

TSG-RAN Meeting #10
Bangkok, Thailand, 6 - 8 December 2000

RP-000590

Title: Agreed CRs to TS 25.123

Source: TSG RAN WG4

Agenda Item:5.4.3

Tdoc Num	TS	CR number	Title	Type	Status	Cur Ver	New Ver
R4-000921	25.123	27	Re-structuring TS 25.123 Section 3	F	agreed	3.3.0	3.4.0
R4-000923	25.123	28	Re-structuring TS 25.123 Section 4+A4	F	agreed	3.3.0	3.4.0
R4-000925	25.123	29	Re-structuring TS 25.123 Section 5	F	agreed	3.3.0	3.4.0
R4-000927	25.123	30	Re-structuring TS 25.123 Section A5	F	agreed	3.3.0	3.4.0
R4-000929	25.123	31	Re-structuring TS 25.123 Section 6+7	F	agreed	3.3.0	3.4.0
R4-000931	25.123	32	Re-structuring TS 25.123 Section 8+A8	F	agreed	3.3.0	3.4.0
R4-000933	25.123	33	Re-structuring TS 25.123 Section 9+A9	F	agreed	3.3.0	3.4.0
R4-000935	25.123	34	Re-structuring TS 25.123 Annex A1-3	F	agreed	3.3.0	3.4.0

CHANGE REQUEST

⌘ **25.123 CR 27** ⌘ rev **-** ⌘ Current version: **3.3.0** ⌘

For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.

Proposed change affects: ⌘ (U)SIM ME/UE Radio Access Network Core Network

Title:	⌘ Re-structuring TS 25.123 Section 3
Source:	⌘ RAN WG4
Work item code: ⌘	Date: ⌘ 13-17 Nov 2000
Category: ⌘ F	Release: ⌘ R99
<p style="margin: 0;"><i>Use <u>one</u> of the following categories:</i></p> <p style="margin: 0;">F (essential correction)</p> <p style="margin: 0;">A (corresponds to a correction in an earlier release)</p> <p style="margin: 0;">B (Addition of feature),</p> <p style="margin: 0;">C (Functional modification of feature)</p> <p style="margin: 0;">D (Editorial modification)</p> <p style="margin: 0; font-size: small;">Detailed explanations of the above categories can be found in 3GPP TR 21.900.</p>	
<p style="margin: 0;"><i>Use <u>one</u> of the following releases:</i></p> <p style="margin: 0;">2 (GSM Phase 2)</p> <p style="margin: 0;">R96 (Release 1996)</p> <p style="margin: 0;">R97 (Release 1997)</p> <p style="margin: 0;">R98 (Release 1998)</p> <p style="margin: 0;">R99 (Release 1999)</p> <p style="margin: 0;">REL-4 (Release 4)</p> <p style="margin: 0;">REL-5 (Release 5)</p>	

Reason for change: ⌘	See Tdoc R4-000920 and R4-000919
Summary of change: ⌘	The requirements and the structure of this section is modified in order to fit with 25.133 structure and RAN2 specifications.
Consequences if not approved: ⌘	Inconsistency between specification 25.123 and 25.133 as well as RAN2 specifications

Clauses affected: ⌘	
Other specs affected: ⌘	<input type="checkbox"/> Other core specifications ⌘ <input type="checkbox"/> Test specifications ⌘ <input type="checkbox"/> O&M Specifications ⌘
Other comments: ⌘	

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

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.
- A non-specific reference to an TS shall also be taken to refer to later versions published as an EN with the same number.

[1] (void)

[2] (void)

[3] 3GPP TS 25.101: "~~MS-UE~~ Radio transmission and reception (FDD)".

[4] 3GPP TS 25.104: "~~BTSUTRAN(BS) FDD~~; Radio transmission and reception (~~FDD~~)".

[5] 3GPP TS 25.102: "~~MSUTRAN (UE) TDD~~; Radio transmission and reception (~~TDD~~)".

[6] 3GPP TS 25.105: "~~BTSUTRAN (BS) TDD~~; Radio transmission and reception (~~TDD~~)".

[7] [3GPP TS 25.303: "Interlayer Procedures in Connected Mode"](#). (~~void~~)

[8] (void)

[9] 3GPP TS 25.142: "Basestation conformance testing (TDD)".

[10] (void)

[11] (void)

[12] 3GPP TS 25.922: "RRM Strategies".

[13] (void)

[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 srotocol specification".

[17] 3GPP TS 25.224: "Physical layer procedures (TDD)".

[18] 3GPP TS 25.304: "UE procedures in idle 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 05.05: "Radio transmission and reception".

3 Definitions, symbols and abbreviations

3.1 Definitions

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

The main general definitions strictly related to the transmission and reception characteristics but important also for this specification 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

3.2 Symbols

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

[...] 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 density at the Node B antenna connector.
E_c	Average energy per PN chip.
$\frac{E_c}{I_{or}}$	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 density, including signal and interference, as measured at the UE antenna connector.
I_{oc}	The power spectral density of a band limited white noise source (simulating interference from other cells) as measured at the UE antenna connector.
I_{or}	The total transmit power spectral density of the down link at the Node B antenna connector.
\hat{I}_{or}	The received power spectral density of the down link 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 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 spectral density at the Node B antenna connector.
$\frac{PCCPCH_E_c}{I_{or}}$	The ratio of the average transmit energy per PN chip for the PCCPCH to the total transmit power spectral density at the Node B antenna connector.
$\frac{SCH_E_c}{I_{or}}$	The ratio of the average transmit energy per PN chip for the SCH to the total transmit power spectral density at the Node B antenna connector.

<u>PENALTY_TIME</u>	Defined in TS 25.304
<u>Qhyst</u>	Defined in TS 25.304
<u>Qoffset_{s,n}</u>	Defined in TS 25.304
<u>Qqualmin</u>	Defined in TS 25.304
<u>Qrxlevmin</u>	Defined in TS 25.304
<u>Sintersearch</u>	Defined in TS 25.304
<u>Sintrasearch</u>	Defined in TS 25.304
<u>SsearchRAT</u>	Defined in TS 25.304
<u>T1</u>	Time period 1
<u>T2</u>	Time period 2
<u>TEMP_OFFSET</u>	Defined in TS 25.304
<u>Treselection</u>	Defined in TS 25.304
<u>UE_TXPWR_MAX_RACH</u>	Defined in TS 25.304

3.3 Abbreviations

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

ACPR	Adjacent Channel Power Ratio
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
FDD	Frequency Division Duplex
OCNS	Orthogonal Channel Noise Simulator, a mechanism used to simulate the users or control signals on the other orthogonal channels of a Forward link.
P-CCPCH	Primary Common Control Physical Channel
PICH	Paging Indicator Channel
PIN	Personal Identification Number
PLMN	Public Land Mobile Network
PPM	Parts Per Million
RRM	Radio Resource Management
RRC	Radio Resource Control
RSCP	Received Signal Code Power
RSSI	Received Signal Strength Indicator
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
UE	User Equipment
UL	Uplink (reverse link)
UTRA	UMTS Terrestrial Radio Access

3.1 Definitions

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

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

3.2 Symbols

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

[...] — Values included in square bracket must be considered for further studies, because it means that a decision about that value was not taken.

\hat{i}_{or} — "RXLEV", see 25.101 or 25.102 clause 3.3 and Annex C.

