Cell 2 with a PRACH (CELL UPDATE message cause "cell reselection") within 8s, then a success is recorded and the procedure moves to step 10.
- 9) Since the UE has failed to respond with the correct message within the allowed time, a failure is recorded. The SS shall then wait for a total of 15s from the beginning of T1 and if no response is received the UE shall be switched off and the procedure returns to step 1. Otherwise the SS shall transmit a CELL UPDATE CONFIRM message and then the procedure continues with step 10.
- 10) Steps 4 to 10 are repeated until the confidence level according to annex F.6.2 is achieved a total of [50] successes and failures have been recorded.

NOTE: The time required for receiving all the relevant system information data according to the reception procedure and the RRC procedure delay of system information blocks defined in 25.331 for a UTRAN cell. Since the maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell is 1280ms and the maximum RRC procedure delay for reception system information block is 100ms, 1380 ms is assumed in this test case. Therefore this gives a total of 7.78s (Minimum requirement + 100ms), allow 8s in the test case.

Specific Message Contents

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

RADIO BEARER SETUP (Step 3)

| Information Element | Value/remark |
|--|--------------|
| RRC State Indicator | CELL PCH |
| UTRAN DRX cycle length coefficient | 7 |
| Downlink information for each radio link | |
| - Primary CPICH info | |
| - Primary scrambling code | 100 |

8.3.6.1.5 Test requirements

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

Table 8.3.6.1.3: Cell specific test requirements for Cell re-selection in CELL_PCH state, one freq. in neighbour list

| Parameter | Unit | C | ell 1 | Се | II 2 | C | ell 3 | Cel | 14 | Cell 5 | | Ce | ell 6 | |
|------------------------------|-------------------|-----------|-------|--------|-------------|-------|-----------|-------|-------|--------|-------|-----------|-------|--|
| | | T1 | T2 | T1 | T2 | T1 | T2 | T1 | T2 | T1 | T2 | T1 | T2 | |
| UTRA RF Channel Number | | Chan | nel 1 | Channe | el 1 | Chan | Channel 1 | | el 1 | Chanr | nel 1 | Channel 1 | | |
| CPICH_Ec/lor | dB | -9.4 | | -9.4 | | -10.5 | | -10.5 | | -10.5 | | -10.5 | | |
| PCCPCH_Ec/lor | dB | -11.4 | | -11.4 | | -12.5 | | -12.5 | | -12.5 | | -12.5 | | |
| SCH_Ec/lor | dB | -11.4 | | -11.4 | | -12.5 | | -12.5 | | -12.5 | | -12.5 | -12.5 | |
| PICH_Ec/lor | dB | -14.4 | | -14.4 | | -15.5 | | -15.5 | | -15.5 | | -15.5 | | |
| OCNS_Ec/lor | dB | -1.10 | | -1.10 | | -0.83 | | -0.83 | | -0.83 | | -0.83 | | |
| \hat{I}_{or}/I_{oc} Note 1 | dB | 7.00 | 10.40 | 10.40 | 7.00 | 0.30 | 0.30 | | | 0.30 | | 0.30 | | |
| \hat{I}_{or} | dBm | - 63.0 | -59.6 | -59.6 | -63.0 | -69.7 | -69.7 -69 | | -69.7 | | -69.7 | | -69.7 | |
| I_{oc} | dBm / 3,84 MHz | | | | | | -70 | | | | | | | |
| CPICH_Ec/lo Note 1 | dB | - 15.7 | -12.3 | -12.3 | -12.3 -15.7 | | -23.5 | | -23.5 | | -23.5 | | | |

All other parameters and conditions specified in table 8.3.6.1.2 are unchanged.

NOTE 1: These parameters are not directly settable, but are derived by calculation from the settable parameters.

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

8.3.6.2 Two frequencies present in the neighbour list

8.3.6.2.1 Definition and applicability

The cell re-selection delay is defined as the time from a change of cell levels to the moment when this change makes the UE camp on a new cell, and starts to send preambles on the PRACH for the CELL UPDATE message with cause value "cell reselection" in the new cell.

The requirements and this test apply to the FDD UE.

8.3.6.2.2 Minimum requirement

The cell re-selection delay shall be less than 8 s with a DRX cycle length of 1.28 s.

The rate of correct cell reselections observed during repeated tests shall be at least 90% with a confidence level of [FFS]95 %.

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

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

T_{SI} Maximum repetition period of relevant system info blocks that needs to be received by

the UE to camp on a cell. 1280 ms is assumed in this test case.

This gives a total of 7.68 s, allow 8s in the test case.

The normative reference for this requirement is TS 25.133 [2] clauses 5.6.2 and A.5.6.2.

8.3.6.2.3 Test purpose

To verify that the UE meets the minimum requirement and is capable of camping on to a new cell, within the required time, when the preferred cell conditions change.

8.3.6.2.4 Method of test

8.3.6.2.4.1 Initial conditions

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

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

This scenario implies the presence of 2 carriers and 6 cells as given in tables 8.3.6.2.1 to 8.3.6.2.3. The UE is requested to monitor neighbouring cells on 2 carriers. The maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell shall be 1 280 ms.

Parameter

UTRA RF Channel

Unit

Cell 1

Table 8.3.6.2.1: General test parameters for Cell Re-selection in CELL_PCH, two freqs. in neighbour list

| Parameter | | Unit | Value | Comment |
|--------------------------|---------------------------------|------|-------------------------------------|---|
| initial | Active cell | | Cell2 | |
| condition | Neighbour cells | | Cell1, Cell3,Cell4, Cell5, Cell6 | |
| final condition | Active cell | | Cell1 | |
| Access Se - Persisten | rvice Class (ASC#0) ce value | - | 1 | Selected so that no additional delay is caused by the random access procedure. The value shall be used for all cells in the test. |
| HCS | | | | Not used |
| DRX cycle | length | S | 1.28 | The value shall be used for all cells in the test. |
| T1 | | S | 15 | T1 need to be defined so that cell reselection reaction time is taken into account. |
| T2 | | S | 15 | T2 need to be defined so that cell reselection reaction time is taken into account. |

Table 8.3.6.2.2: Cell specific test parameters for Cell re-selection in CELL_PCH state, two freqs. in neighbour list

Cell 2

T2

Cell 3

T2

Cell 4

T2

Cell 5

Cell 6

| | Number | | Channel 1 | | Channel 2 | | Channel 1 | | Channel 1 | | Channel 2 | | Channel 2 | |
|--------------------------|--|------------------|--|------------|---|------------|---|----------------|---|----------------------------------|---|------------|--------------------------------------|------------|
| | CPICH_Ec/lor | dB | -10 | | -10 | | -10 | | -10 | | -10 | | -10 | |
| | PCCPCH_Ec/lor | dB | -12 | | -12 | | -12 | | -12 | | -12 | | -12 | |
| | SCH_Ec/lor | dB | -12 | | -12 | | -12 | | -12 | | -12 | | -12 | |
| | PICH_Ec/lor | dB | -15 | -15 | | | -15 | | -15 | | -15 | | -15 | |
| | OCNS_Ec/lor | dB | -0.94 | 1 | -0.94 | 1 | -0.941 | | -0.941 | | -0.941 | | -0.941 | |
| | \hat{I}_{or}/I_{oc} | dB | -3.4 | 2.2 | 2.2 | -3.4 | -7.4 | -4.8 | -7.4 | -4.8 | -4.8 | -7.4 | -4.8 | -7.4 |
| | $\hat{I}_{or(Note1)}$ | dBm | - 73.3 9 | - 67.75 | - 67.7 5 | - 73.39 | - 77.39 | - 74.7 5 | - 77.39 | - 74.75 | -74.75 | - 77.39 | - 74.7 5 | - 77.39 |
| | I_{oc} | dBm/3.8 4 MHz | -70 | | | | | | | | | | | |
| 1 | CPICH_Ec/lo | dB | -16 -13 | | -13 | -16 | -20 | | -20 | | -20 | | -20 | |
| Propagation Condition | | | | AWGN | | | | | | | | | | |
| | Cell_selection_ and_reselection_ quality_measure | | CPIC E _c /N ₀ | | CPICH E₀/N₀ | | CPIC⊦ E ₀ /N ₀ | ł | CPICH | I E _c /N ₀ | CPICH E₀/N₀ | | CPICH E ₀ /N ₀ | |
| | Qqualmin | dB | -2 | 20 | -2 | 20 | -20 | | -20 | | -20 | | -20 | |
| | Qrxlevmin | dBm | -1 | 15 | -1 | 15 | -11 | 5 | -115 | | -115 | | -115 | |
| | UE_TXPWR_ MAX_RACH | dBm | 2 | 21 | 2 | 21 | 21 21 | | 21 | | 21 | | | |
| | Qoffset2 _{s, n} | dB | C1, C2: 0 | | C3, C1: 0 C3, C2: 0 C3, C4: 0 C3, C5: 0 C3, C6: 0 | | C4, C1: 0 C4, C2: 0 C4, C3: 0 C4, C5: 0 C4, C6: 0 | | C5, C1: 0 C5, C2: 0 C5, C3: 0 C5, C4: 0 C5, C6: 0 | | C6, C1: 0 C6, C2: 0 C6, C3: 0 C6, C4: 0 C6, C5: 0 | | | |
| | Qhyst2 | dB | | 0 | | 0 | 0 | | | | 0 | | | 0 |
| | Treselection | S | | 0 | (| 0 | 0 | | 0 | | 0 | | 0 | |
| | Sintrasearch | dB | not | sent | not | sent | not s | ent | not : | sent | not sent | | not sent | |
| | Sintersearch | dB | not | sent | not | sent | not s | ent | not | sent | not sent | | not | sent |

Note 1 The nominal Îor values, although not explicitly defined in 25.133 are added here since they are implied and need to be identified so that the test equipment can be configured.

8.3.6.2.4.2 Procedure

- 1) The SS activates cell 1-6 with T1 defined parameters in table 8.3.6.2.3 and monitors cell 1 and 2 for random access requests from the UE.
- 2) The UE is switched on.
- 3) A RRC connection is set up according the generic set-up procedure specified in TS 34.108 [3] subclause 7.3.3 to place the UE in CELL_PCH state on cell 2. The SS waits for this process to complete.
- 4) After 15 s from the completion of step 3 or the beginning of T1, the parameters are changed to those defined for T2 in table 8.3.6.2.3.
- 5) If the UE responds on Cell 1 with a PRACH (CELL UPDATE message cause "cell reselection") within 8s, then a success is recorded, the SS shall transmit a CELL UPDATE CONFIRM message and then the procedure moves to step 7.
- 6) Since the UE has failed to respond with the correct message within the allowed time, a failure is recorded. The SS shall then wait for a total of 15s from the beginning of T2 and if no response is received the UE shall be switched off and the procedure returns to step 1. Otherwise the SS shall transmit a CELL UPDATE CONFIRM message and then the procedure continues with step 7.
- 7) After a total of 15 s from the beginning of T2, the parameters are changed to those defined for T1 in table 8.3.6.2.3.
- 8) If the UE responds on Cell 2 with a PRACH (CELL UPDATE message cause "cell reselection") within 8s, then a success is recorded and the procedure moves to step 10.
- 9) Since the UE has failed to respond with the correct message within the allowed time, a failure is recorded. The SS shall then wait for a total of 15s from the beginning of T1 and if no response is received the UE shall be switched off and the procedure returns to step 1. Otherwise the SS shall transmit a CELL UPDATE CONFIRM message and then the procedure continues with step 10.
- 10) Steps 4 to 10 are repeated until the confidence level according to annex F.6.2 is achieved a total of [50] successes and failures have been recorded.

NOTE: The time required for receiving all the relevant system information data according to the reception procedure and the RRC procedure delay of system information blocks defined in 25.331 for a UTRAN cell. Since the maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell is 1280ms and the maximum RRC procedure delay for reception system information block is 100ms, 1380 ms is assumed in this test case. Therefore this gives a total of 7.78s(Minimum requirement + 100ms), allow 8s in the test case.

Specific Message Contents

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

RADIO BEARER SETUP (Step 3)

| Information Element | Value/remark |
|--|--------------|
| RRC State Indicator | CELL PCH |
| UTRAN DRX cycle length coefficient | 7 |
| Downlink information for each radio link | |
| - Primary CPICH info | |
| - Primary scrambling code | 100 |

8.3.6.2.5 Test requirements

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

Table 8.3.6.2.3: Cell specific test requirements for Cell re-selection in CELL_PCH state, two freqs. in neighbour list

| Parameter | Unit | Се | II 1 | Се | Cell 2 | | II 3 | Се | II 4 | Cell 5 | | Cell 6 | |
|------------------------------|------------------|-------|-------|-------|-----------|-------|-------|-------|-------|-----------|-------|-----------|-------|
| | | T1 | T2 | T1 | T2 | T1 | T2 | T1 | T2 | T1 | T2 | T1 | T2 |
| UTRA RF Channel Number | | Chann | el 1 | Chann | Channel 2 | | el 1 | Chann | el 1 | Channel 2 | | Channel 2 | |
| CPICH_Ec/lor | dB | -9 | .3 | -9 |).3 | -10 | 0.8 | -10.8 | | -10 | 0.8 | -10 | 0.8 |
| PCCPCH_Ec/lor | dB | -1 | 1.3 | -1° | 1.3 | -12 | 2.8 | -12 | 2.8 | -12 | 2.8 | -12 | 2.8 |
| SCH_Ec/lor | dB | -1 | 1.3 | -1° | 1.3 | -12 | 2.8 | -12.8 | | -12.8 | | -12.8 | |
| PICH_Ec/lor | dB | -14 | 4.3 | -14 | 4.3 | -15.8 | | -15.8 | | -15.8 | | -15.8 | |
| OCNS_Ec/lor | dB | -1. | .13 | -1. | .13 | -0. | 77 | -0. | 77 | -0. | 77 | -0. | 77 |
| \hat{I}_{or}/I_{oc} Note 1 | dB | -3.40 | +4.80 | +4.80 | -3.40 | -7.40 | -3.00 | -7.40 | -3.00 | -3.00 | -7.40 | -3.00 | -7.40 |
| \hat{I}_{or} | dBm | -73.4 | -67.0 | -67.0 | -73.4 | -77.4 | -74.8 | -77.4 | -74.8 | -74.8 | -77.4 | -74.8 | -77.4 |
| I_{oc} | dBm/3.8 4 MHz | -70.0 | -71.8 | -71.8 | -70.0 | -70.0 | -71.8 | -70.0 | -71.8 | -71.8 | -70.0 | -71.8 | -70.0 |
| CPICH_Ec/lo Note 1 | dB | -15.3 | -11.5 | -11.5 | -15.3 | -20.8 | -20.8 | -20.8 | -20.8 | -20.8 | -20.8 | -20.8 | -20.8 |

All other parameters and conditions specified in table 8.3.6.2.2 are unchanged.

NOTE 1: These parameters are not directly settable, but are derived by calculation from the settable parameters.

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

8.3.7 Cell Re-selection in URA_PCH

8.3.7.1 One frequency present in the neighbour list

8.3.7.1.1 Definition and applicability

The cell re-selection delay is defined as the time from a change of cell levels to the moment when this change makes the UE camp on a new cell, and starts to send preambles on the PRACH for the URA UPDATE message with cause value "URA reselection" in the new cell.

The requirements and this test apply to the FDD UE.

8.3.7.1.2 Minimum requirement

The cell re-selection delay shall be less than 8 s with a DRX cycle length of 1.28 s.

The rate of correct cell reselections observed during repeated tests shall be at least 90% with a confidence level of [FFS]95 %.

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

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

T_{SI} Maximum repetition period of relevant system info blocks that needs to be received

by the UE to camp on a cell. 1280 ms is assumed in this test case.

This gives a total of 7.68 s, allow 8s in the test case.

The normative reference for this requirement is TS 25.133 [2] clauses 5.7.2 and A.5.7.1.

8.3.7.1.3 Test purpose

To verify that the UE meets the minimum requirement and is capable of camping on to a new cell, within the required time, when the preferred cell conditions change.

8.3.7.1.4 Method of test

8.3.7.1.4.1 Initial conditions

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

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

This scenario implies the presence of 1 carrier and 6 cells as given in tables 8.3.7.1.1 to 8.3.7.1.3. The UE is requested to monitor neighbouring cells on 1 carrier. The maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell shall be 1 280 ms. In System Information Block Type 2 cell1 and cell 2 URA identity is set to a different value.

Table 8.3.7.1.1: General test parameters for Cell Re-selection in URA_PCH, one freq. in neighbour list

| | Parameter | Unit | Value | Comment |
|---|---------------------------------|------|--|---|
| Initial | Active cell | | Cell2 | |
| condition | Neighbour cells | | Cell1, Cell3,Cell4, Cell5, Cell6 | |
| Final condition | Active cell | | Cell1 | |
| SYSTEM II TYPE 2 - URA iden - URA iden | , | - | 0000 0000 0000 0001(B) (Cell 1) 0000 0000 0000 0002(B) (Cell 2) | |
| Access Sell-Persisten | rvice Class (ASC#0) ce value | - | 1 | Selected so that no additional delay is caused by the random access procedure. The value shall be used for all cells in the test. |
| HCS | | | | Not used |
| DRX cycle | length | S | 1,28 | The value shall be used for all cells in the test. |
| T1 | | S | 15 | T1 need to be defined so that cell reselection reaction time is taken into account. |
| T2 | | S | 15 | T2 need to be defined so that cell reselection reaction time is taken into account. |

Table 8.3.7.1.2: Cell specific test parameters for Cell re-selection in URA_PCH state, one freq. in neighbour list

| Parameter | Unit | C | ell 1 | (| Cell | 12 | C | ell 3 | Cel | l 4 | С | ell 5 | C | ell 6 |
|--|-------------------|-------------------|---|----------------|----------------------|----------------------------------|-------------------|---|----------------------------------|--------------------------------|-------------------|---|-------------------|---|
| | | T1 | T2 | T1 | | T2 | T1 | T2 | T1 | T2 | T1 | T2 | T1 | T2 |
| UTRA RF Channel Number | | Chan | nel 1 | Chan | nel | 1 | Chan | nel 1 | Channe | el 1 | Chan | nel 1 | Chan | nel 1 |
| CPICH_Ec/lor | dB | -10 | | -10 | | | -10 | | -10 | | -10 | | -10 | |
| PCCPCH_Ec/lor | dB | -12 | | -12 | | | -12 | | -12 | | -12 | | -12 | |
| SCH_Ec/lor | dB | -12 | | -12 | | | -12 | | -12 | | -12 | | -12 | |
| PICH_Ec/lor | dB | -15 | | -15 | | | -15 | | -15 | | -15 | | -15 | |
| OCNS_Ec/lor | dB | -0,94 | 1 | -0,94 | 1 | | -0,94 | 1 | -0,941 | | -0,94 | 1 | -0,94° | 1 |
| \hat{I}_{or}/I_{oc} | dB | 7,3 | 10,27 | 10,27 | 7 | 7,3 | 0,27 | | 0,27 | | 0,27 | | 0,27 | |
| $\hat{I}_{or(Note1)}$ | dBm | -62.73 | -59.73 | -59. | 73 | 62.73 | -69.7 | 73 | -69.73 | | -69.73 | 3 | -69.7 | '3 |
| I_{oc} | dBm / 3,84 MHz | -70 | | | | | | | | | | | | |
| CPICH_Ec/lo | dB | -16 | -13 | -13 | | -16 | -23 | | -23 | | -23 | | -23 | |
| | | | | | | AWO | ΞN | | | | | | | |
| Cell_selection_and_ reselection_quality_ measure | | CPIC | H E ₀ /N ₀ | CPIC | H E | E _o /N ₀ | CPIC | H E ₀ /N ₀ | СРІСН | E _c /N ₀ | CPIC | H E₀/N₀ | CPIC | H E₀/N |
| Qqualmin | dB | - | 20 | | -20 |) | - | 20 | -2 | 0 | - | -20 | - | -20 |
| Qrxlevmin | dBm | -1 | 115 | | -11 | 5 | -1 | 115 | -11 | 5 | - | 115 | | 115 |
| UE_TXPWR_MAX_ RACH | dB | : | 21 | | 21 | | : | 21 | 2 | 1 | | 21 | | 21 |
| Qoffset2 _{s, n} | dB | C1, C1, C1, | C2: 0 C3: 0 C4: 0 C5: 0 C6: 0 | C2 C2 C2 | 2, C 2, C 2, C | 61: 0 63: 0 64: 0 65: 0 | C3, C3, C3, | C1: 0 C2: 0 C4: 0 C5: 0 C6: 0 | C4, C C4, C C4, C C4, C | 2: 0 3: 0 5: 0 | C5, C5, C5, | C1: 0 C2: 0 C3: 0 C4: 0 C6: 0 | C6, C6, C6, | C1: 0 C2: 0 C3: 0 C4: 0 C5: 0 |
| Qhyst2 | dB | | 0 | | 0 | | | 0 | 0 | | 0 | | | 0 |
| Treselection | S | | 0 | | 0 | | 0 | | 0 | | | 0 | | 0 |
| Sintrasearch | dB | not | sent | no | ot s | ent | not | sent | not s | ent | not | t sent | not | sent |

Note 1 The nominal Îor values, although not explicitly defined in 25.133 are added here since they are implied and need to be identified so that the test equipment can be configured.

8.3.7.1.4.2 Procedure

opagation ndition

- 1) The SS activates cell 1-6 with T1 defined parameters in table 8.3.7.1.3 and monitors cell 1 and 2 for random access requests from the UE.
- 2) The UE is switched on.
- 3) An RRC connection is set up according to the generic set-up procedure specified in TS 34.108 [3] subclause 7.3.3 to place the UE in the URA_PCH state on Cell 2 and then the SS waits for this process to complete.
- 4) After 15 s from the completion of step 3 or the beginning of T1, the parameters are changed to those defined for T2 in table 8.3.7.1.3.
- 5) If the UE responds on Cell 1 with a PRACH (URA UPDATE message cause "URA reselection") within 8s, then a success is recorded, the SS shall transmit a URA UPDATE CONFIRM message and then the procedure moves to step 7.
- 6) Since the UE has failed to respond with the correct message within the allowed time, a failure is recorded. The SS shall then wait for a total of 15s from the beginning of T2 and if no response is received, the UE shall be switched off and the procedure returns to step 1. Otherwise the SS shall transmit a URA UPDATE CONFIRM message and then the procedure continues with step 7.
- 7) After a total of another 15 s from the beginning of T2, the parameters are changed to those defined for T1 in table 8.3.7.1.3.

- 8) If the UE responds on Cell 2 with a PRACH (URA UPDATE message cause "URA reselection") within 8s, then a success is recorded and the procedure moves to step 10.
- 9) Since the UE has failed to respond with the correct message within the allowed time, a failure is recorded. The SS shall then wait for a total of 15s from the beginning of T1 and if no response is received the UE shall be switched off and the procedure returns to step 1. Otherwise the SS shall transmit a URA UPDATE CONFIRM message and then the procedure continues with step 10.
- 10) Steps 4 to 10 are repeated until the confidence level according to annex F.6.2 is achieved a total of [TBD] successes and failures have been recorded.

NOTE: The time required for receiving all the relevant system information data according to the reception procedure and the RRC procedure delay of system information blocks defined in 25.331 for a UTRAN cell. Since the maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell is 1280ms and the maximum RRC procedure delay for reception system information block is 100ms, 1380 ms is assumed in this test case. Therefore this gives a total of 7.78s(Minimum requirement + 100ms), allow 8s in the test case.

