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Foreword

This Technical Specification has been produced by the 3rd Generation Partnership Project (3GPP).

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

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where:

- x the first digit:
 - 1 presented to TSG for information;
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- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- z the third digit is incremented when editorial only changes have been incorporated in the document.

1 Scope

This Technical Specification specifies requirements for support of Radio Resource Management for TDD. These requirements include requirements on measurements in UTRAN and the UE as well as requirements on node dynamic behaviour and interaction, in terms of delay and response characteristics.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1]	(void)
[2]	(void)
[3]	3GPP TS 25.101: "UE Radio transmission and reception (FDD)".
[4]	3GPP TS 25.104: "UTRAN(BS) FDD; Radio transmission and reception ".
[5]	3GPP TS 25.102: "UTRAN (UE) TDD; Radio transmission and reception ".
[6]	3GPP TS 25.105: "UTRAN (BS) TDD; Radio transmission and reception ".
[7]	3GPP TS 25.303: "Interlayer Procedures in Connected Mode".
[8]	(void)
[9]	3GPP TS 25.142: "Base station conformance testing (TDD)".
[10]	(void)
[11]	(void)
[12]	3GPP TR 25.922: "RRM Strategies".
[13]	3GPP TS 25.321: "MAC protocol specification".
[14]	3GPP TS 25.225: "Physical layer measurements (TDD)".
[15]	3GPP TS 25.302: "Services provided by physical layer".
[16]	3GPP TS 25.331: "RRC protocol specification".
[17]	3GPP TS 25.224: "Physical layer procedures (TDD)".
[18]	3GPP TS 25.304: "UE Procedures in Idle Mode and Procedures for Cell Reselection in Connected Mode ".
[19]	ETSI ETR 273-1-2: "Electromagnetic compatibility and Radio spectrum Matters (ERM); Improvement of radiated methods of measurement (using test sites) and evaluation of the corresponding measurement uncertainties; Part 1: Uncertainties in the measurement of mobile radio equipment characteristics; Sub-part 2: Examples and annexes".
[20]	3GPP TS 45.005: "Radio transmission and reception".

[21]	3GPP TS 45.008: "Radio subsystem link control".
[22]	3GPP TS 45.010: "Radio subsystem synchronization".
[23]	3GPP TS 25.214: "Physical layer procedures (FDD)".
[24]	3GPP TS 36.133: "Requirements for support of radio resource management".
[25]	3GPP TS 36.304: "User Equipment (UE) procedures in idle mode".
[26]	3GPP TS 36.101: 'User Equipment (UE) radio transmission and reception'

[27] 3GPP TS 37.320: "Universal Terrestrial Radio Access (UTRA) and Evolved Universal Terrestrial Radio Access (E-UTRA); Radio measurement collection for Minimization of Drive Tests (MDT); Overall description; Stage 2"

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purpose of the present document the following terms and definitions apply.

The main general definitions strictly related to the transmission and reception characteristics but important also for the present document can be found in [3] for UE FDD, in [4] for BS FDD, in [5] for UE TDD, in [6] for BS TDD.

Node B: A logical node responsible for radio transmission / reception in one or more cells to/from the User Equipment. Terminates the Iub interface towards the RNC.

Power Spectral Density: The units of Power Spectral Density (PSD) are extensively used in this document. PSD is a function of power versus frequency and when integrated across a given bandwidth, the function represents the mean power in such a bandwidth. When the mean power is normalised to (divided by) the chip-rate it represents the mean energy per chip. Some signals are directly defined in terms of energy per chip, (DPCH_E_c, E_c, OCNS_E_c and P-CCPCH_E_c) and others defined in terms of PSD (I_o , I_{oc} , I_{or} and \hat{I}_{or}). There also exist quantities that are a ratio of energy per chip to PSD (DPCH_E_c/ I_{or} , E_c/ I_{or} etc.). This is the common practice of relating energy magnitudes in communication systems.

It can be seen that if both energy magnitudes in the ratio are divided by time, the ratio is converted from an energy ratio to a power ratio, which is more useful from a measurement point of view. It follows that an energy per chip of X dBm/3.84 MHz (3.84 Mcps TDD option) or X dBm/1.28 MHz (1.28 Mcps TDD option) can be expressed as a mean power per chip of X dBm. Similarly, a signal PSD of Y dBm/3.84 MHz (3.84 Mcps TDD option) or Y dBm/1.28 MHz (1.28 Mcps TDD option) can be expressed as a signal power of Y dBm.

MBSFN cluster: Set of cells operating in MBSFN mode providing only MBMS service in PtM mode and seen as one cell by a UE.

The following two definitions are applicable for LCR TDD multi-frequency operation.

Intra-frequency cell: In idle, CELL-FACH, CELL-PCH and URA-PCH state, intra-frequency cell is defined as the cell of which the primary frequency is the same as the user"s current frequency. In CELL-DCH state, intra-frequency cell is defined as the cell of which the frequency to be measured in that cell is the same as the operating frequency for single carrier operation or is the same as the associated DPCH operating frequency for multi-carrier operation when DPCH is configured, or is the same as the associated E-RUCCH operating frequency for multi-carrier operation when DPCH is not configured.

Inter-frequency cell: In idle, CELL-FACH, CELL-PCH and URA-PCH state, inter-frequency cell is defined as the cell of which the primary frequency is different from the user"s current frequency. In CELL-DCH state, inter-frequency cell is defined as the cell of which the frequency to be measured in that cell is different from the operating frequency for single carrier operation or is different from the associated DPCH operating frequency for multi-carrier operation when DPCH is configured, or is different from the associated E-RUCCH operating frequency for multi-carrier operation when DPCH is not configured.

3.2 Symbols

T2

TEMP_OFFSET

For the purposes of the present document, the following symbols apply:

1 1	
[]	Values included in square bracket must be considered for further studies, because it means that a decision about that value was not taken.
$\frac{DPCH_E_c}{I_{or}}$	The ratio of the transmit energy per PN chip of the DPCH to the total transmit power spectral
o,	density at the Node B antenna connector.
E_c	Average energy per PN chip.
Ês	Received energy per RE (power normalized to the subcarrier spacing) during the useful part of the symbol, i.e. excluding the cyclic prefix, at the UE antenna connector
$\frac{E_c}{I_{or}}$	The ratio of the average transmit energy per PN chip for different fields or physical channels to the
	total transmit power spectral density at the Node B antenna connector.
I_o	The total received power spectral density, including signal and interference, as measured at the UE
Ü	antenna connector.
$oldsymbol{I}_{ m ob}$	The total received power density, including signal and interference, as measured at the BS antenna connector.
I_{oc}	The power spectral density (integrated in a noise bandwidth equal to the chip rate and normalized
	to the chip rate) of a band limited white noise source (simulating interference from cells, which are not defined in a test procedure) as measured at the UE antenna connector.
I_{or}	The total transmit power spectral density (integrated in a bandwidth of $(1+\alpha)$ times the chip rate
	and normalized to the chip rate) of the down link signal at the Node B antenna connector.
\hat{I}_{or}	The received power spectral density (integrated in a bandwidth of $(1+\alpha)$ times the chip rate and
	normalized to the chip rate) of the down link signal as measured at the UE antenna connector.
Iot	The received power spectral density of the total noise and interference for a certain RE (power integrated over the RE and normalized to the subcarrier spacing) as measured at the UE antenna connector
$\frac{OCNS_E_c}{I_{or}}$	The ratio of the average transmit energy per PN chip for the OCNS to the total transmit power
o,	spectral density at the Node B antenna connector.
$\frac{PICH_E_c}{I_{or}}$	The ratio of the average transmit energy per PN chip for the PICH to the total transmit power
O,	spectral density at the Node B antenna connector.
$PCCPCH_E_c$	The ratio of the average transmit energy per PN chip for the PCCPCH to the total transmit power
$\overline{I_{or}}$	The ratio of the average transmit energy per 114 emp for the 1 eet err to the total transmit power
	spectral density at the Node B antenna connector.
$SCH _E_c$	The ratio of the average transmit energy per PN chip for the SCH to the total transmit power
I_{or}	
	spectral density at the Node B antenna connector. The transmit energy per PN chip for the SCH is
agu pp	averaged over the 256 chip duration when the SCH is present in the time slot
SCH_RP	Received (linear) average power of the resource elements that carry E-UTRA synchronisation signal, measured at the UE antenna connector.
PENALTY_TIN	ME Defined in TS 25.304 Defined in TS 25.304
Qhyst Qoffset _{s,n}	Defined in TS 25.304 Defined in TS 25.304
Qonset _{s,n} Qqualmin	Defined in TS 25.304 Defined in TS 25.304
Qrxlevmin	Defined in TS 25.304 Defined in TS 25.304
Sintersearch	Defined in TS 25.304
Sintrasearch	Defined in TS 25.304
SsearchRAT	Defined in TS 25.304
T1	Time period 1
Т2	Time period 2

Time period 2

Defined in TS 25.304

Treselection Defined in TS 25.304 UE_TXPWR_MAX_RACH Defined in TS 25.304

3.3 Abbreviations

For the purposes of the present document, the following abbreviations apply:

ACPR Adjacent Channel Power Ratio AWGN Additive White Gaussian Noise

BER Bit Error Ratio
BLER Block Error Ratio
BS Base Station

CW Continuous wave (unmodulated signal)

CFN Connection Frame Number
CPICH Common Pilot Channel
DL Downlink (forward link)
DPCH Dedicated Physical Channel
DRX Discontinuous Reception

EIRP Equivalent Isotropic Radiated Power

eNB E-UTRAN NodeB

FDD Frequency Division Duplex

GERAN GSM EDGE Radio Access Network
GSM Global System for Mobile communication

HO Handover

MBSFN MBMS over a Single Frequency Network

MDT Minimization of Drive Tests

OCNS Orthogonal Channel Noise Simulator, a mechanism used to simulate the users or control signals on

the other orthogonal channels of a Forward link.

OFDM Orthogonal Frequency Division Multiplexing
OFDMA Orthogonal Frequency Division Multiple Access
P-CCPCH Primary Common Control Physical Channel

PICH Paging Indicator Channel
PIN Personal Identification Number
PLMN Public Land Mobile Network

PPM Parts Per Million

QAM Quadrature Amplitude Modulation

Radio Access Technology RAT **RNC** Radio Network Controller **RRM** Radio Resource Management **RRC** Radio Resource Control **RSCP** Received Signal Code Power **RSRP** Reference Signal Received Power Reference Signal Received Quality **RSRQ** Received Signal Strength Indicator RSSI

SCH Synchronization Channel consisting of Primary and Secondary synchronization channels

SFN System Frame Number
SIR Signal to Interference ratio
TDD Time Division Duplex
TPC Transmit Power Control
TTI Transmission Time Interval

UE User Equipment UL Uplink (reverse link)

UTRA UMTS Terrestrial Radio Access

UTRAN Universal Terrestrial Radio Access Network

3.4 Test tolerances

The requirements given in the present document make no allowance for measurement uncertainty. The test specification 34.122 and 25.142 define test tolerances. These test tolerances are individually calculated for each test. The test

tolerances are then added to the limits in this specification to create test limits. The measurement results are compared against the test limits as defined by the shared risk principle.

Shared Risk is defined in ETR 273 Part 1 sub-part 2 subclause 6.5.

4 Idle Mode

4.1 Cell Selection

4.1.1 Introduction

After a UE has switched on and a PLMN has been selected, the Cell selection process takes place, as described in [18]. This process allows the UE to select a suitable cell where to camp on in order to access available services. In this process the UE can use stored information (*Stored information cell selection*) or not (*Initial cell selection*).

4.2 Cell Re-selection

4.2.1 Introduction

4.2.1.1 3.84 Mcps TDD option

The cell reselection procedure allows the UE to select a more suitable cell and camp on it.

When the UE is in either *Camped Normally state or Camped on Any Cell* state on a TDD cell, the UE shall attempt to identify, synchronise and monitor intra-frequency, inter-frequency and inter-RAT cells indicated in the measurement control system information of the serving cell. UE measurement activity is also controlled by measurement rules defined in [18], allowing the UE to limit its measurement activity if certain conditions are fullfilled.

4.2.1.2 1.28 Mcps TDD option

The cell reselection procedure allows the UE to select a more suitable cell and camp on it.

When the UE is in either *Camped Normally* state or *Camped on Any Cell* state on a TDD cell, the UE shall attempt to identify, synchronise and monitor intra-frequency, inter-frequency and inter-RAT cells indicated in the measurement control system information of the serving cell. UE measurement activity is also controlled by measurement rules defined in [18], allowing the UE to limit its measurement activity if certain conditions are fullfilled.

4.2.1.3 7.68 Mcps TDD option

The cell reselection procedure allows the UE to select a more suitable cell and camp on it.

When the UE is in either *Camped Normally state or Camped on Any Cell* state on a TDD cell, the UE shall attempt to identify, synchronise and monitor intra-frequency, inter-frequency and inter-RAT cells indicated in the measurement control system information of the serving cell. UE measurement activity is also controlled by measurement rules defined in [18], allowing the UE to limit its measurement activity if certain conditions are fullfilled.

4.2.2 Requirements

In the following sections, $T_{higher_priority_search}$ is defined as (60 * N_{layers}) seconds, where N_{layers} is the total number of configured higher priority E-UTRA, UTRA FDD and UTRA TDD carrier frequencies and is additionally increased by one if one or more groups of GSM frequencies is configured as a higher priority.

4.2.2.1 Measurement and evaluation of cell selection criteria S of serving cell

4.2.2.1.1 3.84 Mcps TDD option

The UE shall measure the PCCPCH RSCP level of the serving cell and evaluate the cell selection criterion S_{rxlev} defined in [18] for the serving cell at least every DRX cycle. The UE shall filter the PCCPCH RSCP measurement of the serving cell using at least 2 measurements, which are taken so that the time difference between the measurements is at least $T_{measureTDD}/2$ (see table 4.1).

If the UE has evaluated in N_{serv} successive measurements that the serving cell does not fulfil the cell selection criterion S, the UE shall initiate the measurements of all neighbour cells indicated in the measurement control system information, regardless of the measurement rules currently limiting UE measurement activities.

If the UE has not found any new suitable cell based the on searches and measurements of the neighbour cells indicated in the measurement control system information for 12 s, the UE shall initiate cell selection procedures for the selected PLMN as defined in [18].

On transition from CELL_DCH to CELL_PCH/URA_PCH, if a UE cannot find a suitable UTRA cell, then it is considered to be "out of service area" and shall perform actions according to [16].

4.2.2.1.2 1.28 Mcps TDD option

The UE shall measure the PCCPCH RSCP level of the serving cell and evaluate the cell selection criterion S defined in [18] for the serving cell at least every DRX cycle. The UE shall filter the PCCPCH RSCP level of the serving cell using at least 2 measurements, which are taken so that the time difference between the first measurement and the last measurement used for filtering is at least $T_{measureNTDD}/2$ (see table 4.1A).

If the UE has evaluated in N_{serv} consecutive DRX cycles that the serving cell does not fulfil the cell selection criterion S the UE shall initiate the measurements of all neighbour cells indicated in the measurement control system information, regardless of the measurement rules currently limiting UE measurement activities.

If the UE has not found any new suitable cell based on searches and measurements of the neighbour cells indicated in the measurement control system information for 12 s, the UE shall initiate cell selection procedures for the selected PLMN as defined in [18].

After this 12 s period a UE in Cell_PCH or URA_PCH is considered to be "out of service area" and shall perform actions according to [16].

On transition from CELL_DCH to CELL_PCH/URA_PCH, if a UE cannot find a suitable UTRA cell, then it is considered to be "out of service area" and shall perform actions according to [16].

4.2.2.1.3 7.68 Mcps TDD option

The UE shall measure the PCCPCH RSCP level of the serving cell and evaluate the cell selection criterion S_{rxlev} defined in [18] for the serving cell at least every DRX cycle. The UE shall filter the PCCPCH RSCP measurement of the serving cell using at least 2 measurements, which are taken so that the time difference between the measurements is at least $T_{measureTDD}/2$ (see table 4.1B).

If the UE has evaluated in N_{serv} successive measurements that the serving cell does not fulfil the cell selection criterion S, the UE shall initiate the measurements of all neighbour cells indicated in the measurement control system information, regardless of the measurement rules currently limiting UE measurement activities.

If the UE has not found any new suitable cell based the on searches and measurements of the neighbour cells indicated in the measurement control system information for 12 s, the UE shall initiate cell selection procedures for the selected PLMN as defined in [18].

On transition from CELL_DCH to CELL_PCH/URA_PCH, if a UE cannot find a suitable UTRA cell, then it is considered to be "out of service area" and shall perform actions according to [16].

4.2.2.2 Measurement of intra-frequency cells

4.2.2.2.1 3.84 Mcps option

The UE shall measure PCCPCH RSCP at least every $T_{measureTDD}$ (see table 4.1) for intra-frequency cells that are identified and measured according to the measurement rules. $T_{measureTDD}$ is defined in Table 4.1. The UE shall filter PCCPCH RSCP measurements of each measured intra-frequency cell using at least 2 measurements, which are taken so that the time difference between the first measurement and the last measurements used for filtering is at least $T_{measureTDD}/2$.

The filtering shall be such that the UE shall be capable of evaluating that an intra-frequency cell has become better ranked than the serving cell within $T_{\text{evaluateTDD}}$ (see table 4.1), from the moment the intra-frequency cell became at least 2 dB better ranked than the current serving cell, provided that Treselection timer is set to zero.

If Treselection timer has a non zero value and the intra frequency cell is better ranked than the serving cell, the UE shall evaluate this intra frequency cell for the Treselection time. If this cell remains better ranked within this duration, then the UE shall reselect that cell.

If the UE is receiving the MTCH, the UE shall be able to identify new intra-frequency cells and take them into use for MTCH combing purposes as defined in section 8.4.2.2.1.

4.2.2.2.2 1.28 Mcps option

The UE shall measure PCCPCH RSCP at least every $T_{measureNTDD}$ (see table 4.1A) for intra-frequency cells that are identified and measured according to the measurement rules. $T_{measureNTDD}$ is defined in Table 4.1A. The UE shall filter PCCPCH RSCP measurements of each measured intra-frequency cell using at least 2 measurements, which are taken so that the time difference between the first measurement and the last measurement used for filtering is at least $T_{measureNTDD}/2$.

The filtering shall be such that the UE shall be capable of evaluating that an intra-frequency cell has become better ranked than the serving cell within $T_{\text{evaluateNTDD}}$ (see table 4.1A), from the moment the intra-frequency cell became at least 3 dB better ranked than the current serving cell, provided that Treselection timer is set to zero.

If Treselection timer has a non zero value and the intra frequency cell is better ranked than the serving cell, the UE shall evaluate this intra frequency cell for the Treselection time. If this cell remains better ranked within this duration, then the UE shall reselect that cell.

If the UE is receiving the MTCH, the UE shall be able to identify new intra-frequency cells and take them into use for MTCH combing purposes as defined in section 8.4A.2.2.1.

4.2.2.2.3 7.68 Mcps option

The UE shall measure PCCPCH RSCP at least every $T_{measureTDD}$ (see table 4.1B) for intra-frequency cells that are identified and measured according to the measurement rules. $T_{measureTDD}$ is defined in Table 4.1B. The UE shall filter PCCPCH RSCP measurements of each measured intra-frequency cell using at least 2 measurements, which are taken so that the time difference between the first measurement and the last measurements used for filtering is at least $T_{measureTDD}/2$.

The filtering shall be such that the UE shall be capable of evaluating that an intra-frequency cell has become better ranked than the serving cell within $T_{\text{evaluateTDD}}$ (see table 4.1B), from the moment the intra-frequency cell became at least 2 dB better ranked than the current serving cell, provided that Treselection timer is set to zero.

If Treselection timer has a non zero value and the intra frequency cell is better ranked than the serving cell, the UE shall evaluate this intra frequency cell for the Treselection time. If this cell remains better ranked within this duration, then the UE shall reselect that cell.

4.2.2.3 Measurement of inter-frequency TDD cells

If priority information for UTRA TDD carrier frequencies is provided in the measurement control systems information and $Srxlev_{ServingCell} > S_{prioritysearch}$ then the UE shall search for any higher priority UTRA inter-frequency cells at least every $T_{higher_priority_search}$ where $T_{higher_priority_search}$ is described in section 4.2.2. If higher priority UTRA cells are found by the higher priority search, they shall be measured at least every $(N_{carrier}^{-1}) * T_{measureTDD}$ for 3.84 Mcps option and 7.68

Mcps option, $(N_{carrier}^{-1}) * T_{measureNTDD}$ for 1.28 Mcps option. If, after detecting a cell in a higher priority search, it is determined that reselection has not occurred then the UE is not required to continuously measure the detected cell to evaluate the ongoing possibility of reselection. However, the minimum measurement filtering requirements specified later in this section shall still be met by the UE before it makes any determination that it may stop measuring the cell. If priority information for UTRA TDD carrier frequencies is provided in the measurement control systems information and $Srxlev_{ServingCell} <= S_{prioritysearch}$, the rules defined below apply irrespective of the priority of the inter-frequency layer.

4.2.2.3.1 3.84 Mcps option

The UE shall measure PCCPCH RSCP at least every ($N_{carrier}$ -1) * $T_{measureTDD}$ (see table 4.1) for inter-frequency cells that are identified and measured according to the measurement rules. The parameter $N_{carrier}$ is the number of carriers used for TDD cells. The UE shall filter PCCPCH RSCP measurements of each measured inter-frequency cell using at least 2 measurements, which are taken so that the time difference between the first and the last measurements used for filtering is at least $T_{measureTDD}/2$.

The filtering of PCCPCH RSCP shall be such that the UE shall be capable of evaluating that an already identified interfrequency cell has become better ranked than the serving cell within $(N_{carrier}-1) * T_{evaluateTDD}$ from the moment the interfrequency cell became at least 3 dB better than the current serving cell provided that Treselection timer is set to zero. For non-identified inter-frequency cells, the filtering shall be such that the UE shall be capable of evaluating that interfrequency cell has become better ranked than the serving cell within 30 s from the moment the inter-frequency cell became at least 3 dB better than the current serving cell provided that Treselection timer is set to zero.

If Treselection timer has a non zero value and the inter-frequency cell is better ranked than the serving cell, the UE shall evaluate this inter-frequency cell for the Treselection time. If this cell remains better ranked within this duration, then the UE shall reselect that cell.

4.2.2.3.2 1.28 Mcps option

The UE shall measure PCCPCH RSCP at least every $(N_{carrier}^{-1}) * T_{measureNTDD}$ (see table 4.1A) for inter-frequency 1.28 Mcps TDD OPTION cells that are identified and measured according to the measurement rules. The parameter $N_{carrier}$ is the number of carriers used for 1.28 Mcps TDD OPTION cells. The UE shall filter PCCPCH RSCP measurements of each measured inter-frequency cell using at least 2 measurements, which are taken so that the time difference between the first measurement and the last measurement used for filtering is at least $T_{measureNTDD}/2$.

The filtering of PCCPCH RSCP shall be such that the UE shall be capable of evaluating that an already identified interfrequency cell has become better ranked than the serving cell within $(N_{carrier}-1) * T_{evaluateNTDD}$ from the moment the interfrequency cell became at least 6 dB better ranked than the current serving cell provided that Treselection timer is set to zero. For non-identified inter-frequency cells, the filtering shall be such that the UE shall be capable of evaluating that inter-frequency cell has become better ranked than the serving cell within 30 s from the moment the inter-frequency cell became at least 6 dB better ranked than the current serving cell provided that Treselection timer is set to zero.

If Treselection timer has a non zero value and the inter-frequency cell is better ranked than the serving cell, the UE shall evaluate this inter-frequency cell for the Treselection time. If this cell remains better ranked within this duration, then the UE shall reselect that cell.

In the case of multi-frequency network, N_{carrier} is the number of primary frequencies.

4.2.2.3.3 7.68 Mcps option

The UE shall measure PCCPCH RSCP at least every $(N_{carrier}-1) * T_{measureTDD}$ (see table 4.1B) for inter-frequency cells that are identified and measured according to the measurement rules. The parameter $N_{carrier}$ is the number of carriers used for TDD cells. The UE shall filter PCCPCH RSCP measurements of each measured inter-frequency cell using at least 2 measurements, which are taken so that the time difference between the first and the last measurements used for filtering is at least $T_{measureTDD}/2$.

The filtering of PCCPCH RSCP shall be such that the UE shall be capable of evaluating that an already identified interfrequency cell has become better ranked than the serving cell within $(N_{carrier}-1) * T_{evaluateTDD}$ from the moment the interfrequency cell became at least 3 dB better than the current serving cell provided that Treselection timer is set to zero. For non-identified inter-frequency cells, the filtering shall be such that the UE shall be capable of evaluating that interfrequency cell has become better ranked than the serving cell within 30 s from the moment the inter-frequency cell became at least 3 dB better than the current serving cell provided that Treselection timer is set to zero.

If Treselection timer has a non zero value and the inter-frequency cell is better ranked than the serving cell, the UE shall evaluate this inter-frequency cell for the Treselection time. If this cell remains better ranked within this duration, then the UE shall reselect that cell.

4.2.2.3A 1.28 Mcps TDD to 3.84 Mcps TDD cell re-selection

This requirement only applies to 1.28 Mcps UEs supporting this mode.

The ranking of the low and high chip rate TDD cells shall be made according to the cell reselection criteria specified in [18].

If priority information for UTRA TDD carrier frequencies is provided in the measurement control systems information and $Srxlev_{ServingCell} > S_{prioritysearch}$ then the UE shall search for any higher priority UTRA TDD 3.84 Mcps option cells at least every $T_{higher_priority_search}$ where $T_{higher_priority_search}$ is described in section 4.2.2. If higher priority UTRA TDD 3.84 Mcps option cells are found by the higher priority search, they shall be measured at least every $(N_{carrier}-1) * T_{measureTDD}$. If, after detecting a cell in a higher priority search, it is determined that reselection has not occurred then the UE is not required to continuously measure the detected cell to evaluate the ongoing possibility of reselection. However, the minimum measurement filtering requirements specified later in this section shall still be met by the UE before it makes any determination that it may stop measuring the cell. If priority information for UTRA TDD carrier frequencies is provided in the measurement control systems information and $Srxlev_{ServingCell} <= S_{prioritysearch}$, the rules defined below apply irrespective of the priority of the inter-frequency layer.

The UE shall measure PCCPCH RSCP at least every $N_{TDDcarrier} * T_{measureTDD}$ (see table 4.1A) for inter-frequency cells that are identified and measured according to the measurement rules. The parameter $N_{carrier}$ is the number of carriers used for 3.84 Mcps TDD cells. The UE shall filter PCCPCH RSCP measurements of each measured high chip rate TDD cell using at least 2 measurements, which are taken so that the time difference between the first measurement and the last measurement used for filtering is at least $T_{measureTDD}/2$.

The filtering of PCCPCH RSCP shall be such that the UE shall be capable of evaluating that a high chip rate TDD cell has become better ranked than the serving cell within $N_{TDDcarrier}$ * $T_{evaluateTDD}$ from the moment the inter-frequency cell became at least 3 better ranked than the current serving cell provided that Treselection timer is set to zero. For non-identified inter-frequency cells, the filtering shall be such that the UE shall be capable of evaluating that inter-frequency cell has become better ranked than the serving cell within 30 s from the moment the inter-frequency cell became at least 3 dB better ranked than the current serving cell provided that Treselection timer is set to zero.

If Treselection timer has a non zero value and the inter-frequency 3.84Mcps TDD cell is better ranked than the serving cell, the UE shall evaluate this inter-frequency 3.84Mcps TDD cell for the Treselection time. If this cell remains better ranked within this duration, then the UE shall reselect that cell.

4.2.2.3B 3.84 Mcps TDD to 1.28 Mcps TDD cell re-selection

This requirement in this section only applies to UEs supporting both 3.84 Mcps TDD and 1.28Mcps TDD.

If priority information for UTRA TDD carrier frequencies is provided in the measurement control systems information and $Srxlev_{ServingCell} > S_{prioritysearch}$ then the UE shall search for any higher priority UTRA TDD 1.28 Mcps option cells at least every $T_{higher_priority_search}$ where $T_{higher_priority_search}$ is described in section 4.2.2. If higher priority UTRA TDD 1.28 Mcps option cells are found by the higher priority search, they shall be measured at least every $(N_{carrier}-1) * T_{measureNTDD}$. If, after detecting a cell in a higher priority search, it is determined that reselection has not occurred then the UE is not required to continuously measure the detected cell to evaluate the ongoing possibility of reselection. However, the minimum measurement filtering requirements specified later in this section shall still be met by the UE before it makes any determination that it may stop measuring the cell. If priority information for UTRA TDD carrier frequencies is provided in the measurement control systems information and $Srxlev_{ServingCell} <= S_{prioritysearch}$, the rules defined below apply irrespective of the priority of the inter-frequency layer.

The UE shall measure PCCPCH RSCP at least every $N_{carrierNTDD}$ * $T_{measureNTDD}$ (see table 4.1A) for inter-frequency 1.28 Mcps TDD OPTION cells that are identified and measured according to the measurement rules. The parameter $N_{carrierNTDD}$ is the number of carriers used for 1.28 Mcps TDD cells. The UE shall filter PCCPCH RSCP measurements of each measured 1.28 Mcps TDD cell using at least 2 measurements, which are taken so that the time difference between the measurements is at least $T_{measureNTDD}/2$.

The filtering of PCCPCH RSCP shall be such that the UE shall be capable of evaluating that a 1.28 Mcps TDD cell has become better ranked than the serving cell within $N_{carrierNTDD} * T_{evaluateNTDD}$ from the moment the inter-frequency cell became at least 3 better ranked than the current serving cell provided that Treselection timer is set to zero. For non-

identified inter-frequency cells, the filtering shall be such that the UE shall be capable of evaluating that inter-frequency cell has become better ranked than the serving cell within 30 s from the moment the inter-frequency cell became at least 3 dB better ranked than the current serving cell provided that Treselection timer is set to zero.

If Treselection timer has a non zero value and the inter-frequency 1.28 Mcps TDD cell is better ranked than the serving cell, the UE shall evaluate this inter-frequency 1.28 Mcps TDD cell for the Treselection time. If this cell remains better ranked within this duration, then the UE shall reselect that cell.

In the case of cell re-selection to 1.28 Mcps TDD multi-frequency network, $N_{carrierNTDD}$ is the number of primary frequencies.

4.2.2.3C 7.68 Mcps TDD to 3.84 Mcps TDD cell re-selection

This requirement in this section only applies to UEs supporting both 3.84 Mcps TDD and 7.68Mcps TDD.

The ranking of 3.84 Mcps and 7.68 Mcps chip rate TDD cells shall be made according to the cell reselection criteria specified in [18].

If priority information for UTRA TDD carrier frequencies is provided in the measurement control systems information and $Srxlev_{ServingCell} > S_{prioritysearch}$ then the UE shall search for any higher priority UTRA TDD 3.84 Mcps option cells at least every $T_{higher_priority_search}$ where $T_{higher_priority_search}$ is described in section 4.2.2. If higher priority UTRA TDD 3.84 Mcps option cells are found by the higher priority search, they shall be measured at least every $(N_{carrier}-1) * T_{measureTDD}$. If, after detecting a cell in a higher priority search, it is determined that reselection has not occurred then the UE is not required to continuously measure the detected cell to evaluate the ongoing possibility of reselection. However, the minimum measurement filtering requirements specified later in this section shall still be met by the UE before it makes any determination that it may stop measuring the cell. If priority information for UTRA TDD carrier frequencies is provided in the measurement control systems information and $Srxlev_{ServingCell} <= S_{prioritysearch}$, the rules defined below apply irrespective of the priority of the inter-frequency layer.

The UE shall measure PCCPCH RSCP at least every $N_{TDDcarrier}$ * $T_{measureTDD}$ (see Table 4.1B) for inter-frequency cells that are identified and measured according to the measurement rules. The parameter $N_{carrier}$ is the number of carriers used for 3.84 Mcps TDD cells. The UE shall filter PCCPCH RSCP measurements of each measured 3.84 Mcps chip rate TDD cell using at least 2 measurements, which are taken so that the time difference between the first measurement and the last measurement used for filtering is at least $T_{measureTDD}/2$.

The filtering of PCCPCH RSCP shall be such that the UE shall be capable of evaluating that a 3.84 Mcps chip rate TDD cell has become better ranked than the serving cell within $N_{TDDcarrier} * T_{evaluateTDD}$ from the moment the inter-frequency cell became at least 3 better ranked than the current serving cell provided that Treselection timer is set to zero. For non-identified inter-frequency cells, the filtering shall be such that the UE shall be capable of evaluating that inter-frequency cell has become better ranked than the serving cell within 30 s from the moment the inter-frequency cell became at least 3 dB better ranked than the current serving cell provided that Treselection timer is set to zero.

If Treselection timer has a non zero value and the inter-frequency 3.84Mcps TDD cell is better ranked than the serving cell, the UE shall evaluate this inter-frequency 3.84Mcps TDD cell for the Treselection time. If this cell remains better ranked within this duration, then the UE shall reselect that cell.

4.2.2.3D 3.84 Mcps TDD to 7.68 Mcps TDD cell re-selection

This requirement in this section only applies to UEs supporting both 3.84 Mcps TDD and 7.68Mcps TDD.

If priority information for UTRA TDD carrier frequencies is provided in the measurement control systems information and $Srxlev_{ServingCell} > S_{prioritysearch}$ then the UE shall search for any higher priority UTRA TDD 7.86 Mcps option cells at least every $T_{higher_priority_search}$ where $T_{higher_priority_search}$ is described in section 4.2.2. If higher priority UTRA TDD 7.86 Mcps option cells are found by the higher priority search, they shall be measured at least every $(N_{carrier}-1) * T_{measureTDD}$. If, after detecting a cell in a higher priority search, it is determined that reselection has not occurred then the UE is not required to continuously measure the detected cell to evaluate the ongoing possibility of reselection. However, the minimum measurement filtering requirements specified later in this section shall still be met by the UE before it makes any determination that it may stop measuring the cell. If priority information for UTRA TDD carrier frequencies is provided in the measurement control systems information and $Srxlev_{ServingCell} <= S_{prioritysearch}$, the rules defined below apply irrespective of the priority of the inter-frequency layer.

The UE shall measure PCCPCH RSCP at least every $N_{carrierNTDD} * T_{measureNTDD}$ (see Table 4.1B) for inter-frequency 7.68 Mcps TDD OPTION cells that are identified and measured according to the measurement rules. The parameter

 $N_{carrierNTDD}$ is the number of carriers used for 7.68 Mcps TDD cells. The UE shall filter PCCPCH RSCP measurements of each measured 7.68 Mcps TDD cell using at least 2 measurements, which are taken so that the time difference between the first measurement and the last measurement is at least $T_{measureNTDD}/2$.

The filtering of PCCPCH RSCP shall be such that the UE shall be capable of evaluating that a 7.68 Mcps TDD cell has become better ranked than the serving cell within $N_{carrierNTDD} * T_{evaluateNTDD}$ from the moment the inter-frequency cell became at least 3 better ranked than the current serving cell provided that Treselection timer is set to zero. For non-identified inter-frequency cells, the filtering shall be such that the UE shall be capable of evaluating that inter-frequency cell has become better ranked than the serving cell within 30 s from the moment the inter-frequency cell became at least 3 dB better ranked than the current serving cell provided that Treselection timer is set to zero.

If Treselection timer has a non zero value and the inter-frequency 7.68 Mcps TDD cell is better ranked than the serving cell, the UE shall evaluate this inter-frequency 7.68 Mcps TDD cell for the Treselection time. If this cell remains better ranked within this duration, then the UE shall reselect that cell.

4.2.2.4 Measurement of inter-frequency FDD cells

If priority information for UTRA carrier frequencies is provided in the measurement control systems information and $Srxlev_{ServingCell} > S_{prioritysearch}$ then the UE shall search for any higher priority UTRA FDD cells at least every $T_{higher_priority_search}$ where $T_{higher_priority_search}$ is described in section 4.2.2. If higher priority UTRA FDD cells are found by the higher priority search, they shall be measured at least every $(N_{carrier}-1) * T_{measureFDD}$. If, after detecting a cell in a higher priority search, it is determined that reselection has not occurred then the UE is not required to continuously measure the detected cell to evaluate the ongoing possibility of reselection. However, the minimum measurement filtering requirements specified later in this section shall still be met by the UE before it makes any determination that it may stop measuring the cell. If priority information for UTRA carrier frequencies is provided in the measurement control systems information and $Srxlev_{ServingCell} <= S_{prioritysearch}$, the rules defined below apply irrespective of the priority of UTRA FDD layer.

4.2.2.4.1 3.84 Mcps option

The UE shall measure the CPICH RSCP and CPICH Ec/Io of each FDD neighbour cell indicated in the measurement control system information of the serving cell, according to the measurement rules defined in [18], at least every $T_{measureFDD}$ (see table 4.1). The UE shall filter CPICH RSCP measurements of each measured inter-frequency cell using at least 2 measurements which are taken so that the time difference between the first and last measurements used for filtering is at least $T_{measureFDD}/2$..

The filtering of CPICH RSCP shall be such that the UE shall be capable of evaluating that an already identified interfrequency cell has become better ranked than the serving cell within $N_{carrierFDD}$ * $T_{evaluateFDD}$ from the moment the interfrequency cell became at least 5 dB better than the current serving cell provided that Treselection timer is set to zero. For non-identified inter-frequency cells, the filtering shall be such that the UE shall be capable of evaluating that interfrequency cell has become better ranked than the serving cell within 30 s from the moment the inter-frequency cell became at least 5 dB better than the current serving cell provided that Treselection timer is set to zero. The parameter $N_{carrierFDD}$ is the number of carriers used for FDD cells.

If Treselection timer has a non zero value and the inter-frequency cell is better ranked than the serving cell, the UE shall evaluate this inter-frequency cell for the Treselection time. If this cell remains better ranked within this duration, then the UE shall reselect that cell.

The ranking of the cells shall be made according to the cell reselection criteria specified in [18]. If FDD cell has been ranked as the best cell and IE cell_selection_and_reselection-quality_measure is set to CPICH Ec/No, then UE shall perform a second ranking of the FDD cells using CPICH Ec/Io as the measurement quantity, before performing cell reselection.

4.2.2.4.2 1.28 Mcps option

This requirement only applies to 1.28 Mcps UEs supporting both 1.28 Mcps TDD OPTION and FDD.

The UE shall measure the CPICH RSCP and CPICH Ec/Io at least every $N_{carrierFDD} * T_{measureFDD}$ (see table 4.1A) for inter-frequency FDD cells that are identified and measured according to the measurement rules. The UE shall filter CPICH RSCP measurements of each measured inter-frequency cell using at least 2 measurements which are taken so that the time difference between the first measurement and the last measurement used for filtering is at least $T_{measureFDD}/2$.

CPICH RSCP is used as basic measurement quantity for cell ranking, the filtering of CPICH RSCP shall be such that the UE shall be capable of evaluating that an already identified inter-frequency cell has become better ranked than the serving cell within $N_{carrierFDD}$ * $T_{evaluateFDD}$ from the moment the inter-frequency cell became at least 5 dB better ranked than the current serving cell provided that Treselection timer is set to zero. For non-identified inter-frequency cells, the filtering shall be such that the UE shall be capable of evaluating that inter-frequency cell has become better ranked than the serving cell within 30 s from the moment the inter-frequency cell became at least 5 dB better ranked than the current serving cell provided that Treselection timer is set to zero. The parameter $N_{carrierFDD}$ is the number of carriers used for FDD cells.

If Treselection timer has a non zero value and the inter-frequency FDD cell is better ranked than the serving cell, the UE shall evaluate this inter-frequency FDD cell for the Treselection time. If this cell remains better ranked within this duration, then the UE shall reselect that cell.

The ranking of the cells shall be made according to the cell reselection criteria specified in TS25.304. If FDD cell has been ranked as the best cell and IE cell_selection_and_reselection-quality_measure is set to CPICH Ec/No, then UE shall perform a second ranking of the FDD cells using CPICH Ec/Io as the measurement quantity, before performing cell re-selection.

4.2.2.4.3 7.68 Mcps option

The UE shall measure the CPICH RSCP and CPICH Ec/Io of each FDD neighbour cell indicated in the measurement control system information of the serving cell, according to the measurement rules defined in [18], at least every $T_{measureFDD}$ (see table 4.1B). The UE shall filter CPICH RSCP measurements of each measured inter-frequency cell using at least 2 measurements which are taken so that the time difference between the first and last measurements used for filtering is at least $T_{measureFDD}/2$..

The filtering of CPICH RSCP shall be such that the UE shall be capable of evaluating that an already identified interfrequency cell has become better ranked than the serving cell within $N_{carrierFDD}$ * $T_{evaluateFDD}$ from the moment the interfrequency cell became at least 5 dB better than the current serving cell provided that Treselection timer is set to zero. For non-identified inter-frequency cells, the filtering shall be such that the UE shall be capable of evaluating that interfrequency cell has become better ranked than the serving cell within 30 s from the moment the inter-frequency cell became at least 5 dB better than the current serving cell provided that Treselection timer is set to zero. The parameter $N_{carrierFDD}$ is the number of carriers used for FDD cells.

If Treselection timer has a non zero value and the inter-frequency cell is better ranked than the serving cell, the UE shall evaluate this inter-frequency cell for the Treselection time. If this cell remains better ranked within this duration, then the UE shall reselect that cell.

The ranking of the cells shall be made according to the cell reselection criteria specified in [18]. If FDD cell has been ranked as the best cell and IE cell_selection_and_reselection-quality_measure is set to CPICH Ec/No, then UE shall perform a second ranking of the FDD cells using CPICH Ec/Io as the measurement quantity, before performing cell reselection.

4.2.2.5 Measurement of inter-RAT GSM cells

4.2.2.5.1 3.84 Mcps option

The requirements in this subclause shall apply if the UE uses the cell ranking algorithm for inter-RAT cell reselection [18].

The UE shall measure the signal level of the GSM BCCH carrier of each GSM neighbour cell indicated in the measurement control system information of the serving cell, according to the measurement rules defined in [18], at least every $T_{measureGSM}$ (see table 4.1). The UE shall maintain a running average of 4 measurements for each cell. The measurement samples for each cell shall be as far as possible uniformly distributed over the averaging period.

If GSM measurements are required by the measurement rules in [18], The UE shall attempt to verify the BSIC at least every 30 seconds for each of the 4 strongest GSM BCCH carriers and rank the verified GSM BCCH cells according to the cell re-selection criteria in [18]. If a change of BSIC is detected for one GSM cell then that GSM BCCH carrier shall be treated as a new GSM neighbour cell.

If the UE detects a BSIC, which is not indicated in the measurement control system information, the UE shall not consider that GSM BCCH carrier in cell reselection. The UE also shall not consider the GSM BCCH carrier in cell reselection, if the UE can not demodulate the BSIC of that GSM BCCH carrier.

If Treselection timer has a non zero value and the inter-RAT GSM cell is better ranked than the serving cell, the UE shall evaluate this inter-RAT GSM cell for the Treselection time. If this cell remains better ranked within this duration, then the UE shall reselect that cell.

4.2.2.5.2 1.28 Mcps option

The requirements in this subclause shall apply if the UE uses the cell ranking algorithm for inter-RAT cell reselection [18].

The UE shall measure the signal level of the GSM BCCH carrier of each GSM neighbour cell indicated in the measurement control system information of the serving cell, according to the measurement rules defined in [18], at least every $T_{measureGSM}$ (see table 4.1A). The UE shall maintain a running average of 4 measurements for each cell. The measurement samples for each cell shall be as far as possible uniformly distributed over the averaging period.

If GSM measurements are required by the measurement rules in [18], the UE shall attempt to verify the BSIC at least every 30 seconds for each of the 4 strongest GSM BCCH carriers and rank the verified GSM BCCH cells according to the cell re-selection criteria in [18]. If a change of BSIC is detected for one GSM cell then that GSM BCCH carrier shall be treated as a new GSM neighbour cell.

If the UE detects a BSIC, which is not indicated in the measurement control system information, the UE shall not consider that GSM BCCH carrier in cell reselection. The UE also shall not consider the GSM BCCH carrier in cell reselection, if the UE can not demodulate the BSIC of that GSM BCCH carrier.

If Treselection timer has a non zero value and the inter-RAT GSM cell is better ranked than the serving cell, the UE shall evaluate this inter-RAT GSM cell for the Treselection time. If this cell remains better ranked within this duration, then the UE shall reselect that cell.

4.2.2.5.3 7.68 Mcps option

The requirements in this subclause shall apply if the UE uses the cell ranking algorithm for inter-RAT cell reselection [18].

The UE shall measure the signal level of the GSM BCCH carrier of each GSM neighbour cell indicated in the measurement control system information of the serving cell, according to the measurement rules defined in [18], at least every $T_{measureGSM}$ (see table 4.1B). The UE shall maintain a running average of 4 measurements for each cell. The measurement samples for each cell shall be as far as possible uniformly distributed over the averaging period.

If GSM measurements are required by the measurement rules in [18], The UE shall attempt to verify the BSIC at least every 30 seconds for each of the 4 strongest GSM BCCH carriers and rank the verified GSM BCCH cells according to the cell re-selection criteria in [18]. If a change of BSIC is detected for one GSM cell then that GSM BCCH carrier shall be treated as a new GSM neighbour cell.

If the UE detects a BSIC, which is not indicated in the measurement control system information, the UE shall not consider that GSM BCCH carrier in cell reselection. The UE also shall not consider the GSM BCCH carrier in cell reselection, if the UE can not demodulate the BSIC of that GSM BCCH carrier.

If Treselection timer has a non zero value and the inter-RAT GSM cell is better ranked than the serving cell, the UE shall evaluate this inter-RAT GSM cell for the Treselection time. If this cell remains better ranked within this duration, then the UE shall reselect that cell.

4.2.2.5.4 Cell reselection based on priority information

The requirements in this subclause shall apply if the UE uses the absolute priorities based algorithm for inter-RAT cell reselection [18].

If $Srxlev_{ServingCell} > S_{prioritysearch}$ then

• the UE may not search for, or measure GSM cells if the priority of GSM is lower than the serving cell.

• the UE shall search for and measure GSM cells if the priority of GSM is higher than the serving cell. The minimum rate at which the UE is required to search for and measure such layers may be reduced in this scenario to maintain UE battery life.

If $Srxlev_{ServingCell} \le S_{prioritysearch}$ then the UE shall measure, according to the measurement rules defined in [18], at least every $T_{measure,GSM}$ (see table 4.1, 4.1A and 4.1B):

- if a detailed neighbour cell list is provided, the signal level of the GSM BCCH carrier of each GSM neighbour cell indicated in the measurement control system information of the serving cell; or
- if only BCCH carriers are provided, the signal level of the GSM BCCH carriers indicated in the measurement control system information of the serving cell.

Note: If it is concluded that only blacklist, or only whitelist can be used for reselection to GSM then one of these bullets can be deleted.

If $Srxlev_{ServingCell} > S_{prioritysearch}$ then the UE shall search for GSM BCCH carrier at least every $T_{higher_priority_search}$ where $T_{higher_priority_search}$ is described in section 4.2.2. When higher priority GSM BCCH carriers are found by the higher priority search, they shall be measured at least every $T_{measure,GSM}$, and the UE shall decode the BSIC of the GSM BCCH carrier. If, after detecting a cell in a higher priority search, it is determined that reselection has not occurred then the UE is not required to continuously measure the detected cell to evaluate the ongoing possibility of reselection to continuously verify the BSIC of the GSM BCCH carrier every 30s. However, the minimum measurement filtering requirements specified later in this section shall still be met by the UE before it makes any determination that it may stop measuring the cell. If $Srxlev_{ServingCell} \le S_{prioritysearch}$, the rules defined below apply irrespective of the priority of the GSM layer.

The UE shall maintain a running average of 4 measurements for each GSM BCCH carrier. The measurement samples for each cell shall be as far as possible uniformly distributed over the averaging period.

If continuous GSM measurements are required by the measurement rules in [18], the UE shall attempt to verify the BSIC at least every 30 seconds for each of the 4 strongest GSM BCCH carriers. If a change of BSIC is detected for one GSM cell then that GSM BCCH carrier shall be treated as a new GSM neighbour cell. If the UE detects on a BCCH carrier a BSIC which is indicated as not allowed for that carrier in the measurement control system information of the serving cell, the UE is not required to perform BSIC re-confirmation for that cell.

The UE shall not consider the GSM BCCH carrier in cell reselection, if the UE cannot demodulate the BSIC of that GSM BCCH carrier. Additionally, the UE shall not consider a GSM neighbour cell in cell reselection, if it is indicated as not allowed in the measurement control system information of the serving cell.

4.2.2.5a Measurements of inter-RAT E-UTRA cells

The UE shall be able to identify new E-UTRA cells and perform RSRP measurements of identified E-UTRA cells if carrier frequency information is provided by the serving cell, even if no explicit neighbour list with physical layer cell identities is provided.

If $Srxlev_{ServingCell} > S_{prioritysearch}$ then the UE shall search for and measure E-UTRA layers of higher priority at least every $T_{higher_priority_search}$ where $T_{higher_priority_search}$ is described in section 4.2.2.. The minimum rate at which the UE is required to search for and measure such layers may be reduced in this scenario to maintain UE battery life.

If $Srxlev_{ServingCell} \le S_{prioritysearch}$, then the UE shall search for and measure E-UTRA frequency layers of higher or lower priority in preparation for possible reselection. In this scenario, the minimum rate at which the UE is required to search for and measure higher priority layers is not reduced and shall be the same as that defined below for a lower priority layers.

The UE shall be able to evaluate whether a new detectable lower priority inter-RAT E-UTRA cell meets the reselection criteria defined in [18] within $K_{carrier} * T_{detectE-UTRA}$, where $T_{detectE-UTRA}$ is given in Table 4.2 or 4.2A or 4.2B if at least E-UTRA carrier frequency information is provided in the inter-RAT measurement control system information when Treselection = 0 provided that the reselection criteria is met by a margin of at least 6dB. The parameter $K_{carrier}$ is the number of E-UTRA carrier frequencies indicated in the inter-RAT measurement control system information. An inter-RAT E-UTRAN cell is considered to be detectable if:

- RSRP_{dRm} and RSRP Ês/Iot, according to Annex B.1.1 for a corresponding Band

- SCH_RP and SCH Ês/Iot, according to Annex B.1.1 for a corresponding Band

The UE shall measure RSRP at least every $K_{carrier} * T_{measure, EUTRA}$ as defined in table 4.2 or 4.2A or 4.2B for identified E-UTRA cells.

When higher priority cells are found by the higher priority search, they shall be measured at least every $T_{\text{measureE-UTRA}}$. If, after detecting a cell in a higher priority search, it is determined that reselection has not occurred then the UE is not required to continuously measure the detected cell to evaluate the ongoing possibility of reselection. However, the minimum measurement filtering requirements specified later in this section shall still be met by the UE before it makes any determination that it may stop measuring the cell.

If the UE detects on a E-UTRA carrier a cell whose physical identity is indicated as not allowed for that carrier in the measurement control system information of the serving cell, the UE is not required to perform measurements on that cell.

The UE shall filter RSRP measurements of each measured E-UTRA cell using at least 2 measurements. Within the set of measurements used for the filtering, at least two measurements shall be spaced by at least $(K_{carrier} * T_{measure,EUTRA})/2$.

RSRP measurements of E-UTRA cells shall not be filtered over a longer period than that specified in Table 4.2 or 4.2A or 4.2B.

The UE shall not consider an E-UTRA neighbour cell in cell reselection, if it is indicated as not allowed in the measurement control system information of the serving cell.

For an inter-RAT E-UTRA cell that has been already detected, but that has not been reselected to, The filtering shall be such that the UE shall be capable of evaluating that the EUTRAN cell has met reselection criterion defined in [25] within $K_{carrier}$ * $T_{evaluateEUTRA}$ as specified in table 4.2 or 4.2A or 4.2B provided that the reselection criteria is met by a margin of at least 6dB when $T_{reselection} = 0$.

If $T_{reselection}$ timer has a non zero value and an E-UTRA cell is better ranked than the serving cell, the UE shall evaluate this E-UTRA cell for the $T_{reselection}$ time. If this cell remains better ranked within this duration, then the UE shall reselect that cell.

4.2.2.6 Evaluation of cell reselection criteria

4.2.2.6.1 3.84 Mcps option

The UE shall evaluate the cell re-selection criteria defined in [18] for the cells, which have new measurement results available, at least once every DRX cycle.

UE shall perform cell reselection immediately after the UE has found a better ranked suitable cell unless less than 1 second has elapsed from the moment the UE started camping on the current serving cell.

The ranking of the cells shall be made according to the cell reselection criteria specified in TS25.304.

4.2.2.6.2 1.28 Mcps option

The UE shall evaluate the cell re-selection criteria defined in [18] for the cells, which have new measurement results available, at least every DRX cycle.

Cell reselection shall take place immediately after the UE has found a better ranked suitable cell unless the UE has made cell reselection within the last 1 second.

The ranking of the cells shall be made according to the cell reselection criteria specified in TS25.304.

4.2.2.6.3 7.68 Mcps option

The UE shall evaluate the cell re-selection criteria defined in [18] for the cells, which have new measurement results available, at least once every DRX cycle.

UE shall perform cell reselection immediately after the UE has found a better ranked suitable cell unless less than 1 second has elapsed from the moment the UE started camping on the current serving cell.

The ranking of the cells shall be made according to the cell reselection criteria specified in TS25.304.

4.2.2.7 Maximum interruption time in paging reception

4.2.2.7.1 3.84 Mcps option

UE shall perform the cell re-selection with minimum interruption in monitoring downlink channels for paging reception.

At intra-frequency cell re-selection, the UE shall monitor the downlink of current serving cell for paging reception until the UE is capable to start monitoring downlink channels of the target intra-frequency cell for paging reception. The interruption time shall not exceed 50 ms.

At inter-frequency and inter-RAT cell re-selection, the UE shall monitor the downlink of current serving cell for paging reception until the UE is capable to start monitoring downlink channels for paging reception of the target inter-frequency cell. For inter-frequency cell re-selection, the interruption time shall not exceed $T_{SI} + 50$ ms. For inter-RAT cell re-selection the interruption time shall not exceed $T_{BCCH} + 50$ ms for GSM or $T_{SI\,EUTRA} + [50ms]$ for E-UTRA.

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 [16] for a UTRAN cell.

T_{BCCH} is the maximum time allowed to read BCCH data from a GSM cell as defined in [21].

T_{SI-EUTRA} is the maximum time allowed to read system information from an E-UTRA cell [24].

These requirements assume sufficient radio conditions, so that decoding of system information can be made without errors errors and does not take into account cell re-selection failure.

Table 4.1: T_{measureTDD}, T_{evaluateTDD}, T_{measureNTDD}, T_{evaluateNTDD}, T_{measureFDD} and T_{measureGSM}

DRX cycle length [s]	N _{serv} (number of DRX cycles)	T _{measureTDD} [s] (number of DRX cycles)	T _{evaluateTDD} [s] (number of DRX cycles)	T _{measureNTDD} [s] (number of DRX cycles)	T _{evaluateNTDD} [s] (number of DRX cycles)	T _{measureFDD} [s] (number of DRX cycles)	T _{evaluateFDD} [s] (number of DRX cycles)	T _{measureGSM} [s] (number of DRX cycles)
0.08	4	0.64 (8	2.56 (32	0.64 (8	2.56 (32	0.64 (8	2.56 (32	2.56 (32
		DRX	DRX	DRX	DRX	DRX	DRX	DRX
		cycles)	cycles)	cycles)	cycles)	cycles)	cycles)	cycles)
0.16	4	0.64 (4)	2.56 (16)	0.64 (4)	2.56 (16)	0.64 (4)	2.56 (16)	2.56 (16)
0.32	4	1.28 (4)	5.12 (16)	1.28 (4)	5.12 (16)	1.28 (4)	5.12 (16)	5.12 (16)
0.64	4	1.28 (2)	5.12 (8)	1.28 (2)	5.12 (8)	1.28 (2)	5.12 (8)	5.12 (8)
1.28	2	1.28 (1)	6.4 (5)	1.28 (1)	6.4 (5)	1.28 (1)	6.4 (5)	6.4 (5)
2.56	2	2.56 (1)	7.68 (3)	2.56 (1)	7.68 (3)	2.56 (1)	7.68 (3)	7.68 (3)
5.12	1	5.12 (1)	10.24 (2)	5.12 (1)	10.24 (2)	5.12 (1)	10.24 (2)	10.24 (2)

Table 4.2: T_{detectE-UTRA}, T_{measureE-UTRA} and T_{evaluateEUTRA}

DRX cycle length [s]	T _{detectE-UTRA} [S]	T _{measureE-UTRA} [s] (number of DRX cycles)	T _{evaluateEUTRA} [s] (number of DRX cycles)
0.08	30	2.56 (32)	7.68 (96)
0.16		2.56 (16)	7.68 (48)
0.32		5.12 (16)	15.36 (48)
0.64		5.12 (8)	15.36 (24)
1.28		6.4 (5)	19.2 (15)
2.56	60	7.68 (3)	23.04 (9)
5.12		10.24 (2)	30.72 (6)

In idle mode, UE shall support DRX cycles lengths 0.64, 1.28, 2.56 and 5.12 s, according to [16].

4.2.2.7.2 1.28 Mcps option

UE shall perform the cell re-selection with minimum interruption in monitoring downlink channels for paging reception.

At intra-frequency cell re-selection, the UE shall monitor the downlink of current serving cell for paging reception until the UE is capable to start monitoring downlink channels of the target intra-frequency cell for paging reception. The interruption time shall not exceed 50 ms.

At inter-frequency and inter-RAT cell re-selection, the UE shall monitor the downlink of current serving cell for paging reception until the UE is capable to start monitoring downlink channels for paging reception of the target interfrequency cell. For inter-frequency cell re-selection he interruption time must not exceed $T_{SI} + 50$ ms. For inter-Rat cell re-selection the interruption time must not exceed $T_{BCCH}+50$ ms for GSM or $T_{SI\,EUTRA}+[50ms]$ for E-UTRA.

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 [16] for a UTRAN cell.

T_{BCCH} is the maximum time allowed to read BCCH data from a GSM cell [21].

T_{SI-EUTRA} is the maximum time allowed to read system information from an E-UTRA cell [24].

7.68 (3)

10.24 (2)

These requirements assume sufficient radio conditions, so that decoding of system information can be made without errors and does not take into account cell re-selection failure.

DRX Nserv T_{measureNTDD} T_{evaluateTDD} T_{measureGSM} T_{evaluateNTDD} T_{measureTD} T_{measureFD} T_{evaluateFDD} cycle (number of [s] (number [s] _D [s] [s] _D [s] [s] [s] length DRX cycles) of DRX (number (number of (number of (number (number (number cycles) DRX of DRX of DRX of DRX of DRX DRX [s] cycles) cycles) cycles) cycles) cycles) cycles) 0.08 0.64 (8 DRX 2.56 (32 0.64 (8 2.56 (32 0.64 (8 2.56 (32 2.56 (32 cycles) DRX DRX DRX DRX DRX DRX cycles) cycles) cycles) cycles) cycles) cycles) 0.64 (4) 0.16 4 2.56 (16) 0.64 (4) 2.56 (16) 0.64 (4) 2.56 (16) 2.56 (16) 5.12 (16) 0.32 4 1.28 (4) 1.28 (4) 1.28 (4) 5.12 (16) 5.12 (16) 5.12 (16) 0.64 4 1.28 (2) 5.12 (8) 1.28 (2) 5.12 (8) 1.28 (2) 5.12 (8) 5.12 (8) 1.28 2 1.28 (1) 6.4 (5) 1.28 (1) 6.4 (5) 1.28 (1) 6.4 (5) 6.4(5)2

Table 4.1A: T_{measureNTDD}, T_{evaluateNTDD}, T_{measureTDD}, T_{evaluateTDD}, T

Table 4.2A: T_{detectE-UTRA}, T_{measureE-UTRA} and T_{evaluateEUTRA}

2.56(1)

5.12 (1)

7.68 (3)

10.24 (2)

2.56(1)

5.12 (1)

7.68 (3)

10.24 (2)

7.68 (3)

10.24 (2)

DRX cycle length [s]	T _{detectE-UTRA} [S]	T _{measureE-UTRA} [s] (number of DRX cycles)	T _{evaluateEUTRA} [s] (number of DRX cycles)
0.08	30	2.56 (32)	7.68 (96)
0.16		2.56 (16)	7.68 (48)
0.32		5.12 (16)	15.36 (48)
0.64		5.12 (8)	15.36 (24)
1.28		6.4 (5)	19.2 (15)
2.56	60	7.68 (3)	23.04 (9)
5.12		10.24 (2)	30.72 (6)

In idle mode, UE shall support DRX cycles lengths 0.64, 1.28, 2.56 and 5.12 s.

7.68 Mcps option 4.2.2.7.3

2.56 (1)

5.12 (1)

2.56

5.12

UE shall perform the cell re-selection with minimum interruption in monitoring downlink channels for paging

At intra-frequency cell re-selection, the UE shall monitor the downlink of current serving cell for paging reception until the UE is capable to start monitoring downlink channels of the target intra-frequency cell for paging reception. The interruption time shall not exceed 50 ms.

At inter-frequency and inter-RAT cell re-selection, the UE shall monitor the downlink of current serving cell for paging reception until the UE is capable to start monitoring downlink channels for paging reception of the target interfrequency cell. For inter-frequency cell re-selection, the interruption time shall not exceed T_{SI} + 50 ms. For inter-RAT cell re-selection the interruption time shall not exceed T_{BCCH} + 50 ms for GSM or $T_{SI\,EUTRA}$ + [50ms] for E-UTRA.

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 [16] for a UTRAN cell.

T_{BCCH} is the maximum time allowed to read BCCH data from a GSM cell as defined in [21].

T_{SI-EUTRA} is the maximum time allowed to read system information from an E-UTRA cell [24].

These requirements assume sufficient radio conditions, so that decoding of system information can be made without errors and does not take into account cell re-selection failure.

Table 4.1B: T_{measureTDD}, T_{evaluateTDD}, T_{measureNTDD}, T_{evaluateNTDD}, T_{measureFDD} and T_{measureGSM}

DRX cycle length [s]	N _{serv} (number of DRX cycles)	T _{measureTDD} [s] (number of DRX cycles)	T _{evaluateTDD} [s] (number of DRX cycles)	T _{measureNTDD} [s] (number of DRX cycles)	T _{evaluateNTDD} [s] (number of DRX cycles)	T _{measureFDD} [s] (number of DRX cycles)	T _{evaluateFDD} [s] (number of DRX cycles)	T _{measureGSM} [s] (number of DRX cycles)
0.08	4	0.64 (8	2.56 (32	0.64 (8	2.56 (32	0.64 (8	2.56 (32	2.56 (32
		DRX	DRX	DRX	DRX	DRX	DRX	DRX
		cycles)	cycles)	cycles)	cycles)	cycles)	cycles)	cycles)
0.16	4	0.64 (4)	2.56 (16)	0.64 (4)	2.56 (16)	0.64 (4)	2.56 (16)	2.56 (16)
0.32	4	1.28 (4)	5.12 (16)	1.28 (4)	5.12 (16)	1.28 (4)	5.12 (16)	5.12 (16)
0.64	4	1.28 (2)	5.12 (8)	1.28 (2)	5.12 (8)	1.28 (2)	5.12 (8)	5.12 (8)
1.28	2	1.28 (1)	6.4 (5)	1.28 (1)	6.4 (5)	1.28 (1)	6.4 (5)	6.4 (5)
2.56	2	2.56 (1)	7.68 (3)	2.56 (1)	7.68 (3)	2.56 (1)	7.68 (3)	7.68 (3)
5.12	1	5.12 (1)	10.24 (2)	5.12 (1)	10.24 (2)	5.12 (1)	10.24 (2)	10.24 (2)

Table 4.2B: T_{measureE-UTRA} and T_{evaluateEUTRA}

DRX cycle length [s]	T _{detectE-UTRA} [S]	T _{measureE-UTRA} [s] (number of DRX cycles)	T _{evaluateEUTRA} [s] (number of DRX cycles)
0.08	30	2.56 (32)	7.68 (96)
0.16		2.56 (16)	7.68 (48)
0.32		5.12 (16)	15.36 (48)
0.64		5.12 (8)	15.36 (24)
1.28		6.4 (5)	19.2 (15)
2.56	60	7.68 (3)	23.04 (9)
5.12		10.24 (2)	30.72 (6)

In idle mode, UE shall support DRX cycles lengths 0.64, 1.28, 2.56 and 5.12 s, according to [16].

4.2.2.8 Number of cells in cell lists

4.2.2.8.1 3.84 Mcps option

For idle mode cell re-selection purposes, the UE shall be capable of monitoring:

- 32 intra-frequency cells (including serving cell), and
- 32 inter-frequency cells, including
 - TDD mode cells on maximum 2 additional TDD carriers, and
 - Depending on UE capability, FDD mode cells, distributed on up to 3 FDD carriers, and
- Depending on UE capability, 32 inter RAT GSM cells,
- Depending on UE capability, up to 4 E-UTRA TDD carriers, and
- Depending on UE capability, up to 4 E-UTRA FDD carriers

as indicated in cell information lists sent in system information (BCCH).

For a UE supporting E-UTRA measurements in RRC_IDLE state, the UE shall be capable of monitoring a minimum total of at least 8 carrier frequency layers, including the intrafrequency serving layer and comprising of any allowed combination of E-UTRA FDD, E-UTRA TDD, UTRA FDD, UTRA TDD and GSM layers (one GSM layer corresponds to 32 cells).

4.2.2.8.2 1.28 Mcps option

For idle mode cell re-selection purposes, the UE shall be capable of monitoring:

- 32 intra-frequency cells (including serving cell), and
- 32 inter-frequency cells, including
 - TDD mode cells on up to minimum 8 additional TDD carriers, and
 - Depending on UE capability, FDD mode cells distributed on up to 3 FDD carriers, and
- Depending on UE capability, 32 GSM cells distributed on up to 32 GSM carriers,
- Depending on UE capability, up to 4 E-UTRA TDD carriers, and
- Depending on UE capability, up to 4 E-UTRA FDD carriers

as indicated in cell information lists sent in system information (BCCH).

For a UE supporting E-UTRA measurements in RRC_IDLE state, the UE shall be capable of monitoring a minimum total of at least [10] carrier frequency layers, including the intrafrequency serving layer and comprising of any allowed combination of E-UTRA FDD, E-UTRA TDD, UTRA FDD, UTRA TDD and GSM layers (one GSM layer corresponds to 32 cells).

4.2.2.8.3 7.68 Mcps option

For idle mode cell re-selection purposes, the UE shall be capable of monitoring:

- 32 intra-frequency cells (including serving cell), and
- 32 inter-frequency cells, including
 - TDD mode cells on maximum 2 additional TDD carriers, and
 - Depending on UE capability, FDD mode cells, distributed on up to 3 FDD carriers, and
- Depending on UE capability, 32 inter RAT GSM cells,
- Depending on UE capability, up to 4 E-UTRA carriers, and
- Depending on UE capability, up to 4 E-UTRA FDD carriers

as indicated in cell information lists sent in system information (BCCH).

For a UE supporting E-UTRA measurements in RRC_IDLE state, the UE shall be capable of monitoring a minimum total of at least 8 carrier frequency layers, including the intrafrequency serving layer and comprising of any allowed combination of E-UTRA FDD, E-UTRA TDD, UTRA FDD, UTRA TDD and GSM layers (one GSM layer corresponds to 32 cells).

4.2.2.9 Additional requirements for inter-frequency measurements when MBMS reception is active

4.2.2.9.1 3.84 Mcps option

For MBMS capable UE, when MBMS reception is active the following requirements shall apply:

If the UE is required to perform inter-frequency measurements as indicated by the cell reselection measurement rules in 25.304, the UE shall ensure that it switches back to its serving cell frequency in time to perform demodulation of MTCH signals.

4.2.2.9.2 (void)

4.2.2.9.3 7.68 Mcps option

For MBMS capable UE, when MBMS reception is active the following requirements shall apply:

If the UE is required to perform inter-frequency measurements as indicated by the cell reselection measurement rules in 25.304, the UE shall ensure that it switches back to its serving cell frequency in time to perform demodulation of MTCH signals.

4.3 MBSFN cluster selection for carriers dedicated to MBSFN

4.3.1 Introduction

UEs supporting MBSFN services may search for and select an appropriate MBSFN cluster according to [18]. No test requirements are specified.

4.4 MBSFN cluster reselection for carriers dedicated to MBSFN

4.4.1 Introduction

UEs supporting MBSFN services employ MBSFN cluster reselection procedures in order to identify and select a more suitable MBSFN cluster on which to camp on (and to possibly receive service from) according to [18]. No test requirements are specified.

4.5 Minimization of Drive Tests (MDT)

4.5.1 1.28 Mcps option

UE supporting minimisation of drive tests shall be capable of [16]:

- logging measurements RRC_IDLE, CELL_PCH, and URA_PCH states, reporting the logged measurements and meeting requirements in Clause 4.5.
- logging of RRC connection establishment failure, reporting the logged failure and meeting requirements in Clause 4.5.

4.5.1.1 Introduction

The logged MDT requirements consist of measurement requirements as specified in section 4.5.2.1 and relative time stamp accuracy requirements as specified in section 4.5.3.1. Both sets of requirements are applicable for intra-frequency, inter-frequency and inter-RAT cases in idle, CELL_PCH and URA_PCH states. The MDT procedures are described in [27].

For RRC connection establishment failure logging and reporting, the MDT requirements consist of requirements for measurements performed and logged in IDLE, CELL_PCH, and URA_PCH states specified in Section 4.5.2 and relative time stamp accuracy requirement for RRC connection establishment failure log reporting as specified in Section 4.5.4.

4.5.2 Measurements

The requirements specified in this clause apply for the measurements (both RSRP and RSRQ for EUTRA, both RSCP and Ec/No for UTRA, P-CCPCH RSCP for UTRA 1.28 TDD, and Rxlev for GERAN) performed and logged by the UE

for MDT in IDLE, CELL_PCH and URA_PCH states. The requirements apply for the measurements included in logged MDT reports and RRC connection establishment failure reports.

4.5.2.1 Requirements

The measurement values that are used to meet serving cell and reselection requirements as specified in sections 4.2.2.1.2, 4.2.2.2.2, 4.2.2.3.2, 4.2.2.4.2 and 4.2.2.5.2 shall also apply to the values logged for MDT measurements in idle state.

The measurement values that are used to meet serving cell and reselection requirements as specified in section 5.6 shall also apply to the values logged for MDT measurements in CELL_PCH state.

The measurement values that are used to meet serving cell and reselection requirements as specified in section 5.7 shall also apply for the values logged for MDT measurements in URA_PCH state.

4.5.3 Relative Time Stamp Accuracy

The relative time stamp for a logged measurement is defined as the time from the moment the MDT configuration was received at the UE until the measurement was logged, see [16].

4.5.3.1 Requirements

The accuracy of the relative time stamping is such that the drift of the time stamping shall be not more than ± 2 seconds per hour.

4.5.4 Relative Time Stamp Accuracy for RRC Connection Establishment Failure Log Reporting

Relative time stamp for RRC connection establishment failure log reporting is defined as the time elapsed from the last RRC connection establishment failure to the time when the log is included in the report [16]. The UE shall report the RRC connection establishment failure log, while meeting the accuracy requirement specified in Section 4.5.4.1.

4.5.4.1 Requirements

The accuracy of the relative time stamping for RRC connection establishment failure log reporting is such that the drift of the time stamping shall not be larger than \pm [0.72] seconds per hour and \pm [TBD] seconds over 48 hours.

Editor"s note: applicability conditions for long-period reporting time are TBD.

5 UTRAN Connected Mode Mobility

This section contains the requirements on the mobility procedures in UTRAN connected mode such as handover and cell re-selection.

Requirements related to the measurements in support of the execution of the UTRAN connected mode mobility procedures are specified in section 8.

The radio links the UE shall use are controlled by UTRAN with RRC signalling.

UE behaviour in response to UTRAN RRC messages is described in [16].

The purpose of Cell reselection in CELL_FACH, CELL_PCH and URA_PCH states is that the UE shall select a better cell according to the cell reselection criteria in [18]. CELL_FACH, CELL_PCH and URA_PCH states are described in [16].

5.1 TDD/TDD Handover

5.1.1 Introduction

5.1.1.1 3.84 Mcps TDD option

The TDD/TDD handover procedure is initiated from UTRAN with a RRC message that implies a hard handover as described in [16].

The TDD/TDD handover procedure may cause the UE to change its frequency.

5.1.1.2 1.28 Mcps TDD option

The purpose of TDD/TDD handover is to change the cell of the connection between UE and UTRAN. The handover procedure is initiated from UTRAN with a RRC message that implies a handover, refer to [16]. The handover procedure may cause the UE to change its frequency.

In the case of multi-frequency network, handover can occure between primary frequency in serving cell and primary frequency in target cell, primary frequency in serving cell and secondary frequency in target cell, secondary frequency in serving cell and primary frequency cell in target cell.

5.1.1.3 7.68 Mcps TDD option

The TDD/TDD handover procedure is initiated from UTRAN with a RRC message that implies a hard handover as described in [16].

The TDD/TDD handover procedure may cause the UE to change its frequency.

5.1.2 Requirements

5.1.2.1 TDD/TDD handover delay

5.1.2.1.1 3.84 Mcps TDD option

RRC procedure performance values for all RRC procedures that can command a hard handover are specified in [16].

When the UE receives a RRC message implying TDD/TDD handover with the activation time "now" or earlier than RRC procedure delay seconds from the end of the last TTI containing the RRC command, the UE shall be ready to start the transmission of the new uplink DPCH within $D_{handover}$ seconds from the end of the last TTI containing the RRC command.

If the access is delayed to an indicated activation time later than RRC procedure delay seconds from the end of the last TTI containing the RRC command, the UE shall be ready to start the transmission of the new uplink DPCH at the designated activation time + interruption time.

where

 D_{handover} equals the RRC procedure performance value defined in [16] plus the interruption time stated in section 5.1.2.2.1.

5.1.2.1.2 1.28 Mcps TDD option

RRC procedure performance values for all RRC procedures that can command a hard handover are specified in [16].

When the UE receives a RRC message that implies a TDD/TDD handover, with the activation time "now" or earlier than RRC procedure delay seconds from the end of the last TTI containing the RRC command, the UE shall start transmission within $D_{handover}$ seconds from the end of the last TTI containing the RRC command.

If the access is delayed to an indicated activation time later than RRC procedure delay seconds from the end of the last TTI containing the RRC command, the UE shall be ready to start the transmission of the new uplink DPCH or the

SYNC-UL in case that a handover to 1.28 Mcps TDD option with SYNCH uplink exchange is recommended at the designated activation time + interruption time.

where $D_{handover}$ equals the RRC procedure performance value defined [16] plus the interruption time stated in section 5.1.2.2.2.

5.1.2.1.3 7.68 Mcps TDD option

RRC procedure performance values for all RRC procedures that can command a hard handover are specified in [16].

When the UE receives a RRC message implying TDD/TDD handover with the activation time "now" or earlier than RRC procedure delay seconds from the end of the last TTI containing the RRC command, the UE shall be ready to start the transmission of the new uplink DPCH within $D_{handover}$ seconds from the end of the last TTI containing the RRC command.

If the access is delayed to an indicated activation time later than RRC procedure delay seconds from the end of the last TTI containing the RRC command, the UE shall be ready to start the transmission of the new uplink DPCH at the designated activation time + interruption time.

where:

- D_{handover} equals the RRC procedure performance value defined in [16] plus the interruption time stated in section 5.1.2.2.3.

5.1.2.2 Interruption time

5.1.2.2.1 3.84 Mcps TDD option

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

If TDD/TDD intra-frequency or inter-frequency handover is commanded, the interruption time shall be less than,

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

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 TDD/TDD handover and equal to 0 otherwise
UC	Equal to 1 if an unknown target cell is indicated in the RRC message implying TDD/TDD handover and equal to 0 otherwise
F_{max}	denotes the maximum number of radio frames within the transmission time intervals of all transport channels that are multiplexed into the same CCTrCH.

An intra-frequency or inter-frequency TDD target cell shall be considered as known by the UE, if either or both of the following conditions are true:

- the target cell has been measured during the last 5 seconds
- the UE has had a radio link connected to the target cell during the last 5 seconds.

The interruption time requirements for an unknown target cell shall apply only if the signal quality of the unknown target cell is sufficient for successful synchronisation with one attempt.

5.1.2.2.2 1.28 Mcps TDD option

The interruption time i.e. the time between the end of the last TTI containing a transport block on the old DPCH and the time the UE starts transmission of the new uplink DPCH or the SYNC-UL in case that a handover with SYNCH uplink exchange is recommended, shall be less than the value defined in the equation below. There is different requirement on the interruption time depending on if the cell is known or not and if the SFN of the target cell has to be decoded by the UE or not.

If TDD/TDD intra-frequency or inter-frequency handover is commanded, the interruption time shall be less than,

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

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 TDD/TDD handover and equal to 0 otherwise
UC	Equal to 1 if an unknown target cell is indicated in the RRC message implying TDD/TDD handover and equal to 0 otherwise
F_{max}	denotes the maximum number of radio frames within the transmission time intervals of all transport channels that are multiplexed into the same CCTrCH.

A cell shall be regarded as known by the UE if either or both of the following conditions are true:

- it has been measured during the last 5 seconds or
- a dedicated connection existed between the UE and the cell during the last 5 seconds.

The SFN of the target cell needs not to be decoded by the UE if either or both of the following conditions are true:

- a handover with timing maintain is commanded by the UTRAN or
- the SFN of the target cell is known by the UE.

The interruption time requirement for the cell shall apply if the signal quality of the unknown cell is good enough for successful synchronisation with one attempt.

5.1.2.2.3 7.68 Mcps TDD option

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

If TDD/TDD intra-frequency or inter-frequency handover is commanded, the interruption time shall be less than,

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

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 TDD/TDD handover and equal to 0 otherwise

UC Equal to 1 if an unknown target cell is indicated in the RRC message implying TDD/TDD

handover and equal to 0 otherwise

 F_{max} denotes the maximum number of radio frames within the transmission time intervals of all

transport channels that are multiplexed into the same CCTrCH.

An intra-frequency or inter-frequency TDD target cell shall be considered as known by the UE, if either or both of the following conditions are true:

- the target cell has been measured during the last 5 seconds
- the UE has had a radio link connected to the target cell during the last 5 seconds.

The interruption time requirements for an unknown target cell shall apply only if the signal quality of the unknown target cell is sufficient for successful synchronisation with one attempt.

5.2 TDD/FDD Handover

5.2.1 Introduction

5.2.1.1 3.84 Mcps TDD option

The purpose of TDD/FDD handover is to change the radio access mode from TDD to FDD. The TDD/FDD handover procedure is initiated from UTRAN with a RRC message that implies a hard handover as described in [16].

5.2.1.2 1.28 Mcps TDD option

The purpose of TDD/FDD handover is to change the radio access mode from TDD to FDD.

The TDD/FDD handover procedure is initiated from UTRAN with a RRC message that implies a hard handover as described in [16]

5.2.1.3 7.68 Mcps TDD option

The purpose of TDD/FDD handover is to change the radio access mode from TDD to FDD. The TDD/FDD handover procedure is initiated from UTRAN with a RRC message that implies a hard handover as described in [16].

5.2.2 Requirements

The requirements in this section shall apply to UE supporting TDD and FDD.

5.2.2.1 TDD/FDD handover delay

5.2.2.1.1 3.84 Mcps TDD option

RRC procedure performance values for all RRC procedures that can command a hard handover, are specified in [16].

When the UE receives a RRC message implying TDD/FDD handover with the activation time "now" or earlier than RRC procedure delay seconds from the end of the last TTI containing the RRC command, the UE shall be ready to start the transmission of the new uplink DPCCH within RRC procedure delay seconds from the end of the last TTI containing the RRC command.

If the access is delayed to an indicated activation time later than $D_{handover}$ seconds from the end of the last TTI containing the RRC command, the UE shall be ready to start the transmission of the new uplink DPCCH at the designated activation time + interruption time.

where:

 D_{handover} equals the RRC procedure performance value as defined in [16] plus the interruption time stated in section 5.2.2.2.

5.2.2.1.2 1.28 Mcps TDD option

RRC procedure performance values for all RRC procedures that can command a hard handover, are specified in [16].

When the UE receives a RRC message that implies a TDD/FDD handover, with the activation time "now" or earlier than RRC procedure delay seconds from the end of the last TTI containing the RRC command, the UE shall be ready to start the transmission of the new uplink DPCCH within $D_{handover}$ seconds from the end of the last TTI containing the RRC command.

If the access is delayed to an indicated activation time later than RRC procedure delay seconds from the end of the last TTI containing the RRC command, the UE shall be ready to start the transmission of the new uplink DPCCH at the designated activation time + interruption time.

 D_{handover} equals the RRC procedure performance value defined in [16] plus the interruption time stated in section 5.2.2.2.2.

5.2.2.1.3 7.68 Mcps TDD option

RRC procedure performance values for all RRC procedures that can command a hard handover, are specified in [16].

When the UE receives a RRC message implying TDD/FDD handover with the activation time "now" or earlier than RRC procedure delay seconds from the end of the last TTI containing the RRC command, the UE shall be ready to start the transmission of the new uplink DPCCH within RRC procedure delay seconds from the end of the last TTI containing the RRC command.

If the access is delayed to an indicated activation time later than $D_{handover}$ seconds from the end of the last TTI containing the RRC command, the UE shall be ready to start the transmission of the new uplink DPCCH at the designated activation time + interruption time.

where:

- D_{handover} equals the RRC procedure performance value as defined in [16] plus the interruption time stated in section 5.2.2.2.3.

5.2.2.2 Interruption time

5.2.2.2.1 3.84 Mcps TDD option

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

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

$$T_{interrupt} = T_{offset} + 40 + 50 * KC + 150 * UC + 10 * F_{max} ms$$

where.

 T_{offset}

	•	·	•
KC	Equal to 1 if a known target c and equal to 0 otherwise	ell is indicated in the RR	C message implying TDD/FDD handover
UC	Equal to 1 if an unknown targ	get cell is indicated in the	RRC message implying TDD/FDD

Equal to 10 ms, the frame timing uncertainty between the old cell and the target cell.

handover and equal to 0 otherwise

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

An inter-frequency FDD 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 interruption time requirements for an unknown target cell shall apply only if the signal quality of the unknown target cell is sufficient for successful synchronisation with one attempt.

Note that the requirements in this section assume that N312 has the smallest possible value, i.e. only one in-sync indication as described in [23] is required.

5.2.2.2.2 1.28 Mcps TDD option

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

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

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

where.

 $T_{IU} \qquad \qquad \text{The interruption uncertainty when changing the timing from the old to the new cell. } T_{IU} \text{ can be up to one frame (10 ms)}.$ $KC \qquad \qquad \text{Equal to 1 if a known target cell is indicated in the RRC message implying 1.28Mcps TDD/FDD handover and equal to 0 otherwise.}$ $UC \qquad \qquad \text{Equal to 1 if an unknown target cell is indicated in the RRC message implying 1.28Mcps TDD/FDD handover and equal to 0 otherwise.}$ $F_{max} \qquad \qquad \text{denotes the maximum number of radio frames within the transmission time intervals of all transport channels that are multiplexed into the same CCTrCH.}$

An inter-frequency FDD 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 interruption time requirements for an unknown target cell shall apply only if the signal quality of the unknown target cell is sufficient for successful synchronisation with one attempt.

Note that the requirements in this section assume that N312 has the smallest possible value, i.e. only one in-sync indication as described in [23] is required.

5.2.2.2.3 7.68 Mcps TDD option

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

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

$$T_{interrunt} = T_{offset} + 40 + 50 * KC + 150 * UC + 10 * F_{max} ms$$

where.

T_{offset} Equal to 10 ms, the frame timing uncertainty between the old cell and the target cell.
 KC Equal to 1 if a known target cell is indicated in the RRC message implying TDD/FDD handover and equal to 0 otherwise
 UC Equal to 1 if an unknown target cell is indicated in the RRC message implying TDD/FDD handover and equal to 0 otherwise
 F_{max} denotes the maximum number of radio frames within the transmission time intervals of all transport channels that are multiplexed into the same CCTrCH.

An inter-frequency FDD 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 interruption time requirements for an unknown target cell shall apply only if the signal quality of the unknown target cell is sufficient for successful synchronisation with one attempt.

Note that the requirements in this section assume that N312 has the smallest possible value, i.e. only one in-sync indication as described in [23] is required.

5.3 TDD/GSM Handover

5.3.1 Introduction

5.3.1.1 3.84 Mcps TDD option

The purpose of inter-RAT handover from UTRAN TDD to GSM is to transfer a connection between the UE and UTRAN TDD to GSM. The handover procedure is initiated from UTRAN with a RRC message (HANDOVER FROM UTRAN COMMAND) as described in [16].

5.3.1.2 1.28 Mcps TDD option

The purpose of inter-RAT handover from UTRAN TDD to GSM is to transfer a connection between the UE and UTRAN TDD to GSM. The handover procedure is initiated from UTRAN with a RRC message (HANDOVER FROM UTRAN COMMAND). The procedure is described in [16]

5.3.1.3 7.68 Mcps TDD option

The purpose of inter-RAT handover from UTRAN TDD to GSM is to transfer a connection between the UE and UTRAN TDD to GSM. The handover procedure is initiated from UTRAN with a RRC message (HANDOVER FROM UTRAN COMMAND) as described in [16].

5.3.2 Requirements

The requirements in this section shall apply to UE supporting TDD and GSM.

5.3.2.1 TDD/GSM handover delay

5.3.2.1.1 3.84 Mcps TDD option

The RRC procedure performance value for the RRC HANDOVER FROM UTRAN COMMAND shall be 50 ms.

If the activation time is used in the RRC HANDOVER FROM UTRAN COMMAND, it corresponds to the CFN of the UTRAN channel.

When the UE receives a RRC HANDOVER FROM UTRAN COMMAND with the activation time "now" or earlier than RRC procedure delay seconds from the end of the last TTI containing the RRC command, the UE shall be ready to transmit as specified [22] on the new channel of the new RAT within $D_{handover}$ seconds from the end of the last TTI containing the RRC command.

If the access is delayed to an indicated activation time later than RRC procedure delay seconds from the end of the last TTI containing the RRC command, the UE shall be ready to transmit as specified in [22] on the new channel of the new RAT at the designated activation time + interruption time.

D_{handover} equals the RRC procedure performance value plus the interruption time stated in section 5.3.2.2.

5.3.2.1.2 1.28 Mcps TDD option

The RRC procedure performance value for the RRC HANDOVER FROM UTRAN COMMAND shall be within 50 ms.

If the activation time is used in the RRC HANDOVER FROM UTRAN COMMAND, it corresponds to the CFN of the UTRAN channel.

When the UE receives a RRC HANDOVER FROM UTRAN COMMAND with the activation time "now" or earlier than RRC procedure delay seconds from the end of the last TTI containing the RRC command, the UE shall be ready to transmit as specified in [22] on the new channel within the new RAT within $D_{handover}$ seconds from the end of the last TTI containing the RRC command.

If the access is delayed to an indicated activation time later than RRC procedure delay seconds from the end of the last TTI containing the RRC command, the UE shall be ready to transmit as specified in [22] on the new channel of the new RAT at the designated activation time + interruption time.

D_{handover} equals the RRC procedure performance value (50 ms) plus the interruption time stated in section 5.3.2.2.2.

5.3.2.1.3 7.68 Mcps TDD option

The RRC procedure performance value for the RRC HANDOVER FROM UTRAN COMMAND shall be 50 ms.

If the activation time is used in the RRC HANDOVER FROM UTRAN COMMAND, it corresponds to the CFN of the UTRAN channel.

When the UE receives a RRC HANDOVER FROM UTRAN COMMAND with the activation time "now" or earlier than RRC procedure delay seconds from the end of the last TTI containing the RRC command, the UE shall be ready to transmit as specified [22] on the new channel of the new RAT within $D_{handover}$ seconds from the end of the last TTI containing the RRC command.

If the access is delayed to an indicated activation time later than RRC procedure delay seconds from the end of the last TTI containing the RRC command, the UE shall be ready to transmit as specified in [22] on the new channel of the new RAT at the designated activation time + interruption time.

D_{handover} equals the RRC procedure performance value plus the interruption time stated in section 5.3.2.2.

5.3.2.2 Interruption time

5.3.2.2.1 3.84 Mcps TDD option

The interruption time, i.e. the time between the end of the last TTI containing a transport block on the old DPCH and the time the UE is ready to transmit on the new channel of the new RAT, is dependent on whether the UE has synchonised to the target cell or not before receiving the RRC HANDOVER FROM UTRAN COMMAND.

The interruption time for the purpose of TDD/GSM handover shall be less than the value in Table 5.4.

Table 5.4: TDD/GSM 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 requirements in Table 5.4 for the case where the UE has not synchronised to the GSM target cell before receiving the RRC HANDOVER FROM UTRAN COMMAND shall apply only if the signal quality of the GSM target cell is sufficient for successful synchronisation with one attempt.

If the UE is unable to synchronise to the GSM cell on the first attempt, it shall continue to search for synchronisation information for up to 800 ms. If after 800 ms the UE has not synchronised to the GSM cell it shall follow the handover failure procedure specified in [16].

5.3.2.2.2 1.28 Mcps TDD option

The interruption time, i.e. the time between the end of last TTI containing a transport block on the old DPCH and the time the UE is ready to transmit on the new channel of the new RAT, is dependent on whether the UE has synchonised to the target cell or not before receiving the RRC HANDOVER FROM UTRAN COMMAND.

The interruption time for the purpose of TDD/GSM handover shall be less than the value in Table 5.4A.

Table 5.4A: TDD/GSM 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 requirements in Table 5.4A for the case where the UE has not synchronised to the GSM target cell before receiving the RRC HANDOVER FROM UTRAN COMMAND shall apply only if the signal quality of the GSM target cell is sufficient for successful synchronisation with one attempt.

If the UE is unable to synchronise to the GSM cell on the first attempt, it shall continue to search for synchronisation information for up to 800 ms. If after 800 ms the UE has not synchronised to the GSM cell it shall follow the handover failure procedure specified in [16].

5.3.2.2.3 7.68 Mcps TDD option

The interruption time, i.e. the time between the end of the last TTI containing a transport block on the old DPCH and the time the UE is ready to transmit on the new channel of the new RAT, is dependent on whether the UE has synchonised to the target cell or not before receiving the RRC HANDOVER FROM UTRAN COMMAND.

The interruption time for the purpose of TDD/GSM handover shall be less than the value in Table 5.4B.

Table 5.4B: TDD/GSM 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 requirements in Table 5.4B for the case where the UE has not synchronised to the GSM target cell before receiving the RRC HANDOVER FROM UTRAN COMMAND shall apply only if the signal quality of the GSM target cell is sufficient for successful synchronisation with one attempt.

If the UE is unable to synchronise to the GSM cell on the first attempt, it shall continue to search for synchronisation information for up to 800 ms. If after 800 ms the UE has not synchronised to the GSM cell it shall follow the handover failure procedure specified in [16].

5.3a TDD to E-UTRAN FDD Handover

5.3a.1 Introduction

The purpose of inter-RAT handover from UTRAN TDD to E-UTRAN FDD is to transfer a connection between the UE and UTRAN TDD to E-UTRAN FDD. The handover procedure is initiated from UTRAN with a RRC message (HANDOVER FROM UTRAN COMMAND). The procedure is described in TS 25.331.

Scheduled idle intervals according to the UE capability may be used to be able to make measurements on E-UTRAN.

5.3a.2 Requirements

The requirements in this section shall apply to UE supporting TDD and E-UTRAN FDD.

5.3a.2.1 Handover delay

When the UE receives a RRC HANDOVER FROM UTRAN COMMAND message with activation time "now" or earlier than RRC procedure delay seconds from the end of the last TTI containing the RRC command, the UE shall be ready to start the transmission of the new uplink PRACH channel within $D_{handover}$ seconds from the end of the last TTI containing the RRC command, where:

- D_{handover} equals the maximum RRC procedure delay defined plus the interruption time stated in section 5.3a.2.2.

The UE shall process the RRC procedures for the RRC HANDOVER FROM UTRAN COMMAND within 50 ms, which is noted as RRC procedure delay.

If the access is delayed to an indicated activation time later than RRC procedure delay seconds from the end of the last TTI containing the RRC command, the UE shall be ready to start the transmission of the new uplink PRACH channel at the designated activation time + interruption time.

5.3a.2.2 Interruption time

The interruption time is the time between end of the last TTI in which the UE has received the handover command and the time the UE starts transmission of the PRACH in the new E-UTRA cell, excluding the RRC procedure delay. This requirement applies when UE is not required to perform any synchronisation procedure before transmitting on the new PRACH.

When inter-RAT handover to E-UTRAN is commanded, the interruption time shall be less than Tinterrupt:

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

where

 T_{search} is the time required to search the target cell when the target cell is not already known when the handover command is received by the UE. If the target cell is known, then $T_{search}=0$ ms. If the target cell is unknown and signal quality is sufficient for successful cell detection on the first attempt, then $T_{search}=80$ ms.

 $T_{\rm IU}$ is the interruption uncertainty in acquiring the first available PRACH occasion in the new cell. $T_{\rm IU}$ can be up to 30 ms.

NOTE: The actual value of T_{IU} shall depend upon the PRACH configuration used in the target cell.

In the interruption requirement a cell is known if it has been meeting the relevant cell identification requirement during the last 5 seconds otherwise it is unknown. Relevant cell identification requirements are described in Section 8.1.2.7.1 for 3.84 Mcps TDD option and Section 8.1A.2.6.1 for 1.28 Mcps TDD option and Section 8.1B.2.7.1 for 7.68 Mcps TDD option.

5.3b TDD to E-UTRAN TDD Handover

5.3b.1 Introduction

The purpose of inter-RAT handover from UTRAN TDD to E-UTRAN TDD is to transfer a connection between the UE and UTRAN TDD to E-UTRAN TDD. The handover procedure is initiated from UTRAN with a RRC message (HANDOVER FROM UTRAN COMMAND). The procedure is described in TS 25.331.

Scheduled idle intervals according to the UE capability may be used to be able to make measurements on E-UTRAN.

5.3b.2 Requirements

The requirements in this section shall apply to UE supporting TDD and E-UTRAN TDD.

5.3b.2.1 Handover delay

When the UE receives a RRC HANDOVER FROM UTRAN COMMAND message with activation time "now" or earlier than RRC procedure delay seconds from the end of the last TTI containing the RRC command, the UE shall be ready to start the transmission of the new uplink PRACH channel within $D_{handover}$ seconds from the end of the last TTI containing the RRC command, where:

- D_{handover} equals the maximum RRC procedure delay defined plus the interruption time stated in section 5.3b.2.2.

The UE shall process the RRC procedures for the RRC HANDOVER FROM UTRAN COMMAND within 50 ms, which is noted as RRC procedure delay.

If the access is delayed to an indicated activation time later than RRC procedure delay seconds from the end of the last TTI containing the RRC command, the UE shall be ready to start the transmission of the new uplink PRACH channel at the designated activation time + interruption time.

5.3b.2.2 Interruption time

The interruption time is the time between end of the last TTI in which the UE has received the handover command and the time the UE starts transmission of the PRACH in the new E-UTRA cell, excluding the RRC procedure delay. This requirement applies when UE is not required to perform any synchronisation procedure before transmitting on the new PRACH.

When inter-RAT handover to E-UTRAN is commanded, the interruption time shall be less than T_{interrupt}:

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

where

 T_{search} is the time required to search the target cell when the target cell is not already known when the handover command is received by the UE. If the target cell is known, then $T_{search}=0$ ms. If the target cell is unknown and signal quality is sufficient for successful cell detection on the first attempt, then $T_{search}=80$ ms.

 $T_{\rm IU}$ is the interruption uncertainty in acquiring the first available PRACH occasion in the new cell. $T_{\rm IU}$ can be up to 30 ms.

NOTE: The actual value of T_{IU} shall depend upon the PRACH configuration used in the target cell.

In the interruption requirement a cell is known if it has been meeting the relevant cell identification requirement during the last 5 seconds otherwise it is unknown. Relevant cell identification requirements are described in Section 8.1.2.8.1 for 3.84 Mcps TDD option and Section 8.1A.2.7.1 for 1.28 Mcps TDD option and Section 8.1B.2.8.1 for 7.68 Mcps TDD option.

5.4 Cell Re-selection in Cell FACH

5.4.1 Introduction

The UE shall evaluate the cell re-selection criteria specified in [18], based on radio measurements, and if a better ranked cell is found that cell is selected.

5.4.2 Requirements for 3.84Mcps TDD option

The cell re-selection delays specified below are applicable when the RRC parameter $T_{reselection}$ is set to 0. Otherwise the Cell reselection delay is increased by $T_{reselection}$ s.

P-CCPCH RSCP shall be used for cell reselection in Cell-FACH state to another TDD cell, CPICH Ec/Io and CPICH RSCP shall be used for cell re-selection to a FDD cell and GSM carrier RSSI shall be used for cell re-selection to a GSM cell. The accuracies of the measurements used for cell re-selection in an AWGN environment shall comply with the requirements in chapter 9. The measurements used for S-criteria and cell re-selection evaluation in CELL_FACH state shall be performed according to section 8.4.

5.4.2.1 Cell re-selection delay

For UTRA TDD, the cell re-selection delay is defined as the time between the occurrence of an event which will trigger the cell re-selection process and the moment in time when the UE starts sending the RRC CELL UPDATE message to the UTRAN on RACH.

For UTRA FDD, the cell re-selection delay is defined as the time between the occurrence of an event which will trigger the cell re-selection process and the moment in time when the UE starts sending the preambles on the PRACH for sending RRC CELL UPDATE message to the UTRAN.

For GSM, 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 random access in the target cell of the new RAT.

These requirements assume radio conditions to be sufficient, so that reading of system information can be done without errors.

5.4.2.1.1 Intra-frequency cell re-selection

The cell re-selection delay in CELL_FACH state for intra frequency TDD cells shall be less than:

$$T_{reselection, intra} = T_{identify, intra} + T_{IU} + 20 + T_{SI} + T_{RA}$$
 ms

where

T_{identify, intra} is specified in 8.4.2.2.1.

 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} is the time required for receiving all the relevant system information data according to the

reception procedure and the RRC procedure performance value of system information blocks

defined in [16] for a UTRAN cell.

 T_{RA} is the additional delay caused by the random access procedure.

If a cell has been detectable at least $T_{identify,intra}$, the cell re-selection delay in CELL_FACH state to an intra-frequency TDD cell 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_{measurement period intra} is specified in 8.4.2.2.2.

5.4.2.1.2 Inter-frequency cell re-selection

The cell re-selection delay in CELL_FACH state for inter-frequency TDD cells shall be less than:

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

where

T_{identify, inter} is specified in 8.4.2.3.1.

 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} is the time required for receiving all the relevant system information data according to the reception procedure and the RRC procedure performance value of system information blocks defined in [16] for a UTRAN cell.

 T_{RA} is the additional delay caused by the random access procedure.

If a cell has been detectable at least $T_{identify,inter}$, the cell re-selection delay in CELL_FACH state to an inter-frequency TDD cell shall be less than,

$$T_{reselection, inter} = T_{measurement inter} + T_{IU} + 20 + T_{SI} + T_{RA} ms$$

where

 $T_{\text{measurement inter}}$ is specified in 8.4.2.3.2.

5.4.2.1.3 TDD FDD cell re-selection

The requirements in this section shall apply to UE supporting TDD and FDD.

The cell re-selection delay in CELL_FACH state to an inter-frequency FDD cells shall be less than:

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

where

T_{identify, FDD} is specified in 8.4.2.4.1

 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} is the time required for receiving all the relevant system information data according to the

reception procedure and the RRC procedure performance value of system information blocks

defined in [16] for a UTRAN cell.

T_{RA} is the additional delay caused by the random access procedure.

If a cell has been detectable at least $T_{identify\;FDD\;inter}$, the cell re-selection delay in CELL_FACH state to an interfrequency FDD cell shall be less than,

$$T_{\text{reselection.FDD}} = T_{\text{measurement FDD inter}} + T_{\text{IU}} + 20 + T_{\text{SI}} + T_{\text{RA}} \text{ ms}$$

where

 $T_{measurement\;FDD\;inter}$ is specified in 8.4.2.4.1.

5.4.2.1.4 Inter-RAT cell re-selection

The requirements in this section shall apply to UE supporting TDD and GSM.

The cell re-selection delay in CELL_FACH state for inter-RAT cells shall be less than:

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

where

T_{BCCH} is the maximum time allowed to read the BCCH data from a GSM cell [21].

T_{RA} is the additional delay caused by the random access procedure.

a) For a UE using measurement occasions and idle intervals to perform GSM measurements

T_{identify, GSM} equal to T_{identify about} as is specified in 8.4.2.5.2.1.

$$T_{\text{measurement, GSM}} = Max \left\{ 8 \cdot \frac{N_{carriers}}{N_{GSM \ carrier RSSI}} \cdot T_{meas}, 4 * T_{meas}, 480ms \right\}$$

where

N_{carriers} is the number of GSM carriers in the Inter-RAT cell info list

 $N_{GSM\ carrier\ RSSI}$ shall be derived from the values in table 8.7 section 8.4.2.5.1.

 T_{meas} is specified in section 8.4.2.1.

b) For a UE not using measurement occasions and idle intervals to perform GSM measurements

 $T_{identify GSM} = 150 \text{ ms}$

 $T_{measurement\ GSM} = 480\ ms$

5.4.2.2 Interruption time

For UTRA TDD, the interruption time is defined as the time period between the last TTI the UE monitors the FACH on the serving cell and the time instant the UE starts to transmit the RRC CELL UPDATE message to the UTRAN on the RACH.

For UTRA FDD, the interruption time is defined as the time period between the last TTI the UE monitors the FACH on the serving cell and the time instant the UE starts sending preambles on the PRACH for sending the RRC CELL UPDATE message to the UTRAN.

For GSM, the interruption time is defined as the time period between the last TTI the UE monitors the FACH on the serving cell and the time instant the UE starts sending the random access in the target cell of the new RAT.

The requirements on interruption time in this section shall apply only if the signal quality of the serving cell is sufficient to allow decoding of the FACH during cell-re-selection.

5.4.2.2.1 TDD-TDD cell re-selection

In case of cell reselection to an intra-frequency TDD cell or cell re-selection to an inter-frequency TDD cell and when the UE does not need measurement occasions to perform TDD inter-frequency measurements, the interruption time shall be less than,

$$T_{interrupt1} = T_{IU} + 20 + T_{RA} \text{ ms}$$

In case of cell re-selection to an inter-frequency TDD cell and when the UE needs measurement occasions to perform inter-frequency TDD measurements, the interruption time shall be less than

$$T_{interrupt2} = T_{IU} + 20 + T_{SI} + T_{RA} \text{ ms}$$

where

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

 T_{SI} is the time required for receiving all the relevant system information data according to the reception procedure and the RRC procedure performance value of system information blocks defined in [16].

T_{RA} is the additional delay caused by the random access procedure.

5.4.2.2.2 TDD-FDD cell re-selection

The requirements in this section shall apply to UE supporting TDD and FDD.

In case of cell re-selection to an inter-frequency FDD cell and when the UE does not need measurement occasions to perform inter-frequency FDD measurements, the interruption time shall be less than,

$$T_{interrupt1, FDD} = T_{IU} + 20 + T_{RA} ms$$

In case of cell re-selection to an inter-frequency TDD cell and when the UE needs measurement occasions to perform inter-frequency TDD measurements, the interruption time shall be less than

$$T_{interrupt2, FDD} = T_{IU} + 20 + T_{SI} + T_{RA} ms$$

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).

T_{SI} is the time required for receiving all the relevant system information data according to the

reception procedure and the RRC procedure performance value of system information blocks

defined in [16].

T_{RA} is the additional delay caused by the random access procedure.

5.4.2.2.3 TDD-GSM cell re-selection

The requirements in this section shall apply to UE supporting TDD and GSM.

In case of cell re-selection to an inter-RAT cell, the interruption time shall be less than,

$$T_{interrupt.GSM} = 40 + T_{BCCH} + T_{RA} \text{ ms}$$

where

T_{BCCH} is the maximum time allowed to read BCCH data from the GSM cell [21].

T_{RA} is the additional delay caused by the random access procedure.

5.4.2.3 Measurement and evaluation of cell selection criteria S of serving cell

The S-criteria detection delay is defined as the time between the occurrence of an event which leads to that the cell selection criteria S for serving cell is not fulfilled and the moment in time when the UE detects that the cell selection criteria S for serving cell is not fulfilled.

The UE shall filter the P-CCPCH RSCP measurements used for cell selection criteria S evaluation of the serving cell over at least 3 measurement periods $T_{\text{Measurement period intra}}$.

The S-critera detection delay in CELL_FACH state shall be less than:

$$T_{S-criteria} = 5 \times T_{measurement period intra}$$
 ms

where

T_{measurement period intra} is specified in 8.4.2.2.2.

If the UE has evaluated that the serving cell does not fulfil the cell selection criterion S during 4 s and if during this time period the UE has not found any new suitable cell based on measurements of neighbour cells as indicated in the measurement control system information, the UE shall consider having detected "out of service area" and initiate actions according to [16] and [18].

On transition from CELL_DCH to CELL_FACH, if a UE cannot find a suitable UTRA cell, then it is considered to be "out of service area" and shall perform actions according to [16].

5.4.3 Requirements for 1.28Mcps TDD option

The cell re-selection delays specified below are applicable when the RRC parameter $T_{reselection}$ is set to 0. Otherwise the Cell reselection delay is increased by $T_{reselection}$ s.

P-CCPCH RSCP shall be used for cell reselection in Cell-FACH state to another TDD cell, CPICH RSCP and if requested in addition CPICH Ec/Io shall be used for cell re-selection to a FDD cell and GSM BCCH carrier RSSI shall be used for cell re-selection to a GSM cell. The accuracies of the measurements used for cell re-selection in an AWGN environment shall comply with the requirements in chapter 9. The measurements used for S-criteria and cell re-selection evaluation in CELL_FACH state shall be performed according to section 8.4A.

NOTE: In CELL_FACH state, there are no requirements for inter-RAT reselection to an E-UTRAN cell.

5.4.3.1 Measurements

The UE measurement capability according to section 8.4A shall apply.

5.4.3.2 Cell re-selection delay

For cell re-selection to TDD, 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 to send SYNCH-UL sequence for sending the RRC CELL UPDATE message to the UTRAN.

For cell re-selection to FDD the cell re-selection delay is defined as the time between the occurrence of an event which will trigger Cell Reselection process and the moment in time when the UE starts sending the preambles on the PRACH for sending RRC CELL UPDATE message to the UTRAN.

For cell re-selection to GSM 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 random access in the target cell of the new RAT.

5.4.3.2.1 Intra-frequency cell re-selection

The cell re-selection delay in CELL_FACH state to an intra frequency cell shall be less than:

$$T_{reselection,\,intra} = T_{identify\ intra} + T_{IU} + 20 + T_{SI} + T_{RA} \text{ ms}$$

If a cell has been detectable at least for $T_{identify,intra}$, the cell re-selection delay in CELL_FACH state to an intra frequency cell shall be less than:

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

where

T_{identify intra} is specified in 8.4A.2.2.1

T_{Measurement Period Intra} is specified in 8.4A.2.2.2

 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} 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 [16] for a UTRAN cell.

T_{RA} is the additional delay caused by the random access procedure.

 T_{CSI} is the additional delay in case the cell re-selection indication shall be sent in enhanced CELL_FACH state. T_{CSI} can be up to one sub frame (5ms) or the delay caused by the random access procedure (T_{RA}).

This requirement assumes radio conditions to be sufficient, so reading of system information can be done without errors.

5.4.3.2.2 Inter-frequency TDD cell re-selection

The cell re-selection delay in CELL_FACH state to an inter-frequency TDD cell shall be less than:

$$T_{reselection, inter} = T_{identify inter} + T_{IU} + 20 + T_{SI} + T_{RA} + T_{CSI} ms$$

If a cell has been detectable at least for $T_{identify,inter}$, the cell re-selection delay in CELL_FACH state to an inter frequency cell shall be less than:

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

where

 $T_{identify\ inter}$ is specified in 8.4A.2.3.1

T_{measurement inter} is specified in 8.4A.2.3.2

 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} 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.

 T_{RA} is the additional delay caused by the random access procedure.

T_{CSI} is the additional delay in case the cell re-selection indication shall be sent in enhanced

CELL_FACH state. T_{CSI} can be up to one sub frame (5ms) or the delay caused by the random

access procedure (T_{RA}) .

This requirement assumes radio conditions to be sufficient, so reading of system information can be done without errors.

5.4.3.2.3 Inter-frequency FDD cell re-selection

The requirements in this section shall apply to UE supporting both 1.28 Mcps TDD and FDD.

The cell re-selection delay in CELL FACH state to a FDD cell shall be less than:

$$T_{\rm reselection,\,FDD} = T_{\rm identify\,\,FDD\,\,inter} \, + T_{\rm IU} \, + 20 + T_{\rm SI} \, + T_{\rm RA} \, + T_{\rm CSI} \ \, {\rm ms}$$

If a cell has been detectable at least $T_{identify\ FDD\ inter}$, the cell re-selection delay in CELL_FACH state to FDD cell shall be less than:

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

where

T_{identify FDD inter} is specified in 8.4A.2.4.1

 $T_{\text{measurement FDD inter}}$ is specified in 8.4A.2.4.1.

 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} 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 [16] for

a UTRAN cell.

 T_{RA} is the additional delay caused by the random access procedure.

T_{CSI} is the additional delay in case the cell re-selection indication shall be sent in enhanced

CELL_FACH state. T_{CSI} can be up to one sub frame (5ms) or the delay caused by the random

access procedure (T_{RA}) .

This requirement assumes radio conditions to be sufficient, so reading of system information can be done without errors.

5.4.3.2.4 Inter-RAT cell re-selection

The requirements in this section shall apply to UE supporting both 1.28 Mcps TDD and GSM.

The cell re-selection delay in CELL_FACH state to an inter-RAT cell shall be less than:

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

 T_{RA} = The additional delay caused by the random access procedure.

T_{BCCH} = The maximum time allowed to read BCCH data from GSM cell [21].

 T_{CSI} is the additional delay in case the cell re-selection indication shall be sent in enhanced CELL_FACH state. T_{CSI} can be up to one sub frame (5ms) or the delay caused by the random

access procedure (T_{RA}) .

where

a) For UE requiring idle intervals or measurement occasions:

 $T_{identify\ GSM}$ is equal to $T_{identify\ abort}$ as specified in 8.4A.2.5.2.1.

T_{Measurement GSM} is the worst case time for measuring one previously identified GSM carrier.

$$T_{\text{measurement GSM}} = Max \left\{ 8 \cdot \frac{N_{carriers}}{N_{GSM \ carrierRSSI}} \cdot T_{meas}, 480ms \right\}$$

where

N_{carriers} is the number of GSM carriers in the Inter-RAT cell info list

 $N_{GSM\ carrier\ RSSI}$ is specified in section 8.4A.2.5.1.

 T_{meas} is specified in section 8.4A.2.1.

b) For UE not requiring idle intervals and measurement occasions

 $T_{identify, GSM} = 150 \text{ ms}$

 $T_{Measurement, GSM} = 480 \text{ ms}$

This requirement assumes radio conditions to be sufficient, so reading of system information can be done without errors.

5.4.3.3 Interruption time

For UTRA TDD, the interruption time is defined as the time period between the last TTI the UE monitors the FACH on the serving cell and the time instant the UE starts to transmit the SYNC-UL sequence in the UpPTS for sending the RRC CELL UPDATE message to the UTRAN.

For UTRA FDD, the interruption time is defined as the time period between the last TTI the UE monitors the FACH on the serving cell and the time instant the UE starts sending preambles on the PRACH for sending the RRC CELL UPDATE message to the UTRAN.

For GSM, the interruption time is defined as the time period between the last TTI the UE monitors the FACH on the serving cell and the time instant the UE starts sending the random access in the target cell of the new RAT.

The requirements on interruption time in this section shall apply only if the signal quality of the serving cell is sufficient to allow decoding of the FACH during cell-re-selection.

5.4.3.3.1 TDD-TDD cell re-selection

In case of cell re-selection to a TDD cell, the interruption time shall be less than

$$T_{interrupt, \ TDD} = T_{IU} + 20 + T_{SI} + T_{RA} + T_{CSI} \ ms$$

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).

T_{SI} is the time required for receiving all the relevant system information data according to the

reception procedure and the RRC procedure performance value of system information blocks

defined in [16].

 T_{RA} is the additional delay caused by the random access procedure.

T_{CSI} is the additional delay in case the cell re-selection indication shall be sent in enhanced

CELL_FACH state. T_{CSI} can be up to one sub frame (5ms) or the delay caused by the random

access procedure (T_{RA}).

5.4.3.3.2 TDD-FDD cell re-selection

The requirements in this section shall apply to UE supporting both 1.28 Mcps TDD and FDD.

In case of cell re-selection to a FDD cell, the interruption time shall be less than

$$T_{interrupt, FDD} = T_{IU} + 20 + T_{SI} + T_{RA} + T_{CSI}$$
 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).

T_{SI} is the time required for receiving all the relevant system information data according to the

reception procedure and the RRC procedure performance value of system information blocks

defined in [16].

 T_{RA} is the additional delay caused by the random access procedure.

T_{CSI} is the additional delay in case the cell re-selection indication shall be sent in enhanced

CELL_FACH state. T_{CSI} can be up to one sub frame (5ms) or the delay caused by the random

access procedure (T_{RA}) .

5.4.3.3.3 TDD-GSM cell re-selection

The requirements in this section shall apply to UE supporting both 1.28 Mcps TDD and GSM.

In case of cell re-selection to an inter-RAT cell, the interruption time shall be less than

$$T_{\text{interrupt GSM}} = 40 + T_{\text{BCCH}} + T_{\text{RA}} + T_{\text{CSI}} \text{ ms}$$

where

 T_{BCCH} is the maximum time allowed to read BCCH data from the GSM cell [21].

T_{RA} is the additional delay caused by the random access procedure.

T_{CSI} is the additional delay in case the cell re-selection indication shall be sent in enhanced

CELL_FACH state. T_{CSI} can be up to one sub frame (5ms) or the delay caused by the random

access procedure (T_{RA}).

5.4.3.4 Measurement and evaluation of cell selection criteria S of serving cell

The S-criteria detection delay is defined as the time between the occurrence of an event which leads to that the cell selection criteria S for serving cell is not fulfilled and the moment in time when the UE detects that the cell selection criteria S for serving cell is not fulfilled.

The UE shall filter the P-CCPCH RSCP measurements used for cell selection criteria S evaluation of the serving cell over at least 3 measurement periods $T_{Measurement_Period\ Intra}$.

The S-critera detection delay in CELL_FACH state shall be less than:

$$T_{S-criteria} = 5 \times T_{Measurement Period Intra} ms$$

where $T_{Measurement_Period\ Intra}$ is specified in 8.4A.2.2.2.

The UE is "out of service area" if the UE has evaluated for 4 s that the serving cell does not fulfil the cell selection criterion S and if the UE has not found any new suitable cell based on searches and measurements of the neighbour cells indicated in the measurement control system information during these 4 s. When the UE is "out of service area" it shall initiate cell selection procedures for the selected PLMN as defined in [18].

On transition from CELL_DCH to CELL_FACH, if a UE cannot find a suitable UTRA cell, then it is considered to be "out of service area" and shall perform actions according to [16].

5.4.4 Requirements for 7.68Mcps TDD option

The cell re-selection delays specified below are applicable when the RRC parameter $T_{reselection}$ is set to 0. Otherwise the Cell reselection delay is increased by $T_{reselection}$ s.

P-CCPCH RSCP shall be used for cell reselection in Cell-FACH state to another TDD cell, CPICH Ec/Io and CPICH RSCP shall be used for cell re-selection to a FDD cell and GSM carrier RSSI shall be used for cell re-selection to a GSM cell. The accuracies of the measurements used for cell re-selection in an AWGN environment shall comply with the requirements in chapter 9. The measurements used for S-criteria and cell re-selection evaluation in CELL_FACH state shall be performed according to section 8.4B.

5.4.4.1 Cell re-selection delay

For UTRA TDD, the cell re-selection delay is defined as the time between the occurrence of an event which will trigger the cell re-selection process and the moment in time when the UE starts sending the RRC CELL UPDATE message to the UTRAN on RACH.

For UTRA FDD, the cell re-selection delay is defined as the time between the occurrence of an event which will trigger the cell re-selection 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.

For GSM, 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 random access in the target cell of the new RAT.

These requirements assume radio conditions to be sufficient, so that reading of system information can be done without errors.

5.4.4.1.1 Intra-frequency cell re-selection

The cell re-selection delay in CELL_FACH state for intra frequency TDD cells shall be less than:

$$T_{\text{reselection, intra}} = T_{\text{identify, intra}} + T_{\text{IU}} + 20 + T_{\text{SI}} + T_{\text{RA}}$$
 ms

where

T_{identify, intra} is specified in 8.4B.2.2.1.

 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} is the time required for receiving all the relevant system information data according to the reception procedure and the RRC procedure performance value of system information blocks defined in [16] for a UTRAN cell.

 T_{RA} is the additional delay caused by the random access procedure.

If a cell has been detectable at least $T_{identify,intra}$, the cell re-selection delay in CELL_FACH state to an intra-frequency TDD cell shall be less than,

$$T_{reselection, intra} = T_{measurement period, intra} + T_{IU} + 20 + T_{SI} + T_{RA} ms$$

where

T_{measurement period intra} is specified in 8.4B.2.2.2.

5.4.4.1.2 Inter-frequency cell re-selection

The cell re-selection delay in CELL_FACH state for inter-frequency TDD cells shall be less than:

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

where

T_{identify, inter} is specified in 8.4B.2.3.1.

 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} is the time required for receiving all the relevant system information data according to the

reception procedure and the RRC procedure performance value of system information blocks

defined in [16] for a UTRAN cell.

T_{RA} is the additional delay caused by the random access procedure.

If a cell has been detectable at least $T_{identify,inter}$, the cell re-selection delay in CELL_FACH state to an inter-frequency TDD cell shall be less than,

$$T_{\text{reselection, inter}} = T_{\text{measurement inter}} + T_{\text{IU}} + 20 + T_{\text{SL}} + T_{\text{RA}} \text{ ms}$$

where

T_{measurement inter} is specified in 8.4B.2.3.2.

5.4.4.1.3 TDD FDD cell re-selection

The requirements in this section shall apply to UE supporting TDD and FDD.

The cell re-selection delay in CELL_FACH state to an inter-frequency FDD cells shall be less than:

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

where

T_{identify, FDD} is specified in 8.4B.2.4.1

 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} is the time required for receiving all the relevant system information data according to the

reception procedure and the RRC procedure performance value of system information blocks

defined in [16] for a UTRAN cell.

T_{RA} is the additional delay caused by the random access procedure.

If a cell has been detectable at least $T_{identify\;FDD\;inter}$, the cell re-selection delay in CELL_FACH state to an interfrequency FDD cell shall be less than,

$$T_{\rm reselection,\,FDD} = T_{\rm measurement\,FDD\,inter} + T_{\rm IU} + 20 + T_{\rm SI} + T_{\rm RA}\,{\rm ms}$$

where

T_{measurement FDD inter} is specified in 8.4B.2.4.1.

5.4.4.1.4 Inter-RAT cell re-selection

The requirements in this section shall apply to UE supporting TDD and GSM.

The cell re-selection delay in CELL_FACH state for inter-RAT cells shall be less than:

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

where

T_{BCCH} is the maximum time allowed to read the BCCH data from a GSM cell [21].

T_{RA} is the additional delay caused by the random access procedure.

a) For a UE using measurement occasions and idle intervals to perform GSM measurements

T_{identify, GSM} equal to T_{identify about} as is specified in 8.4B.2.5.2.1.

$$T_{\text{measurement, GSM}} = Max \left\{ 8 \cdot \frac{N_{carriers}}{N_{GSM \ carrier RSSI}} \cdot T_{meas}, 4 * T_{meas}, 480 ms \right\}$$

where

N_{carriers} is the number of GSM carriers in the Inter-RAT cell info list

 $N_{GSM\ carrier\ RSSI}$ shall be derived from the values in section 8.4B.2.5.1.

 T_{meas} is specified in section 8.4B.2.1.

b) For a UE not using measurement occasions and idle intervals to perform GSM measurements

 $T_{identify\ GSM} = 150\ ms$

 $T_{measurement GSM} = 480 \text{ ms}$

5.4.4.2 Interruption time

For UTRA TDD, the interruption time is defined as the time period between the last TTI the UE monitors the FACH on the serving cell and the time instant the UE starts to transmit the RRC CELL UPDATE message to the UTRAN on the RACH.

For UTRA FDD, the interruption time is defined as the time period between the last TTI the UE monitors the FACH on the serving cell and the time instant the UE starts sending preambles on the PRACH for sending the RRC CELL UPDATE message to the UTRAN.

For GSM, the interruption time is defined as the time period between the last TTI the UE monitors the FACH on the serving cell and the time instant the UE starts sending the random access in the target cell of the new RAT.

The requirements on interruption time in this section shall apply only if the signal quality of the serving cell is sufficient to allow decoding of the FACH during cell-re-selection.

5.4.4.2.1 TDD-TDD cell re-selection

In case of cell reselection to an intra-frequency TDD cell or cell re-selection to an inter-frequency TDD cell and when the UE does not need measurement occasions to perform TDD inter-frequency measurements, the interruption time shall be less than.

$$T_{interrupt1} = T_{IU} + 20 + T_{RA} \text{ ms}$$

In case of cell re-selection to an inter-frequency TDD cell and when the UE needs measurement occasions to perform inter-frequency TDD measurements, the interruption time shall be less than

$$T_{interrupt2} = T_{IU} + 20 + T_{SI} + T_{RA} ms$$

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).

 T_{SI} is the time required for receiving all the relevant system information data according to the reception procedure and the RRC procedure performance value of system information blocks defined in [16].

T_{RA} is the additional delay caused by the random access procedure.

5.4.4.2.2 TDD-FDD cell re-selection

The requirements in this section shall apply to UE supporting TDD and FDD.

In case of cell re-selection to an inter-frequency FDD cell and when the UE does not need measurement occasions to perform inter-frequency FDD measurements, the interruption time shall be less than,

$$T_{interrupt1. FDD} = T_{IU} + 20 + T_{RA} ms$$

In case of cell re-selection to an inter-frequency TDD cell and when the UE needs measurement occasions to perform inter-frequency TDD measurements, the interruption time shall be less than

$$T_{interrupt2}$$
, $FDD = T_{IU} + 20 + T_{SI} + T_{RA}$ 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).

 T_{SI} is the time required for receiving all the relevant system information data according to the reception procedure and the RRC procedure performance value of system information blocks defined in [16].

 T_{RA} is the additional delay caused by the random access procedure.

5.4.4.2.3 TDD-GSM cell re-selection

The requirements in this section shall apply to UE supporting TDD and GSM.

In case of cell re-selection to an inter-RAT cell, the interruption time shall be less than,

$$T_{interrupt,GSM} = 40 + T_{BCCH} + T_{RA} \text{ ms}$$

where

T_{BCCH} is the maximum time allowed to read BCCH data from the GSM cell [21].

T_{RA} is the additional delay caused by the random access procedure.

5.4.4.3 Measurement and evaluation of cell selection criteria S of serving cell

The S-criteria detection delay is defined as the time between the occurrence of an event which leads to that the cell selection criteria S for serving cell is not fulfilled and the moment in time when the UE detects that the cell selection criteria S for serving cell is not fulfilled.

The UE shall filter the P-CCPCH RSCP measurements used for cell selection criteria S evaluation of the serving cell over at least 3 measurement periods $T_{\text{Measurement period intra}}$.

The S-critera detection delay in CELL_FACH state shall be less than:

$$T_{S-criteria} = 5 \times T_{measurement period intra}$$
 ms

where

 $T_{\text{measurement period intra}}$ is specified in 8.4B.2.2.2.

If the UE has evaluated that the serving cell does not fulfil the cell selection criterion S during 4 s and if during this time period the UE has not found any new suitable cell based on measurements of neighbour cells as indicated in the measurement control system information, the UE shall consider having detected "out of service area" and initiate actions according to [16] and [18].

On transition from CELL_DCH to CELL_FACH, if a UE cannot find a suitable UTRA cell, then it is considered to be "out of service area" and shall perform actions according to [16].

5.5 Cell Re-selection in Cell PCH

5.5.1 Introduction

The UE shall evaluate the cell re-selection criteria specified in [18], based on radio measurements, and if a better cell is found that cell is selected.

5.5.2 Requirements

5.5.2.1 3.84 Mcps option

Requirements for cell re-selection in Cell_PCH state are the same as for cell re-selection in idle mode, see section 4.2. The UE shall support all DRX cycle lengths in table 4.1, according to [16].

The UE shall consider having detected "out of service area" and initiate actions according to [16] and [18], if the serving cell does not fulfil the cell selection criterion S in N_{serv} consecutive DRX cycles and if during the following 12 s no new suitable cell based upon measurements of all neighbour cells indicated in the measurement control system information has been found.