3.3 Abbreviations

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

ACPR	Adjacent Channel Power Ratio
BER	Bit Error Ratio
BLER	Block Error Ratio
BS	Base Station
CW	Continuous wave (unmodulated signal)
DL	Down link (forward link)
$\frac{E_c}{I_{or}}$	The ratio of the average transmit energy per PN chip for different fields or physical channels to the total transmit power spectral density.
EIRP	Equivalent Isotropic Radiated Power
FDD	Frequency Division Duplexing
I_{oc}	The power spectral density of a band limited white noise source (simulating interference from other cells) as measured at the UE antenna connector.
I_{or}	The total transmit power spectral density of the down link at the base station antenna connector.
\hat{I}_{or}	The received power spectral density of the down link as measured at the UE antenna connector.
OCNS	Orthogonal Channel Noise Simulator, a mechanism used to simulate the users or control signals on the other orthogonal channels of a Forward link.
$\frac{PCCPCH_E_c}{I_{or}}$	The ratio of the average transmit energy per PN chip for the PCCPCH to the total transmit power spectral density.
PICH	Paging Indicator Channel
PPM	Parts Per Million
RRM	Radio Resource Management
RSSI	Received Signal Strength Indicator
SCH	Synchronization Channel consisting of Primary and Secondary synchronization channels
SIR	Signal to Interference ratio
TDD	Time Division Duplexing
TPC	Transmit Power Control
UE	User Equipment
UL	Up link (reverse link)
UTRA	UMTS Terrestrial Radio Access

CHANGE REQUEST

⌘ **25.123 CR 28** ⌘ rev **-** ⌘ Current version: **3.3.0** ⌘

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Proposed change affects: ⌘ (U)SIM ME/UE Radio Access Network Core Network

Title:	⌘ Re-structuring TS 25.123 Section 4+A4				
Source:	⌘ RAN WG4				
Work item code:	⌘	Date:	⌘ 13-17 Nov 2000		
Category:	⌘ F	Release:	⌘ R99		
<p style="margin-left: 20px;">Use <u>one</u> of the following categories:</p> <p style="margin-left: 40px;">F (essential correction) A (corresponds to a correction in an earlier release) B (Addition of feature), C (Functional modification of feature) D (Editorial modification)</p> <p style="margin-left: 20px;">Detailed explanations of the above categories can be found in 3GPP TR 21.900.</p>		<p style="margin-left: 20px;">Use <u>one</u> of the following releases:</p> <p style="margin-left: 40px;">2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)</p>			

Reason for change:	⌘ See Tdoc R4-000922 and R4-000919
Summary of change:	⌘ The requirements and the structure of this section is modified in order to fit with 25.133 structure and RAN2 specifications.
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Clauses affected:	⌘												
Other specs affected:	<table style="width: 100%;"> <tr> <td style="width: 15%;"><input type="checkbox"/></td> <td style="width: 55%;">Other core specifications</td> <td style="width: 15%;">⌘</td> <td style="width: 15%;"></td> </tr> <tr> <td><input type="checkbox"/></td> <td>Test specifications</td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/></td> <td>O&M Specifications</td> <td></td> <td></td> </tr> </table>	<input type="checkbox"/>	Other core specifications	⌘		<input type="checkbox"/>	Test specifications			<input type="checkbox"/>	O&M Specifications		
<input type="checkbox"/>	Other core specifications	⌘											
<input type="checkbox"/>	Test specifications												
<input type="checkbox"/>	O&M Specifications												
Other comments:	⌘												

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4 Idle Mode

Cell selection and cell reselection delays are applicable when the repetition period of all relevant system information blocks is not more than 1 280 ms and the length of DRX cycle is not longer than 640 ms.

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 TS25.304. 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*).

NOTE: At the moment, only requirements for *Stored information cell selection* has been defined.

4.1.2 Requirements

4.1.2.1 Stored information cell selection delay

The stored information cell selection delay is defined as the time the UE needs for sending the preamble for RRC Connection Request for Location Registration to UTRAN after the power has been switched on with a valid USIM and PIN is disabled.

4.1.2.1.1 The cells in the neighbour list belong to different frequencies

Unless otherwise stated, the cell selection delay shall be equal or less than [X] seconds when the cells in the neighbour list belong to less than [3] frequencies.

4.1.2.1.2 No cell is present in the neighbour list

The cell selection delay shall be equal or less than [5] seconds.

4.2 Cell Re-selection

4.2.1 Introduction

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

When the UE is in *Normally Camped* state and the occasions/triggers occur, as specified in 25.304, the UE shall perform the Cell Reselection Evaluation process.

4.1.24.2.2 Requirements

4.2.2.1 Number of cells to be monitored

The UE shall be capable of monitoring at least [x] neighbour cells per carrier frequency for at least [x] carriers.

4.1.1.24.2.2.2 Cell re-selection delay

The cell re-selection delay is defined as the time between the occurrence of any event which will trigger Cell Reselection Evaluation process, as specified in 25.304, and the moment in time when the UE starts sending the preamble for RRC Connection request for Location Update message to the UTRAN.

4.1.1.1.14.2.2.2.1 Single carrier case

In a single carrier case, the cell re-selection delay shall be equal or less than [5] seconds.

4.2.2.2.2 Multi carrier case

In a multi carrier case, the cell re-selection delay shall be equal or less than [Nt] seconds.

4.3 UTRAN to GSM Cell Re-Selection

4.3.1 Introduction

The UTRAN to GSM Cell Re-Selection allows a UE, supporting both radio access technologies and camped on a UTRAN cell, to re-select a GSM cell and camp on it according to the cell re-selection criteria described in TS 25.304.

4.3.2 Requirements

4.3.2.1 Cell Re-Selection delay

The cell re-selection delay is defined as the time between the occurrence of any event which will trigger Cell Reselection Evaluation process, as specified in 25.304, and the moment in time when the UE starts sending the RR Channel Request message for location update to GSM.

The UTRAN to GSM cell re-selection delay shall be equal or less than [x].

4 Idle mode tasks

4.1 Introduction

Cell selection and cell reselection delays are applicable when the repetition period of all relevant system information blocks is not more than 1 280 ms and the length of DRX cycle is not longer than 640 ms.

Whenever a PLMN has been selected the UE shall start to find a suitable cell to camp on, this is "cell selection".

When camped on cell the UE regularly searches for a better cell depending on the cell reselection criteria, this is called "cell reselection". The procedures for cell selection and reselection are described in 3GPP TS 25.304 "UE procedures in idle mode" and the measurements carried out by the UE are explained in specification 3GPP TS 25.225 "Physical Layer Measurements (TDD)". The measurements performance requirements are specified in clause 11.

4.2 RF cell selection scenario

Note: Some performance requirements in agreed scenarios are added into this clause. More scenarios will be added later.

4.2.1 Requirements for Cell Selection single carrier single cell case

4.2.1.1 Cell selection delay

The UE shall be capable of selecting a suitable cell within [5] seconds from switch on in the test case defined in following section in Table 4.1. The cell selection delay is defined as a time the UE needs for sending RRC Connection Request for Location Registration to UTRAN after the power has been switched on with a valid USIM and PIN is disabled.

4.2.1.1.1 Test parameters

The stored information of the last registered PLMN is utilised in this test. The stored information includes the UTRA RF CHANNEL NUMBER. The active cell in the test does not contain any neighbour cells in its measurement control information.

Table 4.1

Parameter	Unit	Cell 1	
		Channel 1	
<i>UTRA RF Channel Number</i>			
<i>Timeslot Number</i>		0	8
<i>PCCPCH Ec/Ior</i>	dB	-3	
<i>SCH Ec/Ior</i>	dB	-9	-9
<i>SCH Ioffset</i>		0	0
<i>PICH Ec/Ior</i>	dB		-3
<i>OCNS Ec/Ior</i>	dB	-4.28	-4.28
\hat{I}_{or}/I_{oc}	dB	-0	0
<i>Ioc</i>	dBm/3.84 MHz	-70	-70
<i>PCCPCH RSCP</i>	dBm	-73	
Propagation Condition		-AWGN	AWGN
<i>Qmin</i>	dBm	[]	[]
<i>UE_TXPWR_MAX_RACH</i>	dBm	[]	[]

Note: The values are only valid during the active part of SCH. Chip Energy of the other channels remains constant across the burst.

4.2.1.1.2 Minimum requirement

Cell selection shall be correct in more than [X%] of the cases. Cell selection is correct if within [5] seconds the UE camps on the cell.

4.2.2 Cell Selection single carrier multi cell case

4.2.2.1 Cell selection delay

The cell selection delay is defined as a time the UE needs for sending RRC Connection Request for Location Registration message to UTRAN after the power has been switched on with a valid USIM and PIN is disabled.

4.2.2.1.1 Test parameters

The stored information of the last registered PLMN is utilised in this test. The stored information includes one of the UTRA RF CHANNEL NUMBERS used in the test. All the cells in the test are given in the measurement control information of each cell, which are on the RF carrier stored to the UE.