Specific Message Contents

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

RADIO BEARER SETUP (Step 3)

| Information Element | Value/remark |
|--|--------------|
| RRC State Indicator | URA PCH |
| UTRAN DRX cycle length coefficient | 7 |
| Downlink information for each radio link | |
| - Primary CPICH info | |
| - Primary scrambling code | 100 |

8.3.7.1.5 Test requirements

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

Table 8.3.7.1.3: Cell specific test requirements for Cell re-selection in URA_PCH state, one freq. in neighbour list

| Parameter | Unit | C | ell 1 | Ce | II 2 | C | ell 3 | Cel | 1 4 | Ce | ell 5 | Ce | ell 6 |
|------------------------------|-------------------|-----------|-------|--------|-----------|-------|-------------|-------|-----------|-------|-----------|-------|-------|
| | | T1 | T2 | T1 | T2 | T1 | T2 | T1 | T2 | T1 | T2 | T1 | T2 |
| UTRA RF Channel Number | | Chan | nel 1 | Channe | Channel 1 | | Channel 1 | | Channel 1 | | Channel 1 | | nel 1 |
| CPICH_Ec/lor | dB | -9.4 | | -9.4 | | -10.5 | | -10.5 | | -10.5 | | -10.5 | |
| PCCPCH_Ec/lor | dB | -11.4 | | -11.4 | | -12.5 | | -12.5 | | -12.5 | | -12.5 | |
| SCH_Ec/lor | dB | -11.4 | | -11.4 | | -12.5 | | -12.5 | | -12.5 | | -12.5 | |
| PICH_Ec/lor | dB | -14.4 | | -14.4 | | -15.5 | -15.5 -15.5 | | -15.5 | | -15.5 | | |
| OCNS_Ec/lor | dB | -1.10 | | -1.10 | | -0.83 | | -0.83 | | -0.83 | | -0.83 | |
| \hat{I}_{or}/I_{oc} Note 1 | dB | 7.00 | 10.40 | 10.40 | 7.00 | 0.30 | | 0.30 | | 0.30 | | 0.30 | |
| \hat{I}_{or} | dBm | - 63.0 | -59.6 | -59.6 | -63.0 | -69.7 | | -69.7 | | -69.7 | | -69.7 | |
| I_{oc} | dBm / 3,84 MHz | | | | | | -7 | 0 | | | | | |
| CPICH_Ec/lo Note 1 | dB | - 15.7 | -12.3 | -12.3 | -15.7 | -23.5 | | -23.5 | | -23.5 | | -23.5 | |

All other parameters and conditions specified in table 8.3.7.1.2 are unchanged.

NOTE 1: These parameters are not directly settable, but are derived by calculation from the settable parameters.

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

8.3.7.2 Two frequencies present in the neighbour list

8.3.7.2.1 Definition and applicability

The cell re-selection delay is defined as the time from a change of cell levels to the moment when this change makes the UE camp on a new cell, and starts to send preambles on the PRACH for the URA UPDATE message with cause value "URA reselection" in the new cell.

The requirements and this test apply to the FDD UE.

8.3.7.2.2 Minimum requirement

The cell re-selection delay shall be less than 8 s with a DRX cycle length of 1.28 s.

The rate of correct cell reselections observed during repeated tests shall be at least 90% with a confidence level of [FFS]95 %.

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

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

T_{SI} Maximum repetition period of relevant system info blocks that needs to be received by

the UE to camp on a cell. 1280 ms is assumed in this test case.

This gives a total of 7.68 s, allow 8s in the test case.

The normative reference for this requirement is TS 25.133 [2] clauses 5.7.2 and A.5.7.2.

8.3.7.2.3 Test purpose

To verify that the UE meets the minimum requirement and is capable of camping on to a new cell, within the required time, when the preferred cell conditions change.

8.3.7.2.4 Method of test

8.3.7.2.4.1 Initial conditions

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

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

This scenario implies the presence of 2 carriers and 6 cells as given in tables 8.3.7.2.1 to 8.3.7.2.3. The UE is requested to monitor neighbouring cells on 2 carriers. The maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell shall be 1 280 ms. In System Information Block Type 2 in cell 1 and cell 2 URA identity is set to different value.

Table 8.3.7.2.1: General test parameters for Cell Re-selection in URA_PCH, two freqs. in neighbour list

| Par | ameter | Unit | Value | | Comment | |
|---|--------------------------|------|---|-----|---|--|
| Initial | Active cell | | Cell2 | | | |
| condition | Neighbour cells | | Cell1, Cell3,Cell4, Cell5, Cell6 | | | |
| Initial condition | Active cell Cell2 | | Cell1 | | | |
| SYSTEM INFO BLOCK TYPE - URA identity - URA identity | 2 list | - | 00 0000 0000 0001(B) (Cell 1) 000 0000 0000 0002(B) (Cell 2) | | | |
| Access Service - Persistence | e Class (ASC#0) value | - | 1 | cau | lected so that no additional delay is used by the random access ocedure. The value shall be used for cells in the test. | |
| HCS | | | | | Not used | |
| DRX cycle len | gth | S | 1,28 | | e value shall be used for all cells in etest. | |
| | T1 | S | 15 | sel | need to be defined so that cell re- lection reaction time is taken into count. | |
| | T2 | S | 15 | sel | need to be defined so that cell re- lection reaction time is taken into count. | |

Cell 4

Cell 5

Cell 6

Unit

Parameter

ndi

Table 8.3.7.2.2: Cell specific test parameters for Cell Re-selection in URA_PCH state, two freqs. in neighbour list

Cell 2

Cell 3

Cell 1

| | i aramotor | 0 | 3011 3011 2 | | 00 | • | • | J11 T | • | · · · · | , | • | UII U | | | |
|-------------------|--|---------------------|--------------|-------------------------------------|----------------|--|--------------|--------------------------------------|-------------|-------------------------------------|----------------|------------------------|-------|------------------|----------|-------------------------|
| | | | T1 | T2 | T1 | T2 | 2 | T1 | T2 | T1 | T2 | T1 | | T2 | T1 | T2 |
| | UTRA RF Channel Number | | Chani | nel 1 | Ch | annel 2 | | Chanr | nel 1 | Cha | nnel 1 | Cha | nne | el 2 | Cha | annel 2 |
| | CPICH_Ec/lor | dB | -1 | 0 | | -10 | | -1 |) | | -10 | | -10 | | -10 | |
| | PCCPCH_Ec/lor | dB | -1 | 2 | | -12 | | -12 | | | -12 | -12 | | | -12 | |
| | SCH_Ec/lor | dB | -1 | 2 | | -12 | | -12 | | -12 | | -12 | | | -12 | |
| | PICH_Ec/lor | dB | -1 | - | | -15 | | -1: | | | -15 | -15 | | | | -15 |
| | OCNS_Ec/lor | dB | -0.9 | 41 | - | 0.941 | | -0.9 | 41 | -0 | .941 | -0 | .94 | 1 | -0 |).941 |
| | \hat{I}_{or}/I_{oc} | dB | -3.4 | 2.2 | 2.2 | 2 -3. | 4 | -7.4 | -4.8 | -7.4 | -4.8 | -4.8 | | -7.4 | -4.8 | -7.4 |
| | $\hat{I}_{or(Note1)}$ | dBm -7 | 73.39 6 5 | | - 67.7 5 | - 73.3 9 | - 77 9 | .3 74.7 5 | 7 77.3 9 | - 74. 5 | 7 -74.7 | 75 7 9 | 7.3 | 74.7 5 | 7 -7 | 7.39 |
| | I_{oc} | dBm / 3.84 MHz | | | | | | | - | 70 | | | | | | |
| | CPICH_Ec/lo | dB | -16 | -13 | -13 | 3 -10 | ŝ | -20 |) | - | 20 | | -20 | | | -20 |
| agation dition | | | | | | A | ٩W | GN | | | | | | | | |
| | Cell_selection_and_ reselection_quality_ measure | | CPICH | E _c /N ₀ | CPI | CPICH E ₀ /N ₀ C | | CPICH E ₀ /N ₀ | | CPIC | H E₀/N₀ | CPICH E√N ₀ | | o∕N ₀ | CPIC | H E₀/N |
| | Qqualmin | dB | -2 | 0 | | -20 | | -20 | | -20 | | -20 | | | -20 | |
| | Qrxlevmin | dBm | -11 | 15 | | -115 | | -11 | 5 | - | 115 | - | 115 | | - | 115 |
| | UE_TXPWR_MAX_ RACH | dB | 2′ | - | | 21 | | 21 | | | 21 | | 21 | | | 21 |
| | Qoffset2 _{s. n} | dB | C1, C | 3: 0 | C2 | 2, C1: 0 2, C3: 0 2, C4: 0 | | C3, C C3, C C3, C | 2: 0 | C4, | C1: 0 C2: 0 | C5, C5, C5, | C2 | : 0 | C6, | C1: 0 C2: 0 C3: 0 |
| | QOIISELZ _S , n | ив | C1, C | C1, C4: 0 C1, C5: 0 C1, C6: 0 | | 2, C4. 0 2, C5: 0 2, C6: 0 | | C3, C C3, C | 5: 0 | C4, C3: 0 C4, C5: 0 C4, C6: 0 | | C5, | | 4: 0 C6, C | | C3: 0 C4: 0 C5: 0 |
| | Qhyst2 | dB | 0 | 0 | | 0 | | 0 | | | 0 | 0 | | | 0 | |
| | Treselection | S | 0 |) | | 0 | | 0 | | 0 | | 0 | | | 0 | |
| | Sintrasearch | dB | not s | sent | n | ot sent | | not sent | | not sent | | not sent | | nt | not sent | |
| | Sintersearch | dB not sent not sen | | ot sent | | not s | ent | not | sent | no | t sei | nt | no | t sent | | |

Note 1 The nominal Îor values, although not explicitly defined in 25.133 are added here since they are implied and need to be identified so that the test equipment can be configured.

8.3.7.2.4.2 Procedures

- 1) The SS activates cell 1-6 with T1 defined parameters in table 8.3.7.2.3 and monitors cell 1 and 2 for random access requests from the UE.
- 2) The UE is switched on.
- 3) An RRC connection is set up according the generic set-up procedure specified in TS 34.108 [3] subclause 7.3.3 to place the UE in URA PCH state on cell 2. The SS waits for this process to complete.
- 4) After 15 s from the completion of step 3 or the beginning of T1, the parameters are changed to those defined for T2 in table 8.3.7.2.3.
- 5) If the UE responds on Cell 1 with a PRACH (URA UPDATE message cause "URA reselection") within 8s, then a success is recorded, the SS shall transmit a URA UPDATE CONFIRM message and then the procedure moves to step 7.
- 6) Since the UE has failed to respond with the correct message within the allowed time, a failure is recorded. The SS shall then wait for a total of 15s from the beginning of T2 and if no response is received the UE shall be switched off and the procedure returns to step 1. Otherwise the SS shall transmit a URA UPDATE CONFIRM message and then the procedure continues with step 7.
- 7) After a total of 15 s from the beginning of T2, the parameters are changed to those defined for T1 in table 8.3.7.2.3.

- 8) If the UE responds on Cell 2 with a PRACH (URA UPDATE message cause "URA reselection") within 8s, then a success is recorded and the procedure moves to step 10.
- 9) Since the UE has failed to respond with the correct message within the allowed time, a failure is recorded. The SS shall then wait for a total of 15s from the beginning of T1 and if no response is received the UE shall be switched off and the procedure returns to step 1. Otherwise the SS shall transmit a URA UPDATE CONFIRM message and then the procedure continues with step 10.
- 10) Steps 4 to 10 are repeated until the confidence level according to annex F.6.2 is achieved a total of [TBD] successes and failures have been recorded.

NOTE: The time required for receiving all the relevant system information data according to the reception procedure and the RRC procedure delay of system information blocks defined in 25.331 for a UTRAN cell. Since the maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell is 1280ms and the maximum RRC procedure delay for reception system information block is 100ms, 1380 ms is assumed in this test case. Therefore this gives a total of 7.78s(Minimum requirement + 100ms), allow 8s in the test case.

Specific Message Contents

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

RADIO BEARER SETUP (Step 3)

| Information Element | Value/remark |
|--|--------------|
| RRC State Indicator | URA PCH |
| UTRAN DRX cycle length coefficient | 7 |
| Downlink information for each radio link | |
| - Primary CPICH info | |
| - Primary scrambling code | 100 |

8.3.7.2.5 Test requirements

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

Table 8.3.7.2.3: Cell specific test requirements for Cell re-selection in URA_PCH state, two freqs. in neighbour list

| Parameter | Unit | Се | II 1 | Се | Cell 2 | | II 3 | Ce | II 4 | Ce | II 5 | Cell 6 | |
|------------------------------|------------------|-----------------|-------|-----------------|-----------|-----------|-----------|----------|-------|-------|-------|-----------|-------|
| | | T1 | T2 | T1 | T2 | T1 | T2 | T1 | T2 | T1 | T2 | T1 | T2 |
| UTRA RF Channel Number | | Chann | el 1 | Chann | Channel 2 | | Channel 1 | | el 1 | Chann | iel 2 | Channel 2 | |
| CPICH_Ec/lor | dB | -9 | 0.3 | -9 | 0.3 | -10 | 0.8 | -10.8 | | -10 | 0.8 | -10 | 0.8 |
| PCCPCH_Ec/lor | dB | -1 ⁻ | 1.3 | -1 ⁻ | 1.3 | -12 | 2.8 | -12.8 | | -12 | 2.8 | -12 | 2.8 |
| SCH_Ec/lor | dB | -1 ⁻ | 1.3 | -1 ⁻ | 1.3 | -12 | 2.8 | -12 | 2.8 | -12 | 2.8 | -12 | 2.8 |
| PICH_Ec/lor | dB | -14 | 4.3 | -14 | 4.3 | -15.8 -15 | | -15.8 -1 | | 5.8 | -15.8 | | |
| OCNS_Ec/lor | dB | -1. | .13 | -1. | .13 | -0. | 77 | -0. | 77 | -0. | .77 | -0. | 77 |
| \hat{I}_{or}/I_{oc} Note 1 | dB | -3.40 | +4.80 | +4.80 | -3.40 | -7.40 | -3.00 | -7.40 | -3.00 | -3.00 | -7.40 | -3.00 | -7.40 |
| \hat{I}_{or} | dBm | -73.4 | -67.0 | -67.0 | -73.4 | -77.4 | -74.8 | -77.4 | -74.8 | -74.8 | -77.4 | -74.8 | -77.4 |
| I_{oc} | dBm/3.8 4 MHz | -70.0 | -71.8 | -71.8 | -70.0 | -70.0 | -71.8 | -70.0 | -71.8 | -71.8 | -70.0 | -71.8 | -70.0 |
| CPICH_Ec/lo Note 1 | dB | -15.3 | -11.5 | -11.5 | -15.3 | -20.8 | -20.8 | -20.8 | -20.8 | -20.8 | -20.8 | -20.8 | -20.8 |

All other parameters and conditions specified in table 8.3.7.2.2 are unchanged.

NOTE 1: These parameters are not directly settable, but are derived by calculation from the settable parameters.

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

8.4 RRC Connection Control

8.4.1 RRC Re-establishment delay

8.4.1.1 Test 1

8.4.1.1.1 Definition and applicability

The UE Re-establishment delay requirement ($T_{\text{UE-RE-ESTABLISH-REQ}}$) is defined as the time between the moment when radio link failure is considered by the UE, to when the UE starts to send preambles on the PRACH.

 $T_{\text{UE-RE-ESTABLISH-REQ}}$ is depending on whether the target cell is known by the UE or not. A cell is known if either or both of the following conditions are true:

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

The phase reference is the primary CPICH.

The requirements of this test apply to the FDD UE.

8.4.1.1.2 Minimum requirement

The Re-establishment delay T_{RE-ESTABLISH} to a known cell shall be less than 1.9 s.

The rate of correct RRC re-establishments observed during repeated tests shall be at least 90%.

NOTE: The Re-establishment delay in this case can be expressed as

 $T_{\text{RE-ESTABLISH}} = T_{\text{RRC-RE-ESTABLISH}} + T_{\text{UE-RE-ESTABLISH-REQ-KNOWN}}$

where

 $T_{RRC-RE-ESTABLISH} = 160ms + (N_{313}-1)*10ms + T_{313}$

 $T_{UE-RE-ESTABLISH_REQ-KNOWN} = 50ms + T_{search} + T_{SI} + T_{RA}$

 $N_{313} = 20$

 $T_{313} = 0s$

 $T_{\text{search}} = 100 \text{ms}$

 T_{RA} = The additional delay caused by the random access procedure. 40 ms is assumed in this test

case.

T_{SI} is the time required for receiving all the relevant system information data according to the

reception procedure and the RRC procedure delay of system information blocks defined in

25.331 for a UTRAN cell (ms). 1280 ms is assumed in this test case.

This gives a total of 1820ms, allow 1.9s in the test case.

8.4.1.1.3 Test purpose

To verify that the UE meets the minimum requirement.

8.4.1.1.4 Method of test

8.4.1.1.4.1 Initial conditions

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

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

The test parameters are given in table 8.4.1.1 and table 8.4.1.2 below. The maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell shall be 1280 ms. And DRX cycle length shall be 1280 ms. In the measurement control information it is indicated to the UE that periodic reporting shall be used. The test consist of 2 successive time periods, with a time duration of T1 and T2 respectively. At the start of time period T2, the dedicated channel is removed.

Table 8.4.1.1 General test parameters for RRC re-establishment delay, Test 1

| Parameter | Unit | Value | Comment |
|--------------------------|---------|---------------------|--|
| DCH Parameters | | DL and UL Reference | As specified in clause C.3.1 and C.2.1 |
| | | measurement channel | |
| | | 12.2 kbps | |
| Power Control | | On | |
| Active cell, Initial | | Cell 1 | |
| condition | | | |
| Active cell, Final | | Cell 2 | |
| condition | | | |
| N313 | | 20 | |
| N315 | | 1 | |
| T313 | Seconds | 0 | |
| Monitored cell list size | | 24 | Monitored set shall only include intra frequency |
| | | | neighbours. |
| Cell 2 | | | Included in the monitored set |
| Reporting frequency | Seconds | 4 | |
| T1 | S | 10 | |
| T2 | S | 6 | |

Table 8.4.1.2 Cell specific parameters for RRC re-establishment delay test, Test 1

| Parameter | Unit | Се | ell 1 | Cel | II 2 | | |
|-----------------------|------------------|-------------------|-----------|---------|----------|--|--|
| | | T1 | T2 | T1 | T2 | | |
| Cell Frequency | ChNr | | 1 | 1 | | | |
| CPICH_Ec/lor | dB | | 10 | -1 | 0 | | |
| PCCPCH_Ec/lor | dB | | 12 | -1 | 2 | | |
| SCH_Ec/lor | dB | | 12 | -12 | | | |
| PICH_Ec/lor | dB | | 15 | -15 | | | |
| DCH_Ec/lor | dB | -17 | -Infinity | Not app | olicable | | |
| OCNS_Ec/lor | dB | -1.049 | -0.941 | -0.941 | | | |
| \hat{I}_{or}/I_{oc} | dB | 2,39 | -Infinity | 4,39 | 0,02 | | |
| I_{oc} | dBm/ 3.84 MHz | | | | | | |
| CPICH_Ec/Io | dB | -15 -Infinity -13 | | | | | |
| Propagation Condition | | AWGN | | | | | |

8.4.1.1.4.2 Procedure

- 1) The RF parameters are set up according to T1.
- 2) The UE is switched on.
- 3) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.4 without Compressed mode parameters.

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

- 4) The SS waits for random access requests from the UE on cell 2.
- 5) 10 s after step3 has completed, the parameters are changed to that as described for T2.
- 6) If the UE responds on cell 2 within 2.0 s from the beginning of time period T2 with a CELL_UPDATE command then the number of successful tests is increased by one.
- 7) SS shall transmit a RRC CONNECTION RELEASE message to make the UE transit to idle mode.
- 8) After 6 seconds from the beginning of time period T2, the RF parameters are set up according to T1.
- 9) The SS shall wait for 30s to make the UE complete cell reselection to cell1.
- 10) Repeat step 3-9 [TBD] times until the confidence level according to annex F.6.2 is achieved.

NOTE: The time required for receiving all the relevant system information data according to the reception procedure and the RRC procedure delay of system information blocks defined in 25.331 for a UTRAN cell. Since the maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell is 1280ms and the maximum RRC procedure delay for reception system information block is 100ms, 1380 ms is assumed in this test case. Therefore this gives a total of 1920ms(Minimum requirement + 100ms), allow 2s in the test case.

8.4.1.1.5 Test requirements

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

Note:

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

8.4.1.2 Test 2

8.4.1.2.1 Definition and applicability

The UE Re-establishment delay requirement ($T_{\text{UE-E-ESTABLISH-REQ}}$) is defined as the time between the moment when radio link failure is considered by the UE, to when the UE starts to send preambles on the PRACH.

 $T_{\text{UE-RE-ESTABLISH-REQ}}$ is depending on whether the target cell is known by the UE or not. A cell is known if either or both of the following conditions are true:

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

The phase reference is the primary CPICH.

The requirements of this test apply to the FDD UE.

8.4.1.2.2 Minimum requirement

The rate of correct RRC re-establishments observed during repeated tests shall be at least 90%.

NOTE: The Re-establishment delay in this case can be expressed as

 $T_{\text{RF-ESTABLISH}} = T_{\text{RRC-RE-ESTABLISH}} + T_{\text{UE-RE-ESTABLISH-REQ-UNKNOWN}}.$

where

 $T_{RRC-RE-ESTABLISH} = 160ms + (N_{313}-1)*10ms + T_{313}$

 $T_{UE-RE-ESTABLISH-REQ-UNKNOWN} = 50ms + T_{search} *NF + T_{SI} + T_{RA},$

 $N_{313} = 20$

 $T_{313} = 0s$

T_{search}= 800ms
 NF is the number of different frequencies in the monitored set. 3 frequencies are assumed in this test case.
 T_{RA}= The additional delay caused by the random access procedure. 40 ms is assumed in this test case.
 T_{SI} is the time required for receiving all the relevant system information data according to the reception procedure and the RRC procedure delay of system information blocks defined in 25.331 for a UTRAN cell (ms).1280 ms is assumed in this test case.

This gives a total of 4120ms, allow 4.2s in the test case.

8.4.1.2.3 Test purpose

To verify that the UE meets the minimum requirement.

8.4.1.2.4 Method of test

8.4.1.2.4.1 Initial conditions

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

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

The test parameters are given in table 8.4.1.3 and table 8.4.1.4 below. The maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell shall be 1280 ms. And DRX cycle length shall be 1280ms. In the measurement control information it is indicated to the UE that periodic reporting shall be used. The test consists of 2 successive time periods, with a time duration of T1 and T2 respectively. At the start of time period T2, the dedicated channel is removed.

Table 8.4.1.3 General test parameters for RRC re-establishment delay, Test 2

| Parameter | Unit | Value | Comment |
|--------------------------------|---------|---|---|
| DCH Parameters | | DL and UL Reference measurement channel 12.2 kbps | As specified in clause C.3.1 and C.2.1 |
| Power Control | | On | |
| Active cell, initial condition | | Cell 1 | |
| Active cell, final condition | | Cell 2 | |
| N313 | | 20 | |
| N315 | | 1 | |
| T313 | Seconds | 0 | |
| Monitored cell list size | | 24 | Monitored set shall include 2 additional frequencies. |
| Cell 2 | | | Cell 2 is not included in the monitored set. Cell 2 is located on one of the 2 additional frequencies of the monitored set. |
| Reporting frequency | Seconds | 4 | |
| T1 | S | 10 | |
| T2 | S | 6 | |

Cell 2 **Parameter** Unit Cell 1 T1 T2 T1 T2 ChNr Cell Frequency -10 CPICH_Ec/lor dB -10 PCCPCH_Ec/lor -12 dB -12 SCH_Ec/lor dB -12 -12 PICH_Ec/lor dB -15 -15 DCH_Ec/lor -17 Not applicable dB -Infinity OCNS_Ec/lor -1.049 -0.941 -0.941 dΒ -Infinity dB -3,35 -Infinity 0.02 \hat{I}_{or}/I_{oc} dBm/ 3.84 -70 I_{oc} MHz CPICH Ec/lo dB -15 -Infinity -Infinity -13 **Propagation Condition AWGN**

Table 8.4.1.4 Cell specific parameters for RRC re-establishment delay test, Test 2

8.4.1.2.4.2 Procedure

- 1) The RF parameters are set up according to T1.
- 2) The UE is switched on.
- 3) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.4 without Compressed mode parameters.

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

- 4) The SS waits for random access requests from the UE on cell 2.
- 5) 10 s after step3 has completed, the parameters are changed to that as described for T2.
- 6) If the UE responds on cell 2 within 4.3 s from the beginning of time period T2 with a CELL_UPDATE command then the number of successful tests is increased by one.
- 7) SS shall transmit a RRC CONNECTION RELEASE message to make the UE transit to idle mode.
- 8) After 6 seconds the RF parameters are set up according to T1.
- 9) The SS shall wait for 30s to make the UE complete cell reselection to cell1.
- 10) Repeat step 3-9 [TBD] times until the confidence level according to annex F.6.2 is achieved.