5.5.2.2 1.28 Mcps option

Requirements for cell re-selection in Cell_PCH state are the same as for cell re-selection in idle mode, see section 4.2. The UE shall support all DRX cycle lengths in table 4.1A, according to [16].

5.5.2.3 7.68 Mcps option

Requirements for cell re-selection in Cell_PCH state are the same as for cell re-selection in idle mode, see section 4.2. The UE shall support all DRX cycle lengths in table 4.1B, according to [16].

The UE shall consider having detected "out of service area" and initiate actions according to [16] and [18], if the serving cell does not fulfil the cell selection criterion S in N_{serv} consecutive DRX cycles and if during the following 12 s no new suitable cell based upon measurements of all neighbour cells indicated in the measurement control system information has been found.

5.6 Cell Re-selection in URA PCH

5.6.1 Introduction

The UE shall evaluate the cell re-selection criteria specified in [18], based on radio measurements, and if a better cell is found that cell is selected.

5.6.2 Requirements

5.6.2.1 3.84 Mcps option

Requirements for cell re-selection in URA_PCH state are the same as for cell re-selection in idle mode, see section 4.2. The UE shall support all DRX cycle lengths in table 4.1, according to [16].

The UE shall consider having detected "out of service area" and initiate actions according to [16] and [18], if the serving cell does not fulfil the cell selection criterion S in N_{serv} consecutive DRX cycles and if during the following 12 s no new suitable cell based upon measurements of all neighbour cells indicated in the measurement control system information has been found.

5.6.2.2 1.28 Mcps option

Requirements for cell re-selection in URA_PCH state are the same as for cell re-selection in idle mode, see section 4.2. The UE shall support all DRX cycle lengths in table 4.1A, according to [16].

5.6.2.3 7.68 Mcps option

Requirements for cell re-selection in URA_PCH state are the same as for cell re-selection in idle mode, see section 4.2. The UE shall support all DRX cycle lengths in table 4.1B, according to [16].

The UE shall consider having detected "out of service area" and initiate actions according to [16] and [18], if the serving cell does not fulfil the cell selection criterion S in N_{serv} consecutive DRX cycles and if during the following 12 s no new suitable cell based upon measurements of all neighbour cells indicated in the measurement control system information has been found.

5.7 RACH reporting

5.7.1 Introduction

5.7.1.1 3.84 Mcps TDD option

The network may request the UE to report on RACH P-CCPCH RSCP for the serving cell and up to 6 strongest monitored set cells and SFN-SFN observed time difference between the serving cell and up to 6 different monitored set cells.

5.7.1.2 1.28 Mcps TDD option

The network may request the UE to report on RACH P-CCPCH RSCP for the serving cell and up to 6 strongest monitored set cells and SFN-SFN observed time difference between the serving cell and up to 6 different monitored set cells.

5.7.1.3 7.68 Mcps TDD option

The network may request the UE to report on RACH P-CCPCH RSCP for the serving cell and up to 6 strongest monitored set cells and SFN-SFN observed time difference between the serving cell and up to 6 different monitored set cells.

5.7.2 Requirements

5.7.2.1 3.84 Mcps TDD option

If all of the following conditions are true, the UE is allowed to have an additional delay of N_{RACH} *50 ms in RACH transmission compared to the normal RACH transmission delay.

- SFN-SFN observed time difference measurement results are required to be reported on RACH
- The set of cells on which the SFN-SFN observed time difference measurement is to be reported has not changed since the previous RACH measurement report
- The UE has not measured the SFN-SFN observed time differences for the cells to be reported on RACH in the CELL_FACH state according to the requirements defined in Section 8.4.2.2

If at least one of the previous conditions is false, the UE shall be able to report the requested measurement results on RACH within a normal RACH transmission delay.

 N_{RACH} is the number of cells requiring SFN decoding prior to the reporting of SFN-SFN observed time difference measurement results on RACH.

5.7.2.2 1.28 Mcps TDD option

If all of the following conditions are true, the UE is allowed to have an additional delay of N_{RACH} *50 ms in RACH transmission compared to the normal RACH transmission delay.

- SFN-SFN observed time difference measurement results are required to be reported on RACH
- The set of cells on which the SFN-SFN observed time difference measurement is to be reported has not changed since the previous RACH measurement report
- The UE has not measured the SFN-SFN observed time differences for the cells to be reported on RACH in the CELL_FACH state according to the requirements defined in Section 8.4A.2.2

If at least one of the previous conditions is false, the UE shall be able to report the requested measurement results on RACH within a normal RACH transmission delay.

 N_{RACH} is the number of cells requiring SFN decoding prior to the reporting of SFN-SFN observed time difference measurement results on RACH.

5.7.2.3 7.68 Mcps TDD option

If all of the following conditions are true, the UE is allowed to have an additional delay of $N_{RACH}*50$ ms in RACH transmission compared to the normal RACH transmission delay.

- SFN-SFN observed time difference measurement results are required to be reported on RACH
- The set of cells on which the SFN-SFN observed time difference measurement is to be reported has not changed since the previous RACH measurement report
- The UE has not measured the SFN-SFN observed time differences for the cells to be reported on RACH in the CELL FACH state according to the requirements defined in Section 8.4B.2.2

If at least one of the previous conditions is false, the UE shall be able to report the requested measurement results on RACH within a normal RACH transmission delay.

 N_{RACH} is the number of cells requiring SFN decoding prior to the reporting of SFN-SFN observed time difference measurement results on RACH.

5.8 Inter-RAT cell change order from UTRAN in CELL_DCH and CELL_FACH

5.8.1 Introduction

5.8.1.1 3.84 Mcps TDD option

The purpose of inter-RAT cell change order from UTRAN TDD to GSM is to transfer a connection between the UE and UTRAN TDD to GSM. This procedure may be used in CELL_DCH and CELL_FACH state. The cell change order procedure is initiated from UTRAN with a RRC message (CELL CHANGE ORDER FROM UTRAN). The procedure is described in [16].

5.8.1.2 1.28 Mcps TDD option

The purpose of inter-RAT cell change order from 1.28 Mcps TDD to GSM is to transfer a connection between the UE and 1.28 Mcps TDD to GSM. This procedure may be used in CELL_DCH and CELL_FACH state. The cell change order procedure is initiated from UTRAN with a RRC message (CELL CHANGE ORDER FROM UTRAN). The procedure is described in [16].

NOTE: No procedure is defined for Inter-RAT cell change order from 1.28Mcps TDD to E-UTRAN.

5.8.1.3 7.68 Mcps TDD option

The purpose of inter-RAT cell change order from UTRAN TDD to GSM is to transfer a connection between the UE and UTRAN TDD to GSM. This procedure may be used in CELL_DCH and CELL_FACH state. The cell change order procedure is initiated from UTRAN with a RRC message (CELL CHANGE ORDER FROM UTRAN). The procedure is described in [16].

5.8.2 Requirements

5.8.2.1 Delay

5.8.2.1.1 3.84 Mcps TDD option

The requirements in this section shall apply to UE supporting 3.84 Mcps TDD and GSM.

When the UE receives a RRC CELL CHANGE ORDER FROM UTRAN COMMAND with the activation time "now" or earlier than the value in table 5.5 from the end of the last TTI containing the RRC command, the UE shall start transmit the random access in the target cell of the new RAT within the value in table 5.5 from the end of the last TTI containing the RRC command.

If the access is delayed to an indicated activation time later than the value in table 5.5 from the end of the last TTI containing the RRC command, the UE shall start transmit the random access in the target cell of the new RAT at the designated activation time.

The UE shall process the RRC procedures for the RRC CELL CHANGE ORDER FROM UTRAN COMMAND within 50 ms. If the activation time is used, it corresponds to the CFN of the UTRAN channel.

Table 5.5: Inter-RAT cell change order from UTRAN - delay

UE synchronisation status	delay [ms]
The UE has synchronised to the GSM cell before the CELL	$90 + T_{BCCH} + T_{RA}$
CHANGE ORDER FROM UTRAN COMMAND is received	
The UE has not synchronised to the GSM cell before the CELL $190 + T_{BCCH} + T_{F}$	
CHANGE ORDER FROM UTRAN COMMAND is received	

where

T_{BCCH} = the maximum time allowed to read BCCH data from the GSM cell [21].

 T_{RA} = the additional delay caused by the random access procedure

5.8.2.1.2 1.28 Mcps TDD option

The requirements in this section shall apply to UE supporting both 1.28 Mcps TDD and GSM.

The RRC procedure performance value for the RRC CELL CHANGE ORDER FROM UTRAN COMMAND shall be within 50 ms.

If the activation time is used in the RRC CELL CHANGE ORDER FROM UTRAN COMMAND, it corresponds to the CFN of the UTRAN channel.

When the UE receives a RRC CELL CHANGE ORDER FROM UTRAN COMMAND with the activation time "now" or earlier than the value in table 5.5A from the end of the last TTI containing the RRC command, the UE shall start transmit the random access in the target cell of the new RAT within the value in table 5.5A from the end of the last TTI containing the RRC command.

If the access is delayed to an indicated activation time later than the value in table 5.5A from the end of the last TTI containing the RRC command, the UE shall start transmit the random access in the target cell of the new RAT at the designated activation time.

Table 5.5A: Inter-RAT cell change order from UTRAN - delay

UE synchronisation status	delay [ms]
The UE has synchronised to the GSM cell before the CELL CHANGE ORDER FROM UTRAN COMMAND is received	90 + T _{BCCH} +T _{RA}
The UE has not synchronised to the GSM cell before the CELL CHANGE ORDER FROM UTRAN COMMAND is received	190 + T _{BCCH} +T _{RA}

where

 T_{BCCH} = the maximum time allowed to read BCCH data from the GSM cell [21].

 T_{RA} = the additional delay caused by the random access procedure

5.8.2.1.3 7.68 Mcps TDD option

The requirements in this section shall apply to UE supporting 7.68 Mcps TDD and GSM.

When the UE receives a RRC CELL CHANGE ORDER FROM UTRAN COMMAND with the activation time "now" or earlier than the value in table 5.5B from the end of the last TTI containing the RRC command, the UE shall start transmit the random access in the target cell of the new RAT within the value in table 5.5B from the end of the last TTI containing the RRC command.

If the access is delayed to an indicated activation time later than the value in table 5.5B from the end of the last TTI containing the RRC command, the UE shall start transmit the random access in the target cell of the new RAT at the designated activation time.

The UE shall process the RRC procedures for the RRC CELL CHANGE ORDER FROM UTRAN COMMAND within 50 ms. If the activation time is used, it corresponds to the CFN of the UTRAN channel.

Table 5.5B: Inter-RAT cell change order from UTRAN - delay

UE synchronisation status	delay [ms]
The UE has synchronised to the GSM cell before the CELL	$90 + T_{BCCH} + T_{RA}$
CHANGE ORDER FROM UTRAN COMMAND is received	
The UE has not synchronised to the GSM cell before the CELL	190 + T _{BCCH} +T _{RA}
CHANGE ORDER FROM UTRAN COMMAND is received	

where

T_{BCCH} = the maximum time allowed to read BCCH data from the GSM cell [21].

 T_{RA} = the additional delay caused by the random access procedure

5.8.2.2 Interruption time

5.8.2.2.1 3.84 Mcps TDD option

The requirements in this section shall apply to UE supporting 3.84 Mcps TDD and GSM.

The requirements on interruption time below is valid when the signal quality of the serving cell is good enough to allow decoding of the old channel during the inter-RAT cell change order from UTRAN delay.

The interruption time, i.e. the time between the end of the last TTI containing a transport block that the UE is able to receive on the old channel and the time the UE starts transmit the random access in the target cell, shall be less than the value in table 5.6. The requirement in table 5.6 for the case, that UE is not synchronised to the GSM cell before the CELL CHANGE ORDER FROM UTRAN COMMAND is received, is valid when the signal quality of the GSM cell is good enough for successful synchronisation with one attempt.

Table 5.6: Inter-RAT cell change order from UTRAN - interruption time

Synchronisation status	Interruption time [ms]
The UE has synchronised to the GSM cell before the CELL	$40 + T_{BCCH} + T_{RA}$
CHANGE ORDER FROM UTRAN COMMAND is received	
The UE has not synchronised to the GSM cell before the CELL	$140 + T_{BCCH} + T_{RA}$
CHANGE ORDER FROM UTRAN COMMAND is received	

where

T_{BCCH} = the maximum time allowed to read BCCH data from the GSM cell [21].

 T_{RA} = the additional delay caused by the random access procedure

5.8.2.2.2 1.28 Mcps TDD option

The requirements in this section shall apply to UE supporting both 1.28 Mcps TDD and GSM.

The requirement on interruption time below is valid when the signal quality of the serving cell is good enough to allow decoding of the old channel during the inter-RAT cell change order from UTRAN delay.

The interruption time, i.e. the time between the end of the last TTI containing a transport block that the UE is able to receive on the old channel and the time the UE starts transmit the random access in the target cell, shall be less than the value in table 5.6A.

Table 5.6A: Inter-RAT cell change order from UTRAN - interruption time

Synchronisation status	Interruption time [ms]
The UE has synchronised to the GSM cell before the CELL	$40 + T_{BCCH} + T_{RA}$
CHANGE ORDER FROM UTRAN COMMAND is received	
The UE has not synchronised to the GSM cell before the CELL	$140 + T_{BCCH} + T_{RA}$
CHANGE ORDER FROM UTRAN COMMAND is received	

where

 T_{BCCH} = the maximum time allowed to read BCCH data from the GSM cell [21].

 T_{RA} = the additional delay caused by the random access procedure

The requirements in Table 5.6A for the case where the UE has not synchronised to the GSM target cell before receiving the RRC CELL CHANGE ORDER FROM UTRAN COMMAND shall apply only if the signal quality of the GSM target cell is sufficient for successful synchronisation with one attempt.

If the UE is unable to synchronise to the GSM cell on the first attempt, it shall continue to search for synchronisation information for up to 800 ms. If after 800 ms the UE has not synchronised to the GSM cell it shall follow the cell change order from UTRAN failure procedure specified in [16].

5.8.2.2.3 7.68 Mcps TDD option

The requirements in this section shall apply to UE supporting 7.68 Mcps TDD and GSM.

The requirements on interruption time below is valid when the signal quality of the serving cell is good enough to allow decoding of the old channel during the inter-RAT cell change order from UTRAN delay.

The interruption time, i.e. the time between the end of the last TTI containing a transport block that the UE is able to receive on the old channel and the time the UE starts transmit the random access in the target cell, shall be less than the value in table 5.6B. The requirement in table 5.6B for the case, that UE is not synchronised to the GSM cell before the CELL CHANGE ORDER FROM UTRAN COMMAND is received, is valid when the signal quality of the GSM cell is good enough for successful synchronisation with one attempt.

Table 5.6B: Inter-RAT cell change order from UTRAN - interruption time

Synchronisation status	Interruption time [ms]
The UE has synchronised to the GSM cell before the CELL	$40 + T_{BCCH} + T_{RA}$
CHANGE ORDER FROM UTRAN COMMAND is received	
The UE has not synchronised to the GSM cell before the CELL	$140 + T_{BCCH} + T_{RA}$
CHANGE ORDER FROM UTRAN COMMAND is received	

where

T_{BCCH} = the maximum time allowed to read BCCH data from the GSM cell [21].

 T_{RA} = the additional delay caused by the random access procedure

5.9 Serving HS-DSCH cell change

5.9.1 Introduction

5.9.1.1 3.84 Mcps option

Void.

5.9.1.2 1.28 Mcps option

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

5.9.1.3 7.68 Mcps option

Void.

5.9.2 Requirements

5.9.2.1 3.84 Mcps option

Void.

5.9.2.2 1.28 Mcps option

5.9.2.2.1 Serving HS-DSCH cell change delay

Procedure delay for the procedure, which can command a HS-DSCH cell change, is specified in TS25.331 section 13.5.2.

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

If the access is delayed to an indicated activation time later than RRC procedure delay seconds from the end of the last TTI containing the RRC command, the UE shall be ready to start the transmission of the new uplink HS-SICH at the designated activation time + processing time.

where:

 $T_{cell\;change} = T_{RRC} + T_{processing} \square$

The RRC procedure delay T_{RRC} is defined in TS25.331 Section 13.5.2.

 $T_{\text{cell change}}$ equals the RRC procedure delay defined in TS25.331 Section 13.5.2 plus the processing time stated in section 5.9.2.2.2.

5.9.2.2.2 Processing time

The HS-DSCH processing time is the time between the last received TTI that can contain a transport block on the old HS-PDSCH and the time when the UE is ready to transmit CQI reports based on the quality of the new cell and the UE have started to receive the HS-SCCH of the new cell.

$$T_{processing} = T_{ul/dl \ sync} + T_{hs\text{-sich/hs-scch interval}}$$

 $T_{\text{ul/dl sync}}$ Defined as Uplink and Downlink synchronisation time, specified as 80ms.

T_{hs-sich/hs-scch interval} Defined as interval time between HS-SCCH and the corresponding HS-SICH, for 1,28Mcps option specified as 15ms.

5.9.2.3 7.68 Mcps option

Void.

6 (void)

6A RRC Connection Control

6A.1 RRC re-establishment

6A.1.1 Introduction

RRC connection re-establishment is needed, when a UE in CELL_DCH state loses radio connection due to radio link failure. The procedure when a radio link failure occurs in CELL_DCH state is specified in [16].

6A.1.2 Requirements

6A.1.2.1 3.84Mcps TDD option

The requirements in this section are applicable when the UE performs a RRC connetion re-establishment to a cell belonging to any of the frequencies present in the previous monitored set.

The UE moves from CELL_DCH to CELL_FACH state and shall be capable of sending a RRC CELL UPDATE message using the cause value "radio link failure" within $T_{RE-ESTABLISH}$ seconds from when the radio link failure occurred.

 $T_{\text{RE-ESTABLISH}}$ equals the RRC procedure performance value $T_{\text{RRC-RE-ESTABLISH}}$ according to [16] plus the UE reestablishment delay $T_{\text{UE-RE-ESTABLISH-REQ}}$ specified in 6A.1.2.1.

$$T_{\text{RE-ESTABLISH}} = T_{\text{RRC-RE-ESTABLISH}} + T_{\text{UE-RE-ESTABLISH-REQ}}$$

6A.1.2.1.1 UE re-establishment delay requirement

For UTRA TDD, the UE re-establishment delay $T_{\text{UE-RE-ESTABLISH-REQ}}$ is defined as the time between the moment when radio link failure is considered by the UE to when the UE starts sending the RRC CELL UPDATE message to the UTRAN on RACH.

 $T_{\text{UE-RE-ESTABLISH-REQ}}$ is depending on whether the target cell is known by the UE or not. A cell shall be considered known by the UE if either or both of the following conditions are true:

- the UE has had a radio link connected to the cell during the last 5 seconds
- the cell has been measured by the UE during the last 5 seconds.

In case that the target cell is known by the UE, the UE re-establishment delay shall be less than

$$T_{UE-RE-ESTABLISH-REO-KNOWN} = 50 + T_{SEARCH-KNOWN} + T_{SI}$$
 ms

In case that the target cell is not known by the UE, the UE re-establishment delay shall be less than,

$$T_{\text{UE-RE-ESTABLISH-REQ-UNKNOWN}} = 50 + T_{\text{SEARCH-UNKNOWN}} * NF + T_{\text{SI}} \text{ ms}$$

in case that the target cell is not known by the UE;

where,

 $T_{SEARCH-KNOWN}$ Equal to 100 ms, the time it takes for the UE to search for the known target cell

T_{SEARCH-UNKNOWN} Equal to 800 ms, the time it takes for the UE to search for the unknown target cell

T_{SI} The time required for receiving all the relevant system information data according to the reception procedure and the RRC procedure performance value of system information blocks defined in [16] for a UTRAN cell.

NF The number of different frequencies in the previous (old) monitored set.

These requirements assume radio conditions to be sufficient, so that reading of system information can be done without errors.

6A.1.2.2 1.28Mcps TDD option

The requirements in this section are applicable when the UE performs a RRC connection re-establishment to a cell belonging to any of the frequencies present in the previous monitored set.

The UE moves from CELL_DCH to CELL_FACH state and shall be capable of sending a CELL UPDATE message using the cause "radio link failure" within $T_{\text{RE-ESTABLISH}}$ seconds from when the radio link failure occurred.

 $T_{RE-ESTABLISH}$ equals the RRC procedure delay ($T_{RRC-RE-ESTABLISH}$) according to TS25.331 plus the UE Re-establishment delay requirement ($T_{UE-RE-ESTABLISH-REQ}$), specified in 6A.1.2.2.1.

 $T_{RE-ESTABLISH} = T_{RRC-RE-ESTABLISH} + T_{UE-RE-ESTABLISH-REO}$

6A.1.2.2.1 Re-establishment delay requirement

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 SYNC-UL in the UpPTS for sending a CELL UPDATE message using the cause "radio link failure".

 $T_{\text{RE-ESTABLISH-REQ}}$ 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 a dedicated connection to the cell during the last 5 seconds
- the cell has been measured by the UE during the last 5 seconds

The UE Re-establishment delay shall be less than

$$T_{UE-RE-ESTABLISH-REQ-KNOWN} = 50ms + T_{search} + T_{SI} + T_{RA}$$

in case that the target cell is known by the UE, and

$$T_{UE^-RE-ESTABLISH-REQ-UNKNOWN} = 50ms + T_{search} *NF + T_{SI} + T_{RA}$$

in case that the target cell is unknown by the UE

where

- T_{search} is the time it takes for the UE to search the cell.
 - $T_{search} = 100$ ms if the target cell is known by the UE, and
 - T_{search} =800 ms if the target cell is not known by the UE.
- 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)
- T_{RA} = The additional delay caused by the random access procedure.
- NF is the number of different frequencies in the monitored set.

This requirement assumes radio conditions to be sufficient, so that reading of system information can be done without errors.

6A.1.2.3 7.68Mcps TDD option

The requirements in this section are applicable when the UE performs a RRC connetion re-establishment to a cell belonging to any of the frequencies present in the previous monitored set.

The UE moves from CELL_DCH to CELL_FACH state and shall be capable of sending a RRC CELL UPDATE message using the cause value "radio link failure" within $T_{RE\text{-}ESTABLISH}$ seconds from when the radio link failure occurred.

 $T_{RE-ESTABLISH}$ equals the RRC procedure performance value $T_{RRC-RE-ESTABLISH}$ according to [16] plus the UE reestablishment delay $T_{UE-RE-ESTABLISH-REQ}$ specified in 6A.1.2.3.

$$T_{RE-ESTABLISH} = T_{RRC-RE-ESTABLISH} + T_{UE-RE-ESTABLISH-REO}$$

6A.1.2.3.1 UE re-establishment delay requirement

For UTRA TDD, the UE re-establishment delay $T_{\text{UE-RE-ESTABLISH-REQ}}$ is defined as the time between the moment when radio link failure is considered by the UE to when the UE starts sending the RRC CELL UPDATE message to the UTRAN on RACH.

 $T_{\text{UE-RE-ESTABLISH-REQ}}$ is depending on whether the target cell is known by the UE or not. A cell shall be considered known by the UE if either or both of the following conditions are true:

- the UE has had a radio link connected to the cell during the last 5 seconds
- the cell has been measured by the UE during the last 5 seconds.

In case that the target cell is known by the UE, the UE re-establishment delay shall be less than

$$T_{\text{UE-RE-ESTABLISH-REO-KNOWN}} = 50 + T_{\text{SEARCH-KNOWN}} + T_{\text{SI}} \text{ ms}$$

In case that the target cell is not known by the UE, the UE re-establishment delay shall be less than,

$$T_{\text{UE-RE-ESTABLISH-REQ-UNKNOWN}} = 50 + T_{\text{SEARCH-UNKNOWN}} * NF + T_{\text{SI}} \text{ ms}$$

in case that the target cell is not known by the UE;

where,

T_{SEARCH-KNOWN} Equal to 100 ms, the time it takes for the UE to search for the known target cell

 $T_{SEARCH-UNKNOWN}$ Equal to 800 ms, the time it takes for the UE to search for the unknown target cell

The time required for receiving all the relevant system information data according to the reception procedure and the RRC procedure performance value of system information blocks defined in [16] for a UTRAN cell.

NF The number of different frequencies in the previous (old) monitored set.

These requirements assume radio conditions to be sufficient, so that reading of system information can be done without errors.

6A.2 Transport format combination selection in UE

6A.2.1 Introduction

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 combination set. This in order to make it possible for the network operator to maximise the coverage. The transport format combination selection in UE is described in [13].

6A.2.1.1 3.84 Mcps TDD option

Void.

6A.2.1.2 1.28 Mcps TDD option

The E-TFC selection delay is defined as the time from the moment SS starts to send TPC_Cmd=UP to the moment UE E-TFCI becomes 0. UE E-TFC selection is specified in section 11.9.1.4 in TS25.321.

6A.2.1.3 7.68 Mcps TDD option

Void.

6A.2.2 Requirements

6A.2.2.1 3.84 Mcps TDD option

The UE shall continuously evaluate based on the *Elimination*, *Recovery* and *Blocking* criteria defined below, how TFCs can be used for the purpose of TFC selection. The evaluation shall be performed using the estimated UE transmit power of a given CCTrCH in its associated timeslots.

In the case of a single CCTrCH or multiple CCTrCHs having mutually exclusive timeslot assignments, the UE shall consider the *Eliminiation* criterion for a given TFC of a CCTrCH to be fulfilled if for 3 successive frames the estimated

UE transmit power is greater than the Maximum UE transmitter power for at least one timeslot associated with the CCTrCH in each frame.

. In the case of multiple CCTrCHs not having mutually exclusive timeslot assignments, if for a given CCTrCH for 3 successive frames the estimated UE transmit power is greater than the Maximum UE transmitter power for at least one timeslot associated with the CCTrCH in each frame, the UE shall consider the *Elimination* criterion for a given TFC to be fulfilled if the use of this TFC will cause the estimated UE transmit power to continue to be greater than the Maximum UE transmitter power in at least one timeslot associated with the CCTrCH.

In the case of multi-frame operation of UL Physical Channels, the UE shall only consider active frames for the evaluation of the *Elimination* criterion.

If the *Elimination* criterion for a given TFC is fulfilled, 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 bitrate for each logical channel to upper layers within T_{notify} from the moment the *Elimination* criterion was fulfilled.

The UE shall not consider the *Recovery* criterion for a given TFC to be fulfilled until the use of this TFC will not cause the estimated UE transmit power to be greater than the Maximum UE transmitter power for all UL timeslots associated with the TFC for a minimum of 3 successive frames.

In the case of multi-frame operation of UL Physical Channels, the UE shall only consider active frames for the evaluation of the *Recovery* criterion.

. If the *Recovery* criterion for a given TFC is fulfilled, 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 fulfilled.

The UE shall consider the *Blocking* criterion for a given TFC to be fulfilled at the latest at the start of the longest uplink TTI after the moment at which the TFC will have been in Excess-Power state for a duration of

$$(T_{notify} + T_{modify} + T_{L1_proc}).$$

where:

T_{notify} equals 15 ms, and

 T_{modify} equals $MAX(T_{adapt_max}, T_{TTI})$, and

T_{L1 proc} equals 35 ms, and

 T_{adapt_max} equals MAX($T_{adapt_1},\,T_{adapt_2},\,...,\,T_{adapt_N}$), and

N equals the number of logical channels that need to change rate, and

 T_{adapt_n} equals the time it takes for higher layers to provide data to MAC in a new supported bitrate, for logical channel n. Table 6A.1 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 6A.1: T_{adapt}

Service	T _{adapt} [ms]
UMTS AMR	40
UMTS AMR 2	60

T_{TTI} equals the longest uplink TTI of the selected TFC (ms).

The Maximum UE transmitter power is defined as follows

Maximum UE transmitter power = MIN(Maximum allowed UL TX Power, UE maximum transmit power)

where

Maximum allowed UL TX Power is set by UTRAN and defined in [16], and

UE maximum transmit power is defined by the UE power class, and specified in [5].

6A.2.2.2 1.28 Mcps TDD option

The UE shall continuously evaluate based on the *Elimination*, *Recovery* and *Blocking* criteria defined below, how TFCs can be used for the purpose of TFC selection. The evaluation shall be performed using the estimated UE transmit power of a given TFC. The UE transmit power estimation shall be made using the UE transmitted power measured over the measurement period and the gain factors of the corresponding TFC.

The UE shall consider the *Eliminiation* criterion for a given TFC to be fulfilled if the estimated UE transmit power needed for this TFC is greater than the Maximum UE transmitter power for at least X out of Y successive measurement periods. 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 bitrate for each logical channel to upper layers within [15 ms] from the moment the *Elimination* criterion was fulfilled.

The UE shall consider the *Recovery* criterion for a given TFC to be fulfilled if the estimated UE transmit power needed for this TFC has not been greater than the Maximum UE transmitter power for at least Y successive measurement periods. 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 fulfilled.

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 $(T_{notify} + T_{modify} + T_{Ll_proc})$.

where:

T_{notify} equals [15] ms, and

 T_{modify} equals $MAX(T_{adapt_max}, T_{TTI})$, and

T_{L1 proc} equals 15 ms, and

 T_{adapt_max} equals MAX($T_{adapt_1},\,T_{adapt_2},\,...,\,T_{adapt_N}$), and

N equals the number of logical channels that need to change rate, and

 T_{adapt_n} equals the time it takes for higher layers to provide data to MAC in a new supported bitrate, for logical channel n. Table 6A.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 6A.2: T_{adapt}

Service	T _{adapt} [ms]
AMR	40

T_{TTI} equals the longest uplink TTI of the selected TFC (ms).

E-TFC selection is allowed only in the CELL_DCH state.

UE will calculate the power of E-PUCH according to the expressions as below, which is stated in TS 25.224 clause 4.2.2.4)

$$P_{E-PUCH} = P_{e-base} + L + \beta_e + K_{E-PUCH}$$

maximum supported transmission power for a certain E-TFC=min(maximum UE transmission power, E-PUCH transmission power).

where, maximum UE transmission power is the maximum transmission power of UE.

E-PUCH transmission power is calculated by the expressions above with $\beta_e = (AG + \alpha_e)_o$

The UE shall consider the *Blocking* criterion for a given E-TFC to be fulfilled if the estimated power of E-PUCH is larger than maximum supported transmission power for a certain E-TFC.

The Maximum UE transmitter power is defined as follows

Maximum UE transmitter power = MIN(Maximum allowed UL TX Power, UE maximum transmit power)

where

Maximum allowed UL TX Power is set by UTRAN and defined in [16], and

UE maximum transmit power is defined by the UE power class, and specified in [5].

6A.2.2.3 7.68 Mcps TDD option

The UE shall continuously evaluate based on the *Elimination*, *Recovery* and *Blocking* criteria defined below, how TFCs can be used for the purpose of TFC selection. The evaluation shall be performed using the estimated UE transmit power of a given CCTrCH in its associated timeslots.

In the case of a single CCTrCH or multiple CCTrCHs having mutually exclusive timeslot assignments, the UE shall consider the *Eliminiation* criterion for a given TFC of a CCTrCH to be fulfilled if for 3 successive frames the estimated UE transmit power is greater than the Maximum UE transmitter power for at least one timeslot associated with the CCTrCH in each frame.

In the case of multiple CCTrCHs not having mutually exclusive timeslot assignments, if for a given CCTrCH for 3 successive frames the estimated UE transmit power is greater than the Maximum UE transmitter power for at least one timeslot associated with the CCTrCH in each frame, the UE shall consider the *Elimination* criterion for a given TFC to be fulfilled if the use of this TFC will cause the estimated UE transmit power to continue to be greater than the Maximum UE transmitter power in at least one timeslot associated with the CCTrCH.

In the case of multi-frame operation of UL Physical Channels, the UE shall only consider active frames for the evaluation of the *Elimination* criterion.

If the *Elimination* criterion for a given TFC is fulfilled, 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 bitrate for each logical channel to upper layers within T_{notify} from the moment the *Elimination* criterion was fulfilled.

The UE shall not consider the *Recovery* criterion for a given TFC to be fulfilled until the use of this TFC will not cause the estimated UE transmit power to be greater than the Maximum UE transmitter power for all UL timeslots associated with the TFC for a minimum of 3 successive frames.

In the case of multi-frame operation of UL Physical Channels, the UE shall only consider active frames for the evaluation of the *Recovery* criterion.

If the *Recovery* criterion for a given TFC is fulfilled, 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 fulfilled.

The UE shall consider the *Blocking* criterion for a given TFC to be fulfilled at the latest at the start of the longest uplink TTI after the moment at which the TFC will have been in Excess-Power state for a duration of

$$(T_{notify} + T_{modify} + T_{L1 proc}).$$

where:

T_{notify} equals 15 ms, and

 T_{modify} equals $MAX(T_{adapt_max}, T_{TTI})$, and

T_{L1 proc} equals 35 ms, and

 T_{adapt_max} equals MAX(T_{adapt_1} , T_{adapt_2} , ..., T_{adapt_N}), and

N equals the number of logical channels that need to change rate, and

 T_{adapt_n} equals the time it takes for higher layers to provide data to MAC in a new supported bitrate, for logical channel n. Table 6A.3 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 6A.3: Tadapt

Service	T _{adapt} [ms]
UMTS AMR	40
UMTS AMR 2	60

T_{TTI} equals the longest uplink TTI of the selected TFC (ms).

The Maximum UE transmitter power is defined as follows

Maximum UE transmitter power = MIN(Maximum allowed UL TX Power, UE maximum transmit power)

where

Maximum allowed UL TX Power is set by UTRAN and defined in [16], and

UE maximum transmit power is defined by the UE power class, and specified in [5].

6A.3 Maximum allowed UL TX Power

6A.3.1 Introduction

UTRAN may limit the power the UE is using on the uplink by setting the maximum allowed UL TX power IE defined in [16].

6A.3.2 Requirements

6A.3.2.1 3.84 Mcps option

For each measurement period, the UE shall with the use of the UE transmitted power measurement, estimate if it has reached the Maximum allowed UL TX Power or not. With tolerances as defined for the UE transmitted power measurement accuracy (section 9.1.2.1.1), the UE output power shall not exceed the Maximum allowed UL TX Power, as set by the UTRAN.

For UE output powers that are outside the range covered by the UE transmitted power measurement the UE output power shall not exceed the Maximum allowed UL TX Power with more than the tolerances specified for the UL Power Control in [5].

6A.3.2.2 1.28 Mcps option

For each measurement period, the UE shall with the use of the UE transmitted power measurement, estimate if it has reached the Maximum allowed UL TX Power or not. With tolerances as defined for the UE transmitted power measurement accuracy (section 9.1.2.1.1), the UE output power shall not exceed the Maximum allowed UL TX Power, as set by the UTRAN.

For UE output powers that are outside the range covered by the UE transmitted power measurement the UE output power shall not exceed the Maximum allowed UL TX Power with more than the tolerances specified for the UL Power Control in [5].

6A.3.2.3 7.68 Mcps option

For each measurement period, the UE shall with the use of the UE transmitted power measurement, estimate if it has reached the Maximum allowed UL TX Power or not. With tolerances as defined for the UE transmitted power measurement accuracy (section 9.1.2.1.1), the UE output power shall not exceed the Maximum allowed UL TX Power, as set by the UTRAN.

For UE output powers that are outside the range covered by the UE transmitted power measurement the UE output power shall not exceed the Maximum allowed UL TX Power with more than the tolerances specified for the UL Power Control in [5].

6A.4 Random Access

6A.4.1 Introduction

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 section 5.6 of TS 25.224 and the control of the RACH transmission is specified in section 11.2.3.2 of TS 25.321. A random access transmit sequence is described in section 6.7.3.2 of TS 25.303.

6A.4.2 Requirements

6A.4.2.1 3.84 Mcps TDD option

Void.

6A.4.2.2 1.28 Mcps TDD option

The UE shall have capability to calculate initial power according to the open loop algorithm and apply this power level at the first UpPCH and increase the power on additional UpPCH:

$$P_{UpPCH} = L_{PCCPCH} + PRX_{UpPCHdes} + (i-1)* Pwr_{ramp}$$

The absolute power applied to the first UpPCH shall have the accuracy as specified in table 6.4.1.2 of TS 25.102. The accuracy is \pm 9dB in the case of normal condition or \pm 12dB in the case of extreme condition.

The relative power, which is the power difference for UpPCH ramping. The test requirement of the power difference for all SYNC_UL ramping is 0~3dB (Pwr_{ramp}). The relative power applied to additional UpPCH shall have an accuracy as below, which is referred to 6.5.2.1 of TS 25.101.

Table 6A.4: Transmitter power difference tolerance

Power step size Pwr _{ramp} [dB]	Transmitter power difference tolerance [dB]	
0	+/- 1	
1	+/- 1	
2	+/- 1.5	
3	+/- 2	

The UE shall stop transmit UpPCH when FPACH has been received correctly or if the maximum number of UpPCH has been reached. When FPACH has been received correctly the UE shall transmit PRACH.

6A.4.2.2.1 Correct behaviour when receiving FPACH

The UE shall stop transmitting UpPCH when FPACH has been received correctly and then transmit a PRACH message.

The absolute power applied to the first UpPCH shall have an accuracy as specified in table 6.3A of TS 25.102. The relative power applied to additional UpPCH shall have an accuracy as below.

6A.4.2.2.2 Correct behaviour when reaching maximum allowed UL transmit power

The UE shall not exceed the maximum allowed UL TX power configured by the UTRAN.

The absolute power of any UpPCH shall not exceed the maximum allowed UL TX power with more than specified in section 6A.3.

6A.4.2.3 7.68 Mcps TDD option

Void.

7 Timing characteristics

7.1 Timing Advance

7.1.1 3.84 Mcps TDD option

7.1.1.1 Introduction

The timing advance is initiated from UTRAN with an RRC message that implies an adjustement of the timing advance, see TS 25.331 section 8.6.6.26.

To update timing advance of a UE, the UTRAN measures RX Timing deviation. The measurements are defined in TS 25.225 and measurement accuracies are specified in section 9.

7.1.1.2 Requirements

7.1.1.2.1 Timing Advance adjustment accuracy

The UE shall adjust the timing of its transmissions with an accuracy better than or equal to ± 0.5 chip to the signalled timing advance value.

7.1.1.2.2 Timing Advance adjustment delay

The UE shall adjust the timing of its transmission at the designated activation time, when the indicated activation time is later than D_{TA} msec from the end of the last TTI containing the RRC message implying an adjustment of the timing advance.

 D_{TA} equals the RRC procedure delay of the RRC message implying an adjustment of the timing advance as defined in TS25.331 section 13.5.

7.1.2 1.28 Mcps TDD option

For 1.28 Mcps TDD the timing advance in the UE is adjusted by means of uplink synchronization. For the random access procedure the node B commands the UE to adjust its synchronisation shift by means of signalling the received position of the UpPTS in the FPACH. During the connection the node B measures the timing in the uplink and transmits a SS (Synchronization Shift) command to the UE at least once per sub-frame.

These SS commands determined whether the UE synchronization shift is either left unchanged, or adjusted 1 step up or 1 step down. The step size of the SS adjustment is (k/8)Tc where k (=1,2,...,8) is signalled by higher layer signalling.

7.1.2.1 Uplink synchronization control requirements for UE for 1.28 Mcps TDD option

Uplink synchronization control is the ability of the UE transmitter to adjust its TX timing in accordance with one or more SS commands received in the downlink.

7.1.2.1.1 Uplink synchronization control steps

The SS step is the change in UE transmission timing in response to a single SS command, SS_cmd, received by the UE.

7.1.2.1.1.1 Minimum requirement

The UE transmitter shall have the capability of changing the transmission timing with a step size of 1/8, 2/8, 3/8, ..., 1 chip according to the value of Δ_{SS} , within n=(1,2,...,6) time slots excluding special timeslots (DwPTS, GP, UpPTS) after the SS_cmd arrived (closed loop). For the open loop any step being a multiple of 1/8 chip has to be allowed.

- a) The minimum transmission timing step $\Delta_{SS,min}$ due to closed loop uplink synchronization control shall be within the range shown in Table 7.1.
- b) In case uplink synchronization control implies larger adjustment than the minimum step the UE shall perform a multiple integer number of the minimum step. Within the implementation grid of the applicable timing steps of the UE the step being closest to the required step should be executed.

Uplink synchronisation control range for minimum step

1/8 chip step size

Lower

Upper

1/7 chip

1/7 chip

Table 7.1: Uplink synchronisation control range

1/9 chip

1/9 chip

7.1.3 7.68 Mcps TDD option

SS_cmd

Up

Down

7.1.3.1 Introduction

The timing advance is initiated from UTRAN with an RRC message that implies an adjustement of the timing advance, see TS 25.331 section 8.6.6.26.

To update timing advance of a UE, the UTRAN measures RX Timing deviation. The measurements are defined in TS 25.225 and measurement accuracies are specified in section 9.

7.1.3.2 Requirements

7.1.3.2.1 Timing Advance adjustment accuracy

The UE shall adjust the timing of its transmissions with an accuracy better than or equal to ± 0.5 chip to the signalled timing advance value.

7.1.3.2.2 Timing Advance adjustment delay

The UE shall adjust the timing of its transmission at the designated activation time, when the indicated activation time is later than D_{TA} msec from the end of the last TTI containing the RRC message implying an adjustment of the timing advance.

 D_{TA} equals the RRC procedure delay of the RRC message implying an adjustment of the timing advance as defined in TS25.331 section 13.5.

7.2 Cell synchronization accuracy

7.2.1 Definition

Cell synchronization accuracy is defined as the maximum deviation in frame start times between any pair of cells on the same frequency that have overlapping coverage areas.

7.2.2 Minimum requirements

The cell synchronization accuracy shall be better than or equal to 3µs.

7.3 UE Transmit Timing for 3.84 Mcps TDD Option

7.3.1 Definition

UE transmit timing is defined as the frame start time of uplink transmissions relative to the downlink frame timing at zero propagation delay with timing advance turned off. The reference point for UE transmit timing shall be the antenna connector. This is applicable for the AWGN propagation condition. In the case of multi-path fading conditions, the reference point for UE transmit timing shall be the first significant path of the received PCCPCH.

7.3.2 Minimum Requirement

The UE transmit timing error shall be within 0 to +3 chips for the AWGN propagation condition.

7.3A UE Transmit Timing for 7.68 Mcps TDD Option

7.3A.1 Definition

UE transmit timing is defined as the frame start time of uplink transmissions relative to the downlink frame timing at zero propagation delay with timing advance turned off. The reference point for UE transmit timing shall be the antenna connector. This is applicable for the AWGN propagation condition. In the case of multi-path fading conditions, the reference point for UE transmit timing shall be the first significant path of the received PCCPCH.

7.3A.2 Minimum Requirement

The UE transmit timing error shall be within 0 to +3 chips for the AWGN propagation condition.

7.4 UE timer accuracy

7.4.1 Introduction

UE timers are used in different protocol entities to control the UE behaviour.

7.4.2 Requirements

For UE timers T3xx, T_{barred} , Treselection, Penalty_time, T_{CRmax} , $T_{CrmaxHyst}$ [16], UE shall comply with the timer accuracies according to Table 7.2.

The requirements are only related to the actual timing measurements internally in the UE. They do not include the following:

- Inaccuracy in the start and stop conditions of a timer (e.g. UE reaction time to detect that start and stop conditions of a timer is fulfilled), or
- Inaccuracies due to restrictions in observability of start and stop conditions of a UE timer (e.g. TTI alignment when UE sends messages at timer expiry).

Table 7.2

Timer value [s]	Accuracy
timer value <4	± 0.1 s
timer value ≥ 4	± 2.5 %

7.5 UE Uplink Synchronization

7.5.1 3.84 Mcps TDD option

Void.

7.5.2 1.28 Mcps TDD option

7.5.2.1 Uplink synchronization control for PRACH

7.5.2.1.1 Introduction

The establishment of uplink synchronization is done during the random access procedure and involves the UpPCH and the PRACH. To update timing advance of a UE, the UTRAN measures SYNC-UL Timing deviation. Uplink synchronization control for PRACH is used to adjust its synchronisation shift by means of signalling the received position of the UpPTS in the FPACH.

Time of the beginning of the PRACH $T_{TX-PRACH}$ is given by:

$$T_{TX-PRACH} = T_{RX-PRACH} - (UpPCH_{ADV} + UpPCH_{POS} - 8*16 T_C)$$

in multiple of 1/8 chips, where

T_{TX-PRACH} is the beginning time of PRACH transmission with the UE's timing,

T_{RX-PRACH} is the beginning time of PRACH reception with the UE"s timing if the PRACH was a DL channel.

UpPCH_{POS} is the received SYNC-UL timing deviation measured by UTRAN.

UpPCH_{ADV} is the timing advance of SYNC-UL given by UE.

Then the timing advance for PRACH is given by:

$$T_{ADV-PRACH} = T_{RX-PRACH} - T_{TX-PRACH} = (UpPCH_{ADV} + UpPCH_{POS} - 8*16 T_C)$$

The procedure and measurements are defined in TS 25.224 section 5.2.2 and section 5.2.3.

7.5.2.1.2 Requirements

The uplink synchronization accuracy for PRACH is defined as PRACH timing deviation between received PRACH position and desired PRACH position. The accuracy requirements of uplink synchronization control for PRACH are decided by the accuracy of UpPCH timing advance UpPCH $_{ADV}$ measured by UE and the accuracy of SYNC-UL timing deviation UpPCH $_{POS}$ measured by UTRAN, which refer to section 9.1.2.2 and section 9.2.1.10.

Table 7.3: Uplink synchronisation control accuracy requirements

Parameter	Unit	Accuracy [chip]	Conditions lo [dBm/ 1.28 MHz]
Uplink synchronization control for PRACH	chip	+/- 0.5	-9450

7.5.2.2 Uplink synchronization control during handover

7.5.2.2.1 Introduction

The closed loop uplink synchronisation control uses layer 1 symbols (SS commands) for DPCH and PUSCH. After establishment of the uplink synchronisation, NodeB and UE start to use the closed loop UL synchronisation control procedure. This procedure is continuous during connected mode.

During a 1.28 Mcps TDD to 1.28 Mcps TDD hand-over the UE shall transmit in the new cell with timing advance TA adjusted by the relative timing difference Δt between the new and the old cell if indicated by higher layers:

$$TA_{new} = TA_{old} + 2\Delta t$$
.

TA_{new} is the timing advance of the new cell.

TA_{old} is the timing advance of the old cell,

 Δt is the relative timing difference between the new and the old cell, which is measured by UE as SFN-SFN observed time difference type 2.

7.5.2.2.2 Requirements

The uplink synchronization accuracy during handover is defined as timing deviation between the initial actual uplink synchronization position and the desired position of the first uplink DPCH on the target cell. The accuracy requirements of uplink synchronization control during handover are decided by the accuracy of the timing advance and the accuracy of SFN-SFN observed time difference type 2 measured by UE, which refer to section 9.1.1.8 and section 9.1.2.2.

Table 7.4: Uplink synchronisation control accuracy requirements

Parameter	Unit	Accuracy [chip]	Conditions lo [dBm/ 1.28 MHz]
Uplink synchronization control during handover	chip	+/- 0.5	-9450

7.5.3 7.68 Mcps TDD option

Void.

8 UE Measurements Procedures

8.1 General Measurement Requirements in CELL_DCH State (3.84 Mcps option)

8.1.1 Introduction

This section contains requirements on the UE regarding measurement reporting in CELL_DCH state. The requirements are split in TDD intra frequency, TDD inter frequency, FDD and GSM measurements. These measurements may be used by the UTRAN, e.g. for handover decisions. The measurements are defined in [14], the measurement model is defined in [15] and measurement accuracies are specified in section 9. Control of measurement reporting is specified in [16] and parallel measurements are specified in section 8.2. For the description of the idle intervals see [14].

8.1.2 Requirements

8.1.2.1 UE Measurement Capability

The UE shall be able to monitor up to

- 32 intra frequency TDD cells (including serving cell), and
- 32 inter frequency cells, including
 - TDD mode cells distributed on up to 2 additional TDD carriers and
 - Depending on UE capability, FDD mode cells, distributed on up to 3 FDD carriers.
- Depending on UE capability, 32 inter RAT GSM cells,
- Depending on UE capability, [32] E-UTRA cells distributed on up to [TBD] E-UTRA carriers

The requirements in section 9 are applicable for a UE performing measurements according to this section.

For measurements on intra- and inter-frequency TDD, inter-frequency FDD and GSM cells, idle intervals as described in [14] can be used. The time T_{measure} per 480 ms period available for these measurements is the sum of the duration of all idle intervals during any given 480 ms period, i.e. the amount of time not used by the UE for receiving in active DL timeslots or for transmission in active UL timeslots. Note that Beacon timeslots of the serving cell can be located inside idle intervals and that implementation margin due to frequency switching is not taken into account for T_{measure} .

The requirements in this section are based upon the assumption, that the time durations T_{intra} and T_{inter} during any given 480 ms period for the purpose of measurements on intra-frequency TDD cells and for measurements on inter-frequency TDD, inter-frequency FDD and GSM cells are respectively,

$$T_{intra} = \left[96 + 24 \cdot Floor \left\{ \frac{M_{intra} + 3}{4} \right\} \right] \text{ ms}$$

$$T_{inter} = 480 \text{ ms} - T_{intra}$$

where, M_{intra} is equal to the number of intra-frequency TDD cells in the neighbour list

The time duration T_{inter} shall be equally shared for inter-frequency measurements on the different modes and systems which the UE has capability for and that are in the monitored set signalled by UTRAN, i.e.

$$\mathbf{T}_{\text{inter}} = \mathbf{N}_{\text{TDD}} \, \cdot \mathbf{T}_{\text{TDD inter}} + \mathbf{N}_{\text{FDD}} \, \cdot \mathbf{T}_{\text{FDD inter}} + \mathbf{N}_{\text{GSM}} \cdot \mathbf{T}_{\text{GSM inter}}$$

For this, the following parameters are defined,

 $T_{TDD\ inter}$ is the time duration allocated for the purpose of TDD inter-frequency measurements.

T_{FDD inter} is the time duration allocated for the purpose of FDD inter-frequency measurements.

 $T_{\text{GSM inter}}$ is the time duration allocated for the purpose of GSM measurements.

N_{TDD} is equal to 1 if there are inter-frequency TDD cells in the neighbour list, equal to 0 otherwise.

 N_{FDD} is equal to 1 if the UE has capability for FDD and if there are inter-frequency FDD cells in the neighbour list, equal to 0 otherwise.

 N_{GSM} is equal to 1 if the UE has capability for GSM and if there are GSM cells in the neighbour list, equal to 0 otherwise.

8.1.2.2 TDD intra frequency measurements

During the CELL_DCH state, the UE shall continuously measure identified intra frequency TDD cells and search for new intra frequency TDD cells in the monitored set. In case the UTRAN requests the UE to report detected set cells, the UE shall also search for intra frequency TDD cells outside the monitored and active set. Cells, which are neither included in the active set nor in the monitored set, and are identified by the UE belong to the detected set according to [16].

In order for the requirements in the following subsections to apply, the Beacon timeslots of the intra-frequency TDD cells indicated in the measurement control information shall either be synchronised with the Beacon timeslots of the serving cell or non-overlapping in time with the active UL timeslots used by the UE for transmission, such that the UE can measure an intra-frequency TDD cell at least once every frame for the slot allocation case in use in this cell. The UE shall be capable of intra frequency measurements during active DL timeslots.

8.1.2.2.1 Identification of a new cell

The UE shall be able to identify a new detectable intra-frequency TDD cell belonging to the monitored set within $T_{identify\ intra}$ ms, where $T_{identify\ intra} = 800$ ms.

When L3 filtering is used, an additional delay can be expected.

8.1.2.2.2 UE P-CCPCH RSCP measurement capability

In CELL_DCH state, the UE shall be capable of performing P-CCPCH RSCP measurements for $X_{measurement\ intra}$ identified intra-frequency TDD cells of the monitored set with a measurement period for intra-frequency P-CCPCH RSCP measurements $T_{measurement\ period\ intra}$, where

 $X_{\text{measurement intra}} = 6 \text{ (cells)}$

 $T_{\text{measurement period intra}} = 200 \ ms$

The UE physical layer shall be capable of reporting these measurements to higher layers with the measurement period $T_{measurement period intra}$.

If the UE has identified more than $X_{\text{measurement intra}}$ intra-frequency TDD cells, the UE shall perform measurements of all identified cells but the reporting rate of P-CCPCH RSCP measurements of cells from the UE physical layer to higher layers may be decreased. The measurement accuracy for all measured cells shall be as specified in the section 9.

8.1.2.2.2A Timeslot ISCP measurement capability

In CELL_DCH state the measurement period for intra frequency Timeslot ISCP measurements on arbitrary DL timeslots, including Beacon timeslots is 400 ms. When no inter frequency measurement is scheduled, the UE shall be capable of performing Timeslot ISCP measurements for a total of 10 different combinations of an arbitrary DL timeslot and an intra-frequency cell [16], including the current serving cell. The UE physical layer shall be capable of reporting Timeslot ISCP measurements to higher layers with the measurement period of 400 ms.

When inter-frequency measurements are required by the network, the UE shall be capable of performing Timeslot ISCP measurements for at least $Y_{measurement\ intra\ ISCP}$ different combinations, where $Y_{measurement\ intra\ ISCP}$ is defined in the following equation. Any Timeslot ISCP measurement that could not be performed during that measurement period, shall be

measured in the following measurement periods. The measurement accuracy of the Timeslot ISCP measurement shall be as specified in the section 9.

$$\mathbf{Y}_{\text{measurement intra ISCP}} = Floor \left\{ X_{\text{basic measurement ISCP}} \cdot \frac{5}{6} \frac{\mathbf{T}_{\text{intra}}}{\mathbf{T}_{\text{measurement period intra ISCP}}} \right\}$$

whereby function Floor(x) takes the integer part of x.

- X_{basic} measurement ISCP = 10 (combinations of an arbitrary DL timeslot and an intra-frequency cell)
- $T_{measurement\ period,\ intra,\ ISCP} = 400\ ms$. The measurement period for intra frequency Timeslot ISCP measurements.
- T_{intra} is specified in 8.1.2.1.

8.1.2.2.3 Periodic Reporting

Reported measurements in periodically triggered measurement reports shall meet the requirements in section 9.

8.1.2.2.4 Event-triggered Periodic Reporting

Reported measurements in event triggered periodic measurement reports shall meet the requirements in section 9.

The first report in event triggered periodic measurement reporting shall meet the requirements specified in section 8.1.2.2.5 Event Triggered Reporting.

8.1.2.2.5 Event Triggered Reporting

Reported measurements in event triggered measurement reports shall meet the requirements in section 9.

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

The measurement reporting delay is defined as the time between any event that will trigger a measurement report, until the UE starts to transmit 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.

For P-CCPCH RSCP measurements, the event triggered measurement reporting delay, on cells belonging to the monitored set, measured without L3 filtering shall be less than T $_{identify\ intra}$ defined in Section 8.1.2.2.1. When L3 filtering is used an additional delay can be expected..

If a cell, belonging to the monitored set has been detectable at least for the time period $T_{identify\;intra}$ and then enters the reporting range, the event triggered P-CCPCH RSCP measurement reporting delay shall be less than $T_{measurement_period\;intra}$ when the L3 filter has not been used and the UE P-CCPCH RSCP measurement capabilities of section 8.1.2.2.1 are valid.

8.1.2.3 TDD inter frequency measurements

When signalled by UTRAN during CELL_DCH state, the UE shall continuously measure detected inter-frequency TDD cells and search for new inter-frequency TDD cells indicated in the measurement control information.

In order for the requirements in the following subsections to apply, the Beacon timeslots of the inter-frequency TDD cells indicated in the measurement control information shall be non-overlapping in time with the active DL and UL timeslots used by the UE for reception and transmission such that the UE can measure an inter-frequency cell TDD cell at least once every frame for the slot allocation case in use in this cell and by assuming 2*0.5 ms implementation margin for frequency switching per idle interval.

8.1.2.3.1 Identification of a new cell

When idle intervals are used 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

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

If the UE does not require idle intervals 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.

When L3 filtering is used, an additional delay can be expected.

8.1.2.3.2 P-CCPCH RSCP measurement period

When idle intervals are used for TDD inter frequency measurements, the UE shall be capable of performing P-CCPCH RSCP measurements for $X_{measurement\ TDD\ inter}$ inter-frequency TDD cells per TDD frequency of the monitored set.

The UE physical layer shall be capable of reporting measurements to higher layers with measurement accuracy as specified in section 9 and with a measurement period of $T_{\text{measurement inter}}$.

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

If the UE does not require idle intervals to perform TDD inter-frequency measurements, the measurement period for inter frequency P-CCPCH RSCP measurements shall be 480 ms.

Where.

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

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

 $N_{TDD~inter}$: This is the available number of measurement opportunities for a Beacon timeslot of an inter-frequency TDD cell during the time period $T_{TDD~inter}$. The UE shall consider that a measurement opportunity on a Beacon timeslot of an inter-frequency TDD cell is provided if an idle interval of length equal to or greater than 3 timeslots less 2*0.5 ms implementation margin for frequency switching per idle interval completely overlaps in time with the Beacon timeslot of the inter-frequency TDD cell.

 $N_{basic_identify_TDD\ inter} = 80$. This is a number of measurement opportunities for a Beacon timeslot of an interfrequency TDD cell during the time period used in the inter frequency TDD equation where the maximum allowed time for the UE to identify a new detectable inter-frequency TDD cell is defined.

 $N_{basic_measurement_TDD\ inter} = 5$. This is a number of measurement opportunities for a Beacon timeslot of an interfrequency TDD cell during the time period $T_{TDD\ inter}$ used in the inter-frequency TDD equation where the measurement period for inter-frequency P-CCPCH RSCP measurements is defined.

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

Note that the number of measurement opportunities available to the UE depends on UL and DL timeslot assignments for transmission and reception and on Beacon timeslot allocations in the inter-frequency TDD cells.

8.1.2.3.3 Periodic Reporting

Reported measurements in periodically triggered measurement reports shall meet the requirements in section 9.

8.1.2.3.4 Event Triggered Reporting

Reported measurements in event triggered measurement reports shall meet the requirements in section 9.

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

The measurement reporting delay is defined as the time between any event that will trigger a measurement report, until the UE starts to transmit the measurement report over the Uu interface. This requirement assumes that that the measurement report is not delayed by other RRC signalling on the DCCH. This measurement reporting delay excludes a

delay uncertainty resulted when inserting the measurement report to the TTI of the uplink DCCH . The delay uncertainty is twice the TTI of the uplink DCCH.

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

If an intra frequency TDD cell has been detectable at least for the time period $T_{identify_inter}$ and then enters the reporting range, the event triggered measurement reporting delay shall be less than $T_{measurement_period\ inter}$ when the L3 filter has not been used.

8.1.2.4 FDD measurements

The requirements in this section shall apply to UE supporting TDD and FDD.

In the CELL_DCH state when FDD inter frequency measurements are scheduled the UE shall continuously measure detected inter frequency FDD cells and search for new inter frequency FDD cells indicated in the measurement control information.

8.1.2.4.1 Identification of a new cell

When idle intervals are used for inter-frequency FDD measurements, the UE shall be able to identify a new detectable inter-frequency FDD cell belonging to the monitored set within

$$T_{\text{identify FDD inter}} = Max \left\{ 5000, T_{\text{basic identify FDD inter}} \cdot \frac{T_{\text{measurement period FDD inter}}}{T_{\text{FDD inter}}} \cdot N_{\textit{Freq}} \right\} ms$$

If the UE does not require idle intervals to perform FDD inter-frequency measurements, the UE shall be able to identify a new detectable inter-frequency FDD cell belonging to the monitored set within 5000 ms.

When L3 filtering is used an additional delay can be expected.

An inter-frequency FDD cell shall be considered detectable, when CPICH Ec/Io \geq -20 dB, SCH_Ec/Io \geq -17 dB and SCH_Ec/Io is equally divided between primary synchronisation code and secondary synchronisation code.

8.1.2.4.2 UE CPICH measurement capability

When idle intervals are used 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 with measurement period given by

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

If the UE does not require idle intervals to perform FDD inter-frequency measurements, the measurement period for inter frequency CPICH measurements shall be 480 ms.

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

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

 $T_{measurement_period\ FDD\ inter}$ = 480 ms. The time period used for calculating the measurement period $T_{measurement_FDD\ inter}$ for inter frequency CPICH measurements.

 $T_{FDD\ inter:\ available}$: This is the available time for measurements on inter-frequency FDD cells. $T_{FDD\ inter\ available}$ shall be derived from $T_{FDD\ inter}$ by assuming 2*0.5 ms implementation margin for frequency switching per idle interval and by only taking into account the remaining number of full timeslots per idle interval. Idle intervals smaller than 3 timeslots shall not be taken into account for calculating $T_{FDD\ inter\ available}$.

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

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

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

8.1.2.4.3 Periodic Reporting

Reported measurements in periodically triggered measurement reports shall meet the requirements in section 9.

8.1.2.4.4 Event Triggered Reporting

Reported measurements in event triggered measurement reports shall meet the requirements in section 9.

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

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

The event triggered measurement reporting delay, measured without L3 filtering shall be less than T $_{identify\ FDD\ inter}$ defined in Section 8.1.2.4.1. When L3 filtering is used an additional delay can be expected.

If an inter frequency FDD cell has been detectable at least for the time period $T_{identify_FDD\ inter}$ and then enters the reporting range, the event triggered measurement reporting delay shall be less than $T_{measurement_period\ FDD\ inter}$ provided the timing to that cell has not changed more than +/-32 chips during the time period $T_{identify\ FDD\ inter}$ and the L3 filter has not been used.

8.1.2.5 GSM measurements

The requirements in this section shall apply to UE supporting TDD and GSM.

In CELL_DCH state, measurements opportunities for GSM measurements are provided by means of idle intervals.

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

- a) In CELL_DCH state, when signaled by UTRAN and when idle intervals are used for GSM measurements, the UE shall continuously measure GSM cells and search for new GSM cells given in the monitored set.
 - In section 8.1.2.1 the split of measurements between different modes and systems is defined. Every second measurement opportunity scheduled for GSM measurements, as given by 8.1.2.1 shall be allocated for GSM initial BSIC identification.
 - The remaining measurements opportunities scheduled for GSM measurements shall be used as follows. 3 measurement opportunities out of 4 shall be allocated for GSM carrier RSSI measurements and 1 out of 4 shall be allocated for GSM BSIC reconfirmation. The scheduling of measurement opportunities between GSM carrier RSSI measurements and GSM BSIC reconfirmation is up to the UE.
- b) In CELL_DCH state, when signaled by UTRAN and when the UE does not need idle intervals 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 [21] shall apply. This is further detailed in the following sub-sections.

8.1.2.5.1 GSM carrier RSSI

a) For a UE using idle intervals to perform GSM measurements

A UE supporting GSM measurements using idle intervals shall meet the minimum number of GSM carrier RSSI measurements specified in table 8.1.

In the CELL_DCH state the measurement period, $T_{measurement period GSM}$, for the GSM carrier RSSI measurement is 480 ms

The UE shall meet the measurement accuracy requirements stated for RXLEV in [21], when the given measurement time allows the UE to the take at least 3 GSM carrier RSSI samples per GSM carrier in the monitored set during the measurement period.

Table 8.1

Idle interval length (timeslots)	Number of GSM carrier RSSI samples in each idle interval
3	1
4	2
5	3
6	4
7	6
8	7
9	8
10	10
11	11
12	12
13	14

In case the UE is not able to acquire the required number of samples per GSM carrier during one measurement period, the UE shall measure as many GSM carriers as possible during that measurement period using at least 3 samples per GSM carrier. The GSM carriers that were not measured during that measurement period shall be measured in the following measurement periods. This means that, in this particular case, the L1 reporting period to higher layers of a GSM neighbour can be a multiple of the measurement period.

b) For a UE not using idle intervals to perform GSM measurements

The samples allocated to each carrier shall as far as possible be uniformly distributed over each measurement period. At least 3 received signal level measurement samples are required per GSM carrier RSSI measurement. The measurement period shall be 480 ms.

8.1.2.5.2 BSIC verification

a) For a UE using idle intervals to perform GSM measurements

The procedure for BSIC verification on a GSM cell can be divided into the following two tasks:

- 1) Initial BSIC identification: Includes searching for the BSIC and decoding the BSIC for the first time when there is no knowledge about the relative timing between the TDD and GSM cell.. The requirements for Initial BSIC identification can be found in section 8.1.2.5.2.1.
- 2) BSIC re-confirmation: Tracking and decoding the BSIC of a GSM cell after initial BSIC identification is performed. The requirements for Initial BSIC identification can be found in section 8.1.2.5.2.2.

Measurements on a GSM cell can be requested with BSIC verified or BSIC non-verified. If GSM measurements are requested with BSIC verified, the UE shall be able to report the GSM cells with BSIC verified for those cells where the verification of BSIC has been successful.

If the UTRAN requests measurements on a GSM cell with BSIC verified, the UE shall behave as follows:

- The UE shall perform GSM carrier RSSI measurements according to Section 8.1.2.5.1 and the UE shall perform measurement reporting as defined in Section 8.6.7.6 of [16].
- The UE shall use the last available GSM carrier RSSI measurement results for arranging GSM cells in signal strength order for performing BSIC identification.
- The UE shall perform BSIC re-confirmation according to Section 8.1.2.5.2.2

The UE shall perform event evaluation for event-triggered reporting after the BSIC has been verified for a GSM cell. The UE shall use the last available GSM carrier RSSI measurement results in event evaluation and event-triggered

reporting. Periodic reports shall be triggered according to the given reporting period even if the BSIC of a GSM cell has not been verified as defined in Sections 8.6.7.5 and 8.6.7.6 of [16]. Non verified BSIC shall be indicated in the measurement report.

The UE shall consider the BSIC of a GSM cell to be "verified", if it has decoded the SCH of the BCCH carrier and identified the BSIC at least one time (initial BSIC identification). From that time instant, the UE shall attempt to reconfirm the BSIC at least once every $T_{\text{re-confirm abort}}$ seconds. Otherwise, the UE shall consider the BSIC of the GSM cell to be "non-verified".

The time requirement for initial BSIC identification, $T_{identify \ abort}$, and the BSIC re-confirmation interval $T_{re-confirm \ abort}$ can be found in the sections below.

The UE shall be able to decode a BSIC for the purpose of initial BSIC identification or BSIC reconfirmation within an idle interval, when the time difference between the middle of the received GSM synchronisation burst at the UE and the middle of the idle interval is within the limits specified in Table 8.1.AA.

Idle Interval Length (timeslots)	Maximum time difference [μs]
3	± 65
4	± 398
5	± 732
6	± 1065
7	± 1398
8	± 1732
9	± 2065
10	± 2398
11	± 2732
12	± 3065
13	± 3398

Table 8.1AA

The UE shall be able to perform BSIC verification at levels down to the reference sensitivity level or reference interference levels as specified in [20].

b) For a UE not using idle intervals to perform GSM measurements

If a BSIC is decoded and matches the expected value, the UE shall consider it as "verified", otherwise it shall consider it as "non-verified".

The UE shall be able to perform BSIC verification at levels down to the reference sensitivity level or reference interference levels as specified in [20].

8.1.2.5.2.1 Initial BSIC identification

For GSM cells that are requested with BSIC verified the UE shall attempt to decode the SCH on the BCCH carrier of the 8 strongest BCCH carriers of the GSM cells indicated in the measurement control information. The UE shall give priority for BSIC decodingattempts in decreasing signal strength order to BSIC carriers with unknown BSIC. The strongest BCCH carrier is defined as the BCCH carrier having the highest measured GSM carrier RSSI value after layer 3 filtering. The GSM signal strength levels used in BSIC identification for arranging GSM cells in signal strength order shall be based on the latest GSM carrier RSSI measurement results available.

If the BSIC of a GSM BCCH carriers has been successfully decoded the UE shall inmediately continue BSIC identification with the next BCCH carrier, in signal strength order, with unknown BSIC. The GSM cell for which the BSIC has been successfully identified shall be moved to the BSIC re-confirmation procedure.

If the UE has not successfully decoded the BSIC of the GSM BCCH carrier within $T_{identify\,abort}$, the UE shall abort the BSIC decoding attempts for that GSMBCCH carrier. The UE shall continue to try to perform BSIC decoding of the next GSM BCCH carrier in signal strength order. The GSM BCCH carrier for which the BSIC decoding failed shall not be re-considered for BSIC decoding until BSIC decoding attempts have been made for all the rest of the 8 strongest GSM BCCH carriers in the monitored set with unknown BSIC.

Where $T_{identify abort} = 5000 \text{ ms.}$

8.1.2.5.2.2 BSIC re-confirmation

The requirements of this section are applicable for BSIC re-confirmation.

The UE shall maintain the timing information of at least 8 identified GSM cells. Initial timing information is obtained from the initial BSIC decoding. The timing information shall be updated every time the BSIC is decoded.

If more than one BSIC can be decoded within the same measurement window given by the idle intervals, priority shall be given to the least recently decoded BSIC.

If the UE fails to decode the BSIC after two successive attempts or if the UE has not been able to re-confirm the BSIC for a GSM BCCH carrier within $T_{re-confirm_abort}$ seconds, the UE shall abort the BSIC re-confirmation attempts for that GSM BCCH carrier. The GSM BCCH carrier shall be treated as a new GSM BCCH carrier with unidentified BSIC and the GSM BCCH carrier shall be moved to the initial BSIC decoding procedure, see section 8.1.2.5.2.1. The UE shall be able to make BSIC re-confirmation attempts for the 8 strongest GSM cells in the monitored list.

Where $T_{\text{re-confirm abort}} = 5000 \text{ ms.}$

8.1.2.5.3 Periodic Reporting

Reported measurements in periodically triggered measurement reports shall meet the requirements in section 9.

8.1.2.5.4 Event Triggered Reporting

Reported measurements in event triggered measurement reports shall meet the requirements in section 9.

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

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

The event triggered reporting delay requirement is valid, when the UE for each GSM carrier in the monitored set can take the required number of samples during the measurement period $T_{measurement period GSM}$ (see section 8.1.2.5.1).

The event triggered measurement reporting delay for a GSM cell with verified BSIC, measured without L3 filtering shall be less than $2*T_{measurement\ period\ GSM}$, where $T_{measurement\ period\ GSM}$ is defined in Section 8.1.2.5.1. When L3 filtering is used an additional delay can be expected. For a GSM cell with non-verified BSIC an additional delay according to section 8.1.2.5.2.1 Initial BSIC identification can be expected.

8.1.2.6 TDD Synchronisation to new cells

For the requirements in section 8 and 9 to apply, an intra-frequency or inter-frequency TDD cell shall be considered

detectable when,

$$\left(\frac{P - CCPCH _E_c}{I_o}\right) = -8dB$$

$$\left(\frac{SCH _E_c}{I_o}\right)_{in\ dB} \ge -13dB$$

where the received P-CCPCH E_c/I_o is defined as

$$\left. \left(\frac{P - CCPCH _{E_c}}{I_o} \right) \right|_{in \ dB} = \left(\frac{P - CCPCH _{E_c}}{I_{or}} \right) \right|_{in \ dB} - \frac{I_o}{\left(\hat{I}_{or} \right)} \right|_{in \ dB}$$

and the received SCH E_c/I_o is defined as

$$\left(\frac{SCH_{-}E_{c}}{I_{o}}\right)_{in,dR} = \left(\frac{SCH_{-}E_{c}}{I_{or}}\right)_{in,dR} - \frac{I_{o}}{(\hat{I}_{or})_{in,dR}}$$

and SCH_Ec/Ior is equally divided between primary synchronisation code and the sum of all secondary synchronisation codes, where the secondary synchronisation codes are also equally divided.

8.1.2.7 E-UTRAN FDD measurements

The requirements in this section apply only to UEs supporting 3.84Mcps TDD and E-UTRAN FDD.

- 1) For a UE requiring idle intervals to perform E-UTRAN FDD measurements. In CELL_DCH state when signalled by UTRAN and when idle intervals are used, the UE shall continuously measure previously detected E-UTRAN FDD cells and search for new E-UTRAN FDD cells.
- 2) For a UE not requiring idle intervals to perform E-UTRAN FDD measurements:
 - the UE shall measure either all E-UTRAN FDD cells present in the monitored set or, if only frequencies are provided in the neighbour cell list, the strongest cells present in the detected set, up to the monitoring capabilities of the UE.
 - the relevant requirements for E-UTRAN RRC_CONNECTED mode specified in 3GPP TS 36.133 [24] shall apply. This is further detailed in the following subclauses 8.1.2.7.1.

8.1.2.7.1 Identification of a new cell

When idle intervals are used for E-UTRAN FDD measurements, the UE shall be able to identify a new detectable E-UTRAN FDD cell within

$$T_{\text{Identify E-UTRAN FDD}} = T_{\text{Basic_Identify_E-UTRAN FDD}} \cdot \frac{T_{\text{Measurement_Period_E-UTRAN FDD}}}{T_{\text{E-UTRAN FDD}}} \quad \textit{ms} \; ;$$

If the UE does not need idle intervals to perform E-UTRAN FDD measurements, the UE shall be able to identify a new detectable E-UTRAN FDD cell within $T_{\text{Basic Identify E-UTRAN FDD}}$ ms.

Where:

 $T_{\text{E-UTRAN FDD}}$: This is the minimum time that is available for E-UTRAN FDD measurements during the measurement period $T_{\text{Measurement_Period_E-UTRAN FDD}}$ with an arbitrarily chosen timing. The minimum time per idle interval is calculated by assuming 2*0.5 ms for implementation margin.

 $T_{Basic_Identify_E\text{-}UTRAN\;FDD} = 480\;ms$

When L3 filtering is used an additional delay can be expected.

An E-UTRAN FDD cell shall be considered detectable when

- RSRP|dBm and RSRP Ês/Iot, according to Annex B.2.1 for a corresponding Band
- Other RSRP related side condition given in Section 9.1 of [24] are fulfilled for a corresponding Band,
- SCH_RP|dBm and SCH_Ês/Iot, according to Annex B.2.1 for a corresponding Band

8.1.2.7.2 E-UTRAN RSRP and RSRQ measurement period

When idle intervals are scheduled for E-UTRAN FDD measurements the UE physical layer shall be capable of reporting measurements to higher layers with measurement accuracy as specified in sub-clause 9.1.1.5a and 9.1.1.5b with measurement period of $T_{Measurement_Period_E-UTRAN\ FDD} = 480\ x\ N_{Freq}$ ms where N_{Freq} is the number of FDD frequencies indicated in the E-UTRAN measurement control information.

The UE shall be capable of performing RSRP and RSRQ measurements of at least 4 E-UTRAN FDD cells per E-UTRAN FDD frequency for up to 4 FDD E-UTRAN frequencies.

8.1.2.7.3 Periodic reporting

Reported measurements contained in periodically triggered measurement reports shall meet the requirements in section 9.

8.1.2.7.4 Void

8.1.2.7.5 Event Triggered reporting

Reported measurements contained in event triggered measurement reports shall meet the requirements in section 9.

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

The measurement reporting delay is defined as the time between an event that will trigger a measurement report and the point when the UE starts to transmit the measurement report over the air interface. This requirement assumes that the measurement report is not delayed by other RRC signalling on the DCCH. This measurement reporting delay excludes a delay uncertainty resulted when inserting the measurement report to the TTI of the uplink DCCH. The delay uncertainty is twice the TTI of the uplink DCCH. This measurement reporting delay excludes a delay which caused by no UL resources for UE to send the measurement report.

The event triggered measurement reporting delay, measured without L3 filtering shall be less than $T_{Identify\ E-UTRAN\ FDD}$ defined in Section 8.1.2.7.1. When L3 filtering is used an additional delay can be expected.

If a cell has been detectable at least for the time period $T_{Identify\ E-UTRAN\ FDD}$ and then enters or leaves the reporting range, the event triggered measurement reporting delay shall be less than $T_{Measurement_Period_E-UTRAN\ FDD}$ provided the timing to that cell has not changed more than [FFS] while idel interval has not been available and the L3 filter has not been used.

8.1.2.8 E-UTRAN TDD measurements

The requirements in this section apply only to UEs supporting 1.28Mcps TDD and E-UTRAN TDD.

- 1) For a UE requiring idle intervals to perform E-UTRAN TDD measurements. In CELL_DCH state when signalled by UTRAN and when idle intervals are used, the UE shall continuously measure previously detected E-UTRAN TDD cells and search for new E-UTRAN TDD cells.
- 2) For a UE not requiring idle intervals to perform E-UTRAN TDD measurements:
 - the UE shall measure either all E-UTRAN TDD cells present in the monitored set or, if only frequencies are provided in the neighbour cell list, the strongest cells present in the detected set, up to the monitoring capabilities of the UE.
 - the relevant requirements for E-UTRAN RRC_CONNECTED mode specified in 3GPP TS 36.133 [24] shall apply. This is further detailed in the following subclauses 8.1.2.8.1.

8.1.2.8.1 Identification of a new cell

When idle intervals are used for E-UTRAN measurements, the UE shall be able to identify a new detectable E-UTRAN TDD cell within

$$T_{\text{Identify E-UTRAN TDD}} = T_{\text{Basic_Identify_E-UTRAN TDD}} \cdot \frac{T_{\text{Measurement_Period_E-UTRAN TDD}}}{T_{\text{E-UTRAN TDD}}} \quad \textit{ms} \, ;$$

If the UE does not need idle intervals to perform E-UTRAN TDD measurements, the UE shall be able to identify a new detectable E-UTRAN TDD cell within $T_{\text{Basic Identify E-UTRAN TDD}}$ ms.

Where:

 $T_{\text{E-UTRAN TDD}}$: This is the minimum time that is available for E-UTRAN TDD measurements during the measurement period $T_{\text{Measurement_Period_E-UTRAN TDD}}$ with an arbitrarily chosen timing. The minimum

time per idle interval is calculated by assuming 2*0.5 ms for implementation margin.

 $T_{Basic\ Identify\ E-UTRAN\ TDD} = 480\ ms$

When L3 filtering is used an additional delay can be expected.

An E-UTRAN TDD cell shall be considered detectable when

- RSRP|dBm and RSRP Ês/Iot, according to Annex B.2.1 for a corresponding Band
- Other RSRP related side condition given in Section 9.1 of [24] are fulfilled for a corresponding Band.
- SCH_RP|_{dBm} and SCH Ês/Iot according to Annex B.2.1 for a corresponding Band

8.1.2.8.2 E-UTRAN RSRP and RSRQ measurement period

When idle intervals are scheduled for E-UTRAN TDD measurements the UE physical layer shall be capable of reporting measurements to higher layers with measurement accuracy as specified in sub-clause 9.1.1.5a and 9.1.1.5b with measurement period of $T_{Measurement_Period_E-UTRAN\ TDD} = 480\ x\ N_{Freq}$ ms where N_{Freq} is the number of TDD frequencies indicated in the E-UTRAN measurement control information.

The UE shall be capable of performing RSRP and RSRQ measurements of at least 4 E-UTRAN TDD cells per E-UTRAN TDD frequency for up to 4 E-UTRAN TDD frequencies.

8.1.2.8.3 Periodic reporting

Reported measurements contained in periodically triggered measurement reports shall meet the requirements in section 9.

8.1.2.8.4 Void

8.1.2.8.5 Event Triggered reporting

Reported measurements contained in event triggered measurement reports shall meet the requirements in section 9.

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

The measurement reporting delay is defined as the time between an event that will trigger a measurement report and the point when the UE starts to transmit the measurement report over the air interface. This requirement assumes that the measurement report is not delayed by other RRC signalling on the DCCH. This measurement reporting delay excludes a delay uncertainty resulted when inserting the measurement report to the TTI of the uplink DCCH. The delay uncertainty is twice the TTI of the uplink DCCH. This measurement reporting delay excludes a delay which caused by no UL resources for UE to send the measurement report.

The event triggered measurement reporting delay, measured without L3 filtering shall be less than $T_{\text{Identify E-UTRAN TDD}}$ defined in Section 8.1.2.8.1. When L3 filtering is used an additional delay can be expected.

If a cell has been detectable at least for the time period $T_{Identify\;E-UTRAN\;TDD}$ and then enters or leaves the reporting range, the event triggered measurement reporting delay shall be less than $T_{Measurement_Period_E-UTRAN_TDD}$ provided the timing to that cell has not changed more than [FFS] while idel interval has not been available and the L3 filter has not been used.

8.1A General Measurements Requirements in CELL_DCH State (1.28 Mcps option)

8.1A.1 Introduction

This section contains requirements on the UE regarding measurement reporting in CELL_DCH state. The requirements are split in TDD intra frequency, TDD inter frequency, FDD, GSM and E-UTRAN measurements. These measurements may be used by the UTRAN, e.g. for handover decisions. The measurements are defined in TS 25.225, the measurement model is defined in TS 25.302 and measurement accuracies are specified in section 9. Control of measurement reporting is specified in TS 25.331 and parallel measurements are specified in section 8.2A. For the description of the idle intervals see TS 25.225, Annex A.

8.1A.2 Requirements

8.1A.2.1 UE Measurement Capability

The UE shall be able to monitor up to

- 32 intra frequency TDD cells, and
- 32 inter frequency cells, including
 - TDD cells on up to minimum 8 additional TDD carriers, and
 - Depending on UE capability, FDD cells, distributed on up to 3 FDD carriers, and
- Depending on UE capability, 32 GSM cells distributed on up to 32 GSM carriers.
- Depending on UE capability, [32] E-UTRA cells distributed on up to [TBD] E-UTRA carriers

Performance requirements for different types of measurements and different number of cells are defined in the following sections.

The requirements in section 9 are applicable for a UE performing measurements according to this section.

The received P-CCPCH E_c/I_o is defined as

$$\left(\frac{P - CCPCH _E_c}{I_o}\right)_{in \ dB} = \left(\frac{P - CCPCH _E_c}{I_{or}}\right)_{in \ dB} - \frac{I_o}{(\hat{I}_{or})}_{in \ dB}$$

The received DwPTS E_c/I_o is defined as

$$\left. \left(\frac{DwPCH _E_c}{I_o} \right) \right|_{in \ dB} = \left(\frac{DwPCH _E_c}{I_{or}} \right) \right|_{in \ dB} - \frac{I_o}{\left(\hat{I}_{or} \right)} \right|_{in \ dB}$$

8.1A.2.2 TDD intra frequency measurements

During the CELL_DCH state the UE shall continuously measure identified intra frequency cells and search for new intra frequency cells in the monitored set. In case the UTRAN requests the UE to report detected set cells, the UE shall also search for intra frequency cells outside the monitored and active set set. Cells, which are neither included in the active set nor in the monitored set, and are identified by the UE belong to the detected set according to TS 25.331. Intra frequency measurements can be performed (simultaneously to data reception from the active cell) in all time slots not used for inter frequency measurements.

8.1A.2.2.1 Identification of a new cell

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

$$T_{identify\ intra} = T_{basic\ identify\ TDD,\ intra} \cdot \frac{N_{Period,\ Intra}}{N_{Intra}} \, ms$$

A cell shall be considered detectable when P-CCPCH Ec/Io \geq -8 dB and DwPCH_Ec/Io \geq -5 dB. When L3 filtering is used an additional delay can be expected.

The UE shall be able to identify a new detectable cell not belonging to the monitored set within

$$T_{\text{identify detected set}} = 30s$$

when P-CCPCH Ec/Io \geq -8 dB, DwPCH_Ec/Io \geq -5 dB. When L3 filtering is used an additional delay can be expected.

8.1A.2.2.2 UE P-CCPCH RSCP measurement capability

In the CELL_DCH state the measurement period for intra frequency P-CCPCH RSCP measurements is 200 ms. When all TS0, DwPTS and main guard periods in the measurement period are scheduled for intra frequency measurements, the UE shall be capable of performing P-CCPCH RSCP measurements for 6 identified intra-frequency cells of the monitored set and the UE physical layer shall be capable of reporting these measurements to higher layers with the measurement period of 200 ms. When inter-frequency measurements required by the network have to be performed during periods of TS0, DwPTS or main guard period, the UE shall be capable of performing P-CCPCH RSCP 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 section 9. 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 P-CCPCH RSCP measurements of cells from UE physical layer to higher layers may be decreased.

$$Y_{\text{measurement intra}} = \text{Floor} \left\{ X_{\text{basic measurement TDD}} \cdot \frac{N_{\text{Intra}}}{N_{\text{Period, Intra}}} \right\}$$

whereby function Floor(x) takes the integer part of x.

X_{basic measurement TDD}= 6 (cells)

T_{Measurement_Period, Intra} = 200 ms. The measurement period for Intra frequency P-CCPCH RSCP measurements.

 $N_{Period,Intra:}$ = 40 Number of subframes in $T_{Measurement_Period,Intra.}$

N_{Intra}: This is the minimum number of sub-frame in that the period of TS0, DwPTS and main guard period is available for intra frequency measurements, during the measurement period.

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

The UE shall furthermore be capable of performing P-CCPCH measurements for at least 1 detected intra-frequency cell, in the detected set, and the UE physical layer shall be capable of reporting measurements to higher layers with the measurement period of 10 s. The measurement accuracy for all measured cells shall be as specified in the section 9.

8.1A.2.2.2A Timeslot ISCP measurement capability

In the CELL_DCH state the measurement period for intra frequency Timeslot ISCP measurements on arbitrary DL timeslots, including Beacon timeslots is 400 ms. When no inter frequency measurement is scheduled, the UE shall be capable of performing Timeslot ISCP measurements for a total of 5 different combinations of an arbitrary DL timeslot and an intra-frequency cell [16], including the current serving cell. The UE physical layer shall be capable of reporting Timeslot ISCP measurements to higher layers with the measurement period of 400 ms.

When inter-frequency measurements are required by the network, the UE shall be able to perform Timeslot ISCP measurements for at least $Y_{\text{measurement intra ISCP}}$ different combinations, where $Y_{\text{measurement intra ISCP}}$ is defined in the following equation. Any Timeslot ISCP measurement that could not be performed during that measurement period, shall be measured in the following measurement periods. The measurement accuracy of the Timeslot ISCP measurement shall be as specified in the section 9.

$$\mathbf{Y}_{\text{measurement intra ISCP}} = Floor \left\{ X_{\text{basic measurement ISCP}} \cdot \frac{\mathbf{T}_{\text{Intra}}}{\mathbf{T}_{\text{Measurement Period, Intra, ISCP}}} \right\}$$

whereby function Floor(x) takes the integer part of x.

 $X_{basic measurement ISCP} = 5$ (combinations of an arbitrary DL timeslot and an intra-frequency cell)

T_{Measurement Period, Intra, ISCP} = 400 ms. The measurement period for Intra frequency Timeslot ISCP measurements.

T_{Intra}: This is the minimum time (representing a time corresponding to an integer number of full slots) that is available for intra frequency measurements, during the measurement period with an arbitrarily chosen timing.

8.1A.2.2.3 Periodic Reporting

Reported measurements in periodically triggered measurement reports shall meet the requirements in section 9.

8.1A.2.2.4 Event-triggered Periodic Reporting

Reported measurements in event triggered periodic measurement reports shall meet the requirements in section 9.

The first report in event triggered periodic measurement reporting shall meet the requirements specified in section 8.1A.2.2.5 Event Triggered Reporting.

8.1A.2.2.5 Event Triggered Reporting

Reported measurements in event triggered measurement reports shall meet the requirements in section 9.

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

The measurement reporting delay is defined as the time between any event that will trigger a measurement report, until the UE starts to transmit 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 event triggered measurement reporting delay, on cells belonging to monitored set, measured without L3 filtering shall be less than T $_{identify\ intra}$ defined in Section 8.1A.2.2.1

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 P-CCPCH measurement capabilities of Section 8.1A.2.2.2 are valid.

The event triggered measurement reporting delay on cells not belonging to monitored set, measured without L3 filtering, shall be less than the above defined $T_{identify detected set}$ defined in Section 8.1A.2.2.1.

8.1A.2.3 TDD inter frequency measurements

When signalled by the network during CELL_DCH state, the UE shall continuously measure identified inter frequency TDD cells and search for new inter frequency TDD cells indicated in the measurement control information.

8.1A.2.3.1 Identification of a new cell

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

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

If the UE does not require idle intervals 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.

A cell shall be considered detectable when P-CCPCH Ec/Io \geq -8 dB and DwPCH_Ec/Io \geq -5 dB. When L3 filtering is used an additional delay can be expected.

8.1A.2.3.2 UE P-CCPCH RSCP measurement capability

When idle intervals are used for TDD inter frequency measurements, the UE physical layer shall be capable of reporting P-CCPCH RSCP measurements to higher layers with measurement accuracy as specified in section 9 and with measurement period given by

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

If the UE does not require idle intervals to perform TDD inter-frequency measurements, the measurement period for inter frequency P-CCPCH RSCP measurements is 480 ms.

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

X_{basic measurement TDDinter}=6

 $T_{\text{Measurement_Period Inter}}$ =480 ms. The period used for calculating the measurement period $T_{\text{measurement_inter}}$ for interfrequency P-CCPCH RSCP measurements.

 N_{Inter} : This is the minimum number of sub-frame in that the signal of P-CCPCH and DwPCH can be received for inter frequency target cell during the period $T_{Measurement_Period\ inter}$ with an arbitrarily chosen timing. It depends on the channel allocation and is calculated by assuming 2*0.1ms for implementation margin (for the description of the idle intervals see Annex A of 25.225).

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

 $N_{basic\;identify\;TDD,\;Inter}\!\!=160,\;Number\;of\;subframes\;in\;T_{basic\;identify\;TDD,\;inter.}$

 $T_{basic_measurement_TDD\ inter} = 50$ ms. This is the time period used in the equation for defining the measurement period for inter frequency P-CCPCH RSCP measurements.

 $N_{basic \; measurement \; TDD, \; Inter} = 10, \; Number \; of \; subframes \; in \; T_{basic \; measurement \; TDD \; Inter}.$

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

8.1A.2.3.3 Periodic Reporting

Reported measurements in periodically triggered measurement reports shall meet the requirements in section 9.

8.1A.2.3.4 Event Triggered Reporting

Reported measurements in event triggered measurement reports shall meet the requirements in section 9.

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

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

The event triggered measurement reporting delay, measured without L3 filtering shall be less than T _{identify inter} defined in Section 8.1A.2.3.1. When L3 filtering is used an additional delay can be expected.

8.1A.2.4 FDD measurements

The requirements in this section shall apply to UE supporting 1.28Mcps TDD and FDD.

In the CELL_DCH state when FDD inter frequency measurements are scheduled the UE shall continuously measure identified inter frequency FDD cells and search for new inter frequency FDD cells indicated in the measurement control information.

8.1A.2.4.1 Identification of a new cell

When idle intervals are used for inter-frequency FDD measurements, the UE shall be able to identify a new detectable cell belonging to the monitored set within

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

IF the UE does not require idle intervals to perform inter-frequency FDD measurements, the UE shall be able to identify a new detectable inter-frequency FDD cell belonging to the monitored set within 5000 ms.

When L3 filtering is used an additional delay can be expected.

A cell shall be considered detectable when CPICH Ec/Io \geq -20 dB, SCH_Ec/Io \geq -17 dB and SCH_Ec/Ior is equally divided between primary synchronisation code and secondary synchronisation code.

8.1A.2.4.2 UE CPICH measurement capability

When idle intervals are used 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 with measurement period given by

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

If the UE does not need idle intervals to perform FDD measurements, the measurement period for inter frequency measurements is 480 ms.

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

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

 $T_{\text{Measurement_Period FDD inter}} = 480 \text{ ms.}$ The period used for calculating the measurement period $T_{\text{measurement_FDD inter}}$ for interfrequency CPICH measurements.

T_{FDD inter:}

This is the minimum time that is available for inter frequency measurements, during the period $T_{Measurement_Period\ FDD\ inter}$ with an arbitrarily chosen timing. The minimum time depends on the channel allocation and is calculated by assuming 2*0.1 ms for implementation margin (for the description of the idle intervals see Annex A of 25.225). It is assumed for the requirement that the slot allocation allows measurement windows in the idle periods to be of minimum duration necessary to perform the measurements.

 $T_{basic_identify_FDD,inter} = 800$ 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.

8.1A.2.4.3 Periodic Reporting

Reported measurements in periodically triggered measurement reports shall meet the requirements in section 9.

8.1A.2.4.4 Event Triggered Reporting

Reported measurements in event triggered measurement reports shall meet the requirements in section 9.

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

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

The event triggered measurement reporting delay, measured without L3 filtering shall be less than T _{identify FDD inter} defined in Section 8.1A.2.4.1. When L3 filtering is used an additional delay can be expected.

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

8.1A.2.5 GSM measurements

The requirements in this section shall apply to UE supporting 1.28Mcps TDD and GSM.

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

- 1) For a UE requiring idle intervals to perform GSM measurements. In CELL_DCH state when signalled by UTRAN and when idle intervals are used, the UE shall continuously measure GSM cells and search for new GSM cells given in the monitored set.
- 2) For a UE not requiring idle intervals 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. This is further detailed in the following sub-sections.

8.1A.2.5.1 GSM carrier RSSI

1) For a UE requiring idle intervals to perform GSM measurements

An UE supporting GSM measurements using idle intervals shall meet the minimum number of GSM RSSI carrier measurements specified in table 8.1A.

In the CELL_DCH state the measurement period, $T_{Measurement\ Period,\ GSM}$, for the GSM carrier RSSI measurement is 480 ms.

The UE shall meet the measurement accuracy requirements stated for RXLEV in TS 45.008, when the given measurement time allows the UE to the take at least 3 GSM carrier RSSI samples per GSM carrier in the monitored set during the measurement period.

Table 8.1A

Idle Interval Length (timeslots)	Number of GSM carrier RSSI samples in each idle interval
3	1
4	2
5	3

For the description of the idle intervals see Annex A of 25.225.

In case the UE is not able to acquire the required number of samples per GSM carrier during one measurement period, the UE shall measure as many GSM carriers as possible during that measurement period using at least 3 samples per GSM carrier. The GSM carriers that were not measured during that measurement period shall be measured in the

following measurement periods. This means that, in this particular case, the L1 reporting period to higher layers of a GSM neighbour can be a multiple of the measurement period.

2) For a UE not requiring idle intervals to perform GSM measurements

The samples allocated to each carrier shall as far as possible be uniformly distributed over each measurement period. At least 3 received signal level measurement samples are required per RSSI value. The measurement period is 480 ms.

8.1A.2.5.2 BSIC verification

1) For a UE requiring idle intervals to perform GSM measurements

The procedure for BSIC verification on a GSM cell can be divided into the following two tasks:

1) Initial BSIC identification

Includes searching for the BSIC and decoding the BSIC for the first time when there is no knowledge about the relative timing between the TDD and GSM cell. The UE shall trigger the initial BSIC identification within the available idle intervals. The requirements for Initial BSIC identification can be found in section 8.1A.2.5.2.1, "Initial BSIC identification".

2) BSIC re-confirmation

Tracking and decoding the BSIC of a GSM cell after initial BSIC identification is performed. The UE shall trigger the BSIC re-confirmation within the available idle intervals. The requirements for BSIC re-confirmation can be found in section 8.1A.2.5.2.2, "BSIC re-confirmation".

Measurements on a GSM cell can be requested with BSIC verified or BSIC non-verified. If GSM measurements are requested with BSIC verified the UE shall be able to report the GSM cells with BSIC verified for those cells where the verification of BSIC has been successful.

The UE shall use the last available GSM carrier RSSI measurement results for arranging GSM cells in signal strength order for performing BSIC identification. The UE shall perform event evaluation for event-triggered reporting after the BSIC has been verified for a GSM cell. The UE shall use the last available GSM carrier RSSI measurement results in event evaluation and event-triggered reporting. Periodic reports shall be triggered according to Sections 8.6.7.5 and 8.6.7.6 of [16]

The BSIC of a GSM cell is considered to be "verified" if the UE has decoded the SCH of the BCCH carrier and identified the BSIC at least one time (initial BSIC identification) and from that moment the BSIC shall be re-confirmed at least once every $T_{\text{re-confirm abort}}$ seconds. Otherwise the BSIC of the GSM cell is considered as "non-verified". The time requirement for initial BSIC identification, $T_{\text{identify abort}}$, and the BSIC re-confirmation interval $T_{\text{re-confirm abort}}$ can be found in the sections below.

The UE shall be able to perform BSIC verification at levels down to the reference sensitivity level or reference interference levels as specified in TS 45.005.

2) For a UE not requiring idle intervals to perform GSM measurements

If a BSIC is decoded and matches the expected value, it is considered as "verified", else it is considered as "non verified".

The UE shall be able to perform BSIC verification at levels down to the reference sensitivity level or reference interference levels as specified in TS 45.005.

8.1A.2.5.2.1 Initial BSIC identification

For GSM cells that are requested with BSIC verified the UE shall attempt to decode the SCH on the BCCH carrier of the8 strongest BCCH carriers of the GSM cells indicated in the measurement control information. The UE shall give priority for BSIC decoding attempts in decreasing signal strength order to BSIC carriers with unknown BSIC. The strongest BCCH carrier is defined as the BCCH carrier having the highest measured GSM carrier RSSI value after layer 3 filtering. The GSM signal strength levels used in BSIC identification for arranging GSM cells in signal strength order shall be based on the latest GSM carrier RSSI measurement results available.

If the BSIC of a GSM BCCH carriers has been successfully decoded the UE shall immediately continue BSIC identification with the next BCCH carrier, in signal strength order, with unknown BSIC. The GSM cell for which the BSIC has been successfully identified shall be moved to the BSIC re-confirmation procedure.

If the UE has not successfully decoded the BSIC of the GSM BCCH carrier within $T_{identify abort}$, the UE shall abort the BSIC identification attempts for that GSMBCCH carrier. The UE shall continue to try to perform BSIC identification of the next GSM BCCH carrier in signal strength order. The GSM BCCH carrier for which the BSIC identification failed shall not be re-considered for BSIC identification until BSIC decoding attempts have been made for all the rest of the 8 strongest GSM BCCH carriers in the monitored set with unknown BSIC.

 $T_{identify\;abort} = 5000\;ms$. This is the time necessary to identify one new GSM cell. It is assumed for the requirement that the slot allocation allows measurement windows in the idle periods to be of minimum duration necessary to perform the measurements.

8.1A.2.5.2.2 BSIC re-confirmation

The requirements of this section are applicable for BSIC re-confirmation.

The UE shall maintain the timing information of at least 8 identified GSM cells. Initial timing information is obtained from the initial BSIC identification. The timing information shall be updated every time the BSIC is decoded.

For each idle interval, the UE is able to use for BSIC re-confirmation, the UE shall attempt to decode the BSIC falling within the effective measurement window. If more than one BSIC can be decoded within the same measurement window given by the idle intervals, priority shall be given to the least recently decoded BSIC.

If the UE fails to decode the BSIC after two successive attempts or if the UE has not been able to re-confirm the BSIC for a GSM BCCH carrier within $T_{re-confirm_abort}$ seconds, the UE shall abort the BSIC re-confirmation attempts for that GSM BCCH carrier. The GSM BCCH carrier shall be treated as a new GSM BCCH carrier with unidentified BSIC and the GSM BCCH carrier shall be moved to the initial BSIC decoding procedure, see section 8.1A.2.5.2.1. The UE shall be able to make BSIC re-confirmation attempts for the 8 strongest GSM cells in the monitored list.

 $T_{\text{re-confirm abort}}$ =5000 ms. This is the BSIC reconfirmation interval.

It is assumed for the requirement that the slot allocation allows measurement windows in the idle periods to be of minimum duration necessary to perform the measurements.

8.1A.2.5.2.3 Periodic Reporting

Reported measurements in periodically triggered measurement reports shall meet the requirements in section 9.

8.1A.2.5.2.4 Event Triggered Reporting

Reported measurements in event triggered measurement reports shall meet the requirements in section 9.

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

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

The event triggered reporting delay requirement is valid when the UE for each GSM carrier in the monitored set can take the required number of samples during the measurement period $T_{Measurement\ Period,\ GSM}$ (see section 8.1A.2.5.1).

The event triggered measurement reporting delay for a GSM cell with verified BSIC, measured without L3 filtering shall be less than $2*T_{Measurement\ Period,\ GSM}$, where $T_{Measurement\ Period,\ GSM}$ is defined in Section 8.1A.2.5.1. When L3 filtering is used an additional delay can be expected. For a GSM cell with non-verified BSIC an additional delay according to section 8.1A.2.5.2.1 Initial BSIC identification can be expected.

8.1A.2.6 E-UTRAN FDD measurements

The requirements in this section apply only to UEs supporting 1.28Mcps TDD and E-UTRAN FDD.

- 1) For a UE requiring idle intervals to perform E-UTRAN FDD measurements:
 - a minimum idle interval of 6ms shall be scheduled by the network.

- when signalled by UTRAN, the UE shall continuously measure previously detected E-UTRAN FDD cells and search for new E-UTRAN FDD cells.
- 2) For a UE not requiring idle intervals to perform E-UTRAN FDD measurements:
 - the UE shall measure either all E-UTRAN FDD cells present in the monitored set or, if only frequencies are
 provided in the neighbour cell list, the strongest cells present in the detected set, up to the monitoring
 capabilities of the UE.
 - the relevant requirements for E-UTRAN RRC_CONNECTED mode specified in 3GPP TS 36.133 [24] shall apply. This is further detailed in the following subclauses 8.1A.2.6.1.

8.1A.2.6.1 Identification of a new cell

When idle intervals are used for E-UTRAN FDD measurements, the UE shall be able to identify a new detectable E-UTRAN FDD cell within

$$T_{\text{Identify E-UTRAN FDD}} = T_{\text{Basic_Identify_E-UTRAN FDD}} \cdot \frac{T_{\text{Measurement_Period_E-UTRAN FDD}}}{T_{\text{E-UTRAN FDD}}} \quad \textit{ms}$$

If the UE does not need idle intervals to perform E-UTRAN FDD measurements, the UE shall be able to identify a new detectable E-UTRAN FDD cell within $T_{Basic_Identify_E-UTRAN\ FDD}$ ms.

Where:

 $T_{\text{E-UTRAN FDD}}$: This is the minimum time that is available for E-UTRAN FDD measurements during the measurement period $T_{\text{Measurement_Period_E-UTRAN FDD}}$ with an arbitrarily chosen timing. The minimum time per idle interval is calculated by assuming 2*0.5 ms for implementation margin.

 $T_{Basic\ Identify\ E-UTRAN\ FDD} = 480\ ms$

When L3 filtering is used an additional delay can be expected.

An E-UTRAN FDD cell shall be considered detectable when

- RSRP|dBm and RSRP Ês/Iot, according to Annex B.2.2 for a corresponding Band
- Other RSRP related side condition given in Section 9.1 of [24] are fulfilled for a corresponding Band,
- SCH_RP|_{dBm} and SCH_E_S/Iot, according to Annex B.2.2 for a corresponding Band

8.1A.2.6.2 E-UTRAN RSRP and RSRQ measurement period

When idle intervals are scheduled for E-UTRAN FDD measurements the UE physical layer shall be capable of reporting measurements to higher layers with measurement accuracy as specified in sub-clause 9.1.1.5a and 9.1.1.5b with measurement period of $T_{Measurement_Period_E-UTRAN\ FDD} = 480\ x\ N_{Freq}$ ms where N_{Freq} is the number of FDD frequencies indicated in the E-UTRAN measurement control information.

The UE shall be capable of performing RSRP and RSRQ measurements of at least 4 E-UTRAN FDD cells per E-UTRAN FDD frequency for up to 4 FDD E-UTRAN frequencies.

8.1A.2.6.3 Periodic reporting

Reported measurements contained in periodically triggered measurement reports shall meet the requirements in section 9.

8.1A.2.6.4 void

8.1A.2.6.5 Event Triggered reporting

Reported measurements contained in event triggered measurement reports shall meet the requirements in section 9.

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

The measurement reporting delay is defined as the time between an event that will trigger a measurement report and the point when the UE starts to transmit the measurement report over the air interface. This requirement assumes that the measurement report is not delayed by other RRC signalling on the DCCH. This measurement reporting delay excludes a delay uncertainty resulted when inserting the measurement report to the TTI of the uplink DCCH. The delay uncertainty is twice the TTI of the uplink DCCH. This measurement reporting delay excludes a delay which caused by no UL resources for UE to send the measurement report.

The event triggered measurement reporting delay, measured without L3 filtering shall be less than $T_{identify\ E-UTRAN\ FDD}$ defined in Section 8.1A.2.6.1. When L3 filtering is used an additional delay can be expected.

If a cell has been detectable at least for the time period $T_{identify\ E-UTRAN\ FDD}$ and then enters or leaves the reporting range, the event triggered measurement reporting delay shall be less than $T_{Measurement_Period_E-UTRAN_FDD}$ provided the timing to that cell has not changed more than [FFS] while idle interval has not been available and the L3 filter has not been used.

8.1A.2.7 E-UTRAN TDD measurements

The requirements in this section apply only to UEs supporting 1.28Mcps TDD and E-UTRAN TDD.

- 1) For a UE requiring idle intervals to perform E-UTRAN TDD measurements:
 - a minimum idle interval of 6ms shall be scheduled by the network.
 - when signalled by UTRAN, the UE shall continuously measure previously detected E-UTRAN TDD cells and search for new E-UTRAN TDD cells.
- 2) For a UE not requiring idle intervals to perform E-UTRAN TDD measurements:
 - the UE shall measure either all E-UTRAN TDD cells present in the monitored set or, if only frequencies are provided in the neighbour cell list, the strongest cells present in the detected set, up to the monitoring capabilities of the UE.
 - the relevant requirements for E-UTRAN RRC_CONNECTED mode specified in 3GPP TS 36.133 [24] shall apply. This is further detailed in the following subclauses 8.1A.2.7.1.

8.1A.2.7.1 Identification of a new cell

When idle intervals are used for E-UTRAN measurements, the UE shall be able to identify a new detectable E-UTRAN TDD cell within

$$T_{\text{Identify E-UTRAN TDD}} = T_{\text{Basic_Identify_E-UTRAN TDD}} \cdot \frac{T_{\text{Measurement_Period_E-UTRAN TDD}}}{T_{\text{E-UTRAN TDD}}} \quad \textit{ms} \, ;$$

If the UE does not need idle intervals to perform E-UTRAN TDD measurements, the UE shall be able to identify a new detectable E-UTRAN TDD cell within $T_{\text{Basic Identify E-UTRAN TDD}}$ ms.

Where:

 $T_{\text{E-UTRAN TDD}}$: This is the minimum time that is available for E-UTRAN TDD measurements during the measurement period $T_{\text{Measurement_Period_E-UTRAN TDD}}$ with an arbitrarily chosen timing. The minimum time per idle interval is calculated by assuming 2*0.5 ms for implementation margin.

 $T_{Basic\ Identify\ E-UTRAN\ TDD} = 480\ ms$

When L3 filtering is used an additional delay can be expected.

An E-UTRAN TDD cell shall be considered detectable when

- RSRP_{dBm} and RSRP Ês/Iot, according to Annex B.2.2 for a corresponding Band
- Other RSRP related side condition given in Section 9.1 of [24] are fulfilled for a corresponding Band,
- SCH_RP|_{dBm} and SCH Ês/Iot, according to Annex B.2.2 for a corresponding Band

8.1A.2.7.2 E-UTRAN RSRP and RSRQ measurement period

When idle intervals are scheduled for E-UTRAN TDD measurements the UE physical layer shall be capable of reporting measurements to higher layers with measurement accuracy as specified in sub-clause 9.1.1.5a and 9.1.1.5b with measurement period of $T_{Measurement_Period_E-UTRAN_TDD} = 480 \text{ x N}_{Freq}$ ms where N_{Freq} is the number of TDD frequencies indicated in the E-UTRAN measurement control information.

The UE shall be capable of performing RSRP and RSRQ measurements of at least 4 E-UTRAN TDD cells per E-UTRAN TDD frequency for up to 4 E-UTRAN TDD frequencies.

8.1A.2.7.3 Periodic reporting

Reported measurements contained in periodically triggered measurement reports shall meet the requirements in section 9.

8.1A.2.7.4 void

8.1A.2.7.5 Event Triggered reporting

Reported measurements contained in event triggered measurement reports shall meet the requirements in section 9.

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

The measurement reporting delay is defined as the time between an event that will trigger a measurement report and the point when the UE starts to transmit the measurement report over the air interface. This requirement assumes that the measurement report is not delayed by other RRC signalling on the DCCH. This measurement reporting delay excludes a delay uncertainty resulted when inserting the measurement report to the TTI of the uplink DCCH. The delay uncertainty is twice the TTI of the uplink DCCH. This measurement reporting delay excludes a delay which caused by no UL resources for UE to send the measurement report.

The event triggered measurement reporting delay, measured without L3 filtering shall be less than $T_{Identify\ E-UTRAN\ TDD}$ defined in Section 8.1A.2.7.1. When L3 filtering is used an additional delay can be expected.

If a cell has been detectable at least for the time period $T_{Identify\;E-UTRAN\;TDD}$ and then enters or leaves the reporting range, the event triggered measurement reporting delay shall be less than $T_{Measurement_Period_E-UTRAN_TDD}$ provided the timing to that cell has not changed more than [FFS] while idel interval has not been available and the L3 filter has not been used.

8.1B General Measurement Requirements in CELL_DCH State (7.68 Mcps option)

8.1B.1 Introduction

This section contains requirements on the UE regarding measurement reporting in CELL_DCH state. The requirements are split in TDD intra frequency, TDD inter frequency, FDD and GSM measurements. These measurements may be used by the UTRAN, e.g. for handover decisions. The measurements are defined in [14], the measurement model is defined in [15] and measurement accuracies are specified in section 9. Control of measurement reporting is specified in [16] and parallel measurements are specified in section 8.2B. For the description of the idle intervals see [14].

8.1B.2 Requirements

8.1B.2.1 UE Measurement Capability

The UE shall be able to monitor up to

- 32 intra frequency TDD cells (including serving cell), and
- 32 inter frequency cells, including
 - TDD mode cells distributed on up to 2 additional TDD carriers and
 - Depending on UE capability, FDD mode cells, distributed on up to 3 FDD carriers.
- Depending on UE capability, 32 inter RAT GSM cells.
- Depending on UE capability, [32] E-UTRA cells distributed on up to [TBD] E-UTRA carriers

The requirements in section 9 are applicable for a UE performing measurements according to this section.

For measurements on intra- and inter-frequency TDD, inter-frequency FDD and GSM cells, idle intervals as described in [14] can be used. The time $T_{measure}$ per 480 ms period available for these measurements is the sum of the duration of all idle intervals during any given 480 ms period, i.e. the amount of time not used by the UE for receiving in active DL timeslots or for transmission in active UL timeslots. Note that Beacon timeslots of the serving cell can be located inside idle intervals and that implementation margin due to frequency switching is not taken into account for $T_{measure}$.

The requirements in this section are based upon the assumption, that the time durations T_{intra} and T_{inter} during any given 480 ms period for the purpose of measurements on intra-frequency TDD cells and for measurements on inter-frequency TDD, inter-frequency FDD and GSM cells are respectively,

$$T_{intra} = \left[96 + 24 \cdot Floor \left\{ \frac{M_{intra} + 3}{4} \right\} \right] \text{ ms}$$

$$T_{inter} = 480 \text{ ms} - T_{intra}$$

where, M_{intra} is equal to the number of intra-frequency TDD cells in the neighbour list

The time duration T_{inter} shall be equally shared for inter-frequency measurements on the different modes and systems which the UE has capability for and that are in the monitored set signalled by UTRAN, i.e.

$$T_{\text{inter}} = N_{\text{TDD}} \cdot T_{\text{TDD inter}} + N_{\text{FDD}} \cdot T_{\text{FDD inter}} + N_{\text{GSM}} \cdot T_{\text{GSM inter}}$$

For this, the following parameters are defined,

T_{TDD inter} is the time duration allocated for the purpose of TDD inter-frequency measurements.

T_{FDD inter} is the time duration allocated for the purpose of FDD inter-frequency measurements.

T_{GSM inter} is the time duration allocated for the purpose of GSM measurements.

N_{TDD} is equal to 1 if there are inter-frequency TDD cells in the neighbour list, equal to 0 otherwise.

 N_{FDD} is equal to 1 if the UE has capability for FDD and if there are inter-frequency FDD cells in the neighbour list, equal to 0 otherwise.

 N_{GSM} is equal to 1 if the UE has capability for GSM and if there are GSM cells in the neighbour list, equal to 0 otherwise.

8.1B.2.2 TDD intra frequency measurements

During the CELL_DCH state, the UE shall continuously measure identified intra frequency TDD cells and search for new intra frequency TDD cells in the monitored set. In case the UTRAN requests the UE to report detected set cells, the UE shall also search for intra frequency TDD cells outside the monitored and active set. Cells, which are neither

included in the active set nor in the monitored set, and are identified by the UE belong to the detected set according to [16].

In order for the requirements in the following subsections to apply, the Beacon timeslots of the intra-frequency TDD cells indicated in the measurement control information shall either be synchronised with the Beacon timeslots of the serving cell or non-overlapping in time with the active UL timeslots used by the UE for transmission, such that the UE can measure an intra-frequency TDD cell at least once every frame for the slot allocation case in use in this cell. The UE shall be capable of intra frequency measurements during active DL timeslots.

8.1B.2.2.1 Identification of a new cell

The UE shall be able to identify a new detectable intra-frequency TDD cell belonging to the monitored set within $T_{identify\ intra}$ ms, where $T_{identify\ intra} = 800$ ms.

When L3 filtering is used, an additional delay can be expected.

8.1B.2.2.2 UE P-CCPCH RSCP measurement capability

In CELL_DCH state, the UE shall be capable of performing P-CCPCH RSCP measurements for $X_{measurement\ intra}$ identified intra-frequency TDD cells of the monitored set with a measurement period for intra-frequency P-CCPCH RSCP measurements $T_{measurement\ period\ intra}$, where

 $X_{measurement intra} = 6 (cells)$

 $T_{measurement\ period\ intra} = 200\ ms$

The UE physical layer shall be capable of reporting these measurements to higher layers with the measurement period $T_{\text{measurement period intra}}$.

If the UE has identified more than $X_{\text{measurement intra}}$ intra-frequency TDD cells, the UE shall perform measurements of all identified cells but the reporting rate of P-CCPCH RSCP measurements of cells from the UE physical layer to higher layers may be decreased.. The measurement accuracy for all measured cells shall be as specified in the section 9.

8.1B.2.2.3 Timeslot ISCP measurement capability

In CELL_DCH state the measurement period for intra frequency Timeslot ISCP measurements on arbitrary DL timeslots, including Beacon timeslots is 400 ms. When no inter frequency measurement is scheduled, the UE shall be capable of performing Timeslot ISCP measurements for a total of 10 different combinations of an arbitrary DL timeslot and an intra-frequency cell [16], including the current serving cell. The UE physical layer shall be capable of reporting Timeslot ISCP measurements to higher layers with the measurement period of 400 ms.

When inter-frequency measurements are required by the network, the UE shall be capable of performing Timeslot ISCP measurements for at least $Y_{measurement\ intra\ ISCP}$ different combinations, where $Y_{measurement\ intra\ ISCP}$ is defined in the following equation. Any Timeslot ISCP measurement that could not be performed during that measurement period, shall be measured in the following measurement periods. The measurement accuracy of the Timeslot ISCP measurement shall be as specified in the section 9.

$$Y_{\text{measurement intra ISCP}} = Floor \left\{ X_{\text{basic measurement ISCP}} \cdot \frac{5}{6} \frac{T_{\text{intra}}}{T_{\text{measurement period intra ISCP}}} \right\}$$

whereby function Floor(x) takes the integer part of x.

- $X_{basic measurement ISCP} = 10$ (combinations of an arbitrary DL timeslot and an intra-frequency cell)
- $T_{measurement_period, intra, ISCP} = 400 \text{ ms.}$ The measurement period for intra frequency Timeslot ISCP measurements.
- T_{intra} is specified in 8.1B.2.1.

8.1B.2.2.4 Periodic Reporting

Reported measurements in periodically triggered measurement reports shall meet the requirements in section 9.

8.1B.2.2.5 Event-triggered Periodic Reporting

Reported measurements in event triggered periodic measurement reports shall meet the requirements in section 9.

The first report in event triggered periodic measurement reporting shall meet the requirements specified in section 8.1B.2.2.6 Event Triggered Reporting.

8.1B.2.2.6 Event Triggered Reporting

Reported measurements in event triggered measurement reports shall meet the requirements in section 9.

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

The measurement reporting delay is defined as the time between any event that will trigger a measurement report, until the UE starts to transmit 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.

For P-CCPCH RSCP measurements, the event triggered measurement reporting delay, on cells belonging to the monitored set, measured without L3 filtering shall be less than T _{identify intra} defined in Section 8.1B.2.2.1. When L3 filtering is used an additional delay can be expected..

If a cell, belonging to the monitored set has been detectable at least for the time period $T_{identify\;intra}$ and then enters the reporting range, the event triggered P-CCPCH RSCP measurement reporting delay shall be less than $T_{measurement_period\;intra}$ when the L3 filter has not been used and the UE P-CCPCH RSCP measurement capabilities of section 8.1B.2.2.1 are valid.

8.1B.2.3 TDD inter frequency measurements

When signalled by UTRAN during CELL_DCH state, the UE shall continuously measure detected inter-frequency TDD cells and search for new inter-frequency TDD cells indicated in the measurement control information.

In order for the requirements in the following subsections to apply, the Beacon timeslots of the inter-frequency TDD cells indicated in the measurement control information shall be non-overlapping in time with the active DL and UL timeslots used by the UE for reception and transmission such that the UE can measure an inter-frequency cell TDD cell at least once every frame for the slot allocation case in use in this cell and by assuming 2*0.5 ms implementation margin for frequency switching per idle interval.

8.1B.2.3.1 Identification of a new cell

When idle intervals are used 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

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

If the UE does not require idle intervals 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.

When L3 filtering is used, an additional delay can be expected.

8.1B.2.3.2 P-CCPCH RSCP measurement period

When idle intervals are used for TDD inter frequency measurements, the UE shall be capable of performing P-CCPCH RSCP measurements for $X_{measurement\ TDD\ inter}$ inter-frequency TDD cells per TDD frequency of the monitored set.

The UE physical layer shall be capable of reporting measurements to higher layers with measurement accuracy as specified in section 9 and with a measurement period of $T_{\text{measurement inter}}$.

$$T_{\text{measurement inter}} = Max \bigg\{ T_{\text{measurement period TDD inter}} \cdot N_{\text{basic measurement TDD inter}} \cdot \frac{T_{\text{measurement period TDD inter}}}{N_{\text{TDD inter}}} \cdot N_{\text{Freq}} \bigg\} ms$$

If the UE does not require idle intervals to perform TDD inter-frequency measurements, the measurement period for inter frequency P-CCPCH RSCP measurements shall be 480 ms.

Where,

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

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

 $N_{TDD~inter}$: This is the available number of measurement opportunities for a Beacon timeslot of an inter-frequency TDD cell during the time period $T_{TDD~inter}$. The UE shall consider that a measurement opportunity on a Beacon timeslot of an inter-frequency TDD cell is provided if an idle interval of length equal to or greater than 3 timeslots less 2*0.5 ms implementation margin for frequency switching per idle interval completely overlaps in time with the Beacon timeslot of the inter-frequency TDD cell.

 $N_{basic_identify_TDD\ inter} = 80$. This is a number of measurement opportunities for a Beacon timeslot of an interfrequency TDD cell during the time period used in the inter frequency TDD equation where the maximum allowed time for the UE to identify a new detectable inter-frequency TDD cell is defined.

 $N_{basic_measurement_TDD\ inter} = 5$. This is a number of measurement opportunities for a Beacon timeslot of an interfrequency TDD cell during the time period $T_{TDD\ inter}$ used in the inter-frequency TDD equation where the measurement period for inter-frequency P-CCPCH RSCP measurements is defined.

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

Note that the number of measurement opportunities available to the UE depends on UL and DL timeslot assignments for transmission and reception and on Beacon timeslot allocations in the inter-frequency TDD cells.

8.1B.2.3.3 Periodic Reporting

Reported measurements in periodically triggered measurement reports shall meet the requirements in section 9.

8.1B.2.3.4 Event Triggered Reporting

Reported measurements in event triggered measurement reports shall meet the requirements in section 9.

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

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

The event triggered measurement reporting delay, measured without L3 filtering shall be less than T $_{identify\ inter}$ defined in Section 8.1B.2.3.1 When L3 filtering is used an additional delay can be expected.

If an intra frequency TDD cell has been detectable at least for the time period $T_{identify_inter}$ and then enters the reporting range, the event triggered measurement reporting delay shall be less than $T_{measurement_period\ inter}$ when the L3 filter has not been used.

8.1B.2.4 FDD measurements

The requirements in this section shall apply to UE supporting TDD and FDD.

In the CELL_DCH state when FDD inter frequency measurements are scheduled the UE shall continuously measure detected inter frequency FDD cells and search for new inter frequency FDD cells indicated in the measurement control information.

8.1B.2.4.1 Identification of a new cell

When idle intervals are used for inter-frequency FDD measurements, the UE shall be able to identify a new detectable inter-frequency FDD cell belonging to the monitored set within

$$T_{\text{identify FDD inter}} = Max \left\{ 5000, T_{\text{basic identify FDD inter}} \cdot \frac{T_{\text{measurement period FDD inter}}}{T_{\text{FDD inter}}} \cdot N_{\textit{Freq}} \right\} \textit{ms}$$

If the UE does not require idle intervals to perform FDD inter-frequency measurements, the UE shall be able to identify a new detectable inter-frequency FDD cell belonging to the monitored set within 5000 ms.

When L3 filtering is used an additional delay can be expected.

An inter-frequency FDD cell shall be considered detectable, when CPICH Ec/Io \geq -20 dB, SCH_Ec/Io \geq -17 dB and SCH_Ec/Io is equally divided between primary synchronisation code and secondary synchronisation code.

8.1B.2.4.2 UE CPICH measurement capability

When idle intervals are used 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 with measurement period given by

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

If the UE does not require idle intervals to perform FDD inter-frequency measurements, the measurement period for inter frequency CPICH measurements shall be 480 ms.

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

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

 $T_{measurement_period\ FDD\ inter}$ = 480 ms. The time period used for calculating the measurement period $T_{measurement_FDD\ inter}$ for inter frequency CPICH measurements.

 $T_{FDD\ inter:\ available}$: This is the available time for measurements on inter-frequency FDD cells. $T_{FDD\ inter\ available}$ shall be derived from $T_{FDD\ inter}$ by assuming 2*0.5 ms implementation margin for frequency switching per idle interval and by only taking into account the remaining number of full timeslots per idle interval. Idle intervals smaller than 3 timeslots shall not be taken into account for calculating $T_{FDD\ inter\ available}$.

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

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

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

8.1B.2.4.3 Periodic Reporting

Reported measurements in periodically triggered measurement reports shall meet the requirements in section 9.

8.1B.2.4.4 Event Triggered Reporting

Reported measurements in event triggered measurement reports shall meet the requirements in section 9.

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

The measurement reporting delay is defined as the time between any event that will trigger a measurement report until the UE starts to transmit the measurement report over the Uu interface. This requirement assumes that that the

measurement report is not delayed by other RRC signalling on the DCCH. This measurement reporting delay excludes a delay uncertainty resulted when inserting the measurement report to the TTI of the uplink DCCH. The delay uncertainty is twice the TTI of the uplink DCCH.

The event triggered measurement reporting delay, measured without L3 filtering shall be less than T $_{identify\ FDD\ inter}$ defined in Section 8.1B.2.4.1. When L3 filtering is used an additional delay can be expected.

If an inter frequency FDD cell has been detectable at least for the time period $T_{identify_FDD\ inter}$ and then enters the reporting range, the event triggered measurement reporting delay shall be less than $T_{measurement_period\ FDD\ inter}$ provided the timing to that cell has not changed more than +/-32 chips during the time period $T_{identify\ FDD\ inter}$ and the L3 filter has not been used.

8.1B.2.5 GSM measurements

The requirements in this section shall apply to UE supporting TDD and GSM.

In CELL_DCH state, measurements opportunities for GSM measurements are provided by means of idle intervals.

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

- a) In CELL_DCH state, when signaled by UTRAN and when idle intervals are used for GSM measurements, the UE shall continuously measure GSM cells and search for new GSM cells given in the monitored set.
 - In section 8.1B.2.1 the split of measurements between different modes and systems is defined. Every second
 measurement opportunity scheduled for GSM measurements, as given by 8.1B.2.1 shall be allocated for
 GSM initial BSIC identification.
 - The remaining measurements opportunities scheduled for GSM measurements shall be used as follows. 3 measurement opportunities out of 4 shall be allocated for GSM carrier RSSI measurements and 1 out of 4 shall be allocated for GSM BSIC reconfirmation. The scheduling of measurement opportunities between GSM carrier RSSI measurements and GSM BSIC reconfirmation is up to the UE.
- b) In CELL_DCH state, when signaled by UTRAN and when the UE does not need idle intervals 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 [21] shall apply. This is further detailed in the following sub-sections.

8.1B.2.5.1 GSM carrier RSSI

a) For a UE using idle intervals to perform GSM measurements

A UE supporting GSM measurements using idle intervals shall meet the minimum number of GSM carrier RSSI measurements specified in table 8.1B.

In the CELL_DCH state the measurement period, T_{measurement period GSM}, for the GSM carrier RSSI measurement is 480 ms.

The UE shall meet the measurement accuracy requirements stated for RXLEV in [21], when the given measurement time allows the UE to the take at least 3 GSM carrier RSSI samples per GSM carrier in the monitored set during the measurement period.