Table 4.2

Parameter	Unit	Cell 1		Cell 2		Cell 3		Cell 4		Cell 5		Cell 6	
<i>UTRA RF Channel Number</i>		Channel 1		Channel 1		Channel 1		Channel 1		Channel 1		Channel 1	
<i>Timeslot Number</i>		0	8	0	8	0	8	0	8	0	8	0	8
<i>PCCPCH_Ec/Aor</i>	dB	-3		-3		-3		-3		-3		-3	
<i>SCH_Ec/Aor</i>	dB	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9
<i>SCH_t_offset</i>		0	0	5	5	10	10	15	15	20	20	25	25
<i>PICH_Ec/Aor</i>	dB		-3		-3		-3		-3		-3		-3
<i>OCNS</i>	dB	-4.28	-4.28	-4.28	-4.28	-4.28	-4.28	-4.28	-4.28	-4.28	-4.28	-4.28	-4.28
\hat{I}_{or}/I_{oc}	dB	10	10	7	7	3	3	0	0	-3	-3	-3	-3
I_{oc}	dBm/3. 84 MHz	-70											
<i>PCCPCH_RSCP</i>	dBm	-63		-66		-70		-73		-76		-76	
Propagation Condition		AWGN											
<i>Qmin</i>	dBm	{}	{}	{}	{}	{}	{}	{}	{}	{}	{}	{}	{}
<i>UE_TXPWR_MAX_RA CH</i>	dBm	{}	{}	{}	{}	{}	{}	{}	{}	{}	{}	{}	{}

Note: The values are only valid during the active part of SCH. Chip Energy of the other channels remains constant across the burst.

4.2.2.1.2 Minimum requirements

Cell selection shall be correct in more than [X%] of the cases. Cell selection is correct if within [5+x] seconds the UE camps on the cell, which fulfills the cell selection criteria.

4.3 RF Cell Re-Selection scenario

Note: One performance requirement in agreed scenario is added into this clause. More scenarios will be added later.

4.3.1 Cell Re-Selection single carrier multi cell case

4.3.1.1 Cell re-selection delay

When the UE is camped on one of the cells, the UE shall be capable of re-selecting a new cell according to the cell re-selection criteria. The cells, which are possible to be re-selected during the test are belonging to different location

areas. The cell re-selection delay is then defined as a time from when P-CCPCH RSCP is changed on cell 1 and 2 to the moment in time when the UE starts sending the RRC Connection request for Location Update message to the UTRAN.

4.3.1.1.1 Test parameters

One of the 6 cells in Table 4-3 is serving cell and all others are given in the measurement control information of the serving cell. Two of the cells are possible for cell re-selection and 4 of the cells are steady interfering cells.

Table 4.3

Parameter	Unit	Cell 1				Cell 2				Cell 3			
<i>Timeslot Number</i>		0		8		0		8		0		8	
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
<i>UTRA RF Channel Number</i>		Channel 1		Channel 1		Channel 1		Channel 1		Channel 1		Channel 1	
<i>PCCPCH_Ec/Aor</i>	dB	-3	-3			-3	-3			-3	-3		
<i>SCH_Ec/Aor</i>	dB	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9
<i>SCH_t_offset</i>		0	0	0	0	5	5	5	5	19	10	10	10
<i>PICH_Ec/Aor</i>	dB			-3	-3			-3	-3			-3	-3
<i>OCNS_Ec/Aor</i>	dB	-4.28	-4.28	-4.28	-4.28	-4.28	-4.28	-4.28	-4.28	-4.28	-4.28	-4.28	-4.28
\hat{I}_{or}/I_{oc}	dB	9	7	9	7	7	9	7	9	-1	-1	-1	-1
<i>PCCPCH_RSCP</i>	dBm	-64	-66			-66	-64			-74	-74		
<i>Qoffset</i>		[]		[]		[]		[]		[]		[]	
<i>Qhyst</i>	dBm	[]		[]		[]		[]		[]		[]	
<i>Treselection</i>		[]		[]		[]		[]		[]		[]	
<i>Qintrasearch</i>	dB	[]		[]		[]		[]		[]		[]	
		Cell 4				Cell 5				Cell 6			
<i>Timeslot</i>		0		8		0		8		0		8	
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
<i>UTRA RF Channel Number</i>		Channel 1		Channel 1		Channel 1		Channel 1		Channel 1		Channel 1	
<i>PCCPCH_Ec/Aor</i>	dB	-3	-3			-3	-3			-3	-3		
<i>SCH_Ec/Aor</i>	dB	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9
<i>SCH_t_offset</i>		15	15	15	15	20	20	20	20	25	25	25	25
<i>PICH_Ec/Aor</i>	dB			-3	-3			-3	-3			-3	-3
<i>OCNS</i>	dB	-4.28	-4.28	-4.28	-4.28	-4.28	-4.28	-4.28	-4.28	-4.28	-4.28	-4.28	-4.28
\hat{I}_{or}/I_{oc}	dB	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
<i>PCCPCH_RSCP</i>		-74	-74			-74	-74			-74	-74		
<i>Qoffset</i>		[]		[]		[]		[]		[]		[]	
<i>Qhyst</i>	dBm	[]		[]		[]		[]		[]		[]	
<i>Treselection</i>		[]		[]		[]		[]		[]		[]	
<i>Qintrasearch</i>	dB	[]		[]		[]		[]		[]		[]	
I_{oc}	dBm/3. 84 MHz	-70											
Propagation Condition		AWGN											

Time T1 is X seconds and T2 is Y seconds.

Note: — T1 and T2 need to be defined so that cell re-selection reaction time is taken into account.

~~4.3.1.1.2 Minimum requirements~~

~~Cell re-selection shall be correct in more than [X%] of the cases. Cell re-selection is correct if within [5] seconds the UE re-selects a new cell, which fulfils the cell re-selection criteria.~~

~~4.3.1.1.3 Cell List Size~~

~~[The UE shall be capable of recording at least [6] of the strongest cells according to the cell re-selection criteria. The number of the strongest cells recorded inside the UE shall be at least [6].]~~

~~4.3.1.1.4 Maximum number of cells to be monitored~~

~~For re-selection purposes, the UE shall be capable of monitoring at least up to 32 neighboring cells given in the measurement control information. The exact number of cells to be monitored will be determined by the measurement control information broadcast in the serving cell.~~

~~4.3.2 UTRAN to GSM Cell Re-Selection~~

~~Note 1: These requirements are depending on supported UE capabilities.~~

~~Note 2: Requirements for GSM to UTRAN Cell Re-Selection are defined in the GSM specifications.~~

~~4.3.2.1 Cell re-selection delay~~

~~When the UE is camped on an UTRAN cell, the UE shall be capable of re-selecting a GSM cell according to the cell re-selection criteria for UTRAN to GSM. The cells, which are possible to be re-selected during the test, belong to different location areas. The cell re-selection delay is then defined as a time from when radio conditions are changed to the moment in time when the UE starts sending the RR Channel Request message for location update to GSM.~~

~~4.3.2.1.1 Test parameters~~

~~Tbd.~~

~~4.3.2.1.2 Minimum requirements~~

~~Cell re-selection shall be correct in more than []% of the cases. Cell re-selection is correct if within [] seconds the UE re-selects a new cell, which fulfils the cell re-selection criteria and stays steady on that cell until the channel conditions are changed again.~~

A.4 Idle Mode

A.4.1 Cell selection

Two scenarios are considered:

- Scenario 1: The cells in the neighbour list belong to different frequencies
- Scenario 2: No cell is present in the neighbour list

For each of them a test is proposed.

NOTE: More scenarios will be added later

A.4.1.1 Scenario 1: the cells in the neighbour list belong to different frequencies

A.4.1.1.1 Test Purpose and Environment

This test is to verify the requirement reported in section 4.1.2.1.1.

This scenario implies the presence of 2 carriers and 6 cells as reported in Table A.4-1 and A.4-2.

The stored information of the last registered PLMN is utilised in this test. The stored information includes one of the UTRA RF CHANNEL NUMBERS used in the test. All the cells in the test are given in the measurement control information of each cell, which are on the RF carrier stored to the UE.