NOTE: The time required for receiving all the relevant system information data according to the reception procedure and the RRC procedure delay of system information blocks defined in 25.331 for a UTRAN cell. Since the maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell is 1280ms and the maximum RRC procedure delay for reception system information block is 100ms, 1380 ms is assumed in this test case. Therefore this gives a total of 4220ms(Minimum requirement + 100ms), allow 4.3s in the test case.

8.4.1.2.5 Test requirements

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

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

8.4.2 Random Access

8.4.2.1 Correct behaviour when receiving an ACK

8.4.2.1.1 Definition and applicability

The random access procedure is used when establishing the layer 1 communication between the UE and UTRAN. The random access shall provide a fast access but without disturbing ongoing connections. The random access is specified in clause 6 of TS 25.214 [5] and the control of the RACH transmission is specified in clause 11.2 of TS 25.321. A random access transmit sequence is described in clause 6.7.2 of TS 25.303.

8.4.2.1.2 Minimum Requirements

The UE shall have capability to calculate initial power according to the open loop algorithm and apply this power level at the first preamble and increase the power on additional preambles. The absolute power applied to the first preamble shall have an accuracy as specified in table 6.3 of TS 25.101 [1]. The relative power applied to additional preambles shall have an accuracy as specified in clause 6.5.2.1 of 25.101 [1].

The absolute power applied to the first preamble shall be -30 dBm with an accuracy as specified in clause 6.4.1.1 of TS 25.101 [1]. The accuracy is \pm 9dB in the case of normal condition or \pm 12dB in the case of extreme condition.

There are two relative powers, one is the power difference for preamble ramping and another is the power difference between last preamble part and message part. From the test parameter in the table 8.4.2.1.2, the test requirement of the power difference for all preamble ramping is 3dB (Power offset P0). The accuracy is ± 2 dB as specified in clause 6.5.2.1 of 25.101 [1]. The test requirement of the power difference between 10^{th} preamble PRACH and message part is 3 dB (note). The accuracy is ± 2 dB as specified in clause 6.5.2.1 of 25.101 [1].

NOTE: In order to calculate the power difference between 10^{th} preamble PRACH and message part by using Power offset P _{p-m} in the table 8.4.2.1.2, the gain factors of PRACH message part are needed. The gain factor β_d is set to 15. The temporary gain factor β_c is set to 15.

The UE shall stop transmitting preambles upon a ACK on the AICH has been received and then transmit a message. The UE shall transmit 10 preambles and 1 message.

The normative reference for this requirements is TS 25.133 [2] clauses 6.3.2 and A.6.2.2.1.

8.4.2.1.3 Test purpose

The purpose of this test is to verify that the behaviour of the random access procedure is according to the requirements and that the PRACH power settings are within specified limits.

8.4.2.1.4 Method of test

8.4.2.1.4.1 Initial conditions

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

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

1) Connect the SS to the UE antenna connector as shown in figure A.1 in the case of the PRACH power measurement. And in the case of the function test of the random access procedure, connect the SS to the UE antenna connector as shown in figure A.8. A spectrum analyzer is set to 0 span mode.

See TS 34.108 [3] for details regarding generic call setup procedure.

Table 8.4.2.1.1: RF Parameters for Random Access test

| | Paramet | ter | | Unit | | Cell 1 |
|--------------------------|--|--------|------------------|--------|------|--------|
| | UTRA RF Channel N | lumber | | | Chan | nel 1 |
| | CPICH_Ec/lor | | | dB | -10 | |
| | PCCPCH_Ec/lor | | dB | -12 | | |
| | SCH_Ec/lor | | | dB | -12 | |
| | Number of other tran Acquisition Indicators | | | 1 | 0 | |
| | AICH_Ec/lor | | | dB | -10 | |
| | PICH_Ec/lor | | | dB | -15 | |
| | OCNS_Ec/lor when an Al is not transmitted | | dB | -0,941 | | |
| | OCNS_Ec/lor when an Al is transmitted | | dB | -1,516 | 3 | |
| | \hat{I}_{or}/I_{oc} | | dB | 0 | | |
| | I_{oc} | | dBm/3. 84 MHz | -70 | | |
| | CPICH_Ec/lo | | dB | -13 | | |
| Propagation Condition AW | | GN | | | | |

The test parameters "System Information Block (SIB) type 5 (ASC #0)" defined in clause 6.1 of TS 34.108 [3], shall be used in all random access tests (see note). Crucial parameters for the test requirements are repeated in tables 8.4.2.1.2 and A.8.4.3.1.3 and these overrule the parameters defined in SIB type 5.

NOTE: A parameter of AC-to-ASC mapping(AC0-9) in SIB5 of clause 6.1 of TS 34.108 [3] shall be set to 0 in the case of all random access tests. The EFACC of Type A, which is specified in clause 8.3.2.15 of TS 34.108 [3], shall be selected.

Table 8.4.2.1.2: UE parameters for Random Access test

| Parameter | Unit | Value |
|--|------|-------|
| Access Service Class | | |
| (ASC#0) | | |
| | 01 | 1 |
| - Persistence value | | |
| Maximum number of preamble | | 2 |
| ramping cycles (M _{max}). | | |
| Maximum number of | | 12 |
| preambles in one preamble | | |
| ramping cycle | | |
| (Preamble Retrans Max) | | |
| The backoff time T_{B01} | ms | N/A |
| N _{B01min=} N _{B01max} | #TTI | 10 |
| Power step when no | dB | 3 |
| acquisition indicator is | | |
| received | | |
| (Power offset P0) | | |
| Power offset between the last | dB | 0 |
| transmitted preamble and the | | |
| control part of the message | | |
| (Power offset P p-m) | | |
| Maximum allowed UL TX | DBm | 21 |
| power | | |

Table 8.4.2.1.3: SS parameters for Random Access test

| Parameter | Unit | Value |
|---------------------------|------|-------|
| Primary CPICH DL TX power | dBm | -8 |
| UL interference | dBm | -92 |
| SIR in open loop power | dB | -10 |
| control (Constant value) | | |
| AICH Power Offset | dB | 0 |

8.4.2.1.4.2 Procedure

- 1) A call is set up according to the Generic call setup procedure. The test parameters are set up according to table 8.4.2.1.1, table 8.4.2.1.2 and table 8.4.2.1.3. The PRACH procedure within the call setup is used for the test. It is necessary that an ACK on the AICH shall be transmitted after 10 preambles have been received by the SS
- 2) Measure the first PRACH preamble output power, the each power difference for preamble ramping and the power difference between 10th preamble PRACH and message part of the UE according to annex B.
- 3) Measure the number of the preamble part and the message part by using a spectrum analyzer.

8.4.2.1.5 Test requirements

The accuracy of the first preamble as specified in clause 6.4.1.1 of TS 25.101 [1] shall not be verified in this test. It is verified under the section 5.4.1, Open loop power control.

There are two relative powers, one is the power difference for preamble ramping and another is the power difference between last preamble part and message part. From the test parameter in the table 8.4.2.1.2, the test requirement of the power difference for all preamble ramping is 3dB (Power offset P0). The accuracy is ± 3 dB. The test requirement of the power difference between 10th preamble PRACH and message part (control + data) is 3 dB (note). The accuracy is ± 3 dB

Table 8.4.2.1.4:
Test requirement for power difference

| | | | Power difference between 10th preamble PRACH and message part (control+data) | |
|------------------|-----|-------|--|-------|
| Test requirement | 3dB | ±3 dB | 3dB | ±3 dB |

NOTE: In order to calculate the power difference between 10th preamble PRACH and message part by using Power offset P _{p-m} in the table 8.4.2.1.2, the gain factors of PRACH message part are needed. The gain factor β_d is set to 15. The temporary gain factor β_c is set to 15.

The UE shall stop transmitting preambles upon a ACK on the AICH has been received and then transmit a message. The UE shall transmit 10 preambles and 1 message.

Table 8.4.2.1.5: RF Parameters for Random Access test

| | Paramet | ter | | Unit | | Cell 1 |
|--------------------------|--|--------|------------------|--------|-------|--------|
| | UTRA RF Channel N | lumber | | | Chanr | nel 1 |
| | CPICH_Ec/lor | | | dB | -10 | |
| | PCCPCH_Ec/lor | | dB | -12 | | |
| | SCH_Ec/lor | | | dB | -12 | |
| | Number of other tran Acquisition Indicators | | | 1 | 0 | |
| | AICH_Ec/lor | | | dB | -10 | |
| | PICH_Ec/lor | | | dB | -15 | |
| | OCNS_Ec/lor when an Al is not transmitted | | dB | -0,941 | | |
| | OCNS_Ec/lor when an Al is transmitted | | dB | -1,516 | 3 | |
| | \hat{I}_{or}/I_{oc} | | dB | 0 | | |
| | I_{oc} | | dBm/3. 84 MHz | -70 | | |
| | CPICH_Ec/lo | | dB | -13 | | |
| Propagation Condition AW | | AW | GN | - | | |

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

8.4.2.2 Correct behaviour when receiving an NACK

8.4.2.2.1 Definition and applicability

The random access procedure is used when establishing the layer 1 communication between the UE and UTRAN. The random access shall provide a fast access but without disturbing ongoing connections. The random access is specified in clause 6 of TS 25.214 and the control of the RACH transmission is specified in clause 11.2 of TS 25.321. A random access transmit sequence is described in clause 6.7.2 of TS 25.303.

8.4.2.2.2 Minimum Requirements

The UE shall stop transmitting preambles upon a NACK on the AICH has been received and then repeat the ramping procedure when the back off timer T_{B01} expires.

The UE shall transmit 10 preambles in the first ramping cycle and no transmission shall be done by the UE within 100 ms after the NACK has been transmitted by the SS. Then the UE shall start the second preamble ramping cycle.

The normative reference for this requirements is TS 25.133 [2] clauses 6.3.2 and A.6.2.2.2.

8.4.2.2.3 Test purpose

The purpose of this test is to verify that the behaviour of the random access procedure is according to the requirements.

8.4.2.2.4 Method of test

8.4.2.2.4.1 Initial conditions

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

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

1) Connect the SS to the UE antenna connector as shown in figure A.8. A spectrum analyzer is set to 0 span mode.

See TS 34.108 [3] for details regarding generic call setup procedure.

8.4.2.2.4.2 Procedure

- A call is set up according to the Generic call setup procedure. The test parameters are set up according to table 8.4.2.1.1, table 8.4.2.1.2 and table 8.4.2.1.3. The PRACH procedure within the call setup is used for the test. It is necessary that an NACK on the AICH shall be transmitted after 10 preambles have been received by the SS
- 2) Measure the number of the preamble part and the time delay between 10th preamble in the first ramping cycle and first preamble in the second ramping cycle by using a spectrum analyzer.

8.4.2.2.5 Test requirements

The UE shall stop transmitting preambles upon a NACK on the AICH has been received and then repeat the ramping procedure when the back off timer T_{B01} expires.

The UE shall transmit 10 preambles in the first ramping cycle and no transmission shall be done by the UE within 100 ms after the NACK has been transmitted by the SS. Then the UE shall start the second preamble ramping cycle.

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

8.4.2.3 Correct behaviour at Time-out

8.4.2.3.1 Definition and applicability

The random access procedure is used when establishing the layer 1 communication between the UE and UTRAN. The random access shall provide a fast access but without disturbing ongoing connections. The random access is specified in clause 6 of TS 25.214 and the control of the RACH transmission is specified in clause 11.2 of TS 25.321. A random access transmit sequence is described in clause 6.7.2 of TS 25.303.

8.4.2.3.2 Minimum Requirements

The UE shall stop transmit preambles when reaching the maximum number of preambles allowed in a cycle. The UE shall then repeat the ramping procedure until the maximum number of preamble ramping cycles are reached. No ACK/NACK shall be sent by SS during this test.

The UE shall transmit 2 preambles cycles, consisting of 12 preambles in each preamble cycle.

The normative reference for this requirements is TS 25.133 [2] clauses 6.3.2 and A.6.2.2.3.

8.4.2.3.3 Test purpose

The purpose of this test is to verify that the behaviour of the random access procedure is according to the requirements.

8.4.2.3.4 Method of test

8.4.2.3.4.1 Initial conditions

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

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

1) Connect the SS to the UE antenna connector as shown in figure A.8. A spectrum analyzer is set to 0 span mode.

See TS 34.108 [3] for details regarding generic call setup procedure.

8.4.2.3.4.2 Procedure

1) A call is set up according to the Generic call setup procedure. The test parameters are set up according to table 8.4.2.1.1, table 8.4.2.1.2, and table 8.4.2.1.3. The PRACH procedure within the call setup is used for the test. It is necessary that SS shall transmit no AICH.

2) Measure the number of the preamble part by using a spectrum analyzer.

8.4.2.3.5 Test requirements

The UE shall stop transmit preambles when reaching the maximum number of preambles allowed in a cycle. The UE shall then repeat the ramping procedure until the maximum number of preamble ramping cycles are reached. No ACK/NACK shall be sent by SS during this test.

The UE shall transmit 2 preambles cycles, consisting of 12 preambles in each preamble cycle.

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

8.4.2.4 Correct behaviour when reaching maximum transmit power

8.4.2.4.1 Definition and applicability

The random access procedure is used when establishing the layer 1 communication between the UE and UTRAN. The random access shall provide a fast access but without disturbing ongoing connections. The random access is specified in clause 6 of TS 25.214 and the control of the RACH transmission is specified in clause 11.2 of TS 25.321. A random access transmit sequence is described in clause 6.7.2 of TS 25.303.

8.4.2.4.2 Minimum Requirements

The UE shall not exceed the maximum allowed UL TX power configured by the SS. No ACK/NACK shall be sent by SS during this test.

The absolute power of any preambles belonging to the first or second preamble cycle shall not exceed 0 dBm with more than specified in section 6.5 of TS 25.133.

The normative reference for this requirements is TS 25.133 [2] clauses 6.3.2 and A.6.2.2.4.

8.4.2.4.3 Test purpose

The purpose of this test is to verify that the PRACH power settings are within specified limits.

8.4.2.4.4 Method of test

8.4.2.4.4.1 Initial condition

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

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

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

See TS 34.108 [3] for details regarding generic call setup procedure.

Table 8.4.2.1.6: UE parameters for correct behaviour when reaching maximum transmit power

| Parameter | Unit | Value |
|--|------|-------|
| Access Service Class | | |
| (ASC#0) | | |
| | 01 | 1 |
| - Persistence value | | |
| Maximum number of preamble | | 2 |
| ramping cycles (M _{max}). | | |
| Maximum number of | | 12 |
| preambles in one preamble | | |
| ramping cycle | | |
| (Preamble Retrans Max) | | |
| The backoff time T_{B01} | ms | N/A |
| N _{B01min=} N _{B01max} | #TTI | 10 |
| | | _ |
| Power step when no | dB | 3 |
| acquisition indicator is | | |
| received | | |
| (Power offset P0) | | _ |
| Power offset between the last | dB | 0 |
| transmitted preamble and the | | |
| control part of the message | | |
| (Power offset P p-m) | | _ |
| Maximum allowed UL TX | dBm | 0 |
| power | | |

8.4.2.4.4.2 Procedure

- 1) A call is set up according to the Generic call setup procedure. The test parameters are set up according to table 8.4.2.1.1, table 8.4.2.1.2 and table 8.4.2.1.3. The PRACH procedure within the call setup is used for the test. It is necessary that SS shall transmit no AICH.
- 2) Set the TX output level of the SS to obtain \hat{I}_{or} at the UE antenna connector. \hat{I}_{or} shall be according to table 8.4.2.1.4.
- 3) Measure the all PRACH preamble output power of the UE according to annex B.

8.4.2.4.5 Test requirements

The UE shall not exceed the maximum allowed UL TX power configured by the SS. No ACK/NACK shall be sent by SS during this test.

The absolute power of any preambles belonging to the first or second preamble cycle shall not exceed 0 dBm with more than the tolerance specified in section 6.5 of TS 25.133.

Table 8.4.2.4:
Test requirement for maximum preamble power

| | Maximum preamble power | |
|------------------|------------------------|-------------|
| Test requirement | 0dBm | +2.7, -3 dB |

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

8.4.3 Transport format combination selection in UE

8.4.3.1 Interactive or Background, PS, UL: 64 kbps

8.4.3.1.1 Definition and applicability

When the UE estimates that a certain TFC would require more power than the maximum transmit power, it shall limit the usage of transport format combinations for the assigned transport format set, according to the functionality specified in section 11.4 in TS25.321 [13]. This in order to make it possible for the network operator to maximise the coverage. Transport format combination selection is described in section 11.4 of TS 25.321 [13].

The requirements and this test apply to all types of UTRA for the FDD UE for Release 99, Release 4, Release 5 and later releases.

8.4.3.1.2 Minimum requirements

The UE shall continuously evaluate based on the *Elimination, Recovery* and *Blocking* criteria defined below, how TFCs on an uplink DPDCH can be used for the purpose of TFC selection. The evaluation shall be performed for every TFC in the TFCS using the estimated UE transmit power of a given TFC. The UE transmit power estimation for a given TFC shall be made using the UE transmitted power measured over the measurement period, defined in 9.1.6.1 of TS 25.133 [2] as one slot, and the gain factors of the corresponding TFC.

The UE shall consider the *Elimination* criterion for a given TFC to be detected if the estimated UE transmit power needed for this TFC is greater than the Maximum UE transmitter power for at least X out of the last Y successive measurement periods immediately preceding evaluation. The MAC in the UE shall consider that the TFC is in Excess-Power state for the purpose of TFC selection.

MAC in the UE shall indicate the available bit rate for each logical channel to upper layers within T_{notify} from the moment the *Elimination* criterion was detected.

The UE shall consider the *Recovery* criterion for a given TFC to be detected if the estimated UE transmit power needed for this TFC has not been greater than the Maximum UE transmitter power for the last Z successive measurement periods immediately preceding evaluation. The MAC in the UE shall consider that the TFC is in Supported state for the purpose of TFC selection.

MAC in the UE shall indicate the available bitrate for each logical channel to upper layers within T_{notify} from the moment the *Recovery* criterion was detected.

The evaluation of the *Elimination* criterion and the *Recovery* criterion shall be performed at least once per radio frame.

The definitions of the parameters X,Y and Z which shall be used when evaluating the *Elimination* and the *Recovery* criteria when no compressed mode patterns are activated are given in Table 8.4.3.1.1.

Table 8.4.3.1.1: X, Y, Z parameters for TFC selection

| Х | Υ | Z |
|----|----|----|
| 15 | 30 | 30 |

The UE shall consider the *Blocking* criterion for a given TFC to be fulfilled at the latest at the start of the longest uplink TTI after the moment at which the TFC will have been in Excess-Power state for a duration of:

$$(T_{notify} + T_{modify} + T_{L1 proc})$$

where:

T_{notify} equals 15 ms

 T_{modify} equals $MAX(T_{adapt_max}, T_{TTI})$

T_{L1 proc} equals 15 ms

 T_{adapt_max} equals MAX(T_{adapt_1} , T_{adapt_2} , ..., T_{adapt_N})

N equals the number of logical channels that need to change rate

For Release 99 and Release 4, T_{adapt_n} equals the time it takes for higher layers to provide data to MAC in a new supported bitrate, for logical channel n. Table 8.4.3.1.2 defines T_{adapt} times for different services. For services where no codec is used T_{adapt} shall be considered to be equal to 0 ms.

Table 8.4.3.1.2: T_{adapt}

| Service | T _{adapt} [ms] |
|-----------|-------------------------|
| UMTS AMR | 40 |
| UMTS AMR2 | 60 |

For Release 5 and later releases T_{adapt_n} equals the time it takes for higher layers to provide data to MAC in a new supported bitrate, for logical channel n. For services where no codec is used T_{adapt} shall be considered to be equal to 0 ms. For services where either UMTS_AMR2 or UMTS_AMR_WB is used, Tadapt shall be considered to be equal to the time required to switch from the current codec mode to a new supported codec mode. In that case Tadapt equals 20 ms + 40 ms per codec mode switch. E.g. Tadapt equals 60ms if one codec mode switch is necessary and Tadapt equals 140ms if 3 codec mode switches are necessary.

T_{TTI} equals the longest uplink TTI of the selected TFC (ms).

The Maximum UE transmitter power is defined as follows

 $\label{eq:maximum} \mbox{Maximum UE transmitter power} = \mbox{MIN}(\mbox{Maximum allowed UL TX Power, UE maximum transmit power})$ where

Maximum allowed UL TX Power is set by SS and defined in TS 25.331 [8], and

UE maximum transmit power is defined by the UE power class, and specified in TS 25.101 [1].

The normative reference for these requirements is TS 25.133 [2] clauses 6.4.2 and A.6.4.1.

8.4.3.1.3 Test purpose

The purpose is to verify the UE blocks (stops using) a currently used TFC when the UE output power is not sufficient to support that TFC. The test will verify the general requirement on TFC selection in section 8.4.3.1.2 for a RAB intended for packet data services, i.e. Interactive or Background, PS, UL: 64kbps as defined in TS 34.108 [3].

8.4.3.1.4 Method of test

8.4.3.1.4.1 Initial conditions

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

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

The test parameters are given in Table 8.4.3.1.3, 8.4.3.1.4 and Table 8.4.3.1.5 below. The test consists of 2 successive time periods, with a time duration of T1 and T2 respectively.

Details on the UL reference RAB in table 8.4.3.1.3 and 8.4.3.1.4 can be found in TS 34.108 [3] section "Interactive or background / UL:64 DL: 64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH".

Table 8.4.3.1.3: UL reference RAB, Interactive or Background

| | TFI | 64 kbps RAB (20ms TTI) | DCCH 3.4kbps (40ms TTI) |
|-----|-----------|------------------------|-------------------------|
| TFS | TF0, bits | 0x336 | 0x148 |
| | TF1, bits | 1x336 | 1x148 |
| | TF2, bits | 2x336 | N/A |
| | TF3, bits | 3x336 | N/A |
| | TF4, bits | 4x336 | N/A |

Table 8.4.3.1.4: UL TFCI

| TFCI | (64 kbps RAB, DCCH) |
|---------|---------------------|
| UL_TFC0 | (TF0, TF0) |
| UL_TFC1 | (TF0, TF1) |
| UL_TFC2 | (TF1, TF0) |
| UL_TFC3 | (TF1, TF1) |
| UL_TFC4 | (TF2, TF0) |
| UL_TFC5 | (TF2, TF1) |
| UL_TFC6 | (TF3, TF0) |
| UL_TFC7 | (TF3, TF1) |
| UL_TFC8 | (TF4, TF0) |
| UL_TFC9 | (TF4, TF1) |

Table 8.4.3.1.5: General test parameters

| Parameter | Unit | Value | Comment |
|-----------------------------|------|--|---------|
| TFCS size | | 10 | |
| TFCS | | UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC7, UL_TFC8, UL TFC9 | |
| Power Control | | On | |
| Active cell | | Cell 1 | |
| Maximum allowed UL TX power | dBm | 21 | |
| T1 | S | 30 | |
| T2 | S | 10 | |
| Propagation condition | | AWGN | |

The radio conditions in the test shall be sufficient, so that decoding of the TPC commands can be made without errors.

The amount of available user data shall be sufficient to allow uplink transmission at the highest bit rate (UL_TFC8 or UL_TFC9) during the entire test and it shall be ensured that the UE is using UL_TFC8 or UL_TFC9 at the end of T1.

8.4.3.1.4.2 Procedure

- 1) The UE is switched on.
- 2) The SS shall signal to the UE the allowed TFCS according to table 8.4.3.1.5.
- 3) For T1=30 secs the SS shall command the UE output power to be between 14 and 15 dB below the UE Maximum allowed UL Tx power (table 8.4.3.1.5).
- 4) The SS shall start sending continuously TPC cmd=1 to the UE for T2=10 secs (see NOTE).
- 5) The time from the beginning of T2 until the UE blocks (stops using) UL_TFC8 and UL_TFC9 shall be measured by the SS. The UE shall stop using UL_TFC8 and UL_TFC9 within 140 ms from beginning of time period T2. A success is counted, if the UE stops within 140 ms. An error is counted otherwise.
- 6) Repeat steps 3-5 [50] times until the confidence level according to annex F.6.2 is achieved.