Table 8.1B

Idle interval length (timeslots)	Number of GSM carrier RSSI samples in each idle interval
3	1
4	2
5	3
6	4
7	6
8	7
9	8
10	10
11	11
12	12
13	14

In case the UE is not able to acquire the required number of samples per GSM carrier during one measurement period, the UE shall measure as many GSM carriers as possible during that measurement period using at least 3 samples per GSM carrier. The GSM carriers that were not measured during that measurement period shall be measured in the following measurement periods. This means that, in this particular case, the L1 reporting period to higher layers of a GSM neighbour can be a multiple of the measurement period.

b) For a UE not using idle intervals to perform GSM measurements

The samples allocated to each carrier shall as far as possible be uniformly distributed over each measurement period. At least 3 received signal level measurement samples are required per GSM carrier RSSI measurement. The measurement period shall be 480 ms.

8.1B.2.5.2 BSIC verification

a) For a UE using idle intervals to perform GSM measurements

The procedure for BSIC verification on a GSM cell can be divided into the following two tasks:

- 1) Initial BSIC identification: Includes searching for the BSIC and decoding the BSIC for the first time when there is no knowledge about the relative timing between the TDD and GSM cell.. The requirements for Initial BSIC identification can be found in section 8.1B.2.5.2.1.
- 2) BSIC re-confirmation: Tracking and decoding the BSIC of a GSM cell after initial BSIC identification is performed. The requirements for Initial BSIC identification can be found in section 8.1B.2.5.2.2.

Measurements on a GSM cell can be requested with BSIC verified or BSIC non-verified. If GSM measurements are requested with BSIC verified, the UE shall be able to report the GSM cells with BSIC verified for those cells where the verification of BSIC has been successful.

If the UTRAN requests measurements on a GSM cell with BSIC verified, the UE shall behave as follows:

- The UE shall perform GSM carrier RSSI measurements according to Section 8.1B.2.5.1 and the UE shall perform measurement reporting as defined in Section 8.6.7.6 of [16].
- The UE shall use the last available GSM carrier RSSI measurement results for arranging GSM cells in signal strength order for performing BSIC identification.
- The UE shall perform BSIC re-confirmation according to Section 8.1B.2.5.2.2

The UE shall perform event evaluation for event-triggered reporting after the BSIC has been verified for a GSM cell. The UE shall use the last available GSM carrier RSSI measurement results in event evaluation and event-triggered reporting. Periodic reports shall be triggered according to the given reporting period even if the BSIC of a GSM cell has not been verified as defined in Sections 8.6.7.5 and 8.6.7.6 of [16]. Non verified BSIC shall be indicated in the measurement report.

The UE shall consider the BSIC of a GSM cell to be "verified", if it has decoded the SCH of the BCCH carrier and identified the BSIC at least one time (initial BSIC identification). From that time instant, the UE shall attempt to re-

confirm the BSIC at least once every $T_{\text{re-confirm abort}}$ seconds. Otherwise, the UE shall consider the BSIC of the GSM cell to be "non-verified".

The time requirement for initial BSIC identification, $T_{identify \ abort}$, and the BSIC re-confirmation interval $T_{re-confirm \ abort}$ can be found in the sections below.

The UE shall be able to decode a BSIC for the purpose of initial BSIC identification or BSIC reconfirmation within an idle interval, when the time difference between the middle of the received GSM synchronisation burst at the UE and the middle of the idle interval is within the limits specified in Table 8.1C.

Table 8.1C

Idle Interval Length (timeslots)	Maximum time difference [μs]
3	± 65
4	± 398
5	± 732
6	± 1065
7	± 1398
8	± 1732
9	± 2065
10	± 2398
11	± 2732
12	± 3065
13	± 3398

The UE shall be able to perform BSIC verification at levels down to the reference sensitivity level or reference interference levels as specified in [20].

b) For a UE not using idle intervals to perform GSM measurements

If a BSIC is decoded and matches the expected value, the UE shall consider it as "verified", otherwise it shall consider it as "non-verified".

The UE shall be able to perform BSIC verification at levels down to the reference sensitivity level or reference interference levels as specified in [20].

8.1B.2.5.2.1 Initial BSIC identification

For GSM cells that are requested with BSIC verified the UE shall attempt to decode the SCH on the BCCH carrier of the 8 strongest BCCH carriers of the GSM cells indicated in the measurement control information. The UE shall give priority for BSIC decodingattempts in decreasing signal strength order to BSIC carriers with unknown BSIC. The strongest BCCH carrier is defined as the BCCH carrier having the highest measured GSM carrier RSSI value after layer 3 filtering. The GSM signal strength levels used in BSIC identification for arranging GSM cells in signal strength order shall be based on the latest GSM carrier RSSI measurement results available.

If the BSIC of a GSM BCCH carriers has been successfully decoded the UE shall inmediately continue BSIC identification with the next BCCH carrier, in signal strength order, with unknown BSIC. The GSM cell for which the BSIC has been successfully identified shall be moved to the BSIC re-confirmation procedure.

If the UE has not successfully decoded the BSIC of the GSM BCCH carrier within $T_{identify\;abort}$, the UE shall abort the BSIC decoding attempts for that GSMBCCH carrier. The UE shall continue to try to perform BSIC decoding of the next GSM BCCH carrier in signal strength order. The GSM BCCH carrier for which the BSIC decoding failed shall not be re-considered for BSIC decoding until BSIC decoding attempts have been made for all the rest of the 8 strongest GSM BCCH carriers in the monitored set with unknown BSIC.

Where $T_{identify abort} = 5000 \text{ ms.}$

8.1B.2.5.2.2 BSIC re-confirmation

The requirements of this section are applicable for BSIC re-confirmation.

The UE shall maintain the timing information of at least 8 identified GSM cells. Initial timing information is obtained from the initial BSIC decoding. The timing information shall be updated every time the BSIC is decoded.

If more than one BSIC can be decoded within the same measurement window given by the idle intervals, priority shall be given to the least recently decoded BSIC.

If the UE fails to decode the BSIC after two successive attempts or if the UE has not been able to re-confirm the BSIC for a GSM BCCH carrier within $T_{re-confirm_abort}$ seconds, the UE shall abort the BSIC re-confirmation attempts for that GSM BCCH carrier. The GSM BCCH carrier shall be treated as a new GSM BCCH carrier with unidentified BSIC and the GSM BCCH carrier shall be moved to the initial BSIC decoding procedure, see section 8.1B.2.5.2.1. The UE shall be able to make BSIC re-confirmation attempts for the 8 strongest GSM cells in the monitored list.

Where $T_{re\text{-confirm abort}} = 5000 \text{ ms.}$

8.1B.2.5.3 Periodic Reporting

Reported measurements in periodically triggered measurement reports shall meet the requirements in section 9.

8.1B.2.5.4 Event Triggered Reporting

Reported measurements in event triggered measurement reports shall meet the requirements in section 9.

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

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

The event triggered reporting delay requirement is valid, when the UE for each GSM carrier in the monitored set can take the required number of samples during the measurement period $T_{measurement period GSM}$ (see section 8.1B.2.5.1).

The event triggered measurement reporting delay for a GSM cell with verified BSIC, measured without L3 filtering shall be less than $2*T_{measurement\ period\ GSM}$, where $T_{measurement\ period\ GSM}$ is defined in Section 8.1B.2.5.1. When L3 filtering is used an additional delay can be expected. For a GSM cell with non-verified BSIC an additional delay according to section 8.1B.2.5.2.1 Initial BSIC identification can be expected.

8.1B.2.6 TDD Synchronisation to new cells

For the requirements in section 8 and 9 to apply, an intra-frequency or inter-frequency TDD cell shall be considered

detectable when,

$$\left(\frac{P - CCPCH _E_c}{I_o}\right)_{\text{in }dB} \ge -11dB$$

$$\left(\frac{SCH_{-}E_{c}}{I_{o}}\right)_{in,dB} \ge -13dB$$

where the received P-CCPCH E_c/I_o is defined as

$$\left. \left(\frac{P - CCPCH _E_c}{I_o} \right) \right|_{in \ dB} = \left(\frac{P - CCPCH _E_c}{I_{or}} \right) \right|_{in \ dB} - \frac{I_o}{\left(\hat{I}_{or} \right)} \right|_{in \ dB}$$

and the received SCH E_c/I_o is defined as

$$\left(\frac{SCH_E_c}{I_o}\right)_{in\ dB} = \left(\frac{SCH_E_c}{I_{or}}\right)_{in\ dB} - \frac{I_o}{\left(\hat{I}_{or}\right)_{in\ dB}}$$

and SCH_Ec/Ior is equally divided between primary synchronisation code and the sum of all secondary synchronisation codes, where the secondary synchronisation codes are also equally divided.

8.1B.2.7 E-UTRAN FDD measurements

The requirements in this section apply only to UEs supporting 7.68Mcps TDD and E-UTRAN FDD.

- 1) For a UE requiring idle intervals to perform E-UTRAN FDD measurements. In CELL_DCH state when signalled by UTRAN and when idle intervals are used, the UE shall continuously measure previously detected E-UTRAN FDD cells and search for new E-UTRAN FDD cells.
- 2) For a UE not requiring idle intervals to perform E-UTRAN FDD measurements:
 - the UE shall measure either all E-UTRAN FDD cells present in the monitored set or, if only frequencies are provided in the neighbour cell list, the strongest cells present in the detected set, up to the monitoring capabilities of the UE.
 - the relevant requirements for E-UTRAN RRC_CONNECTED mode specified in 3GPP TS 36.133 [24] shall apply. This is further detailed in the following subclauses 8.1B.2.7.1.

8.1B.2.7.1 Identification of a new cell

When idle intervals are used for E-UTRAN FDD measurements, the UE shall be able to identify a new detectable E-UTRAN FDD cell within

$$T_{\text{Identify E-UTRAN FDD}} = T_{\text{Basic_Identify_E-UTRAN FDD}} \cdot \frac{T_{\text{Measurement_Period_E-UTRAN FDD}}}{T_{\text{E-UTRAN FDD}}} \quad \textit{ms}$$

If the UE does not need idle intervals to perform E-UTRAN FDD measurements, the UE shall be able to identify a new detectable E-UTRAN FDD cell within $T_{Basic\ Identify\ E-UTRAN\ FDD}$ ms.

Where:

 $T_{\text{E-UTRAN FDD}}$: This is the minimum time that is available for E-UTRAN FDD measurements during the measurement period $T_{\text{Measurement_Period_E-UTRAN FDD}}$ with an arbitrarily chosen timing. The minimum time per idle interval is calculated by assuming 2*0.5 ms for implementation margin.

 $T_{Basic\ Identifv\ E-UTRAN\ FDD} = 480\ ms$

When L3 filtering is used an additional delay can be expected.

An E-UTRAN FDD cell shall be considered detectable when

- RSRP_{dBm} and RSRP Ês/Iot, according to Annex B.2.3 for a corresponding Band
- Other RSRP related side condition given in Section 9.1 of [24] are fulfilled for a corresponding Band.
- SCH_RP|_{dBm} and SCH_E_s/Iot. according to Annex B.2.3 for a corresponding Band

8.1B.2.7.2 E-UTRAN RSRP and RSRQ measurement period

When idle intervals are scheduled for E-UTRAN FDD measurements the UE physical layer shall be capable of reporting measurements to higher layers with measurement accuracy as specified in sub-clause 9.1.1.5a and 9.1.1.5b with measurement period of $T_{Measurement_Period_E-UTRAN\ FDD} = 480\ x\ N_{Freq}$ ms where N_{Freq} is the number of FDD frequencies indicated in the E-UTRAN measurement control information.

The UE shall be capable of performing RSRP and RSRQ measurements of at least 4 E-UTRAN FDD cells per E-UTRAN FDD frequency for up to 4 FDD E-UTRAN frequencies.

8.1B.2.7.3 Periodic reporting

Reported measurements contained in periodically triggered measurement reports shall meet the requirements in section 9

8.1B.2.7.4 Void

8.1B.2.7.5 Event Triggered reporting

Reported measurements contained in event triggered measurement reports shall meet the requirements in section 9.

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

The measurement reporting delay is defined as the time between an event that will trigger a measurement report and the point when the UE starts to transmit the measurement report over the air interface. This requirement assumes that the measurement report is not delayed by other RRC signalling on the DCCH. This measurement reporting delay excludes a delay uncertainty resulted when inserting the measurement report to the TTI of the uplink DCCH. The delay uncertainty is twice the TTI of the uplink DCCH. This measurement reporting delay excludes a delay which caused by no UL resources for UE to send the measurement report.

The event triggered measurement reporting delay, measured without L3 filtering shall be less than $T_{identify\ E-UTRAN\ FDD}$ defined in Section 8.1B.2.7.1. When L3 filtering is used an additional delay can be expected.

If a cell has been detectable at least for the time period $T_{identify\ E-UTRAN\ FDD}$ and then enters or leaves the reporting range, the event triggered measurement reporting delay shall be less than $T_{Measurement_Period_E-UTRAN_FDD}$ provided the timing to that cell has not changed more than [FFS] while idel interval has not been available and the L3 filter has not been used.

8.1B.2.8 E-UTRAN TDD measurements

The requirements in this section apply only to UEs supporting 1.28Mcps TDD and E-UTRAN TDD.

- 1) For a UE requiring idle intervals to perform E-UTRAN TDD measurements. In CELL_DCH state when signalled by UTRAN and when idle intervals are used, the UE shall continuously measure previously detected E-UTRAN TDD cells and search for new E-UTRAN TDD cells.
- 2) For a UE not requiring idle intervals to perform E-UTRAN TDD measurements:
 - the UE shall measure either all E-UTRAN TDD cells present in the monitored set or, if only frequencies are provided in the neighbour cell list, the strongest cells present in the detected set, up to the monitoring capabilities of the UE.
 - the relevant requirements for E-UTRAN RRC_CONNECTED mode specified in 3GPP TS 36.133 [24] shall apply. This is further detailed in the following subclauses 8.1B.2.8.1.

8.1B.2.8.1 Identification of a new cell

When idle intervals are used for E-UTRAN measurements, the UE shall be able to identify a new detectable E-UTRAN TDD cell within

$$T_{\text{Identify E-UTRAN TDD}} = T_{\text{Basic_Identify_E-UTRAN TDD}} \cdot \frac{T_{\text{Measurement_Period_E-UTRAN TDD}}}{T_{\text{E-UTRAN TDD}}} \quad \textit{ms}$$

If the UE does not need idle intervals to perform E-UTRAN TDD measurements, the UE shall be able to identify a new detectable E-UTRAN TDD cell within $T_{\text{Basic Identify E-UTRAN TDD}}$ ms.

Where:

 $T_{\text{E-UTRAN TDD}}$: This is the minimum time that is available for E-UTRAN TDD measurements during the measurement period $T_{\text{Measurement_Period_E-UTRAN TDD}}$ with an arbitrarily chosen timing. The minimum time per idle interval is calculated by assuming 2*0.5 ms for implementation margin.

 $T_{Basic\ Identify\ E-UTRAN\ TDD} = 480ms$

When L3 filtering is used an additional delay can be expected.

An E-UTRAN TDD cell shall be considered detectable when

- RSRP_{dBm} and RSRP Ês/Iot, according to Annex B.2.3 for a corresponding Band
- Other RSRP related side condition given in Section 9.1 of [24] are fulfilled for a corresponding Band.
- SCH_RP|_{dBm} and SCH Ês/Iot, according to Annex B.2.3 for a corresponding Band

8.1B.2.8.2 E-UTRAN RSRP and RSRQ measurement period

When idle intervals are scheduled for E-UTRAN TDD measurements the UE physical layer shall be capable of reporting measurements to higher layers with measurement accuracy as specified in sub-clause 9.1.1.5a and 9.1.1.5b with measurement period of $T_{\text{Measurement_Period_E-UTRAN\ TDD}} = 480 \text{ x N}_{\text{Freq}}$ ms where N_{Freq} is the number of TDD frequencies indicated in the E-UTRAN measurement control information.

The UE shall be capable of performing RSRP and RSRQ measurements of at least 4 E-UTRAN TDD cells per E-UTRAN TDD frequency for up to 4 E-UTRAN TDD frequencies.

8.1B.2.8.3 Periodic reporting

Reported measurements contained in periodically triggered measurement reports shall meet the requirements in section 9.

8.1B.2.8.4 Void

8.1B.2.8.5 Event Triggered reporting

Reported measurements contained in event triggered measurement reports shall meet the requirements in section 9.

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

The measurement reporting delay is defined as the time between an event that will trigger a measurement report and the point when the UE starts to transmit the measurement report over the air interface. This requirement assumes that the measurement report is not delayed by other RRC signalling on the DCCH. This measurement reporting delay excludes a delay uncertainty resulted when inserting the measurement report to the TTI of the uplink DCCH. The delay uncertainty is twice the TTI of the uplink DCCH. This measurement reporting delay excludes a delay which caused by no UL resources for UE to send the measurement report.

The event triggered measurement reporting delay, measured without L3 filtering shall be less than $T_{Identify\ E-UTRAN\ TDD}$ defined in Section 8.1B.2.8.1. When L3 filtering is used an additional delay can be expected.

If a cell has been detectable at least for the time period $T_{Identify\ E-UTRAN\ TDD}$ and then enters or leaves the reporting range, the event triggered measurement reporting delay shall be less than $T_{Measurement_Period_E-UTRAN_TDD}$ provided the timing to that cell has not changed more than [FFS] while idel interval has not been available and the L3 filter has not been used.

8.2 Measurements in CELL_DCH State with special requirements (3.84 Mcps option)

8.2.1 Introduction

This section contains specific requirements for certain measurements beyond those specified in section 8.1. The measurements are defined in [14], the measurement model is defined in [15] and measurement accuracies are specified in section 9. As long as the measurement configuration does not exceed the requirements stated in section 8.2.2, the UE shall meet the performance requirements defined in section 9. Control of measurement reporting is specified in [16]. Idle intervals for the purpose of measurements are described in [14].

8.2.2 Requirements

The UE shall be able to perform in parallel all physical layer measurements according to table 8.2. In this section one physical layer measurement corresponds to a measurement at the reference point B (i.e. measurement reported by layer 1 after layer 1 filtering) in the measurement model in [15].

In addition to the requirements in table 8.2, a UE in CELL_DCH state shall also be able to measure and report the quantities according to section 8.1.

 Measurement quantity
 Number of parallel physical layer measurements possible to request from the UE
 Note

 Transport channel BLER
 1 per Transport Channel

 UE transmitted power
 1 per UL timeslot

 SFN-SFN observed time difference type 2
 1

 UE GPS Timing of Cell Frames for UP
 1
 Only applicable for UE with this capability

Table 8.2: Parallel physical layer measurement requirements

8.2A Parallel Measurements in CELL_DCH State (1.28 Mcps option)

8.2A.1 Introduction

The purpose with this section is to ensure that all UE can handle a certain number of measurements in parallel. The measurements are defined in TS 25.225, the measurement model is defined in TS 25.302 and measurement accuracies are specified in section 9. As long as the measurement configuration does not exceed the requirements stated in section 8.2.2, the UE shall meet the performance requirements defined in section 9. Control of measurement reporting is specified in TS 25.331 and measurements reporting delays are specified in section 8.1A. For the description of the idle intervals see TS 25.225, Annex A.

8.2A.2 Requirements

The UE shall be able to perform in parallel all physical layer measurements according to table 8.2A. In this section one physical layer measurement corresponds to a measurement at the reference point B (i.e. measurement reported by layer 1 after layer 1 filtering) in the measurement model in TS 25.302 [15].

In addition to the requirements in table 8.2A the UE shall in parallel, in state CELL_DCH, also be able to measure and report the quantities according to section 8.1A.

Table 8.2A: Parallel physical layer measurement requirements

Measurement quantity	Number of parallel physical layer measurements possible to request from the UE
Transport channel BLER	1 per TrCh
UE transmitted power	1
SFN-SFN observed time difference type 2	1
UE GPS Timing of Cell Frames for UP	1

8.2B Measurements in CELL_DCH State with special requirements (7.68 Mcps option)

8.2B.1 Introduction

This section contains specific requirements for certain measurements beyond those specified in section 8.1B. The measurements are defined in [14], the measurement model is defined in [15] and measurement accuracies are specified in section 9. As long as the measurement configuration does not exceed the requirements stated in section 8.2B.2, the UE shall meet the performance requirements defined in section 9. Control of measurement reporting is specified in [16]. Idle intervals for the purpose of measurements are described in [14].

8.2B.2 Requirements

The UE shall be able to perform in parallel all physical layer measurements according to table 8.2B. In this section one physical layer measurement corresponds to a measurement at the reference point B (i.e. measurement reported by layer 1 after layer 1 filtering) in the measurement model in [15].

In addition to the requirements in table 8.2B, a UE in CELL_DCH state shall also be able to measure and report the quantities according to section 8.1B.

Table 8.2B: Parallel physical layer measurement requirements

Measurement quantity	Number of parallel physical layer measurements possible to request from the UE	Note
Transport channel BLER	1 per Transport Channel	
UE transmitted power	1 per UL timeslot	
SFN-SFN observed time difference type 2	1	
UE GPS Timing of Cell Frames for UP	1	Only applicable for UE with this capability

8.3 Capabilities for Support of Event Triggering and Reporting Criteria in CELL_DCH state (3.84 Mcps option)

8.3.1 Introduction

This section contains requirements on UE capabilities for support of event triggering and reporting criteria. As long as the measurement configuration does not exceed the requirements stated in section 8.3.2, the UE shall meet the performance requirements defined in section 9.

The UE can be requested to make measurements under different measurement identities. Each Measurement Identity corresponds to either event based reporting, periodic reporting or no reporting. In case of event based reporting each Measurement Identity is associated with one or more events, each identified with an Event Identity. In case of periodic reporting, a Measurement Identity is associated with one periodic reporting criterion. In case of no reporting, a Measurement Identity is associated with one no reporting criterion.

The purpose of this section is to set some limits on the number of different event, periodic and no reporting criteria the UE may be requested to track in parallel.

8.3.2 Requirements

In this section a reporting criterion corresponds to either one event (in the case of event based reporting), or one periodic reporting criterion (in the case of periodic reporting), or one no reporting criterion (in case of no reporting). Fore event based reporting, each instance of event, with the same or different Event Identities, is counted as separate reporting criterion in Table 8.6.

The UE shall be able to support in parallel per category up to E_{cat} reporting criteria according to Table 8.6. The same type of events (e.g. events 1G) are counted as different events if either any of the parameters related to the events or their neighbour cell lists or both differ from each other.

For the measurement categories: Intra-frequency, Inter frequency and Inter-RAT the UE need not support more than 14 reporting criteria in total. For the measurement categories Traffic volume and Quality measurements the UE need not support more than 16 reporting criteria in total.

For the measurement category Intra-frequency the UE shall support at least 2 reporting criteria for event type 1G and at least 4 reporting criteria for an arbitrary combination of event types 1H and 1I.

Measurement category	E _{cat}	Note
Intra-frequency	6	
Inter-frequency	6	
Inter-RAT	4	Only applicable for UE with this capability
UE internal measurements	8	
Traffic volume measurements	2 + (2 per Transport Channel)	
Quality measurements	2 per Transport Channel	
UP measurements	2	Only applicable for UE with this capability.

Table 8.6: Requirements for reporting criteria per measurement category

8.3A Capabilities for Support of Event Triggering and Reporting Criteria in CELL_DCH State (1.28 Mcps option)

8.3A.1 Introduction

This section contains requirements on UE capabilities for support of event triggering and reporting criteria. As long as the measurement configuration does not exceed the requirements stated in section 8.3A.2, the UE shall meet the performance requirements defined in section 9.

The UE can be requested to make measurements under different measurement identities. Each Measurement Identity corresponds to either event based reporting, periodic reporting or no reporting. In case of event based reporting, each Measurement Identity is associated with one or more events, each identified with an Event Identity. In case of periodic reporting, a Measurement Identity is associated with one periodic reporting criterion. In case of no reporting, a Measurement Identity is associated with one no reporting criterion.

The purpose of this section is to set some limits on the number of different event, periodic and no reporting criteria the UE may be requested to track in parallel.

8.3A.2 Requirements

In this section a reporting criterion corresponds to either one event (in the case of event based reporting), or one periodic reporting criterion (in case of periodic reporting), or one no reporting criterion (in case of no reporting). For event based reporting, each instance of event, with the same or different Event Identities, is counted as separate reporting criterion in Table 8.6A.

The UE shall be able to support in parallel per category up to E_{cat} reporting criteria according to Table 8.6A. The same type of events (e.g. events 1G) are counted as different events if either any of the parameters related to the events or their neighbour cell lists differ from each other.

For the measurement categories: Intra-frequency, Inter frequency and Inter-RAT the UE need not support more than 14 reporting criteria in total. For the measurement categories Traffic volume and Quality measurements the UE need not support more than 16 reporting criteria in total.

Measurement category Note Intra-frequency 4 Inter-frequency 6 Inter-RAT GSM 4 Only applicable for UE with this capability Only applicable for UE with Inter-RAT E-UTRA [TBD] this capability UE internal measurements 2 + (2 per Transport Channel) Traffic volume measurements 2 per Transport Channel Quality measurements **UP** measurements Only applicable for UE with this capability.

Table 8.6A: Requirements for reporting criteria per measurement category

8.3B Capabilities for Support of Event Triggering and Reporting Criteria in CELL_DCH state (7.68 Mcps option)

8.3B.1 Introduction

This section contains requirements on UE capabilities for support of event triggering and reporting criteria. As long as the measurement configuration does not exceed the requirements stated in section 8.3B.2, the UE shall meet the performance requirements defined in section 9.

The UE can be requested to make measurements under different measurement identities. Each Measurement Identity corresponds to either event based reporting, periodic reporting or no reporting. In case of event based reporting each Measurement Identity is associated with one or more events, each identified with an Event Identity. In case of periodic reporting, a Measurement Identity is associated with one periodic reporting criterion. In case of no reporting, a Measurement Identity is associated with one no reporting criterion.

The purpose of this section is to set some limits on the number of different event, periodic and no reporting criteria the UE may be requested to track in parallel.

8.3B.2 Requirements

In this section a reporting criterion corresponds to either one event (in the case of event based reporting), or one periodic reporting criterion (in the case of periodic reporting), or one no reporting criterion (in case of no reporting). Fore event based reporting, each instance of event, with the same or different Event Identities, is counted as separate reporting criterion in Table 8.6B.

The UE shall be able to support in parallel per category up to E_{cat} reporting criteria according to Table 8.6B. The same type of events (e.g. events 1G) are counted as different events if either any of the parameters related to the events or their neighbour cell lists or both differ from each other.

For the measurement categories: Intra-frequency, Inter frequency and Inter-RAT the UE need not support more than 14 reporting criteria in total. For the measurement categories Traffic volume and Quality measurements the UE need not support more than 16 reporting criteria in total.

For the measurement category Intra-frequency the UE shall support at least 2 reporting criteria for event type 1G and at least 4 reporting criteria for an arbitrary combination of event types 1H and 1I.

Measurement category Note Intra-frequency 6 Inter-frequency 6 Only applicable for UE with this Inter-RAT capability 8 UE internal measurements 2 + (2 per Transport Channel) Traffic volume measurements Quality measurements 2 per Transport Channel **UP** measurements 2 Only applicable for UE with this capability.

Table 8.6B: Requirements for reporting criteria per measurement category

8.4 Measurements in CELL_FACH State (3.84 Mcps option)

8.4.1 Introduction

This section contains requirements on the UE regarding measurement reporting in CELL_FACH state. The requirements are split in TDD intra frequency, TDD inter frequency, FDD and GSM measurements. These measurements may be used by the UTRAN, e.g. for handover decisions. The measurements are defined in [14], the measurement model is defined in [15] and measurement accuracies are specified in section 9. Control of measurement reporting is specified in [16] and parallel measurements are specified in section 8.2. For the description of the idle intervals see [14].

8.4.2 Requirements

8.4.2.1 UE Measurement Capability

The UE shall be able to monitor up to

- 32 intra frequency TDD cells (including serving cell), and
- 32 inter frequency cells, including
 - TDD mode cells distributed on up to 2 additional TDD carriers and
 - Depending on UE capability, FDD mode cells, distributed on up to 3 FDD carriers.
- Depending on UE capability, 32 inter RAT GSM cells.

The requirements in section 9 on P-CCPCH RSCP measurements are applicable for a UE performing measurements according to this section. For inter-frequency FDD, TDD and GSM cell re-selection, measurement occasions as specified in [16] and idle intervals as described in [14] are used to find and measure on other cells.

It is defined below how the measurements on different systems and modes are performed given the time allocated to that system. The requirements in this section are based on the assumption that the time during the measurement occasions and idle intervals that is allocated to each of the different modes and systems shall be equally shared by the modes which the UE has capability for and that are in the monitored set signalled by the network.

The UE is required to measure periodically once every time period T_{meas} on each of the modes and systems, FDD interfrequency cells, TDD interfrequency cells and GSM carriers, for which the corresponding parameter N_{FDD} , N_{TDD} and N_{GSM} is set to 1, within the measurement time T_{meas}

$$T_{meas} = [(N_{FDD} + N_{TDD} + N_{GSM}) \cdot N_{TTI} \cdot M_{REP} \cdot 10] \text{ms}$$

where the following parameters are defined:

 N_{TDD} = 0 or 1. If there are inter-frequency TDD cells in the neighbour list N_{TDD} =1, otherwise N_{TDD} =0.

 N_{FDD} = 0 or 1. If the UE is capable of FDD and there are FDD cells in the neighbour list $N_{FDD}=1$ otherwise $N_{FDD}=0$.

 N_{GSM} = 0 or 1. If the UE is capable of GSM and there are GSM cells in the neighbour list, $N_{GSM}=1$,

otherwise $N_{GSM}=0$.

M_REP is the Measurement Occasion cycle length in number of frames as specified in [16].

 N_{TTI} is the number of frames in each measurement occasion, equal to the length of the largest TTI on

the SCCPCH monitored by the UE. FACHs that only carry MBMS logical channels (MTCH

MSCH or MCCH) are excluded from measurement occasion calculation.

For 3.84 Mcps TDD UE capable of MBMS reception and if MBMS reception is active, during Measurement Occasion the UE shall:

- Start to switch back to its serving cell frequency 1 timeslot prior to the start of the MBMS reception
- Switch back to its target inter-frequency within 1 timeslot immediately after the last MBMS reception.

The FACH Measurement Occasion of N_{TTI} frames will be repeated every $N_{TTI} * M_REP$ frame.

Table 8.6B: K values for each N_{TTI} value

N _{TTI}	K
1	3,4,5,6
2	2,3,4,5
4	2,3,4
8	1,2,3

8.4.2.2 TDD intra frequency measurements

During the CELL_FACH state the UE shall continuously measure identified intra frequency TDD cells and search for new intra frequency TDD cells in the monitored set. If a measurement occasion is activated, intra frequency measurements can be performed between the measurement occasions.

In case no measurement occasion is activated, in order for the requirements in the following subsections to apply, the Beacon timeslots of the intra-frequency TDD cells indicated in the measurement control information shall either be synchronised with the Beacon timeslots of the serving cell, such that the UE can measure an intra-frequency cell TDD cell at least once every frame for the slot allocation case in use in this cell. The UE shall be capable of intra frequency measurements during active DL timeslots.

8.4.2.2.1 Identification of a new cell

The UE shall be able to identify a new inter frequency TDD detectable cell belonging to the monitored set within $T_{identify}$ intra ms, where $T_{identify intra}$ is specified in section 8.1.2.2.1.

In the case that MTCH is being received, the UE shall be able to take identified cells into use for MTCH combining purposes within $T_{identify\ intra}$ ms.

If more candidate cells are identified than the UE has combing capability, then cells ranked in decreasing MTCH reception quality shall be considered for combing purposes.

8.4.2.2.2 UE P-CCPCH RSCP measurement capability

In CELL_FACH state the UE shall be capable of performing P-CCPCH RSCP measurements for $X_{measurement\ intra}$ identified intra-frequency TDD cells of the monitored set with a measurement period for intra-frequency P-CCPCH RSCP measurements $T_{measurement\ period\ intra}$, where

X_{measurement intra} is specified in section 8.1.2.2.2

 $T_{measurement\ period\ intra}$ is specified in section 8.1.2.2.2

The UE physical layer shall be capable of reporting these measurements to higher layers with the measurement period $T_{\text{measurement period intra}}$.

If the UE has identified more than $X_{measurement\ intra}$ intra-frequency cells, the UE shall perform measurements of all identified cells but the reporting rate of P-CCPCH RSCP measurements of cells from UE physical layer to higher layers may be decreased. The measurement accuracy for all measured cells shall be as specified in the section 9.

8.4.2.2.3 (void)

8.4.2.2.4 (void)

8.4.2.2.5 Timeslot ISCP measurement capability

In CELL_FACH state the measurement period for intra frequency Timeslot ISCP measurements on arbitrary DL timeslots, including Beacon timeslots is 400 ms. The UE shall be capable of performing Timeslot ISCP measurements on the current serving cell for 10 arbitrary DL timeslots. The UE physical layer shall be capable of reporting Timeslot ISCP measurements to higher layers with the measurement period of 400 ms.

8.4.2.2.6 RACH reporting

Reporting measurements in the measurement reports sent on the RACH shall meet the requirements in section 9.

8.4.2.3 TDD inter frequency measurements

When signalled by UTRAN during CELL_FACH state, the UE shall continuously measure identified inter frequency TDD cells and search for new inter frequency TDD cells indicated in the measurement control information.

In CELL_FACH state, measurements opportunities for TDD inter-frequency measurements are provided by means of measurement occasions and idle intervals.

8.4.2.3.1 Identification of a new cell

When measurement occasions and idle intervals are used 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

$$T_{\text{identify inter}} = Max \left\{ 5000, Ceil \left\{ \frac{T_{\text{basic identify TDD inter}}}{T_{\text{Inter FACH}}} \right\} \cdot T_{\text{meas}} \cdot N_{\textit{Freq,TDD}} \right\} \text{ms}$$

If the UE does not require measurement occasions and idle intervals to perform TDD inter-frequency measurements, the UE shall be able to identify a new detectable inter-frequency TDD cell belonging to the monitored set within 5000 ms.

8.4.2.3.2 P-CCPCH RSCP measurement period

When measurement occasions and idle intervals are used for inter-frequency TDD measurements, the UE shall be capable of performing P-CCPCH RSCP measurements for $X_{measurement\ TDD\ inter}$ inter-frequency TDD cells per TDD frequency of the monitored set.

The UE physical layer shall be capable of reporting measurements to higher layers with measurement accuracy as specified in section 9 with measurement period of $T_{\text{measurement inter}}$.

$$T_{\text{measurement inter}} = Max \left\{ T_{\text{measurement period TDD inter}}, 2 \cdot T_{\text{meas}}, Ceil \left\{ \frac{T_{\text{basic measurement TDD inter}}}{T_{\text{Inter FACH}}} \right\} \cdot T_{\text{meas}} \cdot N_{\textit{Freq}} \right\}$$

If the UE does not require idle intervals to perform inter-frequency TDD measurements, the measurement period for inter frequency P-CCPCH RSCP measurements shall be 480 ms.

Where,

X_{measurement TDD inter} is specified in section 8.1.2.4.2.

T_{measurement_period inter} is specified in section 8.1.2.3.2

 T_{Meas} is specified in section 8.4.2.1.

T Inter FACH: is equal to (N_{TTI}*10 - 2*0.5) ms.

 $T_{\text{basic identify TDD inter}} = 800 \text{ ms.}$

 $T_{\text{basic measurement TDD inter}} = 50 \text{ ms}$

 $N_{\text{Freq TDD}}$ is specified in section 8.1.2.3.2

8.4.2.3.3 (void)

8.4.2.3.4 (void)

8.4.2.4 FDD measurements

The requirements in this section shall apply to UE supporting TDD and FDD.

In the CELL_FACH state when FDD inter frequency measurements are scheduled the UE shall continuously measure detected inter frequency FDD cells and search for new inter frequency cells indicated in the measurement control information.

In CELL_FACH state, measurements opportunities for FDD inter-frequency measurements are provided by means of measurement occasions and idle intervals.

8.4.2.4.1 Identification of a new cell

When measurement occasions and idle intervals are used for inter-frequency FDD measurements, the UE shall be able to identify a new detectable inter frequency FDD cell belonging to the monitored set within

$$T_{\text{identify FDD inter}} = Max \left\{ 5000, Ceil \left\{ \frac{T_{\text{basic identify FDD inter}}}{T_{\text{Inter FACH}}} \right\} \cdot T_{\text{meas}} \cdot N_{\textit{Freq,FDD}} \right\}$$

If the UE does not require measurement occasions and idle intervals to perform FDD inter-frequency measurements, the UE shall be able to identify a new detectable inter-frequency FDD cell belonging to the monitored set within 5000 ms.

An inter-frequency FDD cell shall be considered detectable, when CPICH Ec/Io \geq -20 dB, SCH_Ec/Io \geq -17 dB and SCH_Ec/Io is equally divided between primary synchronisation code and secondary synchronisation code.

8.4.2.4.2 UE CPICH measurement capability

When measurement occasions and idle intervals are used 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 with measurement period given by

$$T_{\text{measurement FDD inter}} = Max \left\{ T_{\text{measurement period FDD inter}}, 2 \cdot T_{\text{meas}}, Ceil \left\{ \frac{T_{\text{basic measurement FDD inter}}}{T_{\text{Inter FACH}}} \right\} \cdot T_{\text{meas}} \cdot N_{\textit{Freq,FDD}} \right\} \text{ms}$$

If the UE does not require measurement occasions and idle intervals to perform inter-frequency FDD measurements, the measurement period for inter frequency CPICH measurements shall be 480 ms.

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

 $X_{basic\ measurement\ FDD\ inter}$ is specified in section 8.1.2.4.2.

 $T_{measurement_period\ FDD\ inter}$ is specified in section 8.1.2.4.2

T_{Inter FACH:} is specified in section 8.4.2.3.2

T_{basic identify FDD inter} is specified in section 8.1.2.4.2

T_{basic measurement FDD inter} is specified in section 8.1.2.4.2.

 $N_{\text{Freq FDD}}$ is specified in section 8.1.2.4.2

8.4.2.4.3 (void)

8.4.2.4.4 (void)

8.4.2.5 GSM measurements

The requirements in this section shall apply to UE supporting TDD and GSM.

In CELL_FACH state, measurements opportunities for GSM measurements are provided by means of measurement occasions and idle intervals.

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

- a) In CELL_DCH state, when signaled by UTRAN and when measurement occasions and idle intervals are used for GSM measurements, the UE shall continuously measure GSM cells and search for new GSM cells given in the monitored set.
 - In section 8.4.2.1 the split of measurements between different modes and systems is defined. Every second
 measurement opportunity scheduled for GSM measurements, as given by 8.4.2.1 shall be allocated for GSM
 initial BSIC identification.
 - The remaining measurement opportunities scheduled for GSM measurements shall be scheduled as follows. 3 measurement opportunities out of 4 shall be allocated for GSM carrier RSSI measurements and 1 out of 4 shall be allocated for GSM BSIC reconfirmation. The scheduling of measurement opportunities between GSM carrier RSSI measurements and GSM BSIC reconfirmation is up to the UE.
- b) In CELL_FACH state, when signaled by UTRAN and when the UE does not need measurement occasions and idle intervals 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 [21] shall apply. This is further detailed in the following sub-sections.

8.4.2.5.1 GSM carrier RSSI

a) For a UE using measurement occasions and idle intervals to perform GSM measurements

A UE supporting GSM measurements using measurement occasions and idle intervals shall meet the minimum number of GSM carrier RSSI measurements specified in table 8.7.

In CELL_FACH state the measurement period, $T_{measurement\ period\ GSM}$, for the GSM carrier RSSI measurement is 480 ms.

The UE shall meet the measurement accuracy requirements stated for RXLEV in [21], when the given measurement time allows the UE to take at least 3 GSM carrier RSSI samples per GSM carrier in the monitored set during the measurement period.

Table 8.7

Measurement opportunity length (timeslots)	Number of GSM carrier RSSI samples per measurement opportunity.
3	1
4	2
5	3
6	4
7	6
8	7
9	8
10	10
11	11
12	12
13	14
15	16
30	32
60	64
120	128

In case the UE is not able to acquire the required number of samples per GSM carrier during one measurement period, the UE shall measure as many GSM carriers as possible during that measurement period using at least 3 samples per GSM carrier. The GSM carriers that were not measured during that measurement period shall be measured in the following measurement periods. This means that, in this particular case, the L1 reporting period to higher layers of a GSM neighbour can be a multiple of the measurement period.

b) For a UE not using measurement occasions and idle intervals to perform GSM measurements

The samples allocated to each carrier shall as far as possible be uniformly distributed over each measurement period. At least 3 received signal level measurement samples are required per GSM carrier RSSI measurement. The measurement period shall be 480 ms.

In case UTRA RACH procedure prevents the UE from acquiring the required number of samples per GSM carrier during one measurement period, the GSM carriers that were not measured during that measurement period shall be measured in the following measurement periods.

8.4.2.5.2 BSIC verification

a) For a UE using measurement occasions and idle intervals to perform GSM measurements

The procedure for BSIC verification on a GSM cell can be divided into the following two tasks:

- 1) Initial BSIC identification: Includes searching for the BSIC and decoding the BSIC for the first time when there is no knowledge about the relative timing between the TDD and GSM cell. The requirements for Initial BSIC identification can be found in 8.4.2.5.2.1.
- 2) BSIC re-confirmation: Tracking and decoding the BSIC of a GSM cell after initial BSIC identification is performed. The requirements for Initial BSIC identification can be found in 8.4.2.5.2.2.

Measurements on a GSM cell can be requested with BSIC verified or BSIC non-verified. If GSM measurements are requested with BSIC verified the UE shall be able to report the GSM cells with BSIC verified for those cells where the verification of BSIC has been successful.

The UE shall consider the BSIC of a GSM cell to be "verified" if it has decoded the SCH of the BCCH carrier and identified the BSIC at least one time (initial BSIC identification) From that time instant, the UE shall attempt to reconfirm the BSIC at least once every 6 times $T_{re-confirm\ abort}$ seconds. Otherwise, the UE shall consider the BSIC of the GSM cell to be "non-verified".

The time requirement for initial BSIC identification, $T_{identify abort}$, and the BSIC re-confirmation interval $T_{re-confirm abort}$ can be found in the sections below.

The UE shall be able to decode a BSIC for the purpose of initial BSIC identification or BSIC reconfirmation within a measurement opportunity, when the time difference between the middle of the received GSM synchronisation burst at the UE and the middle of the measurement opportunity is within the limits specified in Table 8.7.A.

Table 8.7A

Idle Interval Length (timeslots)	Maximum time difference [μs]
3	± 65
4	± 398
5	± 732
6	± 1065
7	± 1398
8	± 1732
9	± 2065
10	± 2398
11	± 2732
12	± 3065
13	± 3398
15	± 4100
30	± 9100
60	± 19100
120	± 39100

The UE shall be able to perform BSIC verification at levels down to the reference sensitivity level or reference interference levels as specified in [20].

b) For a UE not using measurement occasions and idle intervals to perform GSM measurements

The UE shall attempt to verify the BSIC for at least the 6 strongest GSM carriers at least every 10 seconds, to confirm that it is monitoring the same cell, as far as UTRA RACH procedure does not prevent UE from decoding BSIC.

If a BSIC is decoded and matches the expected value, the UE shall consider it as "verified", otherwise it shall consider it as "non-verified".

The UE shall be able to perform BSIC verification at levels down to the reference sensitivity level or reference interference levels as specified in [20].

8.4.2.5.2.1 Initial BSIC identification

This measurement shall be performed in the measurement opportunities as described in 8.4.2.5.

The UE shall continuously attempt to decode the BSIC of the SCH on the BCCH carrier of the 6 strongest BCCH carriers of the GSM cells indicated in the measurement control information. The UE shall give priority for BSIC decoding attempts in decreasing signal strength order to BSIC carriers with unknown BSIC. The strongest BCCH carrier is defined as the BCCH carrier having the highest measured GSM carrier RSSI value.

When the UE attempts to decode the BSIC of one GSM BCCH carrier with unknown BSIC, the UE shall use all available measurementopportunities allocated for GSM initial BSIC identification according section 8.4.2.5 to attempt to decode the BSIC from that GSM BCCH carrier.

If the BSIC of the GSM BCCH carrier has been successfully decoded the UE shall immediately continue BSIC identification with the next GSM BCCH carrier, in signal strength order, with unknown BSIC. The GSM cell for which the BSIC has been successfully identified shall be moved to the BSIC re-confirmation procedure.

If the UE has not successfully decoded the BSIC of the GSM BCCH carrier within $T_{identify\ abort}$, the UE shall abort the BSIC identification attempts for that GSM BCCH carrier. The UE shall continue to try to perform BSIC identification of the next GSM BCCH carrier in signal strength order. The GSM BCCH carrier for which the BSIC identification failed shall not be re-considered for BSIC identification until BSIC identification attempts have been made for all the rest of the 6 strongest GSM BCCH carriers in the monitored set with unknown BSIC.

T_{identify abort} is specified in section 8.1.2.5.

8.4.2.5.2.2 BSIC re-confirmation

The requirements of this section are applicable for BSIC re-confirmation.

The UE shall maintain the timing information of 6 identified GSM cells. Initial timing information is obtained from the initial BSIC identification. The timing information shall be updated every time the BSIC is decoded.

For each measurement opportunity allocated for GSM BSIC reconfirmation as described in 8.4.2.5, the UE shall attempt to decode the BSIC occurring during the measurement opportunity. When the UE has to select one out of several possible GSM cells to reconfirm during the same measurement opportunity, priority shall be given to the least recently decoded BSIC.

If the UE fails to decode the BSIC after two successive attempts, the UE shall abort the BSIC re-confirmation attempts for that GSM cell. The GSM cell shall be treated as a new GSM cell with unidentified BSIC and the GSM cell shall be moved to the initial BSIC identification procedure, see section 8.4.2.5.2.1. The UE shall be able to make BSIC reconfirmation attempts for the 6 strongest GSM cells in the monitored list.

Where $T_{re-confirm abort}$ is specified in section 8.1.2.5.

8.4A Measurements in CELL_FACH State (1.28 Mcps option)

8.4A.1 Introduction

This section contains requirements on the UE regarding measurement reporting in CELL_FACH state. The requirements for cell re-selection are split in TDD intra frequency, TDD inter frequency, FDD and GSM measurements. The measurements are defined in TS 25.225, the measurement model is defined in TS 25.302 and measurement accuracies are specified in section 9. Control of measurement reporting is specified in TS 25.331 and parallel measurements are specified in section 8.2. For the description of the idle intervals see TS 25.225, Annex A.

NOTE: In CELL_FACH state, there are no requirements for measurements of inter-RAT E-UTRAN cells.

8.4A.2 Requirements

8.4A.2.1 UE Measurement Capability

The UE shall be able to monitor up to

- 32 intra frequency TDD cells, and
- 32 inter frequency cells, including
 - TDD cells distributed on up to 8 additional TDD carriers and
 - Depending on UE capability, FDD cells, distributed on up to 3 FDD carriers.
- Depending on UE capability, 32 GSM cells distributed on up to 32 GSM carriers.

The requirements in section 9 on P-CCPCH RSCP measurements are applicable for a UE performing measurements according to this section. For inter-frequency FDD, TDD and GSM cell re-selection, measurement occasions as specified in TS 25.331 and, in addition, idle intervals as described in TS 25.225 are used to find and measure on these cells.

It is defined below how the measurements on different systems and modes are performed given the time allocated to that system. The requirements in this section are based on the assumption that the time during the measurement occasions and idle intervals that is allocated to each of the different modes and systems shall be equally shared by the modes which the UE has capability for and that are in the monitored set signalled by the network.

The UE is required to measure periodically once every time period T_{meas} on each of the modes and systems, FDD interfrequency cells, TDD interfrequency cells and GSM carriers, for which the corresponding parameter N_{FDD} , N_{TDD} and N_{GSM} is set to 1, within the measurement time T_{meas}

$$T_{meas} = \left[\left(N_{FDD} + N_{TDD} + N_{GSM} \right) \cdot N_{TTI} \cdot \text{M_REP} \cdot 10 \right] \text{ms}$$

where the following parameters are defined:

 N_{TDD} = 0 or 1. If there are inter-frequency TDD cells in the neighbour list N_{TDD} =1, otherwise N_{TDD} =0.

 N_{FDD} = 0 or 1. If the UE is capable of FDD and there are FDD cells in the neighbour list $N_{FDD}=1$

otherwise $N_{FDD} = 0$.

 N_{GSM} = 0 or 1. If the UE is capable of GSM and there are GSM cells in the neighbour list, $N_{GSM} = 1$,

otherwise $N_{GSM} = 0$.

M_REP is the Measurement Occasion cycle length in number of frames as specified in TS 25.331.

N_{TTI} is the number of frames in each measurement occasion, equal to the length of the largest TTI on

the SCCPCH monitored by the UE. FACHs that only carry MBMS logical channels (MTCH

MSCH or MCCH) are excluded from measurement occasion calculation.

The FACH Measurement Occasion of N_{TTI} frames will be repeated every $N_{TTI} * M_REP$ frame.

8.4A.2.2 TDD intra frequency measurements

During the CELL_FACH state the UE shall continuously measure identified intra frequency cells and search for new intra frequency cells in the monitored set. Intra frequency measurements can be performed (simultaneously to data reception from the active cell) in all time slots not used for inter frequency measurements.

8.4A.2.2.1 Identification of a new cell

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

$$T_{\text{identify intra}} = T_{\text{basic identify TDD, intra}} \cdot \frac{N_{\text{Period, Intra}}}{N_{\text{Intra}}} \, \text{ms}$$

A cell shall be considered detectable when P-CCPCH Ec/Io \geq -8 dB, DwPCH_Ec/Io \geq -5 dB.

In the case that MTCH is being received, the UE shall be able to take identified cells into use for MTCH combining purposes within $T_{identify\ intra}$ ms.

If more candidate cells are identified than the UE has combing capability, then cells ranked in decreasing MTCH reception quality shall be considered for combing purposes.

8.4A.2.2.2 UE P-CCPCH RSCP measurement capability

In the CELL_FACH state the measurement period for intra frequency P-CCPCH RSCP measurements is 200 ms. When all TS0, DwPTS and main guard period in the measurement period are scheduled for intra frequency measurements, the UE shall be capable of performing P-CCPCH RSCP measurements for 6 identified intra-frequency cells of the monitored set and the UE physical layer shall be capable of reporting these measurements to higher layers with the measurement period of 200 ms. When inter-frequency measurements required by the network have to be performed during periods of TS0, DwPTS and main guard period, the UE shall be capable of performing P-CCPCH RSCP 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 section 9. 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 P-CCPCH RSCP measurements of cells from UE physical layer to higher layers may be decreased.

$$Y_{\text{measurement intra}} = \text{Floor} \left\{ X_{\text{basic measurement TDD}} \cdot \frac{N_{\text{Intra}}}{N_{\text{Period, Intra}}} \right\}$$

whereby function Floor(x) takes the integer part of x.

X_{basic measurement TDD} is specified in section 8.1A.2.2.2</sub>

 $T_{Measurement_Period, Intra}$ is specified in section 8.1A.2.2.2

N_{Period, Intra}: is specified in section 8.1A.2.2.2

N_{Intra}: is specified in section 8.1A.2.2.2

T_{basic identify TDD, intra} is specified in section 8.1A.2.2.2

8.4A.2.2.2A Timeslot ISCP measurement capability

In the CELL_FACH state the measurement period for intra frequency Timeslot ISCP measurements on arbitrary DL timeslots, including Beacon timeslots is 400 ms. When no inter frequency measurement is scheduled, the UE shall be capable of performing Timeslot ISCP measurements on the current serving cell for 5 arbitrary DL timeslots. The UE physical layer shall be capable of reporting Timeslot ISCP measurements to higher layers with the measurement period of 400 ms.

When inter-frequency measurements are required by the network, the UE shall be able to perform Timeslot ISCP measurements on the current serving for at least $Y_{measurement\ intra\ ISCP}$ arbitrary DL timeslots, where $Y_{measurement\ intra\ ISCP}$ is defined in the following equation. Any Timeslot ISCP measurement that could not be performed during that measurement period, shall be measured in the following measurement periods. The measurement accuracy of the Timeslot ISCP measurement shall be as specified in the section 9.

$$\mathbf{Y}_{\text{measurement intra ISCP}} = Floor \left\{ X_{\text{basic measurement ISCP}} \cdot \frac{\mathbf{T}_{\text{Intra}}}{\mathbf{T}_{\text{Measurement Period, Intra, ISCP}}} \right\}$$

whereby function Floor(x) takes the integer part of x,

X_{basic measurement ISCP} = 5 (arbitrary DL timeslots of the current serving cell)

 $T_{Measurement_Period,\ Intra,\ ISCP}$ is specified in section 8.1A.2.2.2A,

 T_{Intra} is specified in section 8.1A.2.2.2A.

8.4A.2.2.3 RACH Reporting

Reported measurements in the measurement reports sent on the RACH shall meet the requirements in section 9.

8.4A.2.3 TDD inter frequency measurements

When signalled by the network during CELL_FACH state, the UE shall continuously measure identified inter frequency cells and search for new inter frequency cells indicated in the measurement control information.

8.4A.2.3.1 Identification of a new cell

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

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

If the UE does not require measurement occasions and idle intervals to perform TDD inter-frequency measurements, the UE shall be able to identify a new detectable inter-frequency TDD cell belonging to the monitored set within 5000 ms.

A cell shall be considered detectable when P-CCPCH Ec/Io \geq -8 dB, DwPCH_Ec/Io \geq -5 dB.

8.4A.2.3.2 UE P-CCPCH RSCP measurement capability

When TDD inter frequency measurements are scheduled, the UE physical layer shall be capable of reporting P-CCPCH RSCP measurements to higher layers with measurement accuracy as specified in section 9 with measurement period given by

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

where

T_{Measurement Period Inter} is specified in section 8.1A.2.3.2

N Inter FACH:

This is the minimum number of sub-frame in that the signal of P-CCPCH and DwPCH can be received for inter frequency target cell during the period $T_{measurement_Period\ Inter}$ with an arbitrarily chosen timing. It depends on the channel allocation and on measurement occasions during CELL-FACH state and is calculated by assuming 2*0.1ms for implementation margin (for the description of the idle intervals see Annex A of 25.225 and for definition of measurement occasions during CELL_FACH state given by M_REP and TTI see TS 25.331). During the measurement occasions for CELL_FACH state the UE shall measure primarily cells that can not be measured in the idle intervals.

T_{basic_identify_TDD,inter} is specified in section 8.1A.2.3.2

 $N_{basic\;identify\;TDD,\;Inter}$ is specified in section 8.1A.2.3.2

T_{basic measurement TDD inter} is specified in section 8.1A.2.3.2

N_{basic measurement TDD, Inter} is specified in section 8.1A.2.3.2

 N_{Freq} is specified in section 8.1A.2.3.2

If the UE does not need measurement occasions and idle intervals to perform inter-frequency measurements, the measurement period for inter frequency measurements is 480ms.

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

X_{basic measurement TDDinter} is defined in section 8.1A.2.3.2.

8.4A.2.4 FDD measurements

The requirements in this section shall apply only to UE supporting 1.28Mcps TDD and FDD.

In the CELL_FACH state when FDD inter frequency measurements are scheduled the UE shall continuously measure identified inter frequency FDD cells and search for new inter frequency FDD cells indicated in the measurement control information.

8.4A.2.4.1 Identification of a new cell

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

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

If the UE does not require measurement occasions and idle intervals to perform FDD inter-frequency measurements, the UE shall be able to identify a new detectable inter-frequency TDD cell belonging to the monitored set within 5000ms.

An inter-frequency FDD cell shall be considered detectable, when CPICH Ec/Io \geq -20 dB, SCH_Ec/Io \geq -17 dB and SCH_Ec/Io is equally divided between primary synchronisation code and secondary synchronisation code.

8.4A.2.4.2 UE CPICH measurement capability

When FDD inter frequency measurements are scheduled, the UE physical layer shall be capable of reporting measurements to higher layers with measurement accuracy as specified in sub-clause 9 with measurement period given by

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

T_{Measurement_Period FDD inter} is specified in section 8.1A.2.4.2

T Inter FACH:

This is the minimum time that is available for the inter frequency measurements during the period $T_{\text{Measurement_Period FDD inter}}$ with an arbitrarily chosen timing. The minimum time depends on the channel allocation and on measurement occasions during CELL_FACH state and is calculated by assuming 2*0.1 ms for implementation margin (for the description of the idle intervals see Annex A of 25.225 and for definition of measurement occasions during CELL_FACH state given by M_REP and TTI see TS 25.331). It is assumed for the requirement that the slot allocation allows measurement windows in the idle periods to be of minimum duration necessary to perform the measurements. During the measurement occasions for CELL_FACH state the UE shall measure primarily cells that can not be measured in the idle intervals.

 $T_{basic_identify_FDD,inter}$ is specified in section 8.1A.2.4.2

T_{basic measurement FDD inter} is specified in section 8.1A.2.4.2.

 N_{Freq} is specified in section 8.1A.2.4.2

If the UE does not need measurement occasions and idle intervals to perform inter-frequency measurements, the measurement period for FDD 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, and the UE physical layer shall be capable of reporting measurements to higher layers with the measurement period of $T_{Measurement\ FDD\ Inter}$.

X_{basic measurement FDDinter} is defined in section 8.1A.2.4.2

8.4A.2.5 GSM measurements

The requirements in this section shall apply to UE supporting 1.28Mcps TDD and GSM.

To support cell reselection the UE shall always perform BSIC verification in Cell FACH state.

1) For a UE requiring idle intervals or measurement occasions to perform GSM measurements. When signalled by UTRAN during CELL_FACH state, the UE shall continuously measure GSM cells and search for new GSM cells given in the monitored set.

In section 8.4A.2.1 the split of measurements between different modes and systems is defined. Every second measurement window due to idle intervals and measurements occasions scheduled for GSM measurements, as given by 8.4A.2.1 shall be allocated for GSM initial BSIC identification.

The remaining measurement windows due to idle intervals and measurements occasions used for GSM measurements shall be scheduled as follows. 3 window out of 4 shall be allocated for GSM carrier RSSI measurements and 1 out of 4 shall be allocated for GSM BSIC reconfirmation. The scheduling of measurement windows between GSM carrier RSSI measurements and GSM BSIC reconfirmation is up to the UE.

- 2) For a UE not requiring idle intervals and measurement occasions 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. This is further detailed in the following sub-sections.

8.4A.2.5.1 GSM carrier RSSI

1) For a UE requiring idle intervals or measurement occasions to perform GSM measurements.

An UE supporting GSM measurements shall meet the minimum number of GSM carrier RSSI measurements specified in table 8.8. This measurement shall be based on measurement windows allocated for GSM carrier RSSI measurements as described in 8.4A.2.5. In the CELL_FACH state the measurement period for the GSM carrier RSSI measurement is 480 ms.

The UE shall meet the measurement accuracy requirements stated for RXLEV in TS 45.008, when the given measurement time allows the UE to take at least 3 GSM carrier RSSI samples per GSM carrier in the monitored set during the measurement period.

Table 8.8

Measurement Window Length (slots)	Number of GSM carrier RSSI samples per measurement window
3	1
4	2
5	3
7	6
15	16
30	32
60	64
120	128

In case the UE is not able to acquire the required number of samples per GSM carrier during one measurement period, the UE shall measure as many GSM carriers as possible during that measurement period using at least 3 samples per GSM carrier. The GSM carriers that were not measured during that measurement period shall be measured in the following measurement periods. This means that, in this particular case, the L1 reporting period to higher layers of a GSM neighbour can be a multiple of the measurement period.

2) For a UE not requiring idle intervals and measurement occasions to perform GSM measurements:

The samples allocated to each carrier shall as far as possible be uniformly distributed over each measurement period. At least 3 received signal level measurement samples are required per RSSI value. The measurement period is 480 ms.

In case UTRA RACH procedure prevents the UE from acquiring the required number of samples per GSM carrier during one measurement period, the GSM carriers that were not measured during that measurement period shall be measured in the following measurement periods.

8.4A.2.5.2 BSIC verification

1) For a UE requiring idle intervals or measurement occasions to perform GSM measurements.

The procedure for BSIC verification on a GSM cell can be divided into the following two tasks:

Initial BSIC identification

Includes searching for the BSIC and decoding the BSIC for the first time when there is no knowledge about the relative timing between the TDD and GSM cell. The UE shall trigger the initial BSIC identification within 50% of the available measurement windows. The requirements for Initial BSIC identification can be found in 8.4A.2.5.2.1,Initial BSIC identification

BSIC re-confirmation

Tracking and decoding the BSIC of a GSM cell after initial BSIC identification is performed. The UE shall trigger the BSIC re-confirmation within the available measurement windows. The requirements for BSIC re-confirmation can be found in section 8.4A.2.5.2.2, BSIC re-confirmation.

Measurements on a GSM cell can be requested with BSIC verified or BSIC non-verified. If GSM measurements are requested with BSIC verified the UE shall be able to report the GSM cells with BSIC verified for those cells where the verification of BSIC has been successful.

The BSIC of a GSM cell is considered to be "verified" if the UE has decoded the SCH of the BCCH carrier and identified the BSIC at least one time (initial BSIC identification) and from that moment the BSIC shall be re-confirmed at least once every 6 times $T_{\text{re-confirm abort}}$ seconds. Otherwise the BSIC of the GSM cell is considered as "non-verified". The time requirement for initial BSIC identification, $T_{\text{identify abort}}$, and the BSIC re-confirmation interval $T_{\text{re-confirm abort}}$ can be found in the sections below.

The UE shall be able to perform BSIC verification at levels down to the reference sensitivity level or reference interference levels as specified in TS 45.005.

2) For a UE not requiring idle intervals and measurement occasions to perform GSM measurements:

The UE shall attempt to check the BSIC for at least the 6 strongest GSM carriers at least every 10 seconds, to confirm that it is monitoring the same cell, as far as UTRA RACH procedure does not prevent UE from decoding BSIC.

If a BSIC is decoded and matches the expected value, it is considered as "verified", else it is considered as "non verified".

The UE shall be able to perform BSIC verification at levels down to the reference sensitivity level or reference interference levels as specified in TS 45.005.

8.4A.2.5.2.1 Initial BSIC identification

This measurement is performed in the measurement windows allocated for Initial BSIC identification as described in 8.4A.2.5.

For GSM cells that are requested with BSIC verified the UE shall continuously attempt to decode the SCH on the BCCH carrier of the 6 strongest BCCH carriers of the GSM cells indicated in the measurement control information. The UE shall give priority for BSIC decoding attempts in decreasing signal strength order to BSIC carriers with unknown BSIC. The strongest BCCH carrier is defined as the BCCH carrier having the highest measured GSM carrier RSSI value.

When the UE attempts to decode the BSIC of one GSM BCCH carrier with unknown BSIC, the UE shall use all available measurements windows allocated for GSM initial BSIC identification according section 8.4A.2.5 to attempt to decode the BSIC from that GSM BCCH carrier.

If the BSIC of the GSM BCCH carrier has been successfully decoded the UE shall immediately continue BSIC identification with the next GSM BCCH carrier, in signal strength order, with unknown BSIC. The GSM cell for which the BSIC has been successfully identified shall be moved to the BSIC re-confirmation procedure.

If the UE has not successfully decoded the BSIC of the GSM BCCH carrier within $T_{identify\ abort}$, the UE shall abort the BSIC identification attempts for that GSM BCCH carrier. The UE shall continue to try to perform BSIC identification of the next GSM BCCH carrier in signal strength order. The GSM BCCH carrier for which the BSIC identification failed shall not be re-considered for BSIC identification until BSIC identification attempts have been made for all the rest of the 6 strongest GSM BCCH carriers in the monitored set with unknown BSIC.

T_{identify abort} is specified in section 8.1A.2.5.

8.4A.2.5.2.2 BSIC re-confirmation

The requirements of this section are applicable for BSIC re-confirmation.

The UE shall maintain the timing information of 6 identified GSM cells. Initial timing information is obtained from the initial BSIC identification. The timing information shall be updated every time the BSIC is decoded.

For each measurement window allocated for GSM BSIC reconfirmation as described in 8.4A.2.5, the UE shall attempt to decode the BSIC falling within the effective measurement window duration. If more than one BSIC can be decoded within the same measurement window, priority shall be given to the least recently decoded BSIC.

If the UE fails to decode the BSIC after two successive attempts, the UE shall abort the BSIC re-confirmation attempts for that GSM cell. The GSM cell shall be treated as a new GSM cell with unidentified BSIC and the GSM cell shall be moved to the initial BSIC identification procedure, see section 8.4A.2.5.2.1. The UE shall be able to make BSIC reconfirmation attempts for the 6 strongest GSM cells in the monitored list.

 $T_{\text{re-confirm abort}}$ is specified in section 8.1A.2.5.

It is assumed for the requirement that the measurement windows possible due to higher layer parameters are of minimum duration necessary to perform the measurements.

8.4B Measurements in CELL FACH State (7.68 Mcps option)

8.4B.1 Introduction

This section contains requirements on the UE regarding measurement reporting in CELL_FACH state. The requirements are split in TDD intra frequency, TDD inter frequency, FDD and GSM measurements. These measurements may be used by the UTRAN, e.g. for handover decisions. The measurements are defined in [14], the measurement model is defined in [15] and measurement accuracies are specified in section 9. Control of measurement

reporting is specified in [16] and parallel measurements are specified in section 8.2B. For the description of the idle intervals see [14].

8.4B.2 Requirements

8.4B.2.1 UE Measurement Capability

The UE shall be able to monitor up to

- 32 intra frequency TDD cells (including serving cell), and
- 32 inter frequency cells, including
 - TDD mode cells distributed on up to 2 additional TDD carriers and
 - Depending on UE capability, FDD mode cells, distributed on up to 3 FDD carriers.
- Depending on UE capability, 32 inter RAT GSM cells.

The requirements in section 9 on P-CCPCH RSCP measurements are applicable for a UE performing measurements according to this section. For inter-frequency FDD, TDD and GSM cell re-selection, measurement occasions as specified in [16] and idle intervals as described in [14] are used to find and measure on other cells.

It is defined below how the measurements on different systems and modes are performed given the time allocated to that system. The requirements in this section are based on the assumption that the time during the measurement occasions and idle intervals that is allocated to each of the different modes and systems shall be equally shared by the modes which the UE has capability for and that are in the monitored set signalled by the network.

The UE is required to measure periodically once every time period T_{meas} on each of the modes and systems, FDD interfrequency cells, TDD interfrequency cells and GSM carriers, for which the corresponding parameter N_{FDD} , N_{TDD} and N_{GSM} is set to 1, within the measurement time T_{meas}

$$T_{meas} = [(N_{FDD} + N_{TDD} + N_{GSM}) \cdot N_{TTI} \cdot M_{REP} \cdot 10] \text{ ms}$$

where the following parameters are defined:

 N_{TDD} = 0 or 1. If there are inter-frequency TDD cells in the neighbour list N_{TDD} =1, otherwise N_{TDD} =0.

 N_{FDD} = 0 or 1. If the UE is capable of FDD and there are FDD cells in the neighbour list $N_{FDD}=1$

otherwise $N_{FDD} = 0$.

 N_{GSM} = 0 or 1. If the UE is capable of GSM and there are GSM cells in the neighbour list, $N_{GSM} = 1$,

otherwise N_{GSM} =0.

M_REP is the Measurement Occasion cycle length in number of frames as specified in [16].

N_{TTI} is the number of frames in each measurement occasion, equal to the length of the largest TTI on

the SCCPCH monitored by the UE.

For 7.68 Mcps TDD UE capable of MBMS reception and if MBMS reception is active, during Measurement Occasion the UE shall:

- Start to switch back to its serving cell frequency 1 timeslot prior to the start of the MBMS reception
- Switch back to its target inter-frequency within 1 timeslot immediately after the last MBMS reception.

The FACH Measurement Occasion of N_{TTI} frames will be repeated every N_{TTI} * M_REP frame.

Table 8.8A: K values for each N_{TTI} value

N _{TTI}	K
1	3,4,5,6
2	2,3,4,5
4	2,3,4
8	1,2,3

8.4B.2.2 TDD intra frequency measurements

During the CELL_FACH state the UE shall continuously measure identified intra frequency TDD cells and search for new intra frequency TDD cells in the monitored set. If a measurement occasion is activated, intra frequency measurements can be performed between the measurement occasions.

In case no measurement occasion is activated, in order for the requirements in the following subsections to apply, the Beacon timeslots of the intra-frequency TDD cells indicated in the measurement control information shall either be synchronised with the Beacon timeslots of the serving cell, such that the UE can measure an intra-frequency cell TDD cell at least once every frame for the slot allocation case in use in this cell. The UE shall be capable of intra frequency measurements during active DL timeslots.

8.4B.2.2.1 Identification of a new cell

The UE shall be able to identify a new inter frequency TDD detectable cell belonging to the monitored set within $T_{identify}$ intra ms, where $T_{identify intra}$ is specified in section 8.1B.2.2.1.

8.4B.2.2.2 UE P-CCPCH RSCP measurement capability

In CELL_FACH state the UE shall be capable of performing P-CCPCH RSCP measurements for $X_{measurement\ intra}$ identified intra-frequency TDD cells of the monitored set with a measurement period for intra-frequency P-CCPCH RSCP measurements $T_{measurement\ period\ intra}$, where

 $X_{measurement\ intra}$ is specified in section 8.1B.2.2.2

 $T_{measurement\ period\ intra}$ is specified in section 8.1B.2.2.2

The UE physical layer shall be capable of reporting these measurements to higher layers with the measurement period $T_{\text{measurement period intra}}$.

If the UE has identified more than $X_{\text{measurement intra}}$ intra-frequency cells, the UE shall perform measurements of all identified cells but the reporting rate of P-CCPCH RSCP measurements of cells from UE physical layer to higher layers may be decreased. The measurement accuracy for all measured cells shall be as specified in the section 9.

8.4B.2.2.3 Timeslot ISCP measurement capability

In CELL_FACH state the measurement period for intra frequency Timeslot ISCP measurements on arbitrary DL timeslots, including Beacon timeslots is 400 ms. The UE shall be capable of performing Timeslot ISCP measurements on the current serving cell for 10 arbitrary DL timeslots. The UE physical layer shall be capable of reporting Timeslot ISCP measurements to higher layers with the measurement period of 400 ms.

8.4B.2.2.4 RACH reporting

Reporting measurements in the measurement reports sent on the RACH shall meet the requirements in section 9.

8.4B.2.3 TDD inter frequency measurements

When signalled by UTRAN during CELL_FACH state, the UE shall continuously measure identified inter frequency TDD cells and search for new inter frequency TDD cells indicated in the measurement control information.

In CELL_FACH state, measurements opportunities for TDD inter-frequency measurements are provided by means of measurement occasions and idle intervals.

8.4B.2.3.1 Identification of a new cell

When measurement occasions and idle intervals are used 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

$$T_{\text{identify inter}} = Max \left\{ 5000, Ceil \left\{ \frac{T_{\text{basic identify TDD inter}}}{T_{\text{Inter FACH}}} \right\} \cdot T_{\text{meas}} \cdot N_{Freq, TDD} \right\} \text{ ms}$$

If the UE does not require measurement occasions and idle intervals to perform TDD inter-frequency measurements, the UE shall be able to identify a new detectable inter-frequency TDD cell belonging to the monitored set within 5000 ms.

8.4B.2.3.2 P-CCPCH RSCP measurement period

When measurement occasions and idle intervals are used for inter-frequency TDD measurements, the UE shall be capable of performing P-CCPCH RSCP measurements for $X_{\text{measurement TDD inter}}$ inter-frequency TDD cells per TDD frequency of the monitored set.

The UE physical layer shall be capable of reporting measurements to higher layers with measurement accuracy as specified in section 9 with measurement period of $T_{measurement inter}$.

$$T_{\text{measurement inter}} = Max \left\{ T_{\text{measurement period TDD inter}}, 2 \cdot T_{\text{meas}}, Ceil \left\{ \frac{T_{\text{basic measurement TDD inter}}}{T_{\text{Inter FACH}}} \right\} \cdot T_{\text{meas}} \cdot N_{\textit{Freq}} \right\}$$

If the UE does not require idle intervals to perform inter-frequency TDD measurements, the measurement period for inter frequency P-CCPCH RSCP measurements shall be 480 ms.

Where,

X_{measurement TDD inter} is specified in section 8.1B.2.4.2.

T_{measurement period inter} is specified in section 8.1B.2.3.2

T_{Meas} is specified in section 8.4B.2.1.

T _{Inter FACH}; is equal to (N_{TTI}*10 - 2*0.5) ms.

 $T_{basic\ identify\ TDD\ inter} = 800\ ms.$

 $T_{basic\ measurement\ TDD\ inter} = 50\ ms$

N_{Freq TDD}is specified in section 8.1B.2.3.2

8.4B.2.4 FDD measurements

The requirements in this section shall apply to UE supporting TDD and FDD.

In the CELL_FACH state when FDD inter frequency measurements are scheduled the UE shall continuously measure detected inter frequency FDD cells and search for new inter frequency cells indicated in the measurement control information.

In CELL_FACH state, measurements opportunities for FDD inter-frequency measurements are provided by means of measurement occasions and idle intervals.

8.4B.2.4.1 Identification of a new cell

When measurement occasions and idle intervals are used for inter-frequency FDD measurements, the UE shall be able to identify a new detectable inter frequency FDD cell belonging to the monitored set within

$$T_{\text{identify FDD inter}} = Max \left\{ 5000, Ceil \left\{ \frac{T_{\text{basic identify FDD inter}}}{T_{\text{Inter FACH}}} \right\} \cdot T_{\text{meas}} \cdot N_{\textit{Freq,FDD}} \right\}$$

If the UE does not require measurement occasions and idle intervals to perform FDD inter-frequency measurements, the UE shall be able to identify a new detectable inter-frequency FDD cell belonging to the monitored set within 5000 ms.

An inter-frequency FDD cell shall be considered detectable, when CPICH Ec/Io \geq -20 dB, SCH_Ec/Io \geq -17 dB and SCH_Ec/Io is equally divided between primary synchronisation code and secondary synchronisation code.

8.4B.2.4.2 UE CPICH measurement capability

When measurement occasions and idle intervals are used 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 with measurement period given by

$$T_{\text{measurement FDD inter}} = Max \left\{ T_{\text{measurement period FDD inter}}, 2 \cdot T_{\text{meas}}, Ceil \left\{ \frac{T_{\text{basic measurement FDD inter}}}{T_{\text{Inter FACH}}} \right\} \cdot T_{\text{meas}} \cdot N_{\textit{Freq,FDD}} \right\} \text{ms}$$

If the UE does not require measurement occasions and idle intervals to perform inter-frequency FDD measurements, the measurement period for inter frequency CPICH measurements shall be 480 ms.

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

X_{basic measurement FDD inter} is specified in section 8.1B.2.4.2.

 $T_{measurement_period\;FDD\;inter} \quad is\; specified\; in\; section\; 8.1B.2.4.2$

T_{Inter FACH:} is specified in section 8.4B.2.3.2

T_{basic identify FDD inter} is specified in section 8.1B.2.4.2

 $T_{\text{basic measurement FDD inter}}$ is specified in section 8.1B.2.4.2.

 $N_{\text{Freq FDD}}$ is specified in section 8.1B.2.4.2

8.4B.2.5 GSM measurements

The requirements in this section shall apply to UE supporting TDD and GSM.

In CELL_FACH state, measurements opportunities for GSM measurements are provided by means of measurement occasions and idle intervals.

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

- a) In CELL_DCH state, when signaled by UTRAN and when measurement occasions and idle intervals are used for GSM measurements, the UE shall continuously measure GSM cells and search for new GSM cells given in the monitored set.
 - In section 8.4B.2.1 the split of measurements between different modes and systems is defined. Every second measurement opportunity scheduled for GSM measurements, as given by 8.4B.2.1 shall be allocated for GSM initial BSIC identification.
 - The remaining measurement opportunities scheduled for GSM measurements shall be scheduled as follows. 3 measurement opportunities out of 4 shall be allocated for GSM carrier RSSI measurements and 1 out of 4 shall be allocated for GSM BSIC reconfirmation. The scheduling of measurement opportunities between GSM carrier RSSI measurements and GSM BSIC reconfirmation is up to the UE.
- b) In CELL_FACH state, when signaled by UTRAN and when the UE does not need measurement occasions and idle intervals 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 [21] shall apply. This is further detailed in the following sub-sections.

8.4B.2.5.1 GSM carrier RSSI

a) For a UE using measurement occasions and idle intervals to perform GSM measurements

A UE supporting GSM measurements using measurement occasions and idle intervals shall meet the minimum number of GSM carrier RSSI measurements specified in table 8.8B.

In CELL_FACH state the measurement period, $T_{measurement\ period\ GSM}$, for the GSM carrier RSSI measurement is 480 ms.

The UE shall meet the measurement accuracy requirements stated for RXLEV in [21], when the given measurement time allows the UE to take at least 3 GSM carrier RSSI samples per GSM carrier in the monitored set during the measurement period.

Number of GSM carrier RSSI Measurement opportunity samples per measurement length (timeslots) opportunity. 3 4 2 5 3 6 4 7 6 7 8 9 8 10 10 11 11 12 12 13 14 15 16 30 32 64 60 120 128

Table 8.8B

In case the UE is not able to acquire the required number of samples per GSM carrier during one measurement period, the UE shall measure as many GSM carriers as possible during that measurement period using at least 3 samples per GSM carrier. The GSM carriers that were not measured during that measurement period shall be measured in the following measurement periods. This means that, in this particular case, the L1 reporting period to higher layers of a GSM neighbour can be a multiple of the measurement period.

b) For a UE not using measurement occasions and idle intervals to perform GSM measurements

The samples allocated to each carrier shall as far as possible be uniformly distributed over each measurement period. At least 3 received signal level measurement samples are required per GSM carrier RSSI measurement. The measurement period shall be 480 ms.

In case UTRA RACH procedure prevents the UE from acquiring the required number of samples per GSM carrier during one measurement period, the GSM carriers that were not measured during that measurement period shall be measured in the following measurement periods.

8.4B.2.5.2 BSIC verification

a) For a UE using measurement occasions and idle intervals to perform GSM measurements

The procedure for BSIC verification on a GSM cell can be divided into the following two tasks:

- 1) Initial BSIC identification: Includes searching for the BSIC and decoding the BSIC for the first time when there is no knowledge about the relative timing between the TDD and GSM cell. The requirements for Initial BSIC identification can be found in 8.4B.2.5.2.1.
- 2) BSIC re-confirmation: Tracking and decoding the BSIC of a GSM cell after initial BSIC identification is performed. The requirements for Initial BSIC identification can be found in 8.4B.2.5.2.2.

Measurements on a GSM cell can be requested with BSIC verified or BSIC non-verified. If GSM measurements are requested with BSIC verified the UE shall be able to report the GSM cells with BSIC verified for those cells where the verification of BSIC has been successful.

The UE shall consider the BSIC of a GSM cell to be "verified" if it has decoded the SCH of the BCCH carrier and identified the BSIC at least one time (initial BSIC identification) From that time instant, the UE shall attempt to reconfirm the BSIC at least once every 6 times $T_{re-confirm\ abort}$ seconds. Otherwise, the UE shall consider the BSIC of the GSM cell to be "non-verified".

The time requirement for initial BSIC identification, $T_{identify \ abort}$, and the BSIC re-confirmation interval $T_{re-confirm \ abort}$ can be found in the sections below.

The UE shall be able to decode a BSIC for the purpose of initial BSIC identification or BSIC reconfirmation within a measurement opportunity, when the time difference between the middle of the received GSM synchronisation burst at the UE and the middle of the measurement opportunity is within the limits specified in Table 8.8.C.

Idle Interval Length (timeslots)	Maximum time difference [μs]
3	± 65
4	± 398
5	± 732
6	± 1065
7	± 1398
8	± 1732
9	± 2065
10	± 2398
11	± 2732
12	± 3065
13	± 3398
15	± 4100
30	± 9100
60	± 19100
120	± 39100

Table 8.8C

The UE shall be able to perform BSIC verification at levels down to the reference sensitivity level or reference interference levels as specified in [20].

b) For a UE not using measurement occasions and idle intervals to perform GSM measurements

The UE shall attempt to verify the BSIC for at least the 6 strongest GSM carriers at least every 10 seconds, to confirm that it is monitoring the same cell, as far as UTRA RACH procedure does not prevent UE from decoding BSIC.

If a BSIC is decoded and matches the expected value, the UE shall consider it as "verified", otherwise it shall consider it as "non-verified".

The UE shall be able to perform BSIC verification at levels down to the reference sensitivity level or reference interference levels as specified in [20].

8.4B.2.5.2.1 Initial BSIC identification

This measurement shall be performed in the measurement opportunities as described in 8.4B.2.5.

The UE shall continuously attempt to decode the BSIC of the SCH on the BCCH carrier of the 6 strongest BCCH carriers of the GSM cells indicated in the measurement control information. The UE shall give priority for BSIC decoding attempts in decreasing signal strength order to BSIC carriers with unknown BSIC. The strongest BCCH carrier is defined as the BCCH carrier having the highest measured GSM carrier RSSI value.

When the UE attempts to decode the BSIC of one GSM BCCH carrier with unknown BSIC, the UE shall use all available measurement opportunities allocated for GSM initial BSIC identification according section 8.4B.2.5 to attempt to decode the BSIC from that GSM BCCH carrier.

If the BSIC of the GSM BCCH carrier has been successfully decoded the UE shall immediately continue BSIC identification with the next GSM BCCH carrier, in signal strength order, with unknown BSIC. The GSM cell for which the BSIC has been successfully identified shall be moved to the BSIC re-confirmation procedure.

If the UE has not successfully decoded the BSIC of the GSM BCCH carrier within $T_{identify\ abort}$, the UE shall abort the BSIC identification attempts for that GSM BCCH carrier. The UE shall continue to try to perform BSIC identification of the next GSM BCCH carrier in signal strength order. The GSM BCCH carrier for which the BSIC identification failed shall not be re-considered for BSIC identification until BSIC identification attempts have been made for all the rest of the 6 strongest GSM BCCH carriers in the monitored set with unknown BSIC.

T_{identify abort} is specified in section 8.1B.2.5.

8.4B.2.5.2.2 BSIC re-confirmation

The requirements of this section are applicable for BSIC re-confirmation.

The UE shall maintain the timing information of 6 identified GSM cells. Initial timing information is obtained from the initial BSIC identification. The timing information shall be updated every time the BSIC is decoded.

For each measurement opportunity allocated for GSM BSIC reconfirmation as described in 8.4B.2.5, the UE shall attempt to decode the BSIC occurring during the measurement opportunity. When the UE has to select one out of several possible GSM cells to reconfirm during the same measurement opportunity, priority shall be given to the least recently decoded BSIC.

If the UE fails to decode the BSIC after two successive attempts, the UE shall abort the BSIC re-confirmation attempts for that GSM cell. The GSM cell shall be treated as a new GSM cell with unidentified BSIC and the GSM cell shall be moved to the initial BSIC identification procedure, see section 8.4B.2.5.2.1. The UE shall be able to make BSIC reconfirmation attempts for the 6 strongest GSM cells in the monitored list.

Where $T_{\text{re-confirm abort}}$ is specified in section 8.1B.2.5.

8.5 Capabilities for Support of Event Triggering and Reporting Criteria in CELL_FACH state (3.84 Mcps TDD option)

8.5.1 Introduction

This section contains requirements on UE capabilities for support of event triggering and reporting criteria.

8.5.2 Requirements

In this section reporting criteria can be either event triggered reporting criteria or periodic reporting criteria.

Table 8.9A: Requirements for reporting criteria per measurement category

Measurement category	E _{cat}	Note
Traffic volume measurements	2 + (2 per Transport	
	Channel)	

8.5A Capabilities for Support of Event Triggering and Reporting Criteria in CELL_FACH state (1.28 Mcps option)

8.5A.1 Introduction

This section contains requirements on UE capabilities for support of event triggering and reporting criteria.

8.5A.2 Requirements

In this section reporting criteria can be either event triggered reporting criteria or periodic reporting criteria.

Table 8.9: Requirements for reporting criteria per measurement category

Measurement category	E _{cat}	Note
Traffic volume measurements	2	

8.5B Capabilities for Support of Event Triggering and Reporting Criteria in CELL_FACH state (7.68 Mcps TDD option)

8.5B.1 Introduction

This section contains requirements on UE capabilities for support of event triggering and reporting criteria.

8.5B.2 Requirements

In this section reporting criteria can be either event triggered reporting criteria or periodic reporting criteria.

Table 8.9B: Requirements for reporting criteria per measurement category

Measurement category	E _{cat}	Note
Traffic volume measurements	2 + (2 per Transport	
	Channel)	

9 Measurements performance requirements

One of the key services provided by the physical layer is the measurement of various quantities which are used to trigger or perform a multitude of functions. Both the UE and the UTRAN are required to perform a variety of measurements. The complete list of measurements is specified in 3GPP TS 25.302 "Services Provided by Physical Layer". The physical layer measurements for TDD are described and defined in 3GPP TS 25.225 "Physical layer - Measurements (TDD)". In this clause for TDD, per each measurement the relevant requirements on performance in terms of accuracy are reported.

The accuracy requirements in this clause are applicable for AWGN radio propagation conditions.

Unless explicitly stated,

- Reported measurements shall be within defined range in 90 % of the cases.
- Measurement channel is 12,2 kbps as defined in 3GPP TS 25.102 annex A. This measurement channel is used both in active cell and cells to be measured.
- Physical channels used as defined in 3GPP TS 25.102 annex A.
- All requirements are defined when UE is in a CELL_DCH or CELL_FACH stage. The difference between modes are the reporting delay. Some of the measurements are not requested to be reported in both stages.

- Single task reporting.
- Power control is active.

9.1 Measurements performance for UE

The requirements in this clause are applicable for a UE:

- in state CELL_DCH and state CELL_FACH.
- performing measurements according to section 8.
- that is synchronised to the cell that is measured.

The reported measurement result after layer 1 filtering shall be an estimate of the average value of the measured quantity over the measurement period. The reference point for the measurement result after layer 1 filtering is referred to as point B in the measurement model described in TS25.302.

The accuracy requirements in this clause are valid for the reported measurement result after layer 1 filtering. The accuracy requirements are verified from the measurement report at point D in the measurement model having the layer 3 filtering disabled.

9.1.1 Performance for UE measurements in downlink (RX)

9.1.1.1 P-CCPCH RSCP (TDD)

These measurements consider *P-CCPCH RSCP* measurements for TDD cells.

The measurement period for CELL_DCH state and CELL_FACH state can be found in section 8.

9.1.1.1.1 Absolute accuracy requirements

9.1.1.1.1 3.84 Mcps TDD option

The accuracy requirements in table 9.1 are valid under the following conditions:

P-CCPCH RSCP ≥ -102 dBm.

The received signal levels on SCH and P-CCPCH are according the requirements in paragraph 8.1.2.6

Table 9.1: P-CCPCH RSCP absolute accuracy

		Accura	Conditions	
Parameter	Unit	Normal condition	Extreme condition	lo [dBm/3.84 MHz]
D CCDCH DCCD	dBm	± 6	± 9	-9470
P-CCPCH_RSCP	dBm	± 8	± 11	-7050

9.1.1.1.2 1.28 Mcps TDD option

The accuracy requirements in table 9.1A are valid under the following conditions:

P-CCPCH RSCP ≥ -102 dBm

P-CCPCH Ec/Io \geq -8 dB

 $DwPCH_Ec/Io \ge -5 dB$

Table 9.1A: P-CCPCH_RSCP absolute accuracy

		Accura	Conditions	
Parameter	Unit	Normal condition	Extreme condition	lo [dBm/ 1.28 MHz]
D CCDCH DSCD	dBm	± 6	± 9	-9470
P-CCPCH_RSCP	dBm	± 8	± 11	-7050

9.1.1.1.3 7.68 Mcps TDD option

The accuracy requirements in table 9.1B are valid under the following conditions:

P-CCPCH RSCP ≥ -102 dBm.

The received signal levels on SCH and P-CCPCH are according the requirements in paragraph 8.1B.2.6

Table 9.1B: P-CCPCH_RSCP absolute accuracy

		Accura	Conditions	
Parameter	Unit	Normal condition	Extreme condition	lo [dBm/7.68 MHz]
P-CCPCH_RSCP	dBm	± 6	± 9	-9470
	dBm	± 8	± 11	-7050

9.1.1.1.2 Relative accuracy requirements

9.1.1.1.2.1 3.84 Mcps TDD option

The P-CCPCH_RSCP intra-frequency relative accuracy is defined as the P-CCPCH_RSCP measured from one cell compared to the P-CCPCH_RSCP measured from another cell on the same frequency.

The accuracy requirements in table 9.2 are valid under the following conditions:

P-CCPCH RSCP1,2 \geq -102 dBm.

$$\left| P - CCPCH RSCP1 \right|_{in \ dBm} - P - CCPCH RSCP2 \Big|_{in \ dBm} \right| \le 20 dB$$

Relative Io difference [dB] ≤ relative RSCP difference [dB]

The received signal levels on SCH and P-CCPCH are according the requirements in paragraph 8.1.2.6

It is assumed that the measurements of P-CCPCH RSCP1 and P-CCPCH RSCP2 can be performed within 20ms due to slot allocations in the cells concerned.

Table 9.2: P-CCPCH_RSCP intra-frequency relative accuracy

		Accura	cy [dB]	Conditions	
Parameter	Unit	Normal condition Extreme condition		lo [dBm/	Relative RSCP
				3.84MHz]	difference [dB]
		±1	±1		<2
P-CCPCH_RSCP	dBm	<u>+2</u>	±2	-9450	214
		±3	± 3		>14

The P-CCPCH_RSCP inter-frequency relative accuracy is defined as the P-CCPCH_RSCP measured from one cell compared to the P-CCPCH_RSCP measured from another cell on a different frequency.

The accuracy requirements in table 9.3 are valid under the following conditions:

P-CCPCH RSCP1,2 \geq -102 dBm.

$$\left| P - CCPCH RSCP1 \right|_{in \ dBm} - P - CCPCH RSCP2 \right|_{in \ dBm} \le 20 dB$$

The received signal levels on SCH and P-CCPCH are according the requirements in paragraph 8.1.2.6

Table 9.3: P-CCPCH_RSCP inter-frequency relative accuracy

			Accuracy [dB]		
Parameter	Unit	Normal condition	Extreme condition	lo [dBm/3.84 MHz]	
P-CCPCH_RSCP	dBm	± 6	± 6	-9450	

9.1.1.1.2.2 1.28 Mcps TDD option

The P-CCPCH_RSCP intra-frequency relative accuracy is defined as the P-CCPCH_RSCP measured from one cell compared to the P-CCPCH_RSCP measured from another cell on the same frequency.

The accuracy requirements in table 9.3A are valid under the following conditions:

P-CCPCH RSCP1,2 \geq -102 dBm.

$$\left| P - CCPCH \quad RSCP1 \right|_{in \ dBm} - P - CCPCH \quad RSCP \ 2 \Big|_{in \ dBm} \right| \le 8 dB$$

P-CCPCH Ec/Io \geq -8 dB

 $DwPCH_Ec/Io \ge -5 dB$

It is assumed that the measurements of P-CCPCH RSCP1 and P-CCPCH RSCP2 can be performed within 20ms.

Table 9.3A: P-CCPCH_RSCP intra-frequency relative accuracy

		Accura	Conditions	
Parameter	Unit	Normal condition	Extreme condition	lo [dBm /1.28 MHz]
P-CCPCH_RSCP	dBm	±3	±3	-9450

The P-CCPCH_RSCP inter-frequency relative accuracy is defined as the P-CCPCH_RSCP measured from one cell compared to the P-CCPCH_RSCP measured from another cell on a different frequency.

The accuracy requirements in table 9.3B are valid under the following conditions:

P-CCPCH RSCP1,2 \geq -102 dBm.

$$\left| P - CCPCH RSCP1 \right|_{in \ dBm} - P - CCPCH RSCP2 \right|_{in \ dBm} \le 20 dB$$

P-CCPCH Ec/Io ≥ -8 dB

 $DwPCH_Ec/Io \ge -5 dB$

Table 9.3B: P-CCPCH_RSCP inter-frequency relative accuracy

		Accur	Accuracy [dB]	
Parameter	Unit	Normal condition	Extreme condition	lo [dBm/1.28 MHz]
P-CCPCH_RSCP	dBm	± 6	± 6	-9450

9.1.1.1.2.3 7.68 Mcps TDD option

The P-CCPCH_RSCP intra-frequency relative accuracy is defined as the P-CCPCH_RSCP measured from one cell compared to the P-CCPCH_RSCP measured from another cell on the same frequency.

The accuracy requirements in table 9.3C are valid under the following conditions:

P-CCPCH RSCP1,2 \geq -102 dBm.

$$\left| P - CCPCH RSCP1 \right|_{in \ dBm} - P - CCPCH RSCP2 \right|_{in \ dBm} \le 20 dB$$

Relative Io difference $[dB] \leq relative RSCP difference [dB]$

The received signal levels on SCH and P-CCPCH are according the requirements in paragraph 8.1B.2.6

It is assumed that the measurements of P-CCPCH RSCP1 and P-CCPCH RSCP2 can be performed within 20ms due to slot allocations in the cells concerned.

Table 9.3C: P-CCPCH_RSCP intra-frequency relative accuracy

		Accura	cy [dB]	Conditions		
Parameter	Unit	Normal condition	Extreme condition	lo [dBm/ 7.68MHz]	relative RSCP difference [dB]	
P-CCPCH_RSCP		±1	±1		<2	
	dBm	±2	±2	-9450	214	
		±3	± 3		>14	

The P-CCPCH_RSCP inter-frequency relative accuracy is defined as the P-CCPCH_RSCP measured from one cell compared to the P-CCPCH_RSCP measured from another cell on a different frequency.

The accuracy requirements in table 9.3D are valid under the following conditions:

P-CCPCH RSCP1,2 \geq -102 dBm.

$$\left| P - CCPCH RSCP1 \right|_{in \ dBm} - P - CCPCH RSCP2 \right|_{in \ dBm} \le 20 dB$$

The received signal levels on SCH and P-CCPCH are according the requirements in paragraph 8.1B.2.6

Table 9.3D: P-CCPCH_RSCP inter-frequency relative accuracy

		Accura	acy [dB]	Conditions
Parameter	Unit	Normal condition	Extreme condition	lo [dBm/7.68 MHz]
P-CCPCH_RSCP	dBm	± 6	± 6	-9450

9.1.1.1.3 Range/mapping

The reporting range for *P-CCPCH RSCP* is from -120 ...-25 dBm.

In table 9.4 mapping of the measured quantity is defined. Signalling range may be larger than the guaranteed accuracy range.

Table 9.4

Reported value	Measured quantity value	Unit
P-CCPCH RSCP_LEV05	P-CCPCH RSCP <-120	dBm
P-CCPCH RSCP_LEV04	-120 ≤ P-CCPCH RSCP < -119	dBm
P-CCPCH RSCP_LEV03	-119 ≤ P-CCPCH RSCP < -118	dBm
P-CCPCH RSCP_LEV _89	-27 ≤ P-CCPCH RSCP < -26	dBm
P-CCPCH RSCP_LEV _90	-26 ≤ P-CCPCH RSCP < -25	dBm
P-CCPCH RSCP_LEV _91	-25 ≤ P-CCPCH RSCP	dBm

9.1.1.2 CPICH measurements (FDD)

NOTE: This measurement is used for handover between UTRA TDD and UTRA FDD.

These measurements consider *CPICH RSCP* and *CPICH Ec/Io* measurements. The requirements in this section are valid for terminals supporting this capability.

The measurement period for CELL_DCH state and CELL_FACH state can be found in section 8.

9.1.1.2.1 CPICH RSCP

9.1.1.2.1.1 Inter frequency measurement absolute accuracy requirement

The accuracy requirements in table 9.5 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 9.5: CPICH_RSCP Inter frequency absolute accuracy

		Accura	acy [dB]	Conditions
Parameter	Unit	Normal condition	Extreme condition	lo [dBm/ 3.84 MHz]
CPICH RSCP	dBm	± 6	± 9	-9470
CFICH_ROCF	dBm	± 8	± 11	-7050

9.1.1.2.1.2 Range/mapping

The reporting range for CPICH RSCP is from -120 ...-25 dBm.

In table 9.6 mapping of the measured quantity is defined. Signalling range may be larger than the guaranteed accuracy range.

Table 9.6

Reported value	Measured quantity value	Unit
CPICH_RSCP_LEV05	CPICH RSCP <-120	dBm
CPICH_RSCP_LEV04	-120 ≤ CPICH RSCP < -119	dBm
CPICH_RSCP_LEV03	-119 ≤ CPICH RSCP < -118	dBm

CPICH_RSCP_LEV _89	-27 ≤ CPICH RSCP < -26	dBm
CPICH_RSCP_LEV _90	-26 ≤ CPICH RSCP < -25	dBm
CPICH_RSCP_LEV _91	-25 ≤ CPICH RSCP	dBm

9.1.1.2.2 CPICH Ec/lo

9.1.1.2.2.1 Inter frequency measurement relative accuracy requirement

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 a different frequency.

The accuracy requirements in table 9.7 are valid under the following conditions:

CPICH_RSC1,2 \geq -114 dBm.

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

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

Table 9.7: CPICH Ec/lo Inter frequency relative accuracy

		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

9.1.1.2.2.2 Range/mapping

The reporting range for CPICH Ec/Io is from -24 ...0 dB.

In table 9.8 mapping of the measured quantity is defined. Signalling range may be larger than the guaranteed accuracy range.

Table 9.8

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

9.1.1.3 Timeslot ISCP

The measurement period for CELL_DCH state and CELL_FACH state can be found in section 8.

9.1.1.3.1 Absolute accuracy requirements

9.1.1.3.1.1 3.84 Mcps TDD option

Table 9.9: Timeslot_ISCP Intra frequency absolute accuracy

		Accura	acy [dB]	Conditions
Parameter	Unit	Normal condition	Extreme condition	lo [dBm/ 3.84 MHz]
Timoslat ISCD	dBm	± 6	± 9	-9470
Timeslot_ISCP	dBm	± 8	± 11	-7050

9.1.1.3.1.2 1.28 Mcps TDD option

Table 9.9A: Timeslot_ISCP Intra frequency absolute accuracy

		Accura	acy [dB]	Conditions
Parameter	Unit	Normal condition	Extreme condition	lo [dBm/ 1.28MHz]
Timeslet ICCD	dBm	± 6	± 9	-9470
Timeslot_ISCP	dBm	± 8	± 11	-7050

9.1.1.3.1.3 7.68 Mcps TDD option

Table 9.9B: Timeslot_ISCP Intra frequency absolute accuracy

		Accura	acy [dB]	Conditions
Parameter	Unit	Normal condition	Extreme condition	lo [dBm/ 7.68 MHz]
Timeslot ISCP	dBm	± 6	± 9	-9470
Timesiot_iscr	dBm	± 8	± 11	-7050

9.1.1.3.2 Range/mapping

The reporting range for *Timeslot ISCP* is from -115...-25 dBm.

In table 9.10 mapping of the measured quantity is defined. Signalling range may be larger than the guaranteed accuracy range.

Table 9.10

Reported value	Reported value Measured quantity value	
UE_TS_ISCP_LEV_00	Timeslot_ISCP < -115	dBm
UE_TS_ISCP_LEV_01	-115 ≤ Timeslot_ISCP < -114	dBm
UE_TS_ISCP_LEV_02	-114 ≤ Timeslot_ISCP < -113	dBm
UE_TS_ISCP_LEV_89	-27 ≤ Timeslot_ISCP < -26	dBm
UE_TS_ISCP_LEV_90	-26 ≤ Timeslot_ISCP < -25	dBm
UE_TS_ISCP_LEV_91	-25 ≤ Timeslot_ISCP	dBm

9.1.1.4 UTRA carrier RSSI

NOTE: The purpose of measurement is for Inter-frequency handover evaluation.

The measurement period is equal to the measurement period for UE P-CCPCH RSCP measurement. The measurement period for CELL_DCH state can be found in section 8.

9.1.1.4.1 Absolute accuracy requirement

Absolute accuracy case only one carrier is applied.

9.1.1.4.1.1 3.84 Mcps TDD option

Table 9.11: UTRA carrier RSSI Inter frequency absolute accuracy

		Accura	acy [dB]	Conditions
Parameter	Unit	Normal condition	Extreme condition	lo [dBm/ 3.84 MHz]
UTRA Carrier RSSI	dBm	± 4	± 7	-9470
OTRA Calliel RSSI	dBm	± 6	± 9	-7050

9.1.1.4.1.2 1.28 Mcps TDD option

Table 9.11A: UTRA carrier RSSI Inter frequency absolute accuracy

		Accuracy [dB]		Conditions
Parameter	Unit Normal co	Normal condition	Extreme condition	lo [dBm/ 1.28MHz]
UTRA Carrier RSSI	dBm	± 4	± 7	-9470
OTRA Camer RSSI	dBm	± 6	± 9	-7050

9.1.1.4.1.3 7.68 Mcps TDD option

Table 9.11B: UTRA carrier RSSI Inter frequency absolute accuracy

		Accuracy [dB]		Conditions
Parameter	Unit	Normal condition	Extreme condition	lo [dBm/ 7.68 MHz]
LITBA Carrier BSSI	dBm	± 4	± 7	-9470
UTRA Carrier RSSI	dBm	± 6	± 9	-7050

9.1.1.4.2 Relative accuracy requirement

Relative accuracy requirement is defined as active cell frequency UTRAN RSSI compared to measured other frequency UTRAN RSSI level.

9.1.1.4.2.1 3.84 Mcps TDD option

The accuracy requirements in table 9.12 are valid under the following conditions:

 \mid Channel 1_Io $\mid_{dBm/3.84~MHz}$ -Channel 2_Io $\mid_{dBm/3.84~MHz}\mid$ <20~dB .

Table 9.12: UTRA carrier RSSI Inter frequency relative accuracy

		Accuracy [dB]		Conditions
Parameter	Unit	Normal condition Extreme condition		lo [dBm/3.84 MHz]
UTRA Carrier RSSI	dBm	± 7	± 11	-9450

9.1.1.4.2.2 1.28 Mcps TDD option

The accuracy requirements in table 9.12A are valid under the following conditions:

| Channel 1_Io| $_{dBm/1.28\;MHz}$ -Channel 2_Io| $_{dBm/1.28\;MHz}$ | < 20 dB.

Table 9.12A: UTRA carrier RSSI Inter frequency relative accuracy

		Accuracy [dB]		Conditions
Parameter	Unit	Normal condition	Extreme condition	lo [dBm/1.28 MHz]
UTRA Carrier RSSI	dBm	± 7	± 11	-9450

9.1.1.4.2.3 7.68 Mcps TDD option

The accuracy requirements in table 9.12B are valid under the following conditions:

 \mid Channel $1_Io|_{dBm/7.68\;MHz}$ -Channel $2_Io|_{dBm/7.68\;MHz}\mid$ $<20\;dB.$

Table 9.12B: UTRA carrier RSSI Inter frequency relative accuracy

		Accuracy [dB]		Conditions
Parameter	Unit Normal co		Extreme condition	lo [dBm/7.68 MHz]
UTRA Carrier RSSI	dBm	± 7	± 11	-9450

9.1.1.4.3 Range/mapping

The reporting range for UTRA carrier RSSI is from -100 ...-25 dBm.

In table 9.13 mapping of the measured quantity is defined. Signalling range may be larger than the guaranteed accuracy range.

Table 9.13

Reported value	Measured quantity value	Unit
UTRA_carrier_RSSI_LEV _00	UTRA carrier RSSI < -100	dBm
UTRA_carrier_RSSI_LEV _01	-100 ≤ UTRA carrier RSSI < -99	dBm
UTRA_carrier_RSSI_LEV _02	-99 ≤ UTRA carrier RSSI < -98	dBm
UTRA_carrier_RSSI_LEV _74	-27 ≤ UTRA carrier RSSI < -26	dBm
UTRA_carrier_RSSI_LEV _75	-26 ≤ UTRA carrier RSSI < -25	dBm
UTRA_carrier_RSSI_LEV _76	-25 ≤ UTRA carrier RSSI	dBm

9.1.1.5 GSM carrier RSSI

NOTE: This measurement is for handover between UTRAN and GSM.

The requirements in this section are valid for terminals supporting this capability.

The measurement period for CELL_DCH state can be found in section 8.1.2.5, 8.1A.2.5 and 8.1B.2.5. The measurement period for CELL_FACH state can be found in section 8.4.2.5, 8.4A.2.5 and 8.4B.2.5.

If the UE, in CELL_DCH state, does not need idle intervals to perform GSM measurements, the measurement accuracy requirements for RXLEV in TS 45.008 shall apply.

If the UE, in CELL_DCH state needs idle intervals to perform GSM measurements, the measurement accuracy requirement is stated in section 8.1.2.5, 8.1A.2.5 and 8.1B.2.5.

If the UE, in CELL_FACH state, does not need measurement occasions and/or idle intervals to perform GSM measurements, the measurement accuracy requirements for RXLEV in TS 45.008 shall apply.

If the UE, in CELL_FACH state needs measurement occasions and/or idle intervals to perform GSM measurements, the measurement accuracy requirement is stated in section 8.4.2.5, 8.4A.2.5 and 8.4B.2.5.

The reporting range and mapping specified for RXLEV in TS 45.008 shall apply.

9.1.1.5a E-UTRAN RSRP

NOTE: This measurement is for handover between UTRAN and E-UTRAN.

The requirements in this section are valid for terminals supporting this capability.

The measurement period for E-UTRA RSRP in CELL_DCH state can be found in section 8.1.2.7 / 8.1.2.8, section 8.1A.2.6 / 8.1A.2.7 and section 8.1B.2.7 / 8.1B.2.8.

In Cell DCH state, whether or not UE requires idle intervals to perform E-UTRAN measurements, the requirements for accuracy of E-UTRA RSRP measurements in CELL_DCH state shall be the same as the inter-frequency RSRP Accuracy Requirements in 3GPP TS 36.133 [24].

The reporting range and mapping specified for RSRP in 3GPP TS 36.133 [24] shall apply.

9.1.1.5b E-UTRAN RSRQ

NOTE: This measurement is for handover between UTRAN and E-UTRAN.

The requirements in this section are valid for terminals supporting this capability.

The measurement period for E-UTRA RSRQ in CELL_DCH state can be found in section 8.1.2.7 / 8.1.2.8, section 8.1A.2.6 / 8.1A.2.7 and section 8.1B.2.7 / 8.1B.2.8.

In CELL DCH state, whether or not UE requires idle intervals to perform E-UTRAN measurements, the requirements for accuracy of E-UTRA RSRQ measurements in CELL_DCH state shall be the same as the inter-frequency RSRQ Accuracy Requirements in 3GPP TS 36.133 [24].

The reporting range and mapping specified for RSRQ in 3GPP TS 36.133 [24] shall apply.

9.1.1.6 SIR

The measurement period is equal to the measurement period for UE P-CCPCH RSCP measurement. The measurement period for CELL_DCH state and CELL_FACH state can be found in section 8.

9.1.1.6.1 Absolute accuracy requirements

9.1.1.6.1.1 3.84 Mcps TDD option

Table 9.14: SIR Intra frequency absolute accuracy

Parameter	Unit	Accura	Conditions	
		Normal conditions	Extreme conditions	
				For 0 <sir<20db and="" lo<="" td=""></sir<20db>
SIR	dB	±3 dB	[]	range -9450
				dBm/3.84MHz
				For $-7 \le SIR \le 0$ dB and lo
SIR	dB	±(3 - SIR)	[]	range -9450
				dBm/3.84MHz

9.1.1.6.1.2 1.28 Mcps TDD option

Table 9.14A: SIR Intra frequency absolute accuracy

Parameter	Unit	Accuracy [dB]		Conditions
		Normal conditions	Extreme conditions	
SIR	dB	±3 dB	[]	For 0 <sir<20db and="" lo<br="">range -9450 dBm/1.28MHz</sir<20db>
SIR	dB	±(3 - SIR)	[]	For -7 ≤ SIR ≤ 0 dB and Io range -9450 dBm/1.28MHz

9.1.1.6.1.3 7.68 Mcps TDD option

Table 9.14B: SIR Intra frequency absolute accuracy

Parameter	Unit	Accuracy [dB]		Conditions
		Normal conditions	Extreme conditions	
 [For 0 <sir<20db and="" lo<="" td=""></sir<20db>
SIR	dB	±3 dB	[]	range -9450
				dBm/7.68MHz
				For $-7 \le SIR \le 0$ dB and lo
SIR	dB	±(3 - SIR)	[]	range -9450
				dBm/7.68MHz

9.1.1.6.2 Range/mapping

The reporting range for SIR is from -11 ...20 dB.

In table 9.15 mapping of the measured quantity is defined. Signalling range may be larger than the guaranteed accuracy range.

Table 9.15

Reported value	Measured quantity value	Unit
UE_SIR_00	SIR< -11,0	dB
UE_SIR_01	-11,0 ≤ SIR< -10,5	dB
UE_SIR_02	-10,5 ≤ SIR< -10,0	dB

UE_SIR_61	-19 ≤ SIR< 19,5	dB
UE_SIR_62	19,5 ≤ SIR< 20	dB
UE_SIR_63	20 ≤ SIR	dB

9.1.1.7 Transport channel BLER

9.1.1.7.1 BLER measurement requirement

The Transport Channel BLER value shall be calculated from a window with the size equal to the reporting interval (see clause on periodical reporting criteria in TS 25.331).

9.1.1.7.2 Range/mapping

The *Transport channel BLER* reporting range is from 0 to 1.

In table 9.16 mapping of the measured quantity is defined. Signalling range may be larger than the guaranteed accuracy range.

Table 9.16

Reported value	Measured quantity value	Unit
BLER_LOG _00	Transport channel BLER = 0	-
BLER_LOG _01	-∞ < Log10(Transport channel BLER) < -4,03	-
BLER_LOG _02	-4,03 ≤ Log10(Transport channel BLER) < -3,965	-
BLER_LOG _03	-3,965 ≤ Log10(Transport channel BLER) < -3,9	-
•••		
BLER_LOG_61	-0,195 ≤ Log10(Transport channel BLER) < -0,13	-
BLER_LOG _62	-0,13 ≤ Log10(Transport channel BLER) < -0,065	-
BLER_LOG _63	-0,065 ≤ Log10(Transport channel BLER) ≤ 0	-

9.1.1.8 SFN-SFN observed time difference

The measurement period is equal to the measurement period for UE P-CCPCH RSCP measurement. The measurement period for CELL_DCH state and CELL_FACH state can be found in section 8.

9.1.1.8.1 Accuracy requirements

9.1.1.8.1.1 3.84 Mcps TDD option

The accuracy requirement in table 9.17 is valid under the following conditions:

P-CCPCH_RSCP1,2 \geq -102 dBm..

$$\left| P - CCPCH RSCP1 \right|_{in \ dBm} - P - CCPCH RSCP2 \right|_{in \ dBm} \le 20 dB$$

The received signal levels on SCH and P-CCPCH are according the requirements in paragraph 8.1.2.6.

Table 9.17: SFN-SFN observed time difference accuracy

Parameter	Unit	Accuracy [chip]	Conditions lo [dBm/3.84 MHz]
SFN-SFN observed time difference	chip	+/-0,5 for both type 1 and 2	-9450

9.1.1.8.1.2 1.28 Mcps TDD option

The accuracy requirements in table 9.17A are valid under the following conditions:

P-CCPCH RSCP1,2 \geq -102 dBm.

$$\left| P - CCPCH RSCP1 \right|_{in \ dBm} - P - CCPCH RSCP2 \right|_{in \ dBm} \le 20 dB$$

P-CCPCH Ec/Io \geq -8 dB

 $DwPCH_Ec/Io \ge -5 dB$

Table 9.17A: SFN-SFN observed time difference accuracy

Parameter	Unit	Accuracy [chip]	Conditions lo [dBm/ 1.28 MHz]
SFN-SFN observed time difference	chip	+/-0,5 for type 1 but +/- 0.125 for type 2	-9450

9.1.1.8.1.3 7.68 Mcps TDD option

The accuracy requirement in table 9.17B is valid under the following conditions:

P-CCPCH_RSCP1,2 \geq -102 dBm..

$$\left| P - CCPCH RSCP1 \right|_{in \ dBm} - P - CCPCH RSCP2 \right|_{in \ dBm} \le 20 dB$$

The received signal levels on SCH and P-CCPCH are according the requirements in paragraph 8.1B.2.6.

Table 9.17B: SFN-SFN observed time difference accuracy

Parameter	Unit	Accuracy [chip]	Conditions lo [dBm/7.68 MHz]
SFN-SFN observed time difference	chip	+/-1 for both type 1 and 2	-9450

9.1.1.8.2 Range/mapping

9.1.1.8.2.1 3.84 Mcps TDD option

The reporting range for SFN-SFN observed time difference type 1 is from 0 ... 9830400 chip.

In table 9.18 mapping of the measured quantity is defined. Signalling range may be larger than the guaranteed accuracy range.

Table 9.18

Reported value	Measured quantity value	Unit
T1_SFN-SFN_TIME _0000000	0 ≤ SFN-SFN observed time difference type 1 < 1	Chip
T1_SFN-SFN_TIME _0000001	1 ≤ SFN-SFN observed time difference type 1 < 2	Chip
T1_SFN-SFN_TIME _0000002	2 ≤ SFN-SFN observed time difference type 1 < 3	Chip
T1_SFN-SFN_TIME _9830397	9830397 ≤ SFN-SFN observed time difference type 1 < 9830398	Chip
T1_SFN-SFN_TIME _9830398	9830398 ≤ SFN-SFN observed time difference type 1 < 980399	Chip
T1_SFN-SFN_TIME _9830399	9830399 ≤ SFN-SFN observed time difference type 1 < 9830400	Chip

The reporting range for SFN-SFN observed time difference type 2 is from -1280 ... +1280 chip.

In table 9.19 mapping of the measured quantity is defined. Signalling range may be larger than the guaranteed accuracy range.

Table 9.19

Reported value	Measured quantity value	Unit
T2_SFN-SFN_TIME _00000	SFN-SFN observed time difference type 2 < -	Chip
	1280,0000	
T2_SFN-SFN_TIME _00001	-1280,0000 ≤ SFN-SFN observed time	Chip
	difference type 2 < -1279,9375	
T2_SFN-SFN_TIME _00002	-1279,9375 ≤ SFN-SFN observed time	Chip
	difference type 2 < -1279,8750	
T2_SFN-SFN_TIME _40959	1279,8750 ≤ SFN-SFN observed time	Chip
	difference type 2 < 1279,9375	
T2_SFN-SFN_TIME _40960	1279,9375 ≤ SFN-SFN observed time	Chip
	difference type 2 < 1280,0000	
T2_SFN-SFN_TIME _40961	1280,0000 ≤ SFN-SFN observed time	Chip
	difference type 2	

9.1.1.8.2.2 1.28 Mcps TDD option

The reporting range for SFN-SFN observed time difference type 1 is from 0 ... 3276800 chip.

In table 9.18A mapping of the measured quantity is defined. Signalling range may be larger than the guaranteed accuracy range.

Table 9.18A

Reported value	Measured quantity value	
T1_SFN-SFN_TIME _0000000	0 ≤ SFN-SFN observed time difference type 1 < 1	chip
T1_SFN-SFN_TIME _0000001	1 ≤ SFN-SFN observed time difference type 1 < 2	chip
T1_SFN-SFN_TIME _0000002	2 ≤ SFN-SFN observed time difference type 1 < 3	chip

T1_SFN-SFN_TIME _3276797	3276797 ≤ SFN-SFN observed time difference type 1 < 3276798	chip
T1_SFN-SFN_TIME _3276798	3276798 ≤ SFN-SFN observed time difference type 1 < 3276799	chip
T1_SFN-SFN_TIME _3276799	3276799 ≤ SFN-SFN observed time difference type 1 < 3276800	chip

The reporting range for SFN-SFN observed time difference type 2 is from -432 ... +432 chip.

In table 9.19A mapping of the measured quantity is defined. Signalling range may be larger than the guaranteed accuracy range.

Table 9.19A

Reported value	Measured quantity value	
T2_SFN-SFN_TIME _00000	SFN-SFN observed time difference type 2 < -432,00000	chip
T2_SFN-SFN_TIME _00001	-432,00000 ≤ SFN-SFN observed time difference type 2 < -431,96875	chip
T2_SFN-SFN_TIME _00002	-431,96875 ≤ SFN-SFN observed time difference type 2 < -431,9375	chip
T2_SFN-SFN_TIME _27647	431,9375 ≤ SFN-SFN observed time difference type 2 < 431,96875	chip
T2_SFN-SFN_TIME _27648	431,96875 ≤ SFN-SFN observed time difference type 2 < 432,00000	chip
T2_SFN-SFN_TIME _27649	432,00000 ≤ SFN-SFN observed time difference type 2	chip

9.1.1.8.2.3 7.68 Mcps TDD option

The reporting range for SFN-SFN observed time difference type 1 is from 0 ... 19660800 chip.

In table 9.18B mapping of the measured quantity is defined. Signalling range may be larger than the guaranteed accuracy range.

Table 9.18B

Reported value	Measured quantity value	Unit
T1_SFN-SFN_TIME _0000000	0 ≤ SFN-SFN observed time difference type 1	Chip
	< 2	
T1_SFN-SFN_TIME _0000001	2 ≤ SFN-SFN observed time difference type 1	Chip
	< 4	
T1_SFN-SFN_TIME _0000002	4 ≤ SFN-SFN observed time difference type 1	Chip
	< 6	

T1_SFN-SFN_TIME _9830397	19660794 ≤ SFN-SFN observed time	Chip
	difference type 1 < 19660796	
T1_SFN-SFN_TIME _9830398	19660796 ≤ SFN-SFN observed time	Chip
	difference type 1 < 19660798	
T1_SFN-SFN_TIME _9830399	19660798 ≤ SFN-SFN observed time	Chip
	difference type 1 < 19660800	

The reporting range for SFN-SFN observed time difference type 2 is from -2560 ... +2560 chip.

In table 9.19B mapping of the measured quantity is defined. Signalling range may be larger than the guaranteed accuracy range.

Table 9.19B

Reported value	Measured quantity value	Unit
T2_SFN-SFN_TIME _00000	SFN-SFN observed time difference type 2 < -	Chip
	2560,0000	
T2_SFN-SFN_TIME _00001	-2560,0000 ≤ SFN-SFN observed time	Chip
	difference type 2 < -2559,875	
T2_SFN-SFN_TIME _00002	-2559,875 ≤ SFN-SFN observed time	Chip
	difference type 2 < -2559.750	
T2_SFN-SFN_TIME _40959	2559.750 ≤ SFN-SFN observed time difference	Chip
	type 2 < 2559,875	
T2_SFN-SFN_TIME _40960	2559,875 ≤ SFN-SFN observed time difference	Chip
	type 2 < 2560,0000	
T2_SFN-SFN_TIME _40961	2560,0000 ≤ SFN-SFN observed time	Chip
	difference type 2	•

9.1.1.9 Observed time difference to GSM cell

NOTE: This measurement is used to determine the system time difference between UTRAN and GSM cells.

The requirements in this section are valid for terminals supporting UTRA TDD and GSM.

The measurement period for CELL_DCH state can be found in section 8.

9.1.1.9.1 Accuracy requirements

Table 9.20 Observed time difference to GSM cell accuracy

Parameter	Unit	Accuracy [chip]	Conditions
Observed time difference to GSM cell	chip	± 20	

9.1.1.9.2 Range/mapping

The reporting range for Observed time difference to GSM cell is from $0 \dots 3060/13 \text{ ms}$.

In table 9.21 mapping of the measured quantity is defined. Signalling range may be larger than the guaranteed accuracy range.

Table 9.21

Reported value	Measured quantity value	Unit
GSM_TIME _0000	0 ≤ Observed time difference to GSM cell < 1x3060/(4096x13)	ms
GSM_TIME _0001	$1x3060/(4096x13) \le$ Observed time difference to GSM cell < $2x3060/(4096x13)$	ms
GSM_TIME _0002	2x3060/(4096x13)≤ Observed time difference to GSM cell < 3x3060/(4096x13)	ms
GSM_TIME _0003	3x3060/(4096x13) ≤ Observed time difference to GSM cell < 4x3060/(4096x13)	ms
GSM_TIME _4093	4093x3060/(4096x13) ≤ Observed time difference to GSM cell < 4094x3060/(4096x13)	ms
GSM_TIME _4094	4094x3060/(4096x13) ≤ Observed time difference to GSM cell < 4095x3060/(4096x13)	ms
GSM_TIME _4095	4095x3060/(4096x13) ≤ Observed time difference to GSM cell < 3060/13	ms

9.1.1.10 UE GPS Timing of Cell Frames for UP

9.1.1.10.1 Accuracy requirement

9.1.1.10.1.1 3.84 Mcps TDD Option

The requirements in this section are valid for terminals supporting this capability

The measurement period for CELL_DCH state and CELL_FACH state can be found in section 8.

Table 9.22

Parameter	Unit	Accuracy [chip]	Conditions
UE GPS Timing of Cell Frames for LCS	chip	[]	

9.1.1.10.1.2 1.28 Mcps TDD Option

The requirements in this section are valid for terminals supporting this capability

The measurement period for CELL_DCH state and CELL_FACH state can be found in section 8.

Table 9.22A

Parameter	Unit	Accuracy [chip]	Conditions
UE GPS Timing of Cell Frames for LCS	chip	[]	

9.1.1.10.1.3 7.68 Mcps TDD Option

The requirements in this section are valid for terminals supporting this capability

The measurement period for CELL_DCH state and CELL_FACH state can be found in section 8.

Table 9.22B

Parameter	Unit	Accuracy [chip]	Conditions
UE GPS Timing of Cell Frames for LCS	chip	[]	

9.1.1.10.2 UE GPS timing of Cell Frames for UP measurement report mapping

9.1.1.10.2.1 3.84 Mcps TDD Option

The reporting range for UE GPS timing of Cell Frames for UP is from 0 ... 2322432000000 chip.

In table 9.23 mapping of the measured quantity is defined.

Table 9.23

Reported value	Measured quantity value	Unit
GPS_TIME_00000000000000	UE GPS timing of Cell Frames for UP < 0,0625	chip
GPS_TIME_0000000000001	0,0625 ≤ UE GPS timing of Cell Frames for UP < 0,1250	chip
GPS_TIME_00000000000000	0,1250 ≤ UE GPS timing of Cell Frames for UP < 0,1875	chip
GPS_TIME_37158911999997	2322431999999,8125 ≤ UE GPS timing of Cell Frames for UP < 2322431999999,8750	chip
GPS_TIME_37158911999998	2322431999999,8750 ≤ UE GPS timing of Cell Frames for UP < 2322431999999,9375	chip
GPS_TIME_37158911999999	2322431999999,9375 ≤ UE GPS timing of Cell Frames for UP < 2322432000000,0000	chip

9.1.1.10.2.2 1.28 Mcps TDD Option

The reporting range for UE GPS timing of Cell Frames for UP is from 0 ... 774144000000 chip.

In table 9.23A mapping of the measured quantity is defined.

Table 9.23A

Reported value	Measured quantity value	Unit
GPS_TIME_000000000000	UE GPS timing of Cell Frames for UP< 0,25	chip
GPS_TIME_000000000001	0,25 ≤ UE GPS timing of Cell Frames for UP< 0,50	chip
GPS_TIME_0000000000002	0,50 ≤ UE GPS timing of Cell Frames for UP < 0,75	chip
GPS_TIME_3096575999997	774143999999,25 ≤ UE GPS timing of Cell Frames for UP < 774143999999,50	chip
GPS_TIME_3096575999998	774143999999,50 ≤ UE GPS timing of Cell Frames for UP < 774143999999,75	chip
GPS_TIME_3096575999999	774143999999,75 ≤ UE GPS timing of Cell Frames for UP < 774144000000,00	chip

9.1.1.10.2.3 7.68 Mcps TDD Option

The reporting range for UE GPS timing of Cell Frames for UP is from 0 ... 4644864000000 chip.

In table 9.23B mapping of the measured quantity is defined.

Table 9.23B

Reported value	Measured quantity value	Unit
GPS_TIME_00000000000000	UE GPS timing of Cell Frames for UP < 0,125	chip
GPS_TIME_0000000000001	0,125 ≤ UE GPS timing of Cell Frames for UP < 0,250	chip
GPS_TIME_000000000000000002	0,250 ≤ UE GPS timing of Cell Frames for UP < 0,375	chip
GPS_TIME_37158911999997	4644863999999,625 ≤ UE GPS timing of Cell Frames for UP < 4644863999999,750	chip
GPS_TIME_37158911999998	4644863999999,750 ≤ UE GPS timing of Cell Frames for UP < 4644863999999,875	chip
GPS_TIME_37158911999999	4644863999999,875 ≤ UE GPS timing of Cell Frames for UP < 4644864000000,0000	chip

9.1.1.11 SFN-CFN observed time difference

NOTE: This measurement is for handover timing purposes to identify active cell and neighbour cell time difference.

The measurement period is equal to the measurement period for UE P-CCPCH RSCP measurement. The measurement period for CELL DCH state can be found in section 8.