Table A.4-1: General test parameters for Cell Selection in multi carrier case

	<u>Parameter</u>	<u>Unit</u>	<u>Value</u>	<u>Comment</u>
<u>Initial condition</u>	<u>Stored RF channel</u>		<u>Channel2</u>	
	<u>Neighbour cells of Cell1</u>		<u>Cell2, Cell3,Cell4, Cell5, Cell6</u>	
	<u>Neighbour cells of Cell2</u>		<u>Cell1, Cell3,Cell4, Cell5, Cell6</u>	
	<u>Neighbour cells of Cell3</u>		<u>Cell1, Cell2,Cell4, Cell5, Cell6</u>	
	<u>Neighbour cells of Cell4</u>		<u>Cell1, Cell2,Cell3, Cell5, Cell6</u>	
	<u>Neighbour cells of Cell5</u>		<u>Cell1, Cell2,Cell3, Cell4, Cell6</u>	
<u>Final condition</u>	<u>Active cell</u>		<u>Cell1</u>	

Table A.4-2: Cell selection multi carrier case

<u>Parameter</u>	<u>Unit</u>	<u>Cell 1</u>		<u>Cell 2</u>		<u>Cell 3</u>		<u>Cell 4</u>		<u>Cell 5</u>		<u>Cell 6</u>	
<u>UTRA RF Channel Number</u>		<u>Channel 1</u>		<u>Channel 2</u>		<u>Channel 1</u>		<u>Channel 2</u>		<u>Channel 1</u>		<u>Channel 2</u>	
<u>Timeslot Number</u>		<u>0</u>	<u>8</u>	<u>0</u>	<u>8</u>	<u>0</u>	<u>8</u>	<u>0</u>	<u>8</u>	<u>0</u>	<u>8</u>	<u>0</u>	<u>8</u>
<u>PCCPCH Ec/Ior</u>	<u>dB</u>	<u>-3</u>		<u>-3</u>		<u>-3</u>		<u>-3</u>		<u>-3</u>		<u>-3</u>	
<u>SCH Ec/Ior</u>	<u>dB</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>
<u>SCH t_{offset}</u>		<u>0</u>	<u>0</u>	<u>5</u>	<u>5</u>	<u>10</u>	<u>10</u>	<u>15</u>	<u>15</u>	<u>20</u>	<u>20</u>	<u>25</u>	<u>25</u>
<u>PICH Ec/Ior</u>	<u>dB</u>		<u>-3</u>		<u>-3</u>		<u>-3</u>		<u>-3</u>		<u>-3</u>		<u>-3</u>
<u>OCNS</u>	<u>dB</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>
<u>I_{or}/I_{oc}</u>	<u>dB</u>	<u>10</u>	<u>10</u>	<u>-0,5</u>	<u>-0,5</u>	<u>3</u>	<u>3</u>	<u>-3</u>	<u>-3</u>	<u>-3</u>	<u>-3</u>	<u>-3</u>	<u>-3</u>
<u>I_{oc}</u>	<u>dBm/3, 84 MHz</u>	<u>-70</u>											
<u>PCCPCH RSCP</u>	<u>dBm</u>	<u>-63</u>		<u>-73,5</u>		<u>-70</u>		<u>-76</u>		<u>-76</u>		<u>-76</u>	
<u>Propagation Condition</u>		<u>AWGN</u>											
<u>Q_{min}</u>	<u>dBm</u>	<u>[]</u>	<u>[]</u>	<u>[]</u>	<u>[]</u>	<u>[]</u>	<u>[]</u>	<u>[]</u>	<u>[]</u>	<u>[]</u>	<u>[]</u>	<u>[]</u>	<u>[]</u>
<u>UE TXPWR MAX RA CH</u>	<u>dBm</u>	<u>[]</u>	<u>[]</u>	<u>[]</u>	<u>[]</u>	<u>[]</u>	<u>[]</u>	<u>[]</u>	<u>[]</u>	<u>[]</u>	<u>[]</u>	<u>[]</u>	<u>[]</u>

Note: The values are only valid during the active part of SCH. Chip Energy of the other channels remains constant across the burst.

A.4.1.2.2 Test Requirements

The requirements reported in section 4.1.2.1.1 shall be verified in more than [X%] of the cases.

A.4.1.2 Scenario 2 : no cell is present in the neighbour list

A.4.1.2.1 Test Purpose and Environment

This test is to verify the requirement reported in section 4.1.2.1.2.

This scenario implies the presence of 1 carrier and 1 cell as reported in Table A.4-3.

The stored information of the last registered PLMN is utilised in this test. The stored information includes the UTRA RF CHANNEL NUMBER. The active cell in the test does not contain any neighbour cells in its measurement control information.

Table A.4-3: Cell selection single carrier single cell case

<u>Parameter</u>	<u>Unit</u>	<u>Cell 1</u>	
		<u>Channel 1</u>	
<u>UTRA RF Channel Number</u>			
<u>Timeslot Number</u>		<u>0</u>	<u>8</u>
<u>PCCPCH Ec/Ior</u>	<u>dB</u>	<u>-3</u>	
<u>SCH Ec/Ior</u>	<u>dB</u>	<u>-9</u>	<u>-9</u>
<u>SCH t_{offset}</u>		<u>0</u>	<u>0</u>
<u>PICH Ec/Ior</u>	<u>dB</u>		<u>-3</u>
<u>OCNS Ec/Ior</u>	<u>dB</u>	<u>-4,28</u>	<u>-4,28</u>
<u>\hat{I}_{or}/I_{oc}</u>	<u>dB</u>	<u>0</u>	<u>0</u>
<u>I_{oc}</u>	<u>dBm/3, 84 MHz</u>	<u>-70</u>	<u>-70</u>
<u>PCCPCH RSCP</u>	<u>dBm</u>	<u>-73</u>	
<u>Propagation Condition</u>		<u>AWGN</u>	<u>AWGN</u>
<u>Q_{min}</u>	<u>dBm</u>	<u>[]</u>	<u>[]</u>
<u>UE TXPWR MAX RACH</u>	<u>dBm</u>	<u>[]</u>	<u>[]</u>

Note: The values are only valid during the active part of SCH. Chip Energy of the other channels remains constant across the burst.

A.4.1.2.2 Test Requirements

The requirements reported in section 4.1.2.1.2 shall be verified in more than [X %] of the cases.

A.4.2 Cell Re-Selection

Two scenarios are considered:

Scenario 1: Single carrier case

Scenario 2: Multi carrier case

For each of them a test is proposed.

NOTE: More scenarios will be added later.

A.4.2.1 Scenario 1: Single carrier case

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 4.2.2.2.1.

This scenario implies the presence of 1 carrier and 6 cells as given in Table A.4-4 and A.4-5.

Table A.4-4: General test parameters for Cell Re-selection single carrier multi-cell case

	<u>Parameter</u>	<u>Unit</u>	<u>Value</u>	<u>Comment</u>
<u>Initial condition</u>	<u>Active cell</u>		<u>Cell1</u>	
	<u>Neighbour cells</u>		<u>Cell2, Cell3,Cell4, Cell5, Cell6</u>	
<u>Final condition</u>	<u>Active cell</u>		<u>Cell2</u>	
	<u>T1</u>	<u>s</u>		<u>T1 need to be defined so that cell re-selection reaction time is taken into account.</u>
	<u>T2</u>	<u>s</u>		<u>T2 need to be defined so that cell re-selection reaction time is taken into account.</u>

Table A.4-5: Cell re-selection single carrier multi-cell case

<u>Parameter</u>	<u>Unit</u>	<u>Cell 1</u>				<u>Cell 2</u>				<u>Cell 3</u>			
<u>Timeslot Number</u>		<u>0</u>		<u>8</u>		<u>0</u>		<u>8</u>		<u>0</u>		<u>8</u>	
		<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>
<u>UTRA RF Channel Number</u>		<u>Channel 1</u>				<u>Channel 1</u>				<u>Channel 1</u>			
<u>PCCPCH Ec/Ior</u>	<u>dB</u>	<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>		
<u>SCH Ec/Ior</u>	<u>dB</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>
<u>SCH T_{offset}</u>		<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>5</u>	<u>5</u>	<u>5</u>	<u>5</u>	<u>10</u>	<u>10</u>	<u>10</u>	<u>10</u>
<u>PICH Ec/Ior</u>	<u>dB</u>			<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>
<u>OCNS Ec/Ior</u>	<u>dB</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>
<u>I_{or}/I_{oc}</u>	<u>dB</u>	<u>9</u>	<u>7</u>	<u>9</u>	<u>7</u>	<u>7</u>	<u>9</u>	<u>7</u>	<u>9</u>	<u>-1</u>	<u>-1</u>	<u>-1</u>	<u>-1</u>
<u>PCCPCH RSCP</u>	<u>dBm</u>	<u>-64</u>	<u>-66</u>			<u>-66</u>	<u>-64</u>			<u>-74</u>	<u>-74</u>		
<u>Qoffset</u>			<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
<u>Qhyst</u>	<u>dBm</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
<u>Treselection</u>			<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
<u>Qintrasearch</u>	<u>dB</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
		<u>Cell 4</u>				<u>Cell 5</u>				<u>Cell 6</u>			
<u>Timeslot</u>		<u>0</u>		<u>8</u>		<u>0</u>		<u>8</u>		<u>0</u>		<u>8</u>	
		<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>
<u>UTRA RF Channel Number</u>		<u>Channel 1</u>				<u>Channel 1</u>				<u>Channel 1</u>			
<u>PCCPCH Ec/Ior</u>	<u>dB</u>	<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>		
<u>SCH Ec/Ior</u>	<u>dB</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>
<u>SCH T_{offset}</u>		<u>15</u>	<u>15</u>	<u>15</u>	<u>15</u>	<u>20</u>	<u>20</u>	<u>20</u>	<u>20</u>	<u>25</u>	<u>25</u>	<u>25</u>	<u>25</u>
<u>PICH Ec/Ior</u>	<u>dB</u>			<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>
<u>OCNS</u>	<u>dB</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>
<u>I_{or}/I_{oc}</u>	<u>dB</u>	<u>-1</u>	<u>-1</u>	<u>-1</u>	<u>-1</u>	<u>-1</u>	<u>-1</u>	<u>-1</u>	<u>-1</u>	<u>-1</u>	<u>-1</u>	<u>-1</u>	<u>-1</u>
<u>PCCPCH RSCP</u>		<u>-74</u>	<u>-74</u>			<u>-74</u>	<u>-74</u>			<u>-74</u>	<u>-74</u>		
<u>Qoffset</u>			<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
<u>Qhyst</u>	<u>dBm</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
<u>Treselection</u>			<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
<u>Qintrasearch</u>	<u>dB</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
<u>I_{oc}</u>	<u>dBm/3, 84 MHz</u>	<u>-70</u>											
<u>Propagation Condition</u>		<u>AWGN</u>											