NOTE: This will emulate that UL_TFC8 to UL_TFC9 can not be supported because the UE reaches the maximum UL Tx power and still SS is sending power-up commands.

8.4.3.1.5 Test requirements

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

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

8.5 Timing and Signalling Characteristics

8.5.1 UE Transmit Timing

8.5.1.1 Definition and applicability

The UE transmit timing is defined as the timing of the uplink DPCCH/DPDCH frame relative to the first detected path (in time) of the corresponding downlink DPCCH/DPDCH frame from the reference cell. The reference point is the antenna connector of the UE.

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

8.5.1.2 Minimum requirements

The UE transmission timing error shall be less than or equal to ± 1.5 chips. The reference point for the UE initial transmit timing control requirement shall be the time when the first detected path (in time) of the corresponding downlink DPCCH/DPDCH frame is received from the reference cell plus T_0 chips. T_0 is defined in TS25.211 [19].

When the UE is not in soft handover, the reference cell shall be the one the UE has in the active set. The cell, which is selected as a reference cell, shall remain as a reference cell even if other cells are added to the active set. In case that the reference cell is removed from the active set the UE shall start adjusting its transmit timing no later than the time when the whole active set update message is available at the UE taking the RRC procedure delay into account.

The UE shall be capable of changing the transmission timing according the received downlink DPCCH/DPDCH frame. The maximum amount of the timing change in one adjustment shall be ¼ chip.

The minimum adjustment rate shall be 233ns per second. The maximum adjustment rate shall be $\frac{1}{4}$ chip per 200 ms. In particular, within any given 800*d ms period, the UE transmit timing shall not change in excess of $\pm d$ chip from the timing at the beginning of this 800*d ms period, where $0 \le d \le 1/4$.

The normative reference for this requirement is TS 25.133 [2] clause 7.1.2.

8.5.1.3 Test purpose

The purpose of this test is to verify that the UE initial transmit timing accuracy, maximum amount of timing change in one adjustment, minimum and maximum adjustment rate are within the limits specified in 8.5.1.2.

8.5.1.4 Method of test

8.5.1.4.1 Initial conditions

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

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

For this test, two cells on the same frequency are used.

- 1) Connect the test system to the UE antenna connector as shown in figure A.1.
- 2) A call is set up with Cell 1 according to the Generic call setup procedure. The test parameters are set up according to table 8.5.1.1.

Parameter Unit Level DPCH_Ec/ Ior, Cell 1 and Cell 2 dB -17 CPICH Ec/ Ior. Cell 1 and Cell 2 dB -10 PCCPH_Ec/ Ior, Cell 1 and Cell 2 dB -12 SCH_Ec/ Ior, Cell 1 and Cell 2 dB -12 PICH_Ec/ Ior, Cell 1 and Cell 2 dB -15 OCNS_Ec/ lor, Cell 1 and Cell 2 -1.05dB Î_{or,} Cell 1 dBm/3.84 MHz -96 dBm/3.84 MHz -99 Î_{or,} Cell 2 12.2 Information data rate kbps Relative delay of path received from cell +/-2 μs 2 with respect to cell 1 Propagation condition **AWGN**

Table 8.5.1.1: Test parameters for UE Transmit Timing requirements

8.5.1.4.2 Procedure

- a) After a connection is set up with cell 1, the test system shall verify that the UE transmit timing offset is within $T_0 \pm 1.5$ chips with respect to the first detected path (in time) of the downlink DPCCH/DPDCH of cell 1.
- b) Test system introduces cell 2 into the test system at delay $+2 \mu s$ from cell 1.
- c) Test system verifies that cell 2 is added to the active set.
- d) Test system shall verify that the UE transmit timing offset is still within $T_0 \pm 1.5$ chips with respect to the first detected path (in time) of the downlink DPCCH/DPDCH of cell 1.
- e) Test system switches Tx timing of cell 2 to a delay of -2 µs with respect to cell 1.
- f) Test system verifies cell 2 remains in the active set.
- g) Test system shall verify that the UE transmit timing offset is still within $T_0 \pm 1.5$ chips with respect to the first detected path (in time) of the downlink DPCCH/DPDCH of cell 1.
- h) Test system stops sending cell 1 signals.
- i) Void
- j) Test system verifies that UE transmit timing adjustment starts no later than the time when the whole active set update message is available at the UE taking the RRC procedure delay into account. The adjustment step size and the adjustment rate shall be according to the requirements in clause 8.5.1.2 until the UE transmit timing offset is within $T_0 \pm 1.5$ chips with respect to the first detected path (in time) of the downlink DPCCH/DPDCH of cell 2.
- k) Test system shall verify that the UE transmit timing offset stays within $T_0 \pm 1.5$ chips with respect to the first detected path (in time) of the downlink DPCCH/DPDCH of cell 2.
- 1) Test system starts sending cell 1 signal again with its original timing.
- m) Test system verifies that cell 1 is added to the active set.
- n) Test system verifies that the UE transmit timing is still within $T_0 \pm 1.5$ chips with respect to the first detected path (in time) of the downlink DPCCH/DPDCH of cell 2.
- o) Test system stops sending cell 2 signals.
- p) Void.
- q) Test system verifies that UE transmit timing adjustment starts no later than the time when the whole active set update message is available at the UE taking the RRC procedure delay into account. The adjustment step size and the adjustment rate shall be according to the requirements in clause 8.5.1.2 until

the UE transmit timing offset is within $T_0 \pm 1.5$ chips with respect to the first detected path (in time) of the downlink DPCCH/DPDCH of cell 1.

r) Test system shall verify that the UE transmit timing offset stays within $T_0 \pm 1.5$ chips with respect to the first detected path (in time) of the downlink DPCCH/DPDCH of cell 1.

8.5.1.5 Test requirements

- 1) In step a), d) and g), UE transmit timing offset shall be within T₀ ±1.5 chips with respect to the first detected path (in time) of the downlink DPCCH/DPDCH of cell 1.
- 2) In step j), the adjustment step size and the adjustment rate shall meet the requirements specified in 8.5.1.2 until the UE transmit timing offset is within $T_0 \pm 1.5$ chips with respect to the first detected path (in time) of the downlink DPCCH/DPDCH of cell 2.
- 3) In step k) and n), UE transmit timing offset shall be within $T_0 \pm 1.5$ chips with respect to the first detected path (in time) of the downlink DPCCH/DPDCH of cell 2.
- 4) In step q), the adjustment step size and the adjustment rate shall meet the requirements specified in 8.5.1.2 until the UE transmit timing offset is within $T_0 \pm 1.5$ chips with respect to the first detected path (in time) of the downlink DPCCH/DPDCH of cell 1.
- 5) In step r), UE transmit timing offset shall be within $T_0 \pm 1.5$ chips with respect to the first detected path (in time) of the downlink DPCCH/DPDCH of cell 1.
- NOTE 1: The above Test Requirement differs from the Test Requirement of TS 25.133 [2] clause A7.1.2, from which the requirements for the test system are subtracted to give the above Test Requirement.
- NOTE 2: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.6 UE Measurements Procedures

8.6.1 FDD intra frequency measurements

8.6.1.1 Event triggered reporting in AWGN propagation conditions

8.6.1.1.1 Definition and applicability

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

The requirements and this test apply to the FDD UE.

8.6.1.1.2 Minimum requirements

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

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

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

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

$$\mathbf{Y}_{\text{measurement intra}} = Floor \left\{ X_{\text{basic measurement FDD}} \cdot \frac{\mathbf{T}_{\text{Intra}}}{\mathbf{T}_{\text{Measurement Period, Intra}}} \right\} \text{ cells}$$

where

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

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

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

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

The event triggered measurement reporting delay, on cells belonging to monitored set, measured without L3 filtering, shall be less than the above defined T identify intra defined above.

If a cell, belonging to monitored set, which the UE has identified and measured at least once over the measurement period, becomes undetectable for a period < 5 seconds and then the cell becomes detectable again and triggers an event, the measurement reporting delay shall be less than $T_{Measurement_Period\ Intra}$ ms provided the timing to that cell has not changed more than +/-32 chips, the UE CPICH measurement capabilities defined above are valid and L3 filtering has not been used. When L3 filtering is used an additional delay can be expected.

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

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

8.6.1.1.3 Test purpose

To verify that the UE meets the minimum requirements.

8.6.1.1.4 Method of test

8.6.1.1.4.1 Initial conditions

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

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

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

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

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

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

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

8.6.1.1.4.2 Procedure

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

10. Repeat steps 1-9 according to Annex F.6.2 Table 6.2.8.

Specific Message Contents

MEASUREMENT CONTROL message:

| Messurement Information elements - RRC transaction identifier - Integrity check info Messurement Information elements - Messurement Reporting Mode (10.3.7.46) - Messurement Reporting Mode (10.3.7.49) - Messurement Reporting Mode (10.3.7.49) - Messurement Reporting Mode (10.3.7.49) - Messurement Reporting Fewer Trigger Reporting Mode - Additional measurements list (10.3.7.1) - CHOICE Measurement type - Intra-frequency measurement objects list (10.3.7.38) - Intra-frequency measurement to objects list (10.3.7.38) - Intra-frequency measurement objects list (10.3.7.39) - Reporting quantities for active set cells (10.3.7.5) - SFN-SFN observed time difference reporting indicator - Cell Identity reporting indicator - Cell Identity reporting indicator - Pathloss reporting indicator - Pathloss reporting indicator - Cell synchronisation information reporting indicator - Cell Identity reporting indicato | Information Element/Group name | Value/Remark |
|--|---|-----------------------------|
| JUST Information elements -Integrity check info -Integrity check info -Integrity check info -Measurement Information elements -Measurement Command (10.3.7.46) -Measurement Report Triansfer Mode -Periodical Reporting / Event Trigger Reporting Mode -Additional measurement is (10.3.7.36) -Intra-frequency measurement (10.3.7.36) -Intra-frequency measurement (10.3.7.38) -Intra-frequency measurement quantity (10.3.7.41) -Reporting quantities for active set cells (10.3.7.5) -SFN-SFN observed firm difference reporting indicator -Cell synchronisation information reporting indicator -Cell synchronisation information reporting indicator -Cell Hendry reporting indicator -Cell synchronisation information reporting indicator -Cell genote reporting indicator -Cell dentity reporting indicato | | |
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| -Reporting cell status (10.3.7.61) -Measurement validity (10.3.7.51) -CHOICE report criteria -Intra-frequency measurement reporting criteria (10.3.7.39) -Parameters required for each event -Intra-frequency event identity -Triggering condition 2 -Reporting Range Constant -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W -Hysteresis -Threshold used frequency -Reporting deactivation threshold -Replacement activation threshold -Time to trigger -Amount of reporting -Reporting cell status -Intra-frequency event identity -Triggering condition 1 -Reporting cell status -Intra-frequency event identity -Triggering condition 1 -Reporting Range Constant -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W -Triggering condition 1 -Reporting Range Constant -Cells forbidden to affect Reporting Range -Primary CPICH info (10.3.6.60) -W -Triggering condition 1 -Reporting Range Constant -Cells forbidden to affect Reporting Range -Primary CPICH info (10.3.6.60) -W -Triggering condition 1 -Reporting Range Constant -Cells forbidden to affect Reporting Range -Primary CPICH info (10.3.6.60) -W -Triggering condition 1 -Triggering condition 1 -Reporting Range Constant -Cells forbidden to affect Reporting Range -Primary CPICH info (10.3.6.60) -Triggering condition 1 -Triggering condition 1 -Triggering condition 1 -Triggering condition 1 -Triggering condition 2 -Triggering condition 3 -Triggering condition 4 -Triggering condition 5 -Triggering condition 5 -Triggering condition 6 -Triggering condition 6 -Triggering condition 7 -Triggerin | | |
| -Measurement validity (10.3.7.51) -CHOICE report criteria -Intra-frequency measurement reporting criteria (10.3.7.39) -Parameters required for each event -Intra-frequency event identity -Triggering condition 2 -Reporting Range Constant -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W -Hysteresis -Threshold used frequency -Reporting deactivation threshold -Time to trigger -Amount of reporting -Reporting cell status -Intra-frequency event identity -Triggering condition 1 -Reporting Range Constant -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W -Triggering condition 1 -Reporting Range Constant -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W -Triggering condition 1 -Threshold used frequency -Primary CPICH info (10.3.6.60) -W -Triggering condition 1 -Threshold used frequency -Primary CPICH info (10.3.6.60) -W -Triggering condition 1 -Threshold used frequency -Primary CPICH info (10.3.6.60) -W -Triggering condition 1 -Threshold used frequency -Primary CPICH info (10.3.6.60) -W -Threshold used frequency -Primary CPICH info (10.3.6.60) -W -Triggering condition 1 -Threshold used frequency -Primary CPICH info (10.3.6.60) -W -Triggering condition 2 -Threshold used frequency -Primary CPICH info (10.3.6.60) -W -Threshold used frequency -Primary CPICH info (10.3.6.60) -Primary CPICH info (10.3.6.60) | | |
| -CHOICE report criteria Intra-frequency measurement reporting criteria (10.3.7.39) -Parameters required for each event Intra-frequency event identity -Triggering condition 2 -Reporting Range Constant -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W -Hysteresis -Threshold used frequency -Reporting deactivation threshold -Replacement activation threshold -Time to trigger -Amount of reporting -Reporting interval -Reporting cell status -Intra-frequency event identity -Triggering condition 1 -Reporting Range Constant -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W -V | | |
| -Intra-frequency measurement reporting criteria (10.3.7.39) -Parameters required for each event -Intra-frequency event identity -Triggering condition 2 -Reporting Range Constant -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W -Hysteresis -Threshold used frequency -Reporting deactivation threshold -Replacement activation threshold -Time to trigger -Amount of reporting -Reporting interval -Reporting cell status -Intra-frequency event identity -Triggering condition 1 -Reporting Range Constant -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W -W -Trigmary CPICH info (10.3.6.60) -W -Not Present -CHOICE mode -Primary CPICH info (10.3.6.60) -W -Not Present -Intra-frequency event identity -Triggering condition 1 -Reporting Range Constant -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W -Not Present -Intra-frequency event identity -Triggering condition 1 -Reporting Range Constant -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W -Not Present -Intra-frequency event identity -Triggering condition 1 -Reporting Range Constant -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) | | |
| -Intra-frequency measurement reporting criteria (10.3.7.39) -Parameters required for each event -Intra-frequency event identity -Triggering condition 2 -Reporting Range Constant -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W -Hysteresis -Threshold used frequency -Reporting deactivation threshold -Replacement activation threshold -Time to trigger -Amount of reporting -Reporting interval -Reporting interval -Reporting condition 1 -Reporting Range Constant -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W -Time to trigger -CHOICE mode -Primary CPICH info (10.3.6.60) -W -Time to figer -CHOICE mode -Primary CPICH info (10.3.6.60) -W -Time to figer -Time to trigger -CHOICE mode -Primary CPICH info (10.3.6.60) -W -Time to figer -Time to trigger -CHOICE mode -Primary CPICH info (10.3.6.60) | oriolog report official | |
| -Parameters required for each event -Intra-frequency event identity -Triggering condition 2 -Reporting Range Constant -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W -Hysteresis -Threshold used frequency -Reporting deactivation threshold -Replacement activation threshold -Time to trigger -Amount of reporting -Reporting interval -Reporting cell status -Intra-frequency event identity -Triggering condition 1 -Reporting Range Constant -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W -W -Not present -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W -Not present -CHOICE mode -Primary CPICH info (10.3.6.60) -W -Not present -CHOICE mode -Primary CPICH info (10.3.6.60) -W -Not present -CHOICE mode -Primary CPICH info (10.3.6.60) | -Intra-frequency measurement reporting criteria (10.3.7.39) | |
| -Intra-frequency event identity -Triggering condition 2 -Reporting Range Constant -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W -Hysteresis -Threshold used frequency -Reporting deactivation threshold -Time to trigger -Amount of reporting -Reporting interval -Reporting cell status -Intra-frequency event identity -Triggering condition 1 -Reporting Range Constant -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W -Reporting interval -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W -Reporting condition 1 -Reporting reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W -Reporting condition 1 -Reporting reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W -Reporting condition 1 -Reporting reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) | | 2 |
| -Triggering condition 2 -Reporting Range Constant -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W -Hysteresis -Threshold used frequency -Reporting deactivation threshold -Replacement activation threshold -Time to trigger -Amount of reporting -Reporting interval -Reporting cell status -Intra-frequency event identity -Triggering condition 1 -Reporting Range Constant -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W -Monitored set cells 3 dB Not Present 1.0 -1.0 -1.0 -1.0 -1.0 -1.0 -1.0 -1.0 | | |
| -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W -Hysteresis -Threshold used frequency -Reporting deactivation threshold -Replacement activation threshold -Time to trigger -Amount of reporting -Reporting interval -Reporting cell status -Intra-frequency event identity -Triggering condition 1 -Reporting Range Constant -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W Not Present 1.0 Not Present 0 ms Not Present 0 ms (Note 2) Not Present Event 1B Active set cells and monitored set cells 3 dB Not Present -Intra-frequency event identity -Triggering condition 1 -Reporting Range Constant -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W | -Triggering condition 2 | Monitored set cells |
| -CHOICE mode -Primary CPICH info (10.3.6.60) -W -Hysteresis -Threshold used frequency -Reporting deactivation threshold -Replacement activation threshold -Time to trigger -Amount of reporting -Reporting interval -Reporting cell status -Intra-frequency event identity -Triggering condition 1 -Reporting Range Constant -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W | | |
| -Primary CPICH info (10.3.6.60) -W -Hysteresis -Threshold used frequency -Reporting deactivation threshold -Replacement activation threshold -Time to trigger -Amount of reporting -Reporting interval -Reporting cell status -Intra-frequency event identity -Triggering condition 1 -Reporting Range Constant -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W -Not Present -1.0 -1.0 -1.0 -1.0 -1.0 -1.0 -1.0 -1.0 | | |
| -W -Hysteresis -Threshold used frequency -Reporting deactivation threshold -Replacement activation threshold -Time to trigger -Amount of reporting -Reporting interval -Reporting cell status -Intra-frequency event identity -Triggering condition 1 -Reporting Range Constant -Cells forbidden to affect Reporting Range -Primary CPICH info (10.3.6.60) -W 1.0 Not Present O ms Not present O ms (Note 2) Not Present Event 1B Active set cells and monitored set cells 3 dB Not Present FDD 1.0 | | FDD |
| -Hysteresis -Threshold used frequency -Reporting deactivation threshold -Replacement activation threshold -Time to trigger -Amount of reporting -Reporting interval -Reporting cell status -Intra-frequency event identity -Triggering condition 1 -Reporting Range Constant -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W Not Present Not Present 0 ms Not present 0 ms Not Present Event 1B Active set cells and monitored set cells 3 dB Not Present -FDD | | |
| -Threshold used frequency -Reporting deactivation threshold -Replacement activation threshold -Time to trigger -Amount of reporting -Reporting interval -Reporting cell status -Intra-frequency event identity -Triggering condition 1 -Reporting Range Constant -Cells forbidden to affect Reporting Range -Primary CPICH info (10.3.6.60) -W Not Present O ms Not present O ms (Note 2) Not Present Event 1B Active set cells and monitored set cells 3 dB Not Present FDD 1.0 | | |
| -Reporting deactivation threshold -Replacement activation threshold -Time to trigger -Amount of reporting -Reporting interval -Reporting cell status -Intra-frequency event identity -Triggering condition 1 -Reporting Range Constant -Cells forbidden to affect Reporting Range -Primary CPICH info (10.3.6.60) -W Not Present O ms (Note 2) Not Present Event 1B Active set cells and monitored set cells 3 dB Not Present FDD 1.0 | | |
| -Replacement activation threshold -Time to trigger -Amount of reporting -Reporting interval -Reporting cell status -Intra-frequency event identity -Triggering condition 1 -Reporting Range Constant -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W -Not Present -Not Present -Versent -Ver | | |
| -Time to trigger -Amount of reporting -Reporting interval -Reporting cell status -Intra-frequency event identity -Triggering condition 1 -Reporting Range Constant -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W Not present Event 1B Active set cells and monitored set cells 3 dB Not Present FDD 1.0 | | |
| -Amount of reporting -Reporting interval -Reporting cell status -Intra-frequency event identity -Triggering condition 1 -Reporting Range Constant -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W Not present Event 1B Active set cells and monitored set cells 3 dB Not Present FDD 1.0 | | |
| -Reporting interval 0 ms (Note 2) -Reporting cell status | | |
| -Reporting cell status -Intra-frequency event identity -Triggering condition 1 -Reporting Range Constant -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W Not Present Active set cells and monitored set cells 3 dB Not Present FDD 1.0 | | |
| -Intra-frequency event identity -Triggering condition 1 -Reporting Range Constant -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W Event 1B Active set cells and monitored set cells 3 dB Not Present FDD 1.0 | | |
| -Triggering condition 1 -Reporting Range Constant -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W Active set cells and monitored set cells 3 dB Not Present FDD 1.0 | | |
| -Reporting Range Constant -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W 3 dB Not Present FDD 1.0 | | |
| -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W Not Present FDD 1.0 | | |
| -CHOICE mode -Primary CPICH info (10.3.6.60) -W 1.0 | | |
| -Primary CPICH info (10.3.6.60) -W 1.0 | -CHOICE mode | |
| -W 1.0 | | |
| -Hysteresis 0 dB | -W | 1.0 |
| | -Hysteresis | 0 dB |

| Information Element/Group name | Value/Remark | | | | |
|---|---------------|--|--|--|--|
| -Threshold used frequency | Not Present | | | | |
| -Reporting deactivation threshold | Not Present | | | | |
| -Replacement activation threshold | Not Present | | | | |
| -Time to trigger | 0 ms | | | | |
| -Amount of reporting | Not Present | | | | |
| -Reporting interval | 0 ms (note 2) | | | | |
| -Reporting cell status | Not Present | | | | |
| Physical channel information elements | | | | | |
| -DPCH compressed mode status info (10.3.6.34) | Not Present | | | | |
| Note 1: The SFN-CFN observed time difference is calculated from the OFF and Tm parameters contained | | | | | |
| in the IE "Cell synchronication information." TO 25 221, playing 10.2.7.6. According to TC 25 221 | | | | | |

Note 1: The SFN-CFN observed time difference is calculated from the OFF and Tm parameters contained in the IE "Cell synchronisation information ", TS 25.331, clause 10.3.7.6. According to TS 25.331, 8.6.7.7, this IE is included in MEASUREMENT REPORT if IE "Cell synchronisation information reporting indicator" in IE "Cell reporting quantities" TS 25.331, clause 10.3.7.5 is set to TRUE in MEASUREMENT CONTROL.

Note 2: Reporting interval = 0 ms means no periodical reporting

MEASUREMENT REPORT message for Intra frequency test cases

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

8.6.1.1.5 Test requirements

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

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

8.6.1.2 Event triggered reporting of multiple neighbours in AWGN propagation condition

8.6.1.2.1 Definition and applicability

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

The requirements and this test apply to the FDD UE.

8.6.1.2.2 Minimum requirements

The requirements are the same as in sub clause 8.6.1.1.2.

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

8.6.1.2.3 Test purpose

To verify that the UE meets the minimum requirements.

8.6.1.2.4 Method of test

8.6.1.2.4.1 Initial conditions

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

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

The initial test parameters are given in table 8.6.1.2.1.

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

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

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

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

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

Parameter Unit Cell 1 Cell 2 Cell3 **T4 T1** T2 T3 T1 **T2** T3 **T4** T1 **T2 T4** Т3 CPICH_Ec/lor dB -10 -10 -10 PCCPCH_Ec/ dB -12 -12 -12 lor -12 -12 SCH_Ec/lor dB -12 PICH_Ec/lor dB -15 -15 -15 DPCH_Ec/lor -17 N/A N/A dB OCNS_Ec/lor dB -1.049 -0.941 -0.941 6.12 5.97 I_{or}/I_{oc} dB 6.97 6.93 -Inf 9.43 6.97 7.62 5.97 6.93 -Inf 5.62 dBm/ I_{oc} 3.84 -85 MHz CPICH_Ec/lo

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

8.6.1.2.4.2 Procedure

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Propagation

Condition

1) The RF parameters are set up according to T0.

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

-Inf

-13.5

-13

AWGN

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-14

-16

-Inf

-16

4) SS shall transmit a MEASUREMENT CONTROL message.