9.1.1.11.1 Accuracy requirements

9.1.1.11.1.1 3.84 Mcps TDD Option

The accuracy requirements in tables 9.24 are valid under the following conditions:

P-CCPCH_RSCP1,2
$$\geq$$
 -102dBm.

$$\left| P - CCPCH RSCP1 \right|_{in \ dBm} - P - CCPCH RSCP2 \right|_{in \ dBm} \le 20 dB$$

The received signal levels on SCH and P-CCPCH are according the requirements in paragraph 8.1.2.6

Table 9.24 SFN-CFN observed time difference accuracy for a TDD neighbour cell

Parameter	Unit	Accuracy [chip]	Conditions lo [dBm/3.84 MHz]
SFN-CFN observed time difference	chip	+/-0,5	-9450

The accuracy requirements in table 9.25 are valid under the following conditions:

CPICH_RSCP1,2 \geq -114 dBm.

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

The received signal levels on SCH and CPICH are according the requirements in paragraph 8.1.2.6.

Table 9.25: SFN-CFN observed time difference accuracy for a FDD neighbour cell

Parameter	Unit	Accuracy [chip]	Conditions Io [dBm/3.84 MHz]
SFN-CFN observed time difference	chip	+/-1	-9450

9.1.1.11.1.2 1.28 Mcps TDD Option

The accuracy requirements in tables 9.25A are valid under the following conditions:

P-CCPCH_RSCP1,2 \geq -102dBm.

$$\left| P - CCPCH RSCP1 \right|_{in \ dBm} - P - CCPCH RSCP2 \right|_{in \ dBm} \le 20 dB$$

P-CCPCH Ec/Io \geq -8 dB

 $DwPCH_Ec/Io \ge -5 dB$

Table 9.25A SFN-CFN observed time difference accuracy for a TDD neighbour cell

Parameter	Unit	Accuracy [chip]	Conditions lo [dBm/1.28 MHz]
SFN-CFN observed time difference	chip	+/-0,5	-9450

The accuracy requirements in table 9.25B are valid under the following conditions:

CPICH RSCP1,2 \geq -114 dBm.

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

The received signal levels on SCH and CPICH are according the requirements in paragraph 8.1.2.6

Table 9.25B SFN-CFN observed time difference accuracy for a FDD neighbour cell

Parameter	Unit	Accuracy [chip]	Conditions lo [dBm/3.84MHz]
SFN-CFN observed time difference	chip	+/-1	-9450

9.1.1.11.1.3 7.68 Mcps TDD Option

The accuracy requirements in tables 9.25C are valid under the following conditions:

P-CCPCH RSCP1,2 \geq -102dBm.

$$\left| P - CCPCH RSCP1 \right|_{in \ dBm} - P - CCPCH RSCP2 \right|_{in \ dBm} \le 20 dB$$

The received signal levels on SCH and P-CCPCH are according the requirements in paragraph 8.1B.2.6

Table 9.25C: SFN-CFN observed time difference accuracy for a TDD neighbour cell

Parameter	Unit	Accuracy [chip]	Conditions lo [dBm/7.68 MHz]
SFN-CFN observed time difference	chip	+/-1	-9450

The accuracy requirements in table 9.25D are valid under the following conditions:

CPICH_RSCP1,2 \geq -114 dBm.

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

The received signal levels on SCH and CPICH are according the requirements in paragraph 8.1B.2.6.

Table 9.25D: SFN-CFN observed time difference accuracy for a FDD neighbour cell

Parameter	Unit	Accuracy [chip]	Conditions lo [dBm/3.84 MHz]
SFN-CFN observed time difference	chip	+/-2	-9450

9.1.1.11.2 Range/mapping

The reporting range for SFN-CFN observed time difference for a TDD neighbour cell is from 0...256 frames.

In table 9.26 mapping of the measured quantity is defined. Signalling range may be larger than the guaranteed accuracy range.

Table 9.26: SFN-CFN observed time difference range/mapping for a TDD neighbour cell

Reported value	Measured quantity value	Unit
SFN-CFN_TIME_000	0 ≤ SFN-CFN observed time difference < 1	frame
SFN-CFN_TIME_001	1 ≤ SFN-CFN observed time difference < 2	frame
SFN-CFN_TIME_002	2 ≤ SFN-CFN observed time difference < 3	frame
SFN-CFN_TIME_253	253 ≤ SFN-CFN observed time difference < 254	frame
SFN-CFN_TIME_254	254 ≤ SFN-CFN observed time difference < 255	frame
SFN-CFN_TIME_255	255 ≤ SFN-CFN observed time difference < 256	frame

The reporting range for SFN-CFN observed time difference for a FDD neighbour cell is from 0 ... 9830400 chip.

In table 9.27 mapping of the measured quantity is defined. Signalling range may be larger than the guaranteed accuracy range.

Table 9.27: SFN-CFN observed time difference range/mapping for a FDD neighbour cell

Reported value	Measured quantity value	Unit
SFN-CFN_TIME _0000000	0 ≤ SFN-CFN observed time difference < 1	chip
SFN-CFN_TIME _0000001	1 ≤ SFN-CFN observed time difference < 2	chip
SFN-CFN_TIME _0000002	2 ≤ SFN-CFN observed time difference < 3	chip

SFN-CFN_TIME _9830397	9830397 ≤ SFN-CFN observed time	chip
	difference < 9830398	
SFN-CFN_TIME _9830398	9830398 ≤ SFN-CFN observed time	chip
	difference < 980399	
SFN-CFN_TIME _9830399	9830399 ≤ SFN-CFN observed time	chip
	difference < 9830400	

9.1.2 Performance for UE Measurements in Uplink (TX)

The output power is defined as the average power of the transmit timeslot, and is measured with a filter that has a Root-Raised Cosine (RRC) filter response with a roll off $\alpha = 0,22$ and a bandwidth equal to the chip rate.

9.1.2.1 UE transmitted power

The measurement period for CELL_DCH state and CELL_FACH state is 1 slot.

9.1.2.1.1 Absolute accuracy requirements

Table 9.28 UE transmitted power absolute accuracy

		Accuracy [dB]		
Parameter	Unit	PUEMAX 24dBm	PUEMAX 21dBm	
UE transmitted power ≥ PUEMAX	dBm	+1/-3	±2	
PUEMAX > UE transmitted power ≥ PUEMAX-1	dBm	+1,5/-3,5	±2,5	
PUEMAX-1 > UE transmitted power ≥ PUEMAX-2	dBm	+2/-4	±3	
PUEMAX-2 > UE transmitted power ≥ PUEMAX-3	dBm	+2,5/-4,5	±3,5	
PUEMAX-3 > UE transmitted power ≥ PUEMAX-10	dBm	+3/-5	±4	

NOTE 1: User equipment maximum output power, PUEMAX, is the maximum output power level without tolerance defined for the power class of the UE in 3GPP TS 25.102 "UTRA (UE) TDD; Radio Transmission and Reception".

NOTE 2: UE transmitted power is the reported value.

9.1.2.1.2 Range/mapping

The reporting range for *UE transmitted power* is from -50 ...+34 dBm.

In table 9.29 mapping of the measured quantity is defined. The range in the signalling may be larger than the guaranteed accuracy range.

Table 9.29

Reported value	Measured quantity value	Unit
UE_TX_POWER _021	-50 ≤ UE transmitted power < -49	dBm
UE_TX_POWER _022	-49 ≤ UE transmitted power < -48	dBm
UE_TX_POWER _023	-48 ≤ UE transmitted power < -47	dBm
UE_TX_POWER _102	31 ≤ UE transmitted power < 32	dBm
UE_TX_POWER _103	32 ≤ UE transmitted power < 33	dBm
UE_TX_POWER _104	33 ≤ UE transmitted power < 34	dBm

9.1.2.2 Timing Advance (T_{ADV}) for 1.28 Mcps TDD

This measurement refers to TS25.225 subsection 5.1.14.

9.1.2.2.1 Accuracy requirements

Table 9.28A

5	11.24	A	Conditions
Parameter	er Unit	Accuracy [chip]	Range [chips]
Timing Advance	chip	+/- 0.125	0,, 1023.875

9.1.2.2.2 Range/mapping

The reporting range for *Timing Advance* is from 0 ... 1023..875 chips.

In table 9.29A the mapping of the measured quantity is defined. The signalling range may be larger than the guaranteed accuracy range.

Table 9.29A

Reported value	Measured quantity value	Unit
TIMING_ADVANCE_0000	Timing Advance < 0.125	Chip
TIMING_ADVANCE_0001	0.125 ≤ Timing Advance < 0.25	Chip
TIMING_ADVANCE_1023	127.875≤ Timing Advance < 128	Chip
TIMING_ADVANCE_8189	1023.625 ≤ Timing Advance <1023.75	Chip
TIMING_ADVANCE_8190	1023.75 ≤ Timing Advance <1023.875	Chip
TIMING_ADVANCE_8191	1023.875 ≤Timing Advance	Chip

NOTE: This measurement can be used for timing advance (synchronisation shift) calculation for uplink synchronisation or location services.

9.1.2.3 UE transmission power headroom

9.1.2.3.1 3.84Mcps TDD Option

<Void>

9.1.2.3.2 1.28 Mcps TDD Option

This measurement refers to TS25.225 subsection 5.1.16.

9.1.2.3.2.1 Delay requirement

The UE transmission power headroom measurement reporting delay is defined as the time between the end of the UE transmission power headroom measurement period and the time when the UE starts transmitting the measurement report over the Uu interface. The reporting delay of the UE transmission power headroom measurement result shall be not more than 10ms, which is applicable for all configured triggering mechanisms for UE transmission power headroom measurement.

9.1.2.3.1.2 Measurement period requirement

The reported UE transmission power headroom measurement result shall be an estimate of the average value of the UE transmission power headroom over a 100ms period.

9.1.2.3.1.3 UE transmission power headroom measurement report mapping

The UE transmission power headroom reporting range is from -12 ...+48 dB. Table 9.28B defines the mapping

Table 9.28B

UE_POWER_HEADROOM_0 UPH < -12 dB UE_POWER_HEADROOM_1 -12 ≤ UPH < -8 dB UE_POWER_HEADROOM_2 -8 ≤ UPH < -4 dB UE_POWER_HEADROOM_3 -4 ≤ UPH < 0 dB UE_POWER_HEADROOM_4 0 ≤ UPH < 2 dB UE_POWER_HEADROOM_5 2 ≤ UPH < 4 dB UE_POWER_HEADROOM_6 4 ≤ UPH < 6 dB UE_POWER_HEADROOM_7 6 ≤ UPH < 7 dB UE_POWER_HEADROOM_8 7 ≤ UPH < 8 dB UE_POWER_HEADROOM_9 8≤ UPH < 9 dB UE_POWER_HEADROOM_10 9 ≤ UPH < 10 dB UE_POWER_HEADROOM_11 10 ≤ UPH < 11 dB UE_POWER_HEADROOM_12 11 ≤ UPH < 12 dB UE_POWER_HEADROOM_13 12 ≤ UPH < 13 dB UE_POWER_HEADROOM_14 13 ≤ UPH < 14 dB UE_POWER_HEADROOM_15 14 ≤ UPH < 15 dB UE_POWER_HEADROOM_16 15 ≤ UPH < 16 dB UE_POWER_HEADROOM_17 16 ≤ UPH < 17 dB UE_POWER_HEADROOM_18 17 ≤ UPH < 18 dB <t< th=""><th>Reported value</th><th>Measured quantity value</th><th>Unit</th></t<>	Reported value	Measured quantity value	Unit
UE_POWER_HEADROOM_2		UPH < -12	dB
UE_POWER_HEADROOM _3		-12 ≤ UPH < -8	dB
UE_POWER_HEADROOM_4 0 ≤ UPH < 2 dB UE_POWER_HEADROOM_5 2 ≤ UPH < 4 dB UE_POWER_HEADROOM_6 4 ≤ UPH < 6 dB UE_POWER_HEADROOM_7 6 ≤ UPH < 7 dB UE_POWER_HEADROOM_8 7 ≤ UPH < 8 dB UE_POWER_HEADROOM_9 8 ≤ UPH < 9 dB UE_POWER_HEADROOM_10 9 ≤ UPH < 10 dB UE_POWER_HEADROOM_11 10 ≤ UPH < 11 dB UE_POWER_HEADROOM_12 11 ≤ UPH < 12 dB UE_POWER_HEADROOM_13 12 ≤ UPH < 13 dB UE_POWER_HEADROOM_14 13 ≤ UPH < 15 dB UE_POWER_HEADROOM_15 14 ≤ UPH < 15 dB UE_POWER_HEADROOM_16 15 ≤ UPH < 16 dB UE_POWER_HEADROOM_17 16 ≤ UPH < 17 dB UE_POWER_HEADROOM_18 17 ≤ UPH < 18 dB UE_POWER_HEADROOM_19 18 ≤ UPH < 20 dB UE_POWER_HEADROOM_20 19 ≤ UPH < 20 dB UE_POWER_HEADROOM_21 20 ≤ UPH < 21 dB UE_POWER_HEADROOM_21 20 ≤ UPH < 22 dB UE_POWER_HEADROOM_22 21 ≤ UPH < 23 dB UE_POWER_HEADROOM_23 23 ≤ UPH < 24 dB UE_POWER_HEADROOM_24 24 ≤ UPH < 25 dB UE_POWER_HEADROOM_25 25 ≤ UPH < 26 dB UE_POWER_HEADROOM_27 28 ≤ UPH < 30 dB UE_POWER_HEADROOM_28 30 ≤ UPH < 33 dB UE_POWER_HEADROOM_29 33 ≤ UPH < 38 dB	UE_POWER_HEADROOM _2	-8 ≤ UPH < -4	dB
UE_POWER_HEADROOM_5 UE_POWER_HEADROOM_6 UE_POWER_HEADROOM_6 UE_POWER_HEADROOM_7 G ≤ UPH < 7 dB UE_POWER_HEADROOM_8 T ≤ UPH < 8 dB UE_POWER_HEADROOM_9 UE_POWER_HEADROOM_9 UE_POWER_HEADROOM_10 UE_POWER_HEADROOM_11 UE_POWER_HEADROOM_11 UE_POWER_HEADROOM_11 UE_POWER_HEADROOM_12 UE_POWER_HEADROOM_13 UE_POWER_HEADROOM_13 UE_POWER_HEADROOM_14 UE_POWER_HEADROOM_15 UE_POWER_HEADROOM_15 UE_POWER_HEADROOM_16 UE_POWER_HEADROOM_17 UE_POWER_HEADROOM_17 UE_POWER_HEADROOM_18 UE_POWER_HEADROOM_19 UE_POWER_HEADROOM_19 UE_POWER_HEADROOM_19 UE_POWER_HEADROOM_20 UE_POWER_HEADROOM_21 UE_POWER_HEADROOM_21 UE_POWER_HEADROOM_21 UE_POWER_HEADROOM_21 UE_POWER_HEADROOM_20 UE_POWER_HEADROOM_21 UE_POWER_HEADROOM_21 UE_POWER_HEADROOM_21 UE_POWER_HEADROOM_21 UE_POWER_HEADROOM_21 UE_POWER_HEADROOM_21 UE_POWER_HEADROOM_21 UE_POWER_HEADROOM_21 UE_POWER_HEADROOM_22 UE_POWER_HEADROOM_23 UE_POWER_HEADROOM_24 UE_POWER_HEADROOM_25 UE_POWER_HEADROOM_26 UE_POWER_HEADROOM_26 UE_POWER_HEADROOM_27 UE_POWER_HEADROOM_27 UE_POWER_HEADROOM_28 UE_POWER_HEADROOM_29 UE_POWER_HEADROOM_30	UE_POWER_HEADROOM _3	-4 ≤ UPH < 0	dB
UE_POWER_HEADROOM_6	UE_POWER_HEADROOM _4	0 ≤ UPH < 2	dB
UE_POWER_HEADROOM_7 6 ≤ UPH < 7 dB UE_POWER_HEADROOM_8 7 ≤ UPH < 8 dB UE_POWER_HEADROOM_9 8≤ UPH < 9 dB UE_POWER_HEADROOM_10 9 ≤ UPH < 10 dB UE_POWER_HEADROOM_11 10 ≤ UPH < 11 dB UE_POWER_HEADROOM_12 11 ≤ UPH < 13 dB UE_POWER_HEADROOM_13 12 ≤ UPH < 13 dB UE_POWER_HEADROOM_14 13 ≤ UPH < 15 dB UE_POWER_HEADROOM_15 14 ≤ UPH < 15 dB UE_POWER_HEADROOM_16 15 ≤ UPH < 16 dB UE_POWER_HEADROOM_17 16 ≤ UPH < 17 dB UE_POWER_HEADROOM_18 17 ≤ UPH < 18 dB UE_POWER_HEADROOM_19 18 ≤ UPH < 19 dB UE_POWER_HEADROOM_20 19 ≤ UPH < 20 dB UE_POWER_HEADROOM_21 20 ≤ UPH < 21 dB UE_POWER_HEADROOM_22 21 ≤ UPH < 23 dB UE_POWER_HEADROOM_23 23 ≤ UPH < 24 dB UE_POWER_HEADROOM_24 24 ≤ UPH < 25 dB UE_POWER_HEADROOM_25 25 ≤ UPH < 26 dB UE_POWER_HEADROOM_26 26 ≤ UPH < 28 dB UE_POWER_HEADROOM_27 28 ≤ UPH < 33 dB UE_POWER_HEADROOM_29 33 ≤ UPH < 48 dB UE_POWER_HEADROOM_29 33 ≤ UPH < 38 dB UE_POWER_HEADROOM_29 33 ≤ UPH < 48 dB	UE_POWER_HEADROOM _5	2 ≤ UPH < 4	dB
UE_POWER_HEADROOM_8 7 ≤ UPH < 8	UE_POWER_HEADROOM _6	4 ≤ UPH < 6	dB
UE_POWER_HEADROOM_9 8≤ UPH < 10 dB UE_POWER_HEADROOM_10 9 ≤ UPH < 10 dB UE_POWER_HEADROOM_11 10 ≤ UPH < 11 dB UE_POWER_HEADROOM_12 11 ≤ UPH < 13 dB UE_POWER_HEADROOM_13 12 ≤ UPH < 13 dB UE_POWER_HEADROOM_14 13 ≤ UPH < 14 dB UE_POWER_HEADROOM_15 14 ≤ UPH < 15 dB UE_POWER_HEADROOM_16 15 UPH < 16 dB UE_POWER_HEADROOM_17 16 ≤ UPH < 17 dB UE_POWER_HEADROOM_18 17 ≤ UPH < 18 dB UE_POWER_HEADROOM_19 18 ≤ UPH < 19 dB UE_POWER_HEADROOM_20 19 ≤ UPH < 20 dB UE_POWER_HEADROOM_21 20 ≤ UPH < 21 dB UE_POWER_HEADROOM_22 21 ≤ UPH < 23 dB UE_POWER_HEADROOM_23 23 ≤ UPH < 24 dB UE_POWER_HEADROOM_24 24 ≤ UPH < 25 dB UE_POWER_HEADROOM_25 25 ≤ UPH < 26 dB UE_POWER_HEADROOM_26 26 ≤ UPH < 28 dB UE_POWER_HEADROOM_27 28 ≤ UPH < 30 dB UE_POWER_HEADROOM_28 30 ≤ UPH < 33 dB UE_POWER_HEADROOM_29 33 ≤ UPH < 38 dB	UE_POWER_HEADROOM _7	6 ≤ UPH < 7	dB
UE_POWER_HEADROOM_10 9 ≤ UPH < 10 dB UE_POWER_HEADROOM_11 10 ≤ UPH < 11 dB UE_POWER_HEADROOM_12 11 ≤ UPH < 12 dB UE_POWER_HEADROOM_13 12 ≤ UPH < 13 dB UE_POWER_HEADROOM_14 13 ≤ UPH < 14 dB UE_POWER_HEADROOM_15 14 ≤ UPH < 15 dB UE_POWER_HEADROOM_16 15 ≤ UPH < 16 dB UE_POWER_HEADROOM_17 16 ≤ UPH < 17 dB UE_POWER_HEADROOM_18 17 ≤ UPH < 18 dB UE_POWER_HEADROOM_19 18 ≤ UPH < 19 dB UE_POWER_HEADROOM_20 19 ≤ UPH < 20 dB UE_POWER_HEADROOM_21 20 ≤ UPH < 21 dB UE_POWER_HEADROOM_21 20 ≤ UPH < 21 dB UE_POWER_HEADROOM_22 21 ≤ UPH < 23 dB UE_POWER_HEADROOM_23 23 ≤ UPH < 24 dB UE_POWER_HEADROOM_24 24 ≤ UPH < 25 dB UE_POWER_HEADROOM_25 25 ≤ UPH < 26 dB UE_POWER_HEADROOM_26 26 ≤ UPH < 28 dB UE_POWER_HEADROOM_27 28 ≤ UPH < 33 dB UE_POWER_HEADROOM_28 30 ≤ UPH < 38 dB UE_POWER_HEADROOM_29 33 ≤ UPH < 38 dB UE_POWER_HEADROOM_29 33 ≤ UPH < 38 dB UE_POWER_HEADROOM_29 33 ≤ UPH < 48 dB	UE_POWER_HEADROOM _8	7 ≤ UPH < 8	dB
UE_POWER_HEADROOM_11 10≤ UPH < 11 dB UE_POWER_HEADROOM_12 11 ≤ UPH < 12 dB UE_POWER_HEADROOM_13 12 ≤ UPH < 13 dB UE_POWER_HEADROOM_14 13 ≤ UPH < 14 dB UE_POWER_HEADROOM_15 14 ≤ UPH < 15 dB UE_POWER_HEADROOM_16 15≤ UPH < 16 dB UE_POWER_HEADROOM_17 16 ≤ UPH < 17 dB UE_POWER_HEADROOM_18 17 ≤ UPH < 18 dB UE_POWER_HEADROOM_19 18 ≤ UPH < 19 dB UE_POWER_HEADROOM_20 19 ≤ UPH < 20 dB UE_POWER_HEADROOM_21 20 ≤ UPH < 21 dB UE_POWER_HEADROOM_22 21 ≤ UPH < 23 dB UE_POWER_HEADROOM_23 23 ≤ UPH < 24 dB UE_POWER_HEADROOM_24 24 ≤ UPH < 25 dB UE_POWER_HEADROOM_25 25 ≤ UPH < 26 dB UE_POWER_HEADROOM_26 26 ≤ UPH < 28 dB UE_POWER_HEADROOM_27 28 ≤ UPH < 33 dB UE_POWER_HEADROOM_28 30 ≤ UPH < 33 dB UE_POWER_HEADROOM_29 33 ≤ UPH < 38 dB	UE_POWER_HEADROOM _9	8≤ UPH < 9	dB
UE_POWER_HEADROOM_12	UE_POWER_HEADROOM _10	9 ≤ UPH < 10	dB
UE_POWER_HEADROOM_13	UE_POWER_HEADROOM _11	10≤ UPH < 11	dB
UE_POWER_HEADROOM_14	UE_POWER_HEADROOM _12	11 ≤ UPH < 12	dB
UE_POWER_HEADROOM_15 14 ≤ UPH < 15	UE_POWER_HEADROOM _13	12 ≤ UPH < 13	dB
UE_POWER_HEADROOM_16 15≤ UPH < 16	UE_POWER_HEADROOM _14	13 ≤ UPH <14	dB
UE_POWER_HEADROOM_17 16 ≤ UPH < 17	UE_POWER_HEADROOM _15	14 ≤ UPH < 15	dB
UE_POWER_HEADROOM_18	UE_POWER_HEADROOM _16	15≤ UPH < 16	dB
UE_POWER_HEADROOM_19 18 ≤ UPH < 19	UE_POWER_HEADROOM _17	16 ≤ UPH < 17	dB
UE_POWER_HEADROOM_20 19 ≤ UPH < 20	UE_POWER_HEADROOM _18	17 ≤ UPH <18	dB
UE_POWER_HEADROOM_21 20 ≤ UPH <21	UE_POWER_HEADROOM _19	18 ≤ UPH < 19	dB
UE_POWER_HEADROOM _22 21 ≤ UPH <23	UE_POWER_HEADROOM _20	19 ≤ UPH < 20	dB
UE_POWER_HEADROOM _23 23 ≤ UPH <24	UE_POWER_HEADROOM _21	20 ≤ UPH <21	dB
UE_POWER_HEADROOM_24 24 ≤ UPH <25	UE_POWER_HEADROOM _22	21 ≤ UPH <23	dB
UE_POWER_HEADROOM_25 25 ≤ UPH < 26	UE_POWER_HEADROOM _23	23 ≤ UPH <24	dB
UE_POWER_HEADROOM _26 26 ≤ UPH <28	UE_POWER_HEADROOM _24	24 ≤ UPH <25	dB
UE_POWER_HEADROOM_27 28 ≤ UPH <30	UE_POWER_HEADROOM _25	25 ≤ UPH < 26	dB
UE_POWER_HEADROOM _28 30 ≤ UPH < 33	UE_POWER_HEADROOM _26	26 ≤ UPH <28	dB
UE_POWER_HEADROOM_29 33 ≤ UPH < 38	UE_POWER_HEADROOM _27	28 ≤ UPH <30	dB
UE_POWER_HEADROOM_30 38 ≤ UPH <48 dB	UE_POWER_HEADROOM _28	30 ≤ UPH < 33	dB
302011110	UE_POWER_HEADROOM _29	33 ≤ UPH < 38	dB
UE_POWER_HEADROOM_31 48 ≤ UPH	UE_POWER_HEADROOM _30	38 ≤ UPH <48	dB
	UE_POWER_HEADROOM _31	48 ≤ UPH	dB

9.1.2.3.1.4 UE transmission power headroom measurement report accuracy

The accuracy requirements for UE transmission power headroom depends on the total power transmitted by the UE. Table 9.29B defines the accuracy of the measured quantity.

Table 9.29B

Total	UE putput power value (dBm)	UPH reporting A	Accuracy [dB]*	
		PUEMAX 24dBm	PUEMAX 21dBm	
Total	output power ≥ PUEMAX	+1/-3	±2	
PUEMAX-1≤ Total output power <puemax< td=""><td>+1,5/-3,5</td><td>±2,5</td></puemax<>		+1,5/-3,5	±2,5	
PUEM	AX-2≤ Total output power <puemax-1< td=""><td>+2/-4</td><td>±3</td></puemax-1<>	+2/-4	±3	
PUEM	AX-3≤ Total output power <puemax-2< td=""><td>+2,5/-4,5</td><td>±3,5</td></puemax-2<>	+2,5/-4,5	±3,5	
PUEMAX-10≤ Total output power <puemax-3 +3="" -5="" td="" ±4<=""></puemax-3>				
*Note: UPH reporting accuracy is the difference between the UPH reported				
by the UE and the actual uplink power headroom **Note: PUEMAX, is the maximum output power level without tolerance defined for the power class of the UE in 3GPP TS 25.102				

9.2 Measurements Performance for UTRAN

9.2.1 Performance for UTRAN Measurements in Uplink (RX)

9.2.1.1 RSCP

The measurement period shall be 100 ms.

9.2.1.1.1 Absolute accuracy requirements

9.2.1.1.1.1 3.84 Mcps TDD Option

Table 9.30: RSCP absolute accuracy for Wide Area BS

Parameter	Unit	Accuracy [dB]		Conditions
		Normal conditions	Extreme conditions	lo [dBm/3.84 MHz]
RSCP	dBm	± 6	± 9	-10574

Table 9.30A: RSCP absolute accuracy for Local Area BS

Parameter	Unit	Accuracy [dB]		Conditions
		Normal conditions		lo [dBm/3.84 MHz]
RSCP	dBm	± 6	± 9	-9160

9.2.1.1.1.2 1.28 Mcps TDD Option

Table 9.30B: RSCP absolute accuracy for Wide Area BS

Parameter	Unit	Accuracy [dB]		Conditions
		Normal conditions	Extreme conditions	lo [dBm/1.28 MHz]
RSCP	dBm	± 6	± 9	-10574

Table 9.30C: RSCP absolute accuracy for Local Area BS

Parameter	Unit	Accuracy [dB]		Conditions
		Normal conditions	Extreme conditions	lo [dBm/1.28 MHz]
RSCP	dBm	± 6	± 9	-9160

9.2.1.1.1.3 7.68 Mcps TDD Option

Table 9.30D: RSCP absolute accuracy for Wide Area BS

Parameter	Unit	Accuracy [dB]		Conditions
		Normal conditions	Extreme conditions	lo [dBm/7.68 MHz]
RSCP	dBm	± 6	± 9	-10574

Table 9.30E: RSCP absolute accuracy for Local Area BS

Parameter	Unit	Accuracy [dB]		Conditions
		Normal conditions	Extreme conditions	lo [dBm/7.68 MHz]
RSCP	dBm	± 6	± 9	-9160

9.2.1.1.2 Relative accuracy requirements

The relative accuracy of RSCP in inter frequency case is defined as the RSCP measured from one UE compared to the RSCP measured from another UE.

9.2.1.1.2.1 3.84 Mcps TDD Option

Table 9.31: RSCP relative accuracy for Wide Area BS

Parameter	Unit	Accuracy [dB]	Conditions
			lo [dBm/3.84 MHz]
RSCP	dBm	± 3 for intra-frequency	-10574

Table 9.31A: RSCP relative accuracy for Local Area BS

Parameter	Unit	Accuracy [dB]	Conditions
			lo [dBm/3.84MHz]
RSCP	dBm	± 3 for intra-frequency	-9160

9.2.1.1.2.2 1.28 Mcps TDD Option

Table 9.31B: RSCP relative accuracy for Wide Area BS

Parameter	Unit	Accuracy [dB]	Conditions
			lo [dBm/1.28MHz]
RSCP	dBm	± 3 for intra-frequency	-10574

Table 9.31C: RSCP relative accuracy for Local Area BS

Parameter	Unit	Accuracy [dB]	Conditions
			lo [dBm/1.28MHz]
RSCP	dBm	± 3 for intra-frequency	-9160

9.2.1.1.2.3 7.68 Mcps TDD Option

Table 9.31D: RSCP relative accuracy for Wide Area BS

Parameter	Unit	Accuracy [dB]	Conditions
			lo [dBm/7.68 MHz]
RSCP	dBm	± 3 for intra-frequency	-10574

Table 9.31E: RSCP relative accuracy for Local Area BS

Parameter	Unit	Accuracy [dB]	Conditions
			lo [dBm/7.68MHz]
RSCP	dBm	± 3 for intra-frequency	-9160

9.2.1.1.3 Range/mapping

The reporting range for RSCP is from -120 ...-57 dBm.

In table 9.32 mapping of the measured quantity is defined. Signalling range may be larger than the guaranteed accuracy range.

Table 9.32

Reported value	Measured quantity value	Unit
RSCP_LEV _00	RSCP <-120,0	dBm
RSCP_LEV _01	-120,0 ≤ RSCP < -119,5	dBm
RSCP_LEV _02	-119,5 ≤ RSCP < -119,0	dBm
***	***	
RSCP_LEV _125	-58,0 ≤ RSCP < -57,5	dBm
RSCP_LEV _126	-57,5 ≤ RSCP < -57,0	dBm
RSCP_LEV _127	-57,0 ≤ RSCP	dBm

9.2.1.2 Timeslot ISCP

The measurement period shall be 100 ms.

9.2.1.2.1 Absolute accuracy requirements

9.2.1.2.1.1 3.84 Mcps TDD Option

Table 9.33: Timeslot ISCP Intra frequency absolute accuracy for Wide Area BS

Parameter	Unit	Accura	Conditions	
		Normal conditions Extreme conditions		lo [dBm/3.84 MHz]
Timeslot ISCP	dBm	± 6	± 9	-10574

Table 9.33A: Timeslot ISCP Intra frequency absolute accuracy for Local Area BS

Parameter	Unit	Accura	Conditions	
		Normal conditions Extreme conditions		lo [dBm/3.84 MHz]
Timeslot ISCP	dBm	± 6	± 9	-9160

9.2.1.2.1.2 1.28 Mcps TDD Option

Table 9.33B: Timeslot ISCP Intra frequency absolute accuracy for Wide Area BS

Parameter	Unit	Accura	Conditions	
		Normal conditions Extreme conditions		lo [dBm/1.28 MHz]
Timeslot ISCP	dBm	± 6	± 9	-10574

Table 9.33C: Timeslot ISCP Intra frequency absolute accuracy for Local Area BS

Parameter	Unit	Accura	Conditions	
		Normal conditions Extreme conditions		lo [dBm/1.28 MHz]
Timeslot ISCP	dBm	± 6	± 9	-9160

9.2.1.2.1.3 7.68 Mcps TDD Option

Table 9.33D: Timeslot ISCP Intra frequency absolute accuracy for Wide Area BS

Parameter	Unit	Accura	Conditions	
		Normal conditions Extreme conditions		lo [dBm/7.68 MHz]
Timeslot ISCP	dBm	± 6	± 9	-10574

Table 9.33E: Timeslot ISCP Intra frequency absolute accuracy for Local Area BS

Parameter	Unit	Accuracy [dB]		Conditions
		Normal conditions	Extreme conditions	lo [dBm/7.68 MHz]
Timeslot ISCP	dBm	± 6	± 9	-9160

9.2.1.2.2 Range/mapping

The reporting range for *Timeslot ISCP* is from -120...-57 dBm.

In table 9.34 mapping of the measured quantity is defined. Signalling range may be larger than the guaranteed accuracy range.

Table 9.34

Reported value	Measured quantity value	Unit
UTRAN_TS_ISCP_LEV_00	Timeslot_ISCP < -120,0	dBm
UTRAN_TS_ISCP_LEV_01	-120,0 ≤ Timeslot_ISCP < -119,5	dBm
UTRAN_TS_ISCP_LEV_02	-119,5 ≤ Timeslot_ISCP < -119,0	dBm
UTRAN_TS_ISCP_LEV_125	-58,0 ≤ Timeslot_ISCP < -57,5	dBm
UTRAN_TS_ISCP_LEV_126	-57,5 ≤ Timeslot_ISCP < -57,0	dBm
UTRAN TS ISCP LEV 127	-57.0 ≤ Timeslot_ISCP	dBm

9.2.1.3 Received Total Wide Band Power

The measurement period shall be 100 ms.

9.2.1.3.1 Absolute accuracy requirements

9.2.1.3.1.1 3.84 Mcps TDD Option

Table 9.35: RECEIVED TOTAL WIDE BAND POWER Intra frequency absolute accuracy for Wide Area BS

Parameter	Unit	Accuracy [dB]	Conditions
			lob [dBm/3.84 MHz]
lob	dBm/3.84MHz	± 4	-10574

Table 9.35A: RECEIVED TOTAL WIDE BAND POWER Intra frequency absolute accuracy for Local Area BS

Parameter	Unit	Accuracy [dB]	Conditions
			lob [dBm/3.84MHz]
lob	dBm/3.84MHz	± 4	-9160

9.2.1.3.1.2 1.28 Mcps TDD Option

Table 9.35B: RECEIVED TOTAL WIDE BAND POWER Intra frequency absolute accuracy for Wide Area BS

Parameter	Unit	Accuracy [dB]	Conditions
			lob [dBm/1.28MHz]
lob	dBm/1.28MHz	± 4	-10574

Table 9.35C: RECEIVED TOTAL WIDE BAND POWER Intra frequency absolute accuracy for Local Area BS

Parameter	Unit	Accuracy [dB]	Conditions
			lob [dBm/1.28MHz]
lob	dBm/1.28MHz	± 4	-9160

9.2.1.3.1.3 7.68 Mcps TDD Option

Table 9.35D: RECEIVED TOTAL WIDE BAND POWER Intra frequency absolute accuracy for Wide Area BS

Parameter	Unit	Accuracy [dB]	Conditions
			lob [dBm/7.68 MHz]
lob	dBm/7.68MHz	± 4	-10574

Table 9.35E: RECEIVED TOTAL WIDE BAND POWER Intra frequency absolute accuracy for Local Area BS

Parameter	Unit	Accuracy [dB]	Conditions
			lob [dBm/7.68MHz]
lob	dBm/7.68MHz	± 4	-9160

9.2.1.3.2 Range/mapping

The reporting range for RECEIVED TOTAL WIDE BAND POWER is from -112 ... -50 dBm.

In table 9.36 mapping of the measured quantity is defined. Signalling range may be larger than the guaranteed accuracy range.

Table 9.36

Reported value	Measured quantity value	Unit
RECEIVED TOTAL WIDE BAND POWER_LEV _000	RECEIVED TOTAL WIDE BAND POWER < -112,0	dBm
RECEIVED TOTAL WIDE BAND POWER_LEV _001	-112,0 ≤ RECEIVED TOTAL WIDE BAND POWER < - 111,9	dBm
RECEIVED TOTAL WIDE BAND POWER_LEV _002	-111,9 ≤ RECEIVED TOTAL WIDE BAND POWER < - 111,8	dBm
RECEIVED TOTAL WIDE BAND POWER_LEV _619	-50,2 ≤ RECEIVED TOTAL WIDE BAND POWER < -50,1	dBm
RECEIVED TOTAL WIDE BAND POWER_LEV _620	-50,1 ≤ RECEIVED TOTAL WIDE BAND POWER < -50,0	dBm
RECEIVED TOTAL WIDE BAND POWER_LEV _621	-50,0 ≤ RECEIVED TOTAL WIDE BAND POWER	dBm

9.2.1.4 SIR

The measurement period shall be 80 ms.

9.2.1.4.1 Absolute accuracy requirements

9.2.1.4.1.1 3.84 Mcps TDD Option

Table 9.37: SIR Intra frequency absolute accuracy

Parameter	Unit	Accuracy [dB]	Conditions
			Range
SIR	dB	± 3	For 0 <sir<20 db="" lob<br="" when="">> -105 dBm/3.84MHz</sir<20>
SIR	dB	+/-(3 - SIR)	For -7 <sir<0 db="" lob<br="" when="">> -105 dBm/3.84MHz</sir<0>

9.2.1.4.1.2 1.28 Mcps TDD Option

Table 9.37A: SIR Intra frequency absolute accuracy

Parameter	Unit	Accuracy [dB]	Conditions
			Range
SIR	dB	± 3	For 0 <sir<20 db="" lob<="" td="" when=""></sir<20>
			> -105 dBm/1.28MHz
SIR	dB	+/-(3 - SIR)	For -7 <sir<0 db="" lob<="" td="" when=""></sir<0>
		,	> -105 dBm/1.28MHz

9.2.1.4.1.3 7.68 Mcps TDD Option

Table 9.37B: SIR Intra frequency absolute accuracy

Parameter	Unit	Accuracy [dB]	Conditions
			Range
SIR	dB	± 3	For 0 <sir<20 db="" lob<="" td="" when=""></sir<20>
			> -105 dBm/7.68MHz
SIR	dB	+/-(3 - SIR)	For -7 <sir<0 db="" lob<="" td="" when=""></sir<0>
			> -105 dBm/7.68MHz

9.2.1.4.2 Range/mapping

The reporting range for SIR is from -11 ... 20 dB.

In table 9.38 mapping of the measured quantity is defined. Signalling range may be larger than the guaranteed accuracy range.

Table 9.38

Reported value	Measured quantity value	Unit
UTRAN_SIR_00	SIR < -11,0	dB
UTRAN_SIR_01	-11,0 ≤ SIR < -10,5	dB
UTRAN_SIR_02	-10,5 ≤ SIR < -10,0	dB

UTRAN_SIR_61	19,0 ≤ SIR < 19,5	dB
UTRAN_SIR_62	19,5 ≤ SIR < 20,0	dB
UTRAN_SIR_63	20,0 ≤ SIR	dB

9.2.1.5 Transport Channel BER

The measurement period shall be equal to the TTI of the transport channel. Each reported Transport channel BER measurement shall be an estimate of the BER averaged over one measurement period only.

9.2.1.5.1 Accuracy requirement

The average of consecutive Transport channel BER measurements is required to fulfil the accuracy stated in table 9.39 if the total number of erroneous bits during these measurements is at least 500 and the absolute BER value for each of the measurements is within the range given in table 9.39.

Table 9.39: Transport channel BER accuracy

Parameter	Unit	Accuracy [% of the absolute BER value]	Conditions
	absolute BER Value	Range	
TrpBER	-	+/- 10	Convolutional coding 1/3 rd with any amount of repetition or a maximum of 25% puncturing: for absolute BER value ≤ 15% Convolutional coding 1/2 with any amount of repetition or no puncturing: for absolute BER value ≤ 15% Turbo coding 1/3 rd with any amount of repetition or a maximum of 20% puncturing: for absolute BER value ≤ 15%.

9.2.1.5.2 Range/mapping

The *Transport channel BER* reporting range is from 0 to 1.

In table 9.40 mapping of the measured quantity is defined. Signalling range may be larger than the guaranteed accuracy range.

Table 9.40

Reported value	Measured quantity value	Unit
TrCh_BER_LOG_000	Transport channel BER = 0	-
TrCh_BER_LOG_001	-∞ < Log10(Transport channel BER) < -2,06375	-
TrCh_BER_LOG_002	-2,06375≤ Log10(Transport channel BER) < -2,055625	-
TrCh_BER_LOG_003	-2,055625 ≤ Log10(Transport channel BER) < -2,0475	-
TrCh_BER_LOG_253	-0,024375 ≤ Log10(Transport channel BER) < -0,01625	-
TrCh_BER_LOG_254	-0,01625 ≤ Log10(Transport channel BER) < -0,008125	-
TrCh_BER_LOG_255	-0,008125 ≤ Log10(Transport channel BER) ≤ 0	-

9.2.1.6 RX Timing Deviation

The measurement period shall be 100 ms.

9.2.1.6.1 Accuracy requirements

9.2.1.6.1.1 3.84 Mcps TDD option

Table 9.41: RX Timing Deviation accuracy

Parameter	Unit	Accuracy [chip]	Conditions
			Range [chips]
RX Timing Deviation	chip	+/- 0,5	-1024,, 1024

9.2.1.6.1.2 1.28 Mcps TDD option

Table 9.41A: RX Timing Deviation accuracy

Donomotor	l lm!t	Accuracy [chip]	Conditions
Parameter	Parameter Unit		Range [chips]
RX Timing Deviation	chip	+/- 0.125	-16,, 16

9.2.1.6.1.3 7.68 Mcps TDD option

Table 9.41B: RX Timing Deviation accuracy

Parameter	Unit	Accuracy [chip]	Conditions
			Range [chips]
RX Timing Deviation	chip	+/- 1.0	-2048,, 2048

9.2.1.6.2 Range/mapping

9.2.1.6.2.1 3.84 Mcps TDD option

The reporting range for RX Timing Deviation is from -1023,9375 ... 1023,9375 chips.

In table 9.42 mapping of the measured quantity is defined. Signalling range may be larger than the guaranteed accuracy range.

Table 9.42

Reported value	Measured quantity value	Unit
RX_TIME_DEV_0000	RX Timing Deviation < -1023,9375	chip
RX_TIME_DEV_0001	-1023,9375≤ RX Timing Deviation < 1023,875	chip
RX_TIME_DEV_0002	-1023,875≤ RX Timing Deviation < -1023,8125	chip
•••		
RX_TIME_DEV_16384	000,00≤ RX Timing Deviation <0,0625	chip
RX_TIME_DEV_32765	1023,8125 ≤ RX Timing Deviation < 1023,875	chip
RX_TIME_DEV_32766	1023,875≤ RX Timing Deviation < 1023,9375	chip
RX_TIME_DEV_32767	1023,9375 ≤ RX Timing Deviation	chip

NOTE: This measurement may be used for timing advance calculation or location services.

9.2.1.6.2.2 1.28 Mcps TDD option

The reporting range for RX Timing Deviation is from -16 16 chips.

In table 9.42A mapping of the measured quantity is defined. Signalling range may be larger than the guaranteed accuracy range.

Table 9.42A

Reported value	Measured quantity value	Unit
RX_TIME_DEV_000	RX Timing Deviation < -15,9375	Chip
RX_TIME_DEV_001	-15,9375 ≤ RX Timing Deviation < -15,875	Chip
RX_TIME_DEV_002	-15,875 ≤ RX Timing Deviation < -15,8125	Chip
RX_TIME_DEV_509	15,8125 ≤ RX Timing Deviation < 15,875	Chip
RX_TIME_DEV_510	15,875 ≤ RX Timing Deviation < 15,9375	Chip
RX_TIME_DEV_511	15,9375 ≤ RX Timing Deviation	Chip

NOTE: This measurement can be used for timing advance (synchronisation shift) calculation for uplink synchronisation or location services.

9.2.1.6.2.3 7.68 Mcps TDD option

The reporting range for RX Timing Deviation is from -2047,9375 ... 2047,9375 chips.

In Table 9.42B mapping of the measured quantity is defined. Signalling range may be larger than the guaranteed accuracy range.

Table 9.42B

Reported value	Measured quantity value	Unit
RX_TIME_DEV_0000	RX Timing Deviation < -2047,9375	chip
RX_TIME_DEV_0001	-2047,9375 ≤ RX Timing Deviation < -2047,875	chip
RX_TIME_DEV_0002	-2047,875 ≤ RX Timing Deviation < -2047,8125	chip
RX_TIME_DEV_32768	000,00 ≤ RX Timing Deviation <0,0625	chip
RX_TIME_DEV_65533	2047,8125 ≤ RX Timing Deviation < 2047,875	chip
RX_TIME_DEV_65534	2047,875 ≤ RX Timing Deviation < 2047,9375	chip
RX_TIME_DEV_65535	2047,9375 ≤ RX Timing Deviation	chip

NOTE: This measurement may be used for timing advance calculation or location services.

9.2.1.7 (void)

9.2.1.8 (void)

9.2.1.9 UTRAN GPS Timing of Cell Frames for UP

NOTE: This measurement is used for UP purposes.

The measurement period shall be [1] second.

9.2.1.9.1 Accuracy requirement

9.2.1.9.1.1 3.84 Mcps TDD Option

Three accuracy classes are defined for the UTRAN GPS Timing of Cell Frames for UP measurement, i.e. accuracy class A, B and C. The implemented accuracy class depends on the UP methods that are supported.

Table 9.43

Parameter	Unit	Accuracy [chip]	Conditions
UTRAN GPS timing of Cell	chip	Accuracy Class A: +/- [20000] chip	Over the full
Frames for UP		Accuracy Class B: +/- [20] chip	range
		Accuracy Class C: +/- [X] chip	

9.2.1.9.1.2 1.28 Mcps TDD Option

Three accuracy classes are defined for the UTRAN GPS Timing of Cell Frames for UP measurement, i.e. accuracy class A, B and C. The implemented accuracy class depends on the UP methods that are supported.

Table 9.43A

Parameter	Unit	Accuracy [chip]	Conditions
UTRAN GPS timing of Cell	chip	Accuracy Class A: +/- [5000] chip	Over the full
Frames for UP		Accuracy Class B: +/- [5] chip	range
		Accuracy Class C: +/- [X] chip	-

9.2.1.9.1.3 7.68 Mcps TDD Option

Three accuracy classes are defined for the UTRAN GPS Timing of Cell Frames for UP measurement, i.e. accuracy class A, B and C. The implemented accuracy class depends on the UP methods that are supported.

Table 9.43B

Parameter	Unit	Accuracy [chip]	Conditions
UTRAN GPS timing of Cell	chip	Accuracy Class A: +/- [40000] chip	Over the full
Frames for UP		Accuracy Class B: +/- [40] chip	range
		Accuracy Class C: +/- [X] chip	

9.2.1.9.2 Range/mapping

9.2.1.9.2.1 3.84 Mcps TDD Option

The reporting range for UTRAN GPS timing of Cell Frames for UP is from 0 ... 2322432000000 chip.

In table 9.44 the mapping of measured quantity is defined.

Table 9.44

Reported value	Measured quantity value	Unit
GPS_TIME_00000000000000	UTRAN GPS timing of Cell Frames for UP < 0,0625	Chip
GPS_TIME_00000000000001	0,0625 ≤ UTRAN GPS timing of Cell Frames for UP < 0,1250	Chip
GPS_TIME_000000000000000000000000000000000000	0,1250 ≤ UTRAN GPS timing of Cell Frames for UP < 0,1875	Chip
GPS_TIME_37158911999997	2322431999999,8125 ≤ UTRAN GPS timing of Cell Frames for UP < 2322431999999,8750	Chip
GPS_TIME_37158911999998	2322431999999,8750 ≤ UTRAN GPS timing of Cell Frames for UP < 2322431999999,9375	Chip
GPS_TIME_37158911999999	2322431999999,9375 ≤ UTRAN GPS timing of Cell Frames for UP < 2322432000000,0000	Chip

9.2.1.9.2.2 1.28 Mcps TDD Option

The reporting range for UTRAN GPS timing of Cell Frames for UP is from 0 ... 774144000000 chip.

In table 9.44A mapping of the measured quantity is defined.

Table 9.44A

Reported value	Measured quantity value	Unit
GPS_TIME_0000000000000	UTRAN GPS timing of Cell Frames for UP < 0,25	chip
GPS_TIME_000000000001	0,25 ≤ UTRAN GPS timing of Cell Frames for UP < 0,50	chip
GPS_TIME_0000000000000	0,50 ≤ UTRAN GPS timing of Cell Frames for UP < 0,75	chip
GPS_TIME_3096575999997	774143999999,25 ≤ UTRAN GPS timing of Cell Frames for UP < 774143999999,50	chip
GPS_TIME_3096575999998	774143999999,50 ≤ UTRAN GPS timing of Cell Frames for UP <774143999999,75	chip
GPS_TIME_3096575999999	774143999999,75 ≤ UTRAN GPS timing of Cell Frames for UP < 774144000000,00	chip

9.2.1.9.2.3 7.68 Mcps TDD Option

The reporting range for UTRAN GPS timing of Cell Frames for UP is from 0 ... 4644864000000 chip.

In table 9.44B the mapping of measured quantity is defined.

Table 9.44B

Reported value	Measured quantity value	Unit
GPS_TIME_00000000000000	UTRAN GPS timing of Cell Frames for UP < 0,125	Chip
GPS_TIME_00000000000001	0,125 ≤ UTRAN GPS timing of Cell Frames for UP < 0, 250	Chip
GPS_TIME_000000000000000000000000000000000000	0,250 ≤ UTRAN GPS timing of Cell Frames for UP < 0,375	Chip
GPS_TIME_37158911999997	4644863999999,625 ≤ UTRAN GPS timing of Cell Frames for UP < 4644863999999,750	Chip
GPS_TIME_37158911999998	4644863999999,750 ≤ UTRAN GPS timing of Cell Frames for UP < 4644863999999,875	Chip
GPS_TIME_37158911999999	4644863999999,875 ≤ UTRAN GPS timing of Cell Frames for UP < 4644864000000,0000	Chip

9.2.1.10 SYNC-UL Timing Deviation for 1.28 Mcps

This measurement refers to TS25.225 subsection 5.2.8.1.

9.2.1.10.1 Accuracy requirements

Table 9.44AA

Davamatav	tor Unit Accura		Conditions	
Parameter	Unit	Accuracy [chip]	Range [chips]	
SYNC-UL Timing Deviation	chip	+/- 0.125	0,, 1023.875	

9.2.1.10.2 Range/mapping

The reporting range for SYNC-UL Timing Deviation is from 0 ... 1023.875 chips.

In table 9.44B the mapping of the measured quantity is defined. Signaling range may be larger than the guaranteed accuracy range.

Table 9.44B

Reported value	Measured quantity value	Unit
SYNC_UL_TIME_DEV_0000	SYNC-UL Timing Deviation < 0.125	Chip
SYNC_UL_TIME_DEV_0001	0.125 ≤ SYNC-UL Timing Deviation < 0.25	Chip
SYNC_UL_TIME_DEV_1023	127.875 ≤ SYNC-UL Timing Deviation < 128	Chip
SYNC_UL_TIME_DEV_8189	1023.625 ≤ SYNC-UL Timing Deviation < 1023.75	Chip
SYNC_UL_TIME_DEV_8190	1023.75 ≤ SYNC-UL Timing Deviation <1023.875	Chip
SYNC_UL_TIME_DEV_8191	1023.875 < ≤ SYNC-UL Timing Deviation	Chip

NOTE: This measurement can be used for timing advance (synchronisation shift) calculation for uplink synchronisation or location services.

9.2.1.11 Node B Synchronisation for 3.84 Mcps

Cell synchronisation burst timing is the time of start (defined by the first detected path in time) of the cell sync burst of a neighbouring cell. Type 1 is used for the initial phase of Node B synchronization. Type 2 is used for the steady-state phase of Node B synchronization. Both have different range.

The reference point for the cell sync burst timing measurement shall be the Rx antenna connector.

9.2.1.11.1 Cell Synchronisation burst timing Type1 and Type 2

Table 9.44C

Parameter	Unit	Accuracy [chip]	Conditions
Cell Synchronisation burst timing	chip	[+/-0,5 for both type 1	
		and type 2]	

9.2.1.11.2 Range/mapping Type 1

The reporting range for Cell Synchronisation burst timing type 1 is from -131072 to +131072 chips with 1/4 chip resolution.

In table 9.44D the mapping of measured quantity is defined for burst type 1.

Table 9.44D

Reported value	Measured quantity value	Unit
Burst_TIMETYPE1_0000000	-131072 ≤ burst timing Type 1< -131071.75	Chip
Burst_TIMETYPE1_0000001	-131071.75 ≤ burst timing Type 1< -131071.5	Chip
Burst_TIMETYPE1_0000002	-131071.5 ≤ burst timing Type 1< -131071.25	Chip
	•••	
Burst_TIMETYPE1_1048573	131071.25 ≤ burst timing Type 1< 131071.5	Chip
Burst_TIMETYPE1_1048574	131071.5 ≤ burst timing Type 1< 131071.75	Chip
Burst_TIMETYPE1_1048575	131071.75 ≤ burst timing Type 1< 131072	Chip

9.2.1.11.3 Range/mapping Type 2

The reporting range for Cell Synchronisation burst timing type 2 is from -16 to +16 chips with 1/8 chip resolution. In table 9.44E the mapping of measured quantity is defined for burst type 2.

Table 9.44E

Reported value	Measured quantity value	Unit
Burst_TIMETYPE2_0000	-16 ≤ burst timing Type 2< -15.875	Chip
Burst_TIMETYPE2_0001	-15.875 ≤ burst timing Type 2< -15.750	Chip
Burst_TIMETYPE2_0002	-15.750 ≤ burst timing Type 2< -15.625	Chip
	•••	
Burst_TIMETYPE2_0253	15.625 ≤ burst timing Type 2< 15.750	Chip
Burst_TIMETYPE2_0254	15.750 ≤ burst timing Type 2< 15.875	Chip
Burst_TIMETYPE2_0255	15.875 ≤ burst timing Type 2< 16	Chip

9.2.1.11.4 Cell Synchronisation burst SIR Type1 and Type2

Signal to Interference Ratio for the cell sync burst, defined according to TS25.225.

The reference point for the cell synchronisation burst SIR shall be the Rx antenna connector.

Table 9.44F

Parameter	Unit	Accuracy [dB]		Conditions
		Normal conditions	Extreme conditions	
Cell Synchronisation burst SIR	dB	±3 dB for both type 1 and 2	[]	

9.2.1.11.5 Range/Mapping for Type1 and Type 2

The reporting range for SIR is from 0 ... 60 dB with a resolution of 2dB.

In table 9.44H mapping of the measured quantity is defined. Signalling range may be larger than the guaranteed accuracy range.

Table 9.44H

Reported value	Measured quantity value	Unit
Cell_Synch_Burst_SIR_00	SIR< 0	dB
Cell_Synch_Burst_SIR_01	0 ≤ SIR< 2	dB
Cell_Synch_Burst_SIR_02	2 ≤ SIR< 4	dB

Cell_Synch_Burst_SIR_29	56≤ SIR< 58	dB
Cell_Synch_Burst_SIR_30	58 ≤ SIR< 60	dB
Cell_Synch_Burst_SIR_31	60 ≤ SIR	dB

9.2.1.11B Node B Synchronisation for 1.28Mcps TDD

Cell synchronisation burst timing is the time of start (defined by the first detected path in time) of the cell sync burst of a neighbouring cell. Type 1 is used for the initial phase of Node B synchronisation. Type 2 is used for the steady-state phase of Node B synchronisation. Both have different range.

The reference point for the cell sync burst timing measurement shall be the Rx antenna connector.

9.2.1.11B.1 Cell Synchronisation burst timing Type1 and Type 2

Table 9.44HA

Parameter	Unit	Accuracy [chip]	Conditions
Cell Synchronisation burst timing	chip	[+/-0.125 for both type 1 and type 2]	

9.2.1.11B.2 Range/mapping Type 1

The reporting range for Cell Synchronisation burst timing type 1 is from -65536 to +65536 chips with 1/4 chip resolution.

In table 9.44HB the mapping of measured quantity is defined for burst type 1.

Table 9.44HB

Reported value	Measured quantity value	Unit
Burst_TIMETYPE1_0000000	-65536 ≤ burst timing Type 1< -65535.75	Chip
Burst_TIMETYPE1_0000001	-65535.75 ≤ burst timing Type 1< -65535.5	Chip
Burst_TIMETYPE1_0000002	-65535.5 ≤ burst timing Type 1< -65535.25	Chip
Burst_TIMETYPE1_0524285	65535.25 ≤ burst timing Type 1< 65535.5	Chip
Burst_TIMETYPE1_0524286	65535.5 ≤ burst timing Type 1< 65535.75	Chip
Burst_TIMETYPE1_0524287	65535.75 ≤ burst timing Type 1< 65536	Chip

9.2.1.11B.3 Range/mapping Type 2

The reporting range for Cell Synchronisation burst timing type 2 is from -8 to +8 chips with 1/8 chip resolution. In table 9.44HC the mapping of measured quantity is defined for burst type 2.

Table 9.44HC

Reported value	Measured quantity value	Unit
Burst_TIMETYPE2_0000	-8 ≤ burst timing Type 2< -7.875	Chip
Burst_TIMETYPE2_0001	-7.875 ≤ burst timing Type 2< -7.750	Chip
Burst_TIMETYPE2_0002	-7.750 ≤ burst timing Type 2< -7.625	Chip
Burst_TIMETYPE2_0125	7.625 ≤ burst timing Type 2< 7.750	Chip
Burst_TIMETYPE2_0126	7.750 ≤ burst timing Type 2< 7.875	Chip
Burst_TIMETYPE2_0127	7.875 ≤ burst timing Type 2< 8	Chip

9.2.1.11B.4 Cell Synchronisation burst SIR Type1 and Type2

Signal to Interference Ratio for the cell sync burst, defined according to TS25.225.

The reference point for the cell synchronisation burst SIR shall be the Rx antenna connector.

Table 9.44HD

Parameter	Unit	Accuracy [dB]		Conditions
		Normal conditions	Extreme conditions	
Cell Synchronisation burst SIR	dB	±3 dB for both type 1 and 2	[]	

9.2.1.11B.5 Range/Mapping for Type1 and Type 2

The reporting range for SIR is from 0 ... 30 dB with a resolution of 1dB.

In table 9.44HE mapping of the measured quantity is defined. Signalling range may be larger than the guaranteed accuracy range.

Table 9.44HE

Reported value	Measured quantity value	Unit
Cell_Sync_Burst_SIR_00	SIR< 0	dB
Cell_Sync_Burst_SIR_01	0 ≤ SIR< 1	dB
Cell_Sync_Burst_SIR_02	1 ≤ SIR< 2	dB
Cell_Sync_Burst_SIR_29	28≤ SIR< 29	dB
Cell_Sync_Burst_SIR_30	29 ≤ SIR< 30	dB
Cell_Sync_Burst_SIR_31	30 ≤ SIR	dB

9.2.1.11C Node B Synchronisation for 7.68 Mcps

Cell synchronisation burst timing is the time of start (defined by the first detected path in time) of the cell sync burst of a neighbouring cell. Type 1 is used for the initial phase of Node B synchronization. Type 2 is used for the steady-state phase of Node B synchronization. Both have different range.

The reference point for the cell sync burst timing measurement shall be the Rx antenna connector.

9.2.1.11C.1 Cell Synchronisation burst timing Type1 and Type 2

Table 9.44HF

Parameter	Unit	Accuracy [chip]	Conditions
Cell Synchronisation burst timing	chip	[+/-1 for both type 1 and type 2]	

9.2.1.11C.2 Range/mapping Type 1

The reporting range for Cell Synchronisation burst timing type 1 is from -262144 to +262144 chips with 1/2 chip resolution.

In table 9.44HG the mapping of measured quantity is defined for burst type 1.

Table 9.44HG

Reported value	Measured quantity value	Unit
Burst_TIMETYPE1_0000000	-262144 ≤ burst timing Type 1< -262143.5	Chip
Burst_TIMETYPE1_0000001	-262143.5 ≤ burst timing Type 1< -262143	Chip
Burst_TIMETYPE1_0000002	-262143 ≤ burst timing Type 1< -262142.5	Chip
Burst_TIMETYPE1_1048573	262142.5 ≤ burst timing Type 1< 262143	Chip
Burst_TIMETYPE1_1048574	262143 ≤ burst timing Type 1< 262143.5	Chip
Burst_TIMETYPE1_1048575	262143.5 ≤ burst timing Type 1< 262144	Chip

9.2.1.11C.3 Range/mapping Type 2

The reporting range for Cell Synchronisation burst timing type 2 is from -32 to +32 chips with 1/4 chip resolution. In table 9.44HH the mapping of measured quantity is defined for burst type 2.

Table 9.44HH

Reported value	Measured quantity value	Unit
Burst_TIMETYPE2_0000	-32 ≤ burst timing Type 2< -31.75	Chip
Burst_TIMETYPE2_0001	-31.75 ≤ burst timing Type 2< -31.5	Chip
Burst_TIMETYPE2_0002	-31.5 ≤ burst timing Type 2< -31.25	Chip
Burst_TIMETYPE2_0253	31.25 ≤ burst timing Type 2< 31.5	Chip
Burst_TIMETYPE2_0254	31.5 ≤ burst timing Type 2< 31.75	Chip
Burst_TIMETYPE2_0255	31.75 ≤ burst timing Type 2< 32	Chip

9.2.1.11C.4 Cell Synchronisation burst SIR Type1 and Type2

Signal to Interference Ratio for the cell sync burst, defined according to TS25.225.

The reference point for the cell synchronisation burst SIR shall be the Rx antenna connector.

Table 9.44HI

Parameter	Unit	Accuracy [dB]		Conditions
		Normal conditions	Extreme conditions	
Cell Synchronisation burst SIR	dB	±3 dB for both type 1 and 2	[]	

9.2.1.11C.5 Range/Mapping for Type1 and Type 2

The reporting range for SIR is from 0 ... 60 dB with a resolution of 2dB.

In table 9.44HJ mapping of the measured quantity is defined. Signalling range may be larger than the guaranteed accuracy range.

Table 9.44HJ

Reported value	Measured quantity value	Unit
Cell_Synch_Burst_SIR_00	SIR< 0	dB
Cell_Synch_Burst_SIR_01	0 ≤ SIR< 2	dB
Cell_Synch_Burst_SIR_02	2 ≤ SIR< 4	dB
•••		
Cell_Synch_Burst_SIR_29	56≤ SIR< 58	dB
Cell_Synch_Burst_SIR_30	58 ≤ SIR< 60	dB
Cell_Synch_Burst_SIR_31	60 ≤ SIR	dB

9.2.1.12 SFN-SFN observed time difference

The measurement period shall be 100 ms.

9.2.1.12.1 Accuracy requirements

9.2.1.12.1.1 3.84 Mcps TDD option

Table 9.44I: SFN-SFN observed time difference accuracy

Parameter	Unit	Accuracy [chip]	Conditions Range [chips]
SFN-SFN observed time difference	chip	+/-0,5	-1280 +1280

9.2.1.12.1.2 1.28 Mcps TDD option

Table 9.44J: SFN-SFN observed time difference accuracy

Dovernator	l lm!s	A course of Fabrical	Conditions
Parameter	Unit	Accuracy [chip]	Range [chips]
SFN-SFN observed time difference	chip	+/- 0.125	-432 +432

9.2.1.12.1.3 7.68 Mcps TDD option

Table 9.44JA: SFN-SFN observed time difference accuracy

Parameter	Unit	Accuracy [chip]	Conditions Range [chips]
SFN-SFN observed time difference	chip	+/-1.0	-2560 + 2560

9.2.1.12.2 Range/mapping

9.2.1.12.2.1 3.84 Mcps TDD option

The reporting range for SFN-SFN observed time difference is from -1280 ... +1280 chip.

In table 9.44K mapping of the measured quantity is defined. Signalling range may be larger than the guaranteed accuracy range.

Table 9.44K

Reported value	Measured quantity value	Unit
SFN-SFN_TIME _00000	SFN-SFN observed time difference < -	Chip
	1280,0000	
SFN-SFN_TIME _00001	-1280,0000 ≤ SFN-SFN observed time	Chip
	difference < -1279,9375	
SFN-SFN_TIME _00002	-1279,9375 ≤ SFN-SFN observed time	Chip
	difference < -1279,8750	

SFN-SFN_TIME _40959	1279,8750 ≤ SFN-SFN observed time	Chip
	difference < 1279,9375	
SFN-SFN_TIME _40960	1279,9375 ≤ SFN-SFN observed time	Chip
	difference < 1280,0000	
SFN-SFN_TIME _40961	1280,0000 ≤ SFN-SFN observed time	Chip
	difference	

9.2.1.12.2.2 1.28 Mcps TDD option

The reporting range for SFN-SFN observed time difference is from -432 \dots +432 chip.

In table 9.44L mapping of the measured quantity is defined. Signalling range may be larger than the guaranteed accuracy range.

Table 9.44L

Reported value	Measured quantity value	Unit
SFN-SFN_TIME _00000	SFN-SFN observed time difference < -432,00000	chip
SFN-SFN_TIME _00001	-432,00000 ≤ SFN-SFN observed time difference < -431,96875	chip
SFN-SFN_TIME _00002	-431,96875 ≤ SFN-SFN observed time difference < -431,9375	chip
SFN-SFN_TIME _27647	431,9375 ≤ SFN-SFN observed time difference < 431,96875	chip
SFN-SFN_TIME _27648	431,96875 ≤ SFN-SFN observed time difference < 432,00000	chip
SFN-SFN_TIME _27649	432,00000 ≤ SFN-SFN observed time difference	chip

9.2.1.12.2.3 7.68 Mcps TDD option

The reporting range for SFN-SFN observed time difference is from -2560 ... +2560 chip.

In Table 9.44LA mapping of the measured quantity is defined. Signalling range may be larger than the guaranteed accuracy range.

Table 9.44LA

Reported value	Measured quantity value	Unit
SFN-SFN_TIME _00000	SFN-SFN observed time difference < -2560,0000	Chip
SFN-SFN_TIME _00001	-2560,0000 ≤ SFN-SFN observed time difference < -2559,8750	Chip
SFN-SFN_TIME _00002	-2559,8750 ≤ SFN-SFN observed time difference < -2559,7500	Chip
	···	
SFN-SFN_TIME _40959	2559,7500 ≤ SFN-SFN observed time difference < 2559,8750	Chip
SFN-SFN_TIME _40960	2559,8750 ≤ SFN-SFN observed time difference < 2560,0000	Chip
SFN-SFN_TIME _40961	2560,0000 ≤ SFN-SFN observed time difference	Chip

9.2.1.13 AOA measurement for UE positioning for 1.28Mcps TDD option

AOA defines the angle of arrival of the signals from a user at the antenna. The reference direction for this measurement shall be the North. The measurement period shall be 200ms.

9.2.1.13.1 Accuracy requirements

Eight accuracy classes are defined for UTRAN AOA measurement, i.e. accuracy class A to H.

Table 9.44M

Parameter	Unit	Accuracy [degree]	Conditions
UTRAN AOA	degree	Accuracy Class A: +/- 180 degree	Over the full
measurement for UE		Accuracy Class B: +/- 90 degree	range
positioning		Accuracy Class C: +/- 60 degree	
		Accuracy Class D: +/- 20 degree	
		Accuracy Class E: +/- 10 degree	
		Accuracy Class F: +/- 5 degree	
		Accuracy Class G: +/- 2 degree	
		Accuracy Class H: +/- 1 degree	

9.2.1.13.2 Range/mapping

The reporting range for AOA measurement is from $0\dots 360\ degree.$

The mapping of the measured quantity is defined in table 9.44N.

Table 9.44N

Reported value	Measured quantity value	Unit
AOA_ANGLE _000	0 ≤ AOA_ANGLE < 0,5	degree
AOA_ANGLE _001	0,5 ≤ AOA_ANGLE < 1	degree
AOA_ANGLE _002	1 ≤ AOA_ANGLE < 1,5	degree
	•••	
AOA_ANGLE _717	358,5 ≤ AOA_ANGLE < 359	degree
AOA_ANGLE _718	359 ≤ AOA_ANGLE < 359,5	degree
AOA_ANGLE _719	359,5 ≤ AOA_ANGLE < 360	degree

9.2.1.14 HS-SICH reception quality

The measurement period shall be 200 ms

9.2.1.14.1 Range/mapping

9.2.1.14.1.1 3.84 Mcps TDD and 7.68 Mcps TDD

The HS-SICH reception quality reporting range is from 0...20 reception indications.

The mappings of the measured quantities are defined in tables 9.44O, 9.44P and 9.44Q.

Table 9.440

Reported value	orted value Measured quantity value	
FAILED_HS_SICH_00	Failed HS-SICH receptions = 0	-
FAILED_HS_SICH_01	Failed HS-SICH receptions = 1	-
FAILED_HS_SICH_02	Failed HS-SICH receptions = 2	-
FAILED_HS_SICH_17	Failed HS-SICH receptions = 17	-
FAILED_HS_SICH_18	Failed HS-SICH receptions = 18	-
FAILED_HS_SICH_19	Failed HS-SICH receptions = 19	-
FAILED_HS_SICH_20	Failed HS-SICH receptions = 20	-

Table 9.44P

Reported value	Measured quantity value	Unit
MISSED_HS_SICH_00	Missed HS-SICH receptions = 0	-
MISSED_HS_SICH_01	Missed HS-SICH receptions = 1	-
MISSED_HS_SICH_02	Missed HS-SICH receptions = 2	-
MISSED_HS_SICH_17	Missed HS-SICH receptions = 17	-
MISSED_HS_SICH_18	Missed HS-SICH receptions = 18	-
MISSED_HS_SICH_19	Missed HS-SICH receptions = 19	-
MISSED_HS_SICH_20	Missed HS-SICH receptions = 20	-

Table 9.44Q

Reported value	Measured quantity value	Unit
TOTAL_HS_SICH_00	Expected HS-SICH transmissions = 0	-
TOTAL_HS_SICH_01	Expected HS-SICH transmissions = 1	-
TOTAL_HS_SICH_02	Expected HS-SICH transmissions = 2	-
TOTAL_HS_SICH_17	Expected HS-SICH transmissions = 17	-
TOTAL_HS_SICH_18	Expected HS-SICH transmissions = 18	-
TOTAL_HS_SICH_19	Expected HS-SICH transmissions = 19	-
TOTAL_HS_SICH_20	Expected HS-SICH transmissions = 20	-

9.2.1.14.1.2 1.28 Mcps TDD

The HS-SICH reception quality reporting range is from 0...40 reception indications.

The mappings of the measured quantities are defined in tables 9.44O-1, 9.44P-1 and 9.44Q-1.

Table 9.44O-1

Reported value	Measured quantity value	Unit
FAILED_HS_SICH_00	Failed HS-SICH receptions = 0	-
FAILED_HS_SICH_01	Failed HS-SICH receptions = 1	-
FAILED_HS_SICH_02	Failed HS-SICH receptions = 2	-
FAILED_HS_SICH_37	Failed HS-SICH receptions = 37	-
FAILED_HS_SICH_38	Failed HS-SICH receptions = 38	-
FAILED_HS_SICH_39	Failed HS-SICH receptions = 39	-
FAILED_HS_SICH_40	Failed HS-SICH receptions = 40	-

Table 9.44P-1

Reported value	Measured quantity value	Unit
MISSED_HS_SICH_00	Missed HS-SICH receptions = 0	=
MISSED_HS_SICH_01	Missed HS-SICH receptions = 1	=
MISSED_HS_SICH_02	Missed HS-SICH receptions = 2	=
		•••
MISSED_HS_SICH_37	Missed HS-SICH receptions = 37	-
MISSED_HS_SICH_38	Missed HS-SICH receptions = 38	=
MISSED_HS_SICH_39	Missed HS-SICH receptions = 39	-
MISSED_HS_SICH_40	Missed HS-SICH receptions = 40	-

Table 9.44Q-1

Reported value	Measured quantity value	Unit
TOTAL_HS_SICH_00	Expected HS-SICH transmissions = 0	-
TOTAL_HS_SICH_01	Expected HS-SICH transmissions = 1	-
TOTAL_HS_SICH_02	Expected HS-SICH transmissions = 2	-
TOTAL_HS_SICH_37	Expected HS-SICH transmissions = 37	-
TOTAL_HS_SICH_38	Expected HS-SICH transmissions = 38	-
TOTAL_HS_SICH_39	Expected HS-SICH transmissions = 39	-
TOTAL_HS_SICH_40	Expected HS-SICH transmissions = 40	-

9.2.1.15 UpPTS interference (1.28Mcps TDD)

The measurement period shall be 100 ms.

9.2.1.15.1 Absolute accuracy requirements

Table 9.44R: UpPTS interference Intra frequency absolute accuracy for Wide Area BS

Parameter	Unit	Accuracy [dB]		Conditions
		Normal conditions Extreme conditions		lo [dBm/1.28 MHz]
UpPTS interference	dBm	± 6	± 9	-10574

Table 9.44S: UpPTS interference Intra frequency absolute accuracy for Local Area BS

Parameter	Unit	Accuracy [dB]		Conditions
		Normal conditions Extreme conditions		lo [dBm/1.28 MHz]
UpPTS interference	dBm	± 6	± 9	-9160

9.2.1.15.2 Range/mapping

The reporting range for UpPTS interference is from -120...-57 dBm.

In table 9.44T mapping of the measured quantity is defined. Signalling range may be larger than the guaranteed accuracy range.

Table 9.44T

Reported value	Measured quantity value	Unit
UTRAN_UPPTS_LEV_00	UpPTS interference < -120,0	dBm
UTRAN_UPPTS_LEV _01	-120,0 ≤ UpPTS interference < -119,5	dBm
UTRAN_UPPTS_LEV _02	-119,5 ≤ UpPTS interference < -119,0	dBm
UTRAN_UPPTS_LEV _125	-58,0 ≤ UpPTS interference < -57,5	dBm
UTRAN_UPPTS_LEV _126	-57,5 ≤ UpPTS interference < -57,0	dBm
UTRAN_UPPTS_LEV _127	-57,0 ≤ UpPTS interference	dBm

9.2.2 Performance for UTRAN measurements in downlink (TX)

The output power is defined as the average power of the transmit timeslot, and is measured with a filter that has a Root-Raised Cosine (RRC) filter response with a roll off $\alpha = 0.22$ and a bandwidth equal to the chip rate.

9.2.2.1 Transmitted carrier power

The measurement period shall be 100 ms.

9.2.2.1.1 Accuracy requirements

Table 9.45 Transmitted carrier power accuracy

Parameter	Unit	Accuracy [% units]	Conditions
			Range
Transmitted carrier power	%	± 10	For 10% ≤ Transmitted carrier
			power ≤90%

9.2.2.1.2 Range/mapping

The reporting range for *Transmitted carrier power* is from 0 ... 100 %.

In table 9.46 mapping of the measured quantity is defined. Signalling range may be larger than the guaranteed accuracy range.

Table 9.46

Reported value	Measured quantity value	Unit
UTRAN_TX_POWER _000	Transmitted carrier power = 0	%
UTRAN_TX_POWER _001	0 < Transmitted carrier power ≤ 1	%
UTRAN_TX_POWER _002	1 < Transmitted carrier power ≤ 2	%
UTRAN_TX_POWER _003	2 < Transmitted carrier power ≤ 3	%
•••		
UTRAN_TX_POWER _098	97 < Transmitted carrier power ≤ 98	%
UTRAN_TX_POWER _099	98 < Transmitted carrier power ≤ 99	%
UTRAN_TX_POWER _100	99 < Transmitted carrier power ≤ 100	%

9.2.2.2 Transmitted code power

The measurement period shall be 100 ms.

9.2.2.2.1 Absolute accuracy requirements

Table 9.47: Transmitted code power absolute accuracy

Parameter	Unit	Accuracy [dB]	Conditions
			Range
Transmitted code	dBm	± 3	Over the full range
power			

9.2.2.2.2 Relative accuracy requirements

The relative accuracy of transmitted code power is defined as the transmitted code power measured at one dedicated radio link compared to the transmitted code power measured from a different dedicated radio link in the same cell.

Table 9.48: Transmitted code power relative accuracy

Parameter	Unit	Accuracy [dB]	Conditions
			Range
Transmitted code power	dBm	± 2	Over the full range

9.2.2.2.3 Range/mapping

The reporting range for Transmitted code power is from -10 ... 46 dBm.

In table 9.49 the mapping of measured quantity is defined. The range in the signalling may be larger than the guaranteed accuracy range.

Table 9.49

Reported value	Measured quantity value	Unit
UTRAN_CODE_POWER _010	-10,0 ≤ Transmitted code power < -9,5	dBm
UTRAN_CODE_POWER _011	-9,5 ≤ Transmitted code power < -9,0	dBm
UTRAN_CODE_POWER _012	-9,0 ≤ Transmitted code power < -8,5	dBm
•••		
UTRAN_CODE_POWER _120	45,0 ≤ Transmitted code power < 45,5	dBm
UTRAN_CODE_POWER _121	45,5 ≤ Transmitted code power < 46,0	dBm
UTRAN_CODE_POWER _122	46,0 ≤ Transmitted code power < 46,5	dBm

9.2.2.3 Transmitted carrier power of all codes not used for HS-PDSCH, HS-SCCH, E-AGCH or E-HICH transmission

The measurement period shall be 100 ms.

9.2.2.3.1 Accuracy requirements

Table 9.50: Transmitted carrier power accuracy

Parameter	Unit	Accuracy [% units]	Conditions
			Range
Transmitted carrier power of all codes not used for HS-PDSCH, HS-SCCH, E-AGCH or E-HICH transmission	%	± 10	For 10% ≤ Transmitted carrier power of all codes not used for HS-PDSCH, HS-SCCH E-AGCH or E-HICH, transmission ≤90%

9.2.2.3.2 Range/mapping

The reporting range for *Transmitted carrier power of all codes not used for HS-PDSCH*, *HS-SCCH*, *E-AGCH or E-HICH transmission* is from 0 ... 100 %.

In table 9.51 mapping of the measured quantity is defined. Signalling range may be larger than the guaranteed accuracy range.

Table 9.51

Reported value	Measured quantity value	Unit
Transmitted carrier power of all codes not used for HS-PDSCH, HS-SCCH, E-AGCH	Transmitted carrier power of all codes not used for HS-PDSCH, HS-SCCH, E-AGCH	%
or E-HICH transmission_000	or E-HICH transmission = 0	
mitted carrier power of all codes not used for HS-PDSCH, HS-SCCH, E-AGCH or E- HICH transmission _001	0 < Transmitted carrier power of all codes not used for HS-PDSCH, HS-SCCH, E- AGCH or E-HICH transmission ≤ 1	%
mitted carrier power of all codes not used for HS-PDSCH, HS-SCCH, E-AGCH or E-HICH transmission _002	1 < Transmitted carrier power of all codes not used for HS-PDSCH, HS-SCCH, E- AGCH or E-HICH transmission ≤ 2	%
mitted carrier power of all codes not used for HS-PDSCH, HS-SCCH, E-AGCH or E-HICH transmission _003	2 < Transmitted carrier power of all codes not used for HS-PDSCH, HS-SCCH, E- AGCH or E-HICH transmission ≤ 3	%
	•••	
mitted carrier power of all codes not used for HS-PDSCH, HS-SCCH, E-AGCH or E- HICH transmission _098	97 < Transmitted carrier power of all codes not used for HS-PDSCH, HS-SCCH, E- AGCH or E-HICH transmission ≤ 98	%
mitted carrier power of all codes not used for HS-PDSCH, HS-SCCH, E-AGCH or E- HICH transmission _099	98 < Transmitted carrier power of all codes not used for HS-PDSCH, HS-SCCH, E- AGCH or E-HICH transmission ≤ 99	%
mitted carrier power of all codes not used for HS-PDSCH, HS-SCCH, E-AGCH or E-HICH transmission 100	99 < Transmitted carrier power of all codes not used for HS-PDSCH, HS-SCCH, E- AGCH or E-HICH transmission ≤ 100	%

10 FPACH physical layer information field definition (1.28 Mcps TDD)

1.28 Mcps TDD introduces the FPACH (Fast Physical Access CHannel) which carries physical layer information. Two of these information fields are the "received starting position of the UpPCH" (Uplink Pilot CHannel) and the "transmit power level command for the RACH message". Both information fields are directly (received starting position of the

UpPCH) or can be indirectly (transmit power level command for the RACH message) derived from measurements but are no measurements themselves.

10.1 Received starting position of the UpPCH (UpPCH_{POS}) (1.28 Mcps TDD)

The received starting position of the UpPCH (UpPCH $_{POS}$) is derectly derived from measurement, it is equivalent to the received SYNC-UL Timing Deviation for 1.28 Mcps. Its accurecy and range/mapping is defined in section 9.2.1.10. The information field value, UpPCH $_{POS}$ -FIELD_LEV_xxxx, is equivalent to the reported value SYNC_UL_TIME_DEV_xxxx.

10.2 Transmit Power Level Command for the RACH message (1.28 Mcps TDD)

10.2.1 Accuracy requirements

Since this is a desired RX power at the node B and this is no measured value and the derivation of this value in the node B is implementation specific, accuracy requirements are not applicable.

10.2.2 Range/mapping

PRX_{PRACH.des} FIELD is given with a resolution of 0.5 dB with the range [-120,-80] dBm.

PRX_{PRACH,des} FIELD shall be transmitted in the FPACH.

Table 10.1

Information field value	Measured quantity value	Unit
PRX _{PRACH,des} FIELD_LEV_00	PRX _{PRACH,des} < -120	dBm
PRX _{PRACH,des} FIELD_LEV_01	$-120 \le PRX_{PRACH,des} < -119.5$	dBm
PRX _{PRACH,des} FIELD_LEV_02	$-119.5 \le PRX_{PRACH,des} < -119$	dBm
	•••	
PRX _{PRACH,des} FIELD_LEV_79	$-81 \le PRX_{PRACH,des} < -80.5$	dBm
PRX _{PRACH,des} FIELD_LEV_80	$-80.5 \le PRX_{PRACH,des} < -80$	dBm
PRX _{PRACH,des} FIELD_LEV_81	$-80 \le PRX_{PRACH,des}$	dBm

Annex A (normative): Test Cases

A.1 Purpose of Annex

This Annex specifies test specific parameters for some of the functional requirements in chapters 4 to 9. The tests provide additional information to how the requirements should be interpreted for the purpose of conformance testing. The tests in this Annex are described such that one functional requirement may be tested in one or several test and one test may verify several requirements. Some requirements may lack a test.

The conformance tests are specified in TS34.122. Statistical interpretation of the requirements is described in Annex A.2.

A.2 Requirement classification for statistical testing

Requirements in this specification are either expressed as absolute requirements with a single value stating the requirement, or expressed as a success rate. There are no provisions for the statistical variations that will occur when the parameter is tested.

Annex A outlines the test in more detail and lists the test parameters needed. The test will result in an outcome of a test variable value for the DUT inside or outside the test limit. Overall, the probability of a "good" DUT being inside the test limit(s) and the probability of a "bad" DUT being outside the test limit(s) should be as high as possible. For this reason, when selecting the test variable and the test limit(s), the statistical nature of the test is accounted for.

The statistical nature depends on the type of requirement. Some have large statistical variations, while others are not statistical in nature at all. When testing a parameter with a statistical nature, a confidence level is set. This establishes the probability that a DUT passing the test actually meets the requirement and determines how many times a test has to be repeated and what the pass and fail criteria are. Those aspects are not covered by TS 25.123. The details of the tests, how many times to run it and how to establish confidence in the tests are described in TS 34.122. This Annex establishes what the test variable is and whether it can be viewed as statistical in nature or not.

A.2.1 Types of requirements in TS 25.123

A.2.1.1 Time and delay requirements on UE higher layer actions

One part of the RRM requirements are delay requirements:

- In idle mode (A.4) there is cell re-selection delay.
- In UTRAN Connected Mode Mobility (A.5) there is measurement reporting delay, handover delay and cell reselection delay.
- In RRC Connection Control (A.6) there is RRC re-establishment delay. In case of 1,28Mcps TDD option there is also TFC blocking delay.

All have in common that the UE is required to perform an action observable in higher layers (e.g. camp on the correct cell) within a certain time after a specific event (e.g. a new strong pilot arises). The delay time is statistical in nature for several reasons, among others that measurements required by the UE are performed in a fading radio environment.

The variations make a strict limit unsuitable for a test. Instead there is a condition set for a correct action by the UE, e.g. that the UE shall camp on the correct cell within X seconds. Then the rate of correct events as observed during repeated tests shall be at least 90% in case of AWGN propagation condition. How the limit is applied in the test depends on the confidence required, further detailed are in TS 34.122.

A.2.1.2 Measurements of power levels, relative powers and time

A very large number of requirements are on measurements that the UE performs:

- In UTRAN Connected Mode Mobility (A.5) there are measurement reports.
- Measurement performance requirements (A.8) has requirements on all type of measurements.

The accuracy requirements on measurements are expressed in this specification as a fixed limit (e.g. +/-X dB), but the measurement error will have a distribution that is not easily confined in fixed limits. Assuming a Gaussian distribution of the error, the limits will have to be set at +/-3,29 σ if the probability of failing a "good DUT" in a single test is to be kept at 0,1%. It is more reasonable to set the limit tighter and test the DUT by counting the rate of measurements that are within the limits, in a way similar to the requirements on delay.

A.2.1.3 Implementation requirements

A few requirements are strict actions the UE should take or capabilities the UE should have, without any allowance for deviations. These requirements are absolute and should be tested as such. Examples are

- "Event triggered report rate" in UTRAN Connected Mode Mobility (A.5)

A.2.1.4 Physical layer timing requirements

All requirements on "Timing Characteristics" (A.7) are absolute limits on timing accuracy.

A.2.1.5 BER and BLER requirements

Some measurement report procedures in "UE Measurement procedures" (A.8) have requirements on DCH BLER. These are tested in the same way as BLER requirements in TS 25.102.

A.3 RRM test configurations

A.3.1 UE with single antenna connector

For testing a UE with a single UTRA antenna connector, the test configuration is fully described in sections A.4 to A.9

A.3.2 UE with multiple antenna connectors

For testing a 1.28Mcps TDD UE with multiple UTRA receive diversity antenna connectors, test signals from each cell in section A.4 to A.9 shall be generated and applied to each antenna port. For each carrier frequency specified in the test case, independent noise shall be generated with independent fading and applied to each antenna port. For each carrier frequency specified in the testcase, independent noise shall be generated and applied to each antenna port. The received power spectral density at each antenna connector n, denoted as \hat{l} or specified for testing a UE with a single antenna connector. The noise spectral density at each antenna connector n, denoted as \hat{l} or, n shall be the same as the noise spectral density Ioc specified for testing a UE with a single antenna connector.

A.4 Idle Mode

A.4.1 Cell selection

NOTE: This section is included for consistency with numbering with section 4; no test covering requirements exist.

A.4.2 Cell Re-Selection

For each of the re-selection scenarios in section 4.2 a test is proposed.

For TDD/TDD cell reselection two scenarios are considered:

Scenario 1: Single carrier case

Scenario 2: Multi carrier case

A.4.2.1 Scenario 1: Cell re-selection to intra frequency TDD cell

A.4.2.1.1 Test Purpose and Environment

This test is to verify the requirement for the cell re-selection delay in the single carrier case reported in section 4.2.2.

A.4.2.1.1.1 3.84 Mcps TDD option

This scenario implies the presence of 1 carrier and 6 cells as given in Table A.4.1and A.4.2. Cell 1 and cell 2 shall belong to different Location Areas.

Table A.4.1: General test parameters for Cell Re-selection to intra-frequency TDD cell

Para	Parameter		Value	Comment						
Initial	Active cell		Cell1							
condition	Neighbour cells		Cell2, Cell3,Cell4, Cell5, Cell6							
Final condition	Active cell		Cell2							
H	ICS		Not used							
UE_TXPWF	UE_TXPWR_MAX_RACH		21	The value shall be used for all cells in the test.						
Qrx	levmin	dBm	-102	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.						
	T _{SI}		T _{SI}		T _{SI}		T _{SI} s		1.28	The value shall be used for all cells in the test.
DRX cycle length		S	1.28	The value shall be used for all cells in the test.						
	T1	S	15							
	T2	s	15							

Table A.4.2: Cell re-selection to intra-frequency TDD cell

Parameter	Unit		Ce	II 1		Cell 2				Cell 3			
Timeslot Number			0		8	()		3	0 8			
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number			Char	nel 1	•	Channel 1			Channel 1				
PCCPCH_Ec/lor	dB	-3	-3			-3	-3			-3	-3		
SCH_Ec/lor	dB	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9
SCH_t _{offset}		0	0	0	0	5	5	5	5	10	10	10	10
PICH_Ec/lor	dB			-3	-3			-3	-3			-3	-3
OCNS_Ec/lor	dB	- 3,12	- 3,12	- 3,12	- 3,12	- 3,12	- 3,12	- 3,12	- 3,12	- 3,12	- 3,12	- 3,12	- 3,12
\hat{I}_{or}/I_{oc}	dB	9	7	9	7	7	9	7	9	-1	-1	-1	-1
PCCPCH RSCP	dBm	-64	-66			-66	-64			-74	-74		
Qoffset1 _{s,n}	dB		, C2: 0; C1,0 1, C5:0	C4:0			C2,0	C2, C3 C4:0 ; C2,C6		C3, C1: 0; C3, C2:0; C3,C4:0 C3, C5: 0; C3,C6:0			
Qhyst 1 _s	dB			0				0				0	
Treselection	S		()		0				0			
Sintrasearch	dB		not	sent		not sent				not sent			
			Ce	II 4		Cell 5			Cell 6				
Timeslot			0		8)			0			3
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number			Char	nel 1		Channel 1				Channel 1			
PCCPCH_Ec/lor	dB	-3	-3			-3	-3			-3	-3		
SCH_Ec/lor	dB	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9
SCH_t _{offset}		15	15	15	15	20	20	20	20	25	25	25	25
PICH_Ec/lor	dB			-3	-3			-3	-3			-3	-3
OCNS_Ec/lor	dB	- 3,12	- 3,12	- 3,12	- 3,12	- 3,12	- 3,12	- 3,12	- 3,12	- 3,12	- 3,12	- 3,12	- 3,12
\hat{I}_{or}/I_{oc}	dB	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
PCCPCH RSCP	dBm	-74	-74			-74	-74			-74	-74		
Qoffset1 _{s,n}	dB		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				
Qhyst1 _s	dB	0			0				(0			
Treselection	S	0				0						0	
Sintrasearch	dB		not sent				not	sent			not	sent	
I_{oc}	dBm/ 3,84 MHz		-70										
Propagation Condition			AWGN										

A.4.2.1.1.2 1.28 Mcps TDD option

This scenario implies the presence of 1 carrier and 6 cells as given in Table A.4.1A and A.4.2A. The UE is requested to monitor neighbouring cells on 1 carrier. Cell 1 and cell 2 shall belong to different Location Areas.

Table A.4.1A: General test parameters for Cell Re-selection to intra-frequency TDD cell

Par	ameter	Unit	Value	Comment
Initial condition	Active cell		Cell1	
	Neighbour cells		Cell2, Cell3,Cell4, Cell5, Cell6	
Final condition	Active cell		Cell2	
	HCS		Not used	
UE_TXPW	R_MAX_RACH	dBm	21	The value shall be used for all cells in the test.
Qr	xlevmin	dBm	-103	The value shall be used for all cells in the test.
	ce Class (ASC#0) stence 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.
T _{SI}		S	1.28	The value shall be used for all cells in the test.
DRX o	cycle length	S	1.28	The value shall be used for all cells in the test.
	T1	S	15	
	T2	S	15	

Table A.4.2A: Cell re-selection to intra-frequency TDD cell

Parameter	Unit		Ce	II 1		Cell 2				Cell 3			
Timeslot Number		()	DW	PTS	0 DWPTS			0		DW	DWPTS	
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number			Char	nel 1			Char	nel 1		Channel 1			
PCCPCH_Ec/lor	dB	-3	-3			-3	-3			-3	-3		
DwPCH_Ec/lor	dB			0	0			0	0			0	0
OCNS_Ec/lor	dB	-3	-3			-3	-3			-3	-3		
\hat{I}_{or}/I_{oc}	dB	10	7	10	7	7	10	7	10	-1	-1	-1	-1
PCCPCH RSCP	dBm	-63	-66			-66	-63			-74	-74		
Qoffset1 _{s,n}	dB		, C2: 0; C1,0 1, C5:0	C4:0			, C1: 0; C2,0 2, C5: 0	C4:0			, C1: 0; C3,0 3, C5: 0	C4:0	·
Qhyst1 _s	dB)))	
Treselection	S			0			()		0			
Sintrasearch	dB		not	sent		not sent			not sent				
			Ce	II 4		Cell 5			Cell 6				
Timeslot		()	DW	PTS	0 DWPTS			0 DV		DW	DWPTS	
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number			Char	nel 1		Channel 1			Channel 1				
PCCPCH_Ec/lor	dB	-3	-3			-3	-3			-3	-3		
DwPCH_Ec/lor	dB			0	0			0	0			0	0
OCNS_Ec/lor	dB	-3	-3			-3	-3			-3	-3		
\hat{I}_{or}/I_{oc}	dB	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
PCCPCH RSCP	dBm	-74	-74			-74	-74			-74	-74		
Qoffset1 _{s,n}	dB		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			
Qhyst1 _s	dB		()		0					()	
Treselection	S	0				()			()		
Sintrasearch	dB	not sent				not sent not sent							
I_{oc}	dBm/ 1.28 MHz	-70											
Propagation Condition		AWGN											
Note: In the case of mu	ote: In the case of multi-frequency cell, the UTRA RF Channel Number is the primary frequency"s channel number.							ımber.					

A.4.2.1.1.3 7.68 Mcps TDD option

This scenario implies the presence of 1 carrier and 6 cells as given in Table A.4.1B and A.4.2B. Cell 1 and cell 2 shall belong to different Location Areas.

Table A.4.1B: General test parameters for Cell Re-selection to intra-frequency TDD cell

Para	Parameter		Value	Comment				
Initial	Active cell		Cell1					
condition	Neighbour cells		Cell2, Cell3,Cell4, Cell5, Cell6					
Final condition	Active cell		Cell2					
H	ICS		Not used					
UE_TXPWF	UE_TXPWR_MAX_RACH		21	The value shall be used for all cells in the test.				
Qrxl	levmin	dBm	-102	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.				
•	T _{SI}		T _{SI}		T _{SI} s		1.28	The value shall be used for all cells in the test.
DRX cycle length		S	1.28	The value shall be used for all cells in the test.				
T1		S	15					
	T2		15					

Table A.4.2B: Cell re-selection to intra-frequency TDD cell

Parameter	Unit		Ce	II 1			Ce	II 2			Се	II 3	
Timeslot Number		()		3	()		3	(0	8	
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number			Char	nel 1		Channel 1				Channel 1			
PCCPCH_Ec/lor	dB	-3	-3			-3	-3			-3	-3		
SCH_Ec/lor	dB	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9
SCH_t _{offset}		0	0	0	0	5	5	5	5	10	10	10	10
PICH_Ec/lor	dB			-3	-3			-3	-3			-3	-3
OCNS_Ec/lor	dB	- 3,12	- 3,12	- 3,12	- 3,12	- 3,12	- 3,12	- 3,12	- 3,12	- 3,12	- 3,12	- 3,12	- 3,12
\hat{I}_{or}/I_{oc}	dB	9	7	9	7	7	9	7	9	-1	-1	-1	-1
PCCPCH RSCP	dBm	-64	-66			-66	-64			-74	-74		
Qoffset1 _{s,n}	dB		C1, C2: 0; C1, C3:0; C1,C4:0 C1, C5:0; C1,C6:0			C2, C1: 0; C2, C3:0; C2,C4:0 C2, C5: 0; C2,C6:0					C3,	; C3, C2 C4:0); C3,C6	•
Qhyst 1 _s	dB			0			(0				0	
Treselection	S		()			()			(0	
Sintrasearch	dB		not	sent		not sent				not sent			
			Ce	II 4			Ce	II 5			Ce	II 6	
Timeslot)		3)		3		0	1	3
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number			Char	nel 1		Channel 1					Char	nnel 1	
PCCPCH_Ec/lor	dB	-3	-3			-3	-3			-3	-3		
SCH_Ec/lor	dB	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9
SCH_t _{offset}		15	15	15	15	20	20	20	20	25	25	25	25
PICH_Ec/lor	dB			-3	-3			-3	-3			-3	-3
OCNS_Ec/lor	dB	- 3,12	- 3,12	- 3,12	- 3,12	- 3,12	- 3,12	- 3,12	- 3,12	- 3,12	- 3,12	- 3,12	- 3,12
\hat{I}_{or}/I_{oc}	dB	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
PCCPCH RSCP	dBm	-74	-74			-74	-74			-74	-74		
Qoffset1 _{s,n}	dB		, C1: 0; C3:0 C ² C6				, C1: 0; C5,0 5, C4:0;	C3:0			C6,	; C6, C2 C3:0 ; C6, C!	
Qhyst1 _s	dB	0					()			(0	
Treselection	S	0					()			(0	
Sintrasearch	dB		not	sent			not	sent			not	sent	
I_{oc}	dBm/ 7,68 MHz						-7	70					
Propagation Condition							AW	'GN					

A.4.2.1.2 Test Requirements

A.4.2.1.2.1 3.84 Mcps TDD option

The cell re-selection delay is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 2, and starts to send the RRC CONNECTION REQUEST message to perform a Location Registration on cell 2.

The cell re-selection delay shall be less than 8 s.

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

NOTE:

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

T_{evaluateTDD} A DRX cycle length of 1280ms is assumed for this test case, this leads to a T_{evaluateTDD} of 6.4s

according to Table 4.1 in section 4.2.2.7.

T_{SI} Maximum repetition rate 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.

A.4.2.1.2.2 1.28 Mcps TDD option

The cell re-selection delay is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 2, and starts to send SYNCH-UL sequence in the UpPTS for sending the RRC CONNECTION REQUEST to perform a Location Registration on cell 2.

The cell re-selection delay shall be less than 8 s.

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

NOTE:

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

T_{evaluateNTDD}: A DRX cycle length of 1280ms is assumed for this test case, this leads to a T_{evaluateNTDD} of 6.4s

according to Table 4.1A in section 4.2.

T_{SI}: 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 7.68 s, allow 8s in the test case.

A.4.2.1.2.3 7.68 Mcps TDD option

The cell re-selection delay is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 2, and starts to send the RRC CONNECTION REQUEST message to perform a Location Registration on cell 2.

The cell re-selection delay shall be less than 8 s.

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

NOTE:

The cell re-selection delay can be expressed as: $T_{\text{evaluateTDD}} + T_{\text{SI}},$ where:

T_{evaluateTDD} A DRX cycle length of 1280ms is assumed for this test case, this leads to a T_{evaluateTDD} of 6.4s

according to Table 4.1B in section 4.2.2.7.

T_{SI} Maximum repetition rate 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.

A.4.2.2 Scenario 2: Cell re-selection to inter-frequency TDD cell

A.4.2.2.1 Test Purpose and Environment

This test is to verify the requirement for the cell re-selection delay in the multi carrier case reported in section 4.2.2.

A.4.2.2.1.1 3.84 Mcps TDD option

This scenario implies the presence of 2 carriers and 6 cells as given in Table A.4.3 and A.4.4. Cell 1 and cell 2 shall belong to different Location Areas.

Table A.4.3: General test parameters for Cell Re-selection to inter-frequency TDD cell

Par	ameter	Unit	Value	Comment
Initial			Cell1	
condition	condition Neighbour cells		Cell2, Cell3,Cell4,	
			Cell5, Cell6	
Final condition	Active cell		Cell2	
H	HCS		Not used	
UE_TXPW	R_MAX_RACH	dBm	21	The value shall be used for all cells in the test.
Qrx	devmin	dBm	-102	The value shall be used for all cells in the test.
Access Service	ce Class (ASC#0)			Selected so that no additional delay is caused
- Persis	tence value		1	by the random access procedure. The value
				shall be used for all cells in the test.
	T _{SI}		1.28	The value shall be used for all cells in the test.
DRX cycle length		S	1.28	The value shall be used for all cells in the test.
T1		S	30	
	T2	S	15	

Table A.4.4: Cell re-selection to iner-frequency TDD cell

Parameter	Unit		Ce	ell 1			Се	II 2		Cell 3			
Timeslot Number			0		3	()		3	0			3
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number			Cha	nnel 1		Channel 2			Channel 1				
PCCPCH Ec/lor	dB	-3	-3			-3	-3			-3	-3		
SCH_Ec/lor	dB	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9
SCH_t _{offset}	u.b	0	0	0	0	5	5	5	5	10	10	10	10
PICH_Ec/lor	dB	Ť	Ť	-3	-3			-3	-3			-3	-3
OCNS_Ec/lor	dB	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12
\hat{I}_{or}/I_{oc}	dB	6	0	6	0	0	6	0	6	-3	-3	-3	-3
PCCPCH RSCP	dBm	-67	-73			-73	-67			-76	-76		
T COI OI I NOOI	UDIII			; C1, C	3·U·		, C1: 0;	C2 C2	3·U·			C3, C2	5·U·
Qoffset1 _{s,n}	dB			1, C5:0			, 01. 0, C4:0 C2					, 03, 02 C4:0	2.0,
			С	6:0			C	6:0		C	3, C5:0;	C3, C6	6:0
Qhyst1 _s	dB			0			()			(0	
Treselection	S			0			()			(0	
Sintrasearch	dB		not	sent			not	sent			not	sent	
Sintersearch	dB		not	sent			not	sent			not	sent	
		Cell 4 Cell 5					Ce	ll 6					
Timeslot			0		3	(0	,	8		0		3
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number			Cha	nnel 1		Channel 2				Char	nnel 2		
PCCPCH_Ec/lor	dB	-3	-3			-3	-3			-3	-3		
SCH_Ec/lor	dB	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9
SCH_t _{offset}		15	15	15	15	20	20	20	20	25	25	25	25
PICH_Ec/lor	dB			-3	-3			-3	-3			-3	-3
OCNS	dB	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12
\hat{I}_{or}/I_{oc}	dB	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3
PCCPCH RSCP	dBm	-76	-76			-76	-76			-76	-76		
		C4		; C4, C	2:0;	C5	, C1: 0;	C5, C2	2:0;	C6	, C1: 0;	; C6, C2	2:0;
Qoffset1 _{s,n}	dB			C3:0				C3:0				C3:0	
		C	4, C5:0	; C4, C	6:0	C5	5, C4:0;	C5, C6	3:0	C	6, C4:0;	C6, C5	5:0
Qhyst1 _s	dB	0)		0				
Treselection	S		0				()			(0	
Sintrasearch	dB		not sent				not	sent		not sent			
Sintersearch	dB		not	sent			not	sent			not	sent	
I_{oc}	dBm/3, 84 MHz						-	70					
Propagation Condition							ΑV	/GN					

A.4.2.2.1.2 1.28 Mcps TDD option

This scenario implies the presence of 2 carriers and 6 cells as given in Table A.4.3A and A.4.4A. The UE is requested to monitor neighbouring cells on 2 carriers. Cell 1 and cell 2 shall belong to different Location Areas.

Table A.4.3A: General test parameters for Cell Re-selection to inter-frequency TDD cell

Pa	rameter	Unit	Value	Comment
Initial condition	Active cell		Cell1	
	Neighbour cells		Cell2, Cell3,Cell4, Cell5,	
			Cell6	
Final condition	Active cell		Cell2	
	HCS		Not used	
UE_TXPW	/R_MAX_RACH	dBm	21	The value shall be used for all cells in the test.
Qr	xlevmin	dBm	-103	The value shall be used for all cells in the test.
	ice Class (ASC#0) stence 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.
	T _{SI}	S	1.28	The value shall be used for all cells in the test.
DRX	cycle length	S	1.28	The value shall be used for all cells in the test.
	T1	S	30	
	T2	S	15	

Table A.4.4A: Cell re-selection to inter-frequency TDD cell

UTRA RF Channel Number PCCPCH_Ec/lor DwPCH_Ec/lor OCNS_Ec/lor		T1	T2		PTS	()	DW	PTS	()	DW	PTS
Channel Number PCCPCH_Ec/lor DwPCH_Ec/lor OCNS_Ec/lor		T1	T2		0 DWPTS		0 DWPTS			0		DWPTS	
Channel Number PCCPCH_Ec/lor DwPCH_Ec/lor OCNS_Ec/lor			14	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
PCCPCH_Ec/lor DwPCH_Ec/lor OCNS_Ec/lor			Chan	nal 1		Channel 2			Channel 1				
DwPCH_Ec/lor OCNS_Ec/lor				11161 1									
OCNS_Ec/lor	dB	-3	-3			-3	-3			-3	-3		
_	dB			0	0			0	0			0	0
^ /	dB	-3	-3			-3	-3			-3	-3		
\hat{I}_{or}/I_{oc}	dB	10	4	10	4	4	10	4	10	-1	-1	-1	-1
PCCPCH RSCP	dBm	-63	-69			-69	-63			-74	-74		
Qoffset1 _{s,n}	dB		C1, C2: 0; C1, C3:0; C1,C4:0 C1, C5:0; C1, C6:0			C2, C1: 0; C2, C3:0; C2,C4:0C2, C5:0; C2, C6:0					, C1: 0; C3,0 3, C5:0;	C4:0	
Qhyst1 _s	dB		()			()			()	
Treselection	S		()			()			()	
Sintrasearch	dB		not	sent			not :	sent			not	sent	
Sintersearch	dB		not sent			not sent				not sent			
			Cell 4				Ce					II 6	
Timeslot		(PTS	(DW)		PTS
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number			Chan	nel 1			Chan	nel 2			Char	nel 2	
PCCPCH Ec/lor	dB	-3	-3			-3	-3			-3	-3		
DwPCH_Ec/lor	dB			0	0			0	0			0	0
OCNS_Ec/lor	dB	-3	-3			-3	-3			-3	-3		
\hat{I}_{or}/I_{oc}	dB	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
PCCPCH RSCP	dBm	-74	-74			-74	-74			-74	-74		
Qoffset1 _{s,n}	dB		, C1: 0; C4,0 1, C5:0;	C3:0			, C1: 0; C5,0 5, C4:0;	23:0		C6, C1: 0; C6, C2:0; C6,C3:0 C6, C4:0; C6, C5:0			•
Qhyst1 _s	dB		()			()			()	
Treselection	S		()			()			()	
Sintrasearch	dB		not	sent			not :	sent			not	sent	
Sintersearch	dB		not sent				not :	sent			not	sent	
I_{oc}	dBm/ 1.28 MHz						-7	70					
			AWGN										
Propagation Condition NOTE: In the case													

number.

A.4.2.2.1.3 7.68 Mcps TDD option

This scenario implies the presence of 2 carriers and 6 cells as given in Table A.4.3B and A.4.4B. Cell 1 and cell 2 shall belong to different Location Areas.

Table A.4.3B: General test parameters for Cell Re-selection to intra-frequency TDD cell

Par	ameter	Unit	Value	Comment
Initial	Active cell		Cell1	
condition	condition Neighbour cells		Cell2, Cell3,Cell4,	
			Cell5, Cell6	
Final condition	Active cell		Cell2	
	HCS		Not used	
UE_TXPW	R_MAX_RACH	dBm	21	The value shall be used for all cells in the test.
Qr	klevmin	dBm	-102	The value shall be used for all cells in the test.
Access Service	ce Class (ASC#0)			Selected so that no additional delay is caused
- Persis	tence value		1	by the random access procedure. The value
				shall be used for all cells in the test.
	T _{SI}		1.28	The value shall be used for all cells in the test.
DRX cycle length		S	1.28	The value shall be used for all cells in the test.
	T1	S	30	
	T2	S	15	

Table A.4.4B: Cell re-selection to inter-frequency TDD cell

Parameter	Unit		Ce	ell 1			Се	II 2		Cell 3			
Timeslot Number			0		3	()	_	3	()	1	8
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number			Cha	nnel 1		Channel 2				Channel 1			
PCCPCH_Ec/lor	dB	-3	-3			-3	-3			-3	-3		
SCH_Ec/lor	dB	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9
SCH_t _{offset}		0	0	0	0	5	5	5	5	10	10	10	10
PICH_Ec/lor	dB			-3	-3			-3	-3			-3	-3
OCNS_Ec/lor	dB	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12
\hat{I}_{or}/I_{oc}	dB	6	0	6	0	0	6	0	6	-3	-3	-3	-3
PCCPCH RSCP	dBm	-67	-73			-73	-67			-76	-76		
				; C1, C			, C1: 0;			C3		C3, C2	2:0;
Qoffset1 _{s,n}	dB	C1,		1, C5:0	; C1,	C2,0	C4:0 C2		C2,			C4:0	
01 11	in.			6:0			C			C		C3, C6	6:0
Qhyst1 _s	dB			0))	
Treselection	S			0) .) ,	
Sintrasearch	dB			sent		not sent				not sent			
Sintersearch	dB			sent		not sent Cell 5				not sent Cell 6			
				ell 4									
Timeslot			0		3	- (3) =0		8
UTRA RF Channel		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
Number			Chai	nnel 1			Chan	nel 2			Char	nnel 2	
PCCPCH_Ec/lor	dB	-3	-3			-3	-3			-3	-3		
SCH_Ec/lor	dB	-9	-3 -9	-9	-9	- <u>9</u>	-3 -9	-9	-9	-9	-3 -9	-9	-9
SCH_t _{offset}	UD	15	15	15	15	20	20	20	20	25	25	25	25
PICH_Ec/Ior	dB	13	13	-3	-3	20	20	-3	-3	23	23	-3	-3
OCNS	dB	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12
\hat{I}_{or}/I_{oc}	dB	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3
PCCPCH RSCP	dBm	-76	-76			-76	-76			-76	-76		
1 001 0111001	QDIII			; C4, C	2·0·		, C1: 0;	C5 C2	5.0.	-		C6, C2	5.0.
Qoffset1 _{s,n}	dB	.		C3:0	2.0,	00		C3:0	0,			C3:0	0,
Q01100115,11	u B	C.		; C4, C	6:0	C5	5, C4:0;		6:0	C		C6, C	5:0
Qhyst1 _s	dB			0	0.0))	<u> </u>
Treselection	S		0			0					()	
Sintrasearch	dB		not	sent		not sent					not	sent	
Sintersearch			not sent			not sent not sent						sent	
Sintersearch	dB		-70										
I _{oc}	dB dBm/7, 68 MHz		1101	30111				70					
	dBm/7,		TIOL	JOIN			-	70 /GN					

A.4.2.2.2 Test Requirements

A.4.2.2.2.1 3.84 Mcps TDD option

The cell re-selection delay is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 2, and starts to send the RRC CONNECTION REQUEST message to perform a Location Registration on cell 2

The cell re-selection delay shall be less than 8 s.

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

NOTE:

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

 $T_{evaluate\,TDD}$ A DRX cycle length of 1280ms is assumed for this test case, this leads to a $T_{evaluate\,TDD}$ of 6.4s

according to Table 4.1 in section 4.2.2.7.

T_{SI} Maximum repetition rate 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.

A.4.2.2.2.2 1.28 Mcps TDD option

The cell re-selection delay is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 2, and starts to send the SYNCH-UL sequence in the UpPTS for sending the RRC CONNECTION REQUEST to perform a Location Registration on cell 2.

The cell re-selection delay shall be less than 8 s.

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

NOTE:

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

T_{evaluateNTDD} A DRX cycle length of 1280ms is assumed for this test case, this leads to a T_{evaluate NTDD} of 6.4s

according to Table 4.1A in section 4.2.

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 7.68 s, allow 8s in the test case.

A.4.2.2.2.3 7.68 Mcps TDD option

The cell re-selection delay is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 2, and starts to send the RRC CONNECTION REQUEST message to perform a Location Registration on cell 2.

The cell re-selection delay shall be less than 8 s.

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

NOTE:

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

 $T_{evaluate\,TDD}$ A DRX cycle length of 1280ms is assumed for this test case, this leads to a $T_{evaluate\,TDD}$ of 6.4s

according to Table 4.1B in section 4.2.2.7.

T_{SI} Maximum repetition rate 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.

A.4.2.2A Scenario 2A: 3.84 Mcps TDD cell re-selection for 1.28 Mcps TDD UE

A.4.2.2A.1 Test Purpose and Environment

This test is to verify the requirement for the 1.28 Mcps TDD OPTION/3.84 Mcps TDD OPTION cell re-selection delay reported in section 4.2.

This scenario implies the presence of 1 low chip rate (1.28 Mcps TDD OPTION) and 1 high chip rate (3.84 Mcps TDD OPTION)) cell as given in Table A.4.3B and A.4.4B.

The ranking of the cells shall be made according to the cell reselection criteria specified in TS25.304.

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

Table A.4.3B: General test parameters for TDD low chip rate to TDD high chip rate cell re-selection

P	arameter	Unit	Value	Comment
Initial	Active cell		Cell1	1.28 Mcps TDD OPTION cell
condition	Neighbour cell		Cell2	3.84 Mcps TDD OPTION cell
Final condition	Active cell		Cell2	3.84 Mcps TDD OPTION cell
	HCS		Not used	
UE_TXP	WR_MAX_RACH	dBm	21	The value shall be used for all cells in
				the test.
Access Ser	vice Class (ASC#0)			Selected so that no additional
- Pers	sistence value		1	delay is caused by the random
				access procedure. The value shall
				be used for all cells in the test.
	T _{SI}	S	1,28	The value shall be used for all cells in
				the test.
DRX cycle length		S	1,28	The value shall be used for all cells in
				the test.
	T1	S	30	
	T2	S	15	

Table A.4.4B: Test parameters for TDD low chip rate to TDD high chip rate cell re-selection

Parameter	Unit		Ce	II 1		Cell 2					
Timeslot Number		()	Dwl	PTS	()	8	3		
		T1	T2	T 1	T 2	T1	T2	T 1	T 2		
UTRA RF Channel			Char	nel 1		Channel 2					
Number (NOTE)			Channel 1								
PCCPCH_Ec/lor	dB	-3	-3			-3	-3				
DwPCH_Ec/lor	dB			0	0	n.	a.	n.	a.		
SCH_Ec/lor	dB	n.	a.	n.	a.	-9	-9	-9	-9		
SCH_t _{offset}		n.	a.	n.	a.	0	0	0	0		
PICH_Ec/lor	dB							-3	-3		
OCNS_Ec/Ior	dB	-	3	n.	a.	-3,12	-3,12	-3,12	-3,12		
\hat{I}_{or}/I_{oc}	dB	10	7			7	10	7	10		
I_{oc}		-	70 dBm/	1.28 M⊦	lz	-	70 dBm/	3.84 MH	z		
PCCPCH_RSCP	dBm	-63	-66			-66	-63				
Qrxlevmin	dBm		-1	03		-103					
Qoffset1 _{s,n}	dB		C1, (C2: 0			C2, (C1: 0			
Qhyst1 _s	dB		(0			()			
Treselection	S		(0			()			
Sintersearch	dB		not	sent			not	sent			
Propagation			Δ۱۸	/GN			Δ۱۸۸	'GN			
Condition			AWGN AWGN								
	e of multi-freq					on, the U	ITRA RF	Channe			
Number is	the primary f	requency	/"s chan	<u>nel numb</u>	er.						

A.4.2.2A.2 Test Requirements

The cell re-selection delay is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 2, and starts to send the RRC CONNECTION REQUEST message to perform a Location Registration on cell 2.

The cell re-selection delay shall be less than 8 s.

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

NOTE: The cell re-selection delay can be expressed as:

$$T_{evaluateTDD} + T_{SI} \\$$

where:

T_{evaluateTDD} A DRX cycle length of 1280ms is assumed for this test case, this leads to a T_{evaluateTDD} of 6.4s

according to Table 4.1A in section 4.2.

 T_{SI} 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 [16] for a

UTRAN cell (ms). 1280 ms is assumed in this test case.

This gives a total of 7.68 s, allow 8s in the test case.

A.4.2.2B Scenario 2B: 3.84 Mcps/1.28 Mcps TDD cell re-selection

A.4.2.2B.1 Test Purpose and Environment

This test is to verify the requirement for the 3.84 Mcps/1.28 Mcps TDD cell re-selection delay reported in section 4.2.

This scenario implies the presence of 1 3.84 Mcps TDD serving cell, and 1 1.28 Mcps TDD cell to be re-selected. The UE is requested to monitor neighbouring cells on 1 3.84Mcps TDD carrier and 1 1.28Mcps TDD carrier. Test parameters are given in Table A.4.3C, A4.4C, and A.4.4D. Cell 1 and cell 2 shall belong to different Location Areas.

Table A.4.3C: General test parameters for 3.84 Mcps /1.28 Mcps TDD cell re-selection

Pa	arameter	Unit	Value	Comment
Initial	Active cell		Cell 1	3.84 Mcps TDD OPTION cell
condition	Neighbour cell		Cell 2	1.28 Mcps TDD OPTION cell
Final condition	Active cell		Cell 2	1.28 Mcps TDD OPTION cell
	HCS		Not used	
UE_TXP	WR_MAX_RACH	dBm	21	The value shall be used for all cells in the test.
	Q _{rxlevmin}	dBm	-103	
Access Serv	vice Class (ASC#0) istence 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.
	T_{SI}	S	1,28	The value shall be used for all cells in the test.
DRX	cycle length	S	1,28	The value shall be used for all cells in the test.
	T1	S	30	
	T2	S	15	

Table A.4.4C: Cell 1 specific test parameters for 3.84 Mcps TDD/1.28 Mcps TDD cell re-selection

Parameter	Unit	Cell 1					
Timeslot Number		0			8		
		T1	T2	T 1	T 2		
UTRA RF Channel Number		Channel 1					
PCCPCH_Ec/lor	dB	-3	-3				
SCH_Ec/lor	dB	-9	-9	-9	-9		
SCH_t _{offset}				0			
PICH_Ec/lor	dB			-3	-3		
OCNS_Ec/lor	dB	-3.12					
\hat{I}_{or}/I_{oc}	dB	10	7	10	7		
PCCPCH_RSCP	dBm	-63	-66				
Qoffset1 _{s,n}	dB		C1,	C2: 0			
Qhyst1 _s	dB			0			
Treselection	S			0			
Sintersearch	dB	not sent					
I_{oc}	dBm/3.84 MHz		-	70			
Propagation Condition			AV	VGN			

Table A.4.4D: Cell 2 specific test parameters for 3.84 Mcps TDD/1.28 Mcps TDD cell re-selection

Parameter	Unit		Ce	II 2			
Timeslot Number		0		0 Dw		Dwl	PTS
		T1	T2	T 1	T 2		
UTRA RF Channel Number*			Channel 2				
PCCPCH_Ec/lor	dB	-3	-3				
DwPCH_Ec/lor	dB			0	0		
OCNS_Ec/lor	dB	-	3				
\hat{I}_{or}/I_{oc}	dB	7	10	7	10		
PCCPCH_RSCP	dBm	-66	-63				
Qoffset1 _{s,n}	dB	C2, C1: 0					
Qhyst1 _s	dB		(0			
Treselection	S		()			
Sintersearch	dB		not	sent			
I_{oc}	dBm/1. 28 MHz			70			
Propagation Condition		AW	'GN				
* Note: In the case of							
Channel Number is the primary frequency"s channel							
number							

A.4.2.2B.2 Test Requirements

The cell re-selection delay is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 2, and starts to send the SYNCH-UL sequence in the UpPTS for sending the RRC CONNECTION REQUEST to perform a Location Registration on cell 2.

The cell re-selection delay shall be less than 8 s.

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

NOTE: The cell re-selection delay can be expressed as:

$$T_{evaluateNTDD} + T_{SI}$$

where:

 $T_{evaluateNTDD}$ A DRX cycle length of 1280ms is assumed for this test case, this leads to a $T_{evaluate\ NTDD}$ of 6.4s according to Table 4.1 in section 4.2.

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 [16] for a UTRAN cell (ms). 1280 ms is assumed in this test case.

This gives a total of 7.68 s, allow 8s in the test case.

A.4.2.2C Scenario 2C: 3.84 Mcps TDD cell re-selection for 7.68 Mcps TDD UE

A.4.2.2C.1 Test Purpose and Environment

This test is to verify the requirement for the 7.68 Mcps TDD OPTION/3.84 Mcps TDD OPTION cell re-selection delay reported in section 4.2.

This scenario implies the presence of 1 higher chip rate (7.68 Mcps TDD OPTION) and 1 high chip rate (3.84 Mcps TDD OPTION)) cell as given in Table A.4.4E and A4.4F.

The ranking of the cells shall be made according to the cell reselection criteria specified in TS25.304.

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

Table A.4.4E: General test parameters for TDD higher chip rate (7.68 Mcps) to TDD high chip rate (3.84 Mcps) cell re-selection

Pa	arameter	Unit	Value	Comment
Initial	Active cell		Cell1	7.68 Mcps TDD OPTION cell
condition	Neighbour cell		Cell2	3.84 Mcps TDD OPTION cell
Final condition	Active cell		Cell2	3.84 Mcps TDD OPTION cell
	HCS		Not used	
UE_TXP\	WR_MAX_RACH	dBm	21	The value shall be used for all cells in the test.
Qrxlevmin		dBm	-102	The value shall be used for all cells in the test.
	vice Class (ASC#0) istence 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.
	T _{SI}	S	1,28	The value shall be used for all cells in the test.
DRX	cycle length	S	1,28	The value shall be used for all cells in the test.
	T1	S	30	
	T2	S	15	

Table A.4.4F: Test parameters for TDD higher chip rate (7.68 Mcps) to TDD high chip rate (3.84 Mcps) cell re-selection

Parameter	Unit		Се	II 1			Ce	II 2	
Timeslot Number		()		8	()		8
		T1	T2	T 1	T 2	T1	T2	T 1	T 2
UTRA RF Channel Number			Char	nel 1			Char	nnel 2	
PCCPCH_Ec/lor	dB	-3	-3			-3	-3		
SCH_Ec/lor	dB	-9	-9	-9	-9	-9	-9	-9	-9
SCH_t _{offset}		0	0	0	0	5	5	5	5
PICH_Ec/lor	dB			-3	-3			-3	-3
OCNS_Ec/Ior		-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12
\hat{I}_{or}/I_{oc}	dB	10	7	10	7	7	10	7	10
PCCPCH_RSCP	dBm	-63	-66			-66	-63		
Qoffset1 _{s,n}	dB		C1, (C2: 0			C2, (C1: 0	
Qhyst1 _s	dB		()			()	
Treselection	S		()			()	
Sintersearch	dB	not sent not sent							
I_{oc}		-70 dBm/7.68 MHz -70 dBm/3.84 MHz							
Propagation Condition					AW	'GN			

A.4.2.2C.2 Test Requirements

The cell re-selection delay is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 2, and starts to send the RRC CONNECTION REQUEST message to perform a Location Registration on cell 2.

The cell re-selection delay shall be less than 8 s.

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

NOTE: The cell re-selection delay can be expressed as:

 $T_{evaluateTDD} + T_{SI} \\$

where:

 $T_{evaluateTDD}$ A DRX cycle length of 1280ms is assumed for this test case, this leads to a $T_{evaluateTDD}$ of 6.4s

according to Table 4.1B in section 4.2.

T_{SI} Maximum repetition rate 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.

A.4.2.2D Scenario 2D: 3.84 Mcps/7.68 Mcps TDD cell re-selection

A.4.2.2D.1 Test Purpose and Environment

This test is to verify the requirement for the 3.84 Mcps/7.68 Mcps TDD cell re-selection delay reported in section 4.2.

This scenario implies the presence of one 3.84 Mcps TDD serving cell, and one 7.68 Mcps TDD cell to be re-selected. The UE is requested to monitor neighbouring cells on one 3.84Mcps TDD carrier and one 7.68 Mcps TDD carrier. Test parameters are given in Table A.4.4G and A.4.4H. Cell 1 and cell 2 shall belong to different Location Areas.