A.4.2.1.2 Test Requirements

The requirements reported in section 4.2.2.2.1 shall be verified in more than [X %] of the cases.

A.4.2.2 Scenario 2: Multi carrier case

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 4.2.2.2.2.

This scenario implies the presence of 2 carriers and 6 cells as given in Table A.4-6 and A.4-7.

Table A.4-6: General test parameters for Cell Re-selection in Multi carrier case

	<u>Parameter</u>	<u>Unit</u>	<u>Value</u>	<u>Comment</u>
<u>Initial condition</u>	<u>Active cell</u>		<u>Cell1</u>	
	<u>Neighbour cells</u>		<u>Cell2, Cell3,Cell4, Cell5, Cell6</u>	
<u>Final condition</u>	<u>Active cell</u>		<u>Cell2</u>	
	<u>T1</u>	<u>s</u>		<u>T1 need to be defined so that cell re-selection reaction time is taken into account.</u>
	<u>T2</u>	<u>s</u>		<u>T2 need to be defined so that cell re-selection reaction time is taken into account.</u>

Table A.4-7: Cell re-selection multi carrier multi cell case

<u>Parameter</u>	<u>Unit</u>	<u>Cell 1</u>				<u>Cell 2</u>				<u>Cell 3</u>			
<u>Timeslot Number</u>		<u>0</u>		<u>8</u>		<u>0</u>		<u>8</u>		<u>0</u>		<u>8</u>	
		<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>
<u>UTRA RF Channel Number</u>		<u>Channel 1</u>				<u>Channel 2</u>				<u>Channel 1</u>			
<u>PCCPCH Ec/Ior</u>	<u>dB</u>	<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>		
<u>SCH Ec/Ior</u>	<u>dB</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>
<u>SCH Toffset</u>		<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>5</u>	<u>5</u>	<u>5</u>	<u>5</u>	<u>10</u>	<u>10</u>	<u>10</u>	<u>10</u>
<u>PICH Ec/Ior</u>	<u>dB</u>			<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>
<u>OCNS Ec/Ior</u>	<u>dB</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>
<u>I_{or}/I_{oc}</u>	<u>dB</u>	<u>3</u>	<u>0</u>	<u>3</u>	<u>0</u>	<u>0</u>	<u>3</u>	<u>0</u>	<u>3</u>	<u>-3</u>	<u>-3</u>	<u>-3</u>	<u>-3</u>
<u>PCCPCH RSCP</u>	<u>dBm</u>	<u>-70</u>	<u>-73</u>			<u>-73</u>	<u>-70</u>			<u>-76</u>	<u>-76</u>		
<u>Qoffset</u>			<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
<u>Qhyst</u>	<u>dBm</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
<u>Treselection</u>			<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
<u>Qintrasearch</u>	<u>dB</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
		<u>Cell 4</u>				<u>Cell 5</u>				<u>Cell 6</u>			
<u>Timeslot</u>		<u>0</u>		<u>8</u>		<u>0</u>		<u>8</u>		<u>0</u>		<u>8</u>	
		<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>
<u>UTRA RF Channel Number</u>		<u>Channel 1</u>				<u>Channel 2</u>				<u>Channel 2</u>			
<u>PCCPCH Ec/Ior</u>	<u>dB</u>	<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>		
<u>SCH Ec/Ior</u>	<u>dB</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>
<u>SCH Toffset</u>		<u>15</u>	<u>15</u>	<u>15</u>	<u>15</u>	<u>20</u>	<u>20</u>	<u>20</u>	<u>20</u>	<u>25</u>	<u>25</u>	<u>25</u>	<u>25</u>
<u>PICH Ec/Ior</u>	<u>dB</u>			<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>
<u>OCNS</u>	<u>dB</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>
<u>I_{or}/I_{oc}</u>	<u>dB</u>	<u>-3</u>	<u>-3</u>	<u>-3</u>	<u>-3</u>	<u>-3</u>	<u>-3</u>	<u>-3</u>	<u>-3</u>	<u>-3</u>	<u>-3</u>	<u>-3</u>	<u>-3</u>
<u>PCCPCH RSCP</u>		<u>-76</u>	<u>-76</u>			<u>-76</u>	<u>-76</u>			<u>-76</u>	<u>-76</u>		
<u>Qoffset</u>			<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
<u>Qhyst</u>	<u>dBm</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
<u>Treselection</u>			<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
<u>Qintrasearch</u>	<u>dB</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
<u>I_{oc}</u>	<u>dBm/3, 84 MHz</u>	<u>-70</u>											
<u>Propagation Condition</u>		<u>AWGN</u>											

Note: P-CCPCH_RSCP is the quality measure for cell selection and re-selection.

A.4.2.2.2 Test Requirements

The UE shall select cell 2 within a cell re-selection delay specified in 4.2.2.2.2.

A.4.3 UTRAN to GSM Cell Re-Selection

A.4.3.1 Scenario 1

A.4.3.1.1 Test Purpose and Environment

This test is to verify the requirement for the UTRAN to GSM cell re-selection delay reported in section 4.3.2.1.

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.4.8, A.4.9, A.4-10.

Table A.4-6: General test parameters for UTRAN to GSM Cell Re-selection

	<u>Parameter</u>	<u>Unit</u>	<u>Value</u>	<u>Comment</u>
<u>Initial condition</u>	<u>Active cell</u>		<u>Cell1</u>	
	<u>Neighbour cell</u>		<u>Cell2</u>	
<u>Final condition</u>	<u>Active cell</u>		<u>Cell2</u>	
	<u>T1</u>	<u>s</u>		<u>T1 need to be defined so that cell re-selection reaction time is taken into account.</u>
	<u>T2</u>	<u>s</u>		<u>T2 need to be defined so that cell re-selection reaction time is taken into account.</u>

Table A.4-7: Cell re-selection UTRAN to GSM cell case (cell 1)