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-15.5

- 5) 5 seconds after step4 has completed, the SS shall switch the power settings for T0 to T1.
- 6) UE shall transmit a MEASUREMENT REPORT message for Cell 3 triggered by event 1A. The measurement reporting delay from the beginning of T1 shall be less than 880 ms. If the UE fails to report the event within the required delay, then a failure is recorded. If the reporting delay for this event is within the required limit, the number of succesfull tests is increased by one.
- 7) UE may transmit a MEASUREMENT REPORT message for Cell 3 triggered by event 1C. In case it doesn't this shall not be considered as a failure.
- 8) After 10 seconds from the beginning of T1, the SS shall switch the power settings from T1 to T2.
- 9) UE shall transmit a MEASUREMENT REPORT message for Cell 2 triggered by event 1C. The measurement reporting delay from the beginning of T2 shall be less than 880 ms. If the UE fails to report the event within the required delay, then a failure is recorded. If the reporting delay for this event is within the required limit, the number of succesfull tests is increased by one.
- 10) UE shall transmit a MEASUREMENT REPORT message for Cell 2 triggered by event 1A. The measurement reporting delay from the beginning of T2 shall be less than 880 ms. If the UE fails to report the event within the required delay, then a failure is recorded. If the reporting delay for this event is within the required limit, the number of successfull tests is increased by one.
- 11) UE may transmit a MEASUREMENT REPORT message for Cell 3 triggered by event 1C. In case it doesn't this shall not be considered as a failure.
- 12) After 10 seconds from the beginning of T2, the SS shall switch the power settings from T2 to T3.
- 13) UE shall transmit a MEASUREMENT REPORT message for Cell 3 triggered by event 1B. The measurement reporting delay from the beginning of T3 shall be less than 280 ms. If the UE fails to report the event within the required delay, then a failure is recorded. If the reporting delay for this event is within the required limit, the number of successfull tests is increased by one.
- 14) UE may transmit a MEASUREMENT REPORT message for Cell 2 triggered by event 1C. In case it doesn't this shall not be considered as a failure.

- 15) After 5 seconds from the beginning of T3, the SS shall switch the power settings from T3 to T4.
- 16) UE shall transmit a MEASUREMENT REPORT message for Cell 3 triggered by event 1A. The measurement reporting delay from the beginning of T4 shall be less than 280 ms. If the reporting delay for this event is within the required limit, the number of successfull tests is increased by one.
- 17) UE may transmit a MEASUREMENT REPORT message for Cell 2 triggered by event 1C. In case it doesn't this shall not be considered as a failure.
- 18) UE may transmit a MEASUREMENT REPORT message for Cell 3 triggered by event 1C. In case it doesn't this shall not be considered as a failure.
- 19) After 10 seconds from the beginning of T4, the UE is switched off.
- 20) Repeat steps 1-19 [50] times until the confidence level according to annex F.6.2 is achieved.

Specific Message Contents

MEASUREMENT CONTROL message:

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

| Information Element/Group name | Value/Remark |
|---|--|
| -Amount of reporting | Not Present |
| -Reporting interval | 0 ms (Note 2) |
| -Reporting cell status | Not Present |
| -Intra-frequency event identity | Event 1C |
| -Triggering condition 2 | Active set cells and monitored set cells |
| -Reporting Range Constant | Not present |
| -Cells forbidden to affect Reporting Range | Not Present |
| -W | Not present |
| -Hysteresis | 0 dB |
| -Threshold used frequency | Not Present |
| -Reporting deactivation threshold | Not present |
| -Replacement activation threshold | 0 |
| -Time to trigger | 0 ms |
| -Amount of reporting | Not Present |
| -Reporting interval | 0 ms (Note 2) |
| -Reporting cell status | Not Present |
| Physical channel information elements | |
| -DPCH compressed mode status info (10.3.6.34) | Not Present |

NOTE 1: The SFN-CFN observed time difference is calculated from the OFF and Tm parameters contained in the IE "Cell synchronisation information", TS 25.331, clause 10.3.7.6. According to TS 25.331, 8.6.7.7, this IE is included in MEASUREMENT REPORT if IE "Cell synchronisation information reporting indicator" in IE "Cell reporting quantities" TS 25.331, clause 10.3.7.5 is set to TRUE in MEASUREMENT CONTROL.

NOTE 2: Reporting interval = 0 ms means no periodical reporting.

MEASUREMENT REPORT message for Intra frequency test cases

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

8.6.1.2.5 Test requirements

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

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

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

8.6.1.3.1 Definition and applicability

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

The requirements and this test apply to the FDD UE.

8.6.1.3.2 Minimum requirements

The requirements are the same as in sub clause 8.6.1.1.2.

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

8.6.1.3.3 Test purpose

To verify that the UE meets the minimum requirements.

8.6.1.3.4 Method of test

8.6.1.3.4.1 Initial conditions

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

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

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

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

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

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

| Parameter | Unit | | С | ell 1 | | Cell 2 | | | | Cell3 | | | |
|-----------------------|------|---------------------|-------------|-----------|-----------|--------|-----------|-----------|-----------|-------|-----------|-----------|-----------|
| | | T1 | T2 | T3 | T4 | T1 | T2 | Т3 | T4 | T1 | T2 | T3 | T4 |
| CPICH_Ec/lor | dB | • | | 10 | • | | | 10 | | | - | 10 | • |
| PCCPCH_Ec/ lor | dB | | -12 | | | | ^ | 12 | | -12 | | | |
| SCH_Ec/lor | dB | | | 12 | | | | 12 | | | - | 12 | |
| PICH_Ec/lor | dB | | -15 -15 -15 | | | | | | | | | | |
| DPCH_Ec/lor | dB | | -17 N/A N/A | | | | | | | | | | |
| OCNS_Ec/lor | dB | | -1. | 049 | | | -0. | 941 | | | -0. | 941 | |
| \hat{I}_{or}/I_{oc} | dB | 14.5 5 | 28.5 1 | 14.4 5 | 28.5 1 | -Inf | 27.5 1 | 13.9 5 | 21.5 1 | 8.05 | 21.5 1 | 13.9 5 | 27.5 1 |
| I_{oc} | | dBm/ 3.84 MHz | 3.84 -85 | | | | | | | | | | |
| CPICH_Ec/lo | dB | -11 | -13 | -14.5 | -13 | -Inf | -14.0 | -15 | -20 | -17.5 | -20 | -15 | -14 |
| Propa Condi | | AWGN | | | | | | | | | | | |

8.6.1.3.4.2 Procedure

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

- 4) SS shall transmit a MEASUREMENT CONTROL message.
- 5) After 10 seconds from the beginning T1, the SS shall switch the power settings from T1 to T2.
- 6) UE shall transmit a MEASUREMENT REPORT message for Cell 2 triggered by event 1A. The measurement reporting delay from the beginning of T2 shall be less than 880 ms. If the UE fails to report the event within the required delay, then a failure is recorded. If the reporting delay for this event is within the required limit, the number of successful tests is increased by one.
- 7) After 10 seconds from the beginning T2, the SS shall switch the power settings from T2 to T3.
- 8) UE shall transmit a MEASUREMENT REPORT message for Cell 3 triggered by event 1A. The measurement reporting delay from the beginning of T3 shall be less than 280 ms. If the UE fails to report the event within the required delay, then a failure is recorded. If the reporting delay for this event is within the required limit, the number of successful tests is increased by one.
- 9) After 10 seconds from the beginning T3, the SS shall switch the power settings from T3 to T4.
- 10) UE shall transmit a MEASUREMENT REPORT message for Cell 2 triggered by event 1B. The measurement reporting delay from the beginning of T4 shall be less than 280 ms. If the reporting delay for this event is within the required limit, the number of successfull tests is increased by one.
- 11) After 10 seconds, the UE is switched off.
- 12) Repeat steps 1-11 [50] times until the confidence level according to annex F.6.2 is achieved.

Specific Message Contents

MEASUREMENT CONTROL message:

| Messurement Information elements - RRC transaction identifier - Integrity check info Messurement Information elements - Messurement Reporting Mode (10.3.7.46) - Messurement Reporting Mode (10.3.7.49) - Messurement Reporting Mode (10.3.7.49) - Messurement Reporting Mode (10.3.7.49) - Messurement Reporting Fewer Trigger Reporting Mode - Additional measurements list (10.3.7.1) - CHOICE Measurement type - Intra-frequency measurement objects list (10.3.7.38) - Intra-frequency measurement to objects list (10.3.7.38) - Intra-frequency measurement objects list (10.3.7.39) - Reporting quantities for active set cells (10.3.7.5) - SFN-SFN observed time difference reporting indicator - Cell Identity reporting indicator - Cell Identity reporting indicator - Pathloss reporting indicator - Pathloss reporting indicator - Cell synchronisation information reporting indicator - Cell Identity reporting indicato | Information Element/Group name | Value/Remark |
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| -Primary CPICH info (10.3.6.60) -W 1.0 | -CHOICE mode | |
| -W 1.0 | | |
| -Hysteresis 0 dB | -W | 1.0 |
| | -Hysteresis | 0 dB |

| Information Element/Group name | Value/Remark |
|---|---------------|
| -Threshold used frequency | Not Present |
| -Reporting deactivation threshold | Not Present |
| -Replacement activation threshold | Not Present |
| -Time to trigger | 0 ms |
| -Amount of reporting | Not Present |
| -Reporting interval | 0 ms (Note 2) |
| -Reporting cell status | Not Present |
| Physical channel information elements | |
| -DPCH compressed mode status info (10.3.6.34) | Not Present |

NOTE 1: The SFN-CFN observed time difference is calculated from the OFF and Tm parameters contained in the IE "Cell synchronisation information ", TS 25.331, clause 10.3.7.6. According to TS 25.331, 8.6.7.7, this IE is included in MEASUREMENT REPORT if IE "Cell synchronisation information reporting indicator" in IE "Cell reporting quantities" TS 25.331, clause 10.3.7.5 is set to TRUE in MEASUREMENT CONTROL.

NOTE 2: Reporting interval = 0 ms means no periodical reporting.

MEASUREMENT REPORT message for Intra frequency test cases

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

8.6.1.3.5 Test requirements

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

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

8.6.1.4 Correct reporting of neighbours in fading propagation condition

8.6.1.4.1 Definition and applicability

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

The requirements and this test apply to the FDD UE.

8.6.1.4.2 Minimum requirements

The requirements are the same as in sub clause 8.6.1.1.2.

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

8.6.1.4.3 Test purpose

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

8.6.1.4.4 Method of test

8.6.1.4.4.1 Initial conditions

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

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

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

The TTI of the uplink DCCH shall be 20ms.

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

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

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

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

8.6.1.4.4.2 Procedure

- 1) The RF parameters are set up according to T1.
- 2) The UE is switched on.
- 3) A call is set up in AWGN conditions, according to the test procedure specified in TS 34.108 [3] sub clause 7.3.2.3.
- 4) SS shall transmit a MEASUREMENT CONTROL message.
- 5) 5 seconds after step4 has completed, the fading simulator is switched on, configured with the settings described in the tables above at the beginning of T1.
- 6) UE shall start transmitting MEASUREMENT REPORT messages triggered by event 1A.
- 7) SS shall count the reports. The number of received event 1A reports shall be less than 60. If the SS fails to receive less than 60 event 1A reports, then then a failure is recorded. If the SS receives number of event 1A reports within the required limit, the number of successfull tests is increased by one.
- 8) After 200 seconds from the beginning of T1, the SS shall switch the power settings from T1 to T2.

- 9) UE shall start transmitting MEASUREMENT REPORT messages triggered by event 1B.
- 10) During the first 1s of time period T2 no event reports shall be counted.
- 11) After the first 1s SS shall start counting the reports. The number of received event 1B reports shall be less than 60. If the SS receives number of event 1B reports within the required limit, the number of successfull tests is increased by one.
- 12) After 201 seconds from the beginning of T2, the UE is switched off.
- 13) Repeat steps 1-12 [50] times until the confidence level according to annex F.6.2 is achieved.

Specific Message Contents

MEASUREMENT CONTROL message:

| Information Element/Group name | Value/Remark |
|--|--|
| Message Type (10.2.17) | |
| UE information elements | |
| -RRC transaction identifier | 0 |
| -Integrity check info | Not Present |
| Measurement Information elements | |
| -Measurement Identity | 1 |
| -Measurement Command (10.3.7.46) | Modify |
| -Measurement Reporting Mode (10.3.7.49) | |
| -Measurement Report Transfer Mode | AM RLC |
| -Periodical Reporting / Event Trigger Reporting Mode | Event trigger |
| -Additional measurements list (10.3.7.1) -CHOICE Measurement type | Not Present Intra-frequency measurement |
| -Intra-frequency measurement (10.3.7.36) | Intra-frequency frieasurement |
| -Intra-frequency measurement objects list (10.3.7.33) | Not Present |
| -Intra-frequency measurement quantity (10.3.7.38) | Not i lesent |
| -Filter coefficient (10.3.7.9) | 0 |
| -CHOICE mode | FDD |
| -Measurement quantity | CPICH_Ec/N0 |
| -Intra-frequency reporting quantity (10.3.7.41) | |
| -Reporting quantities for active set cells (10.3.7.5) | |
| -SFN-SFN observed time difference reporting indicator | No report |
| -Cell synchronisation information reporting indicator | TRUE (Note 1) |
| -Cell Identity reporting indicator | TRUE |
| -CHOICE mode | FDD |
| -CPICH Ec/N0 reporting indicator | TRUE |
| -CPICH RSCP reporting indicator | TRUE |
| -Pathloss reporting indicator | TRUE |
| -Reporting quantities for monitored set cells (10.3.7.5) | Negarant |
| -SFN-SFN observed time difference reporting indicator | No report |
| -Cell synchronisation information reporting indicator -Cell Identity reporting indicator | TRUE (Note 1) TRUE |
| -Centified indicator -CHOICE mode | FDD |
| -CPICH Ec/N0 reporting indicator | TRUE |
| -CPICH RSCP reporting indicator | TRUE |
| -Pathloss reporting indicator | TRUE |
| -Reporting quantities for detected set cells (10.3.7.5) | Not Present |
| -Reporting cell status (10.3.7.61) | Not Present |
| -Measurement validity (10.3.7.51) | Not Present |
| -CHOICE report criteria | Intra-frequency measurement reporting |
| | criteria |
| -Intra-frequency measurement reporting criteria (10.3.7.39) | |
| -Parameters required for each event | 2 |
| -Intra-frequency event identity | Event 1A |
| -Triggering condition 2 | Active set cells and monitored set cells |
| -Reporting Range Constant -Cells forbidden to affect Reporting Range | 0 dB Not Present |
| -CHOICE mode | FDD |
| -Primary CPICH info (10.3.6.60) | |
| -W | 1.0 |
| -Hysteresis | 0 dB |
| -Threshold used frequency | Not Present |
| -Reporting deactivation threshold | 0 |
| -Replacement activation threshold | Not Present |
| -Time to trigger | 120 ms |
| -Amount of reporting | Not present |
| -Reporting interval | 0 ms (Note 2) |
| -Reporting cell status | Not Present |
| -Intra-frequency event identity | Event 1B |
| -Triggering condition 1 | Active set cells and monitored set cells |
| -Reporting Range Constant | 0 dB |
| -Cells forbidden to affect Reporting Range -CHOICE mode | Not Present FDD |
| -Primary CPICH info (10.3.6.60) | |
| -Filling (10.3.0.00) | 1.0 |
| -W -Hysteresis | 0 dB |
| 1, 515.55.5 | 1 |

| Information Element/Group name | Value/Remark |
|---|--|
| -Threshold used frequency | Not Present |
| -Reporting deactivation threshold | Not Present |
| -Replacement activation threshold | Not Present |
| -Time to trigger | 120 ms |
| -Amount of reporting | Not Present |
| -Reporting interval | 0 ms (Note 2) |
| -Reporting cell status | Not Present |
| Physical channel information elements | |
| -DPCH compressed mode status info (10.3.6.34) | Not Present |
| Note 1: The SFN-CFN observed time difference is calcu | lated from the OFF and Tm parameters contained |
| in the IE "Cell synchronisation information ". TS | 25.331, clause 10.3.7.6, According to TS 25.331. |

Note 1: The SFN-CFN observed time difference is calculated from the OFF and Tm parameters contained in the IE "Cell synchronisation information", TS 25.331, clause 10.3.7.6. According to TS 25.331, 8.6.7.7, this IE is included in MEASUREMENT REPORT if IE "Cell synchronisation information reporting indicator" in IE "Cell reporting quantities" TS 25.331, clause 10.3.7.5 is set to TRUE in MEASUREMENT CONTROL.

Note 2: Reporting interval = 0 ms means no periodical reporting

MEASUREMENT REPORT message for Intra frequency test cases

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

8.6.1.4.5 Test requirements

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

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

8.6.2 FDD inter frequency measurements

8.6.2.1 Correct reporting of neighbours in AWGN propagation condition

8.6.2.1.1 Definition and applicability

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

The requirements and this test apply to the FDD UE.

8.6.2.1.2 Minimum requirements

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

$$T_{\text{identify inter}} = Max \bigg\{ 5000, T_{\text{basic identify FDD,inter}} \cdot \frac{T_{\text{Measurement Period, Inter}}}{T_{\text{Inter}}} \cdot N_{\textit{Freq}} \bigg\} ms$$

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

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

$$T_{\text{measurement inter}} = Max \left\{ T_{\text{Measurement_Period Inter}}, T_{\text{basic measurement FDD inter}} \cdot \frac{T_{\text{Measurement_Period Inter}}}{T_{\text{Inter}}} \cdot N_{\text{Freq}} \right\} ms$$

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

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

 $X_{basic\ measurement\ FDDinter} = 6$

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

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

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

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

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

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

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

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

8.6.2.1.3 Test purpose

To verify that the UE meets the minimum requirements.

8.6.2.1.4 Method of test

8.6.2.1.4.1 Initial conditions

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

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

The initial test parameters are given in table 8.6.2.1.1

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

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

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

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

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

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

| Parameter | Unit | Cell 1 | | Cel | II 2 | Ce | ell 3 | |
|---------------------------|-----------------|--------|--------|-----------|-------|--------|--------|--|
| | | T1 | T2 | T1 | T2 | T1 | T2 | |
| UTRA RF Channel Number | | Char | nnel 1 | Chan | nel 1 | Cha | nnel 2 | |
| CPICH_Ec/lor | dB | -10 | | -10 | | -10 | | |
| PCCPCH_Ec/lor | dB | -12 | | -12 | | -12 | | |
| SCH_Ec/lor | dB | -12 | | -12 | | -12 | | |
| PICH_Ec/lor | dB | -15 | -15 | | -15 | | -15 | |
| DPCH_Ec/lor | dB | -17 | | N/A | | N/A | | |
| OCNS | | -1.049 | | -0.941 | | -0.941 | | |
| \hat{I}_{or}/I_{oc} | dB | 0 | 5.42 | -Infinity | 3.92 | -1.8 | -1.8 | |
| I_{oc} | dBm/3.84 MHz | -70 | | | | -70 | | |
| CPICH_Ec/lo | dB | -13 | -13 | -Infinity | -14.5 | -14 | -14 | |
| Propagation Condition | AWGN | | | | | | | |

8.6.2.1.4.2 Procedure

- 1) The RF parameters are set up according to T0.
- 2) The UE is switched on.
- 3) A call is set up according to the test procedure specified in TS 34.108 [3] sub clause 7.3.2.3.
- 4) SS shall transmit a MEASUREMENT CONTROL message (inter frequency).
- 5) SS shall transmit a MEASUREMENT CONTROL message (intra frequency).
- 6) SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message.
- 7) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.
- 8) 5 seconds after step7 has completed, the SS shall switch the power settings from T0 to T1.
- 9) UE shall transmit a MEASUREMENT REPORT message (inter frequency) triggered by event 2C. The measurement reporting delay from the beginning of T1 shall be less than 9.08 seconds. If the UE fails to report the event within the required delay, then a failure is recorded. If the reporting delay for this event is within the required limit, the number of successful tests is increased by one.
- 10) After 10 seconds from the beginning of T1, the SS shall switch the power settings from T1 to T2.
- 11) UE shall transmit a MEASUREMENT REPORT message (intra frequency) triggered by event 1A. The measurement reporting delay from the beginning of T2 shall be less than 1036.2 ms. If the reporting delay for this event is within the required limit, the number of successfull tests is increased by one.
- 12) After 5 seconds from the beginning of T2, the UE is switched off.
- 13) Repeat steps 1-12 [50] times until the confidence level according to annex F.6.2 is achieved.

Specific Message Contents

PHYSICAL CHANNEL RECONFIGURATION message for Inter frequency measurement:

| Information Element | Value/Remark |
|--|---|
| Message Type | |
| UE Information Elements | |
| -RRC transaction identifier | 0 |
| -Integrity check info | Not Present |
| -Integrity protection mode info | Not Present |
| -Ciphering mode info | Not Present |
| -Activation time | Not Present |
| -New U-RNTI | Not Present |
| -New C-RNTI -RRC State Indicator | Not Present |
| -UTRAN DRX cycle length coefficient | CELL_DCH Not Present |
| CN Information Elements | Not i resent |
| -CN Information info | Not Present |
| UTRAN mobility information elements | Hot i room |
| -URA identity | Not Present |
| RB information elements | |
| -Downlink counter synchronisation info | Not Present |
| PhyCH information elements | |
| -Frequency info | Not Present |
| Uplink radio resources | |
| -Maximum allowed UL TX power | Not Present |
| Downlink radio resources | |
| -CHOICE mode | FDD |
| -Downlink PDSCH information | Not Present |
| -Downlink information common for all radio links -Downlink DPCH info common for all RL | Not Propert |
| -CHOICE mode | Not Present FDD |
| -DPCH compressed mode info | FDD |
| -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 | Not present |
| -TGSN | 4 |
| -TGL1 | 7 |
| -TGL2 | Not Present |
| -TGD | 0 |
| -TGPL1 | 3 |
| -TGPL2 | Not Present |
| -RPP | Mode 0 |
| -ITP | Mode 0 |
| -CHOICE UL/DL mode | UL and DL |
| -Downlink compressed mode method -Uplink compressed mode method | SF/2 SF/2 |
| -Downlink frame type | SF/2 B |
| -Downlink frame type -DeltaSIR1 | 3.0 |
| -DeltaSIRafter1 | 3.0 |
| -DeltaSIR2 | Not Present |
| -DeltaSIRafter2 | Not Present |
| -N Identify abort | Not Present |
| -T Reconfirm abort | Not Present |
| -TX Diversity Mode | Not Present |
| -SSDT information | Not Present |
| -Default DPCH Offset Value | Not Present |
| -Downlink information per radio link list | |
| - Downlink information for each radio link | EDD |
| -Choice mode | FDD |
| -Primary CPICH info -Primary scrambling code | 100 |
| -PDSCH with SHO DCH Info | Not Present |
| . Soori with one borring | 110.1100011 |

| -PDSCH code mapping | Not Present |
|---|---|
| -Downlink DPCH info for each RL | |
| -CHOICE mode | FDD |
| -Primary CPICH usage for channel estimation | Primary CPICH may be used |
| -DPCH frame offset | Set to value Default DPCH Offset Value (as |
| | currently stored in SS) mod 38400 |
| -Secondary CPICH info | Not Present |
| -DL channelisation code | |
| -Secondary scrambling code | Not Present |
| -Spreading factor | 128 |
| -Code number | 0 |
| -Scrambling code change | No code change |
| -TPC combination index | 0 |
| -SSDT Cell Identity | Not Present |
| -Closed loop timing adjustment mode | Not Present |
| -SCCPCH Information for FACH | Not Present |