Table A.4.4G: General test parameters for 3.84 Mcps /7.68 Mcps TDD cell re-selection

Pa	arameter	Unit	Value	Comment
Initial	Active cell		Cell 1	3.84 Mcps TDD OPTION cell
condition	Neighbour cell		Cell 2	7.68 Mcps TDD OPTION cell
Final condition	Active cell		Cell 2	7.68 Mcps TDD OPTION cell
	HCS		Not used	
UE_TXP'	WR_MAX_RACH	dBm	21	The value shall be used for all cells in the test.
	Q _{rxlevmin}	dBm	-102	
	vice Class (ASC#0)			Selected so that no additional
- Pers	sistence value		1	delay is caused by the random
				access procedure. The value shall
				be used for all cells in the test.
	T _{SI}	S	1,28	The value shall be used for all cells in
				the test.
DRX	Ccycle length	S	1,28	The value shall be used for all cells in
				the test.
	T1	S	30	
	T2	S	15	

Table A.4.4H: Cell 1 specific test parameters for 3.84 Mcps TDD/7.68 Mcps TDD cell re-selection

Parameter	Unit		Ce	II 1			Ce	II 2	
Timeslot Number		()		3	()		3
		T1	T2	T 1	T 2	T1	T2	T 1	T 2
UTRA RF Channel Number			Char	nel 1			Char	nel 2	
PCCPCH_Ec/lor	dB	-3	-3			-3	-3		
SCH_Ec/lor	dB	-9	-9	-9	-9	-9	-9	-9	-9
SCH_t _{offset}		0	0	0	0	5	5	5	5
PICH_Ec/lor	dB			-3	-3			-3	-3
OCNS_Ec/Ior		-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12
\hat{I}_{or}/I_{oc}	dB	10	7	10	7	7	10	7	10
PCCPCH_RSCP	dBm	-63	-66			-66	-63		
Qoffset1 _{s,n}	dB		C1, (C2: 0			C2, (C1: 0	
Qhyst1 _s	dB		()			()	
Treselection	S		()			()	
Sintersearch	dB	not sent not sent							
I_{oc}		-70 dBm/3.84 MHz -70 dBm/7.68 MHz							
Propagation Condition					AW	'GN			

A.4.2.2E Scenario 2E: 1.28Mcps TDD inter-band cell re-selection

A.4.2.2E.1 Test Purpose and Environment

This test is to verify the requirement for the cell re-selection delay in the inter-band reported in section 4.2.2.

This scenario implies the presence of 2 carriers and 6 cells as given in Table A.4.4J and A.4.4K. The UE is requested to monitor neighbouring cells on 2 band carriers. Cell 1 and cell 2 shall belong to different Location Areas.

Table A.4.4I: General test parameters for Cell Re-selection to inter-frequency TDD cell

Pa	rameter	Unit	Value	Comment
Initial condition	Active cell		Cell1	
	Neighbour cells		Cell2, Cell3,Cell4, Cell5,	
			Cell6	
Final condition	Active cell		Cell2	
	HCS		Not used	
UE_TXPW	R_MAX_RACH	dBm	21	The value shall be used for all cells in the test.
Qr	xlevmin	dBm	-103	The value shall be used for all cells in the test.
	ice Class (ASC#0) stence 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.
	T_{SI}	S	1.28	The value shall be used for all cells in the test.
DRX	cycle length	S	1.28	The value shall be used for all cells in the test.
	T1	S	30	
	T2	S	15	

A.4.2.2E.2 Test Requirements

The cell re-selection delay is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 2, and starts to send the SYNCH-UL sequence in the UpPTS for sending the RRC CONNECTION REQUEST to perform a Location Registration on cell 2.

The cell re-selection delay shall be less than 8 s.

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

NOTE: The cell re-selection delay can be expressed as:

 $T_{evaluateNTDD} + T_{SI}$

where:

T_{evaluateNTDD} A DRX cycle length of 1280ms is assumed for this test case, this leads to a T_{evaluate NTDD} of 6.4s

according to Table 4.1 in section 4.2.

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 [16] for a

UTRAN cell (ms). 1280 ms is assumed in this test case.

This gives a total of 7.68 s, allow 8s in the test case.

A.4.2.3 Scenario 3: TDD/FDD cell re-selection

A.4.2.3.1 Test Purpose and Environment

A.4.2.3.1.1 3.84 Mcps TDD option

This test is to verify the requirement for the TDD/FDD cell re-selection delay reported in section 4.2.2.

This scenario implies the presence of 1 UTRA TDD and 1 UTRA FDD cell as given in Table A.4.5 and A.4.6. 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 A.4.5: General test parameters for the TDD/FDD cell re-selection

Par	ameter	Unit	Value	Comment
Initial condition	Active cell		Cell1	TDD cell
	Neighbour cells		Cell2	FDD cell
Final condition	Active cell		Cell2	
	HCS		Not used	
UE_TXPW	R_MAX_RACH	dBm	21	The value shall be used for all cells in the test.
	ce Class (ASC#0) stence 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.
DRX c	cycle length	S	1.28	The value shall be used for all cells in the test.
	T1	S	30	During T1 cell 1 better ranked than cell 2
	T2	S	15	During T2 cell 2 better ranked than cell 1

Table A.4.6: TDD/FDD cell re-selection

Parameter	Unit		Ce	II 1		Ce	II 2
Timeslot Number			0		8	n.a	n.a.
		T1	T2	T 1	T 2	T 1	T 2
UTRA RF Channel Number			Char	nel 1		Char	nnel 2
CPICH_Ec/lor	dB	n.	a.	n.	a.	-10	-10
PCCPCH_Ec/lor	dB	-3	-3			-12	-12
SCH_Ec/lor	dB	-9	-9	-9	-9	-12	-12
SCH_t _{offset}		0	0	0	0	n.a.	n.a.
PICH_Ec/lor	dB			-3	-3	-15	-15
OCNS_EcIor	dB	-3,12	-3,12	-3,12	-3,12	-0,941	-0,941
\hat{I}_{or}/I_{oc}	dB	3	-2	3	-2	-2	3
I_{oc}	dBm/3.8 4 MHz				-7	70	
CPICH_RSCP	dBm	n.	a.	n.	a.	-82	-77
PCCPCH_RSCP	dBm	-70	-75			n.a.	n.a.
Cell_selection_and reselection_quality _measure			CPICH	_RSCP		CPICH	_RSCP
Qrxlevmin	dBm		-102				15
Qoffset1 _{s,n}	dB	C1, C2: -12				1: +12	
Qhyst1 _s	dB	0 0			0		
Treselection	S	0 0			0		
Propagation Condition			AW	'GN		AW	/GN

A.4.2.3.1.2 1.28 Mcps TDD option

This test is to verify the requirement for the 1.28 Mcps TDD OPTION/FDD cell re-selection delay reported in section 4.2.

This scenario implies the presence of 1 1.28Mps TDD serving cell, and 1 FDD cell to be selected. The UE is requested to monitor neighbouring cells on 1 1.28Mcps TDD carrier and 1 FDD carrier. Test parameters are given in Table A.4.5A, A4.6A, and A.4.6AA.

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

Table A.4.5A: General test parameters for the TDD/FDD cell re-selection

Pai	rameter	Unit	Value	Comment
Initial condition	Active cell		Cell1	1.28 Mcps TDD OPTION cell
	Neighbour cells		Cell2	FDD cell
Final condition	Active cell		Cell2	FDD cell
	HCS		Not used	
UE_TXPW	'R_MAX_RACH	dBm	21	The value shall be used for all cells in the test.
	ce Class (ASC#0) stence 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.
	T _{SI}		1.28	The value shall be used for all cells in the test.
DRX	cycle length	S	1.28	The value shall be used for all cells in the test.
	T1	S	30	
	T2	S	15	

Table A.4.6A: Cell 1 specific test parameters for 1.28 Mcps TDD/FDD cell re-selection

Parameter	Unit		Cell	1	
Timeslot Number		0		Dw	PTS
		T1	T2	T 1	T 2
UTRA RF Channel Number*			Chann	iel 1	
PCCPCH_Ec/lor	dB	-3	-3		
DwPCH_Ec/lor	dB			0	0
OCNS_Ec/lor	dB	-	3		
\hat{I}_{or}/I_{oc}	dB	8	2	8	2
PCCPCH_RSCP	dBm	-65	-71		
Cell_selection_and_ reselection_quality_measure			CPICH I	RSCP	
Qrxlevmin	dBm		-10	3	
Qoffset1 _{s,n}	dB		C1, C2	: -12	
Qhyst1 _s	dB		0		
Treselection	S		0		
Sintersearch	dB		not se	ent	
I_{oc}	dBm/1. 28 MHz		-70)	
Propagation Condition			AWG		
* Note: In the case of multi-frequency cell, the UTRA RF Channel Number is					

the primary frequency"s channel number.

Table A.4.6AA: Cell 2 specific test parameters for 1.28 Mcps TDD/FDD cell re-selection

Parameter	Unit	Cell 2 (JTRA)
		T1	T2
UTRA RF Channel Number		Channel 2	
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	-3	3
CPICH_RSCP	dBm	-83	-77
Cell_selection_and_ reselection_quality_measure		CPICH RS	СР
Qrxlevmin	dBm	-115	
Qoffset1 _{s, n}	dB	C2, C1: +1	2
Qhyst1	dB	0	
Treselection	S	0	
Sintersearch	dB	not sent	
I_{oc}	dBm/3.84 MHz	-70	
Propagation Condition		AWGN	

A.4.2.3.1.3 7.68 Mcps TDD option

This test is to verify the requirement for the TDD/FDD cell re-selection delay reported in section 4.2.2.

This scenario implies the presence of 1 UTRA TDD and 1 UTRA FDD cell as given in Table A.4.5B and A.4.6B. 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 A.4.5B: General test parameters for the TDD/FDD cell re-selection

Par	ameter	Unit	Value	Comment
Initial condition	Active cell		Cell1	TDD cell
	Neighbour cells		Cell2	FDD cell
Final condition	Active cell		Cell2	
	HCS		Not used	
UE_TXPW	R_MAX_RACH	dBm	21	The value shall be used for all cells in the test.
Access Service	ce Class (ASC#0)		1	Selected so that no additional delay is caused
	tence value			by the random access procedure. The value
				shall be used for all cells in the test.
DRX c	ycle length	S	1.28	The value shall be used for all cells in the test.
	T1	S	30	During T1 cell 1 better ranked than cell 2
	T2	S	15	During T2 cell 2 better ranked than cell 1

Table A.4.6B: TDD/FDD cell re-selection

Parameter	Unit		Ce	II 1		Cell 2		
Timeslot Number		()		8	n.a	n.a.	
		T1	T2	T 1	T 2	T 1	T 2	
UTRA RF Channel Number			Char	nnel 1		Channel 2		
CPICH_Ec/lor	dB	n.	a.	n.	a.	-10	-10	
PCCPCH_Ec/lor	dB	-3	-3			-12	-12	
SCH_Ec/lor	dB	-9	-9	-9	-9	-12	-12	
SCH_t _{offset}		0	0	0	0	n.a.	n.a.	
PICH_Ec/lor	dB			-3	-3	-15	-15	
OCNS_EcIor	dB	-3,12	-3,12	-3,12	-3,12	-0,941	-0,941	
\hat{I}_{or}/I_{oc}	dB	3	-2	3	-2	-2	3	
I_{oc}		-	70 dBm/	7.68 MH	Z	-70 dBm/3.84 MHz		
CPICH_RSCP	dBm	n.	a.	n.	a.	-82	-77	
PCCPCH_RSCP	dBm	-70	-75			n.a.	n.a.	
Cell_selection_and reselection_quality _measure			CPICH	_RSCP		CPICH	_RSCP	
Qrxlevmin	dBm		-1	02		-1	15	
Qoffset1 _{s,n}	dB		C1, C	2: -12	•	C2, C	1: +12	
Qhyst1 _s	dB	0			•	()	
Treselection	S	0				()	
Propagation Condition			AW	'GN		AW	'GN	

A.4.2.3.2 Test Requirements

A.4.2.3.2.1 3.84 Mcps TDD option

The cell re-selection delay is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 2, and starts to send preambles on the PRACH for sending the RRC CONNECTION REQUEST message to perform a Location Registration on cell 2.

The cell re-selection delay shall be less than 8 s.

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

NOTE:

The cell re-selection delay can be expressed as: $T_{\text{evaluateFDD}} + T_{\text{SI}}$, where:

T_{evaluateFDD} See Table 4.1 in section 4.2.2.

T_{SI} Maximum repetition rate 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.

A.4.2.3.2.2 1.28 Mcps TDD option

The cell re-selection delay is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 2, and starts to send preambles on the PRACH for sending the RRC CONNECTION REQUEST message to perform a Location Registration on cell 2.

The cell re-selection delay shall be less than 8 s.

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

NOTE: The cell re-selection delay can be expressed as:

 $T_{evaluateFDD} + T_{SI}$

where:

T_{evaluateFDD} A DRX cycle length of 1280ms is assumed for this test case, this leads to a T_{evaluate FDD} of 6.4s

according to Table 4.1A in section 4.2.

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 7.68 s, allow 8s in the test case.

A.4.2.3.2.3 7.68 Mcps TDD option

The cell re-selection delay is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 2, and starts to send preambles on the PRACH for sending the RRC CONNECTION REQUEST message to perform a Location Registration on cell 2.

The cell re-selection delay shall be less than 8 s.

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

NOTE:

The cell re-selection delay can be expressed as:

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

 $T_{evaluateFDD}$ A DRX cycle length of 1280ms is assumed for this test case, this leads to a $T_{evaluateFDD}$ of 6.4s

according to Table 4.1B in section 4.2.

T_{SI} Maximum repetition rate 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.

A.4.2.4 Scenario 4: inter RAT cell re-selection

A.4.2.4.1 Test Purpose and Environment

A.4.2.4.1.1 3.84 Mcps TDD option

This test is to verify the requirement for the UTRA TDD to GSM cell re-selection delay reported in section 4.2.

This scenario implies the presence of 1 UTRA TDD serving cell, and 1 GSM cell to be re-selected. The UE is requested to monitor neighbouring cells on 1 UTRA TDD carrier and 12 GSM cells. Test parameters are given in Table, A.4.7, A.4.8, A.4.9. Cell 1 and Cell 2 shall belong to different Location Areas.

For this test environment the ranking/mapping function indicated in the broadcast of cell 1 shall be in such a way as to enable the UE to evaluate that the TDD cell 1 is better ranked as the GSM cell 2 during T1 and the GSM cell 2 is better ranked than the TDD cell 1 during T2.

Table A.4.7: General test parameters for UTRAN to GSM Cell Re-selection

Parameter		Unit	Value	Comment
Initial condition	Active cell		Cell1	UTRA TDD Cell
	Neighbour cell		Cell2	GSM Cell
Final condition	Active cell		Cell2	
HC	HCS		Not used	
DRX cycle length		S	1,28	UTRA TDD cell
T1		S	45	
T	2	S	35	

Table A.4.8: Cell re-selection UTRA TDD to GSM cell case (cell 1)

Parameter	Unit	Cell 1 (UTRA TDD)				
Timeslot Number		C)	8		
		T1	T2	T1	T2	
UTRA RF Channel Number		Chan	nel 1	Char	Channel 1	
PCCPCH_Ec/lor	dB	-3	-3			
SCH_Ec/lor	dB	-9	-9	-9	-9	
SCH_t _{offset}		0	0	0	0	
PICH_Ec/lor	dB			-3	-3	
OCNS_Ec/lor	dB	-3,12	-3,12	-3,12	-3,12	
\hat{I}_{or}/I_{oc}	dB	3	-2	3	-2	
I_{oc}	dBm/3, 84 MHz	-70 -7		70		
PCCPCH RSCP	dBm	-70	-75	n.a.	n.a.	
Propagation Condition		AWGN AWGN		/GN		
Qrxlevmin	dBm		-1	02		
Qoffset1 _{s, n}	dB	C1, C2: 0				
Qhyst1	dB	0				
Treselection	S		()		
Ssearch _{RAT}	dB		not	sent		

Table A.4.9: Cell re-selection UTRA TDD to GSM cell case (cell 2)

Parameter	Unit	Cell 2 (GSM)		
Farameter	Onit	T1	T2	
Absolute RF Channel Number		ARFCN 1		
RXLEV	dBm	-90 -75		
RXLEV_ACCESS_MIN	dBm	-104		
MS_TXPWR_MAX_CCH	dBm	33		

A.4.2.4.1.2 1.28 Mcps TDD option

This test is to verify the requirement for the UTRAN to GSM cell re-selection delay reported in section 4.2.

This scenario implies the presence of 1 UTRAN serving cell, and 1 GSM cell to be re-selected. Test parameters are given in Table A.4.7A, A.4.8A, A.4.9A.

The ranking of the cells shall be made according to the cell reselection criteria specified in TS25.304. Cell 1 and cell 2 shall belong to different location areas.

Table A.4.7A: General test parameters for UTRAN (1.28 Mcps TDD OPTION) to GSM Cell Re-selection

Parameter		Unit	Value	Comment
Initial condition	Active cell		Cell1	1.28 Mcps TDD OPTION cell
	Neighbour cell		Cell2	GSM cell
Final condition	Active cell		Cell2	GSM cell
DRX	cycle length	S	1,28	
	HCS		Not used	
T1		S	45	
	T2		15	

Table A.4 8A: Cell re-selection UTRAN to GSM cell case (cell 1)

Parameter	Unit		Cell 1	(UTRA)		
Timeslot Number		C)	Dwl	PTS	
		T1	T2	T1	T2	
UTRA RF Channel Number*		Channel 1 Channel		nnel 1		
PCCPCH_Ec/lor	dB	-3	-3			
DwPCH_Ec/lor	dB			0	0	
OCNS_Ec/lor	dB	-3	-3			
\hat{I}_{or}/I_{oc}	dB	13	-12	13	-12	
I_{oc}	dBm/1. 28 MHz	-80				
PCCPCH RSCP	dBm	-70	-95	n.a.	n.a.	
Propagation Condition		AWGN AWGN		/GN		
Treselection	S			0		
Ssearch _{RAT}	dB		Not	sent		
Qrxlevmin	dBm		-103			
Qoffset1 _{s,n}	dB		C1, (C2: 0		
Qhyst1 _s	dB	0				
* Note: In the case of multi-frequency cell, the UTRA RF Channel Number is the primary frequency"s channel number.						

Table A.4.9A: Cell re-selection UTRAN to GSM cell case (cell 2)

Parameter	Unit	Cell 2 (GSM)	
	Oilit	T1	T2
Absolute RF Channel Number		ARFCN 1	
RXLEV	dBm	-75	-75
RXLEV_ACCESS_MIN	dBm	-1	04
MS_TXPWR_MAX_CCH	dBm	3	3

A.4.2.4.1.3 7.68 Mcps TDD option

This test is to verify the requirement for the UTRA TDD to GSM cell re-selection delay reported in section 4.2.

This scenario implies the presence of 1 UTRA TDD serving cell, and 1 GSM cell to be re-selected. The UE is requested to monitor neighbouring cells on 1 UTRA TDD carrier and 12 GSM cells. Test parameters are given in Table, A.4.7B, A.4.8B, A.4.9B. Cell 1 and Cell 2 shall belong to different Location Areas.

For this test environment the ranking/mapping function indicated in the broadcast of cell 1 shall be in such a way as to enable the UE to evaluate that the TDD cell 1 is better ranked as the GSM cell 2 during T1 and the GSM cell 2 is better ranked than the TDD cell 1 during T2.

Table A.4.7B: General test parameters for UTRAN to GSM Cell Re-selection

Parameter		Unit	Value	Comment
Initial condition	Active cell		Cell1	UTRA TDD Cell
	Neighbour cell		Cell2	GSM Cell
Final condition	Active cell		Cell2	
HC	HCS		Not used	
DRX cycle length		S	1,28	UTRA TDD cell
T1		S	45	
T:	2	S	35	

Table A.4.8B: Cell re-selection UTRA TDD to GSM cell case (cell 1)

Parameter	Unit	Cell 1 (UTRA TDD)			
Timeslot Number		0		8	
		T1	T2	T1	T2
UTRA RF Channel Number		Chan	nel 1	Char	nel 1
PCCPCH_Ec/lor	dB	-3	-3		
SCH_Ec/lor	dB	-9	-9	-9	-9
SCH_t _{offset}		0	0	0	0
PICH_Ec/lor	dB			-3	-3
OCNS_Ec/lor	dB	-3,12	-3,12	-3,12	-3,12
\hat{I}_{or}/I_{oc}	dB	3	-2	3	-2
I_{oc}	dBm/7, 68 MHz	-7	0	-70	
PCCPCH RSCP	dBm	-70	-75	n.a.	n.a.
Propagation Condition		AWGN AWGN		/GN	
Qrxlevmin	dBm		-1	02	
Qoffset1 _{s, n}	dB	C1, C2: 0		·	
Qhyst1	dB	0		·	
Treselection	S		()	
Ssearch _{RAT}	dB		not	sent	

Table A.4.9B: Cell re-selection UTRA TDD to GSM cell case (cell 2)

Parameter	Unit	Cell 2 (GSM)		
Farameter	Onit	T1	T2	
Absolute RF Channel Number		ARFCN 1		
RXLEV	dBm	-90 -75		
RXLEV_ACCESS_MIN	dBm	-104		
MS_TXPWR_MAX_CCH	dBm	33		

A.4.2.4.2 Test Requirements

A.4.2.4.2.1 3.84 Mpcs TDD option

The cell re-selection delay is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 2, and starts to send the RR Channel Request message for location update to Cell 2.

The cell re-selection delay shall be less than $26 \text{ s} + T_{BCCH}$, where T_{BCCH} is the maximum time allowed to read BCCH data in the GSM cell [21].

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

NOTE: The cell re-selection delay can be expressed as:

$$4 * T_{measureGSM} + T_{BCCH}$$

where:

T_{measureGSM} Equal to the value specified in Table 4.1 in section 4.2

T_{BCCH} Equal to 1.9 s, i.e. the maximum time allowed to read BCCH data when synchronised to a BCCH

carrier from a GSM cell [21].

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

A.4.2.4.2.2 1.28 Mpcs TDD option

The cell re-selection delay is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 2, and starts to send RR Channel Request message to perform a Location update.

The cell re-selection delay shall be less than $8 \text{ s} + T_{BCCH}$ where T_{BCCH} is the maximum time allowed to read BCCH data from GSM cell [21].

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

NOTE: The cell re-selection delay can be expressed as:

 $Max(3*T_{measure\,NTDD}$, $T_{measure\,GSM}\!+\!1DRX)\!+\,T_{BCCH}$

where:

 $T_{measureNTDD}$ A DRX cycle length of 1280ms is assumed for this test case, this leads to a $T_{measureNTDD}$ of 1.28s

according to Table 4.1A in section 4.2.

 $T_{measureGSM}$ A DRX cycle length of 1280ms is assumed for this test case, this leads to a $T_{measureGSM}$ of 6.4s

according to Table 4.1A in section 4.2.

DRX cycle length 1.28s is assumed, see Table A.4.1A

T_{BCCH} Maximum time allowed to read BCCH data from GSM cell [20].

According to [21], 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 7.68s $+T_{BCCH}$, thus allow 8s $+T_{BCCH}$.

A.4.2.4.2.3 7.68 Mpcs TDD option

The cell re-selection delay is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 2, and starts to send the RR Channel Request message for location update to Cell 2.

The cell re-selection delay shall be less than $26 \text{ s} + T_{BCCH}$, where T_{BCCH} is the maximum time allowed to read BCCH data in the GSM cell [21].

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

NOTE: The cell re-selection delay can be expressed as:

 $4 * T_{measureGSM} + T_{BCCH}$

where:

T_{measureGSM} Equal to the value specified in Table 4.1B in section 4.2

T_{RCCH} Equal to 1.9 s, i.e. the maximum time allowed to read BCCH data when synchronised to a BCCH

carrier from a GSM cell [21].

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

A.4.2.4.3 Scenario 4A Test Purpose and Environment

A.4.2.4.3.1 (void)

A.4.2.4.3.2 1.28 Mcps TDD option

This test is to verify the requirement for the UTRAN to GSM cell re-selection delay reported in section 4.2.

This scenario implies the presence of 1 UTRAN serving cell, and 1 GSM cell to be re-selected. Test parameters are given in Table A.4.10A, A.4.11A, A.4.12A.

The ranking of the cells shall be made according to the cell reselection criteria specified in TS25.304. Cell 1 and cell 2 shall belong to different location areas.

Table A.4.10A: General test parameters for UTRAN (1.28 Mcps TDD OPTION) to GSM Cell Reselection

Parameter		Unit	Value	Comment
Initial condition	Active cell		Cell1	1.28 Mcps TDD OPTION cell
	Neighbour cell		Cell2	GSM cell
Final condition	Active cell		Cell2	GSM cell
DRX c	ycle length	S	1,28	
	HCS		Not Used	
T1		S	45	
T2		S	45	

Table A.4 11A: Cell re-selection UTRAN to GSM cell case (cell 1)

Parameter	Unit	Cell 1 (UTRA)				
Timeslot Number		C)	Dwl	PTS	
		T1	T2	T1	T2	
UTRA RF Channel Number (NOTE)		Channel 1 Channel		nnel 1		
PCCPCH_Ec/lor	dB	-3	-3			
DwPCH_Ec/lor	dB			0	0	
OCNS_Ec/lor	dB	-3	-3			
\hat{I}_{or}/I_{oc}	dB	6	6	6	6	
I_{oc}	dBm/1. 28 MHz	-80				
PCCPCH RSCP	dBm	-77	-77			
Propagation Condition		AW	'GN	AW	/GN	
Treselection	S			0		
Ssearch _{RAT}	dB		Not	sent		
Qrxlevmin	dBm		-1	03		
Qoffset1 _{s,n}	dB		C1, (C2: 0		
Qhyst1 _s	dB	0				
NOTE: In the case of	NOTE: In the case of multi-frequency cell, the UTRA RF					
Channel Nur number.	Channel Number is the primary frequency"s channel					

Table A.4.12A: Cell re-selection UTRAN to GSM cell case (cell 2)

Parameter	Unit	Cell 2 (GSM)		
	Offic	T1	T2	
Absolute RF Channel Number		ARFCN 1		
RXLEV	dBm	-90	-70	
RXLEV_ACCESS_MIN	dBm	-104		
MS_TXPWR_MAX_CCH	dBm	3	3	

A.4.2.4.4 Scenario 4A Requirements

A.4.2.4.4.1 (void)

A.4.2.4.4.2 1.28 Mpcs TDD option

The cell re-selection delay is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 2, and starts to send RR Channel Request message for location update to Cell 2.

The cell re-selection delay shall be less than 26 s+ T_{BCCH} , where T_{BCCH} is the maximum time allowed to read BCCH data from GSM cell [21].

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

NOTE: The UE shall keep a running average of 4 measurements, thus gives 4* T_{measureGSM} +T_{BCCH}, where:

 $T_{measureGSM}$ A DRX cycle length of 1280ms is assumed for this test case, this leads to a $T_{measureGSM}$ of 6.4s according to Table 4.1A in section 4.2.

T_{BCCH} Maximum time allowed to read BCCH data from GSM cell [21].

According to [21], 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 25.6s $+T_{BCCH}$, thus allow 26s $+T_{BCCH}$.

A.4.2.4.5 Scenario 4B: HCS with only UTRA level changed

A.4.2.4.5.1 Test Purpose and Environment

A.4.2.4.5.1.1 3.84 Mcps TDD option

Void.

A.4.2.4.5.1.2 1.28 Mcps TDD option

This test is to verify the requirement for the UTRAN to GSM cell re-selection delay reported in section 4.2 when measurement rules according to HCS is used.

This scenario implies the presence of 1 UTRAN serving cell, and 1 GSM cell to be re-selected. Test parameters are given in Table A.4.13B, A.4.14B, A.4.15B.

Cell 1 and cell 2 shall belong to different location areas.

Table A.4.13B: General test parameters for UTRAN (1.28 Mcps TDD option) to GSM Cell Re-selection

Parameter		Unit	Value	Comment
Initial condition	Active cell		Cell1	1.28 Mcps TDD option cell
	Neighbour cell		Cell2	GSM cell
Final condition	nal condition Active cell		Cell2	GSM cell
DRX c	ycle length	S	1,28	
	HCS		Used	
T1		S	45	
	T2	S	45	

Table A.4 14B: Cell re-selection UTRAN to GSM cell case (cell 1)

Parameter	Unit	Cell 1 (UTRA)				
Timeslot Number		C)	Dw	PTS	
		T1	T2	T1	T2	
UTRA RF Channel Number (NOTE)		Chan	nel 1	Channel 1		
PCCPCH_Ec/lor	dB	-3	-3			
DwPCH_Ec/lor	dB			0	0	
OCNS_Ec/lor	dB	-3	-3			
\hat{I}_{or}/I_{oc}	dB	13	-12	13	-12	
I_{oc}	dBm/1. 28 MHz	-80				
PCCPCH RSCP	dBm	-70	-95			
Propagation Condition		AWGN AWGN			/GN	
Treselection	S			0		
Ssearch _{RAT}	dB		Not	sent		
Qrxlevmin	dBm		-1	03		
Qoffset1 _{s,n}	dB		C1, (C2: 0		
Qhyst1 _s	dB		()		
T _{reselection}	S		()		
Ssearch _{RAT}	dB		()		
Penalty_time	S		0 (defau	ılt value)		
HCS_PRIO				ılt value)		
Q _{hcs}			0 (defau	ılt value)		
T _{Crmax}	S	not	used (de	efault va	lue)	
NOTE: In the case of	of multi-freq	uency ce	ell, the U	TRA RF		

NOTE: In the case of multi-frequency cell, the UTRA RF Channel Number is the primary frequency"s channel number.

Table A.4.15B: Cell re-selection UTRAN to GSM cell case (cell 2)

Parameter	Unit	Cell 2	(GSM)	
	Offic	T1	T2	
Absolute RF Channel Number		ARFCN 1		
RXLEV	dBm	-80	-80	
RXLEV_ACCESS_MIN	dBm	-104		
MS_TXPWR_MAX_CCH	dBm	33		
Qsearch_I		always		

A.4.2.4.5.1.3 7.68 Mcps TDD option

Void.

A.4.2.4.5.2 Requirements

A.4.2.4.5.2.1 3.84 Mcps TDD option

Void.

A.4.2.4.5.2.2 1.28 Mcps TDD option

The cell re-selection delay is defined as the time from when the cell quality levels change to the moment when this change makes the UE reselect a cell, and starts to send LOCATION UPDATING REQUEST message to perform a Location update to the new cell.

The cell re-selection delay shall be less than 37.7 s+ T_{BCCH} , where T_{BCCH} is the maximum time allowed to read BCCH data from GSM cell.

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

NOTE: The cell re-selection delay can be expressed as: $30 \text{ s} + T_{\text{measureGSM}} + DRX$ cycle length $+ T_{\text{BCCH}}$, where::

 $T_{measureGSM}$ A DRX cycle length of 1280ms is assumed for this test case, this leads to a $T_{measureGSM}$ of 6.4s according to Table 4.1A in section 4.2.

DRX cycle length A DRX cycle length of 1280ms is assumed for this test case.

T_{BCCH} Maximum time allowed to read BCCH data from GSM cell.

The maximum time allowed to read the BCCH data, when being synchronized to a BCCH carrier, is 1.9 s.

This gives a total of 37.68 s $+T_{BCCH}$, thus allow 37.7 s $+T_{BCCH}$.

A.4.2.4.5.2.3 7.68 Mcps TDD option

Void.

A.4.2.5 Scenario 5: TDD/E-UTRA cell re-selection

A.4.2.5.1 UTRA to E-UTRA TDD cell re-selection: E-UTRA is of higher priority

A.4.2.5.1.1 Test Purpose and Environment

A.4.2.5.1.1.1 3.84 Mcps TDD option

A.4.2.5.1.1.2 1.28 Mcps TDD option

This test is to verify the requirement for the UTRA TDD to E-UTRA TDD inter-RAT cell re-selection requirements specified in section 4.2.2.5a when the E-UTRA cell is of higher priority.

This test scenario comprised of 1 UTRA TDD serving cell, and 1 E-UTRA TDD cell to be re-selected. Test parameters are given in table A.4.2.5.1.1.2-1, A.4.2.5.1.1.2-2, and A.4.2.5.1.1.2-3. The test consists of three successive time periods, with time duration of T1, T2 and T3 respectively. UTRA cell 1 is already identified by the UE prior to the start of the test. At T1 the UE is camped on to cell 1. Cell 2 is of higher priority than cell 1.

The ranking of the cells shall be made according to the cell reselection criteria specified in TS25.304.

Table A.4.2.5.1.1.2-1: General test parameters for UTRAN (1.28 Mcps TDD OPTION) to E-UTRAN TDD Cell Re-selection

Para	meter	Unit	Value	Comment
Initial	Active cell		Cell 1	UE is on cell 1 in the initialisation phase, so that reselection to
condition				cell 2 occurs during the first T2 phase
T2 end	Active cell		Cell 2	UE shall perform reselection to cell 2 during T2
condition Neighbour cell			Cell 1	UTRA 1.28 Mcps TDD option cell
T3 end	Active cell		Cell 1	UE shall perform reselection to cell 1 during T3
condition	Neighbour cell		Cell 2	E-UTRA TDD cell
Uplink-downl			1	As specified in table 4.2.2 in TS 36.211
Special subframe configuration of cell 2			6	As specified in table 4.2.1 in TS 36.211
PRACH configuration of cell 2			53	As specified in table 4.7.1-3 in TS 36.211
CP length of	cell 2		Normal	
Time offset b	etween cells		3 ms	Asynchronous cells
Access Barri	ng	-	Not	No additional delays in random access procedure.
Information			sent	
Treselection		S	0	
DRX cycle le	ngth	S	1,28	
HCS			Not used	
T1		S	>20	During T1, cell 2 shall be powered off, and during the off time the physical layer cell identity shall be changed, The intention is to ensure that cell 2 has not been detected by the UE prior to the start of period T2
T2		S	85	T2 need to be defined so that cell re-selection reaction time is taken into account.
Т3		S	25	T3 need to be defined so that cell re-selection reaction time is taken into account.

Table A.4.2.5.1.1.2-2: Cell specific test parameters for cell re-selection UTRA TDD to E-UTRA TDD test case (cell 1)

Unit	Cell 1 (UTRA)						
	0 DwPTS					}	
	T1	T2	T3	T1	T2	T3	
			Chan	nel 1			
dB	-3	-3	-3				
dB				0	0	0	
dB	-3	-3	-3				
dB	11	11	11	11	11	11	
dBm/1.28 MHz			-8	30	0		
dBm	-72	-72	-72		n.a.		
			AW	'GN			
dBm			-1	03			
dB			C1, (C2: 0			
dB			()			
dB			46 (-9	4dBm)			
dB	24 (-79dBm)						
dB	0						
dB			Not :	send			
	dB dB dB dB MHz dBm dB dB dB dB dB	dB -3 dB dB 11 dBm/1.28 MHz dBm -72 dBm dB	O T1 T2	O	O	O	

Note1: In the case of multi-frequency cell, the UTRA RF Channel Number is the primary frequency"s channel number.

Note2: This refers to the value of $\mathsf{Thresh}_{\mathsf{x},\,\mathsf{high}}$ which is included in UTRA system information, and is a threshold for the E-UTRA target cell

Table A.4.2.5.1.1.2-3: Cell specific test parameters for cell re-selection UTRA TDD to E-UTRA TDD test case (cell 2)

Parameter	Unit	Cell 2				
		T1	T2	Т3		
E-UTRA RF Channel			2			
Number						
BWchannel	MHz		10			
PBCH_RA	dB					
PBCH_RB	dB					
PSS_RB	dB					
SSS_RB	dB					
PCFICH_PA	dB					
PHICH_PA	dB					
PHICH_PB	dB	0	0	0		
PDCCH_PA	dB					
PDCCH_PB	dB					
PDSCH_PA	dB					
PDSCH_PB	dB					
OCNG_RA ^{Note 1}	dB					
OCNG_RB ^{Note 1}	dB					
$Q_{rxlevmin}$	dBm/15kHz	-140	-140	-140		
N_{oc}	dBm/15kHz		-98			
RSRP	dBm/15kHz	-inf	-87	-101		
${ m \hat{E}}_{ m s}/{ m I}_{ m ot}$	dB	-inf	-inf 11			
S _{nonintrasearch}	dB	Not sent				
Thresh Note2	dB	46 (-94dBm)				
Thresh _{x, low} Note2	dB	24 (-79dBm)				
Propagation Condition			AWGN			
Note 1: OCNG shall be use	I ad such that call is	tully alloca		constant		

Note 1: OCNG shall be used such that cell is fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols.

Note2: This refers to the value of Thresh_{x, low} which is included in E-UTRA system information, and is a threshold for the UTRA target cell

A.4.2.5.1.1.3 7.68 Mcps TDD option

A.4.2.5.1.2 Test Requirements

A.4.2.5.1.2.1 3.84 Mpcs TDD option

A.4.2.5.1.2.2 1.28 Mpcs TDD option

The cell reselection delay to higher priority is defined as the time from the beginning of time period T2, to the moment when the UE camps on cell 2, and starts to send preambles on the PRACH for sending the RRC CONNECTION REQUEST message on cell 2.

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

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

NOTE: The cell re-selection delay to higher priority cell can be expressed as: $T_{higher_priority_search} + T_{evaluateE-UTRA} + T_{SI}$,

Where:

 $T_{higher_priority_search}$ 60s, See section 4.2.2.5a

T_{evaluateE-UTRA} 19.2s, See Table 4.2A in section 4.2.2.7

T_{SI} Maximum repetition period of relevant system info blocks that needs to be received by the UE to camp on a cell; 1280 ms is assumed in this test case.

This gives a total of 80.48 s, allow 81 s for higher priority cell reselection in the test case.

A.4.2.5.1.2.3 7.68 Mpcs TDD option

A.4.2.5.2 UTRA to E-UTRA TDD cell re-selection: E-UTRA is of lower priority

A.4.2.5.2.1 Test Purpose and Environment

A.4.2.5.2.1.1 3.84 Mcps TDD option

A.4.2.5.2.1.2 1.28 Mcps TDD option

This test is to verify the requirement for the UTRA TDD to E-UTRA TDD inter-RAT cell re-selection requirements specified in section 4.2.2.5a when the E-UTRA cell is of lower priority.

This test scenario comprised of 1 UTRA TDD serving cell, and 1 E-UTRA TDD cell to be re-selected. Test parameters are given in table A.4.2.5.2.1.2-1, A.4.2.5.2.1.2-2, and A.4.2.5.2.1.2-3. The test consists of two successive time periods, with time duration of T1 and T2 respectively. At T1 the UE is camped on to cell 1. Cell 2 is of lower priority than cell 1.

The ranking of the cells shall be made according to the cell reselection criteria specified in TS25.304.

Table A.4.2.5.2.1.2-1: General test parameters for UTRAN (1.28 Mcps TDD OPTION) to E-UTRAN TDD Cell Re-selection

Paran	neter	Unit	Value	Comment
Initial condition	Active cell		Cell 1	UTRA 1.28 Mcps TDD option cell
T1 end Active cell			Cell1	UE shall perform reselection to cell 1 during T1 for
condition				subsequent iterations of the test.
	Neighbour cell		Cell2	E-UTRA TDD cell
T2 end	Active cell		Cell2	UE shall perform reselection to cell 2 during T2
condition	Neighbour cell		Cell1	UTRA 1.28 Mcps TDD option cell
Uplink-downlink of cell 2	configuration of		1	As specified in table 4.2.2 in TS 36.211
Special subframe of cell 2	e configuration		6	As specified in table 4.2.1 in TS 36.211
PRACH configura	PRACH configuration of cell 2		53	As specified in table 4.7.1-3 in TS 36.211
CP length of cell	2		Normal	
Time offset between	een cells		3 ms	Asynchronous cells
Access Barring In	nformation	-	Not	No additional delays in random access procedure.
			sent	
Treselection		S	0	
DRX cycle length	1	S	1,28	
HCS			Not	
			used	
T1		S	85	T1 need to be defined so that cell re-selection reaction time is taken into account.
T2		S	25	T2 need to be defined so that cell re-selection reaction time is taken into account.

Table A.4.2.5.2.1.2-2: Cell specific test parameters for cell re-selection UTRA TDD to E-UTRA TDD test case (cell 1)

Parameter	Unit	Cell 1 (UTRA)					
Timeslot Number		0		Dwl	PTS		
		T1 T2		T1	T2		
UTRA RF Channel Number Note1		Channel 1					
PCCPCH_Ec/lor	dB	-3	-3				
DwPCH_Ec/lor	dB			0	0		
OCNS_Ec/lor	dB	-3	-3				
\hat{I}_{or}/I_{oc}	dB	11 -3		11	-3		
I_{oc}	dBm/1.28 MHz	-80					
PCCPCH RSCP	dBm	-72	-86	n.a.	n.a.		
Propagation Condition			AW	'GN			
Q _{rxlevmin}	dBm		-1	03			
Qoffset1 _{s,n}	dB		C1, (C2: 0			
Q _{hyst1s}	dB		()			
Thresh Note2	dB	24 (-79dBm)					
Thresh _{x, low} Note2	dB	46 (-94dBm)					
Sprioritysearch1	dB	62					
Sprioritysearch2	dB	0					
Ssearch _{E-UTRA}	dB		Not :	send			

In the case of multi-frequency cell, the UTRA RF Channel Number is the primary frequency"s channel number. This refers to the value of Thresh_{x, low} which is included in Note1:

Note2:

UTRA system information, and is a threshold for the E-

UTRA target cell

Table A.4.2.5.2.1.2-3: Cell specific test parameters for cell re-selection UTRA TDD to E-UTRA TDD test case (cell 2)

Parameter	Unit	Се	II 2	
		T1	T2	
E-UTRA RF Channel		2		
Number				
BW _{channel}	MHz	1	0	
PBCH_RA	dB			
PBCH_RB	dB			
PSS_RB	dB			
SSS_RB	dB			
PCFICH_PA	dB			
PHICH_PA	dB			
PHICH_PB	dB	0	0	
PDCCH_PA	dB			
PDCCH_PB	dB			
PDSCH_PA	dB			
PDSCH_PB	dB			
OCNG_RA ^{Note1}	dB			
OCNG_RB ^{Note1}	dB			
Q _{rxlevmin}	dBm/15kHz	-140	-140	
N_{oc}	dBm/15kHz	-9	8	
RSRP	dBm/15kHz	-87	-87	
\hat{E}_{s}/I_{ot}	dB	11	11	
Thresh _{x, high} Note2	dB	24(-79	9dBm)	
S _{nonintrasearch}	dB	4	6	
Propagation Condition		AW	GN	
Natati OCNO aball bassa		f II II t I		

Note1: OCNG shall be used such that cell is fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols.

Note2: This refers to the value of Thresh_{x, high} which is included in E-UTRA system information, and is a threshold for the UTRA target cell

A.4.2.5.2.1.3 7.68 Mcps TDD option

A.4.2.5.2.2 Test Requirements

A.4.2.5.2.2.1 3.84 Mpcs TDD option

A.4.2.5.2.2.2 1.28 Mpcs TDD option

The cell reselection delay to lower priority is defined as the time from the beginning of time period T2, to the moment when the UE camps on cell 2, and starts to send preambles on the PRACH for sending the RRC CONNECTION REQUEST message on cell 2.

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

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

NOTE: The cell re-selection delay to lower priority cell can be expressed as: $T_{\text{evaluateE-UTRA}} + T_{\text{SI}}$,

Where:

 $T_{evaluate E-UTRA}$ 19.2s, See Table 4.2A in section 4.2.2.7

T_{SI} Maximum repetition period of relevant system info blocks that needs to be received by the UE to camp on a cell; 1280 ms is assumed in this test case.

This gives a total of 20.48 s, allow 21 s for lower priority cell reselection in the test case.

A.4.2.5.2.2.3 7.68 Mpcs TDD option

A.5 UTRAN Connected Mode Mobility

A.5.1 TDD/TDD Handover

A.5.1.1 3.84Mcps TDD option

A.5.1.1.1 Handover to intra-frequency cell

A.5.1.1.1.1 Test Purpose and Environment

The purpose of this test is to verify the requirement for the intra-frequency handover delay in CELL_DCH state in the single carrier case reported in section 5.1.2.1.

The test parameters are given in Table A.5.1.1 and A.5.1.2 below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 1G shall be used, and that P-CCPCH RSCP and SFN-CFN observed timed difference shall be reported together with Event 1G. 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 message with activation time "now" with a new active cell, cell 2. The Physical Channel reconfiguration message shall be sent to the UE during period T2, after the UE has reported event 1G. The starting point of T3 is definied as the end of the last TTI containing the physical channel reconfiguration message.

The second Beacon timeslot shall be provided in timeslot 8 for both cell 1 and cell 2. The UL DPCH shall be transmitted in timeslot 12.

Table A.5.1.1: General test parameters for Handover to intra-frequency cell

Par	ameter	Unit	Value	Comment
DCH parameters			DL and UL Reference	As specified in TS 25.102 section A.2.2
_			Measurement Channel 12.2 kbps	and A.2.1
Power Contr	ol		On	
Target qualit	y value on	BLER	0.01	
Initial	Active cell		Cell 1	
conditions	Neighbour cell		Cell 2	
Final condition	Active cell		Cell 2	
HCS			Not used	
0		dB	0	Cell individual offset. This value shall be used for all cells in the test.
Hysteresis		dB	0	
Time to Trigg	ger	ms	0	
Filter coeffici	ent		0	
Monitored cell list size			6 TDD neighbours on Channel 1	
T1		S	10	
T2		S	10	
T3		S	10	

Table A.5.1.2: Cell specific test parameters for Handover to intra-frequency cell

Parameter	Unit		Cell 1 Cell 2											
DL timeslot number			0			4			0			5		
		T1	T2	T3	T1	T2	T3	T1	T2	T3	T1	T2	T3	
UTRA RF Channel Number			Channel 1					Channel 1						
PCCPCH_Ec/lor	dB		-3			n.a.			-3			n.a		
SCH_Ec/lor	dB		-9			n.a.			-9			n.a.		
SCH_t _{offset}	dB		0			n.a.		5			n.a.			
DPCH_Ec/lor	dB		n.a.		Not	e 1	n.a.	n.a.		n	.a.	Note 1		
OCNS_Ec/lor	dB		-3,12		Not	e 2	n.a.	n.a.	-3,	12	n	.a.	Note 2	
\hat{I}_{or}/I_{oc}	dB				1		-Inf.	;	3	-1	nf.	3		
PCCPCH RSCP	dBm		-72			n.a.		-Inf.	-7	70		n.a		
I_{oc}	dBm/ 3,84 MHz		-70											
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 lor .

A.5.1.1.1.2 Test Requirements

The UE shall start to transmit the UL DPCH to Cell 2 less than 160 ms from the beginning of time period T3.

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

A.5.1.1.2 Handover to inter-frequency cell

A.5.1.1.2.1 Test Purpose and Environment

The purpose of this test is to verify the requirement for the inter-frequency handover delay in CELL_DCH state in the dual carrier case reported in section 5.1.2.1.

The test consists of two successive time periods, with a time duration T1 and T2. The test parameters are given in tables A.5.1.3 and A.5.1.4 below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 2C shall be used. The PCCPCH RSCP and SFN-CFN observed time difference 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 message with activation time "now" with one active cell, cell 2. The Physical Channel reconfiguration message shall be sent to the UE during period T2, after the UE has reported event 2C. The starting point of T3 is defined as the end of the last TTI containing the physical channel reconfiguration message.

The second Beacon timeslot shall be provided in timeslot 8 for cell 1 and in timeslot 10 for cell 2. The UL DPCH shall be transmitted in timeslot 12.

Table A.5.1.3: General test parameters for Handover to inter-frequency cell

Para	ameter	Unit	Value	Comment
DCH parame	eters		DL and UL Reference Measurement Channel 12.2 kbps	As specified in TS 25.102 section A.2.2 and A.2.1
Danier Oanto	_1			allu A.Z. I
Power Contro			On	
Target quality DTCH	y value on	BLER	0.01	
Initial	Active cell		Cell 1	
conditions	cell		Cell 2	
Final condition	Active cell		Cell 2	
HCS			Not used	
0		dB	0	Cell individual offset. This value shall be used for all cells in the test.
Hysteresis		dB	0	Hysteresis parameter for event 2C
Time to Trigg	jer	ms	0	
Threshold no frequency	n-used	dBm	-80	Applicable for Event 2C
Filter coeffici	ent		0	
Monitored ce			6 TDD neighbours on Channel 1 6 TDD neighbours on Channel 2	
T _{SI}		S	1.28	The value shall be used for all cells in the test.
T1		S	10	
T2		S	10	
T3		S	10	

TableA.5.1.4: Cell Specific parameters for Handover to inter-frequency cell

Parameter	Unit		Cell 1 Cell 2											
DL timeslot number		0				4			2			5		
		T1	T2	T3	T1	T2	T3	T1	T2	T3	T1	T2	T3	
UTRA RF Channel Number			Channel 1					Channel 2						
PCCPCH_Ec/lor	dB		-3			n.a.			-3			n.a		
SCH_Ec/lor	dB		-9			n.a.			-9			n.a.		
SCH_t _{offset}	dB		0			n.a.			5		n.a.			
DPCH_Ec/lor	dB		n.a.		Note	e 1	n.a.	n.a.			n.a	a.	Note 1	
OCNS_Ec/lor	dB		-3,12		Note	e 2	n.a.	n.a.	-3	,12	n.a	a.	Note 2	
\hat{I}_{or}/I_{oc}	dB				1			-Inf.		7	-Ir	ıf.	7	
PCCPCH RSCP	dBm	-72				n.a.		-Inf.	-6	66		n.a		
I_{oc}	dBm/ 3,84 MHz	-70												
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 lor .

A.5.1.1.2.2 Test Requirements

The UE shall start to transmit the UL DPCH to Cell 2 less than 160 ms from the beginning of time period T2.

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

A.5.1.2 1.28Mcps TDD option

A.5.1.2.1 Handover to intra-frequency cell

A.5.1.2.1.1 Scenario 1

This test case is applicable for UE handovers in single frequency network and UE handovers from primary frequency to primary frequency in multi-frequency network.

A.5.1.2.1.1.1 Test Purpose and Environment

The purpose of this test is to verify the requirement for the intra-frequency handover delay in CELL_DCH state in the case as reported in section 5.1.2.1.2.

The test parameters are given in Table A.5.1.5 and A.5.1.6 below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 1G shall be used, and that PCCPCH RSCP and SFN-CFN observed timed difference shall be reported together with Event 1G. 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" at the beginning of T3 with a new active cell, cell 2. The Physical Channel reconfiguration message shall be sent to the UE during period T2, after the UE has reported event 1G. The starting point of T3 is defined as the end of the last TTI containing the physical channel reconfiguration message.

Table A.5.1.5: General test parameters for intra-frequency handover

Para	ameter	Unit	Value	Comment
DPCH parame	eters		DL and UL Reference	As specified in TS 25.102 section A.2.2.2
			Measurement Channel 12.2	and A.2.1.2
			kbps	
Power Contro			On	
Target quality	value on DPCH	BLER	0.01	
Initial conditions	Active cell		Cell 1	In the case of multi-frequency network, the UE has a RRC connection on the primary frequency in cell 1.
	Neighbouring cell		Cell 2	
Final condition	Active cell		Cell 2	In the case of multifrequency network, UE will handover to the primary frequency in cell 2.
0		dB	0	cell-individual-offset The value shall be used for all cells in the test.
Hysteresis		dB	0	
Time to Trigge	er	ms	0	
Filter coefficie	nt		0	
Monitored cel	list size		6 TDD neighbours on Channel 1	
T1		S	5	
T2		S	5	
T3		S	5	

Table A.5.1.6: Cell specific test parameters for intra-frequency handover

Parameter	Unit		Cell 1								
Timeslot Number			0			DwPTS			5		
		T1 T2 T3			T1	T2	T3	T1	T2	T3	
UTRA RF Channel					Ck	annel 1					
Number(Note3)					Ci	iannei i					
PCCPCH_Ec/lor	dB		-3						n.a.		
DwPCH_Ec/lor			0								
DPCH_Ec/lor	dB		n.a.			n.a.		No	ote1	n.a.	
OCNS_Ec/lor	dB		-3						Note2	2	
\hat{I}_{or}/I_{oc}	dB		3			3			3		
I_{oc}	dBm/ 1.28 MHz		-70								
PCCPCH_RSCP	dBm	-70 n.a. n.a.									
Propagation Condition		AWGN									
Parameter	Unit	Cell 2									
Timeslot Number		0 DwPTS 5									
		T1	T2	T3	T1	T2	T3	T1	T2	T3	
UTRA RF Channel Number(Note3)					Cł	annel 1					
PCCPCH_Ec/lor	dB		-3						n.a.		
DwPCH_Ec/lor						0					
DPCH_Ec/lor	dB		n.a.			n.a.		n	ı.a.	Not e1	
OCNS_Ec/lor	dB		-3						Note2	<u> </u>	
\hat{I}_{or}/I_{oc}	dB	-Inf.	6	6	-Inf.	6	1	-	Inf.	6	
I_{oc}	dBm/ 1.28 MHz					-70					
PCCPCH_RSCP	dBm	-Inf.	-6	67		n.a.			n.a.		
Propagation Condition		AWGN									

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

The power of the OCNS channel that is added shall make the total power from the cell Note 2:

to be equal to I_{or}

Note 3: In the case of multi-frequency network, the UTRA RF Channel Number is the primary frequency"s channel number.

A.5.1.2.1.1.2 **Test Requirements**

The UE shall start to transmit the UL DPCH to cell 2 less than 160 ms from the beginning of time period T3.

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

A.5.1.2.1.2 Scenario 2

This test case is applicable for UE handovers from secondaryly frequency to parimary frequency in the case of multifrequency network.

A.5.1.2.1.2.1 Test Purpose and Environment

The purpose of this test is to verify the requirement for the intra-frequency handover delay in CELL_DCH state in the case as reported in section 5.1.2.1.2.

The test parameters are given in Table A.5.1.5A and A.5.1.6A below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 1G shall be used, and that PCCPCH RSCP and SFN-CFN observed timed difference shall be reported together with Event 1G. 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" at the beginning of T3 with a new active cell, cell 2. The Physical Channel reconfiguration message shall be sent to the UE during period T2, after the UE has reported event 1G. The starting point of T3 is defined as the end of the last TTI containing the physical channel reconfiguration message.

Table A.5.1.5A: General test parameters for intra-frequency handover

Para	meter	Unit	Value	Comment
DPCH parame	eters		DL and UL Reference Measurement Channel 12.2 kbps	As specified in TS 25.102 section A.2.2.2 and A.2.1.2
Power Control			On	
Target quality	value on DPCH	BLER	0.01	
Initial conditions	Active cell		Cell 1	The UE has a RRC connection on the secondary frequency in cell 1.
	Neighbouring cell		Cell 2	
Final condition	Active cell		Cell 2	The UE will handover to the primary frequency in cell 2.
0		dB	0	cell-individual-offset The value shall be used for all cells in the test.
Hysteresis		dB	0	
Time to Trigge	er	ms	0	
Filter coefficie	nt		0	
Monitored cell	Monitored cell list size		6 TDD neighbours on Channel 1	
T1		S	5	
T2	•	S	5	
T3	·	S	5	

Table A.5.1.6A: Cell specific test parameters for intra-frequency handover

Parameter	Unit		Cell 1							
Timeslot Number			0			DwPTS	3	5		
		T1	T2	T3	T1	T2	T3	T1	T2	T3
UTRA RF Channel					Ch	nannel 1	1			
Number(Note3)					Ci	iaililei	·			
UTRA RF Channel					Ch	nannel 2	2			
Number(Note4)						iai ii ici 2				
PCCPCH_Ec/lor	dB		-3						n.a.	
DwPCH_Ec/lor			0							
DPCH_Ec/lor	dB		n.a. n.a.					No	ote1	n.a.
OCNS_Ec/lor	dB		-3 N						Note2	
\hat{I}_{or}/I_{oc}	dB		3			3			3	
7	dBm/									
I_{oc}	1.28		-70							
DOODOLL DOOD	MHz									
PCCPCH_RSCP	dBm	-70 n.a. n.a.								
Propagation Condition	11.74	AWGN								
Parameter	Unit					Cell 2		1		
Timeslot Number		T4	0	T0		DwPTS		T4	<u>5</u>	To
LITERA DE CI		T1	T2	T3	T1	T2	T3	T1	T2	T3
UTRA RF Channel Number(Note3)					Cł	annel 2	2			
UTRA RF Channel					Ch	nannel 1	1			
Number(Note4)					- 01	iaiiici	'			
PCCPCH_Ec/lor	dB		-3						n.a.	
DwPCH_Ec/lor						0				
DPCH_Ec/lor	dB		n.a.			n.a.		n	.a.	Not e1
OCNS_Ec/lor	dB		-3						Note2	
\hat{I}_{or}/I_{oc}	dB	-Inf.	(3	-Inf.	6	5	-1	nf.	6
7	dBm/					70				
I_{oc}	1.28 MHz	-70								
PCCPCH_RSCP	dBm	-Inf.	-6	67		n.a.			n.a.	
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 $I_{\rm or}$

Note3: The UTRA RF Channel Number is the primary frequency"s channel number.

Note3: The UTRA RF Channel Number is the secondary frequency"s channel number.

A.5.1.2.1.2.2 Test Requirements

The UE shall start to transmit the UL DPCH in cell 2 less than 160 ms from the beginning of time period T3.

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

A.5.1.2.2 Handover to inter-frequency cell

A.5.1.2.2.1 Scenario 1

This test case is applicable for UE handovers in single frequency network and UE handovers from primary frequency to the primary frequency in multi-frequency network.

A.5.1.2.2.1.1 Test Purpose and Environment

The purpose of this test is to verify the requirement for the inter-frequency handover delay in CELL_DCH in the case as reported in section 5.1.2.1.2.

The test consists of three successive time periods, with a time duration T1, T2 and T3. The test parameters are given in tables A.5.1.7 and A.5.1.8 below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 2C shall be used. The PCCPCH RSCP and SFN-CFN observed timed difference 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 a new active cell, cell 2. The Physical Channel reconfiguration message shall be sent to the UE during period T2, after the UE has reported event 2C. The starting point of T3 is defined as the end of the last TTI containing the physical channel reconfiguration message.

Table A.5.1.7: General test parameters for inter-frequency handover

Para	meter	Unit	Value	Comment
DPCH para	meters		DL and UL Reference Measurement	As specified in TS 25.102 section A.2.2.2
			Channel 12.2 kbps	and A.2.1.2
Power Cont	rol		On	
Target quali DPCH	ity value on	BLER	0.01	
Initial conditions Active cell			Cell 1	In the case of multi-frequency network, the UE has a RRC connection on the primary frequency in cell 1.
	Neighbour cell		Cell 2	
Final conditions Active cell Cell 2		Cell 2	In the case of multi-frequency network, the UE will handover to the primary frequency in cell 2.	
Threshold n frequency	on used	dBm	-75	Absolute RSCP threshold for event 2C
O		dB	0	cell-individual-offset The value shall be used for all cells in the test.
Hysteresis		dB	0	
Time to Trig	ger	ms	0	
Filter coeffic	cient		0	
Monitored cell list size			6 TDD neighbours on Channel 1 6 TDD neighbours on Channel 2	
T1		S	5	
T2		S	10	
T3		S	5	

TableA.5.1.8: Cell Specific parameters for inter-frequency handover

Parameter	Unit		Cell 1								
Timeslot Number			0			DwPTS	3		5		
		T1	T2	T3	T1	T2	T3	T1	T2	T3	
UTRA RF Channel					Channel 1						
Number(Note 3)					Ci	lannei	ı				
PCCPCH_Ec/lor	dB		-3						n.a.		
DwPCH_Ec/lor						0					
DPCH_Ec/lor	dB		n.a.			n.a.		No	ote1	n.a.	
OCNS_Ec/lor	dB		-3						Note2		
\hat{I}_{or}/I_{oc}	dB		3			3			3		
I_{oc}	dBm/ 1.28 MHz		-70								
PCCPCH_RSCP	dBm		-70 n.a. n.a.								
Propagation Condition		AWGN									
Parameter	Unit				(Cell 2					
Timeslot Number			0			DwPTS	3		5		
		T1	T2	T3	T1	T2	T3	T1	T2	T3	
UTRA RF Channel Number(Note 3)					Ch	annel 2	2				
PCCPCH_Ec/lor	dB		-3						n.a.		
DwPCH_Ec/lor						0					
DPCH_Ec/lor	dB	n.a.				n.a.		n	ı.a.	Not e1	
OCNS_Ec/lor	dB	-3 Note					Note2				
\hat{I}_{or}/I_{oc}	dB	-Inf.	4	1	-Inf.	2	1	-	Inf.	4	
I_{oc}	dBm/ 1.28 MHz					-70					
PCCPCH_RSCP	dBm	-Inf.	-6	89		n.a.			n.a.		
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 $I_{\rm or}$.

Note 3: In the case of multi-frequency network, the UTRA RF Channel Number is the primary frequency"s channel number.

A.5.1.2.2.1.2 Test Requirements

The UE shall start to transmit the UL DPCH to cell 2 less than 160 ms from the beginning of time period T3.

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

A.5.1.2.2.2 Scenario 2

This test case is applicable for UE handovers from secondarhy frequency to parimary frequency in the case of multi-frequency network.

A.5.1.2.2.2.1 Test Purpose and Environment

The purpose of this test is to verify the requirement for the inter-frequency handover delay in CELL_DCH in the case as reported in section 5.1.2.1.2.

The test consists of three successive time periods, with a time duration T1, T2 and T3. The test parameters are given in tables A.5.1.7A and A.5.1.8A below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 2C shall be used. The PCCPCH RSCP and SFN-CFN observed timed difference 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 a new active cell, cell 2. The Physical Channel reconfiguration message shall be sent to the UE during period T2, after the UE has reported event 2C. The starting point of T3 is defined as the end of the last TTI containing the physical channel reconfiguration message.

Table A.5.1.7: General test parameters for inter-frequency handover

Para	meter	Unit	Value	Comment
DPCH para	meters		DL and UL Reference Measurement Channel 12.2 kbps	As specified in TS 25.102 section A.2.2.2 and A.2.1.2
Power Cont	rol		On	
Target quali DPCH	ty value on	BLER	0.01	
Initial conditions	Active cell		Cell 1	The UE has a RRC connection on the secondary frequency in cell 1.
Neighbour cell			Cell 2	
Final Active cell conditions			Cell 2	The UE will handover to the primary frequency in cell 2.
Threshold n frequency	Threshold non used frequency		-75	Absolute RSCP threshold for event 2C
0		dB	0	cell-individual-offset The value shall be used for all cells in the test.
Hysteresis		dB	0	
Time to Trig	ger	ms	0	
Filter coeffic	cient		0	
Monitored cell list size			6 TDD neighbours on Channel 1 6 TDD neighbours on Channel 2	
T1		S	5	
T2		S	10	
T3		S	5	

TableA.5.1.8: Cell Specific parameters for inter-frequency handover

Parameter	Unit		Cell 1							
Timeslot Number			0		DwPTS 5					
		T1	T2	T3	T1	T2	T3	T1	T2	T3
UTRA RF Channel					Ck	nannel 1	I			
Number(Note 3)			Onamie i							
UTRA RF Channel					Ch	nannel 2)			
Number(Note 4)					Ci	iai ii iei z	=	•		
PCCPCH_Ec/lor	dB		-3						n.a.	
DwPCH_Ec/lor			0							
DPCH_Ec/lor	dB		n.a. n.a.						ote1	n.a.
OCNS_Ec/lor	dB		-3 N						Note2	
\hat{I}_{or}/I_{oc}	dB		3			3			3	
	dBm/									
I_{oc}	1.28		-70							
2002011 2002	MHz									
PCCPCH_RSCP	dBm	-70 n.a. n.a.								
Propagation Condition	11.74	AWGN								
Parameter	Unit		_			Cell 2			5	
Timeslot Number		T4	0 T2	To		DwPTS T2		T1	5 	TO
UTRA RF Channel		T1	12	Т3	T1	12	T3	11	12	T3
Number(Note 3)					Ch	nannel 1				
UTRA RF Channel					Ch	nannel 2)			
Number(Note 4)						iai ii ici z	_			
PCCPCH_Ec/lor	dB		-3						n.a.	
DwPCH_Ec/lor						0				
DPCH_Ec/lor	dB	n.a. n.a. n.a.					Not e1			
OCNS_Ec/lor	dB	-3						Note2		
\hat{I}_{or}/I_{oc}	dB	-Inf.	4	4	-Inf.	4		-1	nf.	4
	dBm/									
I_{oc}	1.28					-70				
DOODOLL DOOD	MHz									
PCCPCH_RSCP	dBm	-Inf.	-6	5 9		n.a.			n.a.	
Propagation Condition					- 1	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 $I_{\rm or}$

Note3: The UTRA RF Channel Number is the primary frequency"s channel number.

Note4: The UTRA RF Channel Number is the secondary frequency"s channel number.

A.5.1.2.2.2.2 Test Requirements

The UE shall start to transmit the UL DPCH to cell 2 less than 160 ms from the beginning of time period T3.

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

A.5.1.2.3 Handover to inter-band cell

A.5.1.2.3.1 Scenario 1

This test case is applicable for UE handovers from primary frequency to the primary frequency in multi-band frequency network.

A.5.1.2.3.1.1 Test Purpose and Environment

The purpose of this test is to verify the requirement for the inter-band handover delay in CELL_DCH in the case as reported in section 5.1.2.1.2.

The test consists of three successive time periods, with a time duration T1, T2 and T3. The test parameters are given in tables A.5.1.8A and A.5.1.8B below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 2C shall be used. The PCCPCH RSCP and SFN-CFN observed timed difference 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 a new active cell, cell 2. The Physical Channel reconfiguration message shall be sent to the UE during period T2, after the UE has reported event 2C. The starting point of T3 is defined as the end of the last TTI containing the physical channel reconfiguration message.

Table A.5.1.8A: General test parameters for inter-band handover

Paran	neter	Unit	Value	Comment
DPCH para	ameters		DL and UL Reference Measurement Channel 12.2 kbps	As specified in TS 25.102 section A.2.2.2 and A.2.1.2
Power Cor	ntrol		On	
Target qua	lity value	BLER	0.01	
Initial condition s	Active cell		Cell 1	In the case of multi-frequency network, the UE has a RRC connection on the primary frequency in cell 1.
	Neighb our cell		Cell 2	
Final condition s	Active cell		Cell 2	In the case of multi-frequency network, the UE will handover to the primary frequency in cell 2.
Threshold frequency	non used	dBm	-75	Absolute RSCP threshold for event 2C
0		dB	0	cell-individual-offset The value shall be used for all cells in the test.
Hysteresis		dB	0	
Time to Tri	gger	ms	0	
Filter coeff	icient		0	
Monitored size	cell list		6 TDD neighbours on Channel 1 6 TDD neighbours on Channel 2	
T1		S	5	
T2		S	10	
T3		S	5	

TableA.5.1.8B: Cell Specific parameters for inter-band handover

Parameter	Unit		Cell 1							
Timeslot Number			0		DwPTS	5				
		T1	T2 T3	T1	T2 T3	T1 T2	T3			
UTRA RF Channel				Ch	nannel 1					
Number(Note 3)			Chariler							
PCCPCH_Ec/lor	dB		-3			n.a.				
DwPCH_Ec/lor					0					
DPCH_Ec/lor	dB		n.a.		n.a.	Note1	n.a.			
OCNS_Ec/lor	dB		-3			Note2	2			
\hat{I}_{or}/I_{oc}	dB		3		3	3				
I_{oc}	dBm/ 1.28 MHz		-70							
PCCPCH_RSCP	dBm		n.a.							
Propagation Condition		AWGN								
Parameter	Unit	Cell 2								
Timeslot Number			0		DwPTS	5				
		T1	T2 T3	T1	T2 T3	T1 T2	T3			
UTRA RF Channel Number(Note 3)				Ch	nannel 2					
PCCPCH_Ec/lor	dB		-3			n.a.				
DwPCH_Ec/lor					0					
DPCH_Ec/lor	dB		n.a.		n.a.	n.a.	Not e1			
OCNS_Ec/lor	dB		-3			Note2)			
\hat{I}_{or}/I_{oc}	dB	-Inf.	4	-Inf.	4	-Inf.	4			
I_{oc}	dBm/ 1.28 MHz	-70								
PCCPCH_RSCP	dBm	-Inf.	-69		n.a.	n.a.				

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}.

In the case of multi-frequency network, the UTRA RF Channel Number is the primary

frequency"s channel number.

A.5.1.2.3.1.2 Test Requirements

The UE shall start to transmit the UL DPCH to cell 2 less than 160 ms from the beginning of time period T3.

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

A.5.1.2.3.2 Scenario 2

Note 3:

This test case is applicable for UE handovers from primary frequency to secondary frequency in multi-band network.

A.5.1.2.3.2.1 Test Purpose and Environment

The purpose of this test is to verify the requirement for the inter-frequency handover delay in CELL_DCH in the case as reported in section 5.1.2.1.2.

In cell 1, the primary frequency uses frequency b of band a, and the secondary frequency uses frequencies a and c of band a. In cell 2, the primary frequency uses frequency e of band a, and the secondary frequency uses frequencies d and f of band f.

The test consists of three successive time periods, with a time duration T1, T2 and T3. The test parameters are given in tables A.5.1.8C and A.5.1.8D below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 2C shall be used. The PCCPCH RSCP and SFN-CFN observed timed difference 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 a new active cell, cell 2. The Physical Channel reconfiguration message shall be sent to the UE during period T2, after the UE has reported event 2C. The starting point of T3 is defined as the end of the last TTI containing the physical channel reconfiguration message.

Table A.5.1.8C: General test parameters for inter-band handover

Parameter		Unit	Value	Comment
DPCH parameters			DL and UL Reference Measurement Channel 12.2 kbps	As specified in TS 25.102 section A.2.2.2 and A.2.1.2
Power Control			On	
Target quality value on DPCH		BLER	0.01	
Initial conditions	Active cell		Cell 1	In the case of multi-frequency network, the UE has a RRC connection on the primary frequency in cell 1.
	Neighbour cell		Cell 2	
Final conditions	Active cell		Cell 2	In the case of multi-frequency network, the UE will handover to the primary frequency in cell 2.
Threshold non used frequency		dBm	-75	Absolute RSCP threshold for event 2C
0		dB	0	cell-individual-offset The value shall be used for all cells in the test.
Hysteresis		dB	0	
Time to Trigger		ms	0	
Filter coefficient			0	
Monitored cell list size			6 TDD neighbours on Channel 1 6 TDD neighbours on Channel 2	
T1		S	5	
T2		S	10	
T3		S	5	

Table A.5.1.8D: Cell Specific parameters for inter-band handover

Parameter	Unit				(Cell 1					
Timeslot Number			0			DwPTS	3		5		
		T1	T2	T3	T1	T2	T3	T1	T2	T3	
UTRA RF Channel					Ch	nannel 1	1				
Number(Note 3)					Ci	lannei	I				
PCCPCH_Ec/lor	dB		-3					n.a.			
DwPCH_Ec/lor						0					
DPCH_Ec/lor	dB		n.a.			n.a.		No	ote1	n.a.	
OCNS_Ec/lor	dB		-3						Note2		
\hat{I}_{or}/I_{oc}	dB		3			3			3		
I_{oc}	dBm/ 1.28 MHz	-70									
PCCPCH_RSCP	dBm		-70 n.a.						n.a.		
Propagation Condition					1	AWGN					
Parameter	Unit				(Cell 2					
Timeslot Number			0			DwPTS	3		5		
		T1	T2	T3	T1	T2	T3	T1	T2	T3	
UTRA RF Channel Number(Note 3)					Ch	annel 2	2				
PCCPCH_Ec/lor	dB		-3						n.a.		
DwPCH_Ec/lor						0					
DPCH_Ec/lor	dB		n.a.			n.a.		n	ı.a.	Not e1	
OCNS_Ec/lor	dB		-3						Note2		
\hat{I}_{or}/I_{oc}	dB	-Inf.	4	1	-Inf.	2	1	-	Inf.	4	
I_{oc}	dBm/ 1.28 MHz	-70									
PCCPCH_RSCP	dBm										
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: In the case of multi-frequency network, the UTRA RF Channel Number is the primary frequency"s channel number.

A.5.1.2.3.2.2 Test Requirements

The UE shall start to transmit the UL DPCH to cell 2 less than 160 ms from the beginning of time period T3.

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

A.5.1.2.3.3 Scenario 3

This test case is applicable for UE handovers from secondary frequency to secondary frequency in multi-band network.

A.5.1.2.3.3.1 Test Purpose and Environment

The purpose of this test is to verify the requirement for the inter-frequency handover delay in CELL_DCH in the case as reported in section 5.1.2.1.2.

In cell 1, the primary frequency uses frequency e of band a, and the secondary frequency uses frequencies d and f of band f. In cell 2, the primary frequency uses frequency b of band a, and the secondary frequency uses frequencies a and c of band a.

The test consists of three successive time periods, with a time duration T1, T2 and T3. The test parameters are given in tables A.5.1.8E and A.5.1.8F below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 2C shall be used. The PCCPCH RSCP and SFN-CFN observed timed difference 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 a new active cell, cell 2. The Physical Channel reconfiguration message shall be sent to the UE during period T2, after the UE has reported event 2C. The starting point of T3 is defined as the end of the last TTI containing the physical channel reconfiguration message.

Table A.5.1.8E: General test parameters for inter-band handover

Para	meter	Unit	Value	Comment
DPCH para	meters		DL and UL Reference Measurement Channel 12.2 kbps	As specified in TS 25.102 section A.2.2.2 and A.2.1.2
Power Cont	Power Control		On	
Target quali DPCH	Target quality value on DPCH		0.01	
Initial Active cell conditions			Cell 1	In the case of multi-frequency network, the UE has a RRC connection on the primary frequency in cell 1.
	Neighbour cell		Cell 2	
Final conditions	Active cell		Cell 2	In the case of multi-frequency network, the UE will handover to the secondary frequency in cell 2.
Threshold n frequency	on used	dBm	-75	Absolute RSCP threshold for event 2C
0		dB	0	cell-individual-offset The value shall be used for all cells in the test.
Hysteresis		dB	0	
Time to Trig	ger	ms	0	
Filter coeffic	ient		0	
Monitored cell list size			6 TDD neighbours on Channel 1 6 TDD neighbours on Channel 2	
T1	T1		5	
T2	T2		10	
T3		S	5	

Unit Cell 1 **Parameter** Timoslot Numbou DWDTS

Table A.5.1.8F: Cell Specific parameters for inter-band handover

Timeslot Number			0			DWPTS	i		5	
		T1	T2	T3	T1	T2	T3	T1	T2	T3
UTRA RF Channel					Ck	nannel 1	ı			
Number(Note 3)					Ci	lalillei	ı			
PCCPCH_Ec/lor	dB		-3						n.a.	
DwPCH_Ec/lor						0				
DPCH_Ec/lor	dB		n.a.			n.a.		Note1 n		n.a.
OCNS_Ec/lor	dB		-3						Note2	<u> </u>
\hat{I}_{or}/I_{oc}	dB	3				3			3	
I_{oc}	dBm/ 1.28 MHz	-70								
PCCPCH_RSCP	dBm		-70			n.a.			n.a.	
Propagation Condition		AWGN								
Parameter	Unit	Cell 2								
Timeslot Number			0			DwPTS	<u> </u>		5	
		T1	T2	T3	T1	T2	T3	T1	T2	T3
UTRA RF Channel					Cł	nannel 2)			
Number(Note 3)						idili ici z	_	1		
PCCPCH_Ec/lor	dB		-3					n.a.		
DwPCH_Ec/lor						0				1
DPCH_Ec/lor	dB		n.a.			n.a.		n	ı.a.	Not e1
OCNS_Ec/lor	dB		-3						Note2	
\hat{I}_{or}/I_{oc}	dB	-Inf.	4	4	-Inf.	4	1	-1	Inf.	4
I_{oc}	dBm/ 1.28 MHz	-70								
PCCPCH_RSCP	dBm	-Inf69			n.a.			n.a.		
Propagation Condition		AWGN								
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 Note 2: to be equal to $I_{\rm or}$

Note 3: In the case of multi-frequency network, the UTRA RF Channel Number is the primary frequency"s channel number.

A.5.1.2.3.3.2 **Test Requirements**

The UE shall start to transmit the UL DPCH to cell 2 less than 160 ms from the beginning of time period T3.

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

A.5.1.3 7.68Mcps TDD option

A.5.1.3.1 Handover to intra-frequency cell

A.5.1.3.1.1 Test Purpose and Environment

The purpose of this test is to verify the requirement for the intra-frequency handover delay in CELL_DCH state in the single carrier case reported in section 5.1.2.1.

The test parameters are given in Table A.5.1.9 and A.5.1.10 below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 1G shall be used, and that P-CCPCH RSCP and SFN-CFN observed timed difference shall be reported together with Event 1G. 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 message with activation time "now" with a new active cell, cell 2. The Physical Channel reconfiguration message shall be sent to the UE during period T2, after the UE has reported event 1G. The starting point of T3 is definied as the end of the last TTI containing the physical channel reconfiguration message.

The second Beacon timeslot shall be provided in timeslot 8 for both cell 1 and cell 2. The UL DPCH shall be transmitted in timeslot 12.

Table A.5.1.9: General test parameters for Handover to intra-frequency cell

Para	meter	Unit	Value	Comment
DCH parame	ters		DL and UL Reference	As specified in TS 25.102 section A.2.2
			Measurement Channel 12.2 kbps	and A.2.1
Power Contro	Power Control		On	
Target quality DTCH	value on	BLER	0.01	
Initial	Active cell		Cell 1	
conditions	Neighbour cell		Cell 2	
Final condition	Active cell		Cell 2	
HCS			Not used	
0		dB	0	Cell individual offset. This value shall be used for all cells in the test.
Hysteresis		dB	0	
Time to Trigg	er	ms	0	
Filter coefficie	ent		0	
Monitored cell list size			6 TDD neighbours on Channel 1	
T1	T1		10	
T2	T2		10	
T3		S	10	

Table A.5.1.10: Cell specific test parameters for Handover to intra-frequency cell

Parameter	Unit		Cell 1						Cell 2				
DL timeslot number		0				4		0			5		
		T1	T2	T3	T1	T2	T3	T1	T2	T3	T1	T2	T3
UTRA RF Channel			Channel 1					Channel 1					
Number				Cila	illiel i					Cria	illiel i		
PCCPCH_Ec/lor	dB		-3			n.a.			-3			n.a	
SCH_Ec/lor	dB	-9				n.a.			-9		n.a.		
SCH_t _{offset}	dB	0			n.a.		5		n.a.				
DPCH_Ec/lor	dB		n.a.		Not	e 1	n.a.		n.a.		n	.a.	Note 1
OCNS_Ec/lor	dB		-3,12		Not	e 2	n.a.	n.a.	-3,	12	n	.a.	Note 2
\hat{I}_{or}/I_{oc}	dB				1			-Inf.	(3	-1	nf.	3
PCCPCH RSCP	dBm		-72			n.a.		-Inf.	-7	70	n.a.		
	dBm/												
I_{oc}	7,68	-70											
	MHz												
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 lor .

A.5.1.3.1.2 Test Requirements

The UE shall start to transmit the UL DPCH to Cell 2 less than 160 ms from the beginning of time period T3.

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

A.5.1.3.2 Handover to inter-frequency cell

A.5.1.3.2.1 Test Purpose and Environment

The purpose of this test is to verify the requirement for the inter-frequency handover delay in CELL_DCH state in the dual carrier case reported in section 5.1.2.1.

The test consists of two successive time periods, with a time duration T1 and T2. The test parameters are given in tables A.5.1.11 and A.5.1.12 below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 2C shall be used. The PCCPCH RSCP and SFN-CFN observed time difference 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 message with activation time "now" with one active cell, cell 2. The Physical Channel reconfiguration message shall be sent to the UE during period T2, after the UE has reported event 2C. The starting point of T3 is defined as the end of the last TTI containing the physical channel reconfiguration message.

The second Beacon timeslot shall be provided in timeslot 8 for cell 1 and in timeslot 10 for cell 2. The UL DPCH shall be transmitted in timeslot 12.

Table A.5.1.11: General test parameters for Handover to inter-frequency cell

Par	ameter	Unit	Value	Comment		
DCH parame	eters		DL and UL Reference Measurement Channel 12.2 kbps	As specified in TS 25.102 section A.2.2 and A.2.1		
Power Control			On			
Target qualit	y value on	BLER	0.01			
Initial	Active cell		Cell 1			
conditions	Neighbour cell		Cell 2			
Final condition	Active cell		Cell 2			
HCS	HCS		Not used			
0	0		0	Cell individual offset. This value shall be used for all cells in the test.		
Hysteresis		dB	0	Hysteresis parameter for event 2C		
Time to Trigg	jer	ms	0			
Threshold no frequency	n-used	dBm	-80	Applicable for Event 2C		
Filter coeffici	ent		0			
Monitored ce	II list size		6 TDD neighbours on Channel 1 6 TDD neighbours on Channel 2			
T _{SI}		S	1.28	The value shall be used for all cells in the test.		
T1	T1		10			
T2		S	10			
T3		S	10			

Unit Cell 1 Cell 2 **Parameter DL** timeslot 4 2 5 0 number T1 T2 T3 T1 T2 T3 T1 T2 T3 T1 T2 T3 UTRA RF Channel Channel 1 Channel 2 Number PCCPCH_Ec/lor dB -3 -3 n.a. n.a. SCH_Ec/lor dB -9 n.a. -9 n.a. SCH_toffset dΒ 0 n.a. 5 n.a. DPCH Ec/lor dB Note 1 n.a. n.a. Note 1 n.a. n.a. OCNS Ec/lor dB -3,12 Note 2 n.a. n.a. -3,12 n.a. Note 2 dB -Inf. 7 -Inf. I_{or}/I_{oc} 1 7 PCCPCH RSCP dBm -72 n.a. -Inf. -66 n.a. dBm/ 7,68 I_{oc} -70 MHz Propagation AWGN Condition

TableA.5.1.12: Cell Specific parameters for Handover to inter-frequency cell

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 .

A.5.1.3.2.2 Test Requirements

The UE shall start to transmit the UL DPCH to Cell 2 less than 160 ms from the beginning of time period T2.

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

A.5.2 TDD/FDD Handover

A.5.2.1 3.84 Mcps TDD option

A.5.2.1.1 Test purpose and Environment

The purpose of this test is to verify the requirement for the TDD/FDD handover delay in CELL_DCH state reported in section 5.2.2.1.

The test parameters are given in Table A.5.2.1, A.5.2.2 and A.5.2.3 below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 1G and 2B shall be used. The CPICH_RSCP of the best cell on the unused frequency shall be reported together with Event 2B reporting. 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 message with activation time "now" with a new active cell, cell 2. The Physical Channel reconfiguration message shall be sent to the UE during period T2, after the UE has reported event 2B. The starting point of T3 is defined as the end of the last TTI containing the physical channel reconfiguration message.

Table A.5.2.1: General test parameters for TDD/FDD handover

Para	meter	Unit	Value	Comment		
DCH pa	rameters		DL and UL Reference	As specified in TS 25.102 annex A.2.2		
			Measurement Channel 12.2 kbps	and TS 25.101 annex A		
Power	Control		On			
• •	Target quality value on DTCH		0.01			
Initial	Active cell		Cell 1	TDD cell		
conditions	Neighbour cell		Cell 2	FDD cell		
Final condition	Active cell		Cell 2	FDD cell		
H	CS		Not used			
(0		0	Cell individual offset. This value shall be used for all cells in the test.		
Hyste	eresis	dB	3	Hysteresis parameter for event 2B		
Time to	Trigger	ms	0			
	eshold used lency	dBm	-71	Applicable for Event 2B		
Threshold	I non-used Jency	dBm	-80	Applicable for Event 2B		
W non-use	d frequency		1	Applicable for Event 2B		
	pefficient		0			
Monitored	cell list size		6 TDD neighbours on Channel 1 6 FDD neighbours on Channel 2			
Т	T _{SI}		1.28	The value shall be used for all cells in the test.		
	⁻ 1	S	5			
Т	2	S	15			
T	3	S	5			

Table A.5.2.2: Cell 1 specific test parameters for TDD/FDD handover

Parameter	Unit			Cel	l 1			
DL timeslot number			0			2		
		T1 T2 T3			T1	T2	T3	
UTRA RF Channel		Channel 1						
Number				Chan	nei i			
PCCPCH_Ec/lor	dB		-3			n.a.		
SCH_Ec/lor	dB		-9			n.a.		
SCH_t _{offset}	dB		0		n.a.			
DPCH_Ec/lor	dB		n.a.		Note 1		n.a.	
OCNS_Ec/lor	dB		-3,12		Note 2		n.a.	
\hat{I}_{or}/I_{oc}	dB	5		1	5 -1		1	
PCCPCH RSCP	dBm	-68	-7	'4		n.a.		
	dBm/							
I_{oc}	3,84							
	MHz							
Propagation Condition		AWGN						
Note 1: The DPCH level	is control	led by the	power conti	rol loop		•		

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.

Table A.5.2.3: Cell 2 specific test parameters for TDD/FDD handover

Parameter	Unit	Cel	12			
		T1, T2	T3			
CPICH_Ec/lor	dB	-10	0			
PCCPCH_Ec/lor	dB	-1:	2			
SCH_Ec/lor	dB	-1:	2			
PICH_Ec/lor	dB	-15				
DPCH_Ec/lor	dB	n.a.	Note 1			
OCNS_Ec/lor	dB	-0.941	Note 2			
CPICH_RSCP	dBm	-83	-77			
\hat{I}_{or}/I_{oc}	dB	-3	3			
I_{oc}	dBm/3. 84 MHz	-70				
Propagation Condition		AWGN				
Note 1: The DDCH level is	c controlled	hy the nower control	loon			

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 $I_{\rm or}$

A.5.2.1.2 Test Requirements

The UE shall start to transmit the UL DPCCH to Cell 2 less than 220 ms from the beginning of time period T3.

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

A.5.2.2 1.28 Mcps TDD option

A.5.2.2.1 Test purpose and Environment

The purpose of this test is to verify the requirement for the TDD/FDD handover delay in CELL_DCH state reported in section 5.2.2.2.

The test parameters are given in Table A.5.2.4, A.5.2.5 and A.5.2.6 below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 1G and 2B shall be used. The CPICH_RSCP of the best cell on the unused frequency shall be reported together with Event 2B reporting. 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 message with activation time "now" with a new active cell, cell 2. The Physical Channel reconfiguration message shall be sent to the UE during period T2, after the UE has reported event 2B. The starting point of T3 is defined as the end of the last TTI containing the physical channel reconfiguration message.

Table A.5.2.4: General test parameters for TDD/FDD handover

Parar	neter	Unit	Value	Comment
DCH par	rameters		DL and UL Reference Measurement Channels 12.2 kbps	As specified in TS 25.102 annex A and TS 25.101 annex A
Power	Control		On	
Initial	Active cell		Cell 1	TDD cell
conditions	Neighbour cell		Cell 2	FDD cell
Final condition	Active cell		Cell 2	FDD cell
C)	dB	0	Cell individual offset. This value shall be used for all cells in the test.
Hyste	Hysteresis		3	Hysteresis parameter for event 2B
Time to	Time to Trigger		0	
Absolute thr	eshold used ency	dBm	-71	Applicable for Event 2B
Threshold frequ	non-used ency	dBm	-80	Applicable for Event 2B
W non-used	d frequency		1	Applicable for Event 2B
Filter co	efficient		0	
Monitored of	cell list size		6 TDD neighbours on Channel 1 6 FDD neighbours on Channel 2	
T	T _{SI}		1.28	The value shall be used for all cells in the test.
Т	•	S	5	
T	2	S	15	
Т	3	S	5	

Table A.5.2.5: Cell 1 specific test parameters for TDD/FDD handover

Parameter	Unit			Cel	l 1						
Timeslot number			0		5						
		T1	T2	T3	T1	T2	T3				
UTRA RF Channel Number(Note3		Channel 1									
PCCPCH_Ec/lor	dB	-3 n.a.									
DPCH_Ec/lor	dB		n.a.		Note 1		n.a.				
OCNS_Ec/lor	dB		-3		Not	e 2	n.a.				
\hat{I}_{or}/I_{oc}	dB	5		1	5		-1				
PCCPCH RSCP	dBm	-68	-74			n.a.					
I_{oc}	dBm/ 1.28 MHz	-70									
Propagation Condition				AW	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 lor.

Note3: In the case of multi-frequency network, the UTRA RF Channel Number can be set for

the primary frequency in this test.

Table A.5.2.6: Cell 2 specific test parameters for TDD/FDD handover

Parameter	Unit	Cell 2						
		T1 T2		T3				
CPICH_Ec/lor	dB		-10					
PCCPCH_Ec/lor	dB		-12					
SCH_Ec/lor	dB		-12					
PICH_Ec/lor	dB		-15					
DPCH_Ec/lor	dB	n.a. Note 1						
OCNS_Ec/lor	dB	-0.9	941	Note 2				
CPICH_RSCP	dBm	-Inf	_	75				
\hat{I}_{or}/I_{oc}	dB	-Inf		5				
I_{oc}	dBm/ 3.84 MHz	-70						
Propagation Condition		AWGN						
Note 1: The DPCH level is controlled by the power control loop								

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

A.5.2.2.2 Test Requirements

The UE shall start to transmit the UL DPCCH to Cell 2 less than 220 ms from the beginning of time period T3.

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

A.5.2.3 7.68 Mcps TDD option

A.5.2.3.1 Test purpose and Environment

The purpose of this test is to verify the requirement for the TDD/FDD handover delay in CELL_DCH state reported in section 5.2.2.1.

The test parameters are given in Table A.5.2.7, A.5.2.8 and A.5.2.9 below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 1G and 2B shall be used. The CPICH_RSCP of the best cell on the unused frequency shall be reported together with Event 2B reporting. 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 message with activation time "now" with a new active cell, cell 2. The Physical Channel reconfiguration message shall be sent to the UE during period T2, after the UE has reported event 2B. The starting point of T3 is defined as the end of the last TTI containing the physical channel reconfiguration message.

Table A.5.2.7: General test parameters for TDD/FDD handover

Parai	Parameter l		Value	Comment		
DCH pai	rameters		DL and UL Reference	As specified in TS 25.102 annex A.2.2		
			Measurement Channel 12.2 kbps	and TS 25.101 annex A		
Power	Control		On			
	lity value on CH	BLER	0.01			
Initial	Active cell		Cell 1	TDD cell		
conditions	Neighbour cell		Cell 2	FDD cell		
Final condition	Active cell		Cell 2	FDD cell		
HO	CS		Not used			
(0		0	Cell individual offset. This value shall be used for all cells in the test.		
Hyste	eresis	dB	3	Hysteresis parameter for event 2B		
Time to	Trigger	ms	0			
Absolute thr	eshold used	dBm	-71	Applicable for Event 2B		
	iency					
	l non-used iency	dBm	-80	Applicable for Event 2B		
W non-use	d frequency		1	Applicable for Event 2B		
Filter co	efficient		0			
Monitored	Monitored cell list size		Vonitored cell list size		6 TDD neighbours on Channel 1 6 FDD neighbours on Channel 2	
Т	T _{SI}		1.28	The value shall be used for all cells in the test.		
T	T1		5			
Т	2	S	15			
T	3	S	5			

Table A.5.2.8: Cell 1 specific test parameters for TDD/FDD handover

Parameter	Unit	Cell 1					
DL timeslot number			0		2		
		T1	T2	T3	T1	T2	T3
UTRA RF Channel				Chan	aal 1		
Number				Criarii	iei i		
PCCPCH_Ec/lor	dB		-3			n.a.	
SCH_Ec/lor	dB		-9			n.a.	
SCH_t _{offset}	dB	0			n.a.		
DPCH_Ec/lor	dB		n.a.		Note 1		n.a.
OCNS_Ec/lor	dB		-3,12		Note 2		n.a.
\hat{I}_{or}/I_{oc}	dB	5	-	1	5		1
PCCPCH RSCP	dBm	-68	-7	'4		n.a.	
	dBm/						
I_{oc}	7,68	-70					
	MHz						
Propagation Condition		AWGN					
Note 1: The DPCH level	PCH 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 $I_{\rm or}$ Note 2:

Table A.5.2.9: Cell 2 specific test parameters for TDD/FDD handover

Parameter	Unit	Cell 2				
		T1, T2	T3			
CPICH_Ec/lor	dB	-10	0			
PCCPCH_Ec/lor	dB	-1:	2			
SCH_Ec/lor	dB	-1:	2			
PICH_Ec/lor	dB	-15				
DPCH_Ec/lor	dB	n.a.	Note 1			
OCNS_Ec/lor	dB	-0.941	Note 2			
CPICH_RSCP	dBm	-83	-77			
\hat{I}_{or}/I_{oc}	dB	-3	3			
I_{oc}	dBm/7. 68 MHz	-70				
Propagation Condition		AWGN				
Note 1: The DPCH level is controlled by the power control loop						

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

A.5.2.3.2 **Test Requirements**

The UE shall start to transmit the UL DPCCH to Cell 2 less than 220 ms from the beginning of time period T3.

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

TDD/GSM Handover A.5.3

A.5.3.1 Test Purpose and Environment

A.5.3.1.1 3.84 Mcps TDD option

The purpose of this test is to verify the requirement for the UTRA TDD to GSM handover delay reported in section 5.4.2.1.

The test parameters are given in Tables A.5.3.1, A.5.3.2 and A.5.3.3 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 message with activation time "now" with one active cell, cell 2. The HANDOVER FROM UTRAN COMMAND message shall be sent to the UE during period T2. The starting point of T3 is defined as the end of the last TTI containing the HO command. In the GSM Handover command contained in this message, IE starting time shall not be included.

Cell 1 is a UTRA TDD cell and cell 2 is a GSM cell. The Beacon timeslot shall be transmitted in timeslot 0 for cell 1 and no second Beacon timeslot shall be provided for cell 1. The DL DPCH shall be transmitted in timeslot 1 and the UL DPCH shall be transmitted in timeslot 3.

Table A.5.3.1: General test parameters for TDD/GSM handover

Parameter	Unit	Value	Comment
DCH parameters		DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.102 section A.2.2
Power Control		On	
Target quality value on DTCH	BLER	0.01	
Initial conditions	Active cell	Cell 1	UTRA TDD cell
	Neighbour cell	Cell 2	GSM cell
Final condition	Active cell	Cell 2	GSM cell
Inter-RAT measurement quantity		GSM carrier RSSI	
BSIC verification required		Required	
Threshold other system	dBm	-80	Absolute GSM carrier RSSI threshold for Event 3C.
Hysteresis	dB	0	
Time to Trigger	ms	0	
Filter coefficient		0	
Monitored cell list size		12 TDD neighbours on Channel 1 6 GSM neighbours including ARFCN 1	Measurement control information is sent before the start of time period T1.
T _{identify abort}	S	5	As specified in section 8.1.2.5
T _{reconfirm abort}	S	5	As specified in section 8.1.2.5
T1	S	10	
T2	S	10	
T3	S	10	

Table A.5.3.2: Cell 1 specific test parameters for TDD/GSM handover

Parameter	Unit	Cell 1						
DL timeslot number			0			1		
		T1	T2	T3	T1	T2	T3	
UTRA RF Channel Number				Chan	nel 1			
PCCPCH_Ec/lor	dB		-3			n.a.		
SCH_Ec/lor	dB		-9			n.a.		
SCH_t _{offset}	dB	0				n.a.		
DPCH_Ec/lor	dB		n.a.		Note 1		n.a.	
OCNS_Ec/lor	dB		-3,12		Note 2		n.a.	
\hat{I}_{or}/I_{oc}	dB	6 6						
PCCPCH RSCP	dBm	-68 n.a.						
I_{oc}	dBm/ 3,84 MHz	-70						
Propagation Condition		AWGN						

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

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

Table A.5.3.3: Cell 2 specific test parameters for TDD/GSM handover

Parameter	Unit	Cell 2		
Farameter	Oilit	T1	T2, T3	
Absolute RF Channel Number		ARFCN 1		
RXLEV	dBm	-85	-75	

A.5.3.1.2 1.28Mcps TDD option

The purpose of this test is to verify the requirement for the UTRA TDD to GSM handover delay reported in section 5.3.2.

The test parameters are given in Tables A.5.3.4, A.5.3.5 and A.5.3.6 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 message with activation time "now" with one active cell, cell 2. The HANDOVER FROM UTRAN COMMAND message shall be sent to the UE during period T2. The starting point of T3 is defined as the end of the last TTI containing the HO command. In the GSM Handover command contained in this message, the IE starting time shall not be included.

Cell 1 is a UTRA TDD cell and cell 2 is a GSM cell.

The DL DPCH shall be transmitted in timeslot 4 and the UL DPCH shall be transmitted in timeslot 2.

Table A.5.3.4: General test parameters for TDD/GSM handover

Parameter	Unit	Value	Comment
DCH parameters		DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.102 section A
Power Control		On	
Target quality value on DTCH	BLER	0.01	
Initial conditions	Active cell	Cell 1	UTRA TDD cell
	Neighbour cell	Cell 2	GSM cell
Final condition	Active cell	Cell 2	GSM cell
Inter-RAT		GSM carrier RSSI	
measurement			
quantity			
BSIC verification		Required	
required		•	
Threshold other system	dBm	-80	Absolute GSM carrier RSSI threshold for Event 3C.
Hysteresis	dB	0	
Time to Trigger	ms	0	
Filter coefficient		0	
Monitored cell list		12 TDD neighbours on Channel 1	Measurement control information is
size		6 GSM neighbours including ARFCN 1	sent before the start of time period T1.
T _{identify abort}	S	5	As specified in section 8.1A.2.5
T _{reconfirm abort}	S	5	As specified in section 8.1A.2.5
T1	S	10	
T2	S	10	
T3	S	10	

Table A.5.3.5: Cell 1 specific test parameters for TDD/GSM handover

Parameter	Unit	Cell 1					
DL timeslot number			0		DwPTS		
		T1	T2	T3	T1	T2	Т3
UTRA RF Channel Number (NOTE)				Chani	nel 1		
PCCPCH_Ec/lor	dB		-3				
DwPCH_Ec/lor	dB					0	
OCNS_Ec/lor	dB		-3				
\hat{I}_{or}/I_{oc}	dB	5 5					
I_{oc}	dBm/ 1.28 MHz	-70					
Propagation Condition		AW	3N				
NOTE: In the case of multi-frequency network, the UTRA RF Channel Number can be set for the primary frequency in this test.							

Table A.5.3.6: Cell 2 specific test parameters for TDD/GSM handover

Parameter	Unit	Cell 2		
Farameter	Onit	T1	T2, T3	
Absolute RF Channel Number		ARFCN 1		
RXLEV	dBm	-85	-75	

A.5.3.1.3 7.68 Mcps TDD option

The purpose of this test is to verify the requirement for the UTRA TDD to GSM handover delay reported in section 5.4.2.1.

The test parameters are given in Tables A.5.3.7, A.5.3.8 and A.5.3.9 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 message with activation time "now" with one active cell, cell 2. The HANDOVER FROM UTRAN COMMAND message shall be sent to the UE during period T2. The starting point of T3 is defined as the end of the last TTI containing the HO command. In the GSM Handover command contained in this message, IE starting time shall not be included.

Cell 1 is a UTRA TDD cell and cell 2 is a GSM cell. The Beacon timeslot shall be transmitted in timeslot 0 for cell 1 and no second Beacon timeslot shall be provided for cell 1. The DL DPCH shall be transmitted in timeslot 1 and the UL DPCH shall be transmitted in timeslot 3.

Table A.5.3.7: General test parameters for TDD/GSM handover

Parameter	Unit	Value	Comment
DCH parameters		DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.102 section A.2.2
Power Control		On	
Target quality value on DTCH	BLER	0.01	
Initial conditions	Active cell	Cell 1	UTRA TDD cell
	Neighbour cell	Cell 2	GSM cell
Final condition	Active cell	Cell 2	GSM cell
Inter-RAT measurement quantity		GSM carrier RSSI	
BSIC verification required		Required	
Threshold other system	dBm	-80	Absolute GSM carrier RSSI threshold for Event 3C.
Hysteresis	dB	0	
Time to Trigger	ms	0	
Filter coefficient		0	
Monitored cell list size		12 TDD neighbours on Channel 1 6 GSM neighbours including ARFCN 1	Measurement control information is sent before the start of time period T1.
T _{identify abort}	S	5	As specified in section 8.1.2.5
T _{reconfirm abort}	S	5	As specified in section 8.1.2.5
T1	S	10	
T2	S	10	
T3	S	10	

Table A.5.3.8: Cell 1 specific test parameters for TDD/GSM handover

Parameter	Unit	Cell 1					
DL timeslot number			0			1	
		T1	T2	T3	T1	T2	T3
UTRA RF Channel Number			•	Chan	nel 1		
PCCPCH_Ec/lor	dB		-3			n.a.	
SCH_Ec/lor	dB		-9			n.a.	
SCH_t _{offset}	dB	0			n.a.		
DPCH_Ec/lor	dB		n.a.		Note 1		n.a.
OCNS_Ec/lor	dB		-3,12		Note 2		n.a.
\hat{I}_{or}/I_{oc}	dB	6 6					
PCCPCH RSCP	dBm	-68 n.a.					
I_{oc}	dBm/ 7,68 MHz	-70					
Propagation Condition		AWGN					

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 Note 2: to be equal to lor.

Table A.5.3.9: Cell 2 specific test parameters for TDD/GSM handover

Parameter	Unit	Cell 2		
Farameter	Oilit	T1	T2, T3	
Absolute RF Channel Number		ARFCN 1		
RXLEV	dBm	-85	-75	

A.5.3.2 Test Requirements

A.5.3.2.1 3.84 Mcps TDD option

The UE shall begin to send access bursts on the new DCCH of the target cell less than 90 ms from the beginning of time period T3.

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

A.5.3.2.2 1.28 Mcps TDD option

The UE shall begin to send access bursts on the new DCCH of the target cell less than 90 ms from the beginning of time period T3.

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

A.5.3.2.3 7.68 Mcps TDD option

The UE shall begin to send access bursts on the new DCCH of the target cell less than 90 ms from the beginning of time period T3.

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

A.5.3a TDD to E-UTRA FDD Handover

A.5.3a.1 Test Purpose and Environment

A.5.3a.1.1 3.84 Mcps TDD option

A.5.3a.1.2 1.28 Mcps TDD option

This test is to verify the requirement for UTRAN TDD to E-UTRAN FDD handover requirements specified in section 5.3a.

The test scenario comprises of 1 UTRA TDD cell and 1 E-UTRA FDD cell as given in tables Table A.5.3a.1.2-1, Table A.5.3a.1.2-2, and Table A.5.3a.1.2-3. Idle interval of 80ms period as defined in TS25.331 is configured before T2 begins to enable E-UTRAN monitoring.

The test consists of three successive time periods, with time durations of T1, T2 and T3 respectively.

A RRC message implying handover shall be sent to the UE during period T2, after the UE has reported Event 3a. The end of the last TTI containing handover message is begin of T3 duration.

Table A.5.3a.1.2-1: General test parameters for UTRA TDD to E-UTRA FDD handover test case

Para	meter	Unit	Value	Comment
DPCH parame	eters active cell		DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.102 section A. The DPCH is located in an other timeslot than 0.
PDSCH parameters			DL Reference Measurement Channel R.0 FDD	As specified in TS 36.133 section A.3.1.1.1
PCFICH/PDCCH/PHICH parameters			DL Reference Measurement Channel R.6 FDD	As specified in TS 36.133 section A.3.1.2.1
Initial	Active cell		Cell 1	UTRA 1.28Mcps TDD cell
conditions	Neighbour cell		Cell 2	E-UTRA FDD cell
Final conditions	Active cell		Cell 2	E-UTRA FDD cell
CP length of c			normal	
PRACH config	guration		4	As specified in table 5.7.1-2 in 3GPP TS 36.211
Idle intervals p	eriod	ms	80	As specified in TS 25.331
Handover acti	vation time		now	
Access Barrin	g Information		Not Sent	No additional delays in random access procedure.
CIO _{other_RAT}		dB	0	Cell individual offset
H _{3c}		dB	0	Hysteresis parameter for event 3a
T _{Used}		dBm	-80	UTRA event 3a threshold
T _{other_RAT}			-93	Absolute RSRP threshold for event 3a
TimeToTrigger		dB	0	
Filter coefficient			0	L3 filtering is not used
T1	<u>-</u>	S	5	
T2		S	≤10	
T3	•	S	1	

Table A.5.3a.1.2-2: Cell specific test parameters for UTRA TDD to E-UTRA FDD handover test case (cell 1)

Parameter	Unit			Cell 1 (UTRA)			
Timeslot Number			0			DwPTS		
		T1	T2	T3	T1	T2	T3	
UTRA RF Channel Number Note 1		Channel 1						
PCCPCH_Ec/lor	dB		-3					
DwPCH_Ec/lor	dB	dB				0		
OCNS_Ec/lor	dB		-3					
\hat{I}_{or}/I_{oc}	dB	11	-3	-3	11	-3	-3	
I_{oc}	dBm/1.28 MHz			-8	30			
PCCPCH RSCP Note 2	dBm	-72	-86	-86		n.a.		
I _O Note 2	dBm/1.28 MHz	-68.67	-78.24	-78.24	·		•	
Propagation Condition				AW	GN		•	

Note 1: In the case of multi-frequency cell, the UTRA RF Channel Number is the primary frequency"s channel number.

Note 2: PCCPCH_RSCP and lo levels have been derived from other parameters for information purposes. They are not settable parameters themselves.

Table A.5.3a.1.2-3: Cell specific test parameters for UTRA TDD to E-UTRA FDD handover test case (cell 2)

Parameter	Unit	Cell 2		
		T1	T2	Т3
E-UTRA RF Channel			2	
Number				
BW _{channel}	MHz		10	
OCNG Patterns defined		OP.2	OP.2	OP.1
in TS36.133 A.3.2.1.1		FDD	FDD	FDD
(OP.1 FDD) and in				
A.3.2.1.2 (OP.2 FDD)				
PBCH_RA	dB			
PBCH_RB	dB			
PSS_RB	dB			
SSS_RB	dB			
PCFICH_PA	dB			
PHICH_PA	dB			
PHICH_PB	dB	0	0	0
PDCCH_PA	dB			
PDCCH_PB	dB			
PDSCH_PA	dB			
PDSCH_PB	dB			
OCNG_RA ^{Note 1}	dB			
OCNG_RB ^{Note 1}	dB			
\hat{E}_s/N_{oc}	dB	-3	13	13
N oc	dBm/15kHz	-98		
\hat{E}_s/I_{ot}	dB	-3	13	13
RSRP Note 2	dBm/15kHz	-101	-85	-85
SCH_RP Note 2	dBm/15 kHz	-101	-85	-85
I _O Note 2	dBm/9MHz	-68.45	-57.01	-57.01
Propagation Condition			AWGN	
Note 1: OCNG shall be	used such that cel	l is fully allo	ocated and	a constant

Note 1: OCNG shall be used such that cell is fully allocated and a constant total transmitted power spectral density is achieved for all OFDM

symbols

Note 2: RSRP, SCH_RP and lo levels have been derived from other parameters for information purposes. They are not settable

parameters themselves.

A.5.3a.1.3 7.68 Mcps TDD option

A.5.3a.2 Test Requirements

A.5.3a.2.1 3.84 Mcps TDD option

A.5.3a.2.2 1.28 Mcps TDD option

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

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

A.5.3a.2.3 7.68 Mcps TDD option

A.5.3b TDD to E-UTRA TDD Handover

A.5.3b.1 Test Purpose and Environment

A.5.3b.1.1 3.84 Mcps TDD option

A.5.3b.1.2 1.28 Mcps TDD option

This test is to verify the requirement for UTRAN TDD to E-UTRAN TDD handover requirements specified in section 5.3b.

The test scenario comprises of 1 UTRA TDD cell and 1 E-UTRA TDD cell as given in tables Table A.5.3b.1.2-1, Table A.5.3b.1.2-2, and Table A.5.3b.1.2-3. Idle interval of 80ms period as defined in TS25.331 is configured before T2 begins to enable E-UTRAN monitoring.

The test consists of three successive time periods, with time durations of T1, T2 and T3 respectively.

A RRC message implying handover shall be sent to the UE during period T2, after the UE has reported Event 3a. The end of the last TTI containing handover message is begin of T3 duration.

Table A.5.3b.1.2-1: General test parameters for UTRA TDD to E-UTRA TDD handover test case

Paran	neter	Unit	Value	Comment
DPCH paramet	ters active cell		DL Reference Measurement Channel	As specified in TS 25.102 section A. The DPCH is located in an other timeslot
			12.2 kbps	than 0.
PDSCH parameters			DL Reference Measurement Channel R.0 TDD	As specified in section A.3.1.1.2 in [24]
PCFICH/PDCC parameters	:H/PHICH		DL Reference Measurement Channel R.6 TDD	As specified in section A.3.1.2.2 in [24]
Initial	Active cell		Cell 1	UTRA 1.28Mcps TDD cell
conditions	Neighbour cell		Cell 2	E-UTRA TDD cell
Final conditions	Active cell		Cell 2	E-UTRA TDD cell
CP length of ce			normal	
Uplink-downlink	configuration		1	As specified in table 4.2-2 in 3GPP TS 36.211
Special subfran	ne		6	As specified in table 4.2-1 in 3GPP TS 36.211
configuration			53	
PRACH configu			53	As specified in table 5.7.1-3 in 3GPP TS 36.211
Idle intervals pe		ms	80	As specified in TS 25.331
Handover activ			now	
Access Barring	Information		Not Sent	No additional delays in random access procedure.
CIO _{other_RAT}		dB	0	Cell individual offset
H _{3c}		dB	0	Hysteresis parameter for event 3a
T _{Used}		dBm	-80	UTRA event 3a threshold
T _{other_RAT}		dBm	-93	Absolute RSRP threshold for event 3a
TimeToTrigger		dB	0	
Filter coefficient			0	L3 filtering is not used
T1		S	5	
T2		S	≤10	
T3		S	1	

Table A.5.3b.1.2-2: Cell specific test parameters for UTRA TDD to E-UTRA TDD handover test case (cell 1)

Parameter	Unit	Cell 1 (UTRA						
Timeslot Number		0				DwPTS		
		T1	T2	T3	T1	T2	T3	
UTRA RF Channel Number Note 1				Char	nel 1			
PCCPCH_Ec/lor	dB		-3					
DwPCH_Ec/lor	dB				0			
OCNS_Ec/lor	dB		-3					
\hat{I}_{or}/I_{oc}	dB	11	-3	-3	11	-3	-3	
I_{oc}	dBm/1.28 MHz	-80						
PCCPCH RSCP Note 2	dBm	-72	-86	-86		n.a.		
I _O Note 2	dBm/1.28 MHz	- 68.67	- 78.24	- 78.24				
Propagation Condition		AWGN						

Note 1: In the case of multi-frequency cell, the UTRA RF Channel Number is the primary

frequency"s channel number.

Note 2: PCCPCH_RSCP and lo levels have been derived from other parameters for

information purposes. They are not settable parameters themselves.

Table A.5.3b.1.2-3: Cell specific test parameters for UTRA TDD to E-UTRA TDD handover test case (cell 2)

Parameter	Unit		Cell 2			
		T1	T2	T3		
E-UTRA RF Channel			2			
Number						
BW _{channel}	MHz		10			
OCNG Patterns defined						
in TS36.133 A.3.2.2.1		OP.2	OP.2	OP.1		
(OP.1 TDD) and in		TDD	TDD	TDD		
A.3.2.2.2 (OP.2 TDD)						
PBCH_RA	dB					
PBCH_RB	dB					
PSS_RB	dB					
SSS_RB	dB					
PCFICH_PA	dB					
PHICH_PA	dB					
PHICH_PB	dB	0	0	0		
PDCCH_PA	dB	-				
PDCCH_PB	dB					
PDSCH_PA	dB	4				
PDSCH_PB	dB	-				
OCNG_RA ^{Note 1}	dB					
OCNG_RB ^{Note 1}	dB		40	40		
\hat{E}_s/N_{oc}	dB	-3	13	13		
N_{oc}	dBm/15kHz	-98				
\hat{E}_s/I_{ot}	dB	-3	13	13		
RSRP Note 2	dBm/15kHz	-101	-85	-85		
SCH_RP Note 2	dBm/15 kHz	-101	-85	-85		
I _O Note 2	dBm/9MHz	-68.45	-57.01	-57.01		
Propagation Condition			AWGN			

Note 1: OCNG shall be used such that cell is fully allocated and a constant total transmitted power spectral density is achieved for all OFDM

Note 2: RSRP, SCH_RP and lo levels have been derived from other parameters for information purposes. They are not settable parameters themselves.

A.5.3b.1.3 7.68 Mcps TDD option

A.5.3b.2 Test Requirements

A.5.3b.2.1 3.84 Mcps TDD option

A.5.3b.2.2 1.28 Mcps TDD option

The UE shall start to transmit the PRACH to Cell 2 less than 80 ms from the beginning of time period T3.

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

A.5.3b.2.3 7.68 Mcps TDD option

A.5.3c UTRA TDD to E-UTRA FDD handover: unknown target cell

A.5.3c.1 Test Purpose and Environment

A.5.3c.1.1 3.84 Mcps TDD option

A.5.3c.1.2 1.28 Mcps TDD option

This test is to verify the requirement for UTRAN TDD to E-UTRAN FDD handover requirements specified in section 5.3a when the target E-UTRAN cell is unknown.

The test scenario comprises of 1 UTRA TDD cell and 1 E-UTRA FDD cell as given in tables A.5.3c.1.2-1, A.5.3c.1.2-2, and A.5.3c.1.2-3. No scheduled idle interval is configured in the test case.

The test consists of two successive time periods, with time durations of T1 and T2 respectively. During time duration T1, a RRC HANDOVER FROM UTRAN COMMAND message shall be sent to the UE with activation time "now" with a new active E-UTRA FDD cell, cell2. The end of the last TTI containing handover message is the beginning of T2 duration. At the start of time duration T2, the UE does not have any timing information of Cell 2.

Table A.5.3c.1.2-1: General test parameters for UTRA TDD to unknown E-UTRA FDD handover test case

Parar	neter	Unit	Value	Comment
DPCH parame cell	eters active		DL Reference Measurement Channel	As specified in TS 25.102 section A. The DPCH is located in an other timeslot than 0.
PDSCH param	neters		12.2 kbps DL Reference Measurement Channel	As specified in TS 36.133 section A.3.1.1.1
			R.0 FDD	
PCFICH/PDCCH/PHICH parameters			DL Reference Measurement Channel R.6 FDD	As specified in TS 36.133 section A.3.1.2.1
Initial	Active cell		Cell 1	UTRA 1.28Mcps TDD cell
conditions	Neighbour cell		Cell 2	E-UTRA FDD cell
Final conditions	Active cell		Cell 2	E-UTRA FDD cell
CP length of c	ell 2		Normal	
PRACH config	uration		4	As specified in table 5.7.1-2 in 3GPP TS 36.211
Handover activ	vation time		Now	
Access Barring	g Information		Not Sent	No additional delays in random access procedure.
TimeToTrigger	r	ms	0	
Filter coefficier	nt		0	L3 filtering is not used
Hysteresis		dB	0	
T1		S	≤ 5	During T1, cell 2 shall be powered off, and during the off time the physical layer cell
				identity shall be changed.
T2	-	S	1	

Table A.5.3c.1.2-2: Cell specific test parameters for UTRA TDD to unknown E-UTRA FDD handover test case (cell 1)

Parameter	Parameter Unit			Cell 1 (UTRA)			
Timeslot Number		0		Dw	PTS		
		T1	T2	T1	T2		
UTRA RF Channel Number*		Channel 1					
PCCPCH_Ec/lor	dB	-	3				
DwPCH_Ec/lor	dB				0		
OCNS_Ec/lor	dB	-3					
\hat{I}_{or}/I_{oc}	dB	4	4	4	4		
I_{oc}	dBm/1.28 MHz	-80					
PCCPCH RSCP	dBm	-79 -79 n.a.		.a.			
Propagation Condition		AWGN					
* Note: In the case of multi-frequency cell, the UTRA RF Channel Number is the primary frequency"s channel number.							

Table A.5.3c.1.2-3: Cell specific test parameters for UTRA TDD to unknown E-UTRA FDD handover test case (cell 2)

Parameter	Unit	Се	II 2
		T1	T2
E-UTRA RF Channel Number		2	2
BW _{channel}	MHz	1	0
OCNG Patterns defined in		OP.2 FDD	OP.1 FDD
TS36.133 A.3.2.1.1 (OP.1 FDD)			
and in A.3.2.1.2 (OP.2 FDD)			
PBCH_RA	dB		
PBCH_RB	dB		
PSS_RB	dB		
SSS_RB	dB		
PCFICH_PA	dB		
PHICH_PA	dB		0
PHICH_PB	dB	0	
PDCCH_PA	dB		
PDCCH_PB	dB		
PDSCH_PA	dB		
PDSCH_PB	dB		
OCNG_RA ^{Note1}	dB		
OCNG_RB ^{Note1}	dB		
\hat{E}_s/N_{oc}	dB	-Infinity	0
N_{oc}	dBm/15kHz	-98	
\hat{E}_s/I_{ot}	dB	-Infinity	0
RSRP	dBm/15kHz	-Infinity	-98
SCH_RP	dBm/15kHz	-Infinity	-98
Propagation Condition		AWGN	

Note 1: OCNG shall be used such that cell is fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols.

Note 2: RSRP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.

A.5.3c.1.3 7.68 Mcps TDD option

A.5.3c.2 Test Requirements

A.5.3c.2.1 3.84 Mcps TDD option

A.5.3c.2.2 1.28 Mcps TDD option

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

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

A.5.3c.2.3 7.68 Mcps TDD option

A.5.3d UTRA TDD to E-UTRA TDD handover: unknown target cell

A.5.3d.1 Test Purpose and Environment

A.5.3d.1.1 3.84 Mcps TDD option

A.5.3d.1.2 1.28 Mcps TDD option

This test is to verify the requirement for UTRAN TDD to E-UTRAN TDD handover requirements specified in section 5.3b when the target E-UTRAN cell is unknown.

The test scenario comprises of 1 UTRA TDD cell and 1 E-UTRA TDD cell as given in tables A.5.3d.1.2-1, A.5.3d.1.2-2, and A.5.3d.1.2-3. No scheduled idle interval is configured in the test case.

The test consists of two successive time periods, with time durations of T1 and T2 respectively. During time duration T1, a RRC HANDOVER FROM UTRAN COMMAND message shall be sent to the UE with activation time "now" with a new active E-UTRA TDD cell, cell2. The end of the last TTI containing handover message is the beginning of T2 duration. At the start of time duration T2, the UE does not have any timing information of Cell 2.

Table A.5.3d.1.2-1: General test parameters for UTRA TDD to unknown E-UTRA TDD handover test case

Para	meter	Unit	Value	Comment
DPCH parame	eters active		DL Reference	As specified in TS 25.102 section A. The
cell	cell		Measurement Channel	DPCH is located in an other timeslot than 0.
			12.2 kbps	
			DL Reference	
PDSCH paran	neters		Measurement Channel	As specified in section A.3.1.1.2 in [24]
			R.0 TDD	
PCFICH/PDC	CH/DHICH		DL Reference	As appointed in agetian A 2.1.2.2 in [2.4]
parameters	Cn/PniCn		Measurement Channel R.6 TDD	As specified in section A.3.1.2.2 in [24]
Initial	Active cell		Cell 1	UTRA 1.28Mcps TDD cell
conditions	Neighbour		Cell 2	E-UTRA TDD cell
	cell		002	2 0 11 0 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2
Final	Active cell		Cell 2	E-UTRA TDD cell
conditions				
CP length of c			Normal	
Uplink-downlir	nk		1	As specified in table 4.2-2 in 3GPP TS
configuration				36.211
Special subfra	ame		6	As specified in table 4.2-1 in 3GPP TS
configuration				36.211
PRACH config	guration		53	As specified in table 5.7.1-3 in 3GPP TS 36.211
Handover acti	vation time		now	
Access Barrin	g Information		Not Sent	No additional delays in random access procedure.
TimeToTrigge	r	ms	0	
Filter coefficient			0	L3 filtering is not used
Hysteresis		dB	0	
T1		S	≤ 5	During T1, cell 2 shall be powered off, and during the off time the physical layer cell identity shall be changed.
T2		s	1	identity shall be changed.
14		ં	I	

Table A.5.3d.1.2-2: Cell specific test parameters for UTRA TDD to unknown E-UTRA TDD handover test case (cell 1)

Parameter	Cell 1 (UTRA)					
Timeslot Number		()	Dwl	PTS	
		T1	T2	T1	T2	
UTRA RF Channel Number*		Channel 1				
PCCPCH_Ec/lor	dB	ï	3			
DwPCH_Ec/lor	dB			()	
OCNS_Ec/lor	dB	Ť	3			
\hat{I}_{or}/I_{oc}	dB	4	4	4	4	
I_{oc}	dBm/1.28 MHz	-80				
PCCPCH RSCP	dBm	-79	-79	'9 n.a.		
Propagation Condition		AWGN				
* Note: In the case of multi-frequency cell, the UTRA RF Channel Number is the primary frequency"s channel number.						

Table A.5.3d.1.2-3: Cell specific test parameters for UTRA TDD to unknown E-UTRA TDD handover test case (cell 2)

Parameter	Unit	Cell 2			
		T1	T2		
E-UTRA RF Channel Number		2	2		
BWchannel	MHz		0		
OCNG Patterns defined in		OP.2 TDD	OP.1 TDD		
TS36.133 A.3.2.2.1 (OP.1 TDD)					
and in A.3.2.2.2 (OP.2 TDD)					
PBCH_RA	dB				
PBCH_RB	dB				
PSS_RB	dB				
SSS_RB	dB				
PCFICH_PA	dB				
PHICH_PA	dB				
PHICH_PB	dB	0	0		
PDCCH_PA	dB				
PDCCH_PB	dB				
PDSCH_PA	dB				
PDSCH_PB	dB				
OCNG_RA ^{Note1}	dB				
OCNG_RB ^{Note1}	dB				
\hat{E}_s/N_{oc}	dB	-Infinity	0		
N_{oc}	dBm/15kHz	-98			
\hat{E}_s/I_{ot}	dB	-Infinity	0		
RSRP	dBm/15kHz	-Infinity	-98		
SCH_RP	dBm/15kHz	-Infinity	-98		
Propagation Condition		AW	'GN		

Note 1: OCNG shall be used such that cell is fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols.

Note 2: RSRP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.

A.5.3d.1.3 7.68 Mcps TDD option

A.5.3d.2 Test Requirements

A.5.3d.2.1 3.84 Mcps TDD option

A.5.3d.2.2 1.28 Mcps TDD option

The UE shall start to transmit the PRACH to Cell 2 less than 160 ms from the beginning of time period T2.

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

A.5.3d.2.3 7.68 Mcps TDD option

A.5.3e TDD/GSM Handover: Non-synchronization target cell

A.5.3e.1 Test Purpose and Environment

A.5.3e.1.1 3.84 Mcps TDD option

A.5.3e.1.2 1.28Mcps TDD option

The purpose of this test is to verify the requirement for the UTRA TDD to GSM handover delay reported in section 5.3.2.

The test parameters are given in Tables A.5.3e.4, A.5.3e.5 and A.5.3e.6 below. The test consists of two successive time periods, with a time duration of T1 and T2 respectively. At the start of time duration T1, the UE may not have any timing information of cell 2.

Starting T2, cell 2 becomes detectable and the UE receives a RRC handover command from the network. The start of T2 is the instant when the last TTI containing the RRC message implying handover is sent to the UE.

Cell 1 is a UTRA TDD cell and cell 2 is a GSM cell.

The DL DPCH shall be transmitted in timeslot 4 and the UL DPCH shall be transmitted in timeslot 2.

Table A.5.3e.1.2-1: General test parameters for TDD/GSM handover

Parameter	Unit	Value	Comment
DCH parameters		DL Reference Measurement Channel	As specified in TS 25.102 section A
		12.2 kbps	
Power Control		On	
Target quality value on DTCH	BLER	0.01	
Initial conditions	Active cell	Cell 1	UTRA TDD cell
	Neighbour cell	Cell 2	GSM cell
Final condition	Active cell	Cell 2	GSM cell
Inter-RAT		GSM carrier RSSI	
measurement			
quantity			
T1	S	10	
T2	S	1	

Table A.5.3e.1.2-2: Cell 1 specific test parameters for TDD/GSM handover

Parameter Unit Cell 1							
DL timeslot number		0		Dwl	PTS		
		T1	T2	T1	T2		
UTRA RF Channel			Chan	nel 1			
Number (NOTE)			Onan	ilei i			
PCCPCH_Ec/lor	dB	-3					
DwPCH_Ec/lor	dB	0					
OCNS_Ec/lor	dB	-3					
\hat{I}_{or}/I_{oc}	dB	5 5			5		
	dBm/						
I_{oc}	1.28	-70					
	MHz						
Propagation Condition	pagation Condition AWGN						
NOTE: In the case of mu	NOTE: In the case of multi-frequency network, the UTRA RF Channel Number can be set for						
the primary frequency in this test.							

Table A.5.3e.1.2-3: Cell 2 specific test parameters for TDD/GSM handover

Parameter	Unit	Cell 2			
Farailletei	Ollit	T1	T2		
Absolute RF Channel Number		ARFCN 1			
RXLEV	dBm	-Infinity	-75		

A.5.3e.1.3 7.68 Mcps TDD option

A.5.3e.2 Test Requirements

A.5.3e.2.1 3.84 Mcps TDD option

A.5.3e.2.2 1.28 Mcps TDD option

The UE shall begin to send access bursts on the new DCCH of the target cell less than 200 ms from the beginning of time period T3.