<u>Parameter</u>	<u>Unit</u>	<u>Cell 1 (UTRA)</u>			
<u>Timeslot Number</u>		<u>0</u>		<u>8</u>	
		<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>
<u>UTRA RF Channel Number</u>		<u>Channel 1</u>		<u>Channel 1</u>	
<u>PCCPCH_Ec/Ior</u>	<u>dB</u>	<u>-3</u>	<u>-3</u>		
<u>SCH_Ec/Ior</u>	<u>dB</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>
<u>SCH_toffset</u>		<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<u>PICH_Ec/Ior</u>	<u>dB</u>			<u>-3</u>	<u>-3</u>
<u>OCNS_Ec/Ior</u>	<u>dB</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>
<u>I_{or}/I_{oc}</u>	<u>dB</u>	<u>9</u>	<u>7</u>	<u>9</u>	<u>7</u>
<u>I_{oc}</u>	<u>dBm/3, 84 MHz</u>	<u>-70</u>		<u>-70</u>	
<u>PCCPCH RSCP</u>	<u>dBm</u>	<u>-64</u>	<u>-66</u>		
<u>Propagation Condition</u>		<u>AWGN</u>		<u>AWGN</u>	
<u>Cell selection and reselection quality measure</u>		<u>P-CCPCH RSCP</u>			
<u>Qqualmin</u>	<u>dB</u>	[]			
<u>Qrxlevmin</u>	<u>dBm</u>	[]			
<u>UE_TXPWR_MAX_RACH</u>	<u>dBm</u>	[]			
<u>Qoffset_{l, n}</u>	<u>dB</u>	<u>C1, C2: []</u>			
<u>Qhyst_l</u>	<u>dB</u>	[]			
<u>PENALTY_TIME</u>	<u>s</u>	<u>C2: []</u>			
<u>TEMP_OFFSET_l</u>	<u>dB</u>	<u>C2: []</u>			
<u>Treselection</u>	<u>s</u>	[]			
<u>Ssearch_{RAT}</u>	<u>dB</u>	[]			

Table A.4-8: Cell re-selection UTRAN to GSM cell case (cell 2)

<u>Parameter</u>	<u>Unit</u>	<u>Cell 2 (GSM)</u>	
		<u>T1</u>	<u>T2</u>
<i><u>Absolute RF Channel Number</u></i>		<i><u>ARFCN 1</u></i>	
<i><u>RXLEV</u></i>	<i><u>dBm</u></i>	<i><u>-70</u></i>	<i><u>-60</u></i>
<i><u>RXLEV ACCESS MIN</u></i>	<i><u>dBm</u></i>	[]	
<i><u>MS TXPWR MAX CCH</u></i>	<i><u>dBm</u></i>	[]	

A.4.3.1.2 Test Requirements

The requirements reported in section 4.3.2.1 shall be verified in more than [X %] of the cases.

Sophia, France 13th - 17th November 2000

CR-Form-v3

CHANGE REQUEST⌘ **25.123 CR 29** ⌘ rev **-** ⌘ Current version: **3.3.0** ⌘For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.Proposed change affects: ⌘ (U)SIM ME/UE Radio Access Network Core Network

Title:	⌘ Re-structuring TS 25.123 Section 5		
Source:	⌘ RAN WG4		
Work item code:	⌘	Date:	⌘ 13-17 Nov 2000
Category:	⌘ F	Release:	⌘ R99
	Use <u>one</u> of the following categories: F (essential correction) A (corresponds to a correction in an earlier release) B (Addition of feature), C (Functional modification of feature) D (Editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900.		Use <u>one</u> of the following releases: 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)

Reason for change:	⌘ See Tdoc R4-000924 and R4-000919
Summary of change:	⌘ The requirements and the structure of this section is modified in order to fit with 25.133 structure and RAN2 specifications.
Consequences if not approved:	⌘ Inconsistency between specification 25.123 and 25.133 as well as RAN2 specifications

Clauses affected:	⌘	
Other specs affected:	<input type="checkbox"/> Other core specifications <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications	⌘
Other comments:	⌘	

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

5 UTRAN RRC 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, currently not necessarily for all UTRAN connected mode states, 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 TS25.331.

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 TS 25.303. CELL_FACH, CELL_PCH and URA_PCH states are described in TS 25.331.

The handover process should be implemented in both the UE and UTRAN. The UE measurements and which radio links the UE shall use is controlled by UTRAN with RRC signalling.

Measurements are specified in TS25.225 and UE behaviour in response to UTRAN RRC messages is described in 3GPP TS 25.331. Further descriptions of the measurement procedures can be found in chapter 8.

5.1 TDD/TDD Handover

5.1.1 Introduction

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 (PHYSICAL CHANNEL RECONFIGURATION, RADIO BEARER SETUP, RADIO BEARER RECONFIGURATION, RADIO BEARER RELEASE, or TRANSPORT CHANNEL RECONFIGURATION).

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

The handover process should be implemented in both the UE and UTRAN. The UE measurements and which radio links the UE shall use is controlled by UTRAN with RRC signalling.

Measurements are specified in TS25.225 and UE behaviour in response to UTRAN RRC messages is described in 3GPP TS 25.331.

For the handover preparation the UE receives from the UTRAN a list of cells (e.g. TDD, FDD or GSM) which the UE shall monitor (see "monitored set" in 3GPP TS 25.331 "RRC Protocol Specification") in its idle timeslots.

At the beginning of the measurement process the UE shall find synchronization to the cell to measure using the synchronization channel. This is described under "cell search" in TS 25.224 "Physical layer procedures (TDD)" if the monitored cell is a TDD cell and in 3GPP TS 25.214 "Physical layer procedures (FDD)" if it is an FDD cell.

For a TDD cell to monitor after this procedure the exact timing of the midamble of the P-CCPCH is known and the measurements can be performed. Depending on the UE implementation and if timing information about the cell to monitor is available, the UE may perform the measurements on the P-CCPCH directly without prior SCH synchronization.

5.1.2 Requirements Handover 3G to 3G

5.1.2.1 TDD/TDD Handover delay

When the UE receives a RRC message that implies a handover, the UE shall start transmission of the new uplink DPCCCH within [X ms] from the end of the last TTI containing the RRC command. However, if the command includes an indicated activation time, the UE shall start transmission of the new uplink DPCCCH at the designated starting time, or within the time interval defined above, whichever is the later.

For the search for other cells the UE is provided by a handover monitoring set by the UTRAN.

The handover procedure is initiated from UTRAN with an active set update message.

For the requirements in this clause, all cells are assumed to be unsynchronized.

5.1.2.1.1 Requirements

5.1.2.1.1.1 Maximum number of cells to be monitored

The UE shall be capable of measuring at least [6] cells given in a measurement control message(s).

5.1.2.1.1.2 Measurement reporting delay

The measurement reporting delay is defined as the time from when a report is triggered at the physical layer according to the event or periodic mechanism set to trigger the measurement report, until the UE starts to transmit the measurement report over the Uu interface. This measurement reporting delay excludes the delay uncertainty resulting when the measurement report is inserted to the TTI of the uplink DCCH. The delay uncertainty is twice the TTI of the uplink DCCH.

The DL reference measurement channel 12.2 kbps shall be used.

5.1.2.1.1.2.1 Correct reporting of neighbours in AWGN propagation condition

This test will derive that the terminal makes correct reporting of an event Cell 1 is the active cell, Cell 2 is a neighbour cell on the used frequency. The power level on Cell 1 is kept constant and the power level of Cell 2 is changed using "change of best cell event" as illustrated in Figure 5-1. Hysteresis, absolute Threshold and Time to Trigger values are given in the table below and they are signalled from test device. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 1G shall be used. P-CCPCH RSCP of the best cell has to be reported together with Event 1G reporting. New measurement control information, which defines neighbour cells etc., is always sent before the event starts.

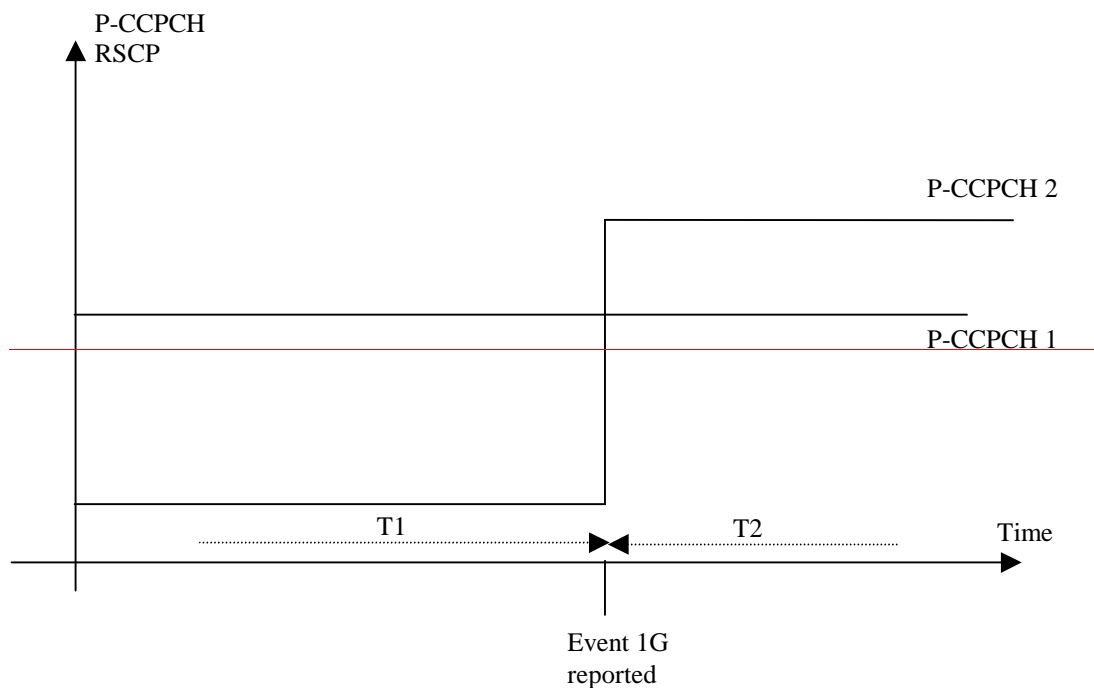


Figure 5.1: Illustration of parameters for handover measurement reporting test case