MEASUREMENT CONTROL message (inter frequency):

| Information Element/Group name | Value/Remark |
|---|---|
| Message Type (10.2.17) | |
| UE information elements | |
| -RRC transaction identifier | 0 |
| -Integrity check info | Not Present |
| Measurement Information elements | |
| -Measurement Identity | 2 |
| -Measurement Command (10.3.7.46) -Measurement Reporting Mode (10.3.7.49) | Setup |
| -Measurement Report Transfer Mode | AM RLC |
| -Periodical Reporting / Event Trigger Reporting Mode | Event trigger |
| -Additional measurements list (10.3.7.1) | Not Present |
| -CHOICE Measurement type | Inter-frequency measurement |
| -Inter-frequency measurement (10.3.7.16) | |
| -Inter-frequency measurement objects list (10.3.7.13) | |
| - CHOICE Inter-frequency cell removal | Not Present |
| - New Inter frequency cells | |
| - Inter frequency cell id | 0 |
| - Frequency info | |
| - CHOICE mode | FDD |
| - UARFCN uplink(Nu) | Not Present |
| - UARFCN downlink(Nd) | Same frequency as "Channel2" in Table 8.6.2.1.3 |
| - Cell info | 8.6.2.1.3 |
| - Cell info - Cell individual offset | Not Present |
| - Reference time difference to cell | Not Present |
| - Read SFN indicator | TRUE |
| - CHOICE mode | FDD |
| - Primary CPICH info | |
| - Primary scrambling code | Set to Primary scrambling code of Cell3 |
| - Primary CPICH Tx Power | Set to Primary CPICH Tx Power of Cell3 |
| | described in Table 8.6.2.1.3 |
| - Tx Diversity Indicator | FALSE |
| - Cell Selection and Re-selection info | Set to Cell Selection and Re-selection info |
| 0.114 | of Cell3 |
| - Cell for measurement | Not Present |
| -Inter-frequency measurement quantity (10.3.7.18) -Intra-frequency reporting criteria | |
| -Intra-frequency measurement quantity (10.3.7.38) | |
| -Filter coefficient (10.3.7.9) | 0 |
| -CHOICE mode | FDD |
| -Measurement quantity | CPICH_Ec/N0 |
| -Inter-frequency reporting criteria | _ |
| -Filter coefficient (10.3.7.9) | 0 |
| -CHOICE mode | FDD |
| -Measurement quantity for frequency quality estimate | CPICH_Ec/N0 |
| -Inter-frequency reporting quantity (10.3.7.21) -UTRA Carrier RSSI | FALCE |
| -Frequency quality estimate | FALSE FALSE |
| -Non frequency related cell reporting quantities (10.3.7.5) | FALSE |
| -SFN-SFN observed time difference reporting indicator | No report |
| -Cell synchronisation information reporting indicator | TRUE (Note 1) |
| -Cell Identity reporting indicator | TRUE |
| -CHOICE mode | FDD |
| -CPICH Ec/N0 reporting indicator | TRUE |
| -CPICH RSCP reporting indicator | TRUE |
| -Pathloss reporting indicator | TRUE |
| -Reporting cell status (10.3.7.61) | Not Present |
| -Measurement validity (10.3.7.51) | Not Present |
| -CHOICE report criteria | Inter-frequency measurement reporting |
| | criteria |
| -Inter-frequency measurement reporting criteria (10.3.7.19) | |
| -Parameters required for each event | 1 Front 2C |
| -Inter-frequency event identity -Threshold used frequency | Event 2C Not present |
| - Threshold used frequency -W used frequency | Not present |
| vv useu rrequerioy | Liver biegein |

| Information Element/Group name | Value/Remark |
|--|--|
| -Hysteresis | 0 dB |
| -Time to trigger | 0 ms |
| -Reporting cell status | |
| -CHOICE reported cell | Report all active set cells + cells within monitored set on used frequency |
| -Maximum number of reported cells | 3 |
| -Parameters required for each non-used frequency | |
| -Threshold non used frequency | -18 dB |
| -W non-used frequency | 1 |
| Physical channel information elements | |
| -DPCH compressed mode status info (10.3.6.34) | Not Present |

NOTE 1: The SFN-CFN observed time difference is calculated from the OFF and Tm parameters contained in the IE "Cell synchronisation information", TS 25.331, clause 10.3.7.6. According to TS 25.331, 8.6.7.7, this IE is included in MEASUREMENT REPORT if IE "Cell synchronisation information reporting indicator" in IE "Cell reporting quantities" TS 25.331, clause 10.3.7.5 is set to TRUE in MEASUREMENT CONTROL.

MEASUREMENT CONTROL message (intra frequency):

| Mesaurement Information elements - RRC transaction identifier - Integrity check info Mesaurement Information elements - Mesaurement Reporting Mode (10.3.7.49) - Measurement Reporting Mode (10.3.7.39) - Measurement Reporting Measurement (10.3.7.39) - Intra-frequency measurement (10.3.7.38) - Intra-frequency measurement (10.3.7.38) - Filter coefficient (10.3.7.9) - CHOICE mode - Measurement quantity (10.3.7.41) - Reporting quantities for active set cells (10.3.7.5) - SFN-SFN Observed time difference reporting indicator - Cell Identity reporting indicator - Cell Identity reporting indicator - CPICH ECNN reporting indicator - CPICH ECNN reporting indicator - CPICH ECNN reporting indicator - CPICH RSCP reporting indicator - CPICH | Information Element/Group name | Value/Remark |
|--|---|-----------------------------|
| ARC transaction identifier Integrity check info Measurement Information elements Measurement Identity -Measurement Command (10.3.7.46) -Measurement Report Transfer Mode -Periodical Reporting Mode (10.3.7.49) -Measurement Report Transfer Mode -Periodical Reporting its (10.3.7.1) -Measurement Report Transfer Mode -Additional measurements list (10.3.7.1) -CHOICE Measurement type -Intra-frequency measurement (10.3.7.36) -Intra-frequency measurement opticits list (10.3.7.33) -Intra-frequency measurement opticits list (10.3.7.38) -Filter coefficient (10.3.7.9) -CHOICE mode -Measurement quantity -Intra-frequency reporting quantities for active set cells (10.3.7.5) -SFN-SFN boserved time difference reporting indicator -Cell synchronisation information reporting indicator -Cell HerbN reporting indicator -CPICH RSCP reporting indicator -Cell synchronisation information reporting indicator -CPICH RSCP reporting indicator -Pathloss reporting indicator -Cell synchronisation information reporting indicator -Cell synchronisation information reporting indicator -Cell synchronisation information reporting indicator -CPICH RSCP reporting indicator -CPICH RSCP reporting indicator -Cell dentity reporting indicator -CPICH RSCP reporting indicator -CPICH RSCP reporting indicator -Pathloss reporti | | |
| Integrity check info Measurement Information elements | | |
| Measurement Identity | | |
| Measurement Command (10.3.7.46) Measurement Command (10.3.7.46) Measurement Command (10.3.7.46) Measurement Reporting Mode (10.3.7.40) Measurement Reporting Mode (10.3.7.40) Measurement Reporting Yevent Trigger Reporting Mode Additional measurements list (10.3.7.36) Intra-frequency measurement (10.3.7.36) Intra-frequency measurement (10.3.7.38) Intra-frequency measurement objects list (10.3.7.38) Filter coefficient (10.3.7.30) O FDD CHOICE mode Measurement quantity (10.3.7.41) Intra-frequency reporting quantities for active set cells (10.3.7.5) SFN-SFN boserved time difference reporting indicator Cell dentity reporting indicator CPICH Ec/No reporting indicator TRUE | | Not Present |
| Measurement Reporting Mode (10.3.7.46) -Measurement Reporting Mode (10.3.7.94) -Measurement Reporting Mode (10.3.7.94) -Measurement Reporting Fevent Trigger Reporting Mode -Additional measurements list (10.3.7.1) -CHOICE Measurement type -Intra-frequency measurement (10.3.7.36) -Intra-frequency measurement objects list (10.3.7.33) -Intra-frequency measurement objects list (10.3.7.38) -Filter coefficient (10.3.7.9) -CHOICE mode -Measurement quantity -Intra-frequency reporting quantity (10.3.7.41) -Reporting quantities for active set cells (10.3.7.5) -SFN-SFN observed time difference reporting indicator -Cell synchronisation information reporting indicator -CPICH Ec/NO reporting indicator -Pathloss reporting indicator -CPICH Ec/NO reporting indicator -Cell synchronisation information reporting indicator -CPICH Ec/NO reporting indicator -CPICH Ec/NO reporting indicator -CPICH Ec/NO reporting indicator -Reporting quantities for detected set cells (10.3.7.5) -Reporting cell status (10.3.7.61) -Measurement validity (10.3.7.51) -CHOICE report criteria -Intra-frequency event identity -Triggering condition 2 -Reporting Range Constant -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W -Hysteresis -Threshold used frequency -Reporting deactivation threshold -Time to trigger -Amount of reporting -Reporting deactivation threshold -Time to trigger -Amount of reporting -Reporting proposed mode status info (10.3.6.34) -Not Present -Not P | | |
| - Measurement Report firansfer Mode - Periodical Reporting / Event Trigger Reporting Mode - Periodical Reporting / Event Trigger Reporting Mode - Additional measurements list (10.3.7.4) - CHOICE Measurement (10.3.7.36) - Intra-frequency measurement (10.3.7.38) - Intra-frequency measurement objects list (10.3.7.33) - Intra-frequency measurement objects list (10.3.7.38) - Filler coefficient (10.3.7.9) - CHOICE mode - Measurement quantity - Intra-frequency reporting quantity (10.3.7.41) - Reporting quantities for active set cells (10.3.7.5) - SFN-SFN observed time difference reporting indicator - Cell dentity reporting indicator - Cell dentity reporting indicator - CPICH ECNO reporting indicator - CPICH ECNO reporting indicator - CPICH RSCP reporting indicator - Pathloss reporting indicator - CPICH ECNO reporting indicator - Pathloss reporting indicator - Pathloss reporting indicator - CPICH ECNO reporting indicator - CPICH ECNO reporting indicator - Pathloss r | | |
| Measurement Report Transfer Mode -Additional measurements list (10.3.7.1) -CHOICE Measurement type -Intra-frequency measurement (10.3.7.36) -Intra-frequency measurement objects list (10.3.7.33) -Intra-frequency measurement objects list (10.3.7.38) -Filter coefficient (10.3.7.9) -CHOICE mode -Measurement quantity -Reporting quantites for active set cells (10.3.7.5) -SFN-SFN observed time difference reporting indicator -Cell Identity reporting indicator -CPICH ECNO reporting indicator -CPICH ECNO reporting indicator -CPICH RSCP reporting indicator -Cell synchronisation information reporting indicator -Cell synchronisation information reporting indicator -CPICH RSCP reporting indicator -CPICH RSC | | Modify |
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| -CHOICE report criteria Intra-frequency measurement reporting criteria (10.3.7.39) -Parameters required for each event Intra-frequency event identity Intra-frequency measurement reporting criteria Event 1A Monitored set cells 4 dB Cells forbidden to affect Reporting Range CHOICE mode Primary CPICH info (10.3.6.60) W Intra-frequency measurement reporting A dB Not Present FDD Intra-frequency measurement reporting A dB Not Present Intra-frequency A dB Not Present Intra-frequency measurement reporting A dB Not Present Intra-frequency A dB A dB Not Present Intra-frequency A dB A dB A dB Not Present Intra-frequency A dB A dB Not Present Intra-frequency Interal Packet A dB | | |
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| -Intra-frequency measurement reporting criteria (10.3.7.39) -Parameters required for each event -Intra-frequency event identity -Triggering condition 2 -Reporting Range Constant -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W -Nysteresis -Threshold used frequency -Reporting deactivation threshold -Replacement activation threshold -Time to trigger -Amount of reporting -Reporting cell status Physical channel information elements -DPCH compressed mode status info (10.3.6.34) I vent 1A Monitored set cells 4 dB Not Present 1.0 Not Present 1.0 0 dB Not Present 0 ms Not Present 0 ms Not Present 0 ms Not Present | -CHOICE report cineria | |
| -Parameters required for each event -Intra-frequency event identity -Triggering condition 2 -Reporting Range Constant -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W -Hysteresis -Threshold used frequency -Reporting deactivation threshold -Replacement activation threshold -Time to trigger -Amount of reporting -Reporting cell status Physical channel information elements -DPCH compressed mode status info (10.3.6.34) Vent | -Intra-frequency measurement reporting criteria (10.3.7.30) | Citeria |
| -Intra-frequency event identity -Triggering condition 2 -Reporting Range Constant -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W -Hysteresis -Threshold used frequency -Reporting deactivation threshold -Replacement activation threshold -Time to trigger -Amount of reporting -Reporting cell status Physical channel information elements -DPCH compressed mode status info (10.3.6.34) Monitored set cells Monitored set cells Monitored set cells 4 dB Not Present 9 dB Not Present 0 dB Not Present 0 ms Not Present 0 ms Not Present | | 1 |
| -Triggering condition 2 -Reporting Range Constant -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W -Hysteresis -Threshold used frequency -Reporting deactivation threshold -Replacement activation threshold -Time to trigger -Amount of reporting -Reporting interval -Reporting cell status Physical channel information elements -DPCH compressed mode status info (10.3.6.34) Monitored set cells 4 dB Not Present 9 dB Not Present 1.0 0 dB Not Present 0 ms Not Present 0 ms Not Present | | |
| -Reporting Range Constant -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W -Hysteresis -Threshold used frequency -Reporting deactivation threshold -Replacement activation threshold -Time to trigger -Amount of reporting -Reporting interval -Reporting cell status Physical channel information elements -DPCH compressed mode status info (10.3.6.34) Not Present A dB Not Present 1.0 1.0 1.0 Not Present 0 ms Not Present 0 ms Not Present Not Present Not Present | | |
| -Cells forbidden to affect Reporting Range -CHOICE mode -Primary CPICH info (10.3.6.60) -W -Hysteresis -Threshold used frequency -Reporting deactivation threshold -Replacement activation threshold -Time to trigger -Amount of reporting -Reporting interval -Reporting cell status Physical channel information elements -DPCH compressed mode status info (10.3.6.34) Not Present FDD Not Present O ms Not Present O ms (Note 2) Not Present | | |
| -CHOICE mode -Primary CPICH info (10.3.6.60) -W -Hysteresis -Threshold used frequency -Reporting deactivation threshold -Replacement activation threshold -Time to trigger -Amount of reporting -Reporting interval -Reporting cell status Physical channel information elements -DPCH compressed mode status info (10.3.6.34) FDD 1.0 1.0 Not Present Not Present 0 ms Not Present 0 ms (Note 2) Not Present | | |
| -Primary CPICH info (10.3.6.60) -W -Hysteresis -Threshold used frequency -Reporting deactivation threshold -Replacement activation threshold -Time to trigger -Amount of reporting -Reporting interval -Reporting cell status Physical channel information elements -DPCH compressed mode status info (10.3.6.34) 1.0 1.0 Not Present 0 ms Not Present 0 ms Not Present Not Present | | |
| -W -Hysteresis -Threshold used frequency -Reporting deactivation threshold -Replacement activation threshold -Time to trigger -Amount of reporting -Reporting interval -Reporting cell status Physical channel information elements -DPCH compressed mode status info (10.3.6.34) 1.0 0 dB Not Present 0 ms Present 0 ms Not Present 0 ms (Note 2) Not Present | | |
| -Hysteresis 0 dB -Threshold used frequency Not Present -Reporting deactivation threshold 0 -Replacement activation threshold Not Present -Time to trigger 0 ms -Amount of reporting Not Present -Reporting interval 0 ms (Note 2) -Reporting cell status Not Present Physical channel information elements -DPCH compressed mode status info (10.3.6.34) Not Present | , | 10 |
| -Threshold used frequency -Reporting deactivation threshold -Replacement activation threshold -Time to trigger -Amount of reporting -Reporting interval -Reporting cell status Physical channel information elements -DPCH compressed mode status info (10.3.6.34) Not Present Not Present O ms (Note 2) Not Present | | |
| -Reporting deactivation threshold -Replacement activation threshold -Time to trigger -Amount of reporting -Reporting interval -Reporting cell status Physical channel information elements -DPCH compressed mode status info (10.3.6.34) Not Present Not Present Not Present | | |
| -Replacement activation threshold -Time to trigger -Amount of reporting -Reporting interval -Reporting cell status Physical channel information elements -DPCH compressed mode status info (10.3.6.34) Not Present O ms (Note 2) Not Present Not Present | | |
| -Time to trigger -Amount of reporting -Reporting interval -Reporting cell status Physical channel information elements -DPCH compressed mode status info (10.3.6.34) O ms Not Present Not Present | | |
| -Amount of reporting -Reporting interval -Reporting cell status -Reporting cell status -Reporting cell status -DPCH compressed mode status info (10.3.6.34) Not Present Not Present | | |
| -Reporting interval 0 ms (Note 2) -Reporting cell status Not Present Physical channel information elements -DPCH compressed mode status info (10.3.6.34) Not Present | | |
| -Reporting cell status Physical channel information elements -DPCH compressed mode status info (10.3.6.34) Not Present Not Present | | |
| Physical channel information elements -DPCH compressed mode status info (10.3.6.34) Not Present | | |
| -DPCH compressed mode status info (10.3.6.34) Not Present | Physical channel information elements | |
| | | Not Present |
| LINDIE I | | |
| in the IE "Cell synchronisation information ", TS 25.331, clause 10.3.7.6. According to TS 25.331, | | |

Note 2: Reporting interval = 0 ms means no periodical reporting

MEASUREMENT REPORT message for Inter frequency test cases

MEASUREMENT REPORT message for Intra frequency test cases

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

8.6.2.1.5 Test requirements

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

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

8.6.2.2 Correct reporting of neighbours in fading propagation condition

8.6.2.2.1 Definition and applicability

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

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

8.6.2.2.2 Minimum requirements

The requirements are the same as in sub clause 8.6.2.1.2.

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

8.6.2.2.3 Test purpose

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

8.6.2.2.4 Method of test

8.6.2.2.4.1 Initial conditions

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

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

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

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

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

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

| Parameter | Unit | Ce | Cell 1 | | Cell 2 | |
|------------------------|--------------|---------------|--------|-----------|---------|--|
| | | T1 | T2 | T1 | T2 | |
| UTRA RF Channel Number | | Char | nel 1 | Ch | annel 2 | |
| CPICH_Ec/lor | DB | -1 | 0 | | -10 | |
| PCCPCH_Ec/lor | DB | -1 | 2 | | -12 | |
| SCH_Ec/lor | DB | -1 | -12 | | -12 | |
| PICH_Ec/lor | DB | -1 | -15 | | -15 | |
| DPCH_Ec/lor | DB | Note 1 N/A | | N/A | | |
| OCNS | | Note 2 -0.941 | | 0.941 | | |
| \hat{I}_{or}/I_{oc} | DB | (| 0 | | -1.8 | |
| I_{oc} | dBm/3.84 MHz | -70 -70 | | -70 | | |
| CPICH_Ec/Io | DB | -13 | | -Infinity | -14 | |

Propagation Condition Case 5 as specified in Annex B of TS25.101

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

Note 2: The power of the OCNS channel that is added shall make the total power from the cell to

be equal to I_{or}

8.6.2.2.4.2 Procedure

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

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

Specific Message Contents

MEASUREMENT CONTROL message:

| Information Element/Group name | Value/Remark |
|--|---|
| Message Type (10.2.17) | v alue/Neilial K |
| UE information elements | |
| -RRC transaction identifier | 0 |
| -Integrity check info | Not Present |
| Measurement Information elements | |
| -Measurement Identity | 2 |
| -Measurement Command (10.3.7.46) | Setup |
| -Measurement Reporting Mode (10.3.7.49) | · |
| -Measurement Report Transfer Mode | AM RLC |
| -Periodical Reporting / Event Trigger Reporting Mode | Event trigger |
| -Additional measurements list (10.3.7.1) | Not Present |
| -CHOICE Measurement type | Inter-frequency measurement |
| -Inter-frequency measurement (10.3.7.16) | |
| -Inter-frequency measurement objects list (10.3.7.13) | |
| - CHOICE Inter-frequency cell removal | Not Present |
| - New Inter frequency cells | |
| - Inter frequency cell id | 0 |
| - Frequency info | |
| - CHOICE mode | FDD |
| - UARFCN uplink(Nu) | Not Present |
| - UARFCN downlink(Nd) | Same frequency as "Channel2" in Table |
| 0.11:4 | 8.6.2.1.3 |
| - Cell info | Not Present |
| - Cell individual offset | Not Present Not Present |
| - Reference time difference to cell - Read SFN indicator | TRUE |
| - CHOICE mode | FDD |
| - Primary CPICH info | FDD |
| - Primary scrambling code | Set to Primary scrambling code of Cell3 |
| - Primary CPICH Tx Power | Set to Primary CPICH Tx Power of Cell3 |
| - I filliary of forf fx f ower | described in Table 8.6.2.1.3 |
| - Tx Diversity Indicator | FALSE |
| - Cell Selection and Re-selection info | Set to Cell Selection and Re-selection info |
| | of Cell3 |
| - Cell for measurement | Not Present |
| -Inter-frequency measurement quantity (10.3.7.18) | |
| -Intra-frequency reporting criteria | |
| -Intra-frequency measurement quantity (10.3.7.38) | |
| -Filter coefficient (10.3.7.9) | 0 |
| -CHOICE mode | FDD |
| -Measurement quantity | CPICH_Ec/N0 |
| -Inter-frequency reporting criteria | |
| -Filter coefficient (10.3.7.9) | 0 |
| -CHOICE mode | FDD |
| -Measurement quantity for frequency quality estimate | CPICH_Ec/N0 |
| -Inter-frequency reporting quantity (10.3.7.21) | FALCE |
| -UTRA Carrier RSSI | FALSE |
| -Frequency quality estimate | FALSE |
| -Non frequency related cell reporting quantities (10.3.7.5) | No report |
| -SFN-SFN observed time difference reporting indicator | No report TRUE (Note 1) |
| -Cell synchronisation information reporting indicator -Cell Identity reporting indicator | TRUE (Note 1) |
| -Cell identity reporting indicator -CHOICE mode | FDD |
| -CHOICE mode -CPICH Ec/N0 reporting indicator | TRUE |
| -CPICH RSCP reporting indicator | TRUE |
| -Pathloss reporting indicator | TRUE |
| -Reporting cell status (10.3.7.61) | Not Present |
| -Measurement validity (10.3.7.51) | Not Present |
| -CHOICE report criteria | Inter-frequency measurement reporting |
| | criteria |
| -Inter-frequency measurement reporting criteria (10.3.7.19) | |
| -Parameters required for each event | 1 |
| -Inter-frequency event identity | Event 2C |
| -Threshold used frequency | Not present |
| -W used frequency | Not present |
| • • | • |

| Information Element/Group name | Value/Remark |
|--|--|
| -Hysteresis | 0 dB |
| -Time to trigger | 0 ms |
| -Reporting cell status | |
| -CHOICE reported cell | Report all active set cells + cells within monitored set on used frequency |
| -Maximum number of reported cells | 3 |
| -Parameters required for each non-used frequency | |
| -Threshold non used frequency | -18 dB |
| -W non-used frequency | 1 |
| Physical channel information elements | |
| -DPCH compressed mode status info (10.3.6.34) | Not Present |

NOTE 1: The SFN-CFN observed time difference is calculated from the OFF and Tm parameters contained in the IE "Cell synchronisation information ", TS 25.331, clause 10.3.7.6. According to TS 25.331, 8.6.7.7, this IE is included in MEASUREMENT REPORT if IE "Cell synchronisation information reporting indicator" in IE "Cell reporting quantities" TS 25.331, clause 10.3.7.5 is set to TRUE in MEASUREMENT CONTROL.

MEASUREMENT REPORT message for Inter frequency test cases

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

8.6.2.2.5 Test requirements

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

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

8.6.3 TDD measurements

8.6.3.1 Correct reporting of TDD neighbours in AWGN propagation condition

8.6.3.1.1 Definition and applicability

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

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

8.6.3.1.2 Minimum requirement

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

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

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

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

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

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

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

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

where

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

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

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

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

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

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

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

8.6.3.1.3 Test purpose

To verify that the UE meets the minimum requirement.

8.6.3.1.4 Method of test

8.6.3.1.4.1 Initial conditions

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

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

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

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

The TTI of the uplink DCCH shall be 20 ms.

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

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

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

| Parameter | Unit | Cell 1 | | |
|--------------------------------|-----------------|-----------|--|--|
| | | T1, T2 | | |
| UTRA RF Channel Number | | Channel 1 | | |
| CPICH_Ec/lor | dB | -10 | | |
| P-CCPCH_Ec/lor | dB | -12 | | |
| SCH_Ec/lor | dB | -12 | | |
| PICH_Ec/lor | dB | -15 | | |
| DPCH_Ec/lor | dB | Note 1 | | |
| OCNS_Ec/lor | dB | Note 2 | | |
| \hat{I}_{or}/I_{oc} | dB | 0 | | |
| I_{oc} | dBm/3.84 MHz | -70 | | |
| CPICH_Ec/lo | dB | -13 | | |
| Propagation Condition | | AWGN | | |
| No. 4. TI DDOUL III A III II A | | | | |

Note 1:

The DPCH level is controlled by the power control loop
The power of the OCNS channel that is added shall make the total Note 2: power from the cell to be equal to $I_{\rm or}$.