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

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

 $T_{\text{Handover delay}} = 190 \text{ ms} + T_{\text{offset}} + T_{\text{UL}}$

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

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

This gives a total of 199.3 ms, allow 200 ms in the test case.

A.5.3e.2.3 7.68 Mcps TDD option

(Void)

A.5.4 Cell Re-selection in CELL_FACH

A.5.4.1 3.84 Mcps TDD option

A.5.4.1.1 Scenario 1: Re-selection to intra-frequency TDD cell

A.5.4.1.1.1 Test Purpose and Environment

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 reported in section 5.4.2.1.1. The test parameters are given in Tables A.5.4.1 to A.5.4.4.

Table A.5.4.1: General test parameters for Cell Re-selection in CELL_FACH

Parameter		Unit	Value	Comment
Initial	Active cell		Cell1	
condition	Neighbour cells		Cell2, Cell3,Cell4, Cell5, Cell6	
Final condition			Cell2	
	HCS		Not used	
UE_TXI	PWR_MAX_RACH	dBm	21	The value shall be used for all cells in the test.
	Qrxlevmin	dBm	-102	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.
	T _{SI}		1,28	The value shall be used for all cells in the test.
	T1	S	15 (initial), 5 (repetition)	
	T2	S	5	

Table A.5.4.2: Physical channel parameters for S-CCPCH.

Parameter	Unit	Level
Channel bit rate	Kbps	24,4
Channel symbol rate	Ksps	12,2
Slot Format #	-	0
Frame allocation	-	Continuous frame allocation
Midamble allocation	-	Default Midamble

Table A.5.4.3: Transport channel parameters for S-CCPCH

Parameter	FACH
Transport Channel Number	1
Transport Block Size	240
Transport Block Set Size	240
Transmission Time Interval	20 ms
Type of Error Protection	Convolutional Coding
Coding Rate	1/2
Rate Matching attribute	256
Size of CRC	16

Table A.5.4.4: Cell specific test parameters for Cell Re-selection in CELL_FACH

Parameter	Unit	Cell 1				Cell 2				Cell 3				
Timeslot Number		0 8			0 8				0 8					
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	
UTRA RF Channel Number			Chan	nel 1			Chan	nel 1		Channel 1				
PCCPCH Ec/lor	dB	-3	-3			-3	-3			-3	-3			
SCH_Ec/lor	dB	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	
SCH_t _{offset}	uБ	0	0	0	0	5	5	5	5	10	10	10	10	
PICH_Ec/lor	dB	-	0	-3	-3	-	-	-3	-3	-10	10	-3	-3	
OCNS_Ec/lor	dB	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	
\hat{I}_{or}/I_{oc}	dB	9	7	9	7	7	9	7	9	-1	-1	-1	-1	
PCCPCH RSCP	dBm	-64	-66			-66	-64			-74	-74			
Qoffset1 _{s,n}	dB		, C2: 0; C1,0 1, C5:0	C4:0			, C1: 0; C2,0 , C5: 0;	C4:0		C3	, C1: 0; C3,0 3, C5: 0	C4:0		
Qhyst1 _s	dB		()			()			()		
Treselection			(((
Sintrasearch	dB		not	sent			not :	sent			not	sent		
FACH measurement occasion info			not	sent			not	sent			not	sent		
I_{oc}	dBm/ 3,84 MHz		-70											
Propagation Condition							AW	GN						
			Се	II 4			Ce	II 5			Ce	II 6		
Timeslot		()	3	3	()	3	3	()	8	3	
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	
UTRA RF Channel Number			Chan	nel 1			Chan	nel 1			Channel 1			
PCCPCH_Ec/lor	dB	-3	-3			-3	-3			-3	-3			
SCH_Ec/lor	dB	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	
SCH_t _{offset}		15	15	15	15	20	20	20	20	25	25	25	25	
PICH_Ec/lor	dB			-3	-3			-3	-3			-3	-3	
OCNS_Ec/lor	dB	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	
\hat{I}_{or}/I_{oc}	dB	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	
PCCPCH RSCP	dBm	-74	-74			-74	-74			-74	-74			
Qoffset1 _{s,n}	dB		C4,C3:0 C4, C5:0; C4, C5,C3:0							, C1: 0; C6,0 5, C4:0;	23:0			
Qhyst1 _s	dB		0 0								(
Treselection			()		0					(
Sintrasearch	dB		not	sent		not sent				not	sent			
FACH measurement occasion info		not sent not sent not sent												
I_{oc}	dBm/ 3,84 MHz		-70											
Propagation Condition							AW	GN						

NOTE: S-CCPCH shall not be located in TS0.

A.5.4.1.1.2 Test Requirements

The cell re-selection delay is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 2, and starts to send the CELL UPDATE message with cause value "cell reselection" in cell 2.

The cell re-selection delay shall be less than 2,5 s.

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

A.5.4.1.2 Scenario 2: Re-selection to inter-frequency TDD cell

A.5.4.1.2.1 Test Purpose and Environment

The purpose of this test is to verify the requirement for the cell re-selection delay in CELL_FACH state in the multi carrier case reported in section 5.4.2.1.2. The test parameters are given in Tables A.5.4.5 to A.5.4.8.

Table A.5.4.5: General test parameters for Cell Re-selection in CELL_FACH

ı	Parameter		Value	Comment
Initial	Active cell		Cell1	
condition	Neighbour cells		Cell2, Cell3,Cell4, Cell5, Cell6	
Final condition	Active cell		Cell2	
	HCS		Not used	
UE_TXI	PWR_MAX_RACH	dBm	21	The value shall be used for all cells in the test.
	Qrxlevmin	dBm	-102	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.
	T _{SI}		1,28	The value shall be used for all cells in the test.
	T1	S	15 (initial), 5 (repetition)	
	T2	S	5	

Table A.5.4.6: Physical channel parameters for S-CCPCH.

Parameter	Unit	Level
Channel bit rate	Kbps	24,4
Channel symbol rate	Ksps	12,2
Slot Format #	-	0
Frame allocation	-	Continuous frame allocation
Midamble allocation	-	Default Midamble

Table A.5.4.7: Transport channel parameters for S-CCPCH

Parameter	FACH
Transport Channel Number	1
Transport Block Size	240
Transport Block Set Size	240
Transmission Time Interval	20 ms
Type of Error Protection	Convolutional Coding
Coding Rate	1/2
Rate Matching attribute	256
Size of CRC	16

Table A.5.4.8: Cell specific test parameters for Cell Re-selection in CELL_FACH

Parameter	Unit		Се	II 1		Cell 2			Cell 3				
Timeslot Number		(0 8			0 8			0 8				
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number		Channel 1			Channel 2				Channel 1				
PCCPCH_Ec/lor	dB	-3	-3			-3	-3			-3	-3		
SCH_Ec/lor	dB	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9
SCH_t _{offset}		0	0	0	0	5	5	5	5	10	10	10	10
PICH_Ec/lor	dB			-3	-3			-3	-3			-3	-3
OCNS_Ec/lor	dB	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12
\hat{I}_{or}/I_{oc}	dB	9	3	9	3	3	9	3	9	-1	-1	-1	-1
PCCPCH RSCP	dBm	-64	-70			-70	-64			-74	-74		
Qoffset1 _{s,n}	dB		, C2: 0; C1,0 , C5:0	C4:0			, C1: 0; C2,0 2, C5: 0	C4:0			, C1: 0; C3,0 3, C5: 0	C4:0	
Qhyst1 _s	dB		())	
Treselection			()			()			()	
Sintrasearch	dB		not	sent			not	sent			not	sent	
Sintersearch	dB			sent				sent				sent	
FACH measurement occasion info			not :	sent			not	sent			not	sent	
Inter-frequency TDD measurement indicator			TR	UE			TR	UE			TR	UE	
I_{oc}	dBm/ 3,84 MHz		-70										
Propagation Condition							AW						
			Се					II 5		Cell 6			
Timeslot		T1	T2	T1	3 T2	T1) T2	T1	3 T2	T1	0 T2	T1	3 T2
UTRA RF Channel Number			Chan	nel 1		Channel 2				Channel 2			
PCCPCH_Ec/lor	dB	-3	-3			-3	-3			-3	-3		
SCH_Ec/lor	dB	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9
SCH_t _{offset}		15	15	15	15	20	20	20	20	25	25	25	25
PICH_Ec/lor	dB			-3	-3			-3	-3			-3	-3
OCNS_Ec/lor	dB	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12
\hat{I}_{or}/I_{oc}	dB	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
PCCPCH RSCP	dBm	-74	-74			-74	-74			-74	-74		
Qoffset1 _{s,n}	dB		, C1: 0; C3:0 C4 C6	1, C5:0;		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			
Qhyst1 _s	dB		()	- -)	-
Treselection			Ò))	
Sintrasearch	dB			sent			not	sent				sent	
Sintersearch	dB	not sent				not sent not sent						sent	
FACH measurement		not sent				not sent					sent		
occasion info Inter-frequency TDD measurement indicator		TRUE				TRUE			TRUE				
Indicator	dBm/ 3,84 MHz		-70										
Propagation Condition							AW	'GN					
NOTE: S-CCPCH shall not be located in TS0.													

A.5.4.1.2.2 Test Requirements

The cell re-selection delay is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 2, and starts to send the CELL UPDATE message with cause value "cell reselection" in cell 2.

The cell re-selection delay shall be less than 3 s.

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

A.5.4.2 1.28 Mcps TDD option

A.5.4.2.1 Re-selection to intra-frequency TDD cell

A.5.4.2.1.1 Test purpose and Environment

The purpose of this test is to verify the requirement for the cell re-selection delay in CELL_FACH state in the case reported in section 5.4.3.2.1.

The test parameters are given in Tables A.5.4.9to A.5.4.12

Table A.5.4.9: General test parameters for Cell Re-selection in CELL_FACH

Parameter		Unit Value		Comment
initial	Active cell		Cell1	
condition	Neighbour cells		Cell2, Cell3,Cell4, Cell5, Cell6	
final condition	Active cell		Cell2	
	HCS		Not used	
UE_	UE_TXPWR_MAX_RACH		21	The value shall be used for all cells in the test.
	Qrxlevmin		-103	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.
	T_{SI}		1.28	The value shall be used for all cells in the test.
	T1		15 (initial), 5 (repetition)	
	T2	S	5	

Table A.5.4.10: Physical channel parameters for S-CCPCH.

Parameter	Unit	Level
Channel bit rate	kbps	35.2
Channel symbol rate	ksps	17.6
Slot Format #	-	0; 2
Frame allocation	-	Continuous frame allocation
Midamble allocation	-	Common Midamble

Table A.5.4.11: Transport channel parameters for S-CCPCH

Parameter	FACH		
Transport Channel Number	1		
Transport Block Size	240		
Transport Block Set Size	240		
Transmission Time Interval	20 ms		
Type of Error Protection	Convolution Coding		
Coding Rate	1/2		
Rate Matching attribute	256		
Size of CRC	16		

Table A.5.4.12: Cell specific test parameters for Cell Re-selection in CELL_FACH

Parameter	Unit	Cell 1			Cell 2				Cell 3				
Timeslot Number		()	DWPTS		0		DWPTS		0		DWPTS	
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number (NOTE 2)		Channel 1			Channel 1			Channel 1					
PCCPCH_Ec/lor	dB	-3	-3			-3	-3			-3	-3		
DwPCH_Ec/lor	dB			0	0			0	0			0	0
OCNS_Ec/lor	dB	-3	-3			-3	-3			-3	-3		
\hat{I}_{or}/I_{oc}	dB	10	7	10	7	7	10	7	10	-1	-1	-1	-1
PCCPCH RSCP	dBm	-63	-66			-66	-63			-74	-74		
Qoffset1 _{s,n}	dB	C1, C2: 0; C1, C3:0; C1,C4:0 C1, C5:0; C1,C6:0		C2, C1: 0; C2, C3:0; C2,C4:0 C2, C5: 0; C2, C6:0			C3, C1: 0; C3, C2:0; C3,C4:0 C3, C5: 0; C3, C6:0						
Qhyst1 _s	dB		()			()				0	
Treselection			()			()		0			
Sintrasearch	dB		not	sent			not	sent		not sent			
FACH measurement occasion info		not sent			not sent			not sent					
00043101111110		Cell 4			Cell 5			Cell 6					
Timeslot		(0 DWPTS		0 DWPTS			0 DWPTS			PTS		
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number (NOTE 2)		Channel 1		Channel 1			Channel 1						
PCCPCH Ec/lor	dB	-3	-3			-3	-3			-3	-3		
DwPCH_Ec/lor	dB			0	0			0	0			0	0
OCNS_Ec/lor	dB	-3	-3			-3	-3			-3	-3		
\hat{I}_{or}/I_{oc}	dB	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
PCCPCH RSCP	dBm	-74	-74			-74	-74			-74	-74		
Qoffset1 _{s,n}	dB	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					
Qhyst1 _s	dB	0			0			0					
Treselection		0			0			0					
Sintrasearch	dB	not sent			not sent			not sent					
FACH measurement occasion info		not sent			not sent			not sent					
I_{oc}	dBm/1. 28 MHz	-70											
Propagation Condition		AWGN											

NOTE 1: S-CCPCH is located in an other downlink TS than TS0.

NOTE 2: In the case of multi-frequency network, the UTRA RF Channel Number is the primary frequency"s channel number.

A.5.4.2.1.2 Test Requirements

The cell re-selection delay is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 2, and starts to send SYNCH-UL sequence in the UpPTS for sending the CELL UPDATE message with cause value "cell reselection" in cell 2.

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%.

NOTE:

The cell re-selection delay can be expressed as:

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

where:

 $T_{\text{Measurement Period Intra}} \quad \text{Specified in 8.4A.2.2.2 gives 200ms for this test case.}$

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.

 T_{RA} The additional delay caused by the random access procedure described in TS25.224. In this test case the persistence value is 1 thus T_{RA} is set to 35ms in the test case.

This gives a total of 1.545s, allow 1.6s in the test case.

A.5.4.2.2 Re-selection to inter-frequency TDD cell

A.5.4.2.2.1 Test Purpose and Environment

The purpose of this test is to verify the requirement for the cell re-selection delay in CELL_FACH state in section 5.4.3.2.2. The test parameters are given in Tables A.5.4.13 to A.5.4.16

Table A.5.4.13: General test parameters for Cell Re-selection in CELL_FACH

Parameter		Unit	Value	Comment			
initial	Active cell		Cell1				
condition	Neighbour cells		Cell2, Cell3, Cell4, Cell5, Cell6				
final condition	Active cell		Cell2				
	HCS		Not used				
UE_TXPWR_MAX_RACH		R_MAX_RACH dBm		The value shall be used for all cells in the test.			
Qrxlevmin		dBm	-103	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.			
T_{SI}		S	1.28	The value shall be used for all cells in the test.			
T1		S	15 (initial), 5 (repetition)				
T2		S	5				

Table A.5.4.14: Physical channel parameters for S-CCPCH.

Parameter	Unit	Level
Channel bit rate	kbps	35.2
Channel symbol rate	ksps	17.6
Slot Format #	-	0; 2
Frame allocation	-	Continuous frame allocation
Midamble allocation	-	Common Midamble

Table A.5.4.15: Transport channel parameters for S-CCPCH

Parameter	FACH		
Transport Channel Number	1		
Transport Block Size	240		
Transport Block Set Size	240		
Transmission Time Interval	20 ms		
Type of Error Protection	Convolution Coding		
Coding Rate	1/2		
Rate Matching attribute	256		
Size of CRC	16		

Table A.5.4.16: Cell specific test parameters for Cell re-selection in CELL_FACH state

Parameter	Unit		Се	II 1			Ce	II 2			Се	II 3	
Timeslot Number		()	DW	PTS	()	DW	PTS	()	DW	PTS
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number (NOTE 2)			Chan	nel 1		Channel 2		Channel 1					
PCCPCH_Ec/lor	dB	-3	-3			-3	-3			-3	-3		
DwPCH_Ec/lor	dB			0	0			0	0			0	0
OCNS_Ec/lor	dB	-3	-3			-3	-3			-3	-3		
\hat{I}_{or}/I_{oc}	dB	10	4	10	4	4	10	4	10	-1	-1	-1	-1
PCCPCH RSCP	dBm	-63	-69			-69	-63			-74	-74		
Qoffset1 _{s,n}	dB		2: 0; C1, C1, C5:0;				: 0; C2, C 22, C5: 0					C2:0; C3); C3:C6:	
Qhyst1 _s	dBm		(((0	
Treselection	S		()			()			()	
Sintrasearch	dB		not :	sent			not:	sent			not	sent	
Sintersearch	dB		not :	sent			not	sent			not	sent	
FACH measurement occasion info			not :	sent			not	sent			not	sent	
FACH measurement occasion cycle length			2	1			2	1			4	4	
Inter-frequency TDD measurement indicator			TR	UE		TRUE			TRUE				
Inter-frequency FDD measurement indicator		FALSE FAL			SE								
			Ce	II 4			Ce				Ce	II 6	
Timeslot)		PTS)		PTS	1	0		PTS
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number (NOTE 2)			Chan	nel 1			Chan	nel 2			Char	nnel 2	
PCCPCH_Ec/lor	dB	-3	-3			-3	-3			-3	-3		
DwPCH_Ec/lor	dB			0	0			0	0			0	0
OCNS_Ec/lor	dB	-3	-3			-3	-3			-3	-3		
\hat{I}_{or}/I_{oc}	dB	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
PCCPCH RSCP	dBm	-74	-74			-74	-74			-74	-74		
Qoffset1 _{s,n}	dB		1: 0; C4, C4, C5:0;			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				
Qhyst1 _s	dB		((0	
Treselection	S		(0			0				
Sintrasearch	dB		not :	sent		not sent			not sent				
Sintersearch	dB		not :	sent		not sent			not sent				
FACH measurement occasion info			not :	sent		not sent			not sent				
FACH measurement occasion cycle length			2	ļ		4			4				
Inter-frequency TDD measurement indicator		TRUE		TRUE			TRUE						
Inter-frequency FDD measurement indicator			FAL	.SE		FALSE FA			FAI	LSE			
I_{oc}	dBm/ 1.28 MHz						-7	70					
Propagation Condition								'GN					

NOTE 1: S-CCPCH is located in an other downlink TS than TS0.

NOTE 2: In the case of multi-frequency network,the UTRA RF Channel Number is the primary frequency"s channel number.

A.5.4.2.2.2 Test Requirements

The cell re-selection delay is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 2, and starts to send SYNCH-UL sequence in the UpPTS for sending the CELL UPDATE message with cause value "cell reselection" in cell 2.

The cell re-selection delay shall be less than 2 s.

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

NOTE: The cell re-selection delay can be expressed as:

$$T_{\rm reselection,\,inter} = T_{\rm measurement\,inter} + T_{\rm IU} + 20 + T_{\rm SI} + T_{\rm RA} \; {\rm ms}, \label{eq:Treselection}$$

where:

 $T_{measurement \, inter}$ is specified in 8.4A.2.3.2 gives 480ms for this test case.

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.

 T_{RA} The additional delay caused by the random access procedure described in TS25.224. In this test

case the persistence value is 1 thus T_{RA} is set to 35ms in the test case.

This gives a total of 1.825s, allow 1.9s in the test case.

A.5.4.2.3 Re-selection to GSM cell

A.5.4.2.3.1 Test Purpose and Environment

The purpose of this test is to verify the requirement for the cell re-selection delay in CELL_FACH state in section 5.4.3.2.4.

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 6 GSM cells. Test parameters are given in Table, A.5.4.16A, A.5.4.16B, A.5.4.16C, A.5.4.16D, A.5.4.16E.

Table A.5.4.16A: General test parameters for UTRAN to GSM Cell Re-selection

	Parameter		Value	Comment
Initial	Active cell		Cell1	
condition	Neighbour cell		Cell2	
Final condition	Active cell		Cell2	
HCS				Not used
UE_TXPW	R_MAX_RACH	dBm	21	The value shall be used for all cells in the test
Q _{rxlevmin}		dBm	-103	The value shall be used for all cells in the test
	Access Service Class (ASC#0) - Persistence value		1	The value shall be used for all cells in the test
T _{SI}		S	1,28	
T1		S	15	
T2		S	15	

The transport and physical parameters of the S-CCPCH carrying the FACH are defined in Table A.5.4.16B and Table A.5.4.16C.

Table A.5.4.16B: Physical channel parameters for S-CCPCH.

Parameter	Unit	Level
Channel bit rate	kbps	35.2
Channel symbol rate	ksps	17.6
Slot Format #I	-	0; 2
Frame allocation	-	Continuous frame allocation
Midamble allocation	-	Common Midamble

Table A.5.4.16C: Transport channel parameters for S-CCPCH

Parameter	FACH
Transport Channel Number	1
Transport Block Size	240
Transport Block Set Size	240
Transmission Time Interval	20 ms
Type of Error Protection	Convolution Coding
Coding Rate	1/2
Rate Matching attribute	256
Size of CRC	16

Table A.5.4.16D: Cell re-selection UTRAN TDD 1,28 Mcps Option to GSM cell case (cell 1)

Parameter	Unit	Cell 1 (UTRA)			
Timeslot Number			0	Dw	PTS
		T1	T2	T1	T2
UTRA RF Channel		Channel 1		Channel 1	
Number		Onamor 1		Onamoi	
PCCPCH_Ec/lor	dB	-3	-3		
DwPCH_Ec/lor	dB			0	0
OCNS_Ec/lor	dB	-3	-3		
\hat{I}_{or}/I_{oc}	dB	6	6	6	6
I_{oc}	dBm/1,28 MHz	-80			
PCCPCH RSCP	dBm	-77			
Propagation Condition		AWGN		AWGN	
Treselection	S	0			
SsearchRAT	dB	Not sent			
Qrxlevmin	dBm	-103			
Qoffset1s,n	dB	C1, C2: 0			
Qhyst1s	dB	0			

Table A.5.4.16E: Cell re-selection UTRAN to GSM cell case (cell 2)

Parameter	Unit	Cell 2	(GSM)
		T1	T2
Absolute RF Channel Number		ARFCN	1
RXLEV	dBm	-90	-70
RXLEV_ACCESS_	dBm	-103	
MIN			
MS_TXPWR_MAX_	dBm	33	
ССН			
Qsearch_I	-	always	

A.5.4.2.3.2 Test Requirements

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

This test is for the case where the UE camps on a 1,28 Mcps TDD cell and reselects to a GSM cell.

The requirements and this test apply to UEs supporting both 1,28 Mcps TDD and GSM.

The cell re-selection delay shall be less than 7.5 s.

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

NOTE: $T_{reselection GSM} = 40 + T_{identify GSM} + T_{measurement GSM} + T_{BCCH} + T_{RA} \square$ where:

 T_{RA} = The additional delay caused by the random access procedure, 10ms.

T_{identify GSM} Specified in TS 25.123 ,here it is 5000ms.

T_{measureGSM} 480ms according to Table 4.1A in section 4.2.

T_{BCCH} Maximum time allowed to read BCCH data from GSM cell.

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 7.43s, thus allow 7.5s.

A.5.4.3 7.68 Mcps TDD option

A.5.4.3.1 Scenario 1: TDD/TDD cell re-selection single carrier case

A.5.4.3.1.1 Test Purpose and Environment

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 reported in section 5.4.4.1.1. The test parameters are given in Tables A.5.4.17 to A.5.4.20.

Table A.5.4.17: General test parameters for Cell Re-selection in CELL_FACH

	Parameter		Value	Comment		
Initial	Active cell		Cell1			
condition	Neighbour cells		Cell2, Cell3,Cell4, Cell5, Cell6			
Final condition	Active cell		Cell2			
	HCS		Not used			
UE_TX	UE_TXPWR_MAX_RACH		XPWR_MAX_RACH dBm		21	The value shall be used for all cells in the test.
	Qrxlevmin	dBm	-102	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.		
	T _{SI}		T _{SI} s		1,28	The value shall be used for all cells in the test.
	T1	S	15 (initial), 5 (repetition)			
	T2	S	5			

Table A.5.4.18: Physical channel parameters for S-CCPCH.

Parameter	Unit	Level
Channel bit rate	Kbps	24,4
Channel symbol rate	Ksps	12,2
Slot Format #	-	0
Frame allocation	-	Continuous frame allocation
Midamble allocation	-	Default Midamble

Table A.5.4.19: Transport channel parameters for S-CCPCH

Parameter	FACH
Transport Channel Number	1
Transport Block Size	240
Transport Block Set Size	240
Transmission Time Interval	20 ms
Type of Error Protection	Convolutional Coding
Coding Rate	1/2
Rate Matching attribute	256
Size of CRC	16

Table A.5.4.20: Cell specific test parameters for Cell Re-selection in CELL_FACH

Parameter	Unit		Се	II 1			Се	II 2			Се	II 3	
Timeslot Number		()	3	3	()	3	3	()		3
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number			Chan	inel 1			Char	nel 1		Channel 1			
PCCPCH_Ec/lor	dB	-3	-3			-3	-3			-3	-3		
SCH_Ec/lor	dB	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9
SCH_t _{offset}		0	0	0	0	5	5	5	5	10	10	10	10
PICH_Ec/lor	dB			-3	-3			-3	-3			-3	-3
OCNS_Ec/lor	dB	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12
\hat{I}_{or}/I_{oc}	dB	9	7	9	7	7	9	7	9	-1	-1	-1	-1
PCCPCH RSCP	dBm	-64	-66			-66	-64			-74	-74		
Qoffset1 _{s,n}	dB			C3:0; C ² ; C1,C6:				C3:0; C2; C2, C6:				C2:0; C3; ; C3, C6:	
Qhyst1 _s	dB		()			()			()	
Treselection			()			()			()	
Sintrasearch	dB		not	sent			not	sent			not	sent	
FACH measurement occasion info			not sent not sent					not sent					
I_{oc}	dBm/7, 68 MHz						-7	70					
Propagation Condition			AWGN										
				II 4			Ce	II 5		Cell 6			
Timeslot)		3)	8		(3
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number			Chan	nel 1		Channel 1			Channel 1				
PCCPCH_Ec/lor	dB	-3	-3			-3	-3			-3	-3		
SCH_Ec/lor	dB	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9
SCH_t _{offset}		15	15	15	15	20	20	20	20	25	25	25	25
PICH_Ec/lor	dB			-3	-3			-3	-3			-3	-3
OCNS_Ec/lor	dB	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12
\hat{I}_{or}/I_{oc}	dB	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
PCCPCH RSCP	dBm	-74	-74			-74	-74			-74	-74		
Qoffset1 _{s,n}					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					
	dB												0
Qhyst1 _s	dB dB		C4, C5:0;				C5, C4:0;				C6, C4:0;		0
Qhyst1 _s Treselection	_		C4, C5:0;	C4, C6:0			C5, C4:0;	C5, C6:			C6, C4:0;	C6, C5:	0
,	_		C4, C5:0; (C4, C6:0			C5, C4:0; (C5, C6:0			C6, C4:0;	C6, C5:	0
Treselection	dB		C4, C5:0; (not	C4, C6:0			05, C4:0; (not	C5, C6:0			06, C4:0; (not	C6, C5:()	0
Treselection Sintrasearch FACH measurement	dB		C4, C5:0; (not	C4, C6:0)) sent			05, C4:0; (not	C5, C6:0)) sent			06, C4:0; (not	C6, C5:	0

NOTE: S-CCPCH shall not be located in TS0.

A.5.4.3.1.2 Test Requirements

The cell re-selection delay is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 2, and starts to send the CELL UPDATE message with cause value "cell reselection" in cell 2.

The cell re-selection delay shall be less than 2,5 s.

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

A.5.4.3.2 Scenario 2: TDD/TDD cell re-selection multi carrier case

A.5.4.1.2.1 Test Purpose and Environment

The purpose of this test is to verify the requirement for the cell re-selection delay in CELL_FACH state in the multi carrier case reported in section 5.4.4.1.2. The test parameters are given in Tables A.5.4.21 to A.5.4.24.

Table A.5.4.21: General test parameters for Cell Re-selection in CELL_FACH

F	Parameter		Value	Comment		
Initial	Active cell		Cell1			
condition	Neighbour cells		Cell2, Cell3,Cell4, Cell5, Cell6			
Final condition	Active cell		Cell2			
	HCS		Not used			
UE_TXI	UE TXPWR MAX RACH		21	The value shall be used for all cells in the test.		
	Qrxlevmin	dBm	-102	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.		
	T _{SI}		T _{SI} s		1,28	The value shall be used for all cells in the test.
	T1	S	15 (initial), 5 (repetition)			
	T2	S	5			

Table A.5.4.22: Physical channel parameters for S-CCPCH.

Parameter	Unit	Level
Channel bit rate	Kbps	24,4
Channel symbol rate	Ksps	12,2
Slot Format #	-	0
Frame allocation	-	Continuous frame allocation
Midamble allocation	-	Default Midamble

Table A.5.4.23: Transport channel parameters for S-CCPCH

Parameter	FACH
Transport Channel Number	1
Transport Block Size	240
Transport Block Set Size	240
Transmission Time Interval	20 ms
Type of Error Protection	Convolutional Coding
Coding Rate	1/2
Rate Matching attribute	256
Size of CRC	16

Table A.5.4.24: Cell specific test parameters for Cell Re-selection in CELL_FACH

Parameter	Unit		Cell 1 Cell 2 Cell 3													
Timeslot Number		()		3	()	8	3	()	8	3			
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2			
UTRA RF Channel Number			Chan	nel 1			Chan	nel 2			Char	nel 1				
PCCPCH_Ec/lor	dB	-3	-3			-3	-3			-3	-3					
SCH_Ec/lor	dB	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9			
SCH_t _{offset}		0	0	0	0	5	5	5	5	10	10	10	10			
PICH_Ec/lor	dB			-3	-3			-3	-3			-3	-3			
OCNS_Ec/lor	dB	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12			
\hat{I}_{or}/I_{oc}	dB	9	3	9	3	3	9	3	9	-1	-1	-1	-1			
PCCPCH RSCP	dBm	-64	-70			-70	-64			-74	-74					
Qoffset1 _{s,n}	dB			C3:0; C1 ; C1,C6:				C3:0; C2 ; C2, C6:				C2:0; C3; ; C3, C6:				
Qhyst1 _s	dB		0 0 0													
Treselection			()			()			()				
Sintrasearch	dB		not sent not sent									sent				
Sintersearch	dB		not	sent			not	sent			not	sent				
FACH measurement occasion info			not	sent			not	sent			not	sent				
Inter-frequency TDD measurement indicator			TR	UE			TR	UE		TRUE						
I_{oc}	dBm/ 7,68 MHz						-7	70								
Propagation Condition							AW	'GN								
				II 4			Ce				Ce					
Timeslot)	8)	8)	3				
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2			
UTRA RF Channel Number			Chan	nel 1				nel 2			Char	inel 2				
PCCPCH_Ec/lor	dB	-3	-3			-3	-3			-3	-3					
SCH_Ec/lor	dB	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9			
SCH_t _{offset}		15	15	15	15	20	20	20	20	25	25	25	25			
PICH_Ec/lor	dB			-3	-3			-3	-3			-3	-3			
OCNS_Ec/lor	dB	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12			
\hat{I}_{or}/I_{oc}	dB	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1			
PCCPCH RSCP	dBm	-74	-74			-74	-74			-74	-74					
Qoffset1 _{s,n}	dB			C2:0; C4 C4, C6:		C5, C1: 0; C5, C2:0; C5,C3:0						C2:0; C6 C6, C5:0				
Qhyst1 _s			, ,			C5, C4:0; C5, C6:0										
	dB		()) , 04.0, (0			
Treselection))								
	dB dB		()			()			(
Treselection			(not)			(not)			not :)				
Treselection Sintrasearch Sintersearch FACH measurement	dB		not :) sent			not :)) sent			not :) sent				
Treselection Sintrasearch Sintersearch FACH	dB dB		not a	sent			not :)) sent sent			not not	sent sent				
Treselection Sintrasearch Sintersearch FACH measurement occasion info Inter-frequency TDD measurement	dB		not a	sent sent			not : not :	sent sent			not not	sent sent sent				

NOTE: S-CCPCH shall not be located in TS0.

A.5.4.3.2.2 Test Requirements

The cell re-selection delay is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 2, and starts to send the CELL UPDATE message with cause value "cell reselection" in cell 2.

The cell re-selection delay shall be less than $3\ s.$

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

A.5.4A Cell Re-selection in Enhanced CELL_FACH

A.5.4A.1 3.84 Mcps TDD option

Void

A.5.4A.2 1.28 Mcps TDD option

A.5.4A.2.1 Re-selection to intra-frequency TDD cell

A.5.4A.2.1.1 Test purpose and Environment

The purpose of this test is to verify the requirement for the cell re-selection delay in Enhanced CELL_FACH state in the case reported in section 5.4.3.2.1.

The test parameters are given in Tables A.5.4.25 and A.5.4.26

Table A.5.4.25: General test parameters for Cell Re-selection to intra-frequency TDD cell in Enhanced CELL_FACH

	Parameter	Unit	Value	Comment
initial	Active cell		Cell1	
condition	Neighbour cells		Cell2, Cell3,Cell4, Cell5, Cell6	
final condition	Active cell		Cell2	
	HCS		Not used	
UE_	UE_TXPWR_MAX_RACH		21	The value shall be used for all cells in the test.
	Qrxlevmin	dBm	-103	The value shall be used for all cells in the test.
	s 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.
	T_{Sl}	S	1.28	The value shall be used for all cells in the test.
	T1	S	15 (initial), 5 (repetition)	
	T2	S	5	

Table A.5.4.26: Cell specific test parameters for Cell Re-selection to intra-frequency TDD cell in Enhanced CELL_FACH

Parameter	Unit		Ce	II 1			Се	II 2		Cell 3				
Timeslot Number)	DW	PTS	()	DW	PTS	(0	DW	PTS	
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	
UTRA RF Channel Number (NOTE 2)			Char	nnel 1			Char	nnel 1			Char	nnel 1		
PCCPCH_Ec/lor	dB	-3	-3			-3	-3			-3	-3			
DwPCH_Ec/lor	dB			0	0			0	0			0	0	
OCNS_Ec/lor	dB	-3	-3			-3	-3			-3	-3			
\hat{I}_{or}/I_{oc}	dB	10	7	10	7	7	10	7	10	-1	-1	-1	-1	
PCCPCH RSCP	dBm	-63	-66			-66	-63			-74	-74			
Qoffset1 _{s,n}	dB			C3:0; C ² ; C1,C6:				C3:0; C2; C2, C6:			1: 0; C3, C3, C5: 0			
Qhyst1 _s	dB))			(0		
Treselection			()			()			()		
Sintrasearch	dB		not	sent			not	sent			not	sent		
FACH measurement			not	sent			not	sent		not sent				
occasion info														
		Cell 4						II 5				II 6		
Timeslot)		PTS) 		PTS		0		PTS	
LITEA DE OL. I		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	
UTRA RF Channel Number (NOTE 2)			Char	nnel 1			Char	nnel 1			Char	nnel 1		
PCCPCH_Ec/lor	dB	-3	-3			-3	-3			-3	-3	1	T	
DwPCH_Ec/lor	dB	-5	-3	0	0	-3	-3	0	0	-3	-5	0	0	
OCNS_Ec/lor	dB	-3	-3	-		-3	-3	-	-	-3	-3			
				4	_		-1	_	4			_		
\hat{I}_{or}/I_{oc}	dB	-1	-1	-1	-1	-1		-1	-1	-1	-1	-1	-1	
PCCPCH RSCP	dBm	-74	-74			-74	-74			-74	-74			
Qoffset1 _{s,n}	dB			C2:0; C4 C4, C6:				C2:0; C: C5, C6:			1: 0; C6, C6, C4:0;			
Qhyst1 _s	dB		(0			()				0		
Treselection			()			()			()		
Sintrasearch	dB		not	sent			not	sent			not	sent		
FACH measurement occasion info			not	sent		not sent					not	sent		
I_{oc}	dBm/1. 28 MHz						-	70						
Propagation Condition		AWGN												
NOTE 1: S-CCPCH is	located in	another	downlink	TS than	TS0.									

OTE 1: S-CCPCH is located in another downlink TS than TS0.

NOTE 2: In the case of multi-frequency network, the UTRA RF Channel Number is the primary frequency schannel number.

A.5.4A.2.1.2 Test Requirements

The cell re-selection delay is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 2, and starts to send SYNCH-UL sequence in the UpPTS for sending the CELL UPDATE message with cause value "cell reselection" in cell 2.

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%.

NOTE:

The cell re-selection delay can be expressed as:

$$T_{\rm reselection,\,intra} = T_{\rm Measurement\,Period\,\,Intra} + T_{\rm IU} + 20 + T_{\rm SI} + T_{\rm RA} + T_{\rm CSI}_{\,\rm ms}$$

where:

 $T_{\text{Measurement Period Intra}} \quad \text{Specified in 8.4A.2.2.2 gives 200ms for this test case.}$

- T_{SI} 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.
- T_{RA} The additional delay caused by the random access procedure described in TS25.224. In this test case the persistence value is 1 thus T_{RA} is set to 35ms in the test case.
- T_{CSI} is the additional delay in case the cell re-selection indication shall be sent in enhanced CELL_FACH state. T_{CSI} can be up to one sub frame (5ms) or the delay caused by the random access procedure (T_{RA}). In this test case the delay is T_{RA} and is set to 35ms in the test case.

This gives a total of 1.58s, allow 1.6s in the test case.

A.5.4A.2.2 Re-selection to inter-frequency TDD cell

A.5.4A.2.2.1 Test Purpose and Environment

The purpose of this test is to verify the requirement for the cell re-selection delay in CELL_FACH state in section 5.4.3.2.2. The test parameters are given in Tables A.5.4.27 to A.5.4.28

Table A.5.4.27: General test parameters for Cell Re-selection to inter-frequency TDD cell in Enhanced CELL FACH

	Parameter	Unit	Value	Comment					
initial	Active cell		Cell1						
condition	Neighbour cells		Cell2, Cell3,Cell4, Cell5, Cell6						
final condition	Active cell		Cell2						
	HCS		Not used						
UE_	UE_TXPWR_MAX_RACH		21	The value shall be used for all cells in the test.					
	Qrxlevmin	dBm	-103	The value shall be used for all cells in the test.					
	s 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.					
	T _{SI}		1.28	The value shall be used for all cells in the test.					
	T1	S	15 (initial), 5 (repetition)						
	T2	S	5						

Table A.5.4.28: Cell specific test parameters for Cell re-selection to inter-frequency TDD cell in Enhanced CELL_FACH state

Timeslot Number	Parameter	Unit		Се	II 1			Се	II 2		Cell 3				
UTRA RF Channel Number (NOTE 2)	Timeslot Number		(0	DW	PTS	(0	DW	PTS	(0	DW	PTS	
Number (NOTE 2)			T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	
DWPCH Ector dB				Chan	nel 1			Char	nel 2			Char	nel 1		
CONS_ECION dB			-3	-3			-3	-3			-3	-3			
Piccych RSCP dBm 40 4 10 4 4 10 4 10 -1 -1 -1 -1 -1 -1 -1					0	0			0	0			0	0	
PCCPCH RSCP dBm 63 -69 -69 -60 -74 -74 -74 -74 -74 -74 -74	OCNS_Ec/lor	dB	-3	-3			-3	-3			-3	-3			
Ooffset1s,n dB				-	10	4			4	10			-1	-1	
Contract	PCCPCH RSCP	dBm													
Treselection	Qoffset1 _{s,n}	dB													
Sintrasearch dB		dBm		()			()			()		
Sintersearch A				()			()			()		
FACH measurement occasion info FACH measurement occasion info FACH measurement occasion info FACH measurement occasion info FACH measurement occasion oyele length Inter-frequency TDD measurement indicator TRUE															
Occasion info		dB		not	sent			not	sent			not	sent		
December				not	sent			not	sent			not	sent		
Inter-frequency TDD measurement indicator TRUE				4	4			4	4			4	4		
FALSE	Inter-frequency TDD measurement			TR	UE			TR	UE			TR	UE		
Timeslot	measurement			FAL	_SE			FAI	_SE		FALSE				
Timeslot	indicator			Ce	II 4			Ce	II 5			Ce	11 6		
T1 T2 T1 T1	Timeslot					PTS				PTS				PTS	
Number (NOTE 2)			T1	T2			T1	T2			T1	T2			
PCCPCH_Ec/lor dB				Chan	nel 1	•		Char	nel 2			Char	nel 2		
OCNS_Ec/lor dB -3 -1		dB	-3	-3			-3	-3			-3	-3			
Î _{or} /I _{oc} dB -1		dB			0	0			0	0			0	0	
PCCPCH RSCP dBm -74 -74 -74 -74 -74 -74 -74 -74 -74 -7	OCNS_Ec/lor	dB	-3	-3			-3	-3			-3	-3			
Qoffset1_s,n dB C4, C1: 0; C4, C2:0; C4, C3:0; C5, C1: 0; C5, C2:0; C5, C3:0 C6, C1: 0; C6, C2:0; C6, C3:0 C4, C5:0; C4: C6:0 C5, C4:0; C5: C6:0 C6, C4:0; C6: C5:0 C6, C4:0; C6:C5:0 C6, C4:0; C6:					-1	-1			-1	-1			-1	-1	
C4, C5:0; C4:C6:0 C5, C4:0; C5:C6:0 C6, C4:0; C6:C5:0 Qhyst1s	PCCPCH RSCP	dBm													
Treselection s 0 0 0 Sintrasearch dB not sent not sent not sent Sintersearch dB not sent not sent not sent FACH measurement occasion info not sent not sent not sent FACH measurement occasion cycle length 4 4 4 Inter-frequency TDD measurement indicator TRUE TRUE TRUE Inter-frequency FDD measurement indicator FALSE FALSE FALSE Indicator dBm/date 1.28 m/date -70 Propagation AWGN AWGN	Qoffset1 _{s,n}														
Sintrasearch dB not sent not sent not sent Sintersearch dB not sent not sent not sent FACH measurement occasion info FACH measurement occasion cycle length Inter-frequency TDD measurement indicator Inter-frequency FDD measurement indicator AMMED		dB							_						
Sintersearch dB not sent not sent not sent FACH measurement occasion info FACH measurement occasion cycle length Inter-frequency TDD measurement indicator Inter-frequency FDD measurement indicator Inter-frequency FDD measurement indicator Indicator Inter-frequency FDD measurement indicator Indicator Inter-frequency FDD measurement indicator	Treselection							()			()		
FACH measurement occasion info FACH measurement occasion cycle length Inter-frequency TDD measurement indicator Inter-frequency FDD measurement indicator Inter-frequency FDD measurement indicator Inter-frequency FDD measurement indicator FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE															
occasion info FACH measurement occasion cycle length Inter-frequency TDD measurement indicator Inter-frequency FDD measurement indicator Inter-frequency FDD measurement indicator Inter-frequency FDD measurement indicator Inter-frequency FDD measurement indicator FALSE FALSE FALSE FALSE FALSE FALSE FOR MHz AWGN		dB		not	sent			not	sent			not	sent		
FACH measurement occasion cycle length Inter-frequency TDD measurement indicator Inter-frequency FDD measurement indicator Inter-frequency FDD measurement indicator Inter-frequency FDD measurement indicator Inter-frequency FDD measurement indicator FALSE FALSE FALSE FALSE FALSE FA				not	sent			not	sent			not	sent		
occasion cycle length Inter-frequency TDD measurement indicator Inter-frequency FDD measurement indicator Inter-frequency FDD measurement indicator Ioc Italian Ioc Ioc Ioc Ioc Ioc Ioc Ioc Io					4				4				4		
Inter-frequency TDD measurement indicator Inter-frequency FDD measurement indicator FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE F				2	7			4	7			4	4		
measurement indicator Inter-frequency FDD measurement indicator Inter-frequency FDD FALSE FALSE FALSE Indicator I oc 1.28 MHz Propagation AWGN															
Inter-frequency FDD measurement indicator I oc AMCN Inter-frequency FDD FALSE FALSE	measurement			TR	UE			TR	UE			TR	UE		
I _{oc} 1.28 MHz -70 Propagation AWGN	Inter-frequency FDD measurement			FAL	_SE			FAI	_SE			FAL	_SE		
		1.28						-7	70						
	Condition		AWGN in another downlink TS than TS0.												

NOTE 1: S-CCPCH is located in another downlink TS than TS0.

NOTE 2: In the case of multi-frequency network,the UTRA RF Channel Number is the primary frequency"s channel number.

A.5.4A.2.2.2 Test Requirements

The cell re-selection delay is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 2, and starts to send SYNCH-UL sequence in the UpPTS for sending the CELL UPDATE message with cause value "cell reselection" in cell 2.

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%.

NOTE: The cell re-selection delay can be expressed as:

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

where:

T_{measurement inter} is specified in 8.4A.2.3.2 gives 480ms for this test case.

- T_{SI} 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.
- T_{RA} The additional delay caused by the random access procedure described in TS25.224. In this test case the persistence value is 1 thus T_{RA} is set to 35ms in the test case.
- T_{CSI} is the additional delay in case the cell re-selection indication shall be sent in enhanced CELL_FACH state. T_{CSI} can be up to one sub frame (5ms) or the delay caused by the random access procedure (T_{RA}). In this test case the delay is T_{RA} and is set to 35ms in the test case.

This gives a total of 1.86s, allow 1.9s in the test case.

A.5.4A.37.68 Mcps TDD option

Void

A.5.5 Cell Re-selection in CELL_PCH

A.5.5.1 Scenario 1: Re-selection to intra-frequency TDD cell

A.5.5.1.1 Test Purpose and Environment

A.5.5.1.1.1 3.84Mcps TDD option

This test is to verify the requirement for the cell re-selection delay in CELL_PCH state in section 5.5.2.

This scenario implies the presence of 1 carrier and 6 cells as given in Table A.5.5.1 and A.5.5.2.

Table A.5.5.1: General test parameters for Cell Re-selection to intra-frequency cell

	Parameter	Unit	Value	Comment
Initial	Active cell		Cell1	
condition	Neighbour cells		Cell2, Cell3,Cell4, Cell5, Cell6	
Final	Active cell		Cell2	
condition				
	HCS		Not used	
UE_TX	PWR_MAX_RACH	dBm	21	The value shall be used for all cells in the test.
	Qrxlevmin	dBm	-102	The value shall be used for all cells in the test.
	ervice Class (ASC#0) ersistence 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.
	T _{SI}	S	1.28	The value shall be used for all cells in the test.
DR	X cycle length	S	1.28	The value shall be used for all cells in the test.
	T1		15	
	T2	S	15	

Table A.5.5.2: Cell re-selection to intra-frequency cell

Parameter	Unit		Ce	II 1			Ce	II 2		Cell 3			
Timeslot Number		()	3		()	3		()		3
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel			Chan	nal 1			Char	nol 1			Char	nal 1	
Number			Criai	IIICI I			Onai			Channel 1			
PCCPCH_Ec/lor	dB	-3	-3			-3	-3			-3	-3		
SCH_Ec/lor	dB	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9
SCH_t _{offset}		0	0	0	0	5	5	5	5	10	10	10	10
PICH_Ec/lor	dB			-3	-3			-3	-3			-3	-3
OCNS_Ec/lor	dB	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12
\hat{I}_{or}/I_{oc}	dB	9	7	9	7	7	9	7	9	-1	-1	-1	-1
PCCPCH RSCP	dBm	-64	-66			-66	-64			-74	-74		
Qoffset1 _{s,n}	dB		2: 0; C1,					C3:0; C2				C2:0; C: ; C3, C6:	
Qhyst1 _s	dB	<u>'</u>	C1, C5:0	, C1,C6.	U			; C2, C6:	U				U
Treselection))		0			
Sintrasearch	s dB			sent				sent				sent	
Silitascalcii	ub			II 4				II 5				II 6	
Timeslot		-)		3	(1 8	1				3
1 00.01		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel													
Number			Chan	inel 1		Channel 1					Char	inel 1	
PCCPCH_Ec/lor	dB	-3	-3			-3	-3			-3	-3		
SCH_Ec/lor	dB	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9
SCH_t _{offset}		15	15	15	15	20	20	20	20	25	25	25	25
PICH_Ec/lor	dB			-3	-3			-3	-3			-3	-3
OCNS_Ec/lor	dB	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12
\hat{I}_{or}/I_{oc}	dB	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
PCCPCH RSCP	dBm	-74	-74			-74	-74			-74	-74		
Ooffoot1	dB	C4, C	1: 0; C4,	C2:0; C4	1,C3:0	C5, C	1: 0; C5,	C2:0; C	5,C3:0	C6, C	1: 0; C6,	C2:0; C6	5,C3:0
Qoffset1 _{s,n}	uБ		C4, C5:0;	C4, C6:	0	C	C5, C4:0;	C5, C6:	0	(C6, C4:0;	C6, C5:	0
Qhyst1 _s	dB		()			()			()	
Treselection	S		()			()			()	
Sintrasearch	dB		not	sent			not	sent			not	sent	
I_{oc}	dBm/3, 84 MHz						-7	70					
Propagation Condition			AWGN										

A.5.5.1.1.2 1.28Mcps TDD option

This test is to verify the requirement for the cell re-selection delay in CELL_PCH state in section 5.5.2.2.

This scenario implies the presence of 1 carrier and 6 cells as given in Table A.5.5.3 and A.5.5.4.

Table A.5.5.3: General test parameters for Cell Re-selection to intra-frequency TDD cell in

Pai	rameter	Unit	Value	Comment
Initial condition	Active cell		Cell1	
	Neighbour cells		Cell2, Cell3,Cell4, Cell5, Cell6	
Final condition	Active cell		Cell2	
	HCS		Not used	
UE_TXPW	R_MAX_RACH	dBm	21	The value shall be used for all cells in the test.
Qr	xlevmin	dBm	-103	The value shall be used for all cells in the test.
	ce Class (ASC#0) stence 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.
	T _{SI}	S	1.28	The value shall be used for all cells in the test.
DRX	DRX cycle length		1.28	The value shall be used for all cells in the test.
	T1	S	15	
	T2	S	15	

Table A.5.5.4: Cell re-selection to intra-frequency TDD cell

Parameter	Unit		Ce	II 1			Ce	II 2		Cell 3				
Timeslot Number)	DW	PTS		0	DW	PTS	(0	DW	PTS	
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	
UTRA RF Channel Number			Char	nnel 1			Char	nel 1			Char	nel 1		
PCCPCH_Ec/lor	dB	-3	-3			-3	-3			-3	-3			
DwPCH_Ec/lor	dB			0	0			0	0			0	0	
OCNS_Ec/lor	dB	-3	-3			-3	-3			-3	-3			
\hat{I}_{or}/I_{oc}	dB	10	7	10	7	7	10	7	10	-1	-1	-1	-1	
PCCPCH RSCP	dBm	-63	-66			-66	-63			-74	-74			
Qoffset1 _{s,n}	dB			C3:0; C ²); C1,C6:			C3:0; C ; C2, C6			1: 0; C3, 23, C5: 0				
Qhyst1 _s	dB			0))		
Treselection	S			0			()				0		
Sintrasearch	dB		not	sent		not sent				not sent				
			Ce	II 4		Cell 5					Ce	II 6		
Timeslot)	DW	PTS	0 DWPTS			PTS	(0	DW	PTS	
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	
UTRA RF Channel Number			Char	nnel 1			Char	nel 1			Char	nel 1		
PCCPCH Ec/lor	dB	-3	-3			-3	-3			-3	-3			
DwPCH_Ec/Ior	dB		_	0	0		_	0	0	_	_	0	0	
OCNS_Ec/lor	dB	-3	-3			-3	-3			-3	-3			
\hat{I}_{or}/I_{oc}	dB	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	
PCCPCH RSCP	dBm	-74	-74			-74	-74			-74	-74			
Qoffset1 _{s,n}	dB			C2:0; C4; C4; C6:			1: 0; C5, C5, C4:0;				1: 0; C6, C6, C4:0;			
Qhyst1 _s	dB			0			()			()		
Treselection	S			0			()			()		
Sintrasearch	dB		not	sent			not	sent			not	sent		
I_{oc}	dBm/1. 28 MHz						-7	70						
Propagation Condition							AW	/GN						
NOTE: In the case of	multi-frequ	ency net	work,the	UTRA F	RF Chanr	nel Numb	er is the	primary	frequenc	y"s chan	nel numl	ber.		

A.5.5.1.1.3 7.68Mcps TDD option

This test is to verify the requirement for the cell re-selection delay in CELL_PCH state in section 5.5.2.

This scenario implies the presence of 1 carrier and 6 cells as given in Table A.5.5.3A and A.5.5.4A.

Table A.5.5.3A: General test parameters for Cell Re-selection to intra-frequency TDD cell

	Parameter	Unit	Value	Comment
Initial	Active cell		Cell1	
condition	Neighbour cells		Cell2, Cell3,Cell4, Cell5, Cell6	
Final condition	Active cell		Cell2	
	HCS		Not used	
UE_TXI	PWR_MAX_RACH	dBm	21	The value shall be used for all cells in the test.
	Qrxlevmin	dBm	-102	The value shall be used for all cells in the test.
Access Se	ervice Class (ASC#0)		1	Selected so that no additional delay is caused by
- Pe	rsistence value			the random access procedure. The value shall be used for all cells in the test.
	T _{SI}	S	1.28	The value shall be used for all cells in the test.
DR	X cycle length	S	1.28	The value shall be used for all cells in the test.
	T1	S	15	
	T2	n	15	

Table A.5.5.4A: Cell re-selection to intra-frequency TDD cell

Parameter	Unit		Се	II 1			Се	II 2		Cell 3			
Timeslot Number)	8	3)	8	3	()	8	3
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number			Char	nel 1		Channel 1					Char	nel 1	
PCCPCH_Ec/lor	dB	-3	-3			-3	-3			-3	-3		
SCH_Ec/lor	dB	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9
SCH_t _{offset}		0	0	0	0	5	5	5	5	10	10	10	10
PICH_Ec/lor	dB			-3	-3			-3	-3			-3	-3
OCNS_Ec/lor	dB	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12
\hat{I}_{or}/I_{oc}	dB	9	7	9	7	7	9	7	9	-1	-1	-1	-1
PCCPCH RSCP	dBm	-64	-66			-66	-64			-74	-74		
Qoffset1 _{s,n}	dB			C3:0; C ² ; C1,C6:				C3:0; C2; C2, C6:			1: 0; C3, 3, C5: 0		
Qhyst1 _s	dB		()			()			()	
Treselection	S		()			()		0			
Sintrasearch	dB		not	sent			not	sent			not	sent	
			Ce	II 4				II 5				II 6	
Timeslot)		3		0 8				0		3
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number			Char	nel 1			Char	nnel 1			Char	nel 1	
PCCPCH_Ec/lor	dB	-3	-3			-3	-3			-3	-3		
SCH_Ec/lor	dB	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9
SCH_t _{offset}		15	15	15	15	20	20	20	20	25	25	25	25
PICH_Ec/lor	dB			-3	-3			-3	-3			-3	-3
OCNS_Ec/lor	dB	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12
\hat{I}_{or}/I_{oc}	dB	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
PCCPCH RSCP	dBm	-74	-74			-74	-74			-74	-74		
Qoffset1 _{s,n}	dB			C2:0; C4 C4, C6:				C2:0; C5; C6:			1: 0; C6, C6, C4:0;		•
Qhyst1 _s	dB)))	
Treselection	S		()		0					()	
Sintrasearch	dB		not	sent			not	sent			not	sent	
I_{oc}	dBm/7, 68 MHz						-	70					
Propagation Condition			AWGN										

A.5.5.1.2 Test Requirements

A.5.5.1.2.1 for 3.84Mcps TDD option

The cell re-selection delay is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 2, and starts to send the CELL UPDATE message with cause "cell reselection" in cell 2.

The cell re-selection delay shall be less than 8 s.

NOTE:

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

 $T_{evaluate\,TDD}$ A DRX cycle length of 1280ms is assumed for this test case, this leads to a $T_{evaluate\,TDD}$ of 6.4s according to Table 4.1 in section 4.2.2.7.

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.

A.5.5.1.2.2 1.28Mcps TDD option

The cell re-selection delay is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 2, and starts to send SYNCH-UL sequence in the UpPTS for sending the CELL UPDATE message with cause "cell reselection" in cell 2.

The cell re-selection delay shall be less than 8 s.

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

NOTE: The cell re-selection delay can be expressed as:

 $T_{evaluateNTDD} + T_{SI}$

where:

 $T_{evaluate\,NTDD}$: A DRX cycle length of 1280ms is assumed for this test case, this leads to a $T_{evaluate\,NTDD}$ of 6.4s

according to Table 4.1A in section 4.2.

T_{SI}: 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 7.68 s, allow 8s in the test case.

A.5.5.1.2.3 7.68Mcps TDD option

The cell re-selection delay is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 2, and starts to send the CELL UPDATE message with cause "cell reselection" in cell 2.

The cell re-selection delay shall be less than 8 s.

NOTE:

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

T_{evaluateTDD} A DRX cycle length of 1280ms is assumed for this test case, this leads to a T_{evaluateTDD} of 6.4s

according to Table 4.1B in section 4.2.2.7.

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.

A.5.5.2 Scenario 2: Re-selection to inter-frequency TDD cell

A.5.5.2.1 Test Purpose and Environment

A.5.5.2.1.1 for 3.84Mcps TDD option

This test is to verify the requirement for the cell re-selection delay in CELL_PCH state in section 5.5.2.

This scenario implies the presence of 1 carrier and 6 cells as given in Table A.5.5.5 and A.5.5.6

Table A.5.5.5: General test parameters for Cell Re-selection to inter-frequency TDD cell

P	arameter	Unit	Value	Comment
Initial	Active cell		Cell1	
condition	Neighbour cells		Cell2, Cell3,Cell4,	
			Cell5, Cell6	
Final	Active cell		Cell2	
condition				
	HCS		Not used	
UE_TXP\	NR_MAX_RACH	dBm	21	The value shall be used for all cells in the test.
C	(rxlevmin	dBm	-102	The value shall be used for all cells in the test.
	vice Class (ASC#0)			Selected so that no additional delay is caused
- Pers	sistence value		1	by the random access procedure. The value
				shall be used for all cells in the test.
	T_{SI}	s	1.28	The value shall be used for all cells in the test.
DRX	DRX cycle length		1.28	The value shall be used for all cells in the test.
	T1		30	
	T2		15	

Table A.5.5.6: Cell re-selection to inter-frequency TDD cell

Parameter	Unit		Ce	II 1			Ce	II 2		Cell 3			
Timeslot Number		0)	8	3	()	8	3	(0	8	3
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number			Char	nel 1		Channel 2					Char	nel 1	
PCCPCH_Ec/lor	dB	-3	-3			-3	-3			-3	-3		
SCH_Ec/lor	dB	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9
SCH_t _{offset}		0	0	0	0	5	5	5	5	10	10	10	10
PICH_Ec/lor	dB			-3	-3			-3	-3			-3	-3
OCNS_Ec/lor	dB	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12
\hat{I}_{or}/I_{oc}	dB	6	0	6	0	0	6	0	6	-3	-3	-3	-3
PCCPCH RSCP	dBm	-67	-73			-73	-67			-76	-76		
Qoffset1 _{s,n}	dB			C3:0; C1 C1, C6:				C3:0; C2; C2, C6:				C2:0; C3 C3, C6:	
Qhyst1 _s	dB)))	
Treselection	S		())			()	
Sintrasearch	dB		not	sent		not sent				not sent			
Sintersearch	dB		not	sent			not	sent		not sent			
			Ce	II 4			Ce	II 5			Ce	II 6	
Timeslot		0)	3	3	()	8	3	(0	8	3
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number			Char	nel 1			Char	nnel 2			Char	nel 2	
PCCPCH_Ec/lor	dB	-3	-3			-3	-3			-3	-3		
SCH_Ec/lor	dB	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9
SCH_t _{offset}		15	15	15	15	20	20	20	20	25	25	25	25
PICH_Ec/lor	dB			-3	-3			-3	-3			-3	-3
OCNS_Ec/lor	dB	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12
\hat{I}_{or}/I_{oc}	dB	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3
PCCPCH RSCP	dBm	-76	-76			-76	-76			-76	-76		
Qoffset1 _{s,n}	dB			C2:0; C4 C4, C6:0				C2:0; C5; C5; C6:				C2:0; C6 C6, C5:	
Qhyst1 _s	dB)))	
Treselection	S		())			()	
Sintrasearch	dB		not	sent		not sent					not	sent	
Sintersearch	dB		not	sent			not	sent			not	sent	
I_{oc}	dBm/3, 84 MHz	-70											
Propagation Condition		AWGN											

A.5.5.2.1.2 for 1.28Mcps TDD option

This test is to verify the requirement for the cell re-selection delay in CELL_PCH state in section 5.5.2.2.

This scenario implies the presence of 2 carriers and 6 cells as given in Table A.5.5.7 and A.5.5.8.

Table A.5.5.7: General test parameters for Cell Re-selection to inter-frequency TDD cell

Pa	rameter	Unit	Value	Comment
Initial condition	Active cell		Cell1	
	Neighbour cells		Cell2, Cell3,Cell4, Cell5,	
			Cell6	
Final condition	Active cell		Cell2	
	HCS		Not used	
UE_TXPW	UE_TXPWR_MAX_RACH		21	The value shall be used for all cells in the test.
Qr	Qrxlevmin		-103	The value shall be used for all cells in the test.
	ce Class (ASC#0) stence 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.
	T _{SI}	S	1.28	The value shall be used for all cells in the test.
DRX	DRX cycle length		1.28	The value shall be used for all cells in the test.
	T1	S	30	
	T2	S	15	

Table A.5.5.8: Cell re-selection to inter-frequency TDD cell

Parameter	Unit		Се	II 1			Ce	II 2		Cell 3			
Timeslot Number		()	DW	PTS	()	DW	PTS	(0	DW	PTS
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number (NOTE)			Char	nnel 1		Channel 2				Channel 1			
PCCPCH_Ec/lor	dB	-3	-3			-3	-3			-3	-3		
DwPCH_Ec/lor	dB			0	0			0	0			0	0
OCNS_Ec/lor	dB	-3	-3			-3	-3			-3	-3		
\hat{I}_{or}/I_{oc}	dB	10	4	10	4	4	10	4	10	-1	-1	-1	-1
PCCPCH RSCP	dBm	-63	-69			-69	-63			-74	-74		
Qoffset1 _{s,n}	dB			C3:0; C ² ; C1, C6:			2, C1: 0; 4:0C2, C				1: 0; C3, C3, C5:0		
Qhyst1 _s	dB		(0			()			()	
Treselection	S		(0			()			()	
Sintrasearch	dB		not	sent			not	sent			not	sent	
Sintersearch	dB		not	sent		not sent				not sent			
			Ce	II 4			Ce	II 5			Ce	II 6	
Timeslot			0		PTS		0		PTS		0		PTS
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number (NOTE)			Cha	innel			Char	nnel 2			Cha	nnel	
PCCPCH_Ec/lor	dB	-3	-3			-3	-3			-3	-3		
DwPCH_Ec/lor	dB			0	0			0	0			0	0
OCNS_Ec/lor	dB	-3	-3			-3	-3			-3	-3		
\hat{I}_{or}/I_{oc}	dB	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
PCCPCH RSCP	dBm	-74	-74			-74	-74			-74	-74		
Qoffset1 _{s,n}	dB			C2:0; C4; C4; C4;			1: 0; C5, C5, C4:0;			,	1: 0; C6, C6, C4:0;		•
Qhyst1 _s	dB			0			())	
Treselection	S		(0			()			()	
Sintrasearch	dB		not	sent			not	sent			not	sent	
Sintersearch	dB		not	sent		not sent					not	sent	
I_{oc}	dBm/ 1.28 MHz	-70											
Propagation Condition		AWGN											
NOTE: In case of m	ulti-frequenc	y networ	k, the U	TRA RF (Channel	Number	is the pri	mary fre	quency"s	channe	l number		

A.5.5.2.1.3 7.68Mcps TDD option

This test is to verify the requirement for the cell re-selection delay in CELL_PCH state in section 5.5.2.

This scenario implies the presence of 1 carrier and 6 cells as given in Table A.5.5.9 and A.5.5.10

Table A.5.5.9: General test parameters for Cell Re-selection to inter-frequency TDD cell

P	arameter	Unit	Value	Comment
Initial	Active cell		Cell1	
condition	Neighbour cells		Cell2, Cell3,Cell4, Cell5, Cell6	
Final condition			Cell2	
	HCS		Not used	
UE_TXP	WR_MAX_RACH	dBm	21	The value shall be used for all cells in the test.
	Qrxlevmin	dBm	-102	The value shall be used for all cells in the test.
	vice Class (ASC#0) sistence 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.
	T _{SI}	S	1.28	The value shall be used for all cells in the test.
DRX	DRX cycle length		1.28	The value shall be used for all cells in the test.
	T1		30	
	T2		15	

Table A.5.5.10: Cell re-selection to inter-frequency TDD cell

Parameter	Unit		Ce	II 1			Се	II 2		Cell 3			
Timeslot Number		0)	8	3	()	8	3	(0	8	3
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number			Char	nel 1			Char	nel 2			Char	nel 1	
PCCPCH_Ec/lor	dB	-3	-3			-3	-3			-3	-3		
SCH_Ec/lor	dB	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9
SCH_t _{offset}		0	0	0	0	5	5	5	5	10	10	10	10
PICH_Ec/lor	dB			-3	-3			-3	-3			-3	-3
OCNS_Ec/lor	dB	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12
\hat{I}_{or}/I_{oc}	dB	6	0	6	0	0	6	0	6	-3	-3	-3	-3
PCCPCH RSCP	dBm	-67	-73			-73	-67			-76	-76		
Qoffset1 _{s,n}	dB			C3:0; C1 C1, C6:0				C3:0; C2 C2, C6:			1: 0; C3, C3, C5:0;		
Qhyst1 _s	dB)))	
Treselection	S		()			()			()	
Sintrasearch	dB		not	sent			not	sent		not sent			
Sintersearch	dB		not	sent			not	sent		not sent			
			Ce	II 4			Ce	II 5			Ce	II 6	
Timeslot		0)	8		()		3		0		3
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number			Char	nel 1			Char	nel 2			Char	nel 2	
PCCPCH_Ec/lor	dB	-3	-3			-3	-3			-3	-3		
SCH_Ec/lor	dB	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9
SCH_t _{offset}		15	15	15	15	20	20	20	20	25	25	25	25
PICH_Ec/lor	dB			-3	-3			-3	-3			-3	-3
OCNS_Ec/lor	dB	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12
\hat{I}_{or}/I_{oc}	dB	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3
PCCPCH RSCP	dBm	-76	-76			-76	-76			-76	-76		
Qoffset1 _{s,n}	dB			C2:0; C4 C4, C6:0				C2:0; C5 C5, C6:			1: 0; C6, C6, C4:0;		
Qhyst1 _s	dB)))	
Treselection	S		()			()			()	
Sintrasearch	dB		not	sent		not sent					not	sent	
Sintersearch	dB		not	sent			not	sent			not	sent	
I_{oc}	dBm/7, 68 MHz	-70											
Propagation Condition		AWGN											

A.5.5.2.2 Test Requirements

A.5.5.2.2.1 for 3.84Mcps TDD option

The cell re-selection delay is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 2, and starts to send the CELL UPDATE message with cause "cell reselection" in cell 2.

The cell re-selection delay shall be less than 8 s.

NOTE:

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

 $\Gamma_{\text{evaluateTDD}}$ A DRX cycle length of 1280ms is assumed for this test case, this leads to a $T_{\text{evaluate TDD}}$ of 6.4s

according to Table 4.1 in section 4.2.2.7.

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.

A.5.5.2.2.2 for 1.28Mcps TDD option

The cell re-selection delay is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 2, and starts to send the SYNCH-UL sequence in the UpPTS for sending the CELL UPDATE message with cause "cell reselection" in cell 2.

The cell re-selection delay shall be less than 8 s.

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

NOTE: The cell re-selection delay can be expressed as:

 $T_{evaluateNTDD} + T_{SI} \\$

where:

T_{evaluateNTDD} A DRX cycle length of 1280ms is assumed for this test case, this leads to a T_{evaluate NTDD} of 6.4s

according to Table 4.1A in section 4.2.

T_{SI} 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 7.68 s, allow 8s in the test case.

A.5.5.2.2.3 for 7.68Mcps TDD option

The cell re-selection delay is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 2, and starts to send the CELL UPDATE message with cause "cell reselection" in cell 2.

The cell re-selection delay shall be less than 8 s.

NOTE:

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

T_{evaluateTDD} A DRX cycle length of 1280ms is assumed for this test case, this leads to a T_{evaluateTDD} of 6.4s

according to Table 4.1B in section 4.2.2.7.

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.

A.5.6 Cell Re-selection in URA_PCH

A.5.6.1 Scenario 1: Re-selection to intra-frequency TDD cell

A.5.6.1.1 Test Purpose and Environment

A.5.6.1.1.1 for 3.84Mcps TDD option

This test is to verify the requirement for the cell re-selection delay in URA_PCH state in section 5.6.2.

This scenario implies the presence of 1 carrier and 6 cells as given in Table A.5.6.1 and A.5.6.2.

Table A.5.6.1: General test parameters for Cell Re-selection to intra-frequency TDD cell

Para	meter	Unit	Value	Comment
Initial condition	Active cell		Cell1	
	Neighbour cells		Cell2, Cell3,Cell4,	
			Cell5, Cell6	
Final condition	Active cell		Cell2	
H	CS		Not used	
UE_TXPWR	E_TXPWR_MAX_RACH		21	The value shall be used for all cells in the test.
Qrxle	evmin	dBm	-102	The value shall be used for all cells in the test.
Access Service	Class (ASC#0)			Selected so that no additional delay is caused by
- Persiste	nce value		1	the random access procedure. The value shall be
				used for all cells in the test.
Т	SI	S	1.28	The value shall be used for all cells in the test.
DRX cyc	le length	S	1.28	The value shall be used for all cells in the test.
T	1	S	15	
Т	2	S	15	

Table A.5.6.2: Cell re-selection to intra-frequency TDD cell

Parameter	Unit		Се	II 1			Ce	II 2		Cell 3				
Timeslot Number)		3	()		3		0		3	
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	
UTRA RF Channel Number			Char	nel 1		Channel 1					Char	nel 1		
PCCPCH_Ec/lor	dB	-3	-3			-3	-3			-3	-3			
SCH_Ec/lor	dB	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	
SCH_t _{offset}		0	0	0	0	5	5	5	5	10	10	10	10	
PICH_Ec/lor	dB			-3	-3			-3	-3			-3	-3	
OCNS_Ec/lor	dB	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	
\hat{I}_{or}/I_{oc}	dB	9	7	9	7	7	9	7	9	-1	-1	-1	-1	
PCCPCH RSCP	dBm	-64	-66			-66	-64			-74	-74			
Qoffset1 _{s,n}	dB			C3:0; C ² ; C1,C6:				C3:0; C2; C2, C6:			1: 0; C3, 3, C5: 0			
Qhyst1 _s	dB		()			()			()		
Treselection	S		()		0				0				
Sintrasearch	dB		not	sent		not sent				not sent				
			Ce	II 4			Ce	II 5			Ce	II 6		
Timeslot)		3)		3		0		3	
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	
UTRA RF Channel Number			Char	nel 1		Channel 1					Char	nnel 1		
PCCPCH_Ec/lor	dB	-3	-3			-3	-3			-3	-3			
SCH_Ec/lor	dB	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	
SCH_t _{offset}		15	15	15	15	20	20	20	20	25	25	25	25	
PICH_Ec/lor	dB			-3	-3			-3	-3			-3	-3	
OCNS_Ec/lor	dB	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	
\hat{I}_{or}/I_{oc}	dB	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	
PCCPCH RSCP	dBm	-74	-74			-74	-74			-74	-74			
Qoffset1 _{s,n}	dB			C2:0; C4 C4, C6:				C2:0; C5; C6:			1: 0; C6, C6, C4:0;		•	
Qhyst1 _s	dB		()			()			()		
Treselection	S		()			()			()		
Sintrasearch	dB		not	sent			not	sent			not	sent		
I_{oc}	dBm/3,84 MHz	-70												
Propagation Condition		AWGN												

A.5.6.1.1.2 for 1.28Mcps TDD option

This test is to verify the requirement for the cell re-selection delay in URA_PCH state in section 5.6.2.2.

This scenario implies the presence of 1 carrier and 6 cells as given in Table A.5.6.3 and A.5.6.4.

Table A.5.6.3: General test parameters for Cell Re-selection to intra-frequency TDD cell

Pai	rameter	Unit	Value	Comment
Initial condition	Active cell		Cell1	
	Neighbour cells		Cell2, Cell3,Cell4, Cell5, Cell6	
Final condition	Active cell		Cell2	
	HCS		Not used	
UE_TXPW	/R_MAX_RACH	dBm	21	The value shall be used for all cells in the test.
Qr	xlevmin	dBm	-103	The value shall be used for all cells in the test.
	ce Class (ASC#0) stence 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.
	T _{SI}	S	1.28	The value shall be used for all cells in the test.
DRX	cycle length	S	1.28	The value shall be used for all cells in the test.
	T1	S	15	
	T2	S	15	

Table A.5.6.4: Cell re-selection to intra-frequency TDD cell

Parameter	Unit		Ce	II 1			Ce	II 2		Cell 3			
Timeslot Number)	DW	PTS	()	DW	PTS	(0	DWPTS	
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number (NOTE)			Char	nel 1		Channel 1				Channel 1			
PCCPCH_Ec/lor	dB	-3	-3			-3	-3			-3	-3		
DwPCH_Ec/lor	dB			0	0			0	0			0	0
OCNS_Ec/lor	dB	-3	-3			-3	-3			-3	-3		
\hat{I}_{or}/I_{oc}	dB	10	7	10	7	7	10	7	10	-1	-1	-1	-1
PCCPCH RSCP	dBm	-63	-66			-66	-63			-74	-74		
Qoffset1 _{s,n}	dB			C3:0; C ² ; C1,C6:			1: 0; C2, 22, C5: 0				1: 0; C3, C3, C5: 0		
Qhyst1 _s	dB		()			()				0	
Treselection	S			0			()				0	
Sintrasearch	dB		not	sent		not sent				not sent			
			Ce	II 4			Ce	II 5			Ce	II 6	
Timeslot)	DW)		PTS		0		PTS
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number (NOTE)			Char	nel 1		Channel 1				Channel 1			
PCCPCH_Ec/lor	dB	-3	-3			-3	-3			-3	-3		
DwPCH_Ec/lor	dB			0	0			0	0			0	0
OCNS_Ec/lor	dB	-3	-3			-3	-3			-3	-3		
\hat{I}_{or}/I_{oc}	dB	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
PCCPCH RSCP	dBm	-74	-74			-74	-74			-74	-74		
Qoffset1 _{s,n}	dB			C2:0; C4 C4, C6:			1: 0; C5, C5, C4:0;				1: 0; C6, C6, C4:0;		
Qhyst1 _s	dB))				0	
Treselection	S			0			()			()	
Sintrasearch	dB		not	sent			not	sent			not	sent	
I_{oc}	dBm/1.28 MHz	-70											
Propagation Condition		AWGN											
NOTE1: In the case	of multi-freq	uency ne	etwork,th	e UTRA	RF Char	nnel Num	ber is the	e primar	y frequer	ncy"s cha	annel nur	nber.	

A.5.6.1.1.3 for 7.68Mcps TDD option

This test is to verify the requirement for the cell re-selection delay in URA_PCH state in section 5.6.2.

This scenario implies the presence of 1 carrier and 6 cells as given in Table A.5.6.3A and A.5.6.4A.

Table A.5.6.3A: General test parameters for Cell Re-selection to intra-frequency TDD cell

Para	meter	Unit	Value	Comment								
Initial condition	Active cell		Cell1									
	Neighbour cells		Cell2, Cell3,Cell4,									
			Cell5, Cell6									
Final condition	Active cell		Cell2									
H	CS		Not used									
UE_TXPWR	PWR_MAX_RACH		WR_MAX_RACH		21	The value shall be used for all cells in the test.						
Qrxle	evmin	dBm	-102	The value shall be used for all cells in the test.								
Access Service	Class (ASC#0)			Selected so that no additional delay is caused by								
- Persiste	ence value		1	the random access procedure. The value shall be								
				used for all cells in the test.								
Т	T _{SI}		T _{SI}		T _{SI}		T _{SI}		T_{SI}		1.28	The value shall be used for all cells in the test.
DRX cyc	le length	S	1.28	The value shall be used for all cells in the test.								
T	T1		15									
Т	2	S	15									

Table A.5.6.4A: Cell re-selection to intra-frequency TDD cell

Parameter	Unit		Се	II 1			Се	II 2		Cell 3				
Timeslot Number)		3	()		3		0		3	
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	
UTRA RF Channel Number			Char	nel 1		Channel 1					Char	nel 1		
PCCPCH_Ec/lor	dB	-3	-3			-3	-3			-3	-3			
SCH_Ec/lor	dB	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	
SCH_t _{offset}		0	0	0	0	5	5	5	5	10	10	10	10	
PICH_Ec/lor	dB			-3	-3			-3	-3			-3	-3	
OCNS_Ec/lor	dB	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	
\hat{I}_{or}/I_{oc}	dB	9	7	9	7	7	9	7	9	-1	-1	-1	-1	
PCCPCH RSCP	dBm	-64	-66			-66	-64			-74	-74			
Qoffset1 _{s,n}	dB			C3:0; C ² ; C1,C6:				C3:0; C2; C2, C6:			1: 0; C3, 3, C5: 0			
Qhyst1 _s	dB		()			()			()		
Treselection	S		()		0				0				
Sintrasearch	dB		not	sent		not sent				not sent				
			Ce	II 4		Cell 5					Ce	II 6		
Timeslot)		3)		3		0		3	
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	
UTRA RF Channel Number			Char	nel 1		Channel 1					Char	nnel 1		
PCCPCH_Ec/lor	dB	-3	-3			-3	-3			-3	-3			
SCH_Ec/lor	dB	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	
SCH_t _{offset}		15	15	15	15	20	20	20	20	25	25	25	25	
PICH_Ec/lor	dB			-3	-3			-3	-3			-3	-3	
OCNS_Ec/lor	dB	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	
\hat{I}_{or}/I_{oc}	dB	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	
PCCPCH RSCP	dBm	-74	-74			-74	-74			-74	-74			
Qoffset1 _{s,n}	dB			C2:0; C4 C4, C6:				C2:0; C5; C6:			1: 0; C6, C6, C4:0;		•	
Qhyst1 _s	dB		()			()			()		
Treselection	S		()		0					()		
Sintrasearch	dB		not	sent			not	sent			not	sent		
I_{oc}	dBm/7,68 MHz	-70												
Propagation Condition		AWGN												

A.5.6.1.2 Test Requirements

A.5.6.1.2.1 for 3.84Mcps TDD option

The cell re-selection delay is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 2, and starts to send the URA UPDATE message with URA update cause value "change of URA" in cell 2.

The cell re-selection delay shall be less than 8 s.

NOTE:

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

 $T_{evaluate\,TDD}$ A DRX cycle length of 1280ms is assumed for this test case, this leads to a $T_{evaluate\,TDD}$ of 6.4s

according to Table 4.1 in section 4.2.2.7.

 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.

A.5.6.1.2.2 for 1.28Mcps TDD option

The cell re-selection delay is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 2, and starts to send SYNCH-UL sequence in the UpPTS for sending the URA UPDATE message with URA update cause value "change of URA" in cell 2.

The cell re-selection delay shall be less than 8 s.

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

NOTE: The cell re-selection delay can be expressed as:

 $T_{evaluateNTDD} + T_{SI}$

where:

 $T_{evaluate\,NTDD}$: A DRX cycle length of 1280ms is assumed for this test case, this leads to a $T_{evaluate\,NTDD}$ of 6.4s

according to Table 4.1A in section 4.2.

T_{SI}: 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 7.68 s, allow 8s in the test case.

A.5.6.1.2.3 for 7.68Mcps TDD option

The cell re-selection delay is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 2, and starts to send the URA UPDATE message with URA update cause value "change of URA" in cell 2.

The cell re-selection delay shall be less than 8 s.

NOTE:

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

T_{evaluateTDD} A DRX cycle length of 1280ms is assumed for this test case, this leads to a T_{evaluate TDD} of 6.4s

according to Table 4.1B in section 4.2.2.7.

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.

A.5.6.2 Scenario 2: Re-selection to inter-frequency TDD cell

A.5.6.2.1 Test Purpose and Environment

A.5.6.2.1.1 for 3.84Mcps TDD option

This test is to verify the requirement for the cell re-selection delay in URA_PCH state in section 5.6.2.

This scenario implies the presence of 1 carrier and 6 cells as given in Table A.5.6.5 and A.5.6.6.

Table A.5.6.5: General test parameters for Cell Re-selection to inter-frequency TDD cell

Para	meter	Unit	Value	Comment
Initial condition	Active cell		Cell1	
	Neighbour cells		Cell2, Cell3,Cell4,	
			Cell5, Cell6	
Final condition	Active cell		Cell2	
H	CS		Not used	
UE_TXPWR	_TXPWR_MAX_RACH dBm		21	The value shall be used for all cells in the test.
Qrxle	evmin	dBm	-102	The value shall be used for all cells in the test.
Access Service	e Class (ASC#0)			Selected so that no additional delay is caused
- Persiste	ence value		1	by the random access procedure. The value
				shall be used for all cells in the test.
7	SI	S	1.28	The value shall be used for all cells in the test.
DRX cyc	cle length	S	1.28	The value shall be used for all cells in the test.
7	Γ1	S	30	
7	Γ2	S	15	

Table A.5.6.6: Cell re-selection to inter-frequency TDD cell

Parameter	Unit		Се	II 1		Cell 2				Cell 3				
Timeslot Number		C)	3	3	(0 8			0 8			3	
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	
UTRA RF Channel Number		Channel 1					Channel 2				Channel 1			
PCCPCH Ec/lor	dB	-3	-3			-3	-3			-3	-3			
SCH_Ec/lor	dB	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	
SCH_t _{offset}		0	0	0	0	5	5	5	5	10	10	10	10	
PICH_Ec/lor	dB			-3	-3			-3	-3			-3	-3	
OCNS_Ec/lor	dB	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	
\hat{I}_{or}/I_{oc}	dB	6	0	6	0	0	6	0	6	-3	-3	-3	-3	
PCCPCH RSCP	dBm	-67	-73			-73	-67			-76	-76			
Qoffset1 _{s,n}	dB			C3:0; C ²				C2, C3: 5:0; C2,				C2:0; C3; C3; C6:		
Qhyst1 _s	dB	-)	-	0 =, 0)				0		
Treselection	S)			()				0		
Sintrasearch	dB		not	sent		not sent				not sent				
Sintersearch	dB			sent		not sent				not sent				
Cintorodaron	42			II 4				II 5				II 6		
Timeslot		C			3	0 8			0 8			3		
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	
UTRA RF Channel Number			Char	nel 1		Channel 2				Channel 2				
PCCPCH_Ec/lor	dB	-3	-3			-3	-3			-3	-3			
SCH Ec/lor	dB	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	
SCH_t _{offset}		15	15	15	15	20	20	20	20	25	25	25	25	
PICH_Ec/lor	dB			-3	-3			-3	-3			-3	-3	
OCNS_Ec/lor	dB	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	
\hat{I}_{or}/I_{oc}	dB	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	
PCCPCH RSCP	dBm	-76	-76			-76	-76			-76	-76			
Qoffset1 _{s,n}	dB			C2:0; C4 C4, C6:				C2:0; C5 C5, C6:		C6, C1: 0; C6, C2:0; C6,C3:0 C6, C4:0; C6, C5:0				
Qhyst1 _s	dB)		0				0				
Treselection	s		()			()			(0		
Sintrasearch	dB		not	sent		not sent				not sent				
Sintersearch	dB		not	sent			not	sent			not	sent		
I_{oc}	dBm/3,84 MHz						-	70						
Propagation Condition							AW	/GN						

A.5.6.2.1.2 1.28Mcps TDD option

This test is to verify the requirement for the cell re-selection delay in URA_PCH state in section 5.6.2.2.

This scenario implies the presence of 2 carriers and 6 cells as given in Table A.5.6.7 and A.5.6.8.

Table A.5.6.7: General test parameters for Cell Re-selection to inter-frequency TDD cell

Pa	rameter	Unit	Value	Comment		
Initial condition	Active cell		Cell1			
	Neighbour cells		Cell2, Cell3,Cell4, Cell5,			
			Cell6			
Final condition	Active cell		Cell2			
	HCS		Not used			
UE_TXPW	R_MAX_RACH	dBm	21	The value shall be used for all cells in the test.		
Qrxlevmin		dBm	-103	The value shall be used for all cells in the test.		
	ice Class (ASC#0) stence 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.		
	T _{SI} s		1.28	The value shall be used for all cells in the test.		
DRX	cycle length	S	1.28	The value shall be used for all cells in the test.		
	T1	S	30			
	T2	S	15			

Table A.5.6.8: Cell re-selection to inter-frequency TDD cell

Parameter	Unit		Ce	ell 1		Cell 2				Cell 3				
Timeslot Number		(0	DW	PTS)	DW	PTS	0		DWPTS		
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	
UTRA RF Channel Number		Channel 1				Channel 2				Channel 1				
PCCPCH_Ec/lor	dB	-3	-3			-3	-3			-3	-3			
DwPCH_Ec/lor	dB			0	0			0	0			0	0	
OCNS_Ec/lor	dB	-3	-3			-3	-3			-3	-3			
\hat{I}_{or}/I_{oc}	dB	10	4	10	4	4	10	4	10	-1	-1	-1	-1	
PCCPCH RSCP	dBm	-63	-69			-69	-63			-74	-74			
Qoffset1 _{s,n}	dB			C3:0; C ² ; C1, C6:			C2, C1: 0; C2, C3:0; C2,C4:0C2, C5:0; C2, C6:0				C3, C1: 0; C3, C2:0; C3,C4:0 C3, C5:0; C3, C6:0			
Qhyst1 _s	dB		(0			(0				0		
Treselection	S		(0			(0			()		
Sintrasearch	dB		not	sent		not sent				not sent				
Sintersearch	dB			sent		not sent				not sent				
		Cell 4				Cell 5					Ce	II 6		
Timeslot			0		PTS	0 DWPTS				0		DWPTS		
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	
UTRA RF Channel Number			Cha	innel		Channel 2				Channel				
PCCPCH_Ec/lor	dB	-3	-3			-3	-3			-3	-3			
DwPCH_Ec/lor	dB			0	0			0	0			0	0	
OCNS_Ec/lor	dB	-3	-3			-3	-3			-3	-3			
\hat{I}_{or}/I_{oc}	dB	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	
PCCPCH RSCP	dBm	-74	-74			-74	-74			-74	-74			
Qoffset1 _{s,n}	dB			C2:0; C4; C4; C4;		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				
Qhyst1 _s	dB			0				0				0		
Treselection	S		(0		0					()		
Sintrasearch	dB		not	sent			not sent				not	sent		
Sintersearch	dB		not	sent			not	sent			not	sent		
I_{oc}	dBm/1.28 MHz						-	70						
Propagation Condition							AW	/GN						

A.5.6.2.1.3 for 7.68Mcps TDD option

This test is to verify the requirement for the cell re-selection delay in URA_PCH state in section 5.6.2.

This scenario implies the presence of 1 carrier and 6 cells as given in Table A.5.6.9 and A.5.6.10.

Table A.5.6.9: General test parameters for Cell Re-selection to inter-frequency TDD cell

Para	meter	Unit	Value	Comment
Initial condition	Active cell		Cell1	
	Neighbour cells		Cell2, Cell3,Cell4, Cell5, Cell6	
Final condition	Active cell		Cell2	
Н	CS		Not used	
UE_TXPWR	_TXPWR_MAX_RACH		21	The value shall be used for all cells in the test.
Qrxl	evmin	dBm	-102	The value shall be used for all cells in the test.
Access Service	e Class (ASC#0)			Selected so that no additional delay is caused
- Persiste	ence value		1	by the random access procedure. The value
				shall be used for all cells in the test.
1	Γ _{SI}	S	1.28	The value shall be used for all cells in the test.
DRX cyc	cle length	S	1.28	The value shall be used for all cells in the test.
	Γ1	S	30	
-	Γ2	S	15	

Table A.5.6.10: Cell re-selection to inter-frequency TDD cell

Parameter	Unit		Се	II 1		Cell 2				Cell 3			
Timeslot Number		0 8			(0 8			0		8		
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number		Channel 1				Channel 2			Channel 1				
PCCPCH_Ec/lor	dB	-3	-3			-3	-3			-3	-3		
SCH_Ec/lor	dB	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9
SCH_t _{offset}		0	0	0	0	5	5	5	5	10	10	10	10
PICH_Ec/lor	dB			-3	-3			-3	-3			-3	-3
OCNS_Ec/lor	dB	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12
\hat{I}_{or}/I_{oc}	dB	6	0	6	0	0	6	0	6	-3	-3	-3	-3
PCCPCH RSCP	dBm	-67	-73			-73	-67			-76	-76		
Qoffset1 _{s,n}	dB			C3:0; C'				C2, C3: 5:0; C2,		C3, C1: 0; C3, C2:0; C3,C4:0 C3, C5:0; C3, C6:0			
Qhyst1 _s	dB		())			()	
Treselection	s		()			()			()	
Sintrasearch	dB		not	sent		not sent				not sent			
Sintersearch	dB		not	sent		not sent				not sent			
		Cell 4					Ce	II 5			Ce	II 6	
Timeslot		0)	8	3	0 8			0 8			3	
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number			Char	nel 1		Channel 2				Channel 2			
PCCPCH_Ec/lor	dB	-3	-3			-3	-3			-3	-3		
SCH_Ec/lor	dB	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9
SCH_t _{offset}		15	15	15	15	20	20	20	20	25	25	25	25
PICH_Ec/lor	dB			-3	-3			-3	-3			-3	-3
OCNS_Ec/lor	dB	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12
\hat{I}_{or}/I_{oc}	dB	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3
PCCPCH RSCP	dBm	-76	-76			-76	-76			-76	-76		
Qoffset1 _{s,n}	dB			C2:0; C4 C4, C6:				C2:0; C5 C5, C6:		C6, C1: 0; C6, C2:0; C6,C3:0 C6, C4:0; C6, C5:0			
Qhyst1 _s	dB)))	
Treselection	s		()			()			()	
Sintrasearch	dB		not	sent			not	sent			not	sent	
Sintersearch	dB		not	sent			not	sent			not	sent	
I_{oc}	dBm/7,68 MHz							70					
Propagation Condition							AW	/GN					

A.5.6.2.2 Test Requirements

A.5.6.2.2.1 3.84Mcps TDD option

The cell re-selection delay is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 2, and starts to send the URA UPDATE message with URA update cause "change of URA" in cell 2.

The cell re-selection delay shall be less than 8 s.

NOTE:

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

 $T_{evaluate\,TDD}$ A DRX cycle length of 1280ms is assumed for this test case, this leads to a $T_{evaluate\,TDD}$ of 6.4s

according to Table 4.1 in section 4.2.2.7.

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.

A.5.6.2.2.2 1.28Mcps TDD option

The cell re-selection delay is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 2, and starts to send the SYNCH-UL sequence in the UpPTS for sending the URA UPDATE message with URA update cause "change of URA" in cell 2.

The cell re-selection delay shall be less than 8 s.

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

NOTE: The cell re-selection delay can be expressed as:

 $T_{evaluateNTDD} + T_{SI}$

where:

 $T_{evaluate NTDD}$ A DRX cycle length of 1280ms is assumed for this test case, this leads to a $T_{evaluate NTDD}$ of 6.4s

according to Table 4.1A in section 4.2.

T_{SI} 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 7.68 s, allow 8s in the test case.

A.5.6.2.2.3 7.68Mcps TDD option

The cell re-selection delay is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 2, and starts to send the URA UPDATE message with URA update cause "change of URA" in cell 2.

The cell re-selection delay shall be less than 8 s.

NOTE:

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

T_{evaluateTDD} A DRX cycle length of 1280ms is assumed for this test case, this leads to a T_{evaluateTDD} of 6.4s

according to Table 4.1B in section 4.2.2.7.

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.

A.5.7 Serving HS-DSCH cell change

A.5.7.1 Test Purpose and Environment

A.5.7.1.1 3.84Mcps TDD option

Void.

A.5.7.1.2 1.28Mcps TDD option

The purpose of this test is to verify the requirement for the delay when performing the serving HS-DSCH cell change in CELL_DCH state specified in section 5.9.

The test parameters are given in Table A.5.7.1 and A.5.7.2 below. The test consists of 3 successive time periods, with a time duration of T1, T2, T3 respectively. At the start of time duration T1 the UE have cell 1 in active set and cell 1 as the serving HS-DSCH cell.

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

Table A.5.7.1: General test parameters for serving HS-DSCH cell change

Para	ameter	Unit	Value	Comment
DCH parameters			DL and UL Reference Measurement Channel 12.2 kbps	As specified in TS 25.102 section A.2.2.2 and A.2.1.2
Power Control	Power Control		On	
Target quality val	ue on DTCH	BLER	0.001	
HSDPA paramete	ers		with QPSK modulation only	As specified in TS 25.102 section
Initial conditions	Active cells		Cell 1	
	Serving HS-DSCH cell		Cell 1	
Final condition	Active cell		Cell 2	
	Serving HS-DSCH cell		Cell 2	
Hysteresis		dB	0	
0		dB	0	Cell individual offset. This value shall be used for all cells in the test.
Time to Trigger		ms	0	
Filter coefficient			0	
Monitored cell list	size		6 TD-SCDMA neighbours on Channel 1	
T1		S	5	
T2	·	S	5	
T3		S	5	

Table A.5.7.2: Cell specific test parameters for serving HS-DSCH cell change

Parameter	Unit	Cell 1									
Timeslot Number			0			OwPTS		5			
		T1	T2	T3	T1	T2	T3	T1	T2	T3	
UTRA RF Channel		Channe	I 1 □ Note	.2 -	-						
Number		Channe	i i linote	ಕು⊔							
PCCPCH_Ec/lor	dB	-3						n.a.			
DwPCH_Ec/lor		n.a.			-3			n.a.			
DPCH_Ec/lor	dB	n.a.			n.a.			Note1			
HS-PDSCH_Ec/lor	dB	n.a.			n.a.			-1		-inf	
HS-SCCH_Ec/lor	dB	n.a.			n.a.			-4		-inf	
$\frac{DPCH_{o} _E_{c}}{I_{or}}$	dB	-3			n.a.			Note2			
\hat{I}_{or}/I_{oc}	dB	10	7		10	7		10	7		
I_{oc}	dBm/1.2 8MHz	-70			•	•		•	•		
PCCPCH_RSCP	dBm	-63	-66		n.a.			n.a.			
Propagation Condition		AWGN									
Parameter	Unit	Cell 2									
Timeslot Number		0			DwP ⁻	TS		5			
		T1	T2	T3	T1	T2	T3	T1	T2	T3	
UTRA RF Channel Number		Channe	I 1⊟Note	93□							
PCCPCH_Ec/lor	dB	-3						n.a.			
DwPCH_Ec/lor					-3						
DPCH_Ec/lor	dB	n.a.			n.a.			Note1			
HS-PDSCH_Ec/lor	dB	-inf.		-1	n.a.			-inf.		-1	
HS-SCCH_Ec/lor	dB	-inf.		-4	n.a			-inf.		-4	
$\frac{DPCH_{o} - E_{c}}{I_{or}}$	dB	-3			n.a			Note2			
\hat{I}_{or}/I_{oc}	dB	7	10		7	10		7	10		
I_{oc}	dBm/1.2 8MHz	-70									
PCCPCH_RSCP	dBm	-66	-63	·	n.a.	-		n.a.	-		
Propagation Condition		AWGN									
Note1: The DPCH Note2: The power	level is cont of the OCN					e the to	tal po	wer fro	m the o	cell to	

Note2: The power of the OCNS channel that is added shall make the total power from the cell to

be equal to lor.

Note3: In the multi-carrier networks, UTRA RF Channel Number is the main carrier channel

number.

- 1) The test is started at the beginning of T1.
- 2) During time period T2 an Event 1G triggered measurement report shall be sent by the UE.
- 3) During time period T2 UTRAN shall send a Physical Channel Configuration command with activation time now changing serving HS-DSCH from cell 1 to cell 2.
- 4) T3 is defined as the end of the last TTI of Physical Channel Configuration command.

A.5.7.1.3 7.68Mcps TDD option

Void.

A.5.7.2 Test Requirements

A.5.7.2.1 3.84Mcps TDD option

Void.

A.5.7.2.2 1.28Mcps TDD option

The UE shall start to transmit the CQI to cell 2 less than 175 ms from the beginning of time period T3.

The UE shall also start to receive the first HS-SCCH message from cell 2 less than 175 ms from the beginning of time period T3 and transmit the ACK or NAK which corresponds to the HS-SCCH message.

NOTE: The delay $T_{Dell\ change} = T_{RRC} + T_{ul/dl\ sync} + T_{hs\text{-sich/hs-scch}\ interval} = 80 + 80 + 15 = 175 ms.$

T_{RRC} RRC procedure delay is defined in TS25.331 Section 13.5.2.

T_{ul/dl sync} Defined as Uplink and Downlink synchronisation time, specified as 80ms.

 $T_{hs\text{-sich/hs-scch interval}}$ Defined as interval time between HS-SCCH and the corresponding HS-SICH, for 1,28Mcps option specified as 15ms.

A.5.7.2.3 7.68Mcps TDD option

Void.

A.5.8 Inter-RAT cell change order from UTRAN TDD to GSM(GPRS)

A.5.8.1 Test Purpose and Environment

A.5.8.1.1 3.84Mcps TDD option

Void.

A.5.8.1.2 1.28Mcps TDD option

The purpose of this test is to verify the requirement for the delay when performing the Inter-RAT cell change order from UTRAN TDD to GSM(GPRS) specified in section 5.8.

The test parameters are given in Table A.5.8.1, A.5.8.2, and A.5.8.3 below.

The SS starts the UTRAN cell and brings the UE into PS-DCCH+DTCH_DCH. The SS starts GPRS cell, then sends CELL CHANGE ORDER FROM UTRAN indicating the target cell description, GPRS cell, to the UE through DCCH of the serving UTRAN cell.

After UE receives the command it shall configure itself accordingly and switch to the new channel on the target GPRS cell. The SS checks whether the cell change is performed by checking that the UE receives a successful response to the CHANNEL REQUEST message from the SS through GPRS cell.

The test consists of three successive time periods, with a time duration of T1, T2 and T3 respectively. The UTRAN shall send CELL CHANGE ORDER FROM UTRAN message. The start of T3 is defined as the end of the last TTI containing the CELL CHANGE ORDER FROM UTRAN.

Table A.5.8.1: General test parameters for Correct reporting of UTRAN neighbours in AWGN propagation condition

Parameter	Unit	Value	Comments
DCH parameters		DL Reference Measurement Channel 12.2 kbps	As specified in TS 34.122 clause C2.2
Power Control		On	
Target quality value on DTCH	BLER	0.01	
Initial conditions	Active cell	Cell 1	UTRAN TDD cell
	Neighbour cell	Cell 2	GSM cell
Final condition	Active cell	Cell 2	GSM cell
Inter-RAT measurement quantity		GSM Carrier RSSI	
Hysteresis	dB	0	
Time to Trigger	ms	0	
Filter coefficient		0	
Monitored cell list size	S	12 TD-SCDMA neighbours on Channel 1 6 GSM neighbours including ARFCN 1	Measurement control information is sent before the start of time period T1.
Tidentify abort	S	5	
Treconfirm abort	S	5	
T1	s	10	
T2	s	10	
T3	S	10	

Table A.5.8.2: Cell Specific Parameters for UTRAN to GPRS cell change order cell case (cell 1)

Parameter	Unit	Cell 1					
DL timeslot number		0			DwPTS		
		T1	T2	T3	T1	T2	Т3
UTRA RF Channel Number		Chann	nel 1				
PCCPCH_Ec/lor	dB		-3				
DwPCH_Ec/lor	dB					0	
OCNS_Ec/lor	dB		-3				
\hat{I}_{or}/I_{oc}	dB		5		5		
I_{oc}	dBm/1.28 MHz	-70					
Propagation Condition				AWC	δN		

Table A.5.8.3: Cell Specific Parameters for UTRAN to GPRS cell change order cell case (cell 2)

Parameter	Unit	Cell 2			
		T1	T2, T3		
Absolute RF Channel Number		ARFCN	V 1		
RXLEV	dBm	-85	-75		

¹⁾ The test is started at the beginning of T1.

²⁾ During time period T2, UTRAN shall send CELL CHANGE ORDER FROM UTRAN message.

3) The start of T3 is defined as the end of the last TTI containint the CELL CHANGE ORDER FROM UTRAN.

A.5.8.1.3 7.68Mcps TDD option

Void.

A.5.8.2 Test Requirements

A.5.8.2.1 3.84Mcps TDD option

Void.

A.5.8.2.2 1.28Mcps TDD option

The UE shall begin to transmit on the new RACH of the target cell less than $190 \text{ms} + T_{BCCH} + T_{RA}$ from the beginning of time period T3. The rate of correct handovers observed during repeated tests shall be at least 90% with a confidence level of 95 %.

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

$$T_{CCO\ delay} = 190ms + T_{BCCH} + T_{RA} \text{ or}$$

$$T_{CCO\ delay} = 90ms + T_{BCCH} + T_{RA}$$

190ms: is delay switch from UTRAN to GSM when UE has not synchronised to the GSM cell before the CELL CHANGE ORDER FROM UTRAN is received; when UE has synchronised to the GSM cell before the CELL CHANGE ORDER FROM UTRAN is received, delay switch from UTRAN to GSM is 90ms.

 T_{BCCH} is the maximum time allowed to read BCCH data from GSM cell. According to TS 45.002, the maximum time allowed to read the BCCH data, when being synchronized to a BCCH carrier, is 7.6s (in order to read System Information type 13).

T_{RA} The additional delay caused by the random access procedure in the GSM cell, is 10 ms (2 GSM radio frames).

A.5.8.2.3 7.68Mcps TDD option

Void.

A.6 (void)

A.6A RRC Connection Control

A.6A.1 RRC re-establishment delay

A.6A.1.1 3.84 Mcps TDD option

A.6A.1.1.1 RRC re-establishment delay to a known target cell

A.6A.1.1.1.1 Test Purpose and Environment

The purpose is to verify that the RRC re-establishment delay to a known target cell is within the specified limits. This test will partly verify the requirements in section 6A.1.2.

The test parameters are given in table A.6A.1 and table A.6A.2 below. 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 time durations of T1 and T2 respectively.

During T1, the DL DPCH in cell 1 shall be transmitted in timeslot 2 and the UL DPCH in cell 1 shall be transmitted in timeslot 10. At the beginning of time period T2, the DPCH shall be removed.

Cell 1 and cell shall be synchronised, i.e. share the same frame and timeslot timing.

Table A.6A.1: General test parameters for RRC re-establishment delay, known target cell case

Pa	arameter	Unit	Value	Comment
DCH paramete	ers		DL reference measurement channel 12.2 kbps	As specified in TS 25.102 section A.2.2
Power Control			On	
Target quality	value on DTCH	BLER	0.01	
Initial	Active cell		Cell 1	Cell 2 shall be included in the
conditions	Neighbour cell	1	Cell 2	monitored set in Cell 1.
Final conditions	Active cell		Cell 2	
Access Servi - Persistence	ice Class (ASC#0) e 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.
N313			20	
N315			1	
T313		Seconds	0	
T _{SI}		ms	1280	
Monitored cell list size			24 TDD neighbours on Channel 1	
Reporting free	Reporting frequency		4	
T1	<u>-</u>		10	·
T2			6	

Table A.6A.2: Cell specific parameters for RRC re-establishment delay test, known target cell case

Parameter	Unit		Ce	II 1			Ce	II 2	
Timeslot Number		(0		3	(0		3
		T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number			Channel 1				Char	nel 1	
PCCPCH_Ec/lor	dB	-3	-3	n.a.	n.a.	-3	-3	n.a.	n.a.
SCH_Ec/lor	dB	-9	-9	-9	-9	-9	-9	-9	-9
SCH_t _{offset}		0	0	0	0	15	15	15	15
PICH_Ec/lor	dB	n.a.	n.a.	-3	-3	n.a.	n.a.	-3	-3
OCNS_Ec/lor	dB	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12
\hat{I}_{or}/I_{oc}	dB	3	-13	3	-13	5	5	5	5
I_{oc}	dBm/ 3.84 MHz				-	70			
P-CCPCH_RSCP	dB	-70	-86	n.a.	n.a.	-68	-68	n.a.	n.a.
Propagation Condition					AW	'GN			

A.6A.1.1.1.2 Test Requirements

The RRC re-establishment delay $T_{\text{RE-ESTABLISH}}$ to a known target cell shall be less than 2 s.

The rate of successful RRC re-establishments observed during repeated tests shall be at least 90%.

NOTE: The RRC re-establishment delay in this test case can be expressed as,

T_{RE-ESTABLISH}= T_{RRC-RE-ESTABLISH}+ T_{UE-RE-ESTABLISH-REO-KNOWN}.

where.

 $T_{RRC-RE-ESTABLISH} = 160ms + (N_{313}-1)*10ms + T_{313}$

 $T_{UE-RE-ESTABLISH-REO-KNOWN} = 50ms + T_{SEARCH-KNOWN} + T_{SI} + T_{RA}$

and,

N₃₁₃ Equal to 20 and therefore resulting in 200 ms delay.

 T_{313} Equal to 0 s.

T_{SEARCH-KNOWN} Equal to 100 ms

T_{SI} Equal to 1280 ms, the time required for receiving all the relevant system information data

according to the reception procedure and the RRC procedure performance value of system

information blocks defined in [16] for a UTRAN cell.

 T_{RA} Equal to 40 ms, the additional delay caused by the random access procedure.

A.6A.1.1.2 RRC re-establishment delay to an unknown target cell

A.6A.1.1.2.1 Test Purpose and Environment

The purpose is to verify that the RRC re-establishment delay to an unknown target cell is within the specified limits. This test will partly verify the requirements in section 6A.1.2.

The test parameters are given in table A.6A.3 and table A.6A.4 below. 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 time durations of T1 and T2 respectively.

During T1, the DL DPCH in cell 1 shall be transmitted in timeslot 2 and the UL DPCH in cell 1 shall be transmitted in timeslot 10. At the beginning of time period T2, the DPCH shall be removed.

Cell 1 and cell shall be synchronised, i.e. share the same frame and timeslot timing.

Table A.6A.3: General test parameters for RRC re-establishment delay, unknown target cell case

Pa	arameter	Unit	Value	Comment
DCH	DCH parameters		DL reference measurement channel 12.2 kbps	As specified in TS 25.102 section A.2.2
Pov	ver Control		On	
Target qual	ity value on DTCH	BLER	0.01	
Initial	Active cell		Cell 1	Cell 2 shall not be included in the
conditions	Neighbour cell		Cell 2	monitored set in Cell 1.
Final conditions	Active cell		Cell 2	
Access Serv	ice Class (ASC#0)	-	1	Selected so that no additional
- Persistence	e value			delay is caused by the random access procedure. The value shall be used for all cells in the test.

N313		20	
N315		1	
T313	Seconds	0	
T _{SI}	ms	1280	
Monitored cell list size		16 TDD neighbours on Channel 1 16 TDD neighbours on Channel 2	
Reporting frequency	Seconds	4	
T1		10	
T2		6	

Table A.6A.4: Cell specific parameters for RRC re-establishment delay test, unknown target cell case

Parameter	Unit		Ce	II 1			Cell 2			
Timeslot Number		(0		3	()		8	
		T1	T2	T1	T2	T1	T2	T1	T2	
UTRA RF Channel Number			Channel 1				Char	nel 2		
PCCPCH_Ec/lor	dB	-3	-3	n.a.	n.a.	-3	-3	n.a.	n.a.	
SCH_Ec/lor	dB	-9	-9	-9	-9	-9	-9	-9	-9	
SCH_t _{offset}		0	0	0	0	15	15	15	15	
PICH_Ec/lor	dB	n.a.	n.a.	-3	-3	n.a.	n.a.	-3	-3	
OCNS_Ec/lor	dB	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	
\hat{I}_{or}/I_{oc}	dB	3	-13	3	-13	5	5	5	5	
I_{oc}	dBm/ 3.84 MHz				-	70				
P-CCPCH_RSCP	dB	-70	-86	n.a.	n.a.	-68	-68	n.a.	n.a.	
Propagation Condition					AW	/GN				

A.6A.1.1.2.2 Test Requirements

The RRC re-establishment delay $T_{\text{RE-ESTABLISH}}$ to an unknown target cell shall be less than 3,7 s.

The rate of successful RRC re-establishments observed during repeated tests shall be at least 90%.

NOTE: The RRC re-establishment delay in this test case can be expressed as,

 $T_{\text{RE-ESTABLISH}} = T_{\text{RRC-RE-ESTABLISH}} + T_{\text{UE-RE-ESTABLISH-REQ-UNKNOWN}}$

where,

 $T_{RRC-RE-ESTABLISH} = 160ms + (N_{313}-1)*10ms + T_{313}$

 $T_{UE-RE-ESTABLISH-REQ-KNOWN} = 50ms + T_{SEARCH-UNKNOWN} *NF + T_{SI} + T_{RA},$

and,

 N_{313} Equal to 20 and therefore resulting in 200 ms delay.

 T_{313} Equal to 0 s.

 $T_{SEARCH\text{-}UNKNOWN}$ Equal to 800 ms

NF Equal to 2, the number of different frequencies in the monitored set of cell 1.

T_{SI} Equal to 1280 ms, the time required for receiving all the relevant system information data according to the reception procedure and the RRC procedure performance value of system

information blocks defined in [16] for a UTRAN cell.

 T_{RA} Equal to 40 ms, the additional delay caused by the random access procedure.

A.6A.1.2 1.28 Mcps TDD Option

A.6A.1.2.1 Test Purpose and Environment

A.6A.1.2.1.1 Test 1

The purpose is to verify that the RRC connection re-establishment delay is within the specified limits. These tests will verify the requirements in section 6A.1.2.2.

The test parameters are given in table A.6A.5 and table A.6A.6 below. 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 A.6A.5: General test parameters for RRC connection re-establishment delay, Test 1

Parameter	Unit	Value	Comment
DCH Parameters		DL Reference measurement channel 12.2 kbps	As specified in TS25.102, section A.2.2.2
Power Control		On	
Active cell, Initial condition		Cell 1	
Active cell, Final condition		Cell 2	
N313		20	
N315		1	
T313	Seconds	0	
T _{SI}	ms	1280	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). Note: Since 1280 ms is one of the typical values for repeating system information blocks, T _{SI} of 1280 ms could be increased by the RRC procedure delay in order to allow the SIB repetition period of 1280 ms
Monitored cell list size		24	Monitored set shall only include intra frequency neighbours
Cell 2			Included in monitored set
Reporting frequency	Seconds	4	
T1	S	10	
T2	S	6	

Table A.6A.6: Cell specific parameters for RRC connection re-establishment delay test, Test 1

Parameter	Unit	Cell 1					Ce	II 2	
Timeslot Number		0			5	()		
		T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number (NOTE3)			Channel 1				Channel 1		
DPCH_Ec/lor	dB	Not a	oplicable	Note 1	-infinity	Not ap	plicable		
OCNS_Ec/lor	dB	N	Note 2 Note 2			Note 2			
PCCPCH_Ec/lor	dB		-3			-3			
\hat{I}_{or}/I_{oc}	dB	[3]	-infinity	3	-infinity	6	6		
I_{oc}	dBm/ 1.28 MHz				-70				
PCCPCH_RSCP	dBm	-70 -infinity Not applicable -67 -67							
Propagation Condition					AWG	N			

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 loc

NOTE 3: In the case of multi-frequency network, the UTRA RF Channel Number can be set for the primary frequency.

A.6A.1.2.1.2 Test 2

The test parameters are given in table A.6A.7 and table A.6A.8 below. 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 A.6A.7: General test parameters for RRC connection re-establishment delay, Test 2

Parameter	Unit	Value	Comment
DCH Parameters		DL Reference measurement channel 12.2 kbps	As specified in TS25.102, section A.2.2.2
Dawer Cantral			
Power Control		On On It d	Oh a mad 4
Active cell, Initial condition		Cell 1	Channel 1
Active cell, Final condition		Cell 2	Channel 2 or 3
N313		20	
N315		1	
T313	Seconds	0	
T _{SI}	ms	1280	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). Note: Since 1280 ms is one of the typical values for repeating system information blocks, T _{SI} of 1280 ms could be increased by the RRC procedure delay in order to allow the SIB repetition period of 1280 ms
Cells in the monitored set		24	
Channels in the monitored set		Channel 1, Channel 2, Channel 3	
Cell 2		,	Cell 2 is not included in the monitored
2011 2			set. Cell 2 is located on a different channel than cell 1.
Reporting frequency	Seconds	4	
T1	S	10	
T2	S	6	

Table A.6A.8: Cell specific parameters for RRC connection re-establishment delay test, Test 2

Parameter	Unit		Cel	l 1		Cell 2			
Timeslot Number		(0		5	()		
		T1	T2	T1	T2	T1	T2		
UTRA RF Channel Number (NOTE3)			Channel 1			Channel 2			
PCCPCH_Ec/lor	dB	•	3			-	3		
DPCH_Ec/lor	dB	Not ap	olicable	Note 1	-infinity	Not applicable			
OCNS_Ec/lor	dB	No	te 2	No	ote 2	Not	te 2		
\hat{I}_{or}/I_{oc}	dB	3	-infinity	3	-infinity	6	6		
I_{oc}	dBm/ 1.28 MHz		-70						
PCCPCH_RSCP	dBm	-70 -infinity Not applicable			-67	-67			
Propagation Condition					AWG	N			

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: In the case of multi-frequency network, the UTRA RF Channel Number can be set for the primary frequency.

A.6A.1.2.2 Test Requirements

A.6A.1.2.2.1 Test 1

The Re-establishment delay is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 2, and starts to send SYNC-UL in the UpPTS for sending a CELL UPDATE message using the cause "radio link failure".

The Re-establishment delay $T_{\text{RE-ESTABLISH}}$ to a known cell shall be less than 1815 ms.

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

NOTE: The Re-establishment delay can be expressed in this case as

T_{RE-ESTABLISH}= T_{RRC-RE-ESTABLISH}+ T_{UE-RE-ESTABLISH-REO-KNOWN}.

Where

 $T_{RRC-RE-ESTABLISH} = 160ms + (N_{313}-1)*10ms + T_{313}$

 $T_{\text{UE-RE-ESTABLISH-REQ-KNOWN}} = 50 ms + T_{\text{search}} + T_{\text{SI}} + T_{\text{RA}}$

N313=20

 $T_{313}=0s$

 T_{search} is the time it takes for the UE to search the cell. $T_{\text{search}} = 100 \text{ ms}$ in case of a known target cell.

The additional delay caused by the random access procedure. 35 ms is assumed in this test case

 T_{SI} T 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 delay of 1.815s allow 1.9s in the test case.

A.6A.1.2.2.2 Test 2

The Re-establishment delay is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 2, and starts to send SYNC-UL in the UpPTS for sending a CELL UPDATE message using the cause "radio link failure".

The Re-establishment delay to an unknown cell shall be less than 4115 ms.

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

NOTE: The Re-establishment delay can be expressed in case as

 $T_{\text{RE-ESTABLISH}} = T_{\text{RRC-RE-ESTABLISH}} + T_{\text{UE-RE-ESTABLISH-REO-UNKNOWN}}$

Where

 $T_{RRC-RE-ESTABLISH} = 160ms + (N_{313}-1)*10ms + T_{313}$

 $T_{UERE-ESTABLISH-REQ-UNKNOWN} = 50 \text{ms} + T_{search} * NF + T_{SI} + T_{RA},$

 $N_{313}=20$

 $T_{313} = 0s$

 T_{search} is the time it takes for the UE to search the cell. T_{search} =800 ms in case of an unknown target cell.

NF is the number of different frequencies in the monitored set. NF=3

T_{RA} The additional delay caused by the random access procedure. 35 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 4.115s, allow 4.2s in the test case.

A.6A.1.3 7.68 Mcps TDD option

A.6A.1.3.1 RRC re-establishment delay to a known target cell

A.6A.1.3.1.1 Test Purpose and Environment

The purpose is to verify that the RRC re-establishment delay to a known target cell is within the specified limits. This test will partly verify the requirements in section 6A.1.2.

The test parameters are given in table A.6A.5A and table A.6A.6A below. 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 time durations of T1 and T2 respectively.

During T1, the DL DPCH in cell 1 shall be transmitted in timeslot 2 and the UL DPCH in cell 1 shall be transmitted in timeslot 10. At the beginning of time period T2, the DPCH shall be removed.

Cell 1 and cell shall be synchronised, i.e. share the same frame and timeslot timing.

Table A.6A.5A: General test parameters for RRC re-establishment delay, known target cell case

F	Parameter	Unit	Value	Comment
DCH parame	DCH parameters		DL reference measurement	As specified in TS 25.102 section
			channel 12.2 kbps	A.2.2
Power Contr	ol		On	
Target qualit	y value on DTCH	BLER	0.01	
Initial	Active cell		Cell 1	Cell 2 shall be included in the
conditions	Neighbour cell		Cell 2	monitored set in Cell 1.
Final	Active cell		Cell 2	
conditions				
Access Ser	vice Class (ASC#0)	-	1	Selected so that no additional
- Persistend	e value			delay is caused by the random
				access procedure. The value
				shall be used for all cells in the
				test.

N313		20	
N315		1	
T313	Seconds	0	
T _{SI}	ms	1280	
Monitored cell list size		24 TDD neighbours on Channel	
		1	
Reporting frequency	Seconds	4	
T1		10	
T2		6	

Table A.6A.6A: Cell specific parameters for RRC re-establishment delay test, known target cell case

Parameter	Unit		Ce	II 1			Ce	II 2	
Timeslot Number		()		3	(0		3
		T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number			Char	nel 1			Char	nel 1	
PCCPCH_Ec/lor	dB	-3	-3	n.a.	n.a.	-3	-3	n.a.	n.a.
SCH_Ec/lor	dB	-9	-9	-9	-9	-9	-9	-9	-9
SCH_t _{offset}		0	0	0	0	15	15	15	15
PICH_Ec/lor	dB	n.a.	n.a.	-3	-3	n.a.	n.a.	-3	-3
OCNS_Ec/lor	dB	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12
\hat{I}_{or}/I_{oc}	dB	3	-13	3	-13	5	5	5	5
I_{oc}	dBm/ 7.68 MHz				-7	70			
P-CCPCH_RSCP	dB	-70	-86	n.a.	n.a.	-68	-68	n.a.	n.a.
Propagation Condition					AW	GN			

A.6A.1.3.1.2 Test Requirements

The RRC re-establishment delay $T_{\text{RE-ESTABLISH}}$ to a known target cell shall be less than 2 s.

The rate of successful RRC re-establishments observed during repeated tests shall be at least 90%.

NOTE: The RRC re-establishment delay in this test case can be expressed as,

 $T_{RE-ESTABLISH} = T_{RRC-RE-ESTABLISH} + T_{UE-RE-ESTABLISH-REQ-KNOWN}$.

where,

 $T_{RRC\text{-}RE\text{-}ESTABLISH} = \quad 160ms + (N_{313}\text{-}1)*10ms + T_{313}$

 $T_{\text{UE-RE-ESTABLISH-REQ-KNOWN}} = 50 \text{ms} + T_{\text{SEARCH-KNOWN}} + T_{\text{SI}} + T_{\text{RA}},$

and,

N₃₁₃ Equal to 20 and therefore resulting in 200 ms delay.

 T_{313} Equal to 0 s.

T_{SEARCH-KNOWN} Equal to 100 ms

T_{SI} Equal to 1280 ms, the time required for receiving all the relevant system information data

according to the reception procedure and the RRC procedure performance value of system

information blocks defined in [16] for a UTRAN cell.

T_{RA} Equal to 40 ms, the additional delay caused by the random access procedure.

A.6A.1.3.2 RRC re-establishment delay to an unknown target cell

A.6A.1.3.2.1 Test Purpose and Environment

The purpose is to verify that the RRC re-establishment delay to an unknown target cell is within the specified limits. This test will partly verify the requirements in section 6A.1.2.

The test parameters are given in table A.6A.7A and table A.6A.8A below. 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 time durations of T1 and T2 respectively.

During T1, the DL DPCH in cell 1 shall be transmitted in timeslot 2 and the UL DPCH in cell 1 shall be transmitted in timeslot 10. At the beginning of time period T2, the DPCH shall be removed.

Cell 1 and cell shall be synchronised, i.e. share the same frame and timeslot timing.

Table A.6A.7A: General test parameters for RRC re-establishment delay, unknown target cell case

Pa	arameter	Unit	Value	Comment
DCH	DCH parameters		DL reference measurement channel 12.2 kbps	As specified in TS 25.102 section A.2.2
Pow	ver Control		On	
Target qual	ity value on DTCH	BLER	0.01	
Initial	Active cell		Cell 1	Cell 2 shall not be included in the
conditions	Neighbour cell	1	Cell 2	monitored set in Cell 1.
Final conditions	Active cell		Cell 2	
Access Serv - Persistence	ice Class (ASC#0) e 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.
	N313		20	
	N315		1	
	T313	Seconds	0	
	T _{SI}	ms	1280	
Monitored cell list size			16 TDD neighbours on Channel 1 16 TDD neighbours on Channel 2	
Reporting frequency		Seconds	4	
	T1		10	
	T2		6	

Table A.6A.8A: Cell specific parameters for RRC re-establishment delay test, unknown target cell case

Parameter	Unit		Cell 1			Ce	II 2		
Timeslot Number		()	8		0		8	
		T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number			Char	nel 1			Chan	nel 2	
PCCPCH_Ec/lor	dB	-3	-3	n.a.	n.a.	-3	-3	n.a.	n.a.
SCH_Ec/lor	dB	-9	-9	-9	-9	-9	-9	-9	-9
SCH_t _{offset}		0	0	0	0	15	15	15	15
PICH_Ec/lor	dB	n.a.	n.a.	-3	-3	n.a.	n.a.	-3	-3
OCNS_Ec/lor	dB	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12	-3,12
\hat{I}_{or}/I_{oc}	dB	3	-13	3	-13	5	5	5	5
I_{oc}	dBm/ 7.68 MHz				-7	70			
P-CCPCH_RSCP	dB	-70	-86	n.a.	n.a.	-68	-68	n.a.	n.a.
Propagation Condition					AW	/GN			

A.6A.1.3.2.2 Test Requirements

The RRC re-establishment delay $T_{\text{RE-ESTABLISH}}$ to an unknown target cell shall be less than 3,7 s.

The rate of successful RRC re-establishments observed during repeated tests shall be at least 90%.

NOTE: The RRC re-establishment delay in this test case can be expressed as,

 $T_{\text{RE-ESTABLISH}} = T_{\text{RRC-RE-ESTABLISH}} + T_{\text{UE-RE-ESTABLISH-REQ-UNKNOWN}}$

where,

 $T_{RRC-RE-ESTABLISH} = 160ms + (N_{313}-1)*10ms + T_{313}$

 $T_{\text{UE-RE-ESTABLISH-REQ-KNOWN}} = 50 \text{ms} + T_{\text{SEARCH-UNKNOWN}} * \text{NF} + T_{\text{SI}} + T_{\text{RA}},$

and,

N₃₁₃ Equal to 20 and therefore resulting in 200 ms delay.

 T_{313} Equal to 0 s.

T_{SEARCH-UNKNOWN} Equal to 800 ms

NF Equal to 2, the number of different frequencies in the monitored set of cell 1.

T_{SI} Equal to 1280 ms, the time required for receiving all the relevant system information data according to the reception procedure and the RRC procedure performance value of system

information blocks defined in [16] for a UTRAN cell.

T_{RA} Equal to 40 ms, the additional delay caused by the random access procedure.

A.6A.2 Transport format combination selection in UE

A.6A.2.1 3.84 Mcps TDD option

A.6A.2.1.1 Test Purpose and Environment

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. This test will verify the general requirement on TFC selection in section 6A.2.

A.6A.2.1.1.1 Interactive or Background, PS, UL: 64 kbps

The test will verify the general requirement on TFC selection in section 6A.2 for a 64 kbps UL reference RAB intended for packet data services, i.e. Interactive or Background, PS as defined in TS 34.108 and multiplexed to a 3.4 kbps DCCH.

The test parameters are given in Table A.6A.9, A.6A.10, A.6A.11 and Table A.6A.12 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 A.6A.10 can be f ound in TS 34.108 section "Interactive or background / UL:64 DL: 64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH".