Table-5-1

Parameter	Unit	Cell-1				Cell-2			
		0		8		0		8	
Timeslot Number		T1	T2	T1	T2	T1	T2	T1	T2
UTRA-RF Channel Number		Channel 1		Channel 1		Channel 1		Channel 1	
PCCPCH_Ec/Ior	dB	-3	-3			-3	-3		
SCH_Ec/Ior	dB	-9	-9	-9	-9	-9	-9	-9	-9
SCH_toffset		0	0	0	0	15	15	15	15
PIGH_Ec/Ior				-3	-3			-3	-3
DCH_Ec/Ior		[]	[]	[]	[]	[]	[]	[]	[]
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	5	-Infinity	5
I_{oc}	dBm/3.84 MHz	-70							
PCCPCH_RSCP	dB	-70	-70			-Infinity	-68		
Absolute Threshold (SIR)	dB	[]							
Hysteresis	dB	[]							
Time to Trigger	msec	[]							
Propagation Condition		-AWGN							

5.1.2.1.1.2.1.1 Requirements

The measurement reporting delay shall be less than [5] seconds in 90% of the cases. All the reported entities shall be within the requirements, as defined in clause 11.

5.1.2.1.1.32 Handover delay/Interruption time

The handover delay-interruption time i.e. the time between the last TTI containing a transport block on the old DTCH and the time the UE starts transmission of the new uplink DPCH, shall be less than the value in table 5-1. This requirement does not include a delay due to SFN decoding of the new cell when this is needed. is defined as the time from when the UE receives the handover command message from UTRAN, until the UE successfully uses the entire set of radio links stated in that message for power control.

The handover delay is stated in the table below. There is different requirement on the handover delay depending on if the cell has been within the monitored set of cells for the last [FFS] [s] or not.

Table 5.2 TDD/TDD handover – interruption time

Number of new cells present in the handover command message	Maximum update delay [ms]	
	Cells within monitored set	Cells outside monitored set
1	[20]	[4000]
1-6...		

5.2.2.2 TDD/FDD Handover

5.2.1 Introduction

The purpose of TDD/FDD handover is to change the mode between FDD and TDD.

The handover procedure is initiated from UTRAN with an handover command message (PHYSICAL CHANNEL RECONFIGURATION, RADIO BEARER SETUP, RADIO BEARER RECONFIGURATION, RADIO BEARER RELEASE, or TRANSPORT CHANNEL RECONFIGURATION). The handover procedure may causes the UE to change its frequency.

5.1.2.2.1 Requirements

These requirements shall apply only to TDD/FDD UE.

5.1.2.2.1.1 Maximum number of cells/frequencies to be monitored on other frequencies

The UE shall be capable of measuring the requested measurement quantity of at least [FFS] cells on a maximum of [FFS] frequencies, different from the frequency currently used by the UE.

5.1.2.2.1.2 Measurement reporting Handover delay

When the UE receives a RRC message that implies a handover, the UE shall start transmission of the new uplink DPCCCH within [X ms] from the end of the last TTI containing the RRC command.

However, if the command includes an indicated activation time, the UE shall start transmission of the new uplink DPCCCH at the designated starting time, or within the time interval defined above, whichever is the later.

The measurement reporting delay is defined as the time from when a report is triggered at the physical layer according to the event or periodic mechanism set to trigger the measurement report, until the UE starts to transmit the measurement report over the Uu interface.

The DL reference measurement channel 12.2 kbps shall be used.

5.1.2.2.1.2.2 Correct reporting of neighbours in AWGN propagation condition

This test will derive that the terminal makes correct reporting of an event. Cell 1 is current active cell, Cell 2 is a FDD cell. The power level of CPICH E_c/I_0 of cell 2 and the P-CCPCH RSCP of cell 1 is changed. Hysteresis, Absolute threshold and Time to Trigger values are given in the table below and they are signalled from test device. New measurement control information, which defines neighbour cells etc., is always sent before the handover starts. The number of neighbour cells in the measurement control information is FFS.

Table 5.3

Parameter	Unit	Cell 1				Cell 2			
		0		8		n.a.		n.a.	
<i>Timeslot Number</i>		T1	T2	T1	T2	T1	T2		
<i>UTRA RF Channel Number</i>		Channel 1				Channel 2			
<i>CPICH_Ec/I₀</i>	dB	n.a.		n.a.		{}	{}		
<i>PCCPCH_Ec/I₀</i>	dB	-3	-3			{}	{}		
<i>SCH_Ec/I₀</i>	dB	-9	-9	-9	-9	{}	{}		
<i>SCH_t_{offset}</i>		0	0	0	0	n.a.	n.a.		
<i>PICH_Ec/I₀</i>				-3	-3	{}	{}		
<i>DCH_Ec/I₀</i>	dB	{}	{}	{}	{}	{}	{}		
<i>OCNS</i>	dB	-4.28	-4.28	-4.28	-4.28	{}	{}		
<i>I_{or}/I_{oc}</i>	dB	{}	{}	{}	{}	{}	{}		
<i>I_{oc}</i>	dBm/3.84 MHz	-70				-70			
<i>CPICH_Ec/I₀</i>		n.a.				{}			
<i>PCCPCH_RSCP</i>	dB	{}	{}	{}	{}	n.a.	n.a.	n.a.	n.a.
Absolute Threshold (SIR)	dB	{}				{}			
Hysteresis	dB	{}				{}			
Time to Trigger	msec	{}				{}			
Propagation Condition		AWGN				AWGN			

5.1.2.2.1.2.2 Requirements

The measurement reporting delay shall be less than [5] seconds in 90% of the cases. All the reported entities shall be within the requirements, as defined in clause 10.

5.1.2.2.1.2.3 Handover delay Interruption time

The interruption time, i.e. the time between the end of the last TTI containing a transport block on the old DTCH and the time the UE starts transmission of the new uplink DPCCCH, shall be less than the value in table 5-3. These requirement do not include a delay due to SFN decoding of the new cell when this is needed.

The handover delay is defined as the time from when the UE receives the handover command message from UTRAN, until the UE successfully uses the entire set of radio links stated in that message for power control. The handover delay is stated in the table below. There is different requirement on the handover delay depending on if the cell has been within the monitored set of cells for the last [FFS] [s] or not.

Table 5.42 TDD/FDD interruption time

Number of new cells present in the handover command message	Maximum update delay [ms]	
	Cells within monitored set	Cells outside monitored set
1	[]	[]
4-6...		

5.4.3 TDD/GSM Handover ~~3G to 2G~~

In the early days of UMTS deployment it can be anticipated that the service area will not be as contiguous and extensive as existing second generation systems. It is also anticipated that UMTS network will be an overlay on the 2nd generation network and utilize the latter, in the minimum case, as a fall back to ensure continuity of service and maintain a good QoS as perceived by the user.

5.4.3.1 Introduction ~~Handover to GSM~~

The purpose of inter-system 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 (INTER-SYSTEM HANDOVER COMMAND).

NOTE: Support of Blind Handover should be stated.

5.3.2 Requirements

These requirements shall apply only to TDD/GSM UE.

This clause presents some of the important aspects of GSM handover required to be performed by the UE. For the full specifications reference should be made the GSM Technical Specifications. The underlying requirement is to ensure continuity of service to the UMTS user. The handover requirements for 3G to GSM should be comparable to GSM to GSM handover requirements.