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

| Parameter | Unit | Cell 2 | | | |
|---------------------------|------|-----------|-----|------|------|
| DL timeslot number | | 0 | | 8 | |
| | | T1 | T2 | T1 | T2 |
| UTRA RF Channel Number | | Channel 2 | | | |
| P-CCPCH_Ec/lor | dB | -3 n.a. | | a. | |
| PICH_Ec/lor | dB | n.a3 | | 3 | |
| SCH_Ec/lor | dB | -9 | | | |
| SCH_t _{offset} | dB | 10 | | | |
| OCNS_Ec/lor | dB | -3.12 | | | |
| P-CCPCH RSCP | dBm | -75 | -67 | n.a. | n.a. |
| \hat{I}_{or}/I_{oc} | dB | -2 | 6 | -2 | 6 |

| I_{oc} | dBm/3,84 MHz | -70 |
|-----------------------|-----------------|------|
| Propagation Condition | | AWGN |

Note that the transmit energy per PN chip for the SCH is averaged over the 256 chip duration when the SCH is present in the time slot.

8.6.3.1.4.2 Procedure

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

Specific Message Contents

MEASUREMENT CONTROL message (step 4):

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

| Information Element/Group name | Value/Remark |
|---|---|
| -Reporting Cell Status (10.361) | |
| -CHOICE reported cell | Report cells within active and/or monitored set on used frequency or within virtual active and/or monitored set on non-used frequency |
| -Maximum number of reported cells | 3 |
| -Parameters required for each non-used frequenc | |
| - Threshold non-used frequency | -71 |
| - W non-used frequency | 1 |
| Physical channel information elements | |
| -DPCH compressed mode status info (10.3.6.34) | Not Present |

PHYSICAL CHANNEL RECONFIGURATION message (Step 6)

| Information Element | Value/Remark |
|---|---|
| Message Type | |
| UE Information Elements | |
| -RRC transaction identifier | 0 |
| -Integrity check info | Not Present |
| -Integrity protection mode info | Not Present |
| -Ciphering mode info | Not Present |
| -Activation time | Not Present |
| -New U-RNTI | Not Present |
| -New C-RNTI | Not Present |
| -RRC State Indicator | CELL_DCH Not Present |
| -UTRAN DRX cycle length coefficient CN Information Elements | Not Present |
| -CN Information Elements | Not Present |
| UTRAN mobility information elements | Not i resent |
| -URA identity | Not Present |
| RB information elements | Hot i room |
| -Downlink counter synchronisation info | Not Present |
| PhyCH information elements | |
| -Frequency info | Not Present |
| Uplink radio resources | |
| -Maximum allowed UL TX power | Not Present |
| Downlink radio resources | |
| -CHOICE mode | FDD |
| -Downlink PDSCH information | Not Present |
| -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 | |
| -Transmission gap pattern sequence | 1 |
| -TGPS Status Flag | Activate |
| -TGCFN | (Current CFN + (256 – TTI/10msec))mod 256 |
| | (Carron Crivi (200 1177) Tomoco//med 200 |
| -Transmission gap pattern sequence | |
| configuration parameters | |
| -TGMP | TDD measurement |
| -TGPRC | Not present |
| -TGSN | 10 |
| -TGL1 | 10 |
| -TGL2 | Not Present |
| -TGD | 0 |
| -TGPL1 -TGPL2 | 11 Not Procent |
| -TGPL2 -RPP | Not Present Mode 0 |
| -RPP -ITP | Mode 0 Mode 0 |
| -CHOICE UL/DL mode | UL and DL |
| -Downlink compressed mode method | SF/2 |
| -Uplink compressed mode method | puncturing |
| -Downlink frame type | A |
| -DeltaSIR1 | 3.0 |
| -DeltaSIRafter1 | 3.0 |
| -DeltaSIR2 | Not Present |
| -DeltaSIRafter2 | Not Present |
| -N Identify abort | Not Present |
| -T Reconfirm abort | Not Present |
| -TX Diversity Mode -SSDT information | Not Present |
| -55DT Information -Default DPCH Offset Value | Not Present Not Present |
| -Derault DPCH Offset value -Downlink information per radio link list | NOT LESCH |
| - Downlink information for each radio link | |
| -Choice mode | FDD |
| -Primary CPICH info | |
| -Primary scrambling code | 100 |
| -PDSCH with SHO DCH Info | Not Present |
| | |

| -PDSCH code mapping | Not Present |
|---|---|
| -Downlink DPCH info for each RL | |
| -CHOICE mode | FDD |
| -Primary CPICH usage for channel estimation | Primary CPICH may be used |
| -DPCH frame offset | Set to value Default DPCH Offset Value (as |
| | currently stored in SS) mod 38400 |
| -Secondary CPICH info | Not Present |
| -DL channelisation code | |
| -Secondary scrambling code | Not Present |
| -Spreading factor | 128 |
| -Code number | 0 |
| -Scrambling code change | No code change |
| -TPC combination index | 0 |
| -SSDT Cell Identity | Not Present |
| -Closed loop timing adjustment mode | Not Present |
| -SCCPCH Information for FACH | Not Present |

MEASUREMENT REPORT message (step 8)

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

8.6.3.1.5 Test requirements

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

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

For the test to pass, the total number of successful tests shall be more than 90% of the cases with a confidence level of $\frac{\text{FFS}}{25}$ % of the cases.

3GPP TSG-T1 Meeting #22 Hyderabad, India, 2nd - 6th February 2004

| CHANGE REQUEST | | | | | | | | | | |
|-------------------------------|---------|---|---|---|----------|--------|------------------------|--|------------|--------|
| * | 34. | .121 | CR 340 | ≋rev | - | ¥ | Current vers | sion: | 5.2.0 | ¥ |
| For <u>HELP</u> on u | ısing t | his for | m, see bottom | of this page o | r look a | at the | e pop-up text | t over | the % syr | mbols. |
| | | | | | | | | | | |
| Proposed change | affec | <i>ts:</i> (| JICC appsЖ | ME | X Rad | dio Ad | ccess Netwo | rk | Core Ne | etwork |
| | | | | | | | | | | |
| Title: ∺ | Cor | | n of measurem | ent control me | essage | in in | ter frequenc | y mea | surement | test |
| Source: # | Nol | kia | | | | | | | | |
| Work item code: ₩ | TEI | | | | | | Date: ₩ | 10/ | 01/2004 | |
| Category: ж | F | | | | | | Release: # | Re | l-5 | |
| | Deta | F (corr A (corr B (add C (fund D (edid led exp | the following cate rection) responds to a co lition of feature), ctional modification torial modification blanations of the 3GPP TR 21.900 | rrection in an e on of feature) n) above categor | | elease | Use <u>one</u> of 2 | the for (GSN (Rele (Rele (Rele (Rele (Rele | - | |
| | | | | | | | | | , | |
| Reason for change | e: # | meas | orting cell status surement contr surements and | ol messages. | Currer | nt val | ues are only | for in | tra freque | ncy |
| Summary of chang | ge: ૠ | | SE reported ce urements. Mod | | | d to v | values allowe | ed in i | nter frequ | ency |
| | | | 1 FDD inter free N propagation of | | uremer | nts C | orrect report | ing of | neighbors | s in |
| | | 8.7.1. | 1.2 CPICH RS | CP relative ac | curacy | requ | uirement | | | |
| | | 8.7.2. | 2.2 CPICH Ec/l | o relative acc | uracy r | requi | rement | | | |
| | | | 1 UTRA carrier | | | | | | • | |
| | | | 2 SFN-CFN ob ement | served time d | ifferend | ce int | ter frequency | / mea | surement | |
| | | 8.7.8. | 1 P-CCPCH RS | SCP Absolute | meası | urem | ent accuracy | ′ | | |
| Consequences if not approved: | Ж | | cases will not vormed correctly | | inter fr | reque | ency measur | emen | ts are not | |
| Clauses affected: | ж | 8.6.2 | 2.1, 8.7.1.1.2, 8 | .7.2.2.2, 8.7.3 | .1, 8.7. | .4.2, | 8.7.8.1 | | | |
| Other specs affected: | ж | Y N X X | Other core sp | | × | | | | | |

| | X O&M Specifications | |
|-----------------|--|--|
| | | |
| Other comments: | # This CR is applicable for UE's supporting Rel-99 or later. | |

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

- 1) Fill out the above form. The symbols above marked \(\mathcal{H} \) contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

8.6.2.1.4.2 Procedure

- 1) The RF parameters are set up according to T0.
- 2) The UE is switched on.
- 3) A call is set up according to the test procedure specified in TS 34.108 [3] sub clause 7.3.2.3.
- 4) SS shall transmit a MEASUREMENT CONTROL message (inter frequency).
- 5) SS shall transmit a MEASUREMENT CONTROL message (intra frequency).
- 6) SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message.
- 7) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.
- 8) 5 seconds after step7 has completed, the SS shall switch the power settings from T0 to T1.
- 9) UE shall transmit a MEASUREMENT REPORT message (inter frequency) triggered by event 2C. The measurement reporting delay from the beginning of T1 shall be less than 9.08 seconds. If the UE fails to report the event within the required delay, then a failure is recorded. If the reporting delay for this event is within the required limit, the number of successfull tests is increased by one.
- 10) After 10 seconds from the beginning of T1, the SS shall switch the power settings from T1 to T2.
- 11)UE shall transmit a MEASUREMENT REPORT message (intra frequency) triggered by event 1A. The measurement reporting delay from the beginning of T2 shall be less than 1036.2 ms. If the reporting delay for this event is within the required limit, the number of successfull tests is increased by one.
- 12) After 5 seconds from the beginning of T2, the UE is switched off.
- 13) Repeat steps 1-12 [50] times.

Specific Message Contents

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

PHYSICAL CHANNEL RECONFIGURATION message for Inter frequency measurement:

| Information Element | Value/Remark |
|--|---|
| Message Type | |
| UE Information Elements | |
| -RRC transaction identifier | 0 |
| -Integrity check info | Not Present |
| -Integrity protection mode info | Not Present |
| -Ciphering mode info | Not Present |
| -Activation time | Not Present |
| -New U-RNTI | Not Present |
| -New C-RNTI | Not Present |
| -RRC State Indicator | CELL_DCH |
| -UTRAN DRX cycle length coefficient | Not Present |
| CN Information Elements | |
| -CN Information info | Not Present |
| UTRAN mobility information elements | |
| -URA identity | Not Present |
| RB information elements | |
| -Downlink counter synchronisation info | Not Present |
| PhyCH information elements | |
| -Frequency info | Not Present |
| Uplink radio resources | |
| -Maximum allowed UL TX power | Not Present |
| Downlink radio resources | |
| -CHOICE mode | FDD |
| -Downlink PDSCH information | Not Present |
| -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 and nattorn assures | |
| -Transmission gap pattern sequence | |
| configuration parameters | EDD |
| -TGMP | FDD measurement |
| -TGPRC | Not present |
| -TGSN | 4 7 |
| -TGL1 -TGL2 | / Not Present |
| -TGLZ -TGD | |
| -TGPL1 | 0 3 |
| -TGPL2 | Not Present |
| -RPP | Mode 0 |
| -NFF | Mode 0 |
| -CHOICE UL/DL mode | UL and DL |
| -Downlink compressed mode method | SF/2 |
| -Uplink compressed mode method | SF/2 |
| -Downlink frame type | B |
| -DeltaSIR1 | 3.0 |
| -DeltaSIRafter1 | 3.0 |
| -DeltaSIR2 | Not Present |
| -DeltaSIRafter2 | Not Present |
| -N Identify abort | Not Present |
| -T Reconfirm abort | Not Present |
| -TX Diversity Mode | Not Present |
| -SSDT information | Not Present |
| -Default DPCH Offset Value | Not Present |
| -Downlink information per radio link list | |
| - Downlink information for each radio link | |
| -Choice mode | FDD |
| -Primary CPICH info | |
| -Primary scrambling code | 100 |
| -PDSCH with SHO DCH Info | Not Present |
| · · · · · · · · · · · · · · · · · · · | |

| -PDSCH code mapping | Not Present |
|---|---|
| -Downlink DPCH info for each RL | |
| -CHOICE mode | FDD |
| -Primary CPICH usage for channel estimation | Primary CPICH may be used |
| -DPCH frame offset | Set to value Default DPCH Offset Value (as |
| | currently stored in SS) mod 38400 |
| -Secondary CPICH info | Not Present |
| -DL channelisation code | |
| -Secondary scrambling code | Not Present |
| -Spreading factor | 128 |
| -Code number | 0 |
| -Scrambling code change | No code change |
| -TPC combination index | 0 |
| -SSDT Cell Identity | Not Present |
| -Closed loop timing adjustment mode | Not Present |
| -SCCPCH Information for FACH | Not Present |

MEASUREMENT CONTROL message (inter frequency):

| Information Element/Group name | Value/Remark |
|---|--|
| Message Type (10.2.17) | <u> </u> |
| UE information elements -RRC transaction identifier | |
| | 0 Not Present |
| -Integrity check info Measurement Information elements | Not Flesent |
| -Measurement Information elements | 2 |
| -Measurement Command (10.3.7.46) | Setup |
| -Measurement Reporting Mode (10.3.7.49) | Setup |
| -Measurement Report Transfer Mode | AM RLC |
| -Periodical Reporting / Event Trigger Reporting Mode | Event trigger |
| -Additional measurements list (10.3.7.1) | Not Present |
| -CHOICE Measurement type | Inter-frequency measurement |
| -Inter-frequency measurement (10.3.7.16) | men mequency measurement |
| -Inter-frequency measurement objects list (10.3.7.13) | |
| - CHOICE Inter-frequency cell removal | Not Present |
| - New Inter frequency cells | Tier Footh |
| - Inter frequency cell id | 0 |
| - Frequency info | |
| - CHOICE mode | FDD |
| - UARFCN uplink(Nu) | Not Present |
| - UARFCN downlink(Nd) | Same frequency as "Channel2" in Table |
| | 8.6.2.1.3 |
| - Cell info | |
| - Cell individual offset | Not Present |
| - Reference time difference to cell | Not Present |
| - Read SFN indicator | TRUE |
| - CHOICE mode | FDD |
| - Primary CPICH info | |
| - Primary scrambling code | Set to Primary scrambling code of Cell3 |
| - Primary CPICH Tx Power | Set to Primary CPICH Tx Power of Cell3 |
| · | described in Table 8.6.2.1.3 |
| - Tx Diversity Indicator | FALSE |
| - Cell Selection and Re-selection info | Set to Cell Selection and Re-selection info |
| | of Cell3 |
| - Cell for measurement | Not Present |
| -Inter-frequency measurement quantity (10.3.7.18) | |
| -Intra-frequency reporting criteria | |
| -Intra-frequency measurement quantity (10.3.7.38) | |
| -Filter coefficient (10.3.7.9) | 0 |
| -CHOICE mode | FDD |
| -Measurement quantity | CPICH_Ec/N0 |
| -Inter-frequency reporting criteria | |
| -Filter coefficient (10.3.7.9) | 0 |
| -CHOICE mode | FDD |
| -Measurement quantity for frequency quality estimate | CPICH_Ec/N0 |
| -Inter-frequency reporting quantity (10.3.7.21) | |
| -UTRA Carrier RSSI | FALSE |
| -Frequency quality estimate | FALSE |
| -Non frequency related cell reporting quantities (10.3.7.5) | |
| -SFN-SFN observed time difference reporting indicator | No report |
| -Cell synchronisation information reporting indicator | TRUE (Note 1) |
| -Cell Identity reporting indicator | TRUE |
| -CHOICE mode | FDD |
| -CPICH Ec/N0 reporting indicator | TRUE |
| -CPICH RSCP reporting indicator | TRUE TRUE |
| -Pathloss reporting indicator -Reporting cell status (10.3.7.61) | Not Present |
| -Reporting cell status (10.3.7.61) -Measurement validity (10.3.7.51) | Not Present |
| -Measurement validity (10.3.7.51) -CHOICE report criteria | |
| -onolog report offend | Inter-frequency measurement reporting criteria |
| -Inter-fraguency measurement reporting criteria (40.2.7.40) | - Cintella |
| -Inter-frequency measurement reporting criteria (10.3.7.19) | 1 |
| Daramatare required for each event | 1 |
| -Parameters required for each event | Event 2C |
| -Parameters required for each event -Inter-frequency event identity -Threshold used frequency | Event 2C Not present |

| Information Element/Group name | Value/Remark |
|--|--|
| -Hysteresis | 0 dB |
| -Time to trigger | 0 ms |
| -Reporting cell status | |
| -CHOICE reported cell | Report cells within monitored set on non- used frequencyReport all active set cells + cells within monitored set on used- frequency |
| -Maximum number of reported cells | 3 |
| -Parameters required for each non-used frequency | |
| -Threshold non used frequency | -18 dB |
| -W non-used frequency | 1 |
| Physical channel information elements | |
| -DPCH compressed mode status info (10.3.6.34) | Not Present |

NOTE 1: The SFN-CFN observed time difference is calculated from the OFF and Tm parameters contained in the IE "Cell synchronisation information ", TS 25.331, clause 10.3.7.6. According to TS 25.331, 8.6.7.7, this IE is included in MEASUREMENT REPORT if IE "Cell synchronisation information reporting indicator" in IE "Cell reporting quantities" TS 25.331, clause 10.3.7.5 is set to TRUE in MEASUREMENT CONTROL.

MEASUREMENT CONTROL message (intra frequency):

| Information Element/Group name | Value/Remark | | |
|---|---------------------------------------|--|--|
| Message Type (10.2.17) | value/Nemark | | |
| UE information elements | | | |
| -RRC transaction identifier | 0 | | |
| -Integrity check info | Not Present | | |
| Measurement Information elements | | | |
| -Measurement Identity | 1 | | |
| -Measurement Command (10.3.7.46) | Modify | | |
| -Measurement Reporting Mode (10.3.7.49) | | | |
| -Measurement Report Transfer Mode | AM RLC | | |
| -Periodical Reporting / Event Trigger Reporting Mode | Event trigger | | |
| -Additional measurements list (10.3.7.1) | Not Present | | |
| -CHOICE Measurement type | Intra-frequency measurement | | |
| -Intra-frequency measurement (10.3.7.36) | | | |
| -Intra-frequency measurement objects list (10.3.7.33) | Not Present | | |
| -Intra-frequency measurement quantity (10.3.7.38) | | | |
| -Filter coefficient (10.3.7.9) | 0 | | |
| -CHOICE mode | FDD | | |
| -Measurement quantity | CPICH_Ec/N0 | | |
| -Intra-frequency reporting quantity (10.3.7.41) | | | |
| -Reporting quantities for active set cells (10.3.7.5) -SFN-SFN observed time difference reporting indicator | No report | | |
| -Cell synchronisation information reporting indicator | TRUE (Note 1) | | |
| -Cell Identity reporting indicator | TRUE (Note 1) | | |
| -CHOICE mode | FDD | | |
| -CPICH Ec/N0 reporting indicator | TRUE | | |
| -CPICH RSCP reporting indicator | TRUE | | |
| -Pathloss reporting indicator | TRUE | | |
| -Reporting quantities for monitored set cells (10.3.7.5) | | | |
| -SFN-SFN observed time difference reporting indicator | No report | | |
| -Cell synchronisation information reporting indicator | TRUE (Note 1) | | |
| -Cell Identity reporting indicator | TRUE | | |
| -CHOICE mode | FDD | | |
| -CPICH Ec/N0 reporting indicator | TRUE | | |
| -CPICH RSCP reporting indicator | TRUE | | |
| -Pathloss reporting indicator | TRUE | | |
| -Reporting quantities for detected set cells (10.3.7.5) | Not Present | | |
| -Reporting cell status (10.3.7.61) | Not Present | | |
| -Measurement validity (10.3.7.51) | Not Present | | |
| -CHOICE report criteria | Intra-frequency measurement reporting | | |
| Intro fraguency magazirament reporting criteria (10.2.7.20) | criteria | | |
| -Intra-frequency measurement reporting criteria (10.3.7.39) -Parameters required for each event | 1 | | |
| -Intra-frequency event identity | Event 1A | | |
| -Triggering condition 2 | Monitored set cells | | |
| -Reporting Range Constant | 4 dB | | |
| -Cells forbidden to affect Reporting Range | Not Present | | |
| -CHOICE mode | FDD | | |
| -Primary CPICH info (10.3.6.60) | | | |
| -W | 1.0 | | |
| -Hysteresis | 0 dB | | |
| -Threshold used frequency | Not Present | | |
| -Reporting deactivation threshold | 0 | | |
| -Replacement activation threshold | Not Present | | |
| -Time to trigger | 0 ms | | |
| -Amount of reporting | Not Present | | |
| -Reporting interval | 0 ms (Note 2) | | |
| -Reporting cell status | Not Present | | |
| Physical channel information elements | Net Present | | |
| -DPCH compressed mode status info (10.3.6.34) | Not Present | | |
| Note 1: The SFN-CFN observed time difference is calculated in the IE "Call complete intermedian". TS 25.23 | | | |
| in the IE "Cell synchronisation information ", TS 25.33 | | | |
| 8.6.7.7, this IE is included in MEASUREMENT REPORT if IE "Cell synchronisation information | | | |

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MEASUREMENT CONTROL.