Table A.6A.9: General test parameters

Parameter	Unit	Value	Comment
TFCS size		10	
TFCS		UL_TFC0, UL_TFC1,	Gain factors for TFC0 to TFC9 shall be set to 1.
		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	0	Value of IE "Maximum allowed UL Tx power
Primary CCPCH Tx power	dBm	18	Value of IE "Primary CCPCH Tx power"
UL timeslot interference	dBm	-80	Value of IE "UL timeslot interference"
			This value shall apply to all timeslots
α		1	IE "Alpha" either not sent or explicitly set to value
UL target SIR	dB	6	
DPCH constant offset	dB	adjustable	Value of IE "DPCH constant power
T1	S	10	
T2	S	10	

Table A.6A.10: Transport channel parameters for UL reference RAB, Interactive or Background and DCCH

Parameter	Unit	64 kbps RAB	DCCH 3.4kbps	
Transport Channel Number		1	2	
Transmission Time Interval	ms	20	40	
Type of Error Protection		Turbo coding	Convolutional coding	
Coding Rate		1/3		
Size of CRC	bits	16		
Transport Block Size	bits	336	148	
Transport Block Set Size	bits	336*B (B=0,1,2,3,4)	148*B (B=0,1)	
Transport Format Set	bits			
TF0		0x336	0x148	
TF1		1x336	1x148	
TF2		2x336	N/A	
TF3		3x336	N/A	
TF4		4x336	N/A	

Table A.6A.11: 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 A.6A.12: Physical channel parameters

Parameter	Unit	Value
UL timeslot		7
Burst type		1
Resource units		{(spreading factor 16 x 1 code) + (spreading factor 4 x 1 code)}
		x 1 time slot
TFCI	Bits	16
TPC	Bits	2
Frame allocation		Continuous

The test shall be performed in AWGN channel propagation conditions. The P-CCPCH in the DL shall be transmitted in timeslot 0.

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.

The test shall be performed in the following way:

Before time period T1:

The allowed TFCS according to table A.6A.5 shall be signalled to the UE.

During time period T1:

With the received P-CCPCH power level set to -60 dBm, the value of the DPCH constant value shall be adjusted such that the mean UE output power is -10 dBm. These conditions are held steady during period T1.

During time period T2:

At the beginning of time period T2, the received P-CCPCH power level shall be decreased by 20 dB.

A.6A.2.1.2 Test Requirements

A.6A.2.1.2.1 Interactive or Background, PS, UL: 64 kbps

The UE shall have stopped using UL_TFC8 and UL_TFC9 within 170 ms from beginning of time period T2.

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

NOTE: The delay from the beginning of T2 can be expressed as:

$$T_{detect_block} + T_{notify} + T_{modify} + T_{L1_proc} + T_{align_TTI} + T_{offset}$$

where:

 T_{detect_block} Equal to 30 ms, the time needed to detect that UL_TFC8 and UL_TFC9 can no longer be supported. This defines the maximum time to detect that the *Elimination* criterion is fulfilled for UL_TFC8 and UL_TFC9.

T_{notify} Equal to 15 ms, the time allowed for MAC to indicate to higher layers that UL_TFC8 and

UL_TFC9 can no longer be supported.

 T_{modify} Equal to MAX(T_{adapt_max} , T_{TTI}) = MAX(0, 40)=40ms

 T_{adapt_max} Equals to 0 ms for the case without codec.

T_{TTI} See section 6A.2. Equals 40 ms in the test case.

 T_{L1_proc} Equals 35 ms.

 T_{align_TTI} Align with the longest uplink TTI where the new TFC can be selected. The worst case equals

40ms in this test case.

 T_{offset} Equal to 10 ms, the maximum time between reception of the DL beacon timeslot and the UL

DPCH timeslot.

A.6A.2.2 1.28 Mcps TDD option

A.6A.2.2.1 Test Purpose and Environment

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. This test will verify the general requirement on TFC selection in section 6.4.

A.6A.2.2.1.1 Interactive or Background, PS, UL: 64 kbps

The test will verify the general requirement on TFC selection in section 6.4 for a RAB intended for packet data services, i.e. Interactive or Background, PS, UL: 64kbps as defined in TS 34.108.

The test parameters are given in Table A.6A.13 , A.6A.14 and Table A.6A.15 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 A.6A.13 and A.6A.14 can be found in TS 34.108 section "Interactive or background / UL:64 DL: 64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH".

Table A.6A.13: 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 A.6A.14: 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)

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 TPC step size dB Maximum allowed dBm 21 UL TX power T1 30 s

Table A.6A.15: General test parameters

The test shall be performed in AWGN channel propagation conditions.

s

The radio conditions in the test shall be sufficient, so that decoding of the TPC commands can be made without errors.

10

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.

The test shall be performed in the following way:

Before time period T1:

T2

The allowed TFCS according to table A.x.z shall be signalled to the UE.

During time period T1:

The system simulator shall ensure that the UE output power is commanded to be between 9to 10 dB below the UE Maximum allowed UL TX power.

During time period T2:

The system simulator shall continuously send TPC_cmd=Up to the UE from the beginning of T2 until the end of T2.

TE: This will emulate that UL_TFC8 to UL_TFC9 can not be supported beacuse the UE reaches the maximum UL Tx power and still UTRAN is sending power-up commands. The time from the beginning of T2 until the UE blocks (stops using) UL_TFC8 and UL_TFC9 shall be measured.

A.6A.2.2.2 Test Requirements

A.6A.2.2.2.1 Interactive or Background, PS, UL: 64 kbps

The UE shall have stopped using UL_TFC8 and UL_TFC9 within [TBD] ms from beginning of time period T2.

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

NOTE: The delay from the begining of T2 can be expressed as: $T_{ramp} + T_{detect_block} + T_{notify} + T_{modify} + T_{L1_proc} + T_{align_TTI}$, where:

T_{ramp} Margin added for the increase of UE output power to the UE maximum power. A margin of 7 frames (70ms) is used, i.e. 14 TPC commands.

The time needed to detect that UL_TFC8 and UL_TFC9 can no longer be supported, i.e. defines the maximum time to detect that the *Limited TFC Set* criterion is fulfilled for UL_TFC8 and UL_TFC9. This figure is currently TBD as X and Y in the general requirement, see section 6.4.2,

are not finalised yet.

 T_{notify} Equal to [15] ms, the time allowed for MAC to indicate to higher layers that UL_TFC8 and

UL_TFC9 can no longer be supported.

 T_{modify} Equal to $MAX(T_{adapt_max}, T_{TTI}) = MAX(0, 40) = 40ms$

 T_{adapt_max} Equals to 0ms for the case without codec.

 T_{L1_proc} Equals 15ms.

T_{align TTI} Align with the longest uplink TTI where the new TFC can be selected. The worst case equals

40ms in this test case.

T_{TTI} See section 6.4.2. Equals 40 ms in the test case.

This gives a maximum delay of $(70 + T_{detect block} + [15] + 40 + 15 + 40)$ ms from the beginning of T2.

A.6A.2.3 7.68 Mcps TDD option

A.6A.2.3.1 Test Purpose and Environment

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. This test will verify the general requirement on TFC selection in section 6A.2.

A.6A.2.3.1.1 Interactive or Background, PS, UL: 64 kbps

The test will verify the general requirement on TFC selection in section 6A.2 for a 64 kbps UL reference RAB intended for packet data services, i.e. Interactive or Background, PS as defined in TS 34.108 and multiplexed to a 3.4 kbps DCCH.

The test parameters are given in Table A.6A.16, A.6A.17, A.6A.18 and Table A.6A.19 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 A.6A.17 is similar to that in TS 34.108 section "Interactive or background / UL:64 DL: 64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH" with the exception that the Spreading Factor is 32 here instead of 16.

Table A.6A.16: General test parameters

Parameter	Unit	Value	Comment
TFCS size		10	
TFCS		UL_TFC0, UL_TFC1,	Gain factors for TFC0 to TFC9 shall be set to 1.
		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	0	Value of IE "Maximum allowed UL Tx power
Primary CCPCH Tx power	dBm	18	Value of IE "Primary CCPCH Tx power"
UL timeslot interference	dBm	-80	Value of IE "UL timeslot interference"
			This value shall apply to all timeslots
α		1	IE "Alpha" either not sent or explicitly set to value
UL target SIR	dB	6	
DPCH constant offset	dB	adjustable	Value of IE "DPCH constant power
T1	S	10	
T2	S	10	

Table A.6A.17: Transport channel parameters for UL reference RAB, Interactive or Background and DCCH

Parameter	Unit	64 kbps RAB	DCCH 3.4kbps	
Transport Channel Number		1	2	
Transmission Time Interval	ms	20	40	
Type of Error Protection		Turbo coding	Convolutional coding	
Coding Rate		1/3		
Size of CRC	bits	16		
Transport Block Size	bits	336	148	
Transport Block Set Size	bits	336*B (B=0,1,2,3,4)	148*B (B=0,1)	
Transport Format Set	bits			
TF0		0x336	0x148	
TF1		1x336	1x148	
TF2		2x336	N/A	
TF3		3x336	N/A	
TF4		4x336	N/A	

Table A.6A.18: UL TFCI

TFCI	(64 kbps RAB, DCCH)
11 61	
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 A.6A.19: Physical channel parameters

Parameter	Unit	Value
UL timeslot		7
Burst type		1
Resource units		{(spreading factor 32 x 1 code) + (spreading factor 8 x 1 code)}
		x 1 time slot
TFCI	Bits	16
TPC	Bits	2
Frame allocation		Continuous

The test shall be performed in AWGN channel propagation conditions. The P-CCPCH in the DL shall be transmitted in timeslot 0.

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.

The test shall be performed in the following way:

Before time period T1:

The allowed TFCS according to table A.6A.16 shall be signalled to the UE.

During time period T1:

With the received P-CCPCH power level set to -60 dBm, the value of the DPCH constant value shall be adjusted such that the mean UE output power is -10 dBm. These conditions are held steady during period T1.

During time period T2:

At the beginning of time period T2, the received P-CCPCH power level shall be decreased by 20 dB.

A.6A.2.3.2 Test Requirements

A.6A.2.3.2.1 Interactive or Background, PS, UL: 64 kbps

The UE shall have stopped using UL_TFC8 and UL_TFC9 within 170 ms from beginning of time period T2.

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

NOTE: The delay from the beginning of T2 can be expressed as:

$$T_{detect\ block} + T_{notify} + T_{modify} + T_{L1\ proc} + T_{align\ TTI} + T_{offset}$$

where:

T_{detect block} Equal to 30 ms, the time needed to detect that UL_TFC8 and UL_TFC9 can no longer be

supported. This defines the maximum time to detect that the Elimination criterion is fulfilled for

UL_TFC8 and UL_TFC9.

T_{notify} Equal to 15 ms, the time allowed for MAC to indicate to higher layers that UL_TFC8 and

UL_TFC9 can no longer be supported.

 T_{modify} Equal to MAX(T_{adapt_max} , T_{TTI}) = MAX(0, 40)=40ms

 $T_{adapt\ max}$ Equals to 0 ms for the case without codec.

T_{TTI} See section 6A.2. Equals 40 ms in the test case.

 T_{L1_proc} Equals 35 ms.

T_{align_TTI} Align with the longest uplink TTI where the new TFC can be selected. The worst case equals

40ms in this test case.

T_{offset} Equal to 10 ms, the maximum time between reception of the DL beacon timeslot and the UL

DPCH timeslot.

A.6A.3 E-TFC restriction in UE

A.6A.3.1 3.84 Mcps TDD option

Void.

A.6A.3.2 1.28 Mcps TDD option

A.6A.3.2.1 Test Purpose and Environment

A.6A.3.2.1.1 5ms TTI E-DCH E-TFC restriction testcase

The purpose is to verify the UE stops using a currently used E-TFC when its power is not sufficient to support that E-TFC, and resumes using that E-TFC when its power is sufficient to support it.

This test is to verify the requirement for the cell re-selection delay in the single carrier case.

The test parameters are given in Table A.6A.20 and A.6A.21below. The test consists of 3time periods, with a time duration of T1 ,T2 and T3 respectively.

An E-DCH radio bearer shall be configured, so that UE is transmitting E-PUCH in the initial condition before the time T1, defined as T0.

Table A.6A.20: General test parameters

Parameter	Unit	Value	Comment
UL DPCH configuration		12.2kbps reference measurement channel	
E-DCH Transport Block Size Table		5ms TTI E-DCH Transport Block Size Table 0 according to TS 25.321 annex BC.1	
UL Power Control		On	
Active cell		Cell 1	
Maximum allowed UL TX power	dBm	24	For a class 4 UE maximum allowed TX power can still be signalled as 24dBm however the UE only has capability to transmit 21dBm
Propagation condition		AWGN	
Δ_{harq}	dB	0	
Periodicity for Scheduling Info		Every TTI	
E-DCH MAC-D flow maximum number of retransmissions		0	
T1	S	30	
T2	S	10	
T3	S	10	

Table A.6A.21: Additional cell specific parameters

Unit	Cell 1							
		C)		DwPTS			
	T0	T1	T2	T3	T0	T1	T2	T3
				Chan	nel 1			
		-(3					
dB						Ť	3	
dB	-7							
dB	-7							
dB		-(3					
dB	-15							
dB	-15							
dB	Note 1							
dBm/1.28 MHz	-70							
	dB dB dB dB dB dB dB dB	dB d	T0 T1	O T0 T1 T2 T2	0 T0 T1 T2 T3 Chan -3 dB -7 dB -7 dB -3 dB -15 dB -15 dB Not dB/1.28 Not -7 </td <td>0 T0 T1 T2 T3 T0 Channel 1 -3 -3 -7</td> <td>Dwl T0 T1 T2 T3 T0 T1 Channel 1 Channel</td> <td>DwPTS T0 T1 T2 T3 T0 T1 T2 Channel 1 -3 dB -7 -3 -3 -4 <</td>	0 T0 T1 T2 T3 T0 Channel 1 -3 -3 -7	Dwl T0 T1 T2 T3 T0 T1 Channel 1 Channel	DwPTS T0 T1 T2 T3 T0 T1 T2 Channel 1 -3 dB -7 -3 -3 -4 <

Note 1: The power of the OCNS channel that is added shall make the total power from the cell to be equal to I_{or.}

The amount of available user data shall be sufficient to allow E-DCH uplink transmission at the highest possible bit rate with E-DCH TB index 58.

The test shall be performed in the following way:

Initial conditions:

Call is established with HSDPA and E-DCH radio bearers. An absolute grant with the value 31 is sent on the E-AGCH to give the UE sufficient grants to make use of the maximum possible data rate.

During time period T1:

From the start of T1 the system simulator shall send sufficient consecutive TPC_cmd=Up to the UE until the value of TFCI changes.

During time period T2:

The system simulator shall continuously send TPC_cmd=UP to the UE from the beginning of T2 until the end of T2. Within 150ms from the start of T2, the UE uplink E-UCCH shall indicate use of E-TFCI with index 0.

During time period T3:

The system simulator shall continuously send TPC_cmd=Down for 15 times to the UE from the beginning of T3 until the end of T3. The UE uplink E-UCCH shall indicate use of E-TFCI with index 58.

Time periods T1, T2 and T3 shall be repeated until the necessary statistical confidence is achieved.

A.6A.3.2.2 Test Requirements

A.6A.3.2.2.1 5ms TTI E-DCH E-TFC selection testcase

During time period T1, uplink power control shall be adjusted so that the UE is able to make use of the maximum of its capabilities.

- 1) The amount of available user data shall be sufficient to allow E-DCH uplink transmission at the highest possible bit rate with E-DCH TB index 58.
- 2) UE shall decrease E-TFCI to 0 within T_s.

 T_s = Power level change time + UE processing time =15*5+15*5=150ms

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

A.6A.3.37.68 Mcps TDD option

Void.

A.6A.4 Random Access

A.6A.4.1 3.84 Mcps TDD option

Void.

A.6A.4.2 1.28 Mcps TDD option

A.6A.4.2.1 Test Purpose and Environment

The purpose of these tests is to verify that the behaviour of the random access procedure is according to the requirements and that the PRACH power settings and timing are within specified limits. This test will verify the requirements in section 6A.4.2.2.

Table A.6A.21: RF Parameters for Random Access test

Parameter	Unit	Cell 1
UTRA RF Channel Number		Channel 1
PCCPCH_Ec/lor	dB	-3
OCNS_Ec/lor	dB	-3
\hat{I}_{or}/I_{oc}	dB	10
I_{oc}	dBm/1.28MHz	-70
PCCPCH_RSCP	dBm/1.28MHz	-63
Propagation Condition		AWGN

The test parameters "System Information Block (SIB) type 5 (ASC #0)" defined in clause 6.1 of TS 34.108, shall be used in all random access tests. Crucial parameters for the test requirements are repeated in Table A.6A.22 and these overrule the parameters defined in SIB type 5.

Table A.6A.22: UE/SS parameters for Random Access test

Parameter	Unit	Value
Access Service Class		
(ASC#0)		
- Persistence value	01	1
PCCPCH Power -Broadcast	dBm	18
Maximum number of UpPCH		8
Transmissions		
Power step when no FPACH	dB	1~3
is received		
(Pwr _{ramp})		
Maximum allowed UL TX	dBm	21
power		
Desired UpPCH RX power at	dBm	-100dBm
the cell's receiver		
(PRX _{UpPCHdes})		

Notes: PRX_{PRACHdes}: Desired PRACH RX power at the cell's receiver in dBm signalled to the UE by the network in the FPACH response to the UE's successful UpPCH transmission.

A.6A.4.2.2 Test Requirements

A.6A.4.2.2.1 Correct behaviour when receiving an ACK

The UE shall stop transmitting UpPCH upon a successful FPACH has been received and then transmit a message of PRACH. A FPACH shall be transmitted after 8 UpPCH have been received by the UTRAN.

The absolute power applied to the first UpPCH shall have an accuracy as specified in section 6.4.1.2.1 of TS 25.102. The relative power applied to additional preambles shall have an accuracy as specified in section 6A.4.2.2.

The UE shall transmit 6 UpPCH and 1 message of PRACH if the max number of UpPCH transmissions is 8.

A.6A.4.2.2.2 Correct behaviour when reaching maximum allowed UL transmit power

The UE shall not exceed the maximum allowed UL TX power configured by the UTRAN. No FPACH shall be sent by UTRAN during this test as specified in section 6.4.1.2.1 of TS 25.102.

Table A.6A.24: Specific UE parameter for correct behaviour when reaching maximum transmit power

Parameter	Unit	Value
Maximum allowed UL TX power	dBm	0
Power step when no FPACH is received (Pwr _{ramp})	dB	3

A.6A.4.37.68 Mcps TDD option

Void.

A.7 Timing characteristics

A.7.1 Timing Advance

A.7.1.1 3.84 Mcps TDD option

A.7.1.1.1 Test Purpose and Environment

The purpose of this test is to verify the requirements on timing advance adjustment accuracy and timing advance adjustment delay in section 7.1.1.

The test parameters are given in table A.7.1 and table A.7.1A. The test consists of two successive time periods, with a time duration of T1 and T2 respectively. At the start of time duration T1, the UE shall transmit with the Uplink Timing Advance value set to zero, i.e. Timing Advance disabled.

During time period T1, UTRAN shall send an Uplink Physical Channel control message with activation time at the beginning of T2. The Uplink Physical Channel 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 T2 is greater than or equal to the RRC procedure delay as defined in [16].

Table A.7.1.1: General test parameters for Timing Advance test

Pa	rameter	Unit	Value	Comment
DCH parameters			DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.102 section A.2.2
Powe	er Control		On	
• .	uality value on DTCH	BLER	0.01	
Initial conditions	Timing Advance value		0	IE "Uplink timing advance" value zero or IE "Uplink timing advance control" value disabled.
Final condition	Timing Advance value		5	IE "Uplink timing advance" value set to 5.
Monitore	d cell list size		6 TDD neighbors on Channel 1	
	T _{SI}	S	1.28	The value shall be used for all cells in the test.
	T1	S	5	
	T2	S	5	

Table A.7.1.2: Cell specific test parameters for Timing Advance test

Parameter	Unit	Cell 1				
DL timeslot number		C	0		2	
		T1	T2	T1	T2	
UTRA RF Channel Number			Chani	nel 1		
PCCPCH_Ec/lor	dB	-(3	n	ı.a.	
SCH_Ec/lor	dB	-9 n.a.			ı.a.	
SCH_t _{offset}	dB	0 n.a.			ı.a.	
DPCH_Ec/lor	dB	n.a	a.	No	ote 1	
OCNS_Ec/lor	dB	-3,12 Note 2			ote 2	
\hat{I}_{or}/I_{oc}	dB	3				
I_{oc}	dBm/ 3,84 MHz	-70				
Propagation Condition		<u> </u>	AWO	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 lor .

A.7.1.1.2 Test Requirements

The UE shall apply the signalled Timing Advance value to the UL DPCH transmission timing at the designated activation time, i.e the beginning of time period T2. The Timing Advance adjustement accuracy shall be within the limits specified in section 7.1.1.2.

The rate of correct Timing Advance adjustments observed during repeated tests shall be at least 90%.

A.7.1.2 1.28 Mcps TDD option

A.7.1.2.1 Test Purpose and Environment

Timing advance is applied to adjust the UE transmit time in order to ensure that all the signal received by the BS is synchronised.

The purpose of this test is to verify the ability of the UE to adjust its timing advance according to the SS commands within the specified accuracy defined in section 7.1.2.

The test parameters are given in table A.7.1.3 and table A.7.1.4. The DL DPCH shall be transmitted in timeslot 4 and the UL DPCH shall be transmitted in timeslot 2.

Parameter Unit Value Comment DCH parameters **DL Reference Measurement** As specified in TS 25.102 section A.2.2 Channel 12.2 kbps Power Control On Target quality value on DTCH **BLER** 0.01 Monitored cell list size 6 TDD neighbors on Channel 1

Table A.7.1.3: General test parameters for Timing Advance test

Table A.7.1.4: Cell specific test parameters for Timing Advance test

Parameter	Unit	Cel	l 1				
Timeslot Number		0	DwPTS				
UTRA RF Channel Number (NOTE)		Channel 1					
PCCPCH_Ec/lor	dB	-3					
DwPCH_Ec/lor	dB		0				
OCNS_Ec/lor	dB	-3					
\hat{I}_{or}/I_{oc}	dB	6	6				
I_{oc}	dBm/ 1.28 MHz	-80					
PCCPCH RSCP	dBm	-77					
Propagation Condition		AWGN					
NOTE: In the case of	NOTE: In the case of multi-frequency network, the UTRA RF Channel Number can be set for						
the primary fr	equency.						

A.7.1.2.2 Test procedure

- 1) Configure the UE transmitter to enable synchronisation steps of size 1/8 chip
- 2) send synchronisation commands to the UE under test
- 3) measure the received time of the uplink signal.
- 4) check that the measured UE synchronisation control range is within the limits defined in section 7.1.2.1.1.1 Table 7.1

A.7.1.2.3 Test Requirements

The rate of correct uplink synchronisation control range observed during repeated tests shall be at least 90%.

A.7.1.3 7.68 Mcps TDD option

A.7.1.3.1 Test Purpose and Environment

The purpose of this test is to verify the requirements on timing advance adjustment accuracy and timing advance adjustment delay in section 7.1.3.

The test parameters are given in table A.7.5 and table A.7.6. The test consists of two successive time periods, with a time duration of T1 and T2 respectively. At the start of time duration T1, the UE shall transmit with the Uplink Timing Advance value set to zero, i.e. Timing Advance disabled.

During time period T1, UTRAN shall send an Uplink Physical Channel control message with activation time at the beginning of T2. The Uplink Physical Channel 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 T2 is greater than or equal to the RRC procedure delay as defined in [16].

Parameter Unit Value Comment DL Reference Measurement As specified in TS 25.102 section A.2.2 DCH parameters Channel 12.2 kbps Power Control On **BLER** Target quality value on 0.01 DTCH Initial Timina 0 IE "Uplink timing advance" value zero or conditions Advance value IE "Uplink timing advance control" value disabled. Final 5 IE "Uplink timing advance" value set to 5. **Timing** condition Advance value Monitored cell list size 6 TDD neighbors on Channel 1 Tsi s 1.28 The value shall be used for all cells in the test. T1 s 5

Table A.7.1.5: General test parameters for Timing Advance test

Table A.7.1.6: Cell specific test parameters for Timing Advance test

5

Parameter	Unit	Cell 1				
DL timeslot number		0	0 2			
		T1	T2	T1	T2	
UTRA RF Channel Number		Channel 1				
PCCPCH_Ec/lor	dB	-3 n.a.				
SCH_Ec/lor	dB	-9 n.a.			n.a.	
SCH_t _{offset}	dB	0 n.a.			n.a.	
DPCH_Ec/lor	dB	n.a. Note 1				
OCNS_Ec/lor	dB	-3,12 Note 2				
\hat{I}_{or}/I_{oc}	dB	3				
I_{oc}	dBm/ 7,68 MHz	-70				
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 lor .

A.7.1.3.2 Test Requirements

T2

The UE shall apply the signalled Timing Advance value to the UL DPCH transmission timing at the designated activation time, i.e the beginning of time period T2. The Timing Advance adjustement accuracy shall be within the limits specified in section 7.1.3.2.

The rate of correct Timing Advance adjustments observed during repeated tests shall be at least 90%.

A.7.2 Cell synchronization accuracy

NOTE: This section is included for consistency with numbering with section 7; currently no test covering requirements in section 7.2 exists.

A.7.3 UE Transmit Timing for 3.84 Mcps TDD option

NOTE: This section is included for consistency with numbering with section 7; currently no test covering requirements in section 7.3 exists.

A.7.4 UE Uplink Synchronization

A.7.4.1 3.84 Mcps TDD option

Void.

A.7.4.2 1.28 Mcps TDD option

A.7.4.2.1 Uplink synchronization control for PRACH

A.7.4.2.1.1 Test Purpose and Environment

The purpose of this test is to verify the ability of the UE to archieve its uplink synchronization control for PRACH within the specified accuracy defined in section 7.5.2.1.

Table A.7.4.1: RF Parameters for Uplink synchronization control test for PRACH

Parameter	Unit	Cell 1
UTRA RF Channel Number		Channel 1
PCCPCH_Ec/lor	dB	-3
OCNS_Ec/lor	dB	-3
\hat{I}_{or}/I_{oc}	dB	10
I_{oc}	dBm/1.28MHz	-70
PCCPCH_RSCP	dBm/1.28MHz	-63
Propagation Condition		AWGN

The test parameters "System Information Block (SIB) type 5 (ASC #0)" defined in clause 6.1 of TS 34.108, shall be used in all random access tests. Crucial parameters for the test requirements are repeated in Table A.7.4.2 and these overrule the parameters defined in SIB type 5.

Table A.7.4.2: UE/SS parameters for Uplink synchronization control test for PRACH

Parameter	Unit	Value
Access Service Class	01	1
(ASC#0)		
- Persistence value		
PCCPCH Power -Broadcast	dBm	18
Maximum number of UpPCH		8
Transmissions		
Power step when no FPACH	dB	1
is received		
(Pwr _{ramp})		
Maximum allowed UL TX	dBm	21
power		
Desired UpPCH RX power at	dBm	-100
the cell's receiver		
(PRX _{UpPCHdes})		

A.7.4.2.1.2 Test Requirements

The UE shall not exceed the accuracy requirements as Table A.7.4.3.

Table A.7.4.3: Uplink synchronisation control accuracy requirements

Parameter	Unit	Accuracy [chip]	Conditions lo [dBm/ 1.28 MHz]
Uplink synchronization control for PRACH	chip	+/- 0.5	-9450

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

A.7.4.2.2 Uplink synchronization control during handover

A.7.4.2.2.1 Scenario 1: Handover to intra-frequency cell

This test case is applicable for UE handovers in single frequency network and UE handovers from primary frequency to primary frequency in multi-frequency network.

A.7.4.2.2.1.1 Test Purpose and Environment

The purpose of this test is to verify the requirement for the uplink synchronization control during intra-frequency handover in CELL_DCH state as reported in section 7.5.2.2.

The test parameters are given in Tables A.7.4.4 and A.7.4.5 below. 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" at the beginning of T3 with a new active cell, cell 2, after the UE has reported event 1G. The starting point of T3 is defined as the end of the last TTI containing the physical channel reconfiguration message.

UTRAN measures the initial uplink synchronization timing position of the first uplink DPCH on the target cell and compares it with the desired position. If the difference dose not exceed the accuracy requirements in section 7.5.2.2, it is recorded as success once.

Table A.7.4.4: General test parameters for intra-frequency handover

Pa	Parameter		Value	Comment
DPCH parameters			DL and UL Reference Measurement Channel 12.2 kbps	As specified in TS 25.102 section A.2.2.2 and A.2.1.2
Power Contr	ol		On	
Target qualit	y value on DPCH	BLER	0.01	
Initial conditions	Active cell		Cell 1	In the case of multi-frequency network, the UE has a RRC connection on the primary frequency in cell 1.
	Neighbouring cell		Cell 2	
Final condition	Active cell		Cell 2	In the case of multifrequency network, UE will handover to the primary frequency in cell 2.
0		dB	0	cell-individual-offset The value shall be used for all cells in the test.
Hysteresis		dB	0	
Time to Trigg	ger	ms	0	
Filter coeffici			0	
Monitored ce	ell list size		6 TDD neighbours on Channel 1	
T1		S	5	
T2		S	5	
T3		S	5	

Table A.7.4.5: Cell specific test parameters for intra-frequency handover

Parameter	Unit	Cell 1								
Timeslot Number			0		DwPTS			5		
		T1	T2	T3	T1	T2	T3	T1	T2	T3
UTRA RF Channel				•	Cl					
Number(Note3)					Ci	nannel '	ı			
PCCPCH_Ec/lor	dB		-3						n.a.	
DwPCH_Ec/lor						0				
DPCH_Ec/lor	dB		n.a.			n.a.		No	ote1	n.a.
OCNS_Ec/lor	dB		-3						Note2	
\hat{I}_{or}/I_{oc}	dB		3			3			3	
I_{oc}	dBm/ 1.28 MHz	-70								
PCCPCH_RSCP	dBm		-70		n.a.			n.a.		
Propagation Condition					-	AWGN				
Parameter	Unit				(Cell 2				
Timeslot Number			0		DwPTS			5		
		T1	T2	T3	T1	T2	T3	T1	T2	T3
UTRA RF Channel Number(Note3)					Ch	nannel '	1			
PCCPCH_Ec/lor	dB		-3						n.a.	
DwPCH_Ec/lor						0				
DPCH_Ec/lor	dB		n.a.		n.a.			n	ı.a.	Not e1
OCNS_Ec/lor	dB		-3						Note2	
\hat{I}_{or}/I_{oc}	dB	-Inf. 6		-Inf.	(3	-	Inf.	6	
I_{oc}	dBm/ 1.28 MHz	-70								
PCCPCH_RSCP	dBm	-Inf67 n.a. n.a.								
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 $I_{\rm or}$

In the case of multi-frequency network, the UTRA RF Channel Number is the primary

frequency"s channel number.

A.7.4.2.2.1.2 Test Requirements

Note 3:

The UE shall not exceed the accuracy requirements as Table A.7.4.6.

Table A.7.4.6: Uplink synchronisation control accuracy requirements

Parameter	Unit	Accuracy [chip]	Conditions lo [dBm/ 1.28 MHz]
Uplink synchronization control during handover	chip	+/- 0.5	-9450

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

A.7.4.2.2.2 Scenario 2: Handover to inter-frequency cell

This test case is applicable for UE handovers in single frequency network and UE handovers from primary frequency to secondary frequency in multi-frequency network.

A.7.4.2.2.2.1 Test Purpose and Environment

The purpose of this test is to verify the requirement for the uplink synchronization control during intra-frequency handover in CELL_DCH state as reported in section 7.5.2.2.

The test parameters are given in Tables A.7.4.7 and A.7.4.8 as below. 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" at the beginning of T3 with a new active cell, cell 2, after the UE has reported event 1G. The starting point of T3 is defined as the end of the last TTI containing the physical channel reconfiguration message.

UTRAN measures the initial uplink synchronization timing position of the first uplink DPCH on the target cell and compare it with the desired position. If the difference dose not exceed the accuracy requirements in section 7.5.2.2, it is recorded as success once.

Table A.7.4.7: General test parameters for inter-frequency handover

Para	Parameter Uni		Value	Comment
DPCH parameters			DL and UL Reference Measurement Channel 12.2 kbps	As specified in TS 25.102 section A.2.2.2 and A.2.1.2
Power Cont	rol		On	
Target quali DPCH	ity value on	BLER	0.01	
Initial conditions	Active cell		Cell 1	The UE has a RRC connection on the secondary frequency in cell 1.
	Neighbour cell		Cell 2	
Final conditions	Active cell		Cell 2	The UE will handover to the primary frequency in cell 2.
Threshold n frequency	on used	dBm	-75	Absolute RSCP threshold for event 2C
0		dB	0	cell-individual-offset The value shall be used for all cells in the test.
Hysteresis		dB	0	
Time to Trig	ger	ms	0	
Filter coeffic	cient		0	
Monitored cell list size			6 TDD neighbours on Channel 1 6 TDD neighbours on Channel 2	
T1		S	5	
T2		S	10	
T3		S	5	

Table A.7.4.8: Cell Specific parameters for inter-frequency handover

Parameter	Unit	Cell 1								
Timeslot Number			0			DwPTS	3	5		
		T1	T2	T3	T1	T2	T3	T1	T2	T3
UTRA RF Channel					Ch	annel '	1			
Number(Note 3)					Ci	iaiiiei	1			
UTRA RF Channel					Ch	nannel 2	2			
Number(Note 4)						iai ii iCi 2				
PCCPCH_Ec/lor	dB		-3						n.a.	
DwPCH_Ec/lor						0				
DPCH_Ec/lor	dB		n.a.			n.a.		No	ote1	n.a.
OCNS_Ec/lor	dB		-3						Note2	
\hat{I}_{or}/I_{oc}	dB		3			3			3	
	dBm/									
I_{oc}	1.28					-70				
	MHz									
PCCPCH_RSCP	dBm		-70			n.a.		n.a.		
Propagation Condition						AWGN				
Parameter	Unit					Cell 2				
Timeslot Number			0	1		DWPTS			5	ı
		T1	T2	T3	T1	T2	T3	T1	T2	T3
UTRA RF Channel Number(Note 3)					Ch	annel 1	1			
UTRA RF Channel					Ch	nannel 2	.			
Number(Note 4)					Ci	iannei 2	2			
PCCPCH_Ec/lor	dB		-3						n.a.	
DwPCH_Ec/lor						0				
DPCH_Ec/lor	dB		n.a.			n.a.		n	ı.a.	Not e1
OCNS_Ec/lor	dB		-3						Note2	_
\hat{I}_{or}/I_{oc}	dB	-Inf.	4	4	-Inf.	4	4	-	Inf.	4
I_{oc}	dBm/ 1.28					-70				
- oc	MHz					, 0				
PCCPCH_RSCP	dBm	-Inf.	-6	69	n.a.				n.a.	
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 $I_{\rm or}$

Note3: The UTRA RF Channel Number is the primary frequency"s channel number.

Note4: The UTRA RF Channel Number is the secondary frequency s channel number.

A.7.4.2.2.2 Test Requirements

The UE shall not exceed the accuracy requirements as Table A.7.4.9.

Table A.7.4.9: Uplink synchronisation control accuracy requirements

Parameter	Unit	Accuracy [chip]	Conditions lo [dBm/ 1.28 MHz]
Uplink synchronization control during handover	chip	+/- 0.5	-9450

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

A.7.4.3 7.68 Mcps TDD option

Void.

A.8 UE Measurements Procedures

A.8.1 TDD intra frequency measurements

A.8.1.1 Event 1G triggered reporting in AWGN propagation conditions

A.8.1.1.1 Test Purpose and Environment

A.8.1.1.1.1 3.84 Mcps TDD option

The purpose of this test is to verify that the UE makes correct reporting of events. This test will partly verify the requirements in section 8.1.2 and section 9.1.

The test parameters are given in Table A.8.1.1 and A.8.1.1A below. The test consists of three successive time periods, with time durations of T1, T2 and T3 respectively. Three cells shall be present in the test, cell 1 being the serving cell and cell 2 and cell 3 being neighbour cells on the used 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 1G shall be used, and that P-CCPCH RSCP shall be reported together with Event 1G. 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 [16].

The second Beacon timeslot shall be provided in timeslot 8 for both cell 1 and cell 2. The DL DPCH shall be transmitted in timeslot 2 and the UL DPCH shall be transmitted in timeslot 10. The TTI of the uplink DCCH shall be 20ms.

Table A.8.1.1: General test parameters for Event 1G triggered reporting in AWGN propagation condition

Para	meter	Unit	Value	Comment
DCH paramet	DCH parameters		DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.102 section A.2.2
Power Contro	l		On	
Target quality DTCH	value on	BLER	0.01	
Initial	Active cell		Cell 1	
conditions	Neighbour cell		Cell 2, Cell 3	
Final condition	Active cell		Cell 1	
0		dB	0	Cell individual offset. This value shall be used for all cells in the test.
Hysteresis		dB	0	
Time to Trigge	er	ms	0	
Threshold use	ed frequency	dBm	-70	Applicable for Event 1G
Filter coefficie	nt		0	
Monitored cell list size			12 TDD neighbours on Channel 1	
T1		S	6	
T2	<u> </u>	S	6	
T3		S	6	

Table A.8.1.1A: Cell specific parameters for Event 1G triggered correct reporting in AWGN propagation condition

Parameter	Unit	Cell 1			Cell 2			Cell 3		
		T1	T2	Т3	T1	T2	Т3	T1	T2	T3
DL timeslot number			0			0		0		
UTRA RF Channel Number			Channel 1		Channel 1			Channel 1		
PCCPCH_Ec/lor	dB		-3		-3			-3		
SCH_Ec/lor	dB		-9		-9			-9		
SCH_t _{offset}			0		5			10		
OCNS_Ec/lor	dB		-3,12		-3,12			-3,12		
\hat{I}_{or}/I_{oc}	dB	7		5	5	7	-Inf	-1	nf	7
PCCPCH RSCP	dBm	-66	-(68	-68	-66	-Inf	-1	nf	-66
I_{oc}	dBm / 3,84 MHz	-70								
Propagation Condition		AWGN								

A.8.1.1.1.2 1.28 Mcps TDD option

The purpose of this test is to verify that the UE makes correct reporting of events. This test will partly verify the requirements in section 8.1A.2 and section 9.1.

The test parameters are given in Table A.8.1.1B and A.8.1.1C below. The test consists of three successive time periods, with time durations of T1, T2 and T3 respectively. Three cells shall be present in the test, cell 1 being the serving cell and cell 2 and cell 3 being neighbour cells on the used 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 1G shall be used, and that P-CCPCH RSCP shall be reported together with Event 1G 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 [16]. The cell specific test parameters are given in Table A.8.1.1C below.

The TTI of the uplink DCCH shall be 40ms.

Table A.8.1.1B: General test parameters for Event 1G triggered reporting in AWGN propagation condition

Parameter	Unit	Value	Comment
DPCH parameters		DL Reference Measurement Channel	As specified in TS 25.102 section A.
active cell		12.2 kbps	The DPCH is located in an other timeslot than 0
Power Control		On	
Target quality value on DTCH	BLER	0.01	
Active cell		Cell 1	
Neighbour cell		Cell 2, Cell 3	
0	dB	0	Cell individual offset. This value shall be used for all cells in the test.
Hysteresis	dB	0	
Time to Trigger	ms	0	
Filter coefficient		0	
Monitored cell list		12 TDD neighbours on Channel 1	
size			
T1	S	6	
T2	S	6	
T3	S	6	

Table A.8.1.1C: Cell specific parameters for Event 1G triggered correct reporting in AWGN propagation condition

Parameter	Unit	Cell 1					Cell 2						Cell 3						
DL timeslot number		0		DwPTS		0		DwPTS			0		DwPTS						
		T1	T2	T3	T1	T2	T3	T1	T2	T3	T1	T2	Т3	T1	T2	T3	T1	T2	T3
UTRA RF				Chan	nel 1					Chan	nel 1					Chan	nel 1		
Channel Number (NOTE 2)																			
PCCPCH_Ec/lor	dB	-3				-3				-3									
DwPCH_Ec/lor	dB			0				0				0							
OCNS_Ec/lor	dB	-3				-3				-3									
\hat{I}_{or}/I_{oc}	dB	7	4	4	7	4	4	4	7	-Inf	4	7	-Inf	-1	nf	6	-lı	nf	6
PCCPCH RSCP	dBm	-66	-6	69				-69	-66	-Inf				-1	nf	-66			
I_{oc}	dBm/ 1,28 MHz	-70																	
Propagation Condition										AW	GN								

Note 1: The DPCH of all cells are located in a timeslot other than 0.

Note 2: In the case of multi-frequency network, the UTRA RF Channel Number can be set for the primary frequency in this test.

A.8.1.1.3 7.68 Mcps TDD option

The purpose of this test is to verify that the UE makes correct reporting of events. This test will partly verify the requirements in section 8.1B.2 and section 9.1.

The test parameters are given in Table A.8.1.1D and A.8.1.1E below. The test consists of three successive time periods, with time durations of T1, T2 and T3 respectively. Three cells shall be present in the test, cell 1 being the serving cell and cell 2 and cell 3 being neighbour cells on the used 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 1G shall be used, and that P-CCPCH RSCP shall be reported together with Event 1G. 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 [16].

The second Beacon timeslot shall be provided in timeslot 8 for both cell 1 and cell 2. The DL DPCH shall be transmitted in timeslot 2 and the UL DPCH shall be transmitted in timeslot 10. The TTI of the uplink DCCH shall be 20ms.

Table A.8.1.1D: General test parameters for Event 1G triggered reporting in AWGN propagation condition

Parameter		Unit	Value	Comment					
DCH parameters			DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.102 section A.2.2					
Power Control			On						
Target quality value on DTCH		BLER	0.01						
Initial	Active cell		Cell 1						
conditions	conditions Neighbour cell		Cell 2, Cell 3						
Final condition	Active cell		Cell 1						
0		dB	0	Cell individual offset. This value shall be used for all cells in the test.					
Hysteresis		dB	0						
Time to Trigger		ms	0						
Threshold used frequency		dBm	-70	Applicable for Event 1G					
Filter coeffici	Filter coefficient		0						
Monitored ce	onitored cell list size		12 TDD neighbours on Channel 1						
T1		S	6						
T2		S	6						
T3		S	6						

Table A.8.1.1E: Cell specific parameters for Event 1G triggered correct reporting in AWGN propagation condition

Parameter	Unit		Cell 1			Cell 2		Cell 3		
		T1	T2	T3	T1	T2	Т3	T1	T2	T3
DL timeslot number		0				0		0		
UTRA RF Channel Number			Channel 1			Channel 1		Channel 1		
PCCPCH_Ec/lor	dB		-3			-3		-3		
SCH_Ec/lor	dB		-9			-9		-9		
SCH_t _{offset}		0				5		10		
OCNS_Ec/lor	dB		-3,12			-3,12		-3,12		
\hat{I}_{or}/I_{oc}	dB	7 5		5	7	-Inf	-1	nf	7	
PCCPCH RSCP	dBm	-66	-6	88	-68	-66	-Inf	-1	nf	-66
I_{oc}	dBm / 7,68 MHz	-70								
Propagation Condition		AWGN								

A.8.1.1.2 Test Requirements

A.8.1.1.2.1 3.84Mcps TDD option

The UE shall send one Event 1G triggered measurement report for Cell 2 with a measurement reporting delay less than 200ms from the beginning of time period T2.

The UE shall send one Event 1G triggered measurement report for Cell 3 with a measurement reporting delay less than 800ms from the beginning of time period T3.

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

The rate of events correctly reported during repeated tests shall be at least 90%.

A.8.1.1.2.2 1.28Mcps TDD option

The UE shall send one Event 1G triggered measurement report for cell 2, with a measurement reporting delay less than 280ms from the beginning of time period T2.

The UE shall send one Event 1G triggered measurement report for Cell 3 with a measurement reporting delay less than 880ms from the beginning of time period T3.

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

The rate of events correctly reported during repeated tests shall be at least 90%.

A.8.1.1.2.3 7.68Mcps TDD option

The UE shall send one Event 1G triggered measurement report for Cell 2 with a measurement reporting delay less than 200ms from the beginning of time period T2.

The UE shall send one Event 1G triggered measurement report for Cell 3 with a measurement reporting delay less than 800ms from the beginning of time period T3.

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

The rate of events correctly reported during repeated tests shall be at least 90%.

A.8.1.2 Event 1H and 1I triggered reporting in AWGN propagation conditions

A.8.1.2.1 3.84 Mcps TDD option

A.8.1.2.1.1 Test Purpose and Environment

The purpose of this test is to verify that the UE makes correct reporting of event 1H and event 1I. This test will partly verify the requirements in section 8.1.2 and section 9.1.

The test parameters are given in Table A.8.1.2, Table A.8.1.2A and Table A.8.1.2B below. The test consists of five successive time periods, with a time duration of T1, T2, T3, T4 and T5 respectively. Two cells shall be present in the test, cell 1 being the current serving cell and cell 2 being a neighbour cell on the used frequency.

In the measurement control information it shall be indicated to the UE that event-triggered reporting with event 1H and event 1I shall be used and that Timeslot ISCP and P-CCPCH RSCP shall be reported together with event 1H and 1I. Measurement control information shall be sent to the UE before the beginning of time period T1.

The second Beacon timeslot shall be provided in timeslot 8 for both cell 1 and cell 2. The UL DPCH shall be transmitted in timeslot 10. In addition, timeslots 3 and 4 shall be allocated as DL timeslots. Cell 1 and cell 2 shall be synchronised, i.e. share the same frame and timeslot timing.

Table A.8.1.2: General test parameters for correct event 1H and 1I reporting in AWGN propagation condition

Para	meter	Unit	Value	Comment
DCH paramet	ers		DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.102 section A.2.2
Power Contro	l		On	
Target quality DTCH	value on	BLER	0.01	
Initial	Active cell		Cell 1	
conditions	Neighbour cell		Cell 2	
Final condition	condition		Cell 1	
HCS			Not used	
0			0	Cell individual offset. This value shall be used for all cells in the test.
Timeslot list cell 1			2, 3, 4	Timeslot numbers in IE "Cell info" for Cell 1
Timeslot list c	ell 2		4	Timeslot numbers in IE "Cell info" for Cell 2
Threshold use	ed frequency	dBm	-68	Threshold 1 applicable for event 1H, cell 1 timeslots 2, 4 and cell 2 timeslot 4
Threshold use	ed frequency	dBm	-73	Threshold 2 applicable for event 1H, cell 1 timeslots 2, 3, 4 and cell 2 timeslot 4
Threshold use	ed frequency	dBm	-67	Applicable for event 1I, cell 1 timeslots 2, 4 and cell 2 timeslot 4
Hysteresis		dB	0	
Time to Trigg		ms	0	
Filter coefficie			0	
Monitored cel	l list size		6 TDD neighbours on Channel 1	Cell 2 shall belong to the monitored set
T1		S	5	
T2		S	5	
T3		S	5	
T4		S	5	
T5		S	5	

Table A.8.1.2A: Cell 1 specific test parameters for correct event 1H and 1I reporting in AWGN propagation condition

Parameter	Unit	Cell 1									
		T1	T2	T3	T4	T5	T1	T2	T3	T4	T5
UTRA RF Channel						Chai	anal 1				
Number			Channel 1								
DL timeslot number			0 2								
PCCPCH_Ec/lor	dB		-3 n.a.								
SCH_Ec/lor	dB			-9					n.a.		
SCH_t _{offset}	dB			5					n.a.		
DPCH_Ec/lor	dB			n.a.					Note 1		
OCNS_Ec/lor	dB			-3,12					Note 2		
\hat{I}_{or}/I_{oc}	dB		4 4								
PCCPCH RSCP	dBm		-69 n.a.					n.a.			
I_{oc}	dBm / 3,84 MHz	-70									
Propagation Condition						ΑV	/GN				
DL timeslot number				3					4		
PCCPCH_Ec/lor	dB			n.a.					n.a.		
SCH_Ec/lor	dB			n.a.					n.a.		
SCH_t _{offset}	dB			n.a.					n.a.		
DPCH_Ec/lor	dB			n.a.					n.a.		
OCNS_Ec/lor	dB			0					0		
\hat{I}_{or}/I_{oc}	dB			3					0		6
PCCPCH RSCP	dBm	n.a. n.a.									
I_{oc}	dBm / 3,84 MHz	-70									
Propagation Condition						AW	/GN				
	is controlled b	d 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

Table A.8.1.2B: Cell 2 specific test parameters for correct event 1H and 1I reporting in AWGN propagation condition

Parameter	Unit		Cell 2								
		T1	T2	T3	T4	T5	T1	T2	T3	T4	T5
UTRA RF Channel			Channel 1								
Number			Channel 1								
DL timeslot number				0					2		
PCCPCH_Ec/lor	dB			-3					n.a.		
SCH_Ec/lor	dB			-9					n.a.		
SCH_t _{offset}	dB			10					n.a.		
DPCH_Ec/lor	dB			n.a.					n.a.		
OCNS_Ec/lor	dB			-3,12					0		
\hat{I}_{or}/I_{oc}	dB			1			0	6		0	
PCCPCH RSCP	dBm		-72 n.a.								
I_{oc}	dBm / 3,84 MHz	-70									
Propagation Condition	,					ΑW	/GN				
DL timeslot number				3					4		
PCCPCH_Ec/lor	dB			n.a.					n.a.		
SCH_Ec/lor	dB			n.a.					n.a.		
SCH_t _{offset}	dB			n.a.					n.a.		
DPCH_Ec/lor	dB			n.a.					n.a.		
OCNS_Ec/lor	dB		0 0								
\hat{I}_{or}/I_{oc}	dB			3				6		()
PCCPCH RSCP	dBm	n.a. n.a.									
I_{oc}	dBm / 3,84 MHz	-70									
Propagation Condition			AWGN								

A.8.1.2.1.2 Test Requirements

The UE shall send one event 1I triggered measurement report, with a measurement reporting delay less than 400 ms from the beginning of time period T2.

The UE shall send one event 1H triggered measurement report, with a measurement reporting delay less than 400 ms from the beginning of time period T3.

The UE shall send one event 1H triggered measurement report, with a measurement reporting delay less than 400 ms from the beginning of time period T4.

The UE shall send one event 1I triggered measurement report, with a measurement reporting delay less than 400 ms from the beginning of time period T5.

The UE shall not send event 1H or 1I triggered measurement reports, as long as the reporting criteria are not fulfilled.

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

A.8.1.2.2 1.28 Mcps TDD option

A.8.1.2.2.1 Test Purpose and Environment

The purpose of this test is to verify that the UE makes correct reporting of event 1H and event 1I. This test will partly verify the requirements in section 8.1A.2 and section 9.1.

The test parameters are given in Table A.8.1.2C, Table A.8.1.2D and Table A.8.1.2E below. The test consists of four successive time periods, with a time duration of T1, T2, T3 and T4 respectively. Two cells shall be present in the test, cell 1 being the current serving cell and cell 2 being a neighbour cell on the used frequency.

In the measurement control information it shall be indicated to the UE that event-triggered reporting with event 1H and event 1I shall be used and that Timeslot ISCP and P-CCPCH RSCP shall be reported together with event 1H and 1I. Measurement control information shall be sent to the UE before the beginning of time period T1.

The UL DPCH shall be transmitted in timeslot 2. In addition, timeslots 5 and 6 shall be allocated as DL timeslots.

Table A.8.1.2C: General test parameters for correct event 1H and 1I reporting in AWGN propagation condition

Par	ameter	Unit	Value	Comment
DCH parame	eters active cell		DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.102 section A.
Power Contr	ol		On	
Target qualit	y value on	BLER	0.01	
Initial	Active cell		Cell 1	
conditions	Neighbour cell		Cell 2	
Final condition	Active cell		Cell 1	
0		dB	0	Cell individual offset. This value shall be used for all cells in the test.
Timeslot list	cell 1		5, 6	Timeslot numbers in IE "Cell info" for Cell 1
Timeslot list	cell 2		6	Timeslot numbers in IE "Cell info" for Cell 2
Threshold us	sed frequency	dBm	-68	Applicable for event 1H, cell 1 timeslots 5, 6 and cell 2 timeslot 6
Threshold us	sed frequency	dBm	-66	Applicable for event 1I, cell 1 timeslots 5, 6 and cell 2 timeslot 6
Hysteresis		dB	0	
Time to Trigg	ger	ms	0	
Filter coeffici	ent		0	
Monitored ce	ell list size		6 TDD neighbours on Channel 1	Cell 2 shall belong to the monitored set
T1	·	S	5	
T2		s	5	
T3		S	5	
T4		S	5	

Table A.8.1.2D: Cell 1 specific test parameters for correct event 1H and 1I reporting in AWGN propagation condition

Parameter	Unit		Cell 1										
		T1	T2	T3	T4	T1	T2	T3	T4	T1	T2	T3	T4
UTRA RF Channel Number (Note 3)			Channel 1										
DL timeslot number				0				5			(6	
PCCPCH_Ec/lor	dB			-3									
DPCH_Ec/lor	dB						No	te 1					
OCNS_Ec/lor	dB			-3			Note 2			0			
\hat{I}_{or}/I_{oc}	dB			4				3		4	2	0	4
PCCPCH RSCP	dBm			-79			n	.a.			n.	a.	
ISCP	dBm			Note 4			No	ite 4		-60	-60	- 74. 54	- 74. 54
I_{oc}	dBm / 1.28 MHz	-80						•					

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 3: In the case of multi-frequency network, the UARA RF Channel Number can be set for the primary frequency in this test.

Note 4: ISCP of TS0 and TS5 remains changeless.

Table A.8.1.2E: Cell 2 specific test parameters for correct event 1H and 1I reporting in AWGN propagation condition

Parameter	Unit				Ce	ell 2				
		T1	T2	T3	T4	T1	T2	T3	T4	
UTRA RF Channel		Channel 1								
Number (Note 1)		Charmer								
DL timeslot number		0 6								
PCCPCH_Ec/lor	dB			-3						
DPCH_Ec/lor	dB									
OCNS_Ec/lor	dB			-3			()		
\hat{I}_{or}/I_{oc}	dB			4		2	20		4	
PCCPCH RSCP	dBm			-79			n.	a.		
ISCP	dBm		Ν	lote2		- 74.5 4	-60	-60	- 74.5 4	
I_{oc}	dBm / 1.28 MHz	3 MHz -80						•		
Note1: In the case of multi-frequency network, the UARA RF Channel Number can be set for the primary frequency in this test. Note2: ISCP of TS0 remains changeless										

Note2: ISCP of TS0 remains changeless.

A.8.1.2.2.2 Test Requirements

The UE shall send one event 1I triggered measurement report, with a measurement reporting delay less than 480 ms from the beginning of time period T2.

The UE shall send one event 1H triggered measurement report, with a measurement reporting delay less than 480 ms from the beginning of time period T3.

The UE shall send one event 1H triggered measurement report, with a measurement reporting delay less than 480 ms from the beginning of time period T4.

The UE shall not send event 1H or 1I triggered measurement reports, as long as the reporting criteria are not fulfilled.

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

A.8.1.2.3 7.68 Mcps TDD option

A.8.1.2.3.1 Test Purpose and Environment

The purpose of this test is to verify that the UE makes correct reporting of event 1H and event 1I. This test will partly verify the requirements in section 8.1B.2 and section 9.1.

The test parameters are given in Table A.8.1.2F, Table A.8.1.2G and Table A.8.1.2H below. The test consists of five successive time periods, with a time duration of T1, T2, T3, T4 and T5 respectively. Two cells shall be present in the test, cell 1 being the current serving cell and cell 2 being a neighbour cell on the used frequency.

In the measurement control information it shall be indicated to the UE that event-triggered reporting with event 1H and event 1I shall be used and that Timeslot ISCP and P-CCPCH RSCP shall be reported together with event 1H and 1I. Measurement control information shall be sent to the UE before the beginning of time period T1.

The second Beacon timeslot shall be provided in timeslot 8 for both cell 1 and cell 2. The UL DPCH shall be transmitted in timeslot 10. In addition, timeslots 3 and 4 shall be allocated as DL timeslots. Cell 1 and cell 2 shall be synchronised, i.e. share the same frame and timeslot timing.

Table A.8.1.2F: General test parameters for correct event 1H and 1I reporting in AWGN propagation condition

Para	meter	Unit	Value	Comment
DCH paramet	ers		DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.102 section A.2.2
Power Contro	l		On	
Target quality DTCH	value on	BLER	0.01	
Initial	Active cell		Cell 1	
conditions	Neighbour cell		Cell 2	
Final condition	condition		Cell 1	
HCS			Not used	
0			0	Cell individual offset. This value shall be used for all cells in the test.
Timeslot list cell 1			2, 3, 4	Timeslot numbers in IE "Cell info" for Cell 1
Timeslot list c	ell 2		4	Timeslot numbers in IE "Cell info" for Cell 2
Threshold use	ed frequency	dBm	-68	Threshold 1 applicable for event 1H, cell 1 timeslots 2, 4 and cell 2 timeslot 4
Threshold use	ed frequency	dBm	-73	Threshold 2 applicable for event 1H, cell 1 timeslots 2, 3, 4 and cell 2 timeslot 4
Threshold use	ed frequency	dBm	-67	Applicable for event 1I, cell 1 timeslots 2, 4 and cell 2 timeslot 4
Hysteresis		dB	0	
Time to Trigg		ms	0	
Filter coefficie			0	
Monitored cel	l list size		6 TDD neighbours on Channel 1	Cell 2 shall belong to the monitored set
T1		S	5	
T2		S	5	
T3		S	5	
T4		S	5	
T5		S	5	

Table A.8.1.2G: Cell 1 specific test parameters for correct event 1H and 1I reporting in AWGN propagation condition

Parameter	Unit		Cell 1								
		T1	T2	T3	T4	T5	T1	T2	T3	T4	T5
UTRA RF Channel						Chai	anal 1				
Number			Channel 1								
DL timeslot number				0					2		
PCCPCH_Ec/lor	dB		-3 n.a.								
SCH_Ec/lor	dB		-9 n.a.								
SCH_t _{offset}	dB		5 n.a.								
DPCH_Ec/lor	dB		n.a. Note 1								
OCNS_Ec/lor	dB		-3,12 Note 2								
\hat{I}_{or}/I_{oc}	dB		4 4								
PCCPCH RSCP	dBm		-69 n.a.								
I_{oc}	dBm / 7,68 MHz	-70									
Propagation Condition						AV	/GN				
DL timeslot number				3					4		
PCCPCH_Ec/lor	dB			n.a.					n.a.		
SCH_Ec/lor	dB			n.a.					n.a.		
SCH_t _{offset}	dB			n.a.					n.a.		
DPCH_Ec/lor	dB			n.a.					n.a.		
OCNS_Ec/lor	dB			0					0		
\hat{I}_{or}/I_{oc}	dB	3 0 6						6			
PCCPCH RSCP	dBm			n.a.					n.a.		
I_{oc}	dBm / 7,68 MHz	-70									
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 lor

Table A.8.1.2H: Cell 2 specific test parameters for correct event 1H and 1I reporting in AWGN propagation condition

Parameter	Unit		Cell 2								
		T1	T2	T3	T4	T5	T1	T2	T3	T4	T5
UTRA RF Channel			Channel 1								
Number			Channel 1								
DL timeslot number				0					2		
PCCPCH_Ec/lor	dB			-3					n.a.		
SCH_Ec/lor	dB			-9					n.a.		
SCH_t _{offset}	dB			10					n.a.		
DPCH_Ec/lor	dB			n.a.					n.a.		
OCNS_Ec/lor	dB			-3,12					0		
\hat{I}_{or}/I_{oc}	dB			1			0	6		0	
PCCPCH RSCP	dBm		-72 n.a.								
I_{oc}	dBm / 7,68 MHz	-70									
Propagation Condition	,					ΑW	/GN				
DL timeslot number				3					4		
PCCPCH_Ec/lor	dB			n.a.					n.a.		
SCH_Ec/Ior	dB			n.a.					n.a.		
SCH_t _{offset}	dB			n.a.					n.a.		
DPCH_Ec/lor	dB			n.a.					n.a.		
OCNS_Ec/lor	dB		0 0								
\hat{I}_{or}/I_{oc}	dB			3				6		()
PCCPCH RSCP	dBm	n.a. n.a.									
I_{oc}	dBm / 7,68 MHz	-70									
Propagation Condition			AWGN								

A.8.1.2.3.2 Test Requirements

The UE shall send one event 1I triggered measurement report, with a measurement reporting delay less than 400 ms from the beginning of time period T2.

The UE shall send one event 1H triggered measurement report, with a measurement reporting delay less than 400 ms from the beginning of time period T3.

The UE shall send one event 1H triggered measurement report, with a measurement reporting delay less than 400 ms from the beginning of time period T4.

The UE shall send one event 1I triggered measurement report, with a measurement reporting delay less than 400 ms from the beginning of time period T5.

The UE shall not send event 1H or 1I triggered measurement reports, as long as the reporting criteria are not fulfilled.

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

A.8.1.3 Correct reporting of neighbours in fading propagation condition

A.8.1.3.1 3.84 Mcps TDD option

A.8.1.3.1.1 Test Purpose and Environment

The purpose of this test is to verify that the UE performs sufficient layer 1 filtering of the P-CCPCH RSCP measurement which is the base for Event 1G evaluation. This test is performed in fading propagation conditions and will partly verify the requirements in section 8.1.2.

The test parameters are given in Table A.8.1.3 and A.8.1.3A below. The test consists of one time period with time duration of T1. Two cells shall be present in the test, cell 1 being the current serving cell and cell 2 being a neighbour cell on the used frequency. Cell 1 and cell 2 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 1G shall be used, and that P-CCPCH RSCP shall be reported together with Event 1G. 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 [16].

The DL DPCH shall be transmitted in timeslot 4 and the UL DPCH shall be transmitted in timeslot 12. The TTI of the UL DCCH shall be 20ms.

Table A.8.1.3: General test parameters for correct reporting of neighbours in fading propagation condition

Para	ameter	Unit	Value	Comment
DCH parame	eters		DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.102 section A.2.2
Power Contro	ol		On	
Target quality value on DTCH		BLER	0.01	
Initial	Active cell		Cell 1	
conditions	Neighbour cell		Cell 2	
Final condition	Active cell		Cell 1	
0		dB	0	Cell individual offset. This value shall be used for all cells in the test.
Hysteresis		dB	0	
Time to Trigg	ger	ms	200	
Filter coeffici	ent		0	
Monitored cell list size			6 TDD neighbours on Channel 1	Sent before the beginning of time period T1
T1	T1		200	

Table A.8.1.3A: Cell specific test parameters for correct reporting of neighbours in fading propagation condition

Parameter	Unit	Ce	ell 1	Ce	II 2			
		T1	T1	T1	T1			
DL timeslot number		0	8	0	8			
UTRA RF Channel Number		Char	nnel 1	Char	nnel 1			
PCCPCH_Ec/lor	dB	-3	n.a.	-3	n.a.			
SCH_Ec/lor	dB	-9	-9	-9	-9			
SCH_t _{offset}		0	0	2	2			
PICH_Ec/lor	dB	n.a.	-3	n.a.	-3			
OCNS_Ec/lor	dB	-3,12	-3,12	-3,12	-3,12			
\hat{I}_{or}/I_{oc}	dB	7	7	2	2			
PCCPCH RSCP	dBm	-66	n.a.	-71	n.a.			
I_{oc}	dBm/ 3,84 MHz	-70						
Propagation Condition		Case 4 as specified in TS25.102 Annex B						

A.8.1.3.1.2 Test Requirements

The number of Event 1G triggered measurement reports during time period T2 shall be less than 60.

A.8.1.3.2 (void)

A.8.1.3.3 7.68 Mcps TDD option

A.8.1.3.3.1 Test Purpose and Environment

The purpose of this test is to verify that the UE performs sufficient layer 1 filtering of the P-CCPCH RSCP measurement which is the base for Event 1G evaluation. This test is performed in fading propagation conditions and will partly verify the requirements in section 8.1.2B.

The test parameters are given in Table A.8.1.3B and A.8.1.3C below. The test consists of one time period with time duration of T1. Two cells shall be present in the test, cell 1 being the current serving cell and cell 2 being a neighbour cell on the used frequency. Cell 1 and cell 2 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 1G shall be used, and that P-CCPCH RSCP shall be reported together with Event 1G. 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 [16].

The DL DPCH shall be transmitted in timeslot 4 and the UL DPCH shall be transmitted in timeslot 12. The TTI of the UL DCCH shall be 20ms.

Table A.8.1.3B: General test parameters for correct reporting of neighbours in fading propagation condition

Par	ameter	Unit	Value	Comment
DCH parame	eters		DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.102 section A.2.2
Power Contr	ol		On	
Target quality value on DTCH		BLER	0.01	
Initial	Active cell		Cell 1	
conditions	Neighbour cell		Cell 2	
Final condition	Active cell		Cell 1	
0		dB	0	Cell individual offset. This value shall be used for all cells in the test.
Hysteresis		dB	0	
Time to Trigg	ger	ms	200	
Filter coeffici	ent		0	
Monitored ce	ell list size		6 TDD neighbours on Channel 1	Sent before the beginning of time period T1
T1		S	200	

Table A.8.1.3C: Cell specific test parameters for correct reporting of neighbours in fading propagation condition

Parameter	Unit	Ce	ell 1	Ce	II 2		
		T1	T1	T1	T1		
DL timeslot number		0	8	0	8		
UTRA RF Channel Number		Cha	nnel 1	Channel 1			
PCCPCH_Ec/lor	dB	-3	n.a.	-3	n.a.		
SCH_Ec/lor	dB	-9	-9	-9	-9		
SCH_t _{offset}		0	0	2	2		
PICH_Ec/lor	dB	n.a.	-3	n.a.	-3		
OCNS_Ec/lor	dB	-3,12	-3,12	-3,12	-3,12		
\hat{I}_{or}/I_{oc}	dB	7	7	2	2		
PCCPCH RSCP	dBm	-66	n.a.	-71	n.a.		
I_{oc}	dBm/ 7,68 MHz	-70					
Propagation Condition		Case 4 as specified in TS25.102 Annex B					

A.8.1.3.3.2 Test Requirements

The number of Event 1G triggered measurement reports during time period T2 shall be less than 60.

A.8.2 TDD inter frequency measurements

A.8.2.1 Correct reporting of neighbours in AWGN propagation condition

A.8.2.1.1 Test Purpose and Environment

A.8.2.1.1.1 3.84Mcps TDD option

The purpose of this test is to verify that the UE makes correct reporting of an event when doing inter frequency measurements. The test will partly verify the requirements in section 8.1.2. and 9.1

The test consists of 2 successive time periods, with a time duration T1 and T2. The test parameters are given in tables A.8.2A and A.8.2B below. Two cells shall be present in the test, cell 1 being the 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 [16].

The second Beacon timeslot shall be provided in timeslot 8 for both cell 1 and cell 2. The DL DPCH shall be transmitted in timeslot 1 and the UL DPCH shall be transmitted in timeslot 3. The TTI of the uplink DCCH shall be 20 ms.

Table A.8.2A: General test parameters for correct reporting of TDD inter frequency neighbours in AWGN propagation condition

Pa	arameter	Unit	Value	Comment
DPCH parameters			DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.102 annex A.2.2
Power Cont	rol		On	
Target quali	ty value on DTCH	BLER	0.01	
Initial	Active cell		Cell 1	UTRA TDD cell
conditions	Neighbour cell		Cell 2	UTRA TDD cell
Threshold n	Threshold non used frequency		-71	Applicable for event 2C
Hysteresis		dB	0	Applicable for event 2C
Time to Trig	ger	ms	0	
Filter coeffic	eient		0	
Monitored c	ell list size		24 on channel 1	
			16 on channel 2	
T1 s		S	10	
T2		S	10	

Table A.8.2B: Cell specific test parameters for correct reporting of TDD inter frequency neighbours in AWGN propagation condition

Parameter	Unit		Се	II 1			Се	II 2	
Timeslot Number		0		8		0		8	
		T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number			Char	nel 1		Channel 2			
PCCPCH_Ec/lor	dB	-3	-3			-3	-3		
SCH_Ec/lor	dB	-9	-9	-9	-9	-9	-9	-9	-9
SCH_t _{offset}		0	0	0	0	15	15	15	15
PICH_Ec/lor				-3	-3			-3	-3
OCNS		-4,28	-4,28	-4,28	-4,28	-4,28	-4,28	-4,28	-4,28
\hat{I}_{or}/I_{oc}	dB	3	3	3	3	-Infinity	9	-Infinity	9
I_{oc}	dBm/3.8 4 MHz				-7	70			
PCCPCH_RSCP	dB	-70	-70			-Infinity	-64		
Propagation Condition					AW	/GN			

A.8.2.1.1.2 1.28Mcps TDD option

The purpose of this test is to verify that the UE makes correct reporting of an event when doing inter frequency measurements. The test will partly verify the requirements in section 8.1A.2 and 9.1.

The test consist of 2 successive time periods, with a time duration T1 and T2. The test parameters are given in tables A.8.2C and A.8.2D below. Two cells shall be present in the test, cell 1 being the active cell and cell 2 being a 1.28Mcps TDD option neighbour cell on the unused frequency.

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 [16].

Table A.8.2C: General test parameters for correct reporting of TDD inter frequency neighbours in AWGN propagation condition

Para	ameter	Unit	Value	Comment
DPCH parameters active cell			DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.102 section A.2.2. The DPCH is located in an other timeslot than 0
Power Control			On	umosiot than o
Target quality v	alue on DTCH	BLER	0.01	
Initial	Active cell		Cell 1	1.28Mcps TDD cell
conditions	Neighbour cell		Cell 2	1.28Mcps TDD cell
Final condtions	Active cell		Cell 1	
Threshold non	used frequency	dBm	-71	Absolute P-CCPCH RSCP threshold for event 2C
W non-used fre	equency		1	Applicable for event 2C
Hysteresis	•	dB	0	
Time to Trigger	7	ms	0	
Filter coefficien	nt		0	
Monitored cell	Monitored cell list size		24 on channel 1 16 on channel 2	
T1	T1		10	
T2		S	10	

Table A.8.2D: Cell Specific Parameters for Correct Reporting of Neighbours in AWGN Propagation Condition

Parameter	Unit	Cell 1			Cell 2				
Timeslot Number		()	DwPTS		0		DwPTS	
		T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number (NOTE)		Channel 1				Channel 2			
PCCPCH_Ec/lor	dB	-3			-3	3			
DwPCH_Ec/lor	dB		0)			0	
OCNS_Ec/lor	dB	ï	3			-3			
\hat{I}_{or}/I_{oc}	dB	3	3			-Infinity	8		
I_{oc}	dBm/1. 28 MHz	-70							
PCCPCH_RSCP	dBm	-70	-70			-Infinity	-65		•
Propagation Condition		AWGN							

NOTE1: The DPCH of all cells are located in a timeslot other than 0.

NOTE2: In the case of multi-frequency network, the UTRA RF Channel Number can be set for the primary frequency in this test.

A.8.2.1.1.3 7.68Mcps TDD option

The purpose of this test is to verify that the UE makes correct reporting of an event when doing inter frequency measurements. The test will partly verify the requirements in section 8.1.2B and 9.1

The test consists of 2 successive time periods, with a time duration T1 and T2. The test parameters are given in tables A.8.2E and A.8.2F below. Two cells shall be present in the test, cell 1 being the 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 [16].

The second Beacon timeslot shall be provided in timeslot 8 for both cell 1 and cell 2. The DL DPCH shall be transmitted in timeslot 1 and the UL DPCH shall be transmitted in timeslot 3. The TTI of the uplink DCCH shall be 20 ms.

Table A.8.2E: General test parameters for correct reporting of TDD inter frequency neighbours in AWGN propagation condition

Pa	arameter	Unit	Value	Comment
DPCH parar	DPCH parameters		DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.102 annex A.2.2
Power Cont	rol		On	
Target quali	ty value on DTCH	BLER	0.01	
Initial	Active cell		Cell 1	UTRA TDD cell
conditions	Neighbour cell		Cell 2	UTRA TDD cell
Threshold n	Threshold non used frequency		-71	Applicable for event 2C
Hysteresis		dB	0	Applicable for event 2C
Time to Trig	ger	ms	0	
Filter coeffic	eient		0	
Monitored c	ell list size		24 on channel 1	
			16 on channel 2	
T1	T1		10	
T2		s	10	

Table A.8.2F: Cell specific test parameters for correct reporting of TDD inter frequency neighbours in AWGN propagation condition

Parameter	Unit	Cell 1				Cell 2			
Timeslot Number		()	8		0		8	
		T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel			Char	nol 1			Char	nel 2	
Number (Note 1)			Cital	illei i			Cilai	IIIEI Z	
PCCPCH_Ec/lor	dB	-3	-3			-3	-3		
SCH_Ec/lor	dB	-9	-9	-9	-9	-9	-9	-9	-9
SCH_t _{offset}		0	0	0	0	15	15	15	15
PICH_Ec/lor				-3	-3			-3	-3
OCNS		-4,28	-4,28	-4,28	-4,28	-4,28	-4,28	-4,28	-4,28
\hat{I}_{or}/I_{oc}	dB	3	3	3	3	-Infinity	9	-Infinity	9
I_{oc}	dBm/7.6 8 MHz	-70							
PCCPCH_RSCP	dB	-70	-70			-Infinity	-64		
Propagation Condition					AW	/GN			

A.8.2.1.2 Test Requirements

A.8.2.1.2.1 3.84Mcps TDD option

The UE shall send one Event 2C triggered measurement report, with a measurement reporting delay less than 5 s from the beginning of time period T2.

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

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

A.8.2.1.2.2 1.28Mcps TDD option

The UE shall send one Event 2C triggered measurement report, with a measurement reporting delay less than 5080ms 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.

The rate of events correctly reported during repeated tests shall be at least 90%.

A.8.2.1.2.3 7.68Mcps TDD option

The UE shall send one Event 2C triggered measurement report, with a measurement reporting delay less than 5 s from the beginning of time period T2.

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

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

A.8.3 FDD measurements

A.8.3.1 Correct reporting of FDD neighbours in AWGN propagation condition

A.8.3.1.1 Test Purpose and Environment

A.8.3.1.1.1 3.84 Mcps TDD option

The purpose of this test is to verify that the UE makes correct reporting of events when measuring on UTRA FDD cells. This test will partly verify the requirements in section 8.1.2 and 9.1.

The test parameters are given in Table A.8.3A and A.8.3B below. The test consists of two successive time periods, with time durations of T1 and T2 respectively. Two cells shall be present in the test, cell 1 being the serving UTRA TDD cell and cell 2 being a UTRA FDD neighbour cells on the unused frequency.

In the measurement control information it is indicated to the UE that event-triggered reporting with Event 2C shall be used and that CPICH Ec/I0 of the best cell on the unused frequency shall be reported together with Event 2C. 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 [16].

The second Beacon timeslot shall be provided in timeslot 8 for cell 1. The DL DPCH shall be transmitted in timeslot 1 and the UL DPCH shall be transmitted in timeslot 3. The TTI of the uplink DCCH shall be 20 ms.

Table A.8.3A: General test parameters for correct reporting of FDD neighbours in AWGN

Pa	rameter	Unit	Value	Comment
DPCH parar	neters		DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.102 section A.2.2
Power Contr	ol		On	
Target qualit	y value on DTCH	BLER	0.01	
Initial	Active cell		Cell 1	UTRA TDD cell
conditions	Neighbour cell		Cell 2	UTRA FDD cell
Final	Active cell		Cell 1	
conditions				
Threshold no	on used	dB	-18	Applicable for event 2C
frequency				
W non-used	frequency		1	Applicable for event 2C
Hysteresis		dB	0	Applicable for event 2C
Time to Trig	ger	ms	0	
Filter coeffic	ient		0	
Monitored ce	Monitored cell list size		6 TDD neighbours on channel 1	
			6 FDD neighbours on channel 2	
T1		S	15	
T2		S	10	

Table A.8.3B: Cell specific parameters for correct reporting of FDD neighbours in AWGN propagation condition

Parameter	Unit		Ce	Cell 2			
Timeslot Number		0		8		n.a	
		T1	T2	T1	T2	T1	T2
UTRA RF Channel Number			Char	nel 1		Chan	nel 2
CPICH_Ec/lor	dB	n.	a.	n.	a.	-1	0
PCCPCH_Ec/lor	dB	-3	-3			-1:	2
SCH_Ec/lor	dB	-9	-9	-9	-9	-1:	2
SCH_t _{offset}		0	0	0	0	n.a.	
PICH_Ec/lor				-3	-3	-15	
OCNS	dB	-4,28	-4,28	-4,28	-4,28	-0,9	41
\hat{I}_{or}/I_{oc}	dB	3	3	3	3	-infinity	-1.8
I_{oc}	dBm/ 3.84 MHz		-7	70		-7	0
CPICH_Ec/lo			n.	a.		-infinity	-14
PCCPCH_RSCP	dB	-70 -70 -70 -70		n.a	a.		
Propagation Condition			AW	'GN		AW	GN

A.8.3.1.1.2 1.28 Mcps TDD option

The purpose of this test is to verify that the UE makes correct reporting of an event when measuring on UTRA FDD cells. This test will partly verify the requirements in section 8.1A.2 and 9.1.

The test consists of two successive time periods, with a time duration T1 and T2. The test parameters are given in Table A.8.3C and A.8.3D. Two cells shall be present in the test, cell 1 being current active 1.28Mcps TDD cell and cell 2 being a UTRA FDD neighbouring cell.

In the measurement control information it is indicated to the UE hat event-triggered reporting with Event 2C shall be used and the CPICH RSCP of the best cell on the unused frequency shall be reported together with Event 2C. 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 [16].

Table A.8.3C: General test parameters for Correct reporting of FDD neighbours in AWGN propagation condition

Pa	rameter	Unit	Value	Comment
DPCH param	DPCH parameters active cell		DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.102 section A. The DPCH is located in an other
			· ·	timeslot than 0.
Power Contro	l		On	
Target quality	value on DTCH	BLER	0.01	
Initial	Active cell		Cell 1	1.28Mcps TDD cell
conditions	Neighbour cell		Cell2	FDD cell
Final conditions	Active cell		Cell 1	1.28Mcps TDD cell
Threshold nor	n used frequency	dBm	-86	Absolute CPICH RSCP threshold for event 2C
Hysteresis		dB	0	
W non-used f	requency		1	Applicable for event 2C
Time to Trigge	er	ms	0	
Filter coefficie	nt		0	
Monitored cel	Monitored cell list size		6 TDD neighbours on Channel 1 6 FDD neighbours on Channel 2	
T1	T1		10	
T2		S	10	

Table A.8.3D: Cell Specific parameters for Correct reporting of FDD neighbours in AWGN propagation condition:

Parameter	Unit	Cell 1				Ce	II 2
Timeslot Number		0		DwPTS		n.a	n.a.
		T1	T2	T1	T2	T1	T2
UTRA RF Channel Number		(Channel	1 (Note	1)	Char	inel 2
CPICH_Ec/lor	dB	n.	.a.	n.	a.	-10	-10
PCCPCH_Ec/lor	dB	-3	-3			-12	-12
SCH_Ec/lor	dB					-12	-12
PICH_Ec/lor	dB					-15	-15
DwPCH_Ec/lor	dB			0	0	n.a.	n.a.
OCNS	dB	-3	-3			-0,941	-0,941
\hat{I}_{or}/I_{oc}	dB	3	3	3	3	-Infinity	-2
I_{oc}	dBm/1.28 MHz		_'	70			
I_{oc}	dBm/3.84 MHz					17	70
CPICH_RSCP	dBm	n.a.				-Infinity	-82
PCCPCH_RSCP	dBm	-70	-70			n.a.	n.a.
Propagation Condition		AWGN				AW	GN

NOTE 1: The DPCH of cell 1 is located in a timeslot other than 0.

NOTE 2: In the case of multi-frequency network, the UTRA RF Channel Number can be set for the primary frequency in this test.

A.8.3.1.1.3 7.68 Mcps TDD option

The purpose of this test is to verify that the UE makes correct reporting of events when measuring on UTRA FDD cells. This test will partly verify the requirements in section 8.1.2B and 9.1.

The test parameters are given in Table A.8.3E and A.8.3F below. The test consists of two successive time periods, with time durations of T1 and T2 respectively. Two cells shall be present in the test, cell 1 being the serving UTRA TDD cell and cell 2 being a UTRA FDD neighbour cells on the unused frequency.

In the measurement control information it is indicated to the UE that event-triggered reporting with Event 2C shall be used and that CPICH Ec/I0 of the best cell on the unused frequency shall be reported together with Event 2C. 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 [16].

The second Beacon timeslot shall be provided in timeslot 8 for cell 1. The DL DPCH shall be transmitted in timeslot 1 and the UL DPCH shall be transmitted in timeslot 3. The TTI of the uplink DCCH shall be 20 ms.

Table A.8.3E: General test parameters for correct reporting of FDD neighbours in AWGN

Pa	rameter	Unit	Value	Comment
DPCH parar	meters		DL Reference Measurement	As specified in TS 25.102 section A.2.2
			Channel 12.2 kbps	
Power Contr	rol		On	
Target qualit	ty value on DTCH	BLER	0.01	
Initial	Active cell		Cell 1	UTRA TDD cell
conditions	Neighbour cell		Cell 2	UTRA FDD cell
Final	Active cell		Cell 1	
conditions				
Threshold no	Threshold non used		-18	Applicable for event 2C
frequency				
W non-used	frequency		1	Applicable for event 2C
Hysteresis		dB	0	Applicable for event 2C
Time to Trig	ger	ms	0	
Filter coeffic	ient		0	
Monitored co	ell list size		6 TDD neighbours on channel 1	
			6 FDD neighbours on channel 2	
T1	T1 5		15	
T2		S	10	

Table A.8.3F: Cell specific parameters for correct reporting of FDD neighbours in AWGN propagation condition

Parameter	Unit	Cell 1			Cel	l 2	
Timeslot Number		0		0 8		n.a	а
		T1	T2	T1	T2	T1	T2
UTRA RF Channel Number			Char	nnel 1		Chan	nel 2
CPICH_Ec/lor	dB	n.	a.	n.	a.	-1	0
PCCPCH_Ec/lor	dB	-3	-3			-1:	2
SCH_Ec/lor	dB	-9	-9	-9	-9	-1:	2
SCH_t _{offset}		0	0	0	0	n.a	à.
PICH_Ec/lor				-3	-3	-1	5
OCNS	dB	-4,28	-4,28	-4,28	-4,28	-0,9	41
\hat{I}_{or}/I_{oc}	dB	3	3	3	3	-infinity	-1.8
I_{oc}	dBm/ 7.68 MHz	-70			-7	0	
CPICH_Ec/Io		n.a.		-infinity	-14		
PCCPCH_RSCP	dB	-70 -70 -70 -70		n.a	a.		
Propagation Condition		AWGN			AW	GN	

A.8.3.1.2 Test Requirements

A.8.3.1.2.1 3.84 Mcps TDD option

The UE shall send one Event 2C triggered measurement report, with a measurement reporting delay less than 5 seconds from the start of time period T2.

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

The rate of events correctly observed during repeated tests shall be at least 90%.

A.8.3.1.2.2 1.28 Mcps TDD option

The UE shall send one Event 2C triggered measurement report, with a measurement reporting delay less than 5 s from the beginning of time period T2.

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

The rate of events correctly reported during repeated tests shall be at least 90%.

A.8.3.1.2.3 7.68 Mcps TDD option

The UE shall send one Event 2C triggered measurement report, with a measurement reporting delay less than 5 seconds from the start of time period T2.

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

The rate of events correctly observed during repeated tests shall be at least 90%.

A.8.4 GSM measurements

A.8.4.1 Correct reporting of GSM neighbours in AWGN propagation condition

A.8.4.1.1 Test Purpose and Environment

A.8.4.1.1.1 3.84 Mcps TDD option

The purpose of this test is to verify that the UE makes correct reporting of an event when doing GSM measurements. This test will partly verify the requirements in section 8.1.2.5. The requirements are also applicable for a UE not requiring idle intervals to perform GSM measurements.

The test parameters are given in Tables A.8.4.1, A.8.4.2 and A.8.4.3 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. At the start of time duration T1, the UE may not have any timing information of cell 2.

Cell 1 is a UTRA TDD cell and cell 2 is a GSM cell. The Beacon timeslot shall be transmitted in timeslot 0 for cell 1 and no second Beacon timeslot shall be provided for cell 1. The DL DPCH shall be transmitted in timeslot 1 and the UL DPCH shall be transmitted in timeslot 3.

Table A.8.4.1: General test parameters for correct reporting of GSM neighbours in AWGN propagation condition

Parameter	Unit	Value	Comment
DCH parameters		DL Reference Measurement Channel	As specified in TS 25.102 section A.2.2
		12.2 kbps	
Power Control		On	
Target quality value on DTCH	BLER	0.01	
Active cell		Cell 1	
Inter-RAT		GSM carrier RSSI	
measurement			
quantity			
BSIC verification		Required	
required			
Threshold other	dBm	-80	Absolute GSM carrier RSSI threshold
system			for Events 3B and 3C.
Hysteresis	dB	0	
Time to Trigger	ms	0	
Filter coefficient		0	
Monitored cell list		12 TDD neighbours on Channel 1	Measurement control information is
size		6 GSM neighbours including ARFCN 1	sent before the start of time period T1.
Tidentify abort	S	5	As specified in section 8.1.2.5
Treconfirm abort	S	5	As specified in section 8.1.2.5
T1	S	10	
T2	S	10	
T3	S	10	

Table A.8.4.2: Cell specific parameters for correct reporting of GSM neighbours in AWGN propagation condition (cell 1)

Parameter	Unit	Се	II 1		
Farameter	Onit	T1, T2, T3			
DL timeslot number		0	1		
UTRA RF Channel number		Char	nel 1		
PCCPCH_Ec/lor	dB	-3	n.a.		
SCH_Ec/lor	dB	-9	n.a.		
SCH_t _{offset}		0	n.a.		
OCNS_Ec/lor	dB	-3,12	Note 2		
DPCH_Ec/lor	dB	n.a.	Note 1		
Îor/loc	dB	6	6		
lo, Note 1 dBm / 3.84 MHz			70		
Propagation condition AWGN			'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 total power from the cell to be equal to lor.				

Table A.8.4.3: Cell specific parameters for correct reporting of GSM neighbours in AWGN propagation condition (cell 2)

Parameter	Unit	Cell 2 T1 T2 T3		
Farameter	Onit			
Absolute RF Channel Number			ARFCN 1	
RXLEV	dBm	-85	-75	-85

A.8.4.1.1.2 1.28 Mcps TDD option

The purpose of this test is to verify that the UE makes correct reporting of an event when doing inter-RAT GSM measurements. This test will partly verify the requirements in section 8.1A.2.5. The requirements are also applicable for a UE not requiring idle intervals to perform GSM measurements.

Two cells shall be present in the test, Cell 1 is current active cell, cell 2 is a GSM cell. 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 3B and 3C shall be used. At the start of time duration T1, the UE may not have any timing information of cell 2.

A.8.4.1.1.2.1 Test 1. With BSIC verification required

The test parameters are given in Tables A.8.4.4, A.8.4.5 and A.8.4.6.

Table A.8.4.4: General test parameters for Correct reporting of GSM neighbours in AWGN propagation condition, Test 1.

Parameter	Unit	Value	Comment
DCH parameters		DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.102 section A.2.2. The DPCH is located in an other timeslot than 0.
Power Control		On	
Target quality value on DTCH	BLER	0.01	
Active cell		Cell 1	
Inter-RAT measurement quantity		GSM Carrier RSSI	
BSIC verification required		required	
Threshold other system	dBm	-80	Absolute GSM carrier RSSI threshold for event 3B and 3C.
Hysteresis	dB	0	
Time to Trigger	ms	0	
Filter coefficient		0	
Monitored cell list size		12 TDD neighbours on Channel 1 6 GSM neighbours including ARFCN 1	Measurement control information is sent before T1 starts.
T Identify abort	S	5.0	
T Reconfirm abort	S	5.0	
T1	S	5	
T2	S	7	
T3	S	5	

Table A.8.4.5: Cell specific test parameters for Correct reporting of GSM neighbours in AWGN propagation condition (cell 1)

Cell 1

Parameter	Unit	T1, ⁻	Г2, Т3	
Timeslot Number		0	DwPTS	
UTRA RF Channel Number (NOTE 3)		Channel 1		
PCCPCH_Ec/lor	dB	-3		
DwPCH_Ec/lor	dB		0	
OCNS_Ec/lor		-3		
\hat{I}_{or}/I_{oc}	dB	3		
I_{oc}	dBm/1.28 MHz	-70		
PCCPCH_RSCP	dB	-70		
Propagation Condition		AWGN		
make the NOTE 2: PCCPCH paramete	er of the OCNS channel that is added shall total power from the cell to be equal to lor. I RSCP levels have been calculated from other ers for information purposes. They are not parameters themselves.			
NOTE 3: In the cas	the case of multi-frequency network, the UTRA RF Channel Number can be set for the primary frequency			

in this test.

Table A.8.4.6: Cell specific test parameters for Correct reporting of GSM neighbours in AWGN propagation condition (cell 2)

Parameter	Unit		Cell 2	
Farameter		T1	T2	T3
Absolute RF Channel Number			ARFCN ²	1
RXLEV	dBm	-infinity	-75	-85

A.8.4.1.1.2.2 Test 2. Without BSIC verification required

The test parameters are given in Tables A.8.4.7, A.8.4.8 and A.8.4.9.

Table A.8.4.7: General test parameters for Correct reporting of GSM neighbours in AWGN propagation condition, Test 2

Parameter	Unit	Value	Comment
DCH parameters		DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.102 section A.2.2. The DPCH is located in an other timeslot than 0.
Power Control		On	
Target quality value on DTCH	BLER	0.01	
Active cell		Cell 1	
Inter-RAT measurement quantity		GSM Carrier RSSI	
BSIC verification required		Not required	
Threshold other system	dBm	-80	Absolute GSM carrier RSSI threshold for event 3B and 3C.
Hysteresis	dB	0	
Time to Trigger	ms	0	
Filter coefficient		0	
Monitored cell list size		12 TDD neighbours on Channel 1 6 GSM neighbours including ARFCN 1	Measurement control information is sent before T1 starts.
T1	S	5	
T2	S	2	
T3	s	5	

Table A.8.4.8: Cell specific test parameters for Correct reporting of GSM neighbours in AWGN propagation condition (cell 1)

Parameter	Unit	C	ell 1
raiailletei	Offic	T1, T2, T3	
Timeslot Number		0	DwPTS
UTRA RF Channel		Cho	nnel 1
Number (NOTE 3)		Clia	ninei i
PCCPCH_Ec/lor	dB	-3	
DwPCH_Ec/lor	dB		0
OCNS_Ec/lor		-3	
\hat{I}_{or}/I_{oc}	dB	3	
I_{oc}	dBm/1.28 MHz	-70	
PCCPCH_RSCP	dB	-70	
Propagation Condition		AWGN	
NOTE 1: The news	r of the OCNE ob	annal that is a	ddad aball

NOTE 1: The power of the OCNS channel that is added shall make the total power from the cell to be equal to lor.

NOTE 2: PCCPCH RSCP levels have been calculated from other parameters for information purposes. They are not

settable parameters themselves.

NOTE 3: In the case of multi-frequency network, the UTRA RF
Channel Number can be set for the primary frequency

in this test.

Table A.8.4.9: Cell specific test parameters for Correct reporting of GSM neighbours in AWGN propagation condition (cell 2)

Parameter	Unit		Cell 2	
Farameter	Oilit	T1 T2 T3		T3
Absolute RF Channel		ARFCN 1		
Number			ARECIN	ı
RXLEV	dBm	-infinity	-75	-85

A.8.4.1.1.3 7.68 Mcps TDD option

The purpose of this test is to verify that the UE makes correct reporting of an event when doing GSM measurements. This test will partly verify the requirements in section 8.1.2B.5. The requirements are also applicable for a UE not requiring idle intervals to perform GSM measurements.

The test parameters are given in Tables A.8.4.7, A.8.4.8 and A.8.4.9 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. At the start of time duration T1, the UE may not have any timing information of cell 2.

Cell 1 is a UTRA TDD cell and cell 2 is a GSM cell. The Beacon timeslot shall be transmitted in timeslot 0 for cell 1 and no second Beacon timeslot shall be provided for cell 1. The DL DPCH shall be transmitted in timeslot 1 and the UL DPCH shall be transmitted in timeslot 3.

Table A.8.4.7: General test parameters for correct reporting of GSM neighbours in AWGN propagation condition

Parameter	Unit	Value	Comment
DCH parameters		DL Reference Measurement Channel	As specified in TS 25.102 section A.2.2
		12.2 kbps	
Power Control		On	
Target quality value on DTCH	BLER	0.01	
Active cell		Cell 1	
Inter-RAT		GSM carrier RSSI	
measurement			
quantity			
BSIC verification		Required	
required			
Threshold other	dBm	-80	Absolute GSM carrier RSSI threshold
system			for Events 3B and 3C.
Hysteresis	dB	0	
Time to Trigger	ms	0	
Filter coefficient		0	
Monitored cell list		12 TDD neighbours on Channel 1	Measurement control information is
size		6 GSM neighbours including ARFCN 1	sent before the start of time period T1.
Tidentify abort	S	5	As specified in section 8.1.2B.5
T _{reconfirm abort}	S	5	As specified in section 8.1.2B.5
T1	S	10	
T2	S	10	
T3	S	10	

Table A.8.4.8: Cell specific parameters for correct reporting of GSM neighbours in AWGN propagation condition (cell 1)

Parameter	Unit	Cell 1		
Parameter	Unit	T1, T2, T3		
DL timeslot number		0	1	
UTRA RF Channel number		Char	nel 1	
PCCPCH_Ec/lor	dB	-3	n.a.	
SCH_Ec/lor	dB	-9	n.a.	
SCH_t _{offset}		0	n.a.	
OCNS_Ec/lor	dB	-3,12	Note 2	
DPCH_Ec/lor	dB	n.a.	Note 1	
Îor/loc	dB	6 6		
Io. Note 1	dBm /	-	70	
io, Note i	7.68 MHz	-70		
Propagation condition	ation 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	n the cell to b	e equal to lor		

Table A.8.4.9: Cell specific parameters for correct reporting of GSM neighbours in AWGN propagation condition (cell 2)

Parameter	Unit	Cell 2					
Parameter	Onit	T1	T2	T3			
Absolute RF Channel Number			ARFCN 1				
RXLEV	dBm	-85	-75	-85			

A.8.4.1.2 Test Requirements

A.8.4.1.2.1 3.84 Mcps TDD option

The UE shall send one Event 3C triggered measurement report for cell 2, with a measurement reporting delay less than 960 ms from the start of time period T2.

The UE shall send one Event 3B triggered measurement report for cell 2, with a measurement reporting delay less than 960 ms from the start of time period T3.

The UE shall not send any Event 3B or 3C triggered measurement reports, as long as the reporting criteria are not fulfilled.

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

A.8.4.1.2.2 1.28 Mcps TDD option

A.8.4.1.2.2.1 Test Requirement with BSIC verification required

The UE shall send one Event 3C triggered measurement report for cell 2, with a measurement reporting delay less than 5.96s from the beginning of time period T2.

The UE shall send one Event 3B triggered measurement report for cell 2, with a measurement reporting delay less than 960 ms from the beginning of time period T3.

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

The rate of events correctly observed during repeated tests shall be at least 90%.

A.8.4.1.2.2.1 Test Requirement without BSIC verification required

The UE shall send one Event 3C triggered measurement report for cell 2, with a measurement reporting delay less than 960ms from the beginning of time period T2.

The UE shall send one Event 3B triggered measurement report for cell 2, with a measurement reporting delay less than 960 ms from the beginning of time period T3.

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

The rate of events correctly observed during repeated tests shall be at least 90%.

A.8.4.1.2.3 7.68 Mcps TDD option

The UE shall send one Event 3C triggered measurement report for cell 2, with a measurement reporting delay less than 960 ms from the start of time period T2.

The UE shall send one Event 3B triggered measurement report for cell 2, with a measurement reporting delay less than 960 ms from the start of time period T3.

The UE shall not send any Event 3B or 3C triggered measurement reports, as long as the reporting criteria are not fulfilled.

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

A 8.4.2 Combined UTRA TDD inter-frequency and GSM cell search under AWGN propagation condition

A8.4.2.1 Test Purpose and Environment

A8.4.2.1.1 3.84 Mcps TDD option

A8.4.2.1.2 1.28 Mcps TDD option

This test is to verify that the UE makes correct reporting of an event when doing inter frequency measurements and GSM measurements. The test will partly verify the requirements in section 8.1A.2.3 combined 8.1A.2.5 under AWGN propagation conditions.

This test scenario comprised of 2 UTRA TDD cells working on different frequency, and 1 GSM cell. Test parameters are given in Table A.8.4.2.1.2-1, A.8.4.2.1.2-2, and A.8.4.2.1.2-3. Two UTRA TDD cells shall be synchronized, i.e. sharing the same frame and timeslot timing.

The test consists of 3 successive time periods, with time duration T1, T2 and T3. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 2C and 3C shall be used.

Table A. 8.4.2.1.2-1: General test parameters for combined UTRA TDD inter-frequency and GSM cells search under AWGN propagation conditions

Parameter	Unit	Value	Comment
DPCH parameters active		DL Reference Measurement	As specified in TS 25.102 section
cell		Channel 12.2 kbps	A.2.2.
Power Control		On	
Target quality value on DTCH	BLER	0.01	
Active cell		Cell 1	1.28Mcps TDD cell operating on channel 1
Neighbour cell		Cell 2	1.28Mcps TDD cell operating on channel 2
		Cell 3	GSM cell
T _{non used 2c}	dBm	-71	Absolute P-CCPCH RSCP threshold for event 2C
Inter-RAT measurement quantity		GSM carrier RSSI	
BSIC verification required		Required	
T _{other_RAT}	dBm	-80	Absolute GSM carrier RSSI threshold for event 3C
H _{2c}	dB	0	The hysteresis parameter for the event 2C
H _{3C}	dB	0	The hysteresis parameter for the event 3C
TimeToTrigger	ms	0	
Filter coefficient		0	L3 filtering is not used
Monitored cell list size		16 TDD neighbour on channel 1 6 GSM neighbours including ARFCN 1	
Propagation Condition		AWGN	
T1	S	5	During T1, cell 2 and cell 3 shall be powered off.
T2	S	6	
T3	S	8	

Table A. 8.4.2.1.2-2: Cell specific test parameters for combined UTRA TDD inter-frequency and E-UTRA FDD cell search under fading propagation conditions (cell 1 and cell 2)

Parameter	Unit			Cell 1 ((UTRA)			Cell 2 (UTRA)					
Timeslot Number			0			DwPTS	,		0			DwPTS	
		T1	T2	T3	T1	T2	T3	T1	T2	T3	T1	T2	T3
UTRA RF Channel				Char	nnel 1					Char	nnel 2		
Number*													
PCCPCH_Ec/lor	dB		-3						-3				
DwPCH_Ec/lor	dB					0						0	
OCNS_Ec/lor	dB		-3						-3				
\hat{I}_{or}/I_{oc}	dB	3		3				- Infin ity		6			
I_{oc}	dBm/ 1.28 MHz		-70					-7	70				
PCCPCH RSCP	dBm		-70					- Infin ity	-67				
Propagation Condition							AW	/GN					

Table A. 8.4.2.1.2-3: Cell specific test parameters for combined UTRA TDD inter-frequency and GSM cell search under AWGN propagation conditions (cell 3)

Parameter	Unit	Cell 3			
		T1	T2	Т3	
Absolute RF Channel Number		ARFCN 1			
RXLEV	dBm	-Infinity -75			

A8.4.2.1.3 7.68 Mcps TDD option

A8.4.2.2 Test Requirement

A8.4.2.2.1 3.84 Mcps TDD option

A8.4.2.2.2 1.28 Mcps TDD option

The UE shall send one Event 2C triggered measurement report, with a measurement reporting delay less than 5080ms from the beginning of time period T2.

The UE shall send one Event 3C triggered measurement report for cell 3, with a measurement reporting delay less than 6040ms from the beginning of time period T3.

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

The rate of events correctly reported during repeated tests shall be at least 90%.

A8.4.2.2.3 7.68 Mcps TDD option

(void)

A.8.5 E-UTRA Measurements

A.8.5.1 UTRA TDD to E-UTRA FDD cell search under fading propagation conditions

A.8.5.1.1 Test Purpose and Environment

A.8.5.1.1.1 3.84 Mcps TDD option

A.8.5.1.1.2 1.28 Mcps TDD option

The purpose of this test is to verify that the UE makes correct reporting of an event when measuring on E-UTRA FDD cells. This test will partly verify the E-UTRA FDD cell search requirements in section 8.1A.2.6 under fading propagation conditions.

This test scenario comprised of 1 UTRA TDD serving cell, and 1 E-UTRA FDD cell to be searched. Test parameters are given in Table A.8.5.1.1.2-1, A.8.5.1.1.2-2, and A.8.5.1.1.2-3. Idle interval of 80ms period as defined in TS25.331 is provided.

In the measurement control information, it is indicated to the UE that event-triggered reporting with Event 3c is used. The test consists of two successive time periods, with time duration of T1 and T2 respectively.

Table A.8.5.1.1.2-1: General test parameters for UTRA TDD to E-UTRA FDD cell search under fading propagation conditions

Parameter	Unit	Value	Comment
DPCH parameters		DL Reference	As specified in TS 25.102 section A. The DPCH is
active cell		Measurement Channel	located in an other timeslot than 0.
		12.2 kbps	
Active cell		Cell 1	1.28Mcps TDD cell
Neighbour cell		Cell 2	E-UTRA FDD cell
CP length of cell 2		normal	
Idle intervals period	ms	80	As specified in TS 25.331
T _{other_RAT}	dBm	-100	Absolute RSRP threshold for event 3c
CIO _{other_RAT}	dB	0	Cell individual offset
H _{3c}	dB	0	Hysteresis parameter for event 3c
TimeToTrigger	dB	0	
Filter coefficient		0	L3 filtering is not used
T1	S	5	During T1, cell 2 shall be powered off, and during
			the off time the physical layer cell identity shall be
			changed.
T2	S	10	

Table A.8.5.1.1.2-2: Cell specific test parameters for cell search UTRA TDD to E-UTRA FDD test case (cell 1)

Parameter	Unit	Cell 1 (UTRA)					
Timeslot Number			0 DwPTS				
		T1	T2	T1	T2		
UTRA RF Channel Number*		Channel 1					
PCCPCH_Ec/lor	dB	-3	-3				
DwPCH_Ec/lor	dB			0	0		
OCNS_Ec/lor	dB	-3	-3				
\hat{I}_{or}/I_{oc}	dB	3	3	3	3		
I_{oc}	dBm/1.28 MHz		-7	70			
PCCPCH RSCP	dBm	-70	-70	n.a.	n.a.		
Propagation Condition		Case 3					

* Note: In the case of multi-frequency cell, the UTRA RF Channel Number is the primary frequency"s channel number.

Table A.8.5.1.1.2-3: Cell specific test parameters for cell search UTRA TDD to E-UTRA FDD test case (cell 2)

Parameter	Unit	Се	II 2	
		T1	T2	
E-UTRA RF Channel Number		2		
BW _{channel}	MHz	1	0	
OCNG Pattern defined in		OP.2 FDD	OP.2 FDD	
A.3.2.1.2 (OP.2 FDD) in [24]				
PBCH_RA	dB			
PBCH_RB	dB			
PSS_RB	dB			
SSS_RB	dB			
PCFICH_PA	dB			
PHICH_PA	dB			
PHICH_PB	dB	0	0	
PDCCH_PA	dB			
PDCCH_PB	dB			
PDSCH_PA	dB			
PDSCH_PB	dB			
OCNG_RA ^{Note1}	dB			
OCNG_RB ^{Note1}	dB			
\hat{E}_s/N_{oc}	dB	-Infinity	9	
N_{oc}	dBm/15kHz	-98		
\hat{E}_s/I_{ot}	dB	-Infinity	9	
RSRP Note 2	dBm/15kHz	-Infinity	-89	
SCH_RP Note 2	dBm/15kHz	-Infinity	-89	
Io Note 2	dBm/9MHz	-70.22	-60.70	
Propagation Condition		ETI	J70	

Note 1: OCNG shall be used such that cell is fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols.

Note 2: RSRP, SCH_RP and lo levels have been derived from other parameters for information purposes. They are not settable

parameters themselves.

The resources for uplink transmission are assigned to the UE prior

to the start of time period T2.

A.8.5.1.1.3 7.68 Mcps TDD option

Note 3:

A.8.5.1.2 Test Requirements

A.8.5.1.2.1 3.84 Mcps TDD option

A.8.5.1.2.2 1.28 Mcps TDD option

The UE shall send one Event 3c triggered measurement report, with a measurement reporting delay less than 7.7s 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.

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

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

A.8.5.1.2.3 7.68 Mcps TDD option

A.8.5.2 UTRA TDD to E-UTRA TDD cell search under fading propagation conditions

A.8.5.2.1 Test Purpose and Environment

A.8.5.2.1.1 3.84 Mcps TDD option

A.8.5.2.1.2 1.28 Mcps TDD option

The purpose of this test is to verify that the UE makes correct reporting of an event when measuring on E-UTRA TDD cells. This test will partly verify the E-UTRA TDD cell search requirements in section 8.1A.2.7 under fading propagation conditions.

This test scenario comprised of 1 UTRA TDD serving cell, and 1 E-UTRA TDD cell to be searched. Test parameters are given in Table A.8.5.2.1.2-1, A.8.5.2.1.2-2, and A.8.5.2.1.2-3. Idle interval of 80ms period as defined in TS25.331 is provided.

In the measurement control information, it is indicated to the UE that event-triggered reporting with Event 3c is used. The test consists of two successive time periods, with time duration of T1 and T2 respectively.

Table A.8.5.2.1.2-1: General test parameters for UTRA TDD to E-UTRA TDD cell search under fading propagation conditions

Parameter	Unit	Value	Comment
DPCH parameters		DL Reference	As specified in TS 25.102 section A. The
active cell		Measurement Channel	DPCH is located in an other timeslot than 0.
		12.2 kbps	
Active cell		Cell 1	1.28Mcps TDD cell
Neighbour cell		Cell 2	E-UTRA TDD cell
Uplink-downlink		1	As specified in table 4.2.2 in TS 36.211
configuration of cell 2			
Special subframe		6	As specified in table 4.2.1 in TS 36.211
configuration of cell 2			
CP length of cell 2		normal	
Idle intervals period	ms	80	As specified in TS 25.331
T _{other_RAT}	dBm	-100	Absolute RSRP threshold for event 3c
CIO _{other_RAT}	dB	0	Cell individual offset
H _{3c}	dB	0	Hysteresis parameter for event 3c
TimeToTrigger	dB	0	
Filter coefficient		0	L3 filtering is not used
T1	S	5	During T1, cell 2 shall be powered off, and
			during the off time the physical layer cell
			identity shall be changed.
T2	S	10	

Table A.8.5.2.1.2-2: Cell specific test parameters for cell search UTRA TDD to E-UTRA TDD test case (cell 1)

Parameter	Unit		Cell 1 (UTRA)				
Timeslot Number		0		Dwl	PTS			
		T1	T2	T1	T2			
UTRA RF Channel Number*								
PCCPCH_Ec/lor	dB	-3	-3					
DwPCH_Ec/lor	dB			0	0			
OCNS_Ec/lor	dB	-3	-3					
\hat{I}_{or}/I_{oc}	dB	3	3	3	3			
I_{oc}	dBm/1.28 MHz		-7	70				
PCCPCH RSCP	dBm	-70	-70	n.a.	n.a.			
Propagation Condition		Case 3						
* Note: In the case of multi-frequency cell, the UTRA RF Channel Number is the primary frequency"s channel number.								

Table A.8.5.2.1.2-3: Cell specific test parameters for cell search UTRA TDD to E-UTRA TDD test case (cell 2)

Parameter	Unit	Ce	II 2	
		T1	T2	
E-UTRA RF Channel Number		2		
BW _{channel}	MHz	1	0	
OCNG Pattern defined in		OP.2 TDD	OP.2 TDD	
A.3.2.2.2 (OP.2 TDD) in [24]				
PBCH_RA	dB			
PBCH_RB	dB			
PSS_RB	dB			
SSS_RB	dB			
PCFICH_PA	dB			
PHICH_PA	dB			
PHICH_PB	dB	0	0	
PDCCH_PA	dB			
PDCCH_PB	dB			
PDSCH_PA	dB			
PDSCH_PB	dB			
OCNG_RA ^{Note1}	dB			
OCNG_RB ^{Note1}	dB			
\hat{E}_s/N_{oc}	dB	-Infinity	9	
N _{oc}	dBm/15kHz	-6	98	
\hat{E}_s/I_{ot}	dB	-Infinity	9	
RSRP Note 2 SCH_RP Note 2	dBm/15kHz	-Infinity	-89	
SCH_RP Note 2	dBm/15kHz	-Infinity	-89	
I _O Note 2	dBm/9MHz	-70.22	-60.70	
Propagation Condition			J70	
Note 1: OCNG shall be used so				
total transmitted power	spectral density is	s achieved for a	all OFDM	
symbols.				
Note 2: RSRP, SCH_RP and Id				
parameters for informa		ey are not setta	able	
parameters themselves				

Note 3: The resources for uplink transmission are assigned to the UE prior

to the start of time period T2.

A.8.5.2.1.3 7.68 Mcps TDD option

A.8.5.2.2 Test Requirements

A.8.5.2.2.1 3.84 Mcps TDD option

A.8.5.2.2.2 1.28 Mcps TDD option

The UE shall send one Event 3c triggered measurement report, with a measurement reporting delay less than 7.7s 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.

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

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

A.8.5.2.2.3 7.68 Mcps TDD option

A.8.5.3 Combined UTRA TDD inter-frequency and E-UTRA FDD cell search under fading propagation conditions

A.8.5.3.1 Test Purpose and Environment

A.8.5.3.1.1 3.84 Mcps TDD option

A.8.5.3.1.2 1.28 Mcps TDD option

This test is to verify that the UE makes correct reporting of an event when doing inter frequency measurements and E-UTRA FDD measurements. The test will partly verify the requirements in section 8.1A.2.3 combined 8.1A.2.6 under fading propagation conditions.

This test scenario comprised of 2 UTRA TDD cells working on different frequency, and 1 E-UTRA FDD cell. Test parameters are given in Table A.8.5.3.1.2-1, A.8.5.3.1.2-2, and A.8.5.3.1.2-3. Scheduled idle interval of 80ms period as defined in TS25.331 is provided. Two UTRA TDD cells shall be synchronised, i.e. sharing the same frame and timeslot timing.

The test consists of 2 successive time periods, with time duration T1 and T2. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 2B and 3A shall be used.

Table A.8.5.3.1.2-1: General test parameters for combined UTRA TDD inter-frequency and E-UTRA FDD cells search under fading propagation conditions

Parameter	Unit	Value	Comment
DPCH parameters		DL Reference	As specified in TS 25.102 section A.2.2. The DPCH
active cell		Measurement Channel	is located in an other timeslot than 0.
		12.2 kbps	
Active cell		Cell 1	1.28Mcps TDD cell operating on channel 1
Neighbour cell		Cell 2	1.28Mcps TDD cell operating on channel 2
		Cell 3	E-UTRA FDD cell
CP length of cell 3		Normal	
Idle intervals period	ms	80	As specified in TS 25.331
T _{used 2b}	dBm	-73	Absolute P-CCPCH RSCP threshold for event 2B
T _{non used 2b}	dBm	-82	Absolute P-CCPCH RSCP threshold for event 2B
T _{used}	dBm	-73	Absolute P-CCPCH RSCP threshold for event 3A
T _{other_RAT}	dBm	-100	Absolute RSRP threshold for event 3A
H _{2b}	dB	0	The hysteresis parameter for the event 2B
H _{3a}	dB	0	The hysteresis parameter for the event 3A
CIO _{other_RAT}	dB	0	Cell individual offset for the cell of the other system
TimeToTrigger	ms	0	
Filter coefficient		0	L3 filtering is not used
Monitored cell list		24 on channel 1	
size		16 on channel 2	
T1	S	5	During T1, cell 2 and cell 3 shall be powered off,
			and during the off time the physical layer cell
			identity shall be changed.
T2	S	7	

Table A.8.5.3.1.2-2: Cell specific test parameters for combined UTRA TDD inter-frequency and E-UTRA FDD cell search under fading propagation conditions (cell 1 and cell 2)

Parameter	Unit		Cell 1	(UTRA)			Cell 2 (UTRA)			
Timeslot Number		()	DwF	DwPTS		0		TS	
		T1	T2	T1	T2	T1	T2	T1	T2	
UTRA RF Channel Number Note 1		Channel 1			Channel 2					
PCCPCH_Ec/lor	dB	Ϋ́	3			-	3			
DwPCH_Ec/lor	dB	0					0			
OCNS_Ec/lor	dB	-3		-3						
\hat{I}_{or}/I_{oc}	dB	4	4	4	4	-Infinity	12	-Infinity	12	
I_{oc}	dBm/ 1.28 MHz				-	80				
PCCPCH RSCP Note 2	dBm	-79	-79	n.	a.	-Infinity	-71	n.a	a.	
Io Note 2	dBm/ 1.28 MHz	-74.54	-74.54	-74.54	-74.54	-80	-67.73	-80	- 67.73	
Propagation Condition			ΑW	/GN			Cas	e 3		

Note 1: In the case of multi-frequency network, the UTRA RF Channel Number can be set for the primary frequency in this test.

Note 2: PCCPCH_RSCP and lo levels have been derived from other parameters for information purposes. They are not settable parameters themselves.

Note 3: The DPCH of all cells are located in a timeslot other than 0.

Table A.8.5.3.1.2-3: Cell specific test parameters for combined UTRA TDD inter-frequency and E-UTRA FDD cell search under fading propagation conditions (cell 3)

Parameter	Unit	Cell 3					
		T1	T2				
E-UTRA RF Channel Number		(3				
BW _{channel}	MHz	10					
OCNG Pattern defined in		OP.2 FDD	D OP.2 FDD				
A.3.2.1.2 (OP.2 FDD) in [24]							
PBCH_RA	dB						
PBCH_RB	dB						
PSS_RB	dB						
SSS_RB	dB						
PCFICH_PA	dB						
PHICH_PA	dB		0				
PHICH_PB	dB	0					
PDCCH_PA	dB						
PDCCH_PB	dB						
PDSCH_PA	dB						
PDSCH_PB	dB						
OCNG_RANote1	dB						
OCNG_RBNote1	dB						
\hat{E}_s/N_{oc}	dB	-Infinity	9				
N_{oc}	dBm/15kHz	-98					
\hat{E}_s/I_{ot}	dB	-Infinity	9				
L RSRP Note 3	dBm/15kHz	-Infinity	-89				
SCH_RP Note 3	dBm/15kHz	-Infinity	-89				
I _O Note 3	dBm/9MHz	-70.22	-60.70				
Propagation Condition		ETU70 (Note 4)					
Note 1: OCNG shall be used	such that cell is fully	allocated and	a constant				
total transmitted pow	er spectral density is	achieved for a	all OFDM				
symbols.							
	The resources for uplink transmission are assigned to the UE prior						
	to the start of time period T2.						
Note 3: RSRP, SCH_RP and I _O levels have been derived from other							
parameters for inform		ey are not setta	able				
· ·	parameters themselves.						
Note 4: ETU70 propagation conditions are specified in Annex B.2 of 3GPP TS 36.101.							

A.8.5.3.1.3 7.68 Mcps TDD option

A.8.5.3.2 Test Requirements

A.8.5.3.2.1 3.84 Mcps TDD option

A.8.5.3.2.2 1.28 Mcps TDD option

The UE shall send one Event 2B triggered measurement report for Cell2, with a measurement reporting delay less than 5s from the beginning of time period T2.

The UE shall send one Event 3A triggered measurement report for Cell3, with a measurement reporting delay less than 4270ms 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.

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

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

A.8.5.3.2.3 7.68 Mcps TDD option

A.8.5.4 Combined UTRA TDD inter-frequency and E-UTRA TDD cell search under fading propagation conditions

A.8.5.4.1 Test Purpose and Environment

A.8.5.4.1.1 3.84 Mcps TDD option

A.8.5.4.1.2 1.28 Mcps TDD option

This test is to verify that the UE makes correct reporting of an event when doing inter frequency measurements and E-UTRA TDD measurements. The test will partly verify the requirements in section 8.1A.2.3 combined 8.1A.2.7 under fading propagation conditions.

This test scenario comprised of 2 UTRA TDD cells working on different frequency, and 1 E-UTRA TDD cell. Test parameters are given in Table A.8.5.4.1.2-1, A.8.5.4.1.2-2, and A.8.5.4.1.2-3. Scheduled idle interval of 80ms period as defined in TS25.331 is provided. Two UTRA TDD cells shall be synchronised, i.e. sharing the same frame and timeslot timing.

The test consists of 2 successive time periods, with time duration T1 and T2. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 2B and 3a shall be used.

Table A.8.5.4.1.2-1: General test parameters for combined UTRA TDD inter-frequency and E-UTRA TDD cells search under fading propagation conditions

Parameter	Unit	Value	Comment		
DPCH parameters		DL Reference	As specified in TS 25.102 section A.2.2. The DPCH		
active cell		Measurement Channel	is located in an other timeslot than 0.		
		12.2 kbps			
Active cell		Cell 1	1.28Mcps TDD cell operating on channel 1		
Neighbour cell		Cell 2	1.28Mcps TDD cell operating on channel 2		
		Cell 3	E-UTRA TDD cell		
CP length of cell 3		Normal			
Idle intervals period	ms	80	As specified in TS 25.331		
T _{used 2b}	dBm	-73	Absolute P-CCPCH RSCP threshold for event 2B		
T _{non used 2b}	dBm	-82	Absolute P-CCPCH RSCP threshold for event 2B		
T _{used}	dBm	-73	Absolute P-CCPCH RSCP threshold for event 3A		
T _{other_RAT}	dBm	-100	Absolute RSRP threshold for event 3A		
H _{2b}	dB	0	The hysteresis parameter for the event 2B		
H _{3a}	dB	0	The hysteresis parameter for the event 3A		
CIO _{other_RAT}	dB	0	Cell individual offset for the cell of the other system		
TimeToTrigger	dB	0			
Filter coefficient		0	L3 filtering is not used		
Monitored cell list		24 on channel 1			
size		16 on channel 2			
T1	S	5	During T1, cell 2 and cell 3 shall be powered off,		
			and during the off time the physical layer cell		
			identity shall be changed.		
T2	S	7			

Table A.8.5.4.1.2-2: Cell specific test parameters for combined UTRA TDD inter-frequency and E-UTRA TDD cell search under fading propagation conditions (cell 1 and cell 2)

Parameter	Unit	Cell 1 (UTRA)				Cell 2 (UTRA)			
Timeslot Number		0		DwPTS		0		DwPTS	
		T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number Note 1		Channel 1				Channel 2			
PCCPCH_Ec/lor	dB	-3				-3			
DwPCH_Ec/lor	dB			0				0	
OCNS_Ec/lor	dB	-3				-3			
\hat{I}_{or}/I_{oc}	dB	4	4	4	4	-Infinity	12	-Infinity	12
I_{oc}	dBm/1. 28 MHz	-80							
PCCPCH RSCP Note	dBm	-79	-79	n.a.		-Infinity	-71	n.a.	
I _O Note 2	dBm/1. 28 MHz	-74.54	-74.54	-74.54	-74.54	-80		-80	-67.73
Propagation Condition		AWGN			Case 3				

Note 1: In the case of multi-frequency network, the UTRA RF Channel Number can be set for the primary frequency in this test.

Note 2: PCCPCH_RSCP and lo levels have been derived from other parameters for information purposes. They are not settable parameters themselves.

The DPCH of all cells are located in a timeslot other than 0.

Table A.8.5.4.1.2-3: Cell specific test parameters for combined UTRA TDD inter-frequency and E-UTRA TDD cell search under fading propagation conditions (cell 3)

Parameter	Unit	Се	II 3		
		T1	T2		
E-UTRA RF Channel Number		;	3		
BW _{channel}	MHz	1	0		
OCNG Pattern defined in		OP.2 TDD	OP.2 TDD		
A.3.2.2.2 (OP.2 TDD) in [24]					
PBCH_RA	dB				
PBCH_RB	dB				
PSS_RB	dB				
SSS_RB	dB				
PCFICH_PA	dB				
PHICH_PA	dB				
PHICH_PB	dB	0	0		
PDCCH_PA	dB				
PDCCH_PB	dB				
PDSCH_PA	dB				
PDSCH_PB	dB				
OCNG_RANote1	dB				
OCNG_RBNote1	dB				
\hat{E}_s/N_{oc}	dB	-Infinity	9		
N_{oc}	dBm/15kHz	-98			
\hat{E}_s/I_{ot}	dB	-Infinity	9		
RSRP Note 3	dBm/15kHz	-Infinity	-89		
SCH_RP Note 3	dBm/15kHz	-Infinity	-89		
I _O Note 3	dBm/9MHz	-70.22	-60.70		
Propagation Condition		ETU70	(Note 4)		
Note 1: OCNG shall be used s	uch that cell is fully	allocated and	a constant		
total transmitted power	r spectral density is	achieved for a	all OFDM		
symbols.					
Note 2: The resources for uplink transmission are assigned to the UE prior					
to the start of time period T2.					
Note 3: RSRP, SCH_RP and Io levels have been derived from other					
parameters for information purposes. They are not settable					
parameters themselves.					
Note 4: ETU70 propagation conditions are specified in Annex B.2 of 3GPP TS 36.101.					

A.8.5.4.1.3 7.68 Mcps TDD option

A.8.5.4.2 Test Requirements

A.8.5.4.2.1 3.84 Mcps TDD option

A.8.5.4.2.2 1.28 Mcps TDD option

The UE shall send one Event 2B triggered measurement report for Cell2, with a measurement reporting delay less than 5s from the beginning of time period T2.

The UE shall send one Event 3a triggered measurement report for Cell3, with a measurement reporting delay less than 4270ms 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.

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

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

A.8.5.4.2.3 7.68 Mcps TDD option

A.9 Measurement Performance Requirements

Unless explicitly stated:

- Measurement channel is 12.2 kbps as defined in TS 25.102 annex A. This measurement channel is used both in active cell and cells to be measured.
- Cell 1 is the active cell.
- Single task reporting.
- Power control is active.

A.9.1 Measurement Performance for UE (3.84 Mcps TDD option)

A.9.1.1 P-CCPCH RSCP

A.9.1.1.1 Test Purpose and Environment

The purpose of this test is to verify that the P-CCPCH RSCP measurement accuracy is within the specified limits. This test will verify the requirements in section 9.1.1.1.

Cell 1 and cell 2 shall be synchronised, i.e. share the same frame and timeslot timing. The DL DPCH shall be transmitted in timeslot 4 and the UL DPCH shall be transmitted in timeslot 12.

A.9.1.1.1.1 Intra frequency test parameters

In this case all cells are on the same frequency. The second Beacon timeslot shall be provided in timeslot 8 for both cell 1 and cell 2.

Both P-CCPCH RSCP intra frequency absolute and relative accuracy requirements are tested by using test parameters in Table A.9.1.

Table A.9.1: P-CCPCH RSCP Intra frequency test parameters

Parameter	Unit	Tes	st 1	Te	st 2	Tes	st 3	
Parameter	Unit	Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2	
DL timeslot number		0	0	0	0	0	0	
UTRA RF Channel number		Char	nel 1	Char	nel 1	Char	nel 1	
PCCPCH_Ec/lor	dB	-3		-	3	-	3	
SCH_Ec/lor	dB	-	-9		-9		-9	
SCH_t _{offset}		0	5	0	5	0	5	
OCNS_Ec/lor	dB	-3,	12	-3,12		-3,	12	
loc	dBm / 3.84 MHz	-7	5.7	-5	9.8	-98	3.7	
Îor/loc	dB	5	2	9	2	3	0	
PCCPCH RSCP, Note 1	dBm	-73.7	-76.7	-53.8	-60.8	-98.7	-101.7	
Io, Note 1	dBm / 3.84 MHz	-69		-50		-6	94	
Propagation condition		AW	'GN	AWGN		AW	'GN	

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

A.9.1.1.1.2 Inter frequency test parameters

In this case both cells are on different frequencies. The second Beacon timeslot shall be provided in timeslot 8 for cell 1 and in timeslot 10 for cell 2.

P-CCPCH RSCP inter frequency relative accuracy requirements are tested by using test parameters in Table A.9.2.

Table A.9.2: P-CCPCH RSCP Inter frequency tests parameters

Parameter	Unit	Tes	st 1	Tes	st 2	Те	st 3
Parameter	Onit	Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
DL timeslot number		0	2	0	2	0	2
UTRA RF Channel number		Channel 1	Channel 2	Channel 1	Channel 2	Channel 1	Channel 2
PCCPCH_Ec/lor	dB	=	3	-	3	-	-3
SCH_Ec/lor	dB	-	9	-	9	-	.9
SCH_t _{offset}		0	5	0	5	0	5
OCNS_Ec/lor	dB	-3,	12	-3,12		-3,12	
loc	dBm / 3.84 MHz	-75.2	-75.2	-57.8	-54.1	-98.7	-97
Îor/loc	dB	5	5	7	2	3	0
PCCPCH RSCP, Note 1	dBm	-73.2	-73.2	-54.8	-55.1	-98.7	-100
Io, Note 1	dBm / 3.84 MHz	-69		-50		-94	
Propagation condition		AWGN		AWGN		AWGN	

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

A.9.1.1.2 Test Requirements

The P-CCPCH RSCP measurement accuracy shall meet the requirements in section 9.1.1.1.

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

A.9.1.2 CPICH measurements

A.9.1.2.1 CPICH RSCP

A.9.1.2.1.1 Test Purpose and Environment

The purpose of this test is to verify that the CPICH RSCP measurement accuracy is within the specified limits. This test will verify the requirements in section 9.1.1.2 and applies to UE"s supporting this capability.

The DL DPCH shall be transmitted in timeslot 1 and the UL DPCH shall be transmitted in timeslot 3.

A.9.1.2.1.1.1 Inter frequency test parameters

In this case both cells are on different frequencies. Cell 1 is a UTRA TDD cell and cell 2 is a UTRA FDD cell. No second Beacon timeslot shall be provided for cell 1.

CPICH RSCP inter frequency absolute accuracy requirements are tested by using test parameters in Table A.9.3.

Table A.9.3: CPICH RSCP Inter frequency tests parameters

Parameter	Unit	Tes	st 1	Test 2		
Parameter	Offic	Cell 1	Cell 2	Cell 1	Cell 2	
DL timeslot number		0	n.a.	0	n.a.	
UTRA RF Channel number		Channel 1	Channel 2	Channel 1	Channel 2	
CPICH_Ec/lor	dB	n.a.	-10	n.a.	-10	
PCCPCH_Ec/lor	dB	-3	-12	-3	-12	
SCH_Ec/lor	dB	-9	-12	-9	-12	
SCH_t _{offset}		5	n.a.	5	n.a.	
PICH_Ec/lor	dB	n.a.	-15	n.a.	-15	
OCNS_Ec/lor	dB	-3.12	-0.94	-3.12	-0.94	
loc	dBm/ 3.84 MHz	-57.7	-60	-84.7	-84	
Îor/loc	dB	7	9.54	3	0	
PCCPCH RSCP, Note 1	dBm	-53.7	n.a.	-84.7	n.a.	
CPICH RSCP, Note 1	dBm	n.a.	-60.46	n.a.	-94	
Io, Note 1	dBm/ 3.84 MHz	-50	-50	-80	-81	
Propagation condition	-	AW	GN	AWGN		

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

A.9.1.2.1.2 Test Requirements

The CPICH RSCP measurement accuracy shall meet the requirements in section 9.1.1.2.

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

A.9.1.2.2 CPICH Ec/lo

NOTE: This section is included for consistency with numbering in section 9, currently no test covering requirements in sections 9.1.1.3 exists.

A.9.1.3 Timeslot ISCP

A.9.1.3.1 Test Purpose and Environment

The purpose of this test is to verify that the Timeslot ISCP measurement accuracy is within the specified limits. This test will verify the requirements in section 9.1.1.3.

Cell 1 and cell 2 shall be synchronised, i.e. share the same frame and timeslot timing. The DL DPCH shall be transmitted in timeslot 4 and the UL DPCH shall be transmitted in timeslot 12.

A.9.1.3.1.1 Intra frequency test parameters

In this case all cells are on the same frequency. The second Beacon timeslot shall be provided in timeslot 8 for both cell 1 and cell 2.

The Timeslot ISCP intra frequency absolute accuracy requirements are tested by using test parameters in Table A.9.4.

Table A.9.4: Timeslot ISCP Intra frequency test 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
DL timeslot number		0	0	0	0	0	0
UTRA RF Channel number		Char	nel 1	Char	nel 1	Char	nel 1
PCCPCH_Ec/lor	dB	-3		-	3	-	3
SCH_Ec/lor	dB	-9		-9		-9	
SCH_t _{offset}		0	5	0	5	0	5
OCNS_Ec/lor	dB	-3,	12	-3,12		-3,	12
loc	dBm / 3.84 MHz	-7	5.7	-59.8		-98	3.7
Îor/loc	dB	5	2	9	2	3	0
Timeslot ISCP, Note 1	dBm	-73.7	-70.7	-57.8	-50.8	-98.7	-95.7
Io, Note 1	dBm / 3.84 MHz	-69		-50		-6	94
Propagation condition		AW	'GN	AW	'GN	AW	'GN

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

A.9.1.3.2 Test Requirements

The Timeslot ISCP measurement accuracy shall meet the requirements in section 9.1.1.3.

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

A.9.1.4 UTRA Carrier RSSI

A.9.1.4.1 Test Purpose and Environment

The purpose of this test is to verify that the UTRA Carrier RSSI measurement accuracy is within the specified limits. This test will verify the requirements in section 9.1.1.4.

Cell 1 and cell 2 shall be synchronised, i.e. share the same frame and timeslot timing. The DL DPCH shall be transmitted in timeslot 4 and the UL DPCH shall be transmitted in timeslot 12.

A.9.1.4.1.1 Inter frequency test parameters

In this case both cells are on different frequencies. The second Beacon timeslot shall be provided in timeslot 8 for cell 1 and in timeslot 10 for cell 2.

Both UTRA Carrier RSSI absolute and relative accuracy requirements are tested by using test parameters in Table A.9.5.

Test 1 Test 2 Test 3 **Parameter** Unit Cell 2 Cell 1 Cell 1 Cell 2 Cell 1 Cell 2 DL timeslot number 0 2 O 0 UTRA RF Channel Channel 1 Channel 2 Channel 1 Channel 2 Channel 1 Channel 2 number PCCPCH_Ec/lor dB -3 -3 -3 SCH_Ec/lor dB -9 -9 -9 SCH_toffset 0 5 0 5 0 5 OCNS_Ec/lor -3.12 -3.12 dΒ -3.12 dBm/ loc -75.2 -75.2 -57.8 -54.1 -98.7 -97 3.84 MHz Îor/loc dB 5 5 2 3 0 dBm / Io, Note 1 -69 -50 -94 3.84 MHz Propagation **AWGN AWGN AWGN** condition

Table A.9.5: UTRA Carrier RSSI Inter frequency tests parameters

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

A.9.1.4.2 Test Requirements

The UTRA Carrier RSSI absolute measurement accuracy shall meet the requirements in section 9.1.1.4.

The UTRA Carrier RSSI relative measurement accuracy shall meet the requirements in Table A.9.6 by taking into account the effect of thermal noise and noise added by the receiver.

		Accura	acy [dB]	Conditions
Parameter	Unit	Normal condition	Extreme condition	lo [dBm/3.84 MHz]
	dBm	-45.2	-78.2	-9487
UTRA Carrier RSSI	dBm	± 4	± 7	-8770
	dBm	± 6	± 9	-7050

Table A.9.6: UTRA Carrier RSSI relative accuracy

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

A.9.1.5 GSM carrier RSSI

A.9.1.5.1 Test Purpose and Environment

The purpose of this test is to verify that the GSM Carrier RSSI measurement accuracy is within the specified limits. This test will verify the requirements in section 9.1.5.

Cell 1 is a UTRA TDD cell and cell 2 is a GSM cell. The Beacon timeslot shall be provided in timeslot 0 and no second Beacon timeslot shall be provided for cell 1. In the measurement control information it is indicated to the UE that periodic reporting of the GSM carrier RSSI measurement is used. The DL DPCH shall be transmitted in timeslot 1 and the UL DPCH shall be transmitted in timeslot 3.

A.9.1.5.1.1 Inter frequency test parameters

GSM carrier RSSI accuracy requirements are tested by using test parameters in Table A.9.6A and A.9.6B.

The limits of the GSM test parameters are defined in [21].

Table A.9.6A: General GSM Carrier RSSI test parameters

Parameter	Unit	Value	Comment
DCH parameters		DL reference measurement channel 12.2 kbps	As specified in TS 25.102 section A.2.2
Power Control		On	
Target quality value on DTCH	BLER	0.01	
Inter-RAT measurement quantity		GSM carrier RSSI	
BSIC verification required		No	
Monitored cell list size		6 GSM neighbours including ARFCN 1	

Table A.9.6B: Cell 1 specific GSM Carrier RSSI test parameters

Parameter	Unit	Се	II 1		
DL timeslot number		0	1		
UTRA RF Channel number		Chan	nnel 1		
PCCPCH_Ec/lor	dB	-3	n.a.		
SCH_Ec/lor	dB	-9	n.a.		
SCH_t _{offset}		0	n.a.		
OCNS_Ec/lor	dB	-3,12	Note 2		
DPCH_Ec/lor	dB	n.a.	Note 1		
Îor/loc	dB	6	6		
Io, Note 1	dBm / 3.84 MHz	-7	70		
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 lor.					

A.9.1.5.2 Test Requirements

The GSM Carrier RSSI measurement accuracy shall meet the requirements in section 9.1.5.

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

A.9.1.6 SIR

NOTE: This section is included for consistency with numbering in section 9, currently no test covering requirements in sections 9.1.1.6 exists.

A.9.1.7 Transport channel BLER

NOTE: This section is included for consistency with numbering in section 9, currently no test covering requirements in sections 9.1.1.7 exists.

A.9.1.8 SFN-SFN observed time difference

A.9.1.8.1 SFN-SFN observed time difference type 1

A.9.1.8.1.1 Test Purpose and Environment

The purpose of this test is to verify that the SFN-SFN observed time difference type 1 measurement accuracy is within the specified limits. This test will verify the requirements in section 9.1.1.8.

Cell 1 and cell 2 shall be synchronised, i.e. share the same frame and timeslot timing. During the test, the timing difference between cell 1 and cell 2 can be set to any value from 0...9830400 chip.

The DL DPCH shall be transmitted in timeslot 4 and the UL DPCH shall be transmitted in timeslot 12. The second Beacon timeslot shall be provided in timeslot 8 for cell 1 and in timeslot 10 for cell 2.

A.9.1.8.1.1.1 Intra frequency test parameters

In this case all cells are on the same frequency. The SFN-SFN observed time difference type 1 accuracy requirements in the intra-frequency case are tested by using test parameters in Table A.9.7.

Table A.9.7: SFN-SFN observed time difference type 1 Intra frequency test parameters

Parameter	Unit	Tes	st 1	Те	st 2	Те	st 3	
Faranietei	Onit	Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2	
DL timeslot number		0	2	0	2	0	2	
UTRA RF Channel number		Channel 1		Cha	Channel 1		Channel 1	
PCCPCH_Ec/lor	dB	-;	3		-3		-3	
SCH_Ec/lor	dB	-9		-9		-9		
SCH_t _{offset}		0	5	0	5	0	5	
OCNS_Ec/lor	dB	-3,	12	-3,12		-3,12		
loc	dBm / 3.84 MHz	-75.2	-75.2	-57.8	-54.7	-98.7	-98.7	
Îor/loc	dB	5	5	7	3	3	3	
Io, Note 1	dBm / 3.84 MHz	-69		-50		-94		
Propagation condition		AWGN		AWGN		AWGN		

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

A.9.1.8.1.1.2 Inter frequency test parameters

In this case both cells are on different frequencies. The SFN-SFN observed time difference type 2 accuracy requirements in the inter-frequency case are tested by using test parameters in Table A.9.8.

Table A.9.8: SFN-SFN observed time difference type 1 Inter frequency tests parameters

Parameter	Unit	Tes	st 1	Tes	st 2	Test 3	
Faranietei	Onit	Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
DL timeslot number		0	2	0	2	0	2
UTRA RF Channel number		Channel 1	Channel 2	Channel 1	Channel 2	Channel 1	Channel 2
PCCPCH_Ec/lor	dB	-;	3	-	3	-	3
SCH_Ec/lor	dB	-9		-9		-9	
SCH_t _{offset}		0	5	0	5	0	5
OCNS_Ec/lor	dB	-3,	12	-3,12		-3,12	
loc	dBm / 3.84 MHz	-75.2	-75.2	-57.8	-54.7	-98.7	-98.7
Îor/loc	dB	5	5	7	3	3	3
Io, Note 1	dBm / 3.84 MHz	-69		-50		-94	
Propagation condition		AW	GN	AWGN		AWGN	

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

A.9.1.8.1.2 Test Requirements

The SFN-SFN observed time difference type 1 measurement accuracy shall meet the requirements in section 9.1.1.8.

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

A.9.1.8.2 SFN-SFN observed time difference type 2

A.9.1.8.2.1 Test Purpose and Environment

The purpose of this test is to verify that the SFN-SFN observed time difference type 2 measurement accuracy is within the specified limits. This test will verify the requirements in section 9.1.1.8.

Cell 1 and cell 2 shall be synchronised, i.e. share the same frame and timeslot timing. During the test, the timing difference between cell 1 and cell 2 can be set to any value from $-1280 \dots +1280$ chip.

The DL DPCH shall be transmitted in timeslot 4 and the UL DPCH shall be transmitted in timeslot 12. The second Beacon timeslot shall be provided in timeslot 8 for cell 1 and in timeslot 10 for cell 2.

A.9.1.8.2.1.1 Intra frequency test parameters

In this case all cells are on the same frequency. The SFN-SFN observed time difference type 2 accuracy requirements in the intra-frequency case are tested by using test parameters in Table A.9.8A.

Table A.9.8A: SFN-SFN observed time difference type 2 Intra frequency test parameters

Parameter	Unit	Tes	st 1	Te	Test 2		Test 3	
raiailletei	Onit	Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2	
DL timeslot number		0	2	0	2	0	2	
UTRA RF Channel number		Channel 1 Channel 1		Channel 1				
PCCPCH_Ec/lor	dB	-;	3	-	3	-	3	
SCH_Ec/lor	dB	-9		-9		-9		
SCH_t _{offset}		0	5	0	5	0	5	
OCNS_Ec/lor	dB	-3,	12	-3,12		-3,12		
loc	dBm / 3.84 MHz	-75.2	-75.2	-57.8	-54.7	-98.7	-98.7	
Îor/loc	dB	5	5	7	3	3	3	
Io, Note 1	dBm / 3.84 MHz	-69		-50		-94		
Propagation condition		AWGN		AWGN		AWGN		

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

A.9.1.8.2.1.2 Inter frequency test parameters

In this case both cells are on different frequencies. The SFN-SFN observed time difference type 2 accuracy requirements in the inter-frequency case are tested by using test parameters in Table A.9.8B.

Table A.9.8B: SFN-SFN observed time difference type 2 Inter frequency tests parameters

Parameter	Unit	Tes	st 1	Tes	st 2	Те	st 3
Farameter	Onit	Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
DL timeslot number		0	2	0	2	0	2
UTRA RF Channel		Channel 1	Channel 2	Channel 1	Channel 2	Channel 1	Channel 2
number		Charine	Chamer 2	Chamber	Charmer 2	Chamer	Chamerz
PCCPCH_Ec/lor	dB	ï	3	ï	3	-	3
SCH_Ec/lor	dB	-9		-9		-9	
SCH_t _{offset}		0	5	0	5	0	5
OCNS_Ec/lor	dB	-3,	12	-3,12		-3,12	
loc	dBm / 3.84 MHz	-75.2	-75.2	-57.8	-54.7	-98.7	-98.7
Îor/loc	dB	5	5	7	3	3	3
Io, Note 1	dBm / 3.84 MHz	-69		-50		-94	
Propagation condition		AW	GN	AWGN		AWGN	

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

A.9.1.8.2.2 Test Requirements

The SFN-SFN observed time difference type 2 measurement accuracy shall meet the requirements in section 9.1.1.8.

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

A.9.1.9 Observed time difference to GSM cell

NOTE: This section is included for consistency with numbering in section 9, currently no test covering requirements in sections 9.1.1.9 exists.

A.9.1.10 SFN-CFN observed time difference

A.9.1.10.1 Test Purpose and Environment

The purpose of this test is to verify that the SFN-CFN observed time difference measurement accuracy is within the specified limits. This test will verify the requirements in section 9.1.1.10.

Cell 1 and cell 2 shall be synchronised, i.e. share the same frame and timeslot timing. During the test, the timing difference between cell 1 and cell 2 can be set to any value from 0...256 frames.

The DL DPCH shall be transmitted in timeslot 4 and the UL DPCH shall be transmitted in timeslot 12. The second Beacon timeslot shall be provided in timeslot 8 for cell 1 and in timeslot 10 for cell 2.

A.9.1.10.1.1 Intra frequency test parameters

In this case all cells are on the same frequency. The SFN-CFN observed time difference accuracy requirements in the intra-frequency case are tested by using test parameters in Table A.9.9.

Table A.9.9: SFN-CFN observed time difference Intra frequency test parameters

Parameter	Unit	Tes	st 1	Те	st 2	Test 3		
raiailletei	l Ollit	Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2	
DL timeslot number		0	2	0	2	0	2	
UTRA RF Channel		Chan	nel 1	Char	nnel 1	Channel 1		
number		Onan		Onai	11101 1	Onai	Charmer	
PCCPCH_Ec/lor	dB	-;	3	-	·3	-	.3	
SCH_Ec/lor	dB	-9		-9		-9		
SCH_t _{offset}		0	5	0	5	0	5	
OCNS_Ec/lor	dB	-3,	12	-3,12		-3,12		
loc	dBm / 3.84 MHz	-75.2	-75.2	-57.8	-54.7	-98.7	-98.7	
Îor/loc	dB	5	5	7	3	3	3	
Io, Note 1	dBm / 3.84 MHz	-69		-50		-94		
Propagation condition		AW	GN	AWGN		AWGN		

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

A.9.1.10.1.2 Inter frequency test parameters

In this case both cells are on different frequencies. The SFN-CFN observed time difference accuracy requirements in the inter-frequency case are tested by using test parameters in Table A.9.10.

Table A.9.10: SFN-CFN observed time difference Inter frequency tests parameters

Parameter	Unit	Tes	st 1	Tes	st 2	Test 3	
Parameter	Unit	Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
DL timeslot number		0	2	0	2	0	2
UTRA RF Channel number		Channel 1	Channel 2	Channel 1	Channel 2	Channel 1	Channel 2
PCCPCH_Ec/lor	dB	=	3	-;	3	-	3
SCH_Ec/lor	dB	-9		-9		-9	
SCH_t _{offset}		0	5	0	5	0	5
OCNS_Ec/lor	dB	-3,	12	-3,12		-3,12	
loc	dBm / 3.84 MHz	-75.2	-75.2	-57.8	-54.7	-98.7	-98.7
Îor/loc	dB	5	5	7	3	3	3
Io, Note 1	dBm / 3.84 MHz	-69		-50		-94	
Propagation condition		AW	GN	AWGN		AWGN	

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

A.9.1.10.2 Test Requirements

The SFN-CFN observed time difference measurement accuracy shall meet the requirements in section 9.1.1.10.

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

A.9.1.11 UE transmitted power

NOTE: This section is included for consistency with numbering in section 9, currently no test covering requirements in sections 9.1.1.11 exists.

A.9.2 Measurement Performance for UE for 1.28 Mcps TDD

A.9.2.1 P-CCPCH RSCP

A.9.2.1.1 Test Purpose and Environment

The purpose of this test is to verify that the P-CCPCH RSCP measurement accuracy is within the specified limits. This test will verify the requirements in section 9.1.1.1.

The DL DPCH shall be transmitted in timeslot 4 and the UL DPCH shall be transmitted in timeslot 2.

A.9.2.1.1.1 Intra frequency test parameters

Both P-CCPCH RSCP intra frequency absolute and relative accuracy requirements are tested by using test parameters in Table A.9.11.

Table A.9.11: P-CCPCH RSCP Intra frequency test parameters

			Test 1				
Parameter	Unit	Ce	ell 1	Ce	Cell 2		
Timeslot Number		0	DwPTS	0	DwPTS		
UTRA RF Channel		Channel 1 Channel 1					
Number (NOTE 2)					1		
PCCPCH_Ec/lor	dB	-3		-3			
DwPCH_Ec/lor	dB		0		0		
OCNS_Ec/lor	dB	-3		-3			
\hat{I}_{or}/I_{oc}	dB		5		2		
I_{oc}	dBm/ 1.28 MHz		-7	76.6	_		
PCCPCH RSCP, Note 1	dBm	-74.6		-77.6			
Io, Note 1	dBm/ 1.28 MHz		-	69			
Propagation condition			AV	VGN			
CONGRECI	1		Test 2				
Parameter	Unit	Ce	ell 1	Ce	ell 2		
Timeslot Number	0.1110	0	DwPTS	0	DwPTS		
UTRA RF Channel	l t				•		
Number (NOTE 2)		Chai	nnel 1	Cha	nnel 1		
PCCPCH_Ec/lor	dB	-3		-3			
DwPCH_Ec/lor	dB		0		0		
OCNS_Ec/lor	dB	-3		-3			
\hat{I}_{or}/I_{oc}	dB	9 2					
I_{oc}	dBm/ 1.28 MHz		-6	60.2			
PCCPCH RSCP, Note 1	dBm	-54.2		-61.2			
Io, Note 1	dBm/ 1.28 MHz		-	50	1		
Propagation			AV	VGN			
condition			Test 3				
Parameter	Unit	Co	ell 1		ell 2		
Timeslot Number	Oilit	0	DwPTS	0	DwPTS		
UTRA RF Channel							
Number (NOTE 2)		Char	nnel 1	Cha	nnel 1		
PCCPCH_Ec/lor	dB	-3		-3			
DwPCH_Ec/lor	dB	<u> </u>	0	†	0		
OCNS_Ec/lor	dB	-3		-3			
\hat{I}_{or}/I_{oc}	dB		5		3		
I_{oc}	dBm/		-1	01.9			
	1.28 MHz		· ·	- · · · · · · · · · · · · · · · · · · ·	Γ		
PCCPCH RSCP, Note 1	dBm	-99.9		-101.9			
Io, Note 1	dBm/ 1.28 MHz		-	94	•		
Propagation condition		AWGN					
NOTE 1: PCCPCH R	I CD and In I	ovole have hear	a calculated from	other parameters	for information		
			ters themselves.	onier parameters	ioi iiiioiiiiatiofi		

NOTE2: In the case of multi-frequecny network, the UTRA RF Channel Number can be set for the primary frequency in this test.

A.9.2.1.1.1A Intra-frequency with two neighbour cells test parameters

Both P-CCPCH RSCP intra-frequency absolute and relative accuracy requirements with two neighbour cells are tested by using test parameters in Table A.9.11a.

Table A.9.11a: P-CCPCH RSCP intra-frequency with two neighbour cells test parameters

			Test 1					
Parameter	Unit	Ce	ell 1	Ce	ell 2	Ce	II 3	
Timeslot Number		0	DwPTS	0	DwPTS	0	DwPTS	
UTRA RF Channel		Char	nnel 1	Char	nnel 1	Char	nel 1	
Number								
PCCPCH_Ec/lor	dB	-3		-3		-3		
DwPCH_Ec/lor	dB		0		0		0	
OCNS_Ec/lor	dB	-3		-3		-3		
\hat{I}_{or}/I_{oc}	dB	Ç	9	;	3	•	1	
I_{oc}	dBm/1.28			-7	9.5			
DOODOU DOOD	MHz	70.5	ı	70.5	ı	04.5		
PCCPCH RSCP (Note 1)	dBm	-73.5		-79.5		- 81.5		
Io (Note 1)	dBm/1.28 MHz			-6	69			
Initial Time Delay	Chip		1		5		7	
(^C init) (Note 2)								
(''''') (Note 2)					10		10	
Initial Frequency Shift (f_{init}) (Note 3)	Hz		20		40	-	-40	
Shift (5 thill) (Note 3)	_							
Initial Phase (ϕ_{init})	Degree		0	π	t/2		π	
(Note 4)				010	/GN			
Propagation condition				Avv	GN			
CONTUINION	L		Test 2					
Parameter	Unit	Ce	ell 1	Ce	ell 2	Ce	II 3	
Timeslot Number	Onit	0	DwPTS	0	DwPTS	0	DwPTS	
UTRA RF Channel			nnel 1		nnel 1		nel 1	
Number		Onai		Onai		Onai	iller i	
PCCPCH_Ec/lor	dB	-3		-3		-3		
DwPCH_Ec/lor	dB	-	0		0		0	
OCNS_Ec/lor	dB	-3		-3		-3	-	
\hat{I}_{or}/I_{oc}	dB		7		7		1	
I_{oc}	dBm/1.28			-6	0.5			
D00D011 D00D	MHz		I		I		T	
PCCPCH RSCP (Note 1)	dBm	-56.5		-56.5		-62.5		
Io (Note 1)	dBm/1.28 MHz			- {	50			
Initial Time Delay	Chip		1		5		7	
(C _{init}) (Note 2)								
Initial Frequency	Hz		20		40	-	-40	
Shift (f_{init}) (Note 3)								
Initial Phase (ϕ_{init}) (Note 4)	Degree		0	π	τ/2		π	
Propagation				AW	'GN	•		
condition								
	-		Test 3					
Parameter	Unit		ell 1		ell 2		II 3	
Timeslot Number		0	DwPTS	0	DwPTS	0	DwPTS	
UTRA RF Channel		Char	nnel 1	Char	nnel 1	Char	nel 1	
Number			ı		ı		T	
PCCPCH_Ec/lor	dB	-3		-3		-3		
DwPCH_Ec/lor	dB		0		0		0	
OCNS_Ec/lor	dB	-3		-3		-3		
\hat{I}_{or}/I_{oc}	dB	(3	;	3		3	
I_{oc}	dBm/1.28			-10	01.8	I		

	MHz						
PCCPCH RSCP	dBm	-101.8		-101.8		-101.8	
(Note 1)							
Io (Note 1)	dBm/1.28			-!	94		
	MHz						
Initial Time Delay	Chip		1		5		7
(C _{init}) (Note 2)							
Initial Frequency	Hz		20		40	-	-4 0
Shift (f_{init}) (Note 3)							
Initial Phase (ϕ_{init})	Degree		0	τ	t/2		π
(Note 4)							
Propagation			•	AW	'GN	•	•
condition							

Note 1: PCCPCH RSCP and lo levels are calculated from other parameters for information purposes.

Note 2: The delay of each base station (C) is moving between [0chips, 2chips] around the base point, that is, the

initial cell delay ($^{C_{init}}$). The delay variation interval is $\frac{1}{8}$ chip / 5ms C_n is the current subframe delay. The definition is as follows:

$$\begin{cases} c_n = c_{init} + \frac{1}{8} \times (n \mod 16), & \lfloor n/16 \rfloor \mod 2 = 0 \\ c_n = c_{init} + 2 - \frac{1}{8} \times (n \mod 16), & \lfloor n/16 \rfloor \mod 2 = 1 \end{cases}$$

Here, n is the difference between the current subframe and initial subframe in the cell.

Note 3: Frequency offset (f) is the difference between the actual transmit frequency and the nominal frequency in the cell. f is the frequency offset of the initial subframe, f is the frequency offset of the current subframe, and f is the frequency offset of the next subframe. The frequency offset variation interval is f 1Hz/5ms. The definition is as follows:

$$\begin{cases} f_{n+1} = f_n + \Delta \\ \Delta_{init} = 1 \\ \Delta = -\Delta, \text{ (if } f_n = \pm 100 \text{Hz)} \end{cases}$$

Here, n is the difference between the current subframe and initial subframe in the cell.

Note 4: The cell phase (ϕ) is changing continuously in the range of $[0,2\pi)$. ϕ_{init} is the initial phase of the cell,

 ϕ_n is the current subframe cell phase, and the phase variation interval is $\frac{\pi}{16}/5 \mathrm{ms}$. The definition is as follows:

$$\phi_n = (\phi_{init} + n \times \frac{\pi}{16}) \mod 2\pi$$

Here, n is the difference between the current subframe and initial subframe in the cell.

A.9.2.1.1.2 Inter frequency test parameters

P-CCPCH RSCP inter frequency relative accuracy requirements are tested by using test parameters in Table A.9.12.

Table A.9.12: P-CCPCH RSCP Inter frequency tests parameters

			Test 1			
Parameter	Unit		II 1		II 2	
Timeslot Number		0	DwPTS	0	DwPTS	
UTRA RF Channel Number (NOTE 2)		Char	nnel 1	Char	nnel 2	
PCCPCH_Ec/lor	dB	-3		-3		
DwPCH_Ec/lor	dB	-	0	-	0	
OCNS_Ec/lor	dB	-3		-3		
\hat{I}_{or}/I_{oc}	dB		5	:	5	
I_{oc}	dBm/ 1.28 MHz	-7:	5.2	-7	5.2	
PCCPCH RSCP, Note 1	dBm	-73.2		-73.2		
Io, Note 1	dBm/ 1.28 MHz		-(69		
Propagation condition			AW	/GN		
			Test 2			
Parameter	Unit	Ce	II 1	Ce	II 2	
Timeslot Number		0	DwPTS	0	DwPTS	
UTRA RF Channel Number (NOTE 2)		Channel 1		Char	hannel 2	
PCCPCH_Ec/lor	dB	-3		-3		
DwPCH_Ec/lor	dB		0		0	
OCNS_Ec/lor	dB	-3		-3		
\hat{I}_{or}/I_{oc}	dB		7		2	
I_{oc}	dBm/ 1.28 MHz	-5	7.8	-54.1		
PCCPCH RSCP, Note 1	dBm	-53.8		-55.1		
Io, Note 1	dBm/ 1.28 MHz			50		
Propagation condition			AW	/GN		
CONGRESION			Test 3			
Parameter	Unit	Ce	II 1	Ce	ell 2	
Timeslot Number		0	DwPTS	0	DwPTS	
UTRA RF Channel Number (NOTE 2)		Char	nnel 1	Char	nnel 2	
PCCPCH_Ec/lor	dB	-3		-3		
DwPCH_Ec/lor	dB		0		0	
OCNS_Ec/lor	dB	-3		-3		
\hat{I}_{or}/I_{oc}	dB	;	3		0	
I_{oc}	dBm/ 1.28 MHz	-98	8.7	-9	97	
PCCPCH RSCP, Note 1	dBm	-98.7		-100		
Io, Note 1	dBm/ 1.28 MHz	-94				
Propagation condition			AW	/GN		

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

NOTE2: In the case of multi-frequency network,the UTRA RF Channel Number can be set for the primary frequency in this test.

A.9.2.1.1.2A Inter-frequency absolute accuracy test parameters

P-CCPCH RSCP inter-frequency absolute accuracy requirement is tested by using test parameters in Table A.9.12a.

Table A.9.12a: P-CCPCH RSCP inter-frequency absolute accuracy test parameters

		Tes	st 1			
Parameter	Unit	(Cell 1 Cell 2			
Timeslot Number		0	DwPTS	0	DwPTS	
UTRA RF Channel		Ch	annel 1	Chann		
Number						
PCCPCH_Ec/lor	dB	-3		-3		
DwPCH_Ec/lor	dB		0		0	
OCNS_Ec/lor	dB	-3	-	-3		
ĵ /1	dB		5	5		
\hat{I}_{or}/I_{oc}						
I_{oc}	dBm/1.28 MHz	-	-75.2 ·	−75 .	2	
PCCPCH RSCP	dBm	-73.2		-73.2		
(Note 1)						
lo (Note 1)	dBm/1.28 MHz		-6			
Propagation condition			AW	GN		
		Tes	st 2			
Parameter	Unit	(Cell 1	Cell		
Timeslot Number		0	DwPTS	0	DwPTS	
UTRA RF Channel		Ch	annel 1	Chann	el 2	
Number						
PCCPCH_Ec/lor	dB	-3		-3		
DwPCH_Ec/lor	dB		0		0	
OCNS_Ec/lor	dB	-3		-3		
\hat{I}_{or}/I_{oc}	dB	7 2				
I_{oc}	dBm/1.28 MHz		-57.8	− 54.	1	
PCCPCH RSCP	dBm	-53.8		-55.1		
(Note 1)						
lo (Note 1)	dBm/1.28 MHz		- 5			
Propagation condition			AW	GN		
		Tes	t 3			
Parameter	Unit	(Cell 1	Cell	2	
Timeslot Number		0	DwPTS	0	DwPTS	
UTRA RF Channel		Ch	annel 1	Chann	el 2	
Number						
PCCPCH_Ec/lor	dB	-3		-3		
DwPCH_Ec/lor	dB		0		0	
OCNS_Ec/lor	dB	-3		-3		
\hat{I}_{or}/I_{oc}	dB		3	0		
I_{oc}	dBm/1.28 MHz		-98.7	-97	, 	
PCCPCH RSCP	dBm	-98.7		-100		
(Note 1)					<u> </u>	
lo (Note 1)	dBm/1.28 MHz		-6	94		
Propagation condition			AW	GN		
	RSCP and lo le	evels are calcu	lated from other pa	arameters for infor	mation	
purposes.		. 510 010 00100				

A.9.2.1.1.3 Local cell absolute accuracy test parameters

P-CCPCH RSCP local cell absolute accuracy requirements are tested by using test parameters in Table A.9.12b.

Table A.9.12b: P-CCPCH RSCP local cell absolute accuracy test parameters

		Test 1						
Parameter	Unit	(Cell 1					
Timeslot Number		0	DwPTS					
UTRA RF Channel		Ch	annel 1					
Number								
PCCPCH_Ec/lor	dB	0						
DwPCH_Ec/lor	dB		0					
\hat{I}_{or}	dBm/1.28	-	-76.6					
1 or	MHz							
PCCPCH RSCP	dBm	-76.6						
		Test 2						
Parameter	Unit		Cell 1					
Timeslot Number		0	DwPTS					
UTRA RF Channel		Ch	annel 1					
Number								
PCCPCH_Ec/lor	dB	0						
DwPCH_Ec/lor	dB		0					
\hat{I}_{or}	dBm/1.28		-85					
	MHz							
PCCPCH RSCP	dBm	- 85						
		Test 3						
Parameter	Unit		Cell 1					
Timeslot Number		0	DwPTS					
UTRA RF Channel		Ch	annel 1					
Number		_						
PCCPCH_Ec/lor	dB	0						
DwPCH_Ec/lor	dB		0					
\hat{I}_{or}	dBm/1.28 MHz		-90					
PCCPCH RSCP	dBm	-90						
	Test 4							
Parameter	Unit	Cell 1						
Timeslot Number		0	DwPTS					
UTRA RF Channel		Channel 1						
Number								
PCCPCH_Ec/lor	dB	0						
DwPCH_Ec/lor	dB		0					
\hat{I}_{or}	dBm/1.28 MHz	- 95						
PCCPCH RSCP	dBm	- 95						

A.9.2.1.1.4 Local cell in white noise test parameters

P-CCPCH RSCP local cell in white noise absolute accuracy requirements are tested by using test parameters in Table A.9.12c.

Table A.9.12c: P-CCPCH RSCP local-cell in white noise test parameters

		Test 1
Parameter	Unit	Cell 1
Timeslot Number		0 DwPTS
UTRA RF Channel Number		Channel 1
PCCPCH_Ec/lor	dB	0
DwPCH_Ec/lor	dB	0
\hat{I}_{or}/I_{oc}	dB	2
I_{oc}	dBm/1.28 MHz	-76.6
PCCPCH RSCP (Note 1)	dBm	-74.6
Propagation condition		AWGN
CONCILION		Test 2
Parameter	Unit	Cell 1
Timeslot Number		0 DwPTS
UTRA RF Channel Number		Channel 1
PCCPCH_Ec/lor	dB	0
DwPCH_Ec/lor	dB	0
\hat{I}_{or}/I_{oc}	dB	2
I_{oc}	dBm/1.28 MHz	-87
PCCPCH RSCP	dBm	-85
(Note 1)	GBIII	
Propagation		AWGN
condition		Test 3
Parameter	Unit	Cell 1
Timeslot Number	Offic	0 DwPTS
UTRA RF Channel		Channel 1
Number		Chamer
PCCPCH_Ec/lor	dB	0
DwPCH_Ec/lor	dB	0
\hat{I}_{or}/I_{oc}	dB	2
I_{oc}	dBm/1.28 MHz	-92
PCCPCH RSCP (Note 1)	dBm	-90
Propagation		AWGN
condition		
		Test 4
Parameter	Unit	Cell 1
Timeslot Number		0 DwPTS
UTRA RF Channel Number		Channel 1
PCCPCH_Ec/lor	dB	0
DwPCH_Ec/lor	dB	0
\hat{I}_{or}/I_{oc}	dB	2
I_{oc}	dBm/1.28 MHz	- 97
PCCPCH RSCP	dBm	-95
(Note 1) Propagation		AWGN
condition	200D cmd !- !-:	
	KOUP and to leve	Is are calculated from other parameters for information
purposes.		

A.9.2.1.2 Test Requirements

The P-CCPCH RSCP measurement accuracy shall meet the requirements in section 9.1.1.1.

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

A.9.2.2 CPICH measurements

A.9.2.2.1 CPICH RSCP

A.9.2.2.1.1 Test Purpose and Environment

The purpose of this test is to verify that the CPICH RSCP measurement accuracy is within the specified limits. This test will verify the requirements in section 9.1.1.2 and applies to UE"s supporting this capability.

The DL DPCH shall be transmitted in timeslot 4 and the UL DPCH shall be transmitted in timeslot 2.

A.9.2.2.1.1.1 Inter frequency test parameters

Cell 1 is a UTRA TDD cell and cell 2 is a UTRA FDD cell.

CPICH RSCP inter frequency absolute accuracy requirements are tested by using test parameters in Table A.9.13.

Table A.9.13: CPICH RSCP Inter frequency tests parameters

Parameter	Unit		Tes	st 1	Tes		st 2	
Parameter	Offic	Ce	II 1	Cell 2	Cell 1		Cell 2	
DL timeslot number		0	DwP TS	n.a.	0	DwP TS	n.a.	
UTRA RF Channel number (NOTE 3)		Char	nel 1	Channel 2	Char	nnel 1	Channel 2	
CPICH_Ec/lor	dB	n.	a.	-10	n.	a.	-10	
PCCPCH_Ec/lor	dB	-3		-12	-3		-12	
DwPCH_Ec/lor	dB		0	n.a.		0	n.a.	
SCH_Ec/lor	dB	n.	a.	-12	n.	a.	-12	
PICH_Ec/lor	dB	n.	a.	-15	n.	a.	-15	
OCNS_Ec/lor	dB	-3		-0.94	-3		-0.94	
loc, Note 2	dBm/ 3.84 MHz	n.	a.	-60	n.	a.	-84	
loc, Note 2	dBm/ 1.28 MHz	-5	7.7	n.a.	-8-	4.7	n.a.	
							_	
lor/loc	dB		7	9.54	;	3	0	
PCCPCH RSCP, Note 1	dBm	-53.7		n.a.	- 84.7		n.a.	
CPICH RSCP, Note 1	dBm	n.	a.	-60.46	n.	a.	-94	
Io, Notes 1, 2	dBm/3.84 MHz	n.	a.	-50	n.	a.	-81	
Io, Notes 1, 2	dBm/1.28 MHz	{	50	n.a.	-8	30	n.a.	
Propagation condition	-		AW	GN		AW	'GN	

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

NOTE 2: loc and lo are given independently for TDD and FDD cells.

NOTE 3: In the case of multi-frequency network of 1.28 Mcps TDD, the UTRA RF Channel Number can be set for the primary frequency in this test.

A.9.2.2.1.2 Test Requirements

The CPICH RSCP measurement accuracy shall meet the requirements in section 9.1.1.2.

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

A.9.2.2.2 CPICH Ec/lo

NOTE: This section is included for consistency with numbering in section 9, currently no test covering requirements in sections 9.1.1.3 exists.

A.9.2.3 Timeslot ISCP

A.9.2.3.1 Test Purpose and Environment

The purpose of this test is to verify that the Timeslot ISCP measurement accuracy is within the specified limits. This test will verify the requirements in section 9.1.1.3.

The DL DPCH shall be transmitted in timeslot 4 and the UL DPCH shall be transmitted in timeslot 2.

A.9.2.3.1.1 Intra frequency test parameters

The Timeslot ISCP intra frequency absolute accuracy requirements are tested by using test parameters in Table A.9.14.

Table A.9.14: Timeslot ISCP Intra frequency test parameters

			Test 1				
Parameter	Unit	Ce	ell 1	Cell 2			
Timeslot Number		0	DwPTS	0	DwPTS		
UTRA RF Channel		Char	anal 1	Char	anal 1		
Number (NOTE 2)		Channel 1		Char	ineri		
PCCPCH_Ec/lor	dB	-3		-3			
DwPCH_Ec/lor	dB		0		0		
OCNS_Ec/lor	dB	-3		-3			
\hat{I}_{or}/I_{oc}	dB		5	2	2		
I_{oc}	dBm/1.28 MHz		-7	76.6			
TS ISCP, Note 1	dBm	-74.6		-71.6			
Io, Note 1	dBm/1.28 MHz		-	69			
Propagation condition			AV	VGN			
CONGRECI			Test 2				
Parameter	Unit	Ce	ell 1	Ce	II 2		
Timeslot Number		0	DwPTS	0	DwPTS		
UTRA RF Channel		01		01			
Number (NOTE 2)		Char	nnel 1	Channel 1			
PCCPCH_Ec/lor	dB	-3		-3			
DwPCH_Ec/lor	dB		0		0		
OCNS_Ec/lor	dB	-3		-3			
\hat{I}_{or}/I_{oc}	dB	!	9	2	2		
I_{oc}	dBm/1.28 MHz		-6	60.2			
TS ISCP, Note 1	dBm	-58.2		-51.2			
Io, Note 1	dBm/1.28 MHz		-	50			
Propagation condition			AV	VGN			
Condition			Test 3				
Parameter	Unit	Ce	ell 1	Ce	II 2		
Timeslot Number	- Cinc	0	DwPTS	0	DwPTS		
UTRA RF Channel			nnel 1	Char			
Number (NOTE 2)	JE		· 		T		
PCCPCH_Ec/lor	dB	-3	0	-3			
DwPCH_Ec/lor	dB	2	0		0		
OCNS_Ec/lor	dB	-3	<u> </u>	-3	<u> </u>		
\hat{I}_{or}/I_{oc}	dB	5 3					
I_{oc}	dBm/1.28 MHz		-1	01.9			
TS ISCP, Note 1	dBm	-98.9		-96.9			
Io, Note 1	dBm/1.28 MHz	-94					
Propagation condition			AV	VGN			

NOTE 1: TS ISCP and lo levels have been calculated from other parameters for information

purposes. They are not settable parameters themselves.

NOTE 2: In the case of multi-frequency network, the UTRA RF Channel Number can be set for the primary frequency in this test.

A.9.2.3.2 Test Requirements

The Timeslot ISCP measurement accuracy shall meet the requirements in section 9.1.1.3.

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

A.9.2.4 UTRA carrier RSSI

A.9.2.4.1 Test Purpose and Environment

The purpose of this test is to verify that the UTRA Carrier RSSI measurement accuracy is within the specified limits. This test will verify the requirements in section 9.1.1.4.

The DL DPCH shall be transmitted in timeslot 4 and the UL DPCH shall be transmitted in timeslot 2.

A.9.2.4.1.1 Inter frequency test parameters

Both UTRA Carrier RSSI absolute and relative accuracy requirements are tested by using test parameters in Table A.9.15.

Table A.9.15: UTRA Carrier RSSI Inter frequency tests parameters

		Test 1					
Parameter	Unit	Ce	II 1	Ce	Cell 2		
Timeslot Number		0	DwPTS	0	DwPTS		
UTRA RF Channel		Char	nnel 1	Char	nnel 2		
Number (NOTE 2)			illel i	-3			
PCCPCH_Ec/lor	dB	-3	-3				
DwPCH_Ec/lor	dB		0		0		
OCNS_Ec/lor	dB	-3		-3			
\hat{I}_{or}/I_{oc}	dB		5	;	5		
I_{oc}	dBm/1.28 MHz	-79	5.2	-7	5.2		
Io, Note 1	dBm/1.28 MHz		-	69			
Propagation			A1/	VGN			
condition			Av	VGIN			
			Test 2				
Parameter	Unit	Се	II 1	Ce	ll 2		
Timeslot Number	<u> </u>	0	DwPTS	0	DwPTS		
UTRA RF Channel		Char	nnel 1	Char	nnel 2		
Number (NOTE 2)r					11161 2		
PCCPCH_Ec/lor	dB	-3		-3			
DwPCH_Ec/lor	dB		0		0		
OCNS_Ec/lor	dB	-3		-3			
\hat{I}_{or}/I_{oc}	dB		7]	2		
I_{oc}	dBm/1.28 MHz	-5	7.8	-5	4.1		
Io, Note 1	dBm/1.28 MHz		-	50			
Propagation condition			AV	VGN			
			Test 3				
Parameter	Unit		II 1	Ce	ell 2		
Timeslot Number		0	DwPTS	0	DwPTS		
UTRA RF Channel		Char	nnel 1	Char	nnel 2		
Number (NOTE 2)			11161 1				
PCCPCH_Ec/lor	dB	-3		-3			
DwPCH_Ec/lor	dB		0		0		
OCNS_Ec/lor	dB	-3		-3			
\hat{I}_{or}/I_{oc}	dB	3 0					
I_{oc}	dBm/1.28 MHz	-98.7 -97					
Io, Note 1	dBm/1.28 MHz	-94					
Propagation condition		data diferensi alla si	AV	VGN	Th		

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

NOTE 2: In the case of multi-frequecny network, the UTRA RF Channel Number is the primary frequency s channel number.

A.9.2.4.2 Test Requirements

The UTRA Carrier RSSI absolute and relative measurement accuracy shall meet the requirements in section 9.1.1.4.

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

A.9.2.5 GSM carrier RSSI

A.9.2.5.1 Test Purpose and Environment

The purpose of this test is to verify that the GSM Carrier RSSI measurement accuracy is within the specified limits. This test will verify the requirements in section 9.1.1.5.

Cell 1 is a UTRA TDD cell and cell 2 is a GSM cell. In the measurement control information it is indicated to the UE that periodic reporting of the GSM carrier RSSI measurement is used.

The DL DPCH shall be transmitted in timeslot 4 and the UL DPCH shall be transmitted in timeslot 2.

A.9.2.5.1.1 Inter RAT test parameters

GSM carrier RSSI accuracy requirements are tested by using test parameters in Table A.9.16A and A.9.16B.

The limits of the GSM test parameters are defined in [21].

Table A.9.16A: General GSM Carrier RSSI test parameters

Parameter	Unit	Value	Comment
DCH parameters		DL reference measurement channel 12.2 kbps	As specified in TS 25.102 section A.2.2
Power Control		On	
Target quality value on DTCH	BLER	0.01	
Inter-RAT measurement quantity		GSM carrier RSSI	
BSIC verification required		No	
Monitored cell list size		6 GSM neighbours including ARFCN 1	

Table A.9.16B: Cell 1 specific GSM Carrier RSSI test parameters

Parameter	Unit	Cell 1			
DL timeslot number		0	DwPTS		
UTRA RF Channel number (NOTE)		Channel 1			
PCCPCH_Ec/lor	dB	-3			
DwPCH_Ec/lor	dB		0		
OCNS_Ec/lor	dB	-3			
Îor/loc	dB	(3		
loc	dBm / 1.28MHz	-70			
Propagation condition		AW	AWGN		
NOTE: In the case of multi-frequency, the UTRA RF Channel Number can be set for the primary frequency in this test.					

A.9.2.5.2 Test Requirements

The GSM Carrier RSSI measurement accuracy shall meet the requirements in section 9.1.5.

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

A.9.2.6 SIR

NOTE: This section is included for consistency with numbering in section 9, currently no test covering requirements in sections 9.1.1.6 exists.

A.9.2.7 Transport channel BLER

NOTE: This section is included for consistency with numbering in section 9, currently no test covering requirements in sections 9.1.1.7 exists.

A.9.2.8 SFN-SFN observed time difference

A.9.2.8.1 SFN-SFN observed time difference type 1

A.9.2.8.1.1 Test Purpose and Environment

The purpose of this test is to verify that the SFN-SFN observed time difference type 1 measurement accuracy is within the specified limits. This test will verify the requirements in section 9.1.1.8.

Cell 1 and cell 2 shall be synchronised. During the test, the timing difference between cell 1 and cell 2 can be set to valid values in the range 0...3276800 chip.

The DL DPCH shall be transmitted in timeslot 4 and the UL DPCH shall be transmitted in timeslot 2.

A.9.2.8.1.1.1 Intra frequency test parameters

The SFN-SFN observed time difference type 1 accuracy requirements in the intra-frequency case are tested by using test parameters in Table A.9.17.

Table A.9.17: SFN-SFN observed time difference type 1 Intra frequency test parameters

	Test 1						
Parameter	Unit	Ce	ell 1	Cell 2			
Timeslot Number		0	DwPTS	0	DwPTS		
UTRA RF Channel		Ol		Ob			
Number (NOTE 2)		Cnar	nnel 1	Channel 1			
PCCPCH_Ec/lor	dB	-3		-3			
DwPCH_Ec/lor	dB		0		0		
OCNS_Ec/lor	dB	-3		-3			
\hat{I}_{or}/I_{oc}	dB		5	2	2		
I_{oc}	dBm/1. 28 MHz		-7	6.6	,		
PCCPCH RSCP, Note 1	dBm	-74.6		-77.6			
Io, Note 1	dBm/1. 28 MHz	-69					
Propagation condition				/GN			
		Test 2					
Parameter	Unit		ell 1		II 2		
Timeslot Number		0	DwPTS	0	DwPTS		
UTRA RF Channel Number (NOTE 2)		Channel 1		Channel 1			
PCCPCH_Ec/lor	dB	-3		-3			
DwPCH_Ec/lor	dB		0		0		
OCNS_Ec/lor	dB	-3		-3			
\hat{I}_{or}/I_{oc}	dB	!	9	2	2		
I_{oc}	dBm/1. 28 MHz		-6	50.2			
PCCPCH RSCP, Note 1	dBm	-54.2		-61.2			
Io, Note 1	dBm/1. 28 MHz		-	50			
Propagation condition			AV	/GN			
			Test 3				
Parameter	Unit		ell 1		II 2		
Timeslot Number		0	DwPTS	0	DwPTS		
UTRA RF Channel Number (NOTE 2)		Char	nnel 1	Channel 1			
PCCPCH_Ec/lor	dB	-3		-3			
DwPCH_Ec/lor	dB		0		0		
OCNS_Ec/lor	dB	-3		-3			
\hat{I}_{or}/I_{oc}	dB		5	;	3		
I_{oc}	dBm/1. 28 MHz		-10)1.9			
PCCPCH RSCP, Note 1	dBm	-99.9		-101.9			
Io, Note 1	dBm/1. 28 MHz	-94					
Propagation condition			AV	/GN			

NOTE 1: PCCPCH RSCP and lo levels have been calculated from other parameters for information

purposes. They are not settable parameters themselves.

NOTE 2: In the case of multi-frequency network, the UTRA RF Channel Number can be set for the primary frequency in this test.

A.9.2.8.1.1.2 Inter frequency test parameters

The SFN-SFN observed time difference type 1 accuracy requirements in the inter-frequency case are tested by using test parameters in Table A.9.18.

Table A.9.18: SFN-SFN observed time difference type 1 Inter frequency tests parameters

			Test 1				
Parameter	Unit	Ce	II 1	Ce	Cell 2		
Timeslot Number		0	DwPTS	0	DwPTS		
UTRA RF Channel		Char	nnel 1	Char	nnel 2		
Number (NOTE 2)		Cilai	IIIEI I		IIIEI Z		
PCCPCH_Ec/lor	dB	-3		-3			
DwPCH_Ec/lor	dB		0		0		
OCNS_Ec/lor	dB	-3		-3			
\hat{I}_{or}/I_{oc}	dB	!	5	!	5		
I_{oc}	dBm/1.28 MHz	-7:	5.2	-7:	5.2		
PCCPCH RSCP, Note 1	dBm	-73.2		-73.2			
Io, Note 1	dBm/1.28 MHz		-	69			
Propagation condition		AWGN					
			Test 2				
Parameter	Unit	Ce	II 1	Ce	II 2		
Timeslot Number		0	DwPTS	0	DwPTS		
UTRA RF Channel Number (NOTE 2)		Channel 1		Char	nnel 2		
PCCPCH_Ec/lor	dB	-3		-3			
DwPCH_Ec/lor	dB		0		0		
OCNS_Ec/lor	dB	-3		-3	Ŭ		
\hat{I}_{or}/I_{oc}	dB	7			<u> </u>		
I_{oc}	dBm/1.28 MHz	-5	7.8	-54.1			
PCCPCH RSCP, Note 1	dBm	-53.8		-55.1			
lo, Note 1	dBm/1.28 MHz		-	50			
Propagation			AV	VGN			
condition			Test 3				
Parameter	Unit	Ce	II 1	Ce	II 2		
Timeslot Number		0	DwPTS	0	DwPTS		
UTRA RF Channel		Char	nnel 1	Char	nnel 2		
Number (NOTE 2)		Criai	IIIGI I	Orial			
PCCPCH_Ec/lor	dB	-3		-3			
DwPCH_Ec/lor	dB		0		0		
OCNS_Ec/lor	dB	-3		-3			
\hat{I}_{or}/I_{oc}	dB	;	3	()		
I_{oc}	dBm/1.28 MHz	-98.7		-{	97		
PCCPCH RSCP, Note 1	dBm	-98.7		-100			
Io, Note 1	dBm/1.28 MHz	-94					
Propagation condition			AV	VGN			
	Ol bne 9029	levels have been calculated from other parameters for information					

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

NOTE 2: In the case of multi-frequency network, the UTRA RF Channel Number can be set for the primary frequency.

A.9.2.8.1.2 Test Requirements

The SFN-SFN observed time difference type 1 measurement accuracy shall meet the requirements in section 9.1.1.8.

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

A.9.2.8.2 SFN-SFN observed time difference type 2

A.9.2.8.2.1 Test Purpose and Environment

The purpose of this test is to verify that the SFN-SFN observed time difference type 2 measurement accuracy is within the specified limits. This test will verify the requirements in section 9.1.1.8.

Cell 1 and cell 2 shall be synchronised and share the same frame timing. During the test, the timing difference between cell 1 and cell 2 can be set to valid values in the rang from -432 to 432 chip.

The DL DPCH shall be transmitted in timeslot 4 and the UL DPCH shall be transmitted in timeslot 2.

A.9.2.8.2.1.1 Intra frequency test parameters

The SFN-SFN observed time difference type 2 accuracy requirements in the intra-frequency case are tested by using test parameters in Table A.9.18A.

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Table A.9.18A: SFN-SFN observed time difference type 2 Intra frequency test parameters

			Test 1			
Parameter	Unit	Ce	ell 1	Ce		
Timeslot Number		0	DwPTS	0	DwPTS	
UTRA RF Channel		Char	nnel 1	Channel 1		
Number (NOTE 2)						
PCCPCH_Ec/lor	dB	-3		-3		
DwPCH_Ec/lor	dB		0		0	
OCNS_Ec/lor	dB	-3		-3		
\hat{I}_{or}/I_{oc}	dB		5	2	2	
I_{oc}	dBm/1. 28 MHz		-7	6.6		
PCCPCH RSCP, Note 1	dBm	-74.6		-77.6		
Io, Note 1	dBm/1. 28 MHz		-(69		
Propagation condition			AW	/GN		
			Test 2			
Parameter	Unit	Ce	ell 1	Ce	II 2	
Timeslot Number		0	0 DwPTS		DwPTS	
UTRA RF Channel Number (NOTE 2)		Channel 1		Channel 1		
PCCPCH_Ec/lor	dB	-3		-3		
DwPCH_Ec/lor	dB		0		0	
OCNS_Ec/lor	dB	-3		-3		
\hat{I}_{or}/I_{oc}	dB	!	9	2		
I_{oc}	dBm/1. 28 MHz		-6	0.2		
PCCPCH RSCP, Note 1	dBm	-54.2		-61.2		
Io, Note 1	dBm/1. 28 MHz			50		
Propagation condition			AW	/GN		
			Test 3			
Parameter	Unit	Ce	ell 1	Cell 2		
Timeslot Number		0	DwPTS	0	DwPTS	
UTRA RF Channel		Char	nnel 1	Channel 1		
Number (NOTE 2)						
PCCPCH_Ec/lor	dB	-3		-3		
DwPCH_Ec/lor	dB		0		0	
OCNS_Ec/lor	dB	-3		-3		
\hat{I}_{or}/I_{oc}	dB	5 3			3	
I_{oc}	dBm/1. 28 MHz		-10)1.9		
PCCPCH RSCP, Note 1	dBm	-99.9		-101.9		
Io, Note 1	dBm/1. 28 MHz	-94				
Propagation condition			ΑW	/GN		
NOTE 1: DCCDCH DC	00 11					

NOTE 1: PCCPCH RSCP and lo levels have been calculated from other parameters for information

purposes. They are not settable parameters themselves.

NOTE2: In the case of multi-frequency network, the UTRA RF Channel Number can be set for the primary frequency in this test.

A.9.2.8.2.1.2 Inter frequency test parameters

The SFN-SFN observed time difference type 2 accuracy requirements in the inter-frequency case are tested by using test parameters in Table A.9.18B.

Table A.9.18B: SFN-SFN observed time difference type 2 Inter frequency tests parameters

0	ell 1 DwPTS nnel 1	0 Cha	DwPTS	
Cha	-		•	
-3	nnel 1	Cha		
			nnei 2	
	-3			
-3	0	-3	0	
		-3		
	5		5	
28 -7	75.2	-7	5.2	
-73.2		-73.2		
28	-(69		
	AW	/GN		
	Test 2			
			ell 2	
0	DwPTS	0	DwPTS	
Cha	Channel 1		nnel 2	
-3		-3		
	0		0	
-3		-3		
	7	2		
-5	57.8	-54.1		
-53.8		-55.1		
28	-{	50		
	AW	/GN		
	Test 3			
C		Ce	ell 2	
0	DwPTS	0	DwPTS	
Cha	nnel 1	Cha	nnel 2	
-3		-3		
-	0	-	0	
-3		-3		
	3		0	
-9	-98.7		97	
-98.7	-98.7			
28	-94			
	AW	/GN		
	28 -73.2 28	5	5 28 -75.2 -73.2 -73.2 28 -69 AWGN Test 2 Cell 1 0 DwPTS 0 Channel 1 Cha -3 -3 -3 7 28 -57.8 -53.8 -55.1 28 Cell 1 Cell 1 Cell 1 Cell 1 Cell 1 Cell 1 Coll 1	

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

NOTE2: In the case of multi-frequency network, the UTRA RF Channel Number can be set for the primary frequency"s channel number.

A.9.2.8.2.2 Test Requirements

The SFN-SFN observed time difference type 2 measurement accuracy shall meet the requirements in section 9.1.1.8.

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

A.9.2.9 Observed time difference to GSM cell

NOTE: This section is included for consistency with numbering in section 9, currently no test covering requirements in sections 9.1.1.9 exists.

A.9.2.10 SFN-CFN observed time difference

A.9.2.10.1 Test Purpose and Environment

The purpose of this test is to verify that the SFN-CFN observed time difference measurement accuracy is within the specified limits. This test will verify the requirements in section 9.1.1.10.

Cell 1 and cell 2 shall be synchronised. During the test, the timing difference between cell 1 and cell 2 can be set to any value from 0...256 frames.

The DL DPCH shall be transmitted in timeslot 4 and the UL DPCH shall be transmitted in timeslot 2.

A.9.2.10.1.1 Intra frequency test parameters

The SFN-CFN observed time difference accuracy requirements in the intra-frequency case are tested by using test parameters in Table A.9.19.

Table A.9.19: SFN-CFN observed time difference Intra frequency test parameters

			Test 1			
Parameter	Unit	Ce	II 1	Се	II 2	
Timeslot Number		0	DwPTS	0	DwPTS	
UTRA RF Channel		Char	nnel 1	Channel 1		
Number (NOTE 2)						
PCCPCH_Ec/lor	dB	-3		-3		
DwPCH_Ec/lor	dB		0		0	
OCNS_Ec/lor	dB	-3		-3		
\hat{I}_{or}/I_{oc}	dB		5	2	2	
I_{oc}	dBm/1.28 MHz		-7	6.6		
PCCPCH RSCP, Note 1	dBm	-74.6		-77.6		
Io, Note 1	dBm/1.28 MHz		-(69		
Propagation condition		AWGN				
Condition		Test 2				
Parameter	Unit	Ce	II 1	Ce	II 2	
Timeslot Number		0			DwPTS	
UTRA RF Channel Number (NOTE 2)		Channel 1		0 DwPTS Channel 1		
PCCPCH_Ec/lor	dB	-3		-3		
DwPCH_Ec/lor	dB	-3	0	-3	0	
OCNS_Ec/lor	dB	-3	Ŭ	-3	Ŭ	
\hat{I}_{or}/I_{oc}	dB		9		2	
I_{oc}	dBm/1.28		-6	0.2		
PCCPCH RSCP,	MHz		-	- 		
Note 1	dBm	-54.2		-61.2		
Io, Note 1	dBm/1.28 MHz		-!	50		
Propagation condition			AW	/GN		
Condition			Test 3			
Parameter	Unit	Ce	II 1	Ce	II 2	
Timeslot Number		0	DwPTS	0	DwPTS	
UTRA RF Channel						
Number (NOTE 2)		Char	nnel 1	Chan	inel 1	
PCCPCH_Ec/lor	dB	-3		-3		
DwPCH_Ec/lor	dB		0		0	
OCNS_Ec/lor	dB	-3		-3		
\hat{I}_{or}/I_{oc}	dB		5	3	3	
I_{oc}	dBm/1.28 MHz	-101.9				
PCCPCH RSCP, Note 1	dBm	-99.9	-99.9			
Io, Note 1	dBm/1.28 MHz	-94				
Propagation condition		AWGN				

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

NOTE2: In the case of multi-frequency network, the UTRA RF Channel Number can be set for the

primary frequency in this test.

A.9.2.10.1.2 Inter frequency test parameters

The SFN-CFN observed time difference accuracy requirements in the inter-frequency case are tested by using test parameters in Table A.9.20.

Table A.9.20: SFN-CFN observed time difference Inter frequency tests parameters

			Test 1			
Parameter	Unit	Ce	II 1	Ce	II 2	
Timeslot Number		0	DwPTS	0	DwPTS	
UTRA RF Channel		Char	anal 1	Channel 2		
Number (NOTE 2)		Char	inei i	Char	iriei Z	
PCCPCH_Ec/lor	dB	-3		-3		
DwPCH_Ec/lor	dB		0		0	
OCNS_Ec/lor	dB	-3		-3		
\hat{I}_{or}/I_{oc}	dB	ļ	5	į	5	
I_{oc}	dBm/1.28 MHz	-75	5.2	-75	5.2	
PCCPCH RSCP, Note 1	dBm	-73.2		-73.2		
Io, Note 1	dBm/1.28 MHz		-1	69		
Propagation condition		AWGN				
			Test 2			
Parameter	Unit	Ce	II 1	Ce	II 2	
Timeslot Number		0	0 DwPTS		DwPTS	
UTRA RF Channel Number (NOTE 2)		Channel 1		0 DwPTS Channel 2		
PCCPCH_Ec/lor	dB	-3		-3		
DwPCH_Ec/lor	dB		0		0	
OCNS_Ec/lor	dB	-3	<u> </u>	-3	<u> </u>	
\hat{I}_{or}/I_{oc}	dB	7		2		
I_{oc}	dBm/1.28 MHz	-57	7.8	-54.1		
PCCPCH RSCP, Note 1	dBm	-53.8		-55.1		
Io, Note 1	dBm/1.28 MHz			50		
Propagation condition			AW	/GN		
COTTOLLION			Test 3			
Parameter	Unit	Се		Ce	II 2	
Timeslot Number		0	DwPTS	0	DwPTS	
UTRA RF Channel		Chair		Char	•	
Number (NOTE 2)		Char	inel I	Char	inel Z	
PCCPCH_Ec/lor	dB	-3		-3		
DwPCH_Ec/lor	dB		0		0	
OCNS_Ec/lor	dB	-3		-3		
\hat{I}_{or}/I_{oc}	dB	;	3	()	
I_{oc}	dBm/1.28 MHz	-98	3.7	-9	97	
PCCPCH RSCP, Note 1	dBm	-98.7		-100		
Io, Note 1	dBm/1.28 MHz	-94				
Propagation condition			AW	/GN		
NOTE 4 BOODONS	000					

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

NOTE2: In the case of multi-frequency network, the UTRA RF Channel Number can be set for the primary frequency in this test.

A.9.2.10.2 Test Requirements

The SFN-CFN observed time difference measurement accuracy shall meet the requirements in section 9.1.1.10.

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

A.9.2.11 UE transmitted power

A.9.2.11.1 Test purpose and Environment

The purpose of the test is to verify that the UE transmitted power measurement accuracy is within the specified limits. This test will verify the requirements in section 9.1.2.1.

The test parameters are given in Table A.9.21 and A.9.22 below. In the measurement control information it shall be indicated to the UE that periodic reporting of the UE transmitted power measurement shall be used.

The DL DPCH shall be transmitted in timeslot 4 and the UL DPCH shall be transmitted in timeslot 2.

Table A.9.21: General test parameters for UE transmitted power

Parameter	Unit	Value	Comment
DCH parameters		DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.102 section A.2.2
Power Control		On	
Target quality value on DTCH	BLER	0.01	

Table A.9.22: Cell Specific parameters for UE transmitted power

Parameter	Unit	Cell 1				
Timeslot Number		0	DwPTS			
UTRA RF Channel Number (NOTE 2)		Cha	nnel 1			
PCCPCH_Ec/lor	dB	-3				
DwPCH_Ec/lor	dB		0			
OCNS_Ec/lor	dB	-3				
\hat{I}_{or}/I_{oc}	dB	3				
I_{oc}	dBm/1.28 MHz	-	70			
PCCPCH RSCP, Note 1	dBm	-	70			
Propagation Condition		AWGN				

NOTE 1: PCCPCH RSCP level has been calculated from other parameters for information purposes. They are not settable parameters themselves.

NOTE2: In the case of multi-frequency network, the UTRA RF Channel

Number can be set for the primary frequency in this test.

A.9.2.11.1.1 Test procedure

- 1) Set the UE power and Maximum allowed UL TX power to the maximum power for that UE power class specified in section 9.1.2.1.
- 2) Send continuously Up power control commands to the UE during the entire test.
- 3) Check the UE reported value
- 4) Map the UE reported value to accuracy requirement and define the test limits
- 5) Measure the output power of the UE. The output power shall be averaged over one timeslot.
- 6) Check that the measured UE transmitted power is within the limits defined in step 4).
- 7) Decrease the Maximum allowed UL TX power with 1dB and signal the new value to the UE.
- 8) Repeat from step 3) until the entire specified range for the UE transmitted power measurement has been tested, i.e. the accuracy requirement for the UE transmitted power measurement is specified 10dB below the maximum power for the UE power class specified in section 9.1.2.1.

A.9.2.11.2 Test requirements

The UE transmitted power measurement accuracy shall meet the requirements in section 9.1.2.1.

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

A.9.3 Measurement Performance for UE (7.68 Mcps TDD option)

A.9.3.1 P-CCPCH RSCP

A.9.3.1.1 Test Purpose and Environment

The purpose of this test is to verify that the P-CCPCH RSCP measurement accuracy is within the specified limits. This test will verify the requirements in section 9.1.1.1.

Cell 1 and cell 2 shall be synchronised, i.e. share the same frame and timeslot timing. The DL DPCH shall be transmitted in timeslot 4 and the UL DPCH shall be transmitted in timeslot 12.

A.9.3.1.1.1 Intra frequency test parameters

In this case all cells are on the same frequency. The second Beacon timeslot shall be provided in timeslot 8 for both cell 1 and cell 2.

Both P-CCPCH RSCP intra frequency absolute and relative accuracy requirements are tested by using test parameters in Table A.9.23.

Table A.9.23: P-CCPCH RSCP Intra frequency test parameters

Parameter	Unit	Tes	st 1	Test 2		Test 3	
Parameter	Onit	Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
DL timeslot number		0	0	0	0	0	0
UTRA RF Channel number		Char	nel 1	Char	nnel 1	Char	nel 1
PCCPCH_Ec/lor	dB	-	3	-	3	-	3
SCH_Ec/lor	dB	-9		-9 -9		-9	
SCH_t _{offset}		0	5	0	5	0	5
OCNS_Ec/lor	dB	-3,12		-3,12		-3,12	
loc	dBm / 7.68 MHz	z -75.7		-59.8		-98	3.7
Îor/loc	dB	5	2	9	2	3	0
PCCPCH RSCP, Note 1	dBm	-73.7	-76.7	-53.8	-60.8	-98.7	-101.7
Io, Note 1	dBm / 7.68 MHz	-6	§9	-50		-(94
Propagation condition		AW	'GN	AW	/GN	AW	'GN

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

A.9.3.1.1.2 Inter frequency test parameters

In this case both cells are on different frequencies. The second Beacon timeslot shall be provided in timeslot 8 for cell 1 and in timeslot 10 for cell 2.

P-CCPCH RSCP inter frequency relative accuracy requirements are tested by using test parameters in Table A.9.24.

Table A.9.24: P-CCPCH RSCP Inter frequency tests parameters

Parameter	Unit	Tes	st 1	Tes	st 2	Test 3	
Parameter	Unit	Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
DL timeslot number		0	2	0	2	0	2
UTRA RF Channel		Channel 1	Channel 2	Channel 1	Channel 2	Channel 1	Channel 2
number		Chamber	Charmer 2	Chamilei	Charmer 2	Chamer	Charmer 2
PCCPCH_Ec/lor	dB	ï	3	=	3	-	·3
SCH_Ec/lor	dB	T	9	-	9	-	.9
SCH_t _{offset}		0	5	0	5	0	5
OCNS_Ec/lor	dB	-3,	12	-3,	,12	-3,12	
loc	dBm / 7.68 MHz	-75.2	-75.2	-57.8	-54.1	-98.7	-97
Îor/loc	dB	5	5	7	2	3	0
PCCPCH RSCP, Note 1	dBm	-73.2	-73.2	-54.8	-55.1	-98.7	-100
Io, Note 1	dBm / 7.68 MHz	-69		-5	50	-94	
Propagation condition		AWGN		AWGN		AWGN	

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

A.9.3.1.2 Test Requirements

The P-CCPCH RSCP measurement accuracy shall meet the requirements in section 9.1.1.1.

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

A.9.3.2 CPICH measurements

A.9.3.2.1 CPICH RSCP

A.9.3.2.1.1 Test Purpose and Environment

The purpose of this test is to verify that the CPICH RSCP measurement accuracy is within the specified limits. This test will verify the requirements in section 9.1.1.2 and applies to UE"s supporting this capability.

The DL DPCH shall be transmitted in timeslot 1 and the UL DPCH shall be transmitted in timeslot 3.

A.9.3.2.1.1.1 Inter frequency test parameters

In this case both cells are on different frequencies. Cell 1 is a UTRA TDD cell and cell 2 is a UTRA FDD cell. No second Beacon timeslot shall be provided for cell 1.

CPICH RSCP inter frequency absolute accuracy requirements are tested by using test parameters in Table A.9.25.

Table A.9.25: CPICH RSCP Inter frequency tests parameters

Parameter	Unit	Tes	st 1	Tes	st 2
Parameter	Offic	Cell 1	Cell 2 Cell 1 Cell 2 n.a. 0 n.a. Channel 2 Channel 1 Channel 2 -10 n.a. -10 -12 -3 -12 -12 -9 -12 n.a. 5 n.a. -15 n.a. -15 -0.94 -3.12 -0.94 -60 -84.7 -84 9.54 3 0 n.a. -84.7 n.a. -60.46 n.a. -94 -50 -80 -81	Cell 2	
DL timeslot number		0	n.a.	0	n.a.
UTRA RF Channel number		Channel 1	Channel 2	Channel 1	Channel 2
CPICH_Ec/lor	dB	n.a.	-10	n.a.	-10
PCCPCH_Ec/lor	dB	-3	-12	-3	-12
SCH_Ec/lor	dB	-9	-12	-9	-12
SCH_t _{offset}		5	n.a.	5	n.a.
PICH_Ec/lor	dB	n.a.	-15	n.a.	-15
OCNS_Ec/lor	dB	-3.12	-0.94	-3.12	-0.94
loc	dBm/ 7.68 MHz	-57.7	-60	-84.7	-84
Îor/loc	dB	7	9.54	3	0
PCCPCH RSCP, Note 1	dBm	-53.7	n.a.	-84.7	n.a.
CPICH RSCP, Note 1	dBm	n.a.	-60.46	n.a.	-94
Io, Note 1	dBm/ 7.68 MHz	-50	-50	-80	-81
Propagation condition	-	AWGN			

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

A.9.3.2.1.2 Test Requirements

The CPICH RSCP measurement accuracy shall meet the requirements in section 9.1.1.2.

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

A.9.3.2.2 CPICH Ec/lo

NOTE: This section is included for consistency with numbering in section 9, currently no test covering requirements in sections 9.1.1.3 exists.

A.9.3.3 Timeslot ISCP

A.9.3.3.1 Test Purpose and Environment

The purpose of this test is to verify that the Timeslot ISCP measurement accuracy is within the specified limits. This test will verify the requirements in section 9.1.1.3.

Cell 1 and cell 2 shall be synchronised, i.e. share the same frame and timeslot timing. The DL DPCH shall be transmitted in timeslot 4 and the UL DPCH shall be transmitted in timeslot 12.

A.9.3.3.1.1 Intra frequency test parameters

In this case all cells are on the same frequency. The second Beacon timeslot shall be provided in timeslot 8 for both cell 1 and cell 2.

The Timeslot ISCP intra frequency absolute accuracy requirements are tested by using test parameters in Table A.9.26.

Table A.9.26: Timeslot ISCP Intra frequency test parameters

Parameter	Unit	Tes	st 1	Tes	st 2	Tes	st 3
Parameter	Onit	Cell 1	Cell 2	Cell 1	Cell 2	-98. 3 -98.7	Cell 2
DL timeslot number		0	0	0	0	0	0
UTRA RF Channel number		Char	nel 1	Char	nel 1	Char	nel 1
PCCPCH_Ec/lor	dB	-	3	-	3	-	3
SCH_Ec/lor	dB	-9		-9		-9	
SCH_t _{offset}		0	5	0	5	0	5
OCNS_Ec/lor	dB	-3,	12	-3,12		-3,12	
loc	dBm / 7.68 MHz	-7	5.7	-59.8		-98.7	
Îor/loc	dB	5	2	9	2	3	0
Timeslot ISCP, Note 1	dBm	-73.7	-70.7	-57.8	-50.8	-98.7	-95.7
Io, Note 1	dBm / 7.68 MHz	-69		-50		-94	
Propagation condition		AW	'GN	AW	'GN	AWGN	

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

A.9.3.3.2 Test Requirements

The Timeslot ISCP measurement accuracy shall meet the requirements in section 9.1.1.3.

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

A.9.3.4 UTRA Carrier RSSI

A.9.3.4.1 Test Purpose and Environment

The purpose of this test is to verify that the UTRA Carrier RSSI measurement accuracy is within the specified limits. This test will verify the requirements in section 9.1.1.4.

Cell 1 and cell 2 shall be synchronised, i.e. share the same frame and timeslot timing. The DL DPCH shall be transmitted in timeslot 4 and the UL DPCH shall be transmitted in timeslot 12.

A.9.3.4.1.1 Inter frequency test parameters

In this case both cells are on different frequencies. The second Beacon timeslot shall be provided in timeslot 8 for cell 1 and in timeslot 10 for cell 2.

Both UTRA Carrier RSSI absolute and relative accuracy requirements are tested by using test parameters in Table A.9.27.

AWGN

Test 1 Test 2 Test 3 **Parameter** Unit Cell 2 Cell 1 Cell 1 Cell 2 Cell 1 Cell 2 DL timeslot number 0 2 0 UTRA RF Channel Channel 1 Channel 2 Channel 1 Channel 2 Channel 1 Channel 2 number PCCPCH_Ec/lor dB -3 -3 -3 SCH_Ec/lor dB -9 -9 -9 SCH_toffset 0 5 0 5 0 5 OCNS_Ec/lor -3.12 -3.12 dΒ -3.12 dBm/ loc -75.2 -75.2 -57.8 -54.1 -98.7 -97 7.68 MHz Îor/loc dB 5 5 2 3 0 dBm / Io, Note 1 -69 -50 -94 7.68 MHz Propagation **AWGN AWGN**

Table A.9.27: UTRA Carrier RSSI Inter frequency tests parameters

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

A.9.3.4.2 **Test Requirements**

condition

The UTRA Carrier RSSI absolute measurement accuracy shall meet the requirements in section 9.1.1.4.

The UTRA Carrier RSSI relative measurement accuracy shall meet the requirements in Table A.9.28 by taking into account the effect of thermal noise and noise added by the receiver.

Accuracy [dB] Conditions **Parameter** Unit lo [dBm/7.68 **Normal condition Extreme condition** MHz] dBm -4...5.2 -7...8.2 -94...-87 -87...-70 **UTRA Carrier RSSI** dBm dBm -70...-50 ± 6 ± 9

Table A.9.28: UTRA Carrier RSSI relative accuracy

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

A.9.3.5 GSM carrier RSSI

A.9.3.5.1 Test Purpose and Environment

The purpose of this test is to verify that the GSM Carrier RSSI measurement accuracy is within the specified limits. This test will verify the requirements in section 9.1.5.

Cell 1 is a UTRA TDD cell and cell 2 is a GSM cell. The Beacon timeslot shall be provided in timeslot 0 and no second Beacon timeslot shall be provided for cell 1. In the measurement control information it is indicated to the UE that periodic reporting of the GSM carrier RSSI measurement is used. The DL DPCH shall be transmitted in timeslot 1 and the UL DPCH shall be transmitted in timeslot 3.

A.9.3.5.1.1 Inter frequency test parameters

GSM carrier RSSI accuracy requirements are tested by using test parameters in Table A.9.29 and A.9.30.

The limits of the GSM test parameters are defined in [21].

Table A.9.29: General GSM Carrier RSSI test parameters

Parameter	Unit	Value	Comment
DCH parameters		DL reference measurement channel 12.2 kbps	As specified in TS 25.102 section A.2.2
Power Control		On	
Target quality value on DTCH	BLER	0.01	
Inter-RAT measurement quantity		GSM carrier RSSI	
BSIC verification required		No	
Monitored cell list size		6 GSM neighbours including ARFCN 1	

Table A.9.30: Cell 1 specific GSM Carrier RSSI test parameters

Parameter	Unit	Се	II 1		
DL timeslot number		0	1		
UTRA RF Channel number		Chan	nel 1		
PCCPCH_Ec/lor	dB	-3	n.a.		
SCH_Ec/lor	dB	-9	n.a.		
SCH_t _{offset}		0	n.a.		
OCNS_Ec/lor	dB	-3,12	Note 2		
DPCH_Ec/lor	dB	n.a.	Note 1		
Îor/loc	dB	6	6		
Io, Note 1	dBm / 7.68 MHz	-7	-70		
Propagation condition		AW	GN		
Note 1: The DPCH level is Note 2: The power of the O					

the total power from the cell to be equal to lor.

A.9.3.5.2 Test Requirements

The GSM Carrier RSSI measurement accuracy shall meet the requirements in section 9.1.5.

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

A.9.3.6 (void)

A.9.3.7 (void)

A.9.3.8 SFN-SFN observed time difference

A.9.3.8.1 SFN-SFN observed time difference type 1

A.9.3.8.1.1 Test Purpose and Environment

The purpose of this test is to verify that the SFN-SFN observed time difference type 1 measurement accuracy is within the specified limits. This test will verify the requirements in section 9.1.1.8.

Cell 1 and cell 2 shall be synchronised, i.e. share the same frame and timeslot timing. During the test, the timing difference between cell 1 and cell 2 can be set to any value from 0...19660800 chip.

The DL DPCH shall be transmitted in timeslot 4 and the UL DPCH shall be transmitted in timeslot 12. The second Beacon timeslot shall be provided in timeslot 8 for cell 1 and in timeslot 10 for cell 2.

A.9.3.8.1.1.1 Intra frequency test parameters

In this case all cells are on the same frequency. The SFN-SFN observed time difference type 1 accuracy requirements in the intra-frequency case are tested by using test parameters in Table A.9.31.

Table A.9.31: SFN-SFN observed time difference type 1 Intra frequency test parameters

Parameter	Unit	Tes	est 1		st 2	Те	st 3	
rarameter	Onit	Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2	
DL timeslot number		0	2	0	2	0	2	
UTRA RF Channel		Chan	nol 1	Chai	anal 1	Chai	anal 1	
number		Cilai	illel i	Cital	Channel 1		Channel 1	
PCCPCH_Ec/lor	dB	ï	3		-3	-	-3	
SCH_Ec/lor	dB	-9		-	.9	-9		
SCH_t _{offset}		0	5	0	5	0	5	
OCNS_Ec/lor	dB	-3,	12	-3	,12	-3,12		
loc	dBm / 7.68 MHz	-75.2	-75.2	-57.8	-54.7	-98.7	-98.7	
Îor/loc	dB	5	5	7	3	3	3	
Io, Note 1	dBm / 7.68 MHz	-69		-:	50	-94		
Propagation condition		AWGN		AWGN		AWGN		

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

A.9.3.8.1.1.2 Inter frequency test parameters

In this case both cells are on different frequencies. The SFN-SFN observed time difference type 2 accuracy requirements in the inter-frequency case are tested by using test parameters in Table A.9.32.

Table A.9.32: SFN-SFN observed time difference type 1 Inter frequency tests parameters

Parameter	Unit	Tes	st 1	Tes	st 2	t 2 Test 3		
Farameter	Unit	Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2	
DL timeslot number		0	2	0	2	0	2	
UTRA RF Channel		Channel 1	Channel 2	Channel 1	Channel 2	Channel 1	Channel 2	
number		Chamber	Charmer 2	Charmer	Charmer 2	Charmer	Chamber 2	
PCCPCH_Ec/lor	dB	-3		=	3	-	3	
SCH_Ec/lor	dB	-9		-	9	-9		
SCH_t _{offset}		0	5	0	5	0	5	
OCNS_Ec/lor	dB	-3,	12	-3,	,12	-3,12		
loc	dBm / 7.68 MHz	-75.2	-75.2	-57.8	-54.7	-98.7	-98.7	
Îor/loc	dB	5	5	7	3	3	3	
Io, Note 1	dBm / 7.68 MHz	-69		-5	50	-94		
Propagation condition		AW	'GN	AWGN		AWGN		

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

A.9.3.8.1.2 Test Requirements

The SFN-SFN observed time difference type 1 measurement accuracy shall meet the requirements in section 9.1.1.8.

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

A.9.3.8.2 SFN-SFN observed time difference type 2

A.9.3.8.2.1 Test Purpose and Environment

The purpose of this test is to verify that the SFN-SFN observed time difference type 2 measurement accuracy is within the specified limits. This test will verify the requirements in section 9.1.1.8.

Cell 1 and cell 2 shall be synchronised, i.e. share the same frame and timeslot timing. During the test, the timing difference between cell 1 and cell 2 can be set to any value from -2560 ... +2560 chip.

The DL DPCH shall be transmitted in timeslot 4 and the UL DPCH shall be transmitted in timeslot 12. The second Beacon timeslot shall be provided in timeslot 8 for cell 1 and in timeslot 10 for cell 2.

A.9.3.8.2.1.1 Intra frequency test parameters

In this case all cells are on the same frequency. The SFN-SFN observed time difference type 2 accuracy requirements in the intra-frequency case are tested by using test parameters in Table A.9.33.

Table A.9.33: SFN-SFN observed time difference type 2 Intra frequency test parameters

Parameter	Unit	Test 1		Те	Test 2		Test 3	
Parameter	Unit	Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2	
DL timeslot number		0	2	0	2	0	2	
UTRA RF Channel		Char	inel 1	Chai	nnel 1	Cha	nnel 1	
number		Cital		Cital	Channel 1		Channel 1	
PCCPCH_Ec/lor	dB	=:	3	-	-3		-3	
SCH_Ec/lor	dB	-9			-9		-9	
SCH_t _{offset}		0	5	0	5	0	5	
OCNS_Ec/lor	dB	-3,	12	-3	,12	-3	-3,12	
loc	dBm / 7.68 MHz	-75.2	-75.2	-57.8	-54.7	-98.7	-98.7	
Îor/loc	dB	5	5	7	3	3	3	
Io, Note 1	dBm / 7.68 MHz	-69		-:	50	-94		
Propagation condition		AW	GN	AWGN		AWGN		

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

A.9.3.8.2.1.2 Inter frequency test parameters

In this case both cells are on different frequencies. The SFN-SFN observed time difference type 2 accuracy requirements in the inter-frequency case are tested by using test parameters in Table A.9.34.

Table A.9.34: SFN-SFN observed time difference type 2 Inter frequency tests parameters

Parameter	Unit	Tes	st 1	Tes	st 2	Те	st 3
Farameter	Onit	Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
DL timeslot number		0	2	0	2	0	2
UTRA RF Channel		Channel 1	Channel 2	Channel 1	Channel 2	Channel 1	Channel 2
number		Chameri	Chamileiz	Chamilei	Chamerz	Chameri	Chamilei 2
PCCPCH_Ec/lor	dB	=	3		3	-	3
SCH_Ec/lor	dB	-9		-	9	-9	
SCH_t _{offset}		0	5	0	5	0	5
OCNS_Ec/lor	dB	-3,	12	-3,	,12	-3	,12
loc	dBm / 7.68 MHz	-75.2	-75.2	-57.8	-54.7	-98.7	-98.7
Îor/loc	dB	5	5	7	3	3	3
Io, Note 1	dBm / 7.68 MHz	-69		-5	50	-94	
Propagation condition		AW	GN	AWGN		AWGN	

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

A.9.3.8.2.2 Test Requirements

The SFN-SFN observed time difference type 2 measurement accuracy shall meet the requirements in section 9.1.1.8.

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

A.9.3.9 Observed time difference to GSM cell

NOTE: This section is included for consistency with numbering in section 9, currently no test covering requirements in sections 9.1.1.9 exists.

A.9.3.10 SFN-CFN observed time difference

A.9.3.10.1 Test Purpose and Environment

The purpose of this test is to verify that the SFN-CFN observed time difference measurement accuracy is within the specified limits. This test will verify the requirements in section 9.1.1.10.

Cell 1 and cell 2 shall be synchronised, i.e. share the same frame and timeslot timing. During the test, the timing difference between cell 1 and cell 2 can be set to any value from 0...256 frames.

The DL DPCH shall be transmitted in timeslot 4 and the UL DPCH shall be transmitted in timeslot 12. The second Beacon timeslot shall be provided in timeslot 8 for cell 1 and in timeslot 10 for cell 2.

A.9.3.10.1.1 Intra frequency test parameters

In this case all cells are on the same frequency. The SFN-CFN observed time difference accuracy requirements in the intra-frequency case are tested by using test parameters in Table A.9.35.

Table A.9.35: SFN-CFN observed time difference Intra frequency test parameters

Parameter	Unit	Tes	st 1	Те	st 2	Test 3		
Farameter	Onit	Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2	
DL timeslot number		0	2	0	2	0	2	
UTRA RF Channel		Chan	nol 1	Char	anal 1	Char	nnel 1	
number		Chan	iriei i	Chai	Channel 1		iriei i	
PCCPCH_Ec/lor	dB	-;	3	-	-3	-	3	
SCH_Ec/lor	dB	-!	9	-	-9		-9	
SCH_t _{offset}		0	5	0	5	0	5	
OCNS_Ec/lor	dB	-3,	12	-3	,12	-3	,12	
loc	dBm / 7.68 MHz	-75.2	-75.2	-57.8	-54.7	-98.7	-98.7	
Îor/loc	dB	5	5	7	3	3	3	
Io, Note 1	dBm / 7.68 MHz	-69			50	-94		
Propagation condition		AW	GN	AWGN		AWGN		

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

A.9.3.10.1.2 Inter frequency test parameters

In this case both cells are on different frequencies. The SFN-CFN observed time difference accuracy requirements in the inter-frequency case are tested by using test parameters in Table A.9.36.

Table A.9.36: SFN-CFN observed time difference Inter frequency tests parameters

Parameter	Unit	Tes	st 1	Tes	st 2	Te	st 3
Parameter	Unit	Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
DL timeslot number		0	2	0	2	0	2
UTRA RF Channel number		Channel 1	Channel 2	Channel 1	Channel 2	Channel 1	Channel 2
PCCPCH_Ec/lor	dB	=	3		3	-	3
SCH_Ec/lor	dB	-9		-	9	-9	
SCH_t _{offset}		0	5	0	5	0	5
OCNS_Ec/lor	dB	-3,	12	-3,	12	-3,12	
loc	dBm / 7.68 MHz	-75.2	-75.2	-57.8	-54.7	-98.7	-98.7
Îor/loc	dB	5	5	7	3	3	3
Io, Note 1	dBm / 7.68 MHz	-69		-5	50	-94	
Propagation condition		AW	'GN	AWGN		AWGN	

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

A.9.3.10.2 Test Requirements

The SFN-CFN observed time difference measurement accuracy shall meet the requirements in section 9.1.1.10.

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

A.9.3.11 UE transmitted power

NOTE: This section is included for consistency with numbering in section 9, currently no test covering requirements in sections 9.1.1.11 exists.

A.9.2.5a E-UTRA RSRP

A.9.2.5a.1 E-UTRAN FDD RSRP

A.9.2.5a.1.1 Test Purpose and Environment

The purpose of this test is to verify that the E-UTRA FDD RSRP measurement absolute accuracy is within the specified limits. This test will verify the requirements in section 9.1.1.5a and applies to UE supporting this capability.

Cell 1 is a UTRA TDD cell and cell 2 is a E-UTRA cell. In all tests, Cell 1 is the serving cell and Cell 2 the target cell. In the measurement control information it is indicated to the UE that periodic reporting of the E-UTRA RSRP measurement is used.

Idle interval of 80ms period as defined in TS25.331 is provided.

A.9.2.5a.1.2 Test parameters

E-UTRA FDD RSRP accuracy requirements are tested by using test parameters in Table A.9.2.5a.1-1, A.9.2.5a.1-2 and A.9.2.5a.1-3.

Table A.9.2.5a.1-1: General E-UTRA RSRP test parameters

Parameter	Unit	Value	Comment
DCH parameters		DL Reference Measurement Channel	As specified in TS 25.102 section A.2.2
		12.2 kbps	
Power Control		On	
Target quality value on DTCH	BLER	0.01	
Active cell		Cell 1	1.28Mcps TDD cell
Neighbour cell		Cell 2	E-UTRA FDD cell
CP length of cell 2		normal	
Idle intervals period	ms	80	As specified in TS 25.331
Filter coefficient		0	L3 filtering is not used
Inter-RAT(E-UTRA FDD)		E-UTRA FDD RSRP	
measurement quantity			

Table A.9.2.5a.1-2: Cell specific test parameters for E-UTRA RSRP test parameters (cell 1)

Parameter	Unit	Test 1,	Test 2	
DL timeslot number		0	DwPTS	
UTRA RF Channel number (NOTE)		Channel 1		
PCCPCH_Ec/lor	dB	-3		
DwPCH_Ec/lor	dB		0	
OCNS_Ec/lor	dB	-3		
Îor/loc	dB	3		
loc	dBm / 1.28MHz	-75		
Propagation condition		AW	AWGN	
NOTE: In the case of multi-frequency, the UTRA RF Channel Number can be set for the primary frequency in this test.				

Table A.9.2.5a.1-3: Cell specific test parameters for E-UTRA RSRP test parameters (cell 2)

Р	arameter	Unit	Test 1	Test 2
E-UTRA RF C	Channel Number		1	1
BW _{channel}		MHz	10	10
Measurement	bandwidth	$n_{{\it PRB}}$	22—27	22—27
PDCCH/PCFI				
	easurement channel		R.6 FDD	R.6 FDD
defined in A.3				
OCNG Patter A.3.2.1.2 (OP			OP.2 FDD	OP.2 FDD
PBCH_RA	.2100)			
PBCH_RB				
PSS_RA				
SSS_RA				
PCFICH_RB				
PHICH_RA		dB	0	0
PHICH_RB PDCCH RA		иБ	U	U
PDCCH_RB				
PDSCH_RA				
PDSCH_RB				
OCNG_RANOT	e1			
OCNG_RB ^{Not}				
$N_{oc}^{$	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24	dBm/15 kHz		-117
	Bands 2, 5, 7 and 27		-88.65	-115
	Band 25			-113.5
	Band 28			-115.5
	Bands 3, 8, 12, 13, 14, 17, 20 and 22			-114
	Band 9			-116
\hat{E}_s/I_{ot}		dB	10	-4
	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24			-121
	Bands 2, 5, 7 and 27		-78.65	-119
RSRP ^{Note3}	Band 25	dBm/15 kHz		-117.5
	Band 28			-119.5
	Bands 3, 8, 12, 13, 14, 17, 20 and 22			-118
	Band 9	•		-120
	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24			-87.76
	Bands 2, 5, 7 and 27			-85.76
Io ^{Note3}	Band 25	dBm/9 MHz	-49.5	-84.26
	Band 28	32.170 WII IZ	10.0	-86.26
	Bands 3, 8, 12, 13, 14, 17, 20			-84.76
	and 22 Band 9			.06 76
\hat{E}_s/N_{oc}	Daliu 9	dB	10	-86. 76 -4
	andition	35		
Propagation o		-	AWGN ully allocated and a c	AWGN

Note 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols.

be constant over subcarriers and time and shall be modelled as AWGN of appropriate power for $N_{\it ac}$ to be fulfilled.

Note 3: RSRP and lo levels have been derived from other parameters for information purposes. They are not settable parameters themselves.

Note 4: RSRP minimum requirements are specified assuming independent interference and noise at each receiver antenna port.

A.9.2.5a.1.3 Test Requirements

The E-UTRA RSRP measurement absolute accuracy shall meet the requirements in section 9.1.1.5a.

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

A.9.2.5a.2 E-UTRAN TDD RSRP

A.9.2.5a.2.1 Test Purpose and Environment

The purpose of this test is to verify that the E-UTRA TDD RSRP measurement absolute accuracy is within the specified limits. This test will verify the requirements in section 9.1.1.5a and applies to UE supporting this capability.

The DL DPCH shall be transmitted in timeslot 4 and the UL DPCH shall be transmitted in timeslot 2. Idle interval of 80ms period as defined in TS25.331 is provided. In the measurement control information it is indicated to the UE that periodic reporting of the E-UTRA RSRP measurement is used.

A.9.2.5a.2.2 Test parameters

In this set of test cases there are two cells. Cell 1 is a UTRA TDD cell and cell 2 is a E-UTRA TDD cell. In all test cases, Cell 1 is the serving cell and Cell 2 is the target cell. The RSRP absolute accuracy requirements are tested by using test parameters in Table A.9.2.5a.2-1, Table A.9.2.5a.2-2, and Table A.9.2.5a.2-3.

Table A.9.2.5a.2-1: General parameters of E-UTRA TDD RSRP measurement tests

Parameter	Unit	Value	Comment
DCH parameters		DL Reference Measurement	As specified in TS 25.102
·		Channel 12.2 kbps	section A.2.2
Power Control		On	
Target quality value on DTCH	BLER	0.01	
Active cell		Cell 1	1.28Mcps UTRA TDD cell
Neighbour cell		Cell 2	E-UTRA TDD cell
CP length of cell 2		Normal	
Uplink-downlink configuration of		1	As specified in table 4.2.2 in
cell 2			TS 36.211
Special subframe configuration of		6	As specified in table 4.2.1 in
cell 2			TS 36.211
Idle intervals period	ms	80	As specified in TS 25.331
Filter coefficient		0	L3 filtering is not used
Inter-RAT(E-UTRA TDD)		E-UTRA TDD RSRP	
measurement quantity			

Table A.9.2.5a.2-2: E-UTRA TDD RSRP measurement tests parameters (cell 1)

Parameter	Unit	Test 1, Test 2	
DL timeslot number		0	DwPTS
UTRA RF Channel number Note2		Char	nel 1
PCCPCH_Ec/lor	dB	-3	
DwPCH_Ec/lor	dB		0
OCNS_Ec/lor	dB	-3	
loc	dBm/1.28MHz	-75	
Îor/loc	dB	3	
PCCPCH RSCP Note1	dBm	-75	
lo Note 1	dBm/1.28MHz	-70.24	
Propagation condition		AW	'GN

NOTE 1: PCCPCH RSCP and lo levels have been calculated from other parameters for information purposes. They are not settable

parameters themselves.

NOTE 2: In the case of multi-frequency network of 1.28 Mcps TDD, the UTRA RF Channel Number can be set for the primary frequency in this test.

Table A.9.2.5a.2-3: E-UTRA TDD RSRP measurement tests parameters (cell 2)

	Parameter	Unit	Test 1	Test 2
E-UTRA RF Cha	annel Number		2	2
BWchannel		MHz	10	10
OCNG Patterns	defined in A.3.2.2.2 (OP.2		OP.2 TDD	OP.2 TDD
TDD) in [24]			OF.2 100	OF.Z TDD
PBCH_RA				
PBCH_RB				
PSS_RA				
SSS_RA				
PCFICH_RB				
PHICH_RA				
PHICH_RB		dB	0	0
PDCCH_RA				
PDCCH_RB				
PDSCH_RA				
PDSCH_RB				
OCNG_RA ^{Note1}				
OCNG_RB ^{Note1}				
3.7 Note2	Bands 33 ~ 40			-117
$N_{oc}^{ m Note2}$	Bands 42 and 43	dBm/15 kHz	-88.65	-116
	Bands 41 and 44			-115
\hat{E}_s / I_{ot}		dB	10	-4
	Bands 33 ~ 40			-121
RSRP ^{Note3}	Bands 42 and 43	dBm/15 kHz	-78.65	-120
	Bands 41 and 44			-119
	Bands 33 ~ 40			-87.76
Io ^{Note3}	Bands 42 and 43	dBm/9 MHz	-49.5	-86.76
	Bands 41 and 44			-85.76
\hat{E}_s / N_{oc}		dB	10	-4
Propagation con	dition	-	AWGN	AWGN

Note 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols.

Note 2: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and shall be modelled as AWGN of appropriate power for $\,N_{oc}\,$ to be fulfilled.

Note 3: RSRP and lo levels have been derived from other parameters for information purposes. They are not settable parameters themselves.

Note 4: RSRP minimum requirements are specified assuming independent interference and noise at each receiver antenna port.

A.9.2.5a.1.3 Test Requirements

The RSRP measurement accuracy shall meet the requirements in section 9.1.1.5a.

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

A.9.2.5b E-UTRA RSRQ

A.9.2.5b.1 E-UTRAN FDD RSRQ

A.9.2.5b.1.1 Test Purpose and Environment

The purpose of this test is to verify that the E-UTRA FDD RSRQ measurement absolute accuracy is within the specified limits. This test will verify the requirements in section 9.1.1.5b and applies to UE supporting this capability.

Cell 1 is a UTRA TDD cell and cell 2 is a E-UTRA FDD cell. In all tests, Cell 1 is the serving cell and Cell 2 the target cell. In the measurement control information it is indicated to the UE that periodic reporting of the E-UTRA RSRQ measurement is used.

Idle interval of 80ms period as defined in TS25.331 is provided.

A.9.2.5b.1.2 Test parameters

E-UTRA FDD RSRQ accuracy requirements are tested by using test parameters in Table A.9.2.5b.1-1, A.9.2.5b.1-2, and A.9.2.5b.1-3.

Table A.9.2.5b.1-1: General E-UTRA RSRQ test parameters

Parameter	Unit	Value	Comment
DCH parameters		DL Reference Measurement Channel	As specified in TS 25.102 section A.2.2
		12.2 kbps	
Power Control		On	
Target quality value on	BLER	0.01	
DTCH			
Active cell		Cell 1	1.28Mcps TDD cell
Neighbour cell		Cell 2	E-UTRA FDD cell
CP length of cell 2		normal	
Idle intervals period	ms	80	As specified in TS 25.331
Filter coefficient		0	L3 filtering is not used
Inter-RAT(E-UTRA FDD)		E-UTRA FDD RSRQ	
measurement quantity			

Table A.9.2.5b.1-2: Cell specific test parameters for E-UTRA RSRQ test parameters (cell 1)

Parameter	Unit	Test 1, Test 2		
DL timeslot number		0	DwPTS	
UTRA RF Channel number (NOTE)		Channel 1		
PCCPCH_Ec/lor	dB	-3		
DwPCH_Ec/lor	dB		0	
OCNS_Ec/lor	dB	-3		
Îor/loc	dB	3		
loc	dBm / 1.28MHz	-75		
Propagation condition		AWGN		
NOTE: In the case of multi-frequency, the UTRA RF Channel Number can be set for the primary frequency in this test.				

Table A.9.2.5b.1-3: Cell specific test parameters for E-UTRA RSRQ test parameters (cell 2)

Pa	arameter	Unit	Test 1	Test 2	Test 3
E-UTRA RF Channel Number			1	1	1
Bwchannel		MHz	10	10	10
Measurement		$n_{\it PRB}$	22—27	22—27	22—27
PDCCH/PCFIC Reference me	CH/PHICH asurement channel		R.6 FDD	R.6 FDD	R.6 FDD
defined in A.3. OCNG Pattern					
A.3.2.1.1 (OP.	1 FDD) and		OP.2 FDD	OP.2 FDD	OP.2 FDD
A.3.2.1.2 (OP.	2 FDD)				
PBCH_RA PBCH_RB					
PSS_RA					
SSS_RA					
PCFICH_RB					
PHICH_RA					
PHICH_RB		dB	0	0	0
PDCCH_RA PDCCH_RB					
PDSCH_RA					
PDSCH_RB					
OCNG_RA ^{Note}	1				
OCNG_RB ^{Note}					
	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24				-119.50
) A7	Bands 2, 5, 7 and 27	dBm/15 kHz	-80	-104.70	-117.50
$N_{oc\ { m Note2}}$	Band 25				-116.00
	Band 28				-118.00
	Bands 3, 8, 12, 13, 14, 17, 20 and 22				-116.50
	Band 9				-118.50
$\hat{\mathbf{E}}_{\mathrm{s}}/\mathbf{I}_{\mathrm{ot}}$		dB	-1.75	-4.0	-4.0
	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24				-123.50
	Bands 2, 5, 7 and 27	dBm/15 kHz		-108.70	-121.50
RSRP ^{Note3}	Band 25		-81.75		-120.00
	Band 28	IXI IZ			-122.00
	Bands 3, 8, 12, 13, 14, 17, 20 and 22				-120.50
	Band 9				-122.50
	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24 Bands 2, 5, 7 and 27				
RSRQ ^{Note3}	Band 25 Band 28 Bands 3, 8, 12, 13, 14, 17, 20 and 22 Band 9	dB	-14.76	-16.25	-16.25
lo ^{Note3}	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24	dBm/9	-50	-75.46	-90.26
	Bands 2, 5, 7 and 27	MHz			-88.26

Band 25				-86.76
Band 28				-88.76
Bands 3, 8, 12, 13, 14, 17, 20 and 22				-87.26
Band 9				-89.26
\hat{E}_s/N_{oc}	dB	-1.75	-4.0	-4.0
Propagation condition	-	AWGN	AWGN	AWGN

- Note 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols.
- Note 2: Interference from other cells and noise sources not specified in the test is assumed to be constant over
- subcarriers and time and shall be modelled as AWGN of appropriate power for $^{IV}_{oc}$ to be fulfilled. Note 3: RSRQ, RSRP and lo levels have been derived from other parameters for information purposes. They are not settable parameters themselves.
- Note 4: RSRP and RSRQ minimum requirements are specified assuming independent interference and noise at each receiver antenna port.

A.9.2.5b.1.3 Test Requirements

The E-UTRA RSRQ measurement absolute accuracy shall meet the requirements in section 9.1.1.5b.

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

A.9.2.5b.2 E-UTRAN TDD RSRQ

A.9.2.5b.2.1 Test Purpose and Environment

The purpose of this test is to verify that the E-UTRA TDD RSRQ absolute measurement accuracy is within the specified limits. This test will verify the requirements in section 9.1.1.5b and applies to UE supporting this capability.

The DL DPCH shall be transmitted in timeslot 4 and the UL DPCH shall be transmitted in timeslot 2. Idle interval of 80ms period as defined in TS25.331 is provided. In the measurement control information it is indicated to the UE that periodic reporting of the E-UTRA RSRQ measurement is used.

A.9.2.5b.2.2 Test parameters

In this set of test cases there are two cells. Cell 1 is a UTRA TDD cell and cell 2 is a E-UTRA TDD cell. The RSRQ absolute accuracy requirements are tested by using test parameters in Table A.9.2.5b.2-1, Table A.9.2.5b.2-2 and Table A.9.2.5b.2-3. In all test cases, Cell 1 is the serving cell and Cell 2 is the target cell.

Table A.9.2.5b.2-1: General parameters of E-UTRA TDD RSRQ measurement tests

Parameter	Unit	Value	Comment
DCH parameters		DL Reference Measurement	As specified in TS 25.102
·		Channel 12.2 kbps	section A.2.2
Power Control		On	
Target quality value on DTCH	BLER	0.01	
Active cell		Cell 1	1.28Mcps UTRA TDD cell
Neighbour cell		Cell 2	E-UTRA TDD cell
CP length of cell 2		Normal	
Uplink-downlink configuration of		1	As specified in table 4.2.2 in
cell 2			TS 36.211
Special subframe configuration of		6	As specified in table 4.2.1 in
cell 2			TS 36.211
Idle intervals period	ms	80	As specified in TS 25.331
Filter coefficient		0	L3 filtering is not used
Inter-RAT(E-UTRA TDD)		E-UTRA TDD RSRQ	
measurement quantity			

Table A.9.2.5b.2-2: E-UTRA TDD RSRQ measurement tests parameters (cell 1)

DL timeslot number 0 UTRA RF Channel number Note2 Channel PCCPCH_Ec/lor dB -3 DwPCH_Ec/lor dB -3	nd Test 3	
PCCPCH_Ec/lor dB -3 DwPCH_Ec/lor dB	DwPTS	
DwPCH_Ec/lor dB	1	
OCNC Follow	0	
OCNS_Ec/lor dB -3		
loc dBm/1.28MHz -75		
Îor/loc dB 3		
PCCPCH RSCP Note1 dBm -75		
lo Note 1 dBm/1.28MHz -70.24	-70.24	
Propagation condition AWGN	AWGN	

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

NOTE 2: In the case of multi-frequency network of 1.28 Mcps TDD, the UTRA RF Channel Number can be set for the primary frequency in this test.

Table A.9.2.5b.2-3: E-UTRA TDD RSRP measurement tests parameters (cell 2)

	Parameter	Unit	Test 1	Test 2	Test 3
E-UTRA RF Ch	annel Number		2	2	2
BWchannel		MHz	10	10	10
OCNG Patterns	defined in A.3.2.2.2 (OP.2		OD 3 TDD		
TDD) in [24]	·		OP.2 TDD	OP.2 TDD	OP.2 TDD
PBCH_RA					
PBCH_RB					
PSS_RA					
SSS_RA					
PCFICH_RB					
PHICH_RA					
PHICH_RB		dB	0	0	0
PDCCH_RA					
PDCCH_RB					
PDSCH_RA					
PDSCH_RB]			
OCNG_RA ^{Note1}	OCNG_RA ^{Note1}				
OCNG_RB ^{Note1}					
a a Natao	Bands 33 – 40				-119.50
$N_{oc}^{ m Note2}$	Bands 42 and 43	dBm/15 kHz	-80	-104.70	-118.50
	Bands 41 and 44				-117.50
\hat{E}_s / I_{ot}		dB	-1.75	-4.0	-4.0
	Bands 33 - 40				-123.50
RSRP ^{Note3}	Bands 42 and 43	dBm/15 kHz	-81.75	-108.70	-122.50
	Bands 41 and 44				-121.50
RSRQ ^{Note3}	Bands 33 - 44	dB	-14.76	-16.25	-16.25
	Bands 33 – 40				-90.26
Io ^{Note3}	Bands 42 and 43	dBm/9 MHz	-50	-75.46	-89.26
	Bands 41 and 44				-88.26
\hat{E}_s / N_{oc}		dB	-1.75	-4.0	-4.0
Propagation cor	ndition	-	AWGN	AWGN	AWGN

Note 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols.

Note 2: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and shall be modelled as AWGN of appropriate power for N_{ac} to be fulfilled.

Note 3: RSRP, RSRQ and lo levels have been derived from other parameters for information purposes. They are not settable parameters themselves.

Note 4: RSRP and RSRQ minimum requirements are specified assuming independent interference and noise at each receiver antenna port.

A.9.2.5b.2.3 Test Requirements

The RSRQ measurement accuracy shall meet the requirements in section 9.1.1.5b.

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

Annex B (normative): Conditions for RRM requirements applicability for operating bands

B.1. Conditions for Idle mode

B.1.1. Conditions for measurements of inter-RAT E-UTRA cells

This section defines the E-UTRAN RSRP, RSRP Ês/Iot, SCH_RP and SCH Ês/Iot applicable for a corresponding operating band.

The conditions for measurements of inter-RAT E-UTRAN cells are defined in Table B.1.1-1

Table B.1.1-1. Conditions for measurements of inter-RAT E-UTRA cells

Parameter	Conditions						
	Bands	Bands	Bands	Bands	Bands	Bands	
	1, 4, 6, 10, 11, 18, 19, 21, 23, 24, 33, 34, 35, 36, 37, 38, 39, 40	9, 42, 43	2, 5, 7, 27, 41, 44	3, 8, 12, 13, 14, 17, 20, 22	25	28	
RSRP _{dBm} ≥	-124 dBm	-123 dBm	-122 dBm	-121 dBm	-120.5dBm	-122.5dBm	
SCH_RP _{dBm} ≥	-124 dBm	-123 dBm	-122 dBm	-121 dBm	-120.5dBm	-122.5dBm	
RSRP Ês/lot≥	-4 dB						
SCH Ês/lot ≥	-4 dB						

B.2. Conditions for UE Measurements Procedures

B.2.1. Conditions for identification of a new cell in CELL_DCH State (3.84 Mcps option)

This section defines the E-UTRAN RSRP, RSRP Ês/Iot, SCH_RP and SCH Ês/Iot applicable for a corresponding operating band.

The conditions for identification of a new cell in CELL_DCH State (3.84 Mcps option) are defined in Table B.2.1-1

Table B.2.1-1. Conditions for identification of a new cell in CELL_DCH State

Parameter	Conditions						
	Bands	Bands	Bands	Bands	Bands	Bands	
	1, 4, 6, 10,	9, 42, 43	2, 5, 7, 27,	3, 8, 12,	25	28	
	11, 18, 19,		41, 44	13, 14, 17,			
	21, 23, 24,			20, 22			
	33, 34, 35, 36, 37, 38,						
	39, 40						
RSRP _{dBm} ≥	-125 dBm	-124 dBm	-123 dBm	-122 dBm	-121.5dBm	-123.5dBm	
SCH_RP _{dBm} ≥	-125 dBm	-124 dBm	-123 dBm	-122 dBm	-121.5dBm	-123.5dBm	
RSRP Ês/lot≥	-4 dB						
SCH RP/lot ≥	-4 dB						

B.2.2. Conditions for identification of a new cell in CELL_DCH State (1.28 Mcps option)

This section defines the E-UTRAN RSRP, RSRP $\hat{E}s/Iot$, SCH_RP and SCH $\hat{E}s/Iot$ applicable for a corresponding operating band.

The conditions for identification of a new cell in CELL_DCH State (1.28 Mcps option) are defined in Table B.2.1-1

B.2.3. Conditions for identification of a new cell in CELL_DCH State (7.68 Mcps option)

This section defines the E-UTRAN RSRP, RSRP $\hat{E}s/Iot$, SCH_RP and SCH $\hat{E}s/Iot$ applicable for a corresponding operating band.

The conditions for identification of a new cell in CELL_DCH State (7.68 Mcps option) are defined in Table B.2.1-1

Annex B (informative): Change History

Table B.1: Change History

TSG	Doc	CR	R	Title	Cat	Curr	New	Work Item
RP-31				Release 7 created following decision at RAN #31		6.6.0	7.0.0	
RP-32	RP-060313	0363		Intra frequency mobility requirement during a MBMS session	В	7.0.0	7.1.0	MBMS-RAN-RF- TDD
RP-32	RP-060311	0364		7.68 Mcps Idle Mode Cell Selection & Reselection	В	7.0.0	7.1.0	VHCRTDD-RF
RP-32	RP-060311	0365		7.68 Mcps UTRAN Connected Mode Mobility	В	7.0.0	7.1.0	VHCRTDD-RF
RP-32	RP-060311	0366		7.68 Mcps RRC Connection Control & Timing Characteristics	В	7.0.0	7.1.0	VHCRTDD-RF
RP-32	RP-060311	0367		7.68 Mcps UE Measurement Procedures	В	7.0.0	7.1.0	VHCRTDD-RF
RP-32	RP-060311	0368		7.68 Mcps Measurements Performance Requirements	В	7.0.0	7.1.0	VHCRTDD-RF
RP-32	RP-060311	0369		7.68 Mcps Test Cases for RRM	В	7.0.0	7.1.0	VHCRTDD-RF
RP-32	RP-060313	0371		MBMS Reception during Inter-frequency Measurements (3.84 Mcps)	В	7.0.0	7.1.0	MBMS-RAN-RF- TDD
RP-32	RP-060314	0372		3.84 Mcps RX Timing Deviation range update	С	7.0.0	7.1.0	TEI7
RP-33	RP-060523	0374	1	Correction of GSM measurement test case for 1.28Mcps TDD	Α	7.1.0	7.2.0	TEI6
RP-33	RP-060523	0376		Removal of square brackets from requirement for Event Triggering and Reporting Criteria CELL_FACH state	Α	7.1.0	7.2.0	TEI6
RP-34	RP-060808	0378		Correction to A.8.4.1 for 1.28Mcps TDD	Α	7.2.0	7.3.0	TEI4
RP-35	RP-070081	0380		Correction to UE measurement reporting requirements in Annex 8	Α	7.3.0	7.4.0	TEI6
RP-36	RP-070376	0381		MBSFN Cluster Selection/Reselection	В	7.4.0	7.5.0	MBMSE- RANPhysTDD
RP-36	RP-070377	0382		Requirements for non-HSDPA and non-EDCH transmitter carrier power	В	7.4.0	7.5.0	LCRTDD-EDCH- RF
RP-37	RP-070733	0388	1	Introduction of multi-frequency operation for LCR TDD	F	7.5.0	7.6.0	TEI7
RP-37	RP-070652	0385		Correction to HS-SICH reception quality for 1.28Mcps TDD	Α	7.5.0	7.6.0	TEI6
RP-37	RP-070651	0386		Inter-frequency measurement in MBMS for 7.68 Mcps TDD Option.	F	7.5.0	7.6.0	TEI7
RP-38	RP-070935	0389		Requirements for the UE transmission power headroom (UPH)	F	7.6.0	7.7.0	LCRTDD-EDCH- RF
RP-38	RP-070935	0390		MBSFN Cluster Selection/Reselection	В	7.6.0	7.7.0	MBMSE- RANPhysLCRTD
								D
RP-41	RP-080637	392		Updates of TS 25.123 to include UTRA TDD to E-UTRA mobility related requirements	F	7.7.0	8.0.0	LTE-RF
RP-42	RP-080902	400	1	Modification for P-CCPCH RSCP intra frequency relative requirement	Α	8.0.0	8.1.0	TEI4
RP-42	RP-080903	405	1	Correction on Intra/Inter-frequency cell power level for UE to correctly evaluate a better ranked cell in idle state and power settings for related test cases	Α	8.0.0	8.1.0	TEI4
RP-42	RP-080901	406		Modyfing the inter frequency monitoring ability of UE in TDD 1.28Mcps	Α	8.0.0	8.1.0	TEI7
RP-42	RP-080946	408		Update of the reqirement for cell re-selection in enhanced CELL_FACH state in 1.28Mcps TDD	В	8.0.0	8.1.0	RANimp- EnhState1.28TD D
RP-42	RP-080944	395		Some clarifications on TD-SCDMA/E-UTRA interworking in CELL_FACH state	F	8.0.0	8.1.0	TEI8
RP-42	RP-080944	393		RRC re-establishment requirements	F	8.0.0	8.1.0	TEI8
RP-42	RP-080938	394	3	Correction of UTRAN TDD to E-UTRAN TDD mobility requirements	F	8.0.0	8.1.0	LTE-RF
RP-43	RP-090189	410		UTRA TDD – E-UTRA TDD cell reselection: E-UTRA is of lower priority	F	8.1.0	8.2.0	LTE-RF
RP-43	RP-090189	411		UTRA TDD – E-UTRA TDD cell reselection: E-UTRA is of higher priority	F	8.1.0	8.2.0	LTE-RF
RP-43	RP-090196	409		Correction of UE transmitted Power absolute accuracy requirements	F	8.1.0	8.2.0	TEI8
RP-44	RP-090539	413		Revision of UE transmission power headroom reporting range and mapping for 1.28Mcps TDD	F	8.2.0	8.3.0	TEI7
RP-44	RP-090547	417		UTRA TDD-E-UTRA FDD cell search(fading). (Technically Endorsed CR in R4-50bis - R4-091397)	F	8.2.0	8.3.0	LTE-RF
RP-44	RP-090547	418		UTRA TDD-E-UTRA TDD cell search(fading). (Technically Endorsed CR in R4-50bis - R4-091398)	F	8.2.0	8.3.0	LTE-RF
RP-44	RP-090547	419		UTRA TDD-E-UTRA FDD HO delay. (Technically Endorsed CR in R4-50bis - R4-091399)	F	8.2.0	8.3.0	LTE-RF

RP-44	RP-090547	420		UTRA TDD-E-UTRA TDD HO delay. (Technically	F	8.2.0	8.3.0	LTE-RF
RP-44	DD 000551	414		Endorsed CR in R4-50bis - R4-091400)	F	0.0.0	8.3.0	LTE-RF
RP-44	RP-090551	414		Correction on cell reselection requirements for UTRAN TDD to E-UTRAN. (Technically Endorsed CR in R4-50bis - R4-091176)	F	8.2.0	8.3.0	LIE-RF
RP-44	RP-090556	415		Adding cell reselection requirements based on priority information for UTRAN TDD. (Technically Endorsed CR in R4-50bis - R4-091186)	F	8.2.0	8.3.0	TEI8
RP-44	RP-090556	416		Adding cell reselection requirements based on priority information for UTRAN TDD to GSM. (Technically	F	8.2.0	8.3.0	TEI8
RP-45	RP-090831	422		Endorsed CR in R4-50bis - R4-091187) Set 2.2. UTRA TDD to E-UTRA blind handover test	F	8.3.0	8.4.0	LTE-RF
RP-45	RP-090831	421	1	Set 2.1. Test case of UTRA TDD to UTRA TDD and E- UTRA combined cell search under fading	F	8.3.0	8.4.0	LTE-RF
RP-45	RP-090821	423		Clarification of RRM test configuration for LCR TDD UE	F	8.3.0	8.4.0	RANimp-
RP-46	RP-091274	428	1	with multiple antenna connectors E-UTRA TDD RSRP absolute accuracy measurement in	F	8.4.0	9.0.0	LCRMIMO LTE-RF
RP-46	RP-091274	429	1	UTRA TDD E-UTRA TDD RSRQ absolute accuracy measurement in UTRA TDD	F	8.4.0	9.0.0	LTE-RF
RP-46	RP-091274	433		E-UTRA FDD RSRP Absolute Accuracy Test Case in UTRAN TDD Mode	F	8.4.0	9.0.0	LTE-RF
RP-46	RP-091274	434		E-UTRA FDD RSRQ Absolute Accuracy Test Case in	F	8.4.0	9.0.0	LTE-RF
RP-47	RP-100258	455			A	9.0.0	9.1.0	TEI7
RP-47	RP-100258	446		1,28 Mcps TDD Addition of requirement 5ms TTI E-DCH E-TFC restriction for 1,28 Mcps TDD	Α	9.0.0	9.1.0	TEI7
RP-47	RP-100258	452		Addition of requirement Random Access for 1,28 Mcps TDD	A	9.0.0	9.1.0	TEI7
RP-47	RP-100258	437	1	Cell re-selection to inter-band TDD cell 25.123 9.0.0	Α	9.0.0	9.1.0	TEI7
RP-47	RP-100258	461	1	Addition of requirement UTRAN to GSM Cell Re- Selection: HCS with only UTRA level changed for 1,28 Mcps TDD	Α	9.0.0	9.1.0	TEI7
RP-47	RP-100259	440		TDD/TDD Handover for 1,28 Mcps Option: Hard Handover to inter-band cell 25.123 9.0.0	Α	9.0.0	9.1.0	TEI7
RP-47	RP-100259	458		Addition of requirement TDD/TDD Handover for 1,28 Mcps: Handover to inter-band cell: Scenario 2	Α	9.0.0	9.1.0	TEI7
RP-47	RP-100259	449		Addition of requirement Cell Re-selection in CELL_FACH: Cell Reselection to GSM for 1,28 Mcps TDD	Α	9.0.0	9.1.0	TEI7
	RP-100259	443		1.28Mcps TDD P-CCPCH RSCP measurement test case	Α	9.0.0	9.1.0	TEI7
RP-47 RP-47	RP-100260 RP-100260	465r1 463r1		UTRA TDD - GSM non-synchrnization HO test_R9_CR Combined UTRAN TDD interfrequency and GSM cell	A A	9.0.0	9.1.0	TEI8
RP-48	RP-100618	474		search under AWGN test_R9_CR Addition of requirement UE uplink synchronization control	A	9.1.0	9.2.0	TEI7
	RP-100618	477		for PRACH for 1.28 Mcps TDD Addition of requirement UE uplink synchronization control	Α	9.1.0	9.2.0	TEI7
RP-48	RP-100618	471		during handover for 1.28 Mcps TDD Addition of requirement Inter-RAT cell change order from	Α	9.1.0	9.2.0	TEI7
RP-48	RP-100618	468	2	UTRAN TDD to GSM(GPRS) for 1.28 Mcps TDD Option Modification of requirement Event 1H and 1I triggered	Α	9.1.0	9.2.0	TEI7
				reporting in AWGN propagation conditions for 1.28 Mcps TDD Option				
RP-49	RP-100918	479		Correction on UTRAN TDD - E-UTRAN cell re-selection requirements in R9	Α	9.2.0	9.3.0	LTE-RF
RP-49	RP-100918	481		Correction on location band 11 in 25.123(R9)	A	9.2.0	9.3.0	LTE-RF
RP-49	RP-100918	483		Adding the test case for cell re-selection in enhanced CELL_FACH state in 1.28Mcps TDD	Α	9.2.0	9.3.0	RANimp- EnhState1.28TD D
RP-50	RP-101351	484		Introduction of RRM requirements for 1.28Mcps TDD MC-HSUPA	В	9.3.0	10.0.0	TDD_MC_HSUP A
RP-51	RP-110342	0487	-	Correction of inter-frequency measurement accuracy test cases	Α	10.0.0	10.1.0	TEI9
RP-51	RP-110334	0491	-	Modification of inter-band handover for 1.28 Mcps TDD (Scenario 2)	Α	10.0.0	10.1.0	TEI7
RP-51	RP-110334	0495	-	Addition of new inter-band handover for 1.28 Mcps TDD (Scenario 3)	Α	10.0.0	10.1.0	TEI7
RP-52	RP-110796	496		Simplification of frequency dependent requirements in 25.123	F	10.1.0	10.2.0	TEI10
RP-52	RP-110786	503		case A.4.2.5.2 for Rel-10	Α	10.1.0	10.2.0	LTE-RF
RP-52	RP-110786	500	1	case A.4.2.5.1 for Rel-10	Α	10.1.0	10.2.0	LTE-RF
RP-52	RP-110803	497	1	Introduction of MDT UE measurements requirements for LCR TDD in TS25.123	В	10.1.0	10.2.0	MDT_UMTSLTE- Core
KP-53	RP-111250	507		Correction to inter-RAT signal levels for band 17	Α	10.2.0	10.3.0	TEI8

RP-54	RP-111680	513		Removing [] and adding Sprioritysearch in test cases of reselection to E-UTRA cell for Rel-10	Α	10.3.0	10.4.0	LTE-RF
RP-54	RP-111735	514		Corrections on the table number in TS 25.123	F	10.3.0	10.4.0	TEI10
RP-55	RP-120291	517		Thresholds and margins for UTRA TDD to E-UTRA handover test A.5.3a and A.5.3b for R10	Α	10.4.0	10.5.0	LTE-RF
RP-55	RP-120291	520		Thresholds and margins for E-UTRA cell search test A.8.5.1 and A.8.5.2 for R10	Α	10.4.0	10.5.0	LTE-RF
RP-55	RP-120291	523		Thresholds and margins for E-UTRA cell search test A.8.5.3 and A.8.5.4 for R10	Α	10.4.0	10.5.0	LTE-RF
RP-55	RP-120308	526		Timestamp Accuracy Requirements for MDT	В	10.4.0	10.5.0	MDT_UMTSLTE- Core
RP-55	RP-120304	527	1	Inter-RAT E-UTRA RSRP, RSRQ band dependency	F	10.4.0	10.5.0	TEI10
RP-56	RP-120779	530		CR for 25.123: Aligning requirements in TS 25.123 with TS 36.133 regarding the modification of B41 REFSENS	F	10.5.0	10.6.0	TEI10
RP-56	RP-120794	532		Introduction of Band 44	В	10.6.0	11.0.0	LTE_APAC700- Perf
RP-56	RP-120792	533		Introduction of e850_LB (Band 27) to TS 25.123	В	10.6.0	11.0.0	LTE_e850_LB- Perf
RP-56	RP-120794	531		Introduction of Band 28	В	10.6.0	11.0.0	LTE_APAC700- Perf
RP-58	RP-121851	539		Handover Requirements for UTRA TDD to E-UTRA for 25.123 Rel-11	Α	11.0.0	11.1.0	LTE-RF
RP-58	RP-121873	542	1	MDT requirements in Rel-11	В	11.0.0	11.1.0	eMDT_UMTSLTE -Core

History

	Document history						
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