Reporting interval = 0 ms means no periodical reporting

Note 2:

reporting indicator" in IE "Cell reporting quantities" TS 25.331, clause 10.3.7.5 is set to TRUE in

MEASUREMENT REPORT message for Inter frequency test cases

MEASUREMENT REPORT message for Intra frequency test cases

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

8.7.1.2.1.4.2 Procedure

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

Specific Message Contents

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

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

| Information Element | Value/Remark |
|---|--|
| Message Type | |
| UE Information Elements | |
| -RRC transaction identifier | 0 |
| -Integrity check info | Not Present |
| -Integrity protection mode info | Not Present |
| -Ciphering mode info | Not Present |
| -Activation time | Not Present |
| -New U-RNTI | Not Present |
| -New C-RNTI | Not Present |
| -RRC State Indicator | CELL_DCH |
| -UTRAN DRX cycle length coefficient CN Information Elements | Not Present |
| -CN Information Elements | Not Present |
| UTRAN mobility information elements | 140t Frescrit |
| -URA identity | Not Present |
| RB information elements | THE TREE THE STATE OF THE STATE |
| -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 |
| -Downlink information common for all radio links | N / P |
| -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 | 0 3 |
| -TGPL1 -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 | В |
| -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 -SSDT information | Not Present Not Present |
| -SSDT Information -Default DPCH Offset Value | Not Present |
| -Default DFCH Offset value -Downlink information per radio link list | HOLF I GOOM |
| -Downlink information for each radio link | |
| -Choice mode | FDD |
| -Primary CPICH info | |
| -Primary scrambling code | 100 |
| , | |

| -PDSCH with SHO DCH Info | Not Present |
|---|---|
| -PDSCH code mapping | Not Present |
| -Downlink DPCH info for each RL | |
| -CHOICE mode | FDD |
| -Primary CPICH usage for channel estimation | Primary CPICH may be used |
| -DPCH frame offset | Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400 |
| -Secondary CPICH info | Not Present |
| -DL channelisation code | |
| -Secondary scrambling code | Not Present |
| -Spreading factor | 128 |
| -Code number | 0 |
| -Scrambling code change | No code change |
| -TPC combination index | 0 |
| -SSDT Cell Identity | Not Present |
| -Closed loop timing adjustment mode | Not Present |
| -SCCPCH Information for FACH | Not Present |

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

| Information Element | Value/Remark |
|--|--|
| Message Type | Value/Nemark |
| Wessage Type | |
| UE information elements | |
| -RRC transaction identifier | 0 |
| -Integrity check info | Not Present |
| Measurement Information elements | |
| -Measurement Identity | 1 |
| -Measurement Command | Modify |
| -Measurement Reporting Mode | |
| - Measurement Report Transfer Mode | Acknowledged mode RLC |
| - Periodical Reporting / Event Trigger Reporting | Periodical reporting |
| Mode | |
| -Additional measurement list | Not Present |
| -CHOICE Measurement Type | Intra-frequency measurement |
| -Intra-frequency measurement | |
| - Intra-frequency measurement objects list | l N / B |
| -Intra-frequency cell info list | Not Present |
| -Intra-frequency measurement quantity | |
| -Filter coefficient | 0 FDD |
| -CHOICE mode | |
| -Measurement quantity -Intra-frequency reporting quantity | CPICH RSCP |
| -Reporting quantities for active set cells | |
| -SFN-SFN observed time difference reporting | |
| indicator | No report |
| -Cell synchronisation information reporting | No report |
| indicator | TRUE |
| -Cell Identity reporting indicator | TRUE |
| -CHOICE mode | FDD |
| -CPICH Ec/N0 reporting indicator | TRUE |
| -CPICH RSCP reporting indicator | TRUE |
| -Pathloss reporting indicator | TRUE |
| -Reporting quantities for monitored set cells | |
| -SFN-SFN observed time difference reporting | No report |
| indicator | |
| -Cell synchronisation information reporting | FALSE |
| indicator | |
| -Cell Identity reporting indicator | TRUE |
| -CHOICE mode | FDD |
| -CPICH Ec/N0 reporting indicator | TRUE |
| -CPICH RSCP reporting indicator | TRUE |
| -Pathloss reporting indicator | TRUE |
| -Reporting quantities for detected set cells | Not Present |
| -Reporting cell status | |
| -CHOICE reported cell | Report all active set cells + cells within |
| Marian mark and the state of th | 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 | Not Propert |
| -DPCH compressed mode status info | Not Present |

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

| Information Element | Value/Remark |
|--|--|
| Message Type | Talas/Nomain |
| | |
| UE information elements | |
| -RRC transaction identifier | 0 |
| -Integrity check info | Not Present |
| Measurement Information elements | |
| -Measurement Identity | 2 |
| -Measurement Command | Setup |
| -Measurement Reporting Mode | |
| - Measurement Report Transfer Mode | Acknowledged mode RLC |
| - Periodical Reporting / Event Trigger Reporting | Periodical reporting |
| Mode | |
| -Additional measurement list | Not Present |
| -CHOICE Measurement Type | Inter-frequency measurement |
| -Inter-frequency measurement object list | |
| -CHOICE Inter-frequency cell removal | Not Present |
| -New inter-frequency cells | Cell 2 information is included |
| -Cell for measurement | Not Present |
| -Inter-frequency measurement quantity | |
| -CHOICE reporting criteria | Inter-frequency reporting criteria |
| -Filter coefficient | 0 |
| -CHOICE mode | FDD |
| -Measurement quantity for frequency quality | CPICH RSCP |
| estimate | |
| -Inter-frequency reporting quantity | |
| -UTRA Carrier RSSI | TRUE |
| -Frequency quality estimate | TRUE |
| -Non frequency related cell reporting quantities | |
| -SFN-SFN observed time difference reporting | No report |
| indicator | |
| -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 | TRUE |
| -Reporting cell status | |
| -CHOICE reported cell | Report all active set cells + cells within |
| | monitored set on used frequency Report cells |
| -Maximum number of reported cells | within monitored set on non-used frequency |
| -Measurement validity | Virtual/active set cells + 22 |
| -Inter-frequency set update | Not Present |
| -CHOICE report criteria | Not Present |
| -Amount of reporting | Periodical reporting criteria |
| -Reporting interval | 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.

8.7.2.2.4.2 Procedure

- 1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2.3. The RF parameters for Test 1 are set up according to table 8.7.2.2.2.4.
- 2) SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message.
- 3) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.
- 4) SS shall transmit a MEASUREMENT CONTROL message for intra frequency measurement and transmit another MEASUREMENT CONTROL message for inter frequency measurement.
- 5) UE shall transmit periodically MEASUREMENT REPORT messages.
- 6) SS shall check CPICH_Ec/No value of Cell 1 and Cell 2 in MEASUREMENT REPORT messages. According to table 8.7.2.1.1.3 the SS calculates CPICH_Ec/Io power ratio of Cell 1 and Cell 2. CPICH_Ec/Io power ratio measured from Cell 1 is compared to CPICH_Ec/Io power value measured from Cell 2 for each MEASUREMENT REPORT message.
- 7) The result of step 6) is compared to actual power level difference of CPICH_Ec/Io of Cell 1 and Cell 2.
- 8) SS shall count number of MEASUREMENT REPORT messages transmitted by UE. After 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.2.2.2.4 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 6) and 7) above are repeated. After further 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.2.2.2.4 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 6) and 7) above are repeated.
- 9) After 1000 MEASUREMENT REPORT messages have been received from UE, the SS shall transmit RRC CONNECTION RELEASE message.
- 10) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

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

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

| Information Element | Value/Remark |
|---|--|
| Message Type | |
| UE Information Elements | |
| -RRC transaction identifier | 0 |
| -Integrity check info | Not Present |
| -Integrity protection mode info | Not Present |
| -Ciphering mode info | Not Present |
| -Activation time | Not Present |
| -New U-RNTI | Not Present |
| -New C-RNTI | Not Present |
| -RRC State Indicator | CELL_DCH |
| -UTRAN DRX cycle length coefficient CN Information Elements | Not Present |
| -CN Information Elements | Not Present |
| UTRAN mobility information elements | 140t Frescrit |
| -URA identity | Not Present |
| RB information elements | THE TREE THE STATE OF THE STATE |
| -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 |
| -Downlink information common for all radio links | N / P |
| -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 | 0 3 |
| -TGPL1 -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 | В |
| -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 -SSDT information | Not Present Not Present |
| -SSDT Information -Default DPCH Offset Value | Not Present |
| -Default DFCH Offset value -Downlink information per radio link list | HOLF I GOOM |
| -Downlink information for each radio link | |
| -Choice mode | FDD |
| -Primary CPICH info | |
| -Primary scrambling code | 100 |
| , | |

| -PDSCH with SHO DCH Info | Not Present |
|---|---|
| -PDSCH code mapping | Not Present |
| -Downlink DPCH info for each RL | |
| -CHOICE mode | FDD |
| -Primary CPICH usage for channel estimation | Primary CPICH may be used |
| -DPCH frame offset | Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400 |
| -Secondary CPICH info | Not Present |
| -DL channelisation code | |
| -Secondary scrambling code | Not Present |
| -Spreading factor | 128 |
| -Code number | 0 |
| -Scrambling code change | No code change |
| -TPC combination index | 0 |
| -SSDT Cell Identity | Not Present |
| -Closed loop timing adjustment mode | Not Present |
| -SCCPCH Information for FACH | Not Present |

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

| Information Element | Value/Remark |
|--|--|
| Message Type | Value/Nemark |
| Wessage Type | |
| UE information elements | |
| -RRC transaction identifier | 0 |
| -Integrity check info | Not Present |
| Measurement Information elements | |
| -Measurement Identity | 1 |
| -Measurement Command | Modify |
| -Measurement Reporting Mode | |
| - Measurement Report Transfer Mode | Acknowledged mode RLC |
| - Periodical Reporting / Event Trigger Reporting | Periodical reporting |
| Mode | |
| -Additional measurement list | Not Present |
| -CHOICE Measurement Type | Intra-frequency measurement |
| -Intra-frequency measurement | |
| - Intra-freqquency measurement objects list | |
| -Intra-frequency cell info list | Not Present |
| -Intra-frequency measurement quantity | |
| -Filter coefficient | 0 |
| -CHOICE mode | FDD |
| -Measurement quantity | CPICH RSCP |
| -Intra-frequency reporting quantity | |
| -Reporting quantities for active set cells | |
| -SFN-SFN observed time difference reporting | |
| indicator | No report |
| -Cell synchronisation information reporting | |
| indicator | TRUE |
| -Cell Identity reporting indicator | TRUE |
| -CHOICE mode | FDD |
| -CPICH Ec/N0 reporting indicator | TRUE |
| -CPICH RSCP reporting indicator | TRUE |
| -Pathloss reporting indicator | TRUE |
| -Reporting quantities for monitored set cells | |
| -SFN-SFN observed time difference reporting | No report |
| indicator | |
| -Cell synchronisation information reporting | FALSE |
| indicator | TOUE |
| -Cell Identity reporting indicator | TRUE |
| -CHOICE mode | FDD |
| -CPICH Ec/N0 reporting indicator | TRUE |
| -CPICH RSCP reporting indicator | TRUE |
| -Pathloss reporting indicator | TRUE |
| -Reporting quantities for detected set cells | Not Present |
| -Reporting cell status | Depart all active act calls a salls within |
| -CHOICE reported cell | Report all active set cells + cells within |
| Maximum number of reported calls | 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 250 ms |
| -Reporting interval | 200 1118 |
| Physical channel information elements | Not Brogent |
| -DPCH compressed mode status info | Not Present |

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

| Information Element | Value/Remark |
|---|--|
| Message Type | |
| UE information elements | |
| -RRC transaction identifier | 0 |
| -Integrity check info | Not Present |
| Measurement Information elements | Not i lesent |
| | 2 |
| -Measurement Identity -Measurement Command | |
| | Setup |
| -Measurement Reporting Mode | A also assiste data di manda DLC |
| - Measurement Report Transfer Mode | Acknowledged mode RLC |
| - Periodical Reporting / Event Trigger Reporting | Periodical reporting |
| Mode | l N . B |
| -Additional measurement list | Not Present |
| -CHOICE Measurement Type | Inter-frequency measurement |
| -Inter-frequency measurement | |
| -Inter-frequency cell info list | |
| -CHOICE Inter-frequency cell removal | Not Present |
| -New inter-frequency cells | Cell 2 information is included |
| -Cell for measurement | Not Present |
| -Inter-frequency measurement quantity | |
| -CHOICE reporting criteria | Inter-frequency reporting criteria |
| -Filter coefficient | 0 |
| -CHOICE mode | FDD |
| -Measurement quantity for frequency quality | CPICH RSCP |
| estimate | |
| -Inter-frequency reporting quantity | |
| -UTRA Carrier RSSI | TRUE |
| -Frequency quality estimate | TRUE |
| -Non frequency related cell reporting quantities | |
| -SFN-SFN observed time difference reporting | No report |
| indicator | |
| -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 | TRUE |
| -Reporting cell status | INOL |
| -CHOICE reported cell | Report all active set cells + cells within |
| -Official reported cell | monitored set on used frequency Report cells |
| -Maximum number of reported cells | within monitored set on non-used frequency |
| | Virtual/active set cells + 22 |
| -Measurement validity | |
| -Inter-frequency set update -CHOICE report criteria | Not Present |
| | Not Present |
| -Amount of reporting | Periodical reporting criteria |
| -Reporting interval | 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.

8.7.3.1.4.2 Procedure

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

Specific Message Contents

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

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

| Information Element | Value/Remark |
|--|---|
| Message Type | |
| UE Information Elements | |
| -RRC transaction identifier | 0 |
| -Integrity check info | Not Present |
| -Integrity protection mode info | Not Present |
| -Ciphering mode info | Not Present |
| -Activation time | Not Present |
| -New U-RNTI | Not Present |
| -New C-RNTI | Not Present |
| -RRC State Indicator | CELL_DCH |
| -UTRAN DRX cycle length coefficient | Not Present |
| CN Information Elements | N CD |
| -CN Information info | Not Present |
| UTRAN mobility information elements | Not Present |
| -URA identity RB information elements | Not Flesent |
| -Downlink counter synchronisation info | Not Present |
| PhyCH information elements | Not i resent |
| -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 |
| -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 | 0 |
| -TGPL1 | 3 |
| -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 -DeltaSIR1 | B 3.0 |
| -DeltaSIRafter1 | 3.0 |
| -DeltaSIRatier i | Not Present |
| -DeltaSIRafter2 | Not Present |
| -N Identify abort | Not Present |
| -T Reconfirm abort | Not Present |
| -TX Diversity Mode | Not Present |
| -SSDT information | Not Present |
| -Default DPCH Offset Value | Not Present |
| -Downlink information per radio link list | |
| -Downlink information for each radio link | |
| -Choice mode | FDD |
| -Primary CPICH info | 100 |
| -Primary scrambling code | 100 |

| -PDSCH with SHO DCH Info | Not Present |
|---|---|
| -PDSCH code mapping | Not Present |
| -Downlink DPCH info for each RL | |
| -CHOICE mode | FDD |
| -Primary CPICH usage for channel estimation | Primary CPICH may be used |
| -DPCH frame offset | Set to value Default DPCH Offset Value (as |
| | currently stored in SS) mod 38400 |
| -Secondary CPICH info | Not Present |
| -DL channelisation code | |
| -Secondary scrambling code | Not Present |
| -Spreading factor | 128 |
| -Code number | 0 |
| -Scrambling code change | No code change |
| -TPC combination index | 0 |
| -SSDT Cell Identity | Not Present |
| -Closed loop timing adjustment mode | Not Present |
| -SCCPCH Information for FACH | Not Present |

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

| Information Element | Value/Remark |
|---|--|
| Message Type | 1515571511 |
| III information alternate | |
| UE information elements | |
| -RRC transaction identifier | 0 |
| -Integrity check info | Not Present |
| Measurement Information elements | |
| -Measurement Identity | 2 |
| -Measurement Command | Setup |
| -Measurement Reporting Mode | |
| - Measurement Report Transfer Mode | Acknowledged mode RLC |
| - Periodical Reporting / Event Trigger Reporting | Periodical reporting |
| Mode | |
| -Additional measurement list | Not Present |
| -CHOICE Measurement Type | Inter-frequency measurement |
| -Inter-frequency measurement | |
| -Inter-frequency cell info list | ! |
| -CHOICE Inter-frequency cell removal | Not Present |
| -New inter-frequency cells | Cell 2 information is included. |
| -Cell for measurement | Not Present |
| -Inter-frequency measurement quantity | |
| -CHOICE reporting criteria | Inter-frequency reporting criteria |
| -Filter coefficient | 0 |
| -CHOICE mode | FDD |
| -Measurement quantity for frequency quality | CPICH RSCP |
| estimate | |
| -Inter-frequency reporting quantity | |
| -UTRA Carrier RSSI | TRUE |
| -Frequency quality estimate | TRUE |
| -Non frequency related cell reporting quantities | |
| -SFN-SFN observed time difference reporting | Type 1 |
| indicator | |
| 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 | TRUE |
| -Reporting cell status | |
| -CHOICE reported cell | Report all active set cells + cells within |
| | monitored set on used frequency Report cells |
| -Maximum number of reported cells | within monitored set on non-used frequency |
| -Measurement validity | Virtual/active set cells + 22 |
| -Inter-frequency set update | Not Present |
| -CHOICE report criteria | Not Present |
| -Amount of reporting | Periodical reporting criteria |
| -Reporting interval | 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.

8.7.4.2.4.2 Procedure

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

Specific Message Contents

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

PHYSICAL CHANNEL RECONFIGURATION message for inter frequency measurement

| Information Element | Value/Remark |
|---|---|
| Message Type | Value/Nemark |
| | |
| UE Information Elements | |
| -RRC transaction identifier | 0 |
| -Integrity check info | Not Present |
| -Integrity protection mode info | Not Present |
| -Ciphering mode info | Not Present |
| -Activation time | Not Present |
| -New U-RNTI | Not Present |
| -New C-RNTI | Not Present |
| -RRC State Indicator | CELL_DCH |
| -UTRAN DRX cycle length coefficient CN Information Elements | Not Present |
| -CN Information info | Not Present |
| UTRAN mobility information elements | Not Flesent |
| | Not Present |
| -URA identity RB information elements | Not Flesent |
| -Downlink counter synchronisation info | Not Present |
| PhyCH information elements | INOUT TESETIL |
| -Frequency info | Not Present |
| Uplink radio resources | INOLI IGOGIIL |
| -Maximum allowed UL TX power | Not Present |
| - CHOICE channel requirement | Not Present |
| Downlink radio resources | NOCE TOOCHE |
| -CHOICE mode | FDD |
| -Downlink PDSCH information | Not Present |
| -Downlink information common for all radio links | Not i resent |
| -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 | 0 |
| -TGPL1 | 3 |
| -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 Not Present |
| -DeltaSIR2 -DeltaSIRafter2 | Not Present 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 |
| -Default DPCH Offset Value -Downlink information per radio link list | INOCT TOOCHL |
| -Downlink information for each radio link | |
| -Choice mode | FDD |
| -Primary CPICH info | |
| -Primary scrambling code | 100 |
| , | |

| -PDSCH with SHO DCH Info | Not Present |
|---|---|
| -PDSCH code mapping | Not Present |
| -Downlink DPCH info for each RL | |
| -CHOICE mode | FDD |
| -Primary CPICH usage for channel estimation | Primary CPICH may be used |
| -DPCH frame offset | Set to value Default DPCH Offset Value (as |
| | currently stored in SS) mod 38400 |
| -Secondary CPICH info | Not Present |
| -DL channelisation code | |
| -Secondary scrambling code | Not Present |
| -Spreading factor | 128 |
| -Code number | 0 |
| -Scrambling code change | No code change |
| -TPC combination index | 0 |
| -SSDT Cell Identity | Not Present |
| -Closed loop timing adjustment mode | Not Present |
| -SCCPCH Information for FACH | Not Present |

MEASUREMENT CONTROL message for Inter frequency measurement

| Information Element | Value/Remark |
|---|--|
| Message Type | |
| | |
| UE information elements | |
| -RRC transaction identifier | 0 Not Brossert |
| -Integrity check info | Not Present |
| Measurement Information elements | |
| -Measurement Identity | 2 |
| -Measurement Command | Setup |
| -Measurement Reporting Mode | A alimanda da a dissa da DLO |
| - Measurement Report Transfer Mode | Acknowledged mode RLC |
| - Periodical Reporting / Event Trigger Reporting Mode | Periodical reporting |
| | Not Present |
| -Additional measurement list | Not Present |
| -CHOICE Measurement Type | Inter-frequency measurement |
| -Inter-frequency measurement | |
| -Inter-frequency cell info list | Not Present |
| -CHOICE Inter-frequency cells | Cell 2 information is included |
| -New inter-frequency cells -Cell for measurement | Cell 2 Illionnation is included |
| -Inter-frequency measurement quantity | Inter frequency reporting criteria |
| -CHOICE reporting criteria | Inter-frequency reporting criteria |
| -Filter coefficient | 0 |
| -CHOICE mode | FDD |
| -Measurement quantity for frequency quality | CPICH RSCP |
| estimate | OF IOT ROOF |
| -Inter-frequency reporting quantity | |
| -UTRA Carrier RSSI | TRUE |
| -Frequency quality estimate | TRUE |
| -Non frequency related cell reporting quantities | |
| -SFN-SFN observed time difference reporting | No report |
| indicator | |
| -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 | TRUE |
| -Reporting cell status | |
| -CHOICE reported cell | Report all active set cells + cells within |
| · | monitored set on used frequency Report cells |
| -Maximum number of reported cells | within monitored set on non-used frequency |
| -Measurement validity | Virtual/active set cells + 22 |
| -Inter-frequency set update | Not Present |
| -CHOICE report criteria | Not Present |
| -Amount of reporting | Periodical reporting criteria |
| -Reporting interval | 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.

8.7.8.1.4.2 Procedure

- 1) SS shall transmit the PHYSICAL CHANNEL RECONFIGURATION message.
- 2) UE shall transmit the PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.
- 3) SS shall transmit the MEASUREMENT CONTROL message.
- 4) UE shall transmit periodically MEASUREMENT REPORT messages.
- 5) SS shall check P-CCPCH RSCP values of Cell 2 in the MEASUREMENT REPORT messages. P-CCPCH RSCP power level of Cell 2 reported by the UE shall be compared to the actually set P-CCPCH RSCP value of Cell 2 for each MEASUREMENT REPORT message.
- 6) SS shall count number of MEASUREMENT REPORT messages transmitted by UE. After 1000 MEASUREMENT REPORT messages have been received from UE, the RF parameters are set up according to table 8.7.8.1.2 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 4) and 5) above are repeated.
- 7) After further 1000 MEASUREMENT REPORT messages have been received from UE, the SS shall transmit RRC CONNECTION RELEASE message.
- 8) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

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

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

| Information Element | Value/Remark |
|---|--|
| Message Type | |
| UE Information Elements | |
| -RRC transaction identifier | 0 |
| -Integrity check info | Not Present |
| -Integrity protection mode info | Not Present |
| -Ciphering mode info | Not Present |
| -Activation time | Not Present |
| -New U-RNTI | Not Present |
| -New C-RNTI -RRC State Indicator | Not Present |
| -UTRAN DRX cycle length coefficient | CELL_DCH Not Present |
| CN Information Elements | Not Flesent |
| -CN Information info | Not Present |
| UTRAN mobility information elements | 140t Frescrit |
| -URA identity | Not Present |
| RB information elements | THE TRUE TO SO THE TO SO T |
| -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 |
| -Downlink information common for all radio links | N / P |
| -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 |
| | (0.000000000000000000000000000000000000 |
| -Transmission gap pattern sequence | |
| configuration parameters | |
| -TGMP | TDD measurement |
| -TGPRC | Infinity |
| -TGSN | 10 |
| -TGL1 | 10 |
| -TGL2 | Not Present |
| -TGD | 0 11 |
| -TGPL1 -TGPL2 | Not Present |
| -TGPL2 -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 -Default DPCH Offset Value | Not Present Not Present |
| -Default DPCH Offset value -Downlink information per radio link list | NOT LESCH |
| -Downlink information for each radio link | |
| -Choice mode | FDD |
| -Primary CPICH info | |
| -Primary scrambling code | 100 |
| , | |

| -PDSCH with SHO DCH Info | Not Present |
|---|---|
| -PDSCH code mapping | Not Present |
| -Downlink DPCH info for each RL | |
| -CHOICE mode | FDD |
| -Primary CPICH usage for channel estimation | Primary CPICH may be used |
| -DPCH frame offset | Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400 |
| -Secondary CPICH info | Not Present |
| -DL channelisation code | |
| -Secondary scrambling code | Not Present |
| -Spreading factor | 128 |
| -Code number | 0 |
| -Scrambling code change | No code change |
| -TPC combination index | 0 |
| -SSDT Cell Identity | Not Present |
| -Closed loop timing adjustment mode | Not Present |
| -SCCPCH Information for FACH | Not Present |

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

| Information Element | Value/Remark |
|--|--|
| Message Type | |
| UE information elements | |
| -RRC transaction identifier | 0 |
| | Not Present |
| -Integrity check info Measurement Information elements | Not Fresent |
| | 2 |
| -Measurement Identity | |
| -Measurement Command | Setup |
| -Measurement Reporting Mode - Measurement Report Transfer Mode | Asknowledged made PLC |
| - Periodical Reporting / Event Trigger Reporting | Acknowledged mode RLC Periodical reporting |
| Mode | r enoulcal reporting |
| -Additional measurement list | Not Present |
| -Additional measurement list -CHOICE Measurement Type | Inter-frequency measurement |
| -Inter-frequency measurement | inter-frequency measurement |
| -Inter-frequency cell info list | |
| -CHOICE Inter-frequency cell removal | Not Present |
| -New inter-frequency cells | Cell 2 information is included. |
| -Cell for measurement | Not Present |
| -Inter-frequency measurement quantity | Not i resent |
| -CHOICE reporting criteria | Inter-frequency reporting criteria |
| -Filter coefficient | 0 |
| -CHOICE mode | TDD |
| -Measurement quantity for frequency quality | Primary CCPCH RSCP |
| estimate | I filliary Cor Cit Roof |
| -Inter-frequency reporting quantity | |
| -UTRA Carrier RSSI | FALSE |
| -Frequency quality estimate | TRUE |
| -Non frequency related cell reporting quantities | TROE |
| -SFN-SFN observed time difference reporting | No report |
| indicator | 140 Toport |
| -Cell synchronisation information reporting | FALSE |
| indicator | 17,202 |
| -Cell Identity reporting indicator | FALSE |
| -CHOICE mode | TDD |
| -Timeslot ISCP reporting indicator | FALSE |
| -Proposed TGSN Reporting required | FALSE |
| -Primary CCPCH RSCP reporting indicator | TRUE |
| -Pathloss reporting indicator | FALSE |
| -Reporting cell status | Report all active set cells + cells within |
| -CHOICE reported cell | monitored set on used frequency Report cells |
| | within monitored set on non-used frequency |
| -Maximum number of reported cells | Virtual/active set cells + 22 |
| -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 |