~~The MS (GSM terminology) shall be able to monitor up to [32] carriers.~~

~~The MS shall be able synchronize to [6] carriers.~~

~~The MS shall be able to report back to the network on the [6] strongest cells with correctly identified BSIC.~~

~~The MS shall be able to perform this task at levels down to the reference sensitivity level or reference interference levels as specified in GSM 05.05.~~

~~The MS shall demodulate the SCH on the BCCH carrier of each surrounding cell and decode the BSIC as often as possible, and as a minimum at least once every [10 seconds].~~

5.3.2.1 Inter-system handover delay

When the UE receives a RRC INTER-SYSTEM HANDOVER COMMAND it shall be ready to transmit (as specified in GSM 05.10) on the new channel within 120 ms from the last TTI containing the RRC command, unless the access is delayed to an indicated starting time, in which case it shall be ready to transmit on the new channel at the designated starting time, or within the time interval defined above, whichever is the later.

5.3.2.2 Interruption time

The interruption time, i.e. the time between the last TTI containing a transport block on the old channel and the time the UE is ready to transmit on the new channel, shall be less than 40 ms.

5.24 Cell Re-selection in Cell_FACH

5.4.1 Introduction

When a Cell Re-selection process is triggered according to 25.331, the UE shall evaluate the cell re-selection criteria specified in TS 25.303, based on radio measurements, and if a better cell is found that cell is selected.

5.4.2 Requirements

Cell ~~selection and cell~~ re-selection delays are applicable when the repetition period of all relevant system information blocks is not more than 1280 ms.

NOTE: For Inter-frequency cell re-selection in CELL_FACH state, the cell re-selection delay is dependent on the amount of Measurement Occasions that is provided by the network.

5.4.2.1 Cell re-selection ~~single carrier multi cell case~~ delay

~~5.2.1.1~~ Cell re-selection delay

When the UE is camped in Cell_FACH state on one of the cells, the UE shall be capable of re-selecting a new cell according the cell re-selection criteria. The cell re-selection delay is then defined as a time between the occurrence of an event which will trigger Cell Reselection process and from when radio conditions are changed according to the test scenario to the moment in time when the UE starts sending the RRC Cell Update message to the UTRAN.

5.4.2.1.1-4 ~~Test parameters~~ All cells in the neighbour list belong to the same frequency

The cell re-selection delay in CELL_FACH state shall be less than [x] seconds when all cells in the neighbour list belong to the same frequency

The same test parameters as specified in clause 4.3.1.1.1 for cell re-selection in idle mode shall be used.

5.4.2.1.1-2 ~~Minimum requirements~~ The cells in the neighbour list belong to different frequencies

NOTE: This requirement should be reconsidered based on RAN2 decisions.

The cell re-selection delay in CELL_FACH state shall be less than [x] seconds when the cells in the neighbour list belong to less than [x] frequencies.

Cell re-selection shall be correct in more than [X%] of the cases. Cell re-selection is correct if within [x] seconds the UE re-selects a new cell, which fulfils the cell re-selection criteria.

5.35 Cell Re-selection in Cell_PCH

5.5.1 Introduction

When a Cell Re-selection process is triggered according to 25.331, the UE shall evaluate the cell re-selection criteria specified in TS 25.303, based on radio measurements, and if a better cell is found that cell is selected.

5.5.2 Requirements

Cell ~~selection and cell~~ re-selection delays are applicable when the repetition period of all relevant system information blocks is not more than 1 280 ms and the length of DRX cycle is not longer than [640] ms.

~~5.3.1 Requirements for Cell re-selection single carrier multi cell case~~

~~5.53.24.1~~ Cell re-selection delay

When the UE is camped in Cell_PCH state on one of the cells, the UE shall be capable of re-selecting a new cell according the cell re-selection criteria. The cell re-selection delay is then defined as ~~thea~~ the time between the occurrence of an event which will trigger Cell Reselection process and from when radio conditions are changed according to the test scenario to the moment in time when the UE starts sending the RRC Cell Update message to the UTRAN.

~~5.53.24.1.1~~ Test Parameters All cells in the neighbour list belong to the same frequency

The cell re-selection delay in CELL_PCH state shall be less than [x] seconds when all cells in the neighbour list belong to the same frequency

The same test parameters as specified in clause 4.3.1.1.1 for cell re-selection in idle mode shall be used.

~~5.53.24.1.2~~ Performance Requirements The cells in the neighbour list belong to different frequencies

The cell re-selection delay in CELL_PCH state shall be less than [x] seconds when the cells in the neighbour list belong to less than [x] frequencies.

Cell re-selection shall be correct in more than [X %] of the cases. Cell re-selection is correct if within [5] seconds the UE re-selects a new cell, which fulfils the cell re-selection criteria.

5.46 Cell Re-selection in URA_PCH

5.6.1 Introduction

When a Cell Re-selection process is triggered according to 25.331, the UE shall evaluate the cell re-selection criteria specified in TS 25.303, based on radio measurements, and if a better cell is found that cell is selected.

5.6.2 Requirements

Cell ~~selection and cell~~ re-selection delays are applicable when the repetition period of all relevant system information blocks is not more than 1280 ms and the length of DRX cycle is not longer than [640] ms.

~~5.4.1 Requirements for Cell Re-selection single carrier multi cell case~~

~~5.64.24.1~~ Cell re-selection delay

When the UE is camped URA_PCH state on one of the cells, the UE shall be capable of re-selecting a new cell according the cell re-selection criteria. The cell re-selection delay is then defined as ~~thea~~ the time between the occurrence of an event which will trigger Cell Reselection process and from when radio conditions are changed according to the test scenario to the moment in time when the UE starts sending the RRC Cell Update message to the UTRAN.

~~5.64.24.1.1~~ Test parameters All cells in the neighbour list belong to the same frequency

The cell re-selection delay in URA_PCH state shall be less than [x] seconds when all cells in the neighbour list belong to the same frequency.

The same test parameters as specified in clause 4.3.1.1.1 for cell re-selection in idle mode shall be used.

~~5.64.24.1.2~~ ~~Minimum requirements~~ The cells in the neighbour list belong to different frequencies

The cell re-selection delay in URA_PCH state shall be less than [x] seconds when the cells in the neighbour list belong to less than [x] frequencies.

Cell re-selection shall be correct in more than [X%] of the cases. Cell re-selection is correct if within [x] seconds the UE re-selects a new cell, which fulfils the cell re-selection criteria.

~~5.5~~ ~~Radio link management~~

~~5.5.1~~ ~~Link adaptation~~

~~5.5.1.1~~ ~~Definition of the function~~

Radio link adaptation is the ability of UE to select the suitable transport format combination from the assigned transport format combination set, in order to maintain Inner Loop power control, in the case of reaching its maximum transmit power.

~~5.5.1.2~~ ~~Link adaptation minimum delay requirement~~

When maximum transmit power has been reached and Inner Loop PC can no longer be maintained, UE shall start to use the transport format combination corresponding to the next lower bit rate within the assigned transport format set, within the maximum delay of [FFS]ms.

~~5.5.1.3~~ ~~Link adaptation accuracy minimum requirement~~

UE shall not adapt to a lower transport format if the Inner Loop PC command requires its average output power over [FFS] ms to stay within [+FFS] dB of UE's maximum output power.

~~5.6~~ ~~Cell update~~

(void)

~~5.7~~ ~~URA update~~

(void)

Sophia, France 13th - 17th November 2000

CR-Form-v3

CHANGE REQUEST
 ⌘ **25.123 CR 30** ⌘ rev **-** ⌘ Current version: **3.3.0** ⌘

 For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.

Proposed change affects: ⌘ (U)SIM ME/UE Radio Access Network Core Network

Title:	⌘ Re-structuring TS 25.123 Section A5		
Source:	⌘ RAN WG4		
Work item code:	⌘	Date:	⌘ 13-17 Nov 2000
Category:	⌘ F	Release:	⌘ R99
	Use <u>one</u> of the following categories: F (essential correction) A (corresponds to a correction in an earlier release) B (Addition of feature), C (Functional modification of feature) D (Editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900.		Use <u>one</u> of the following releases: 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)

Reason for change:	⌘ See Tdoc R4-000926 and R4-000919
Summary of change:	⌘ The requirements and the structure of this section is modified in order to fit with 25.133 structure and RAN2 specifications.
Consequences if not approved:	⌘ Inconsistency between specification 25.123 and 25.133 as well as RAN2 specifications

Clauses affected:	⌘		
Other specs affected:	<input type="checkbox"/> Other core specifications <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications	⌘	
Other comments:	⌘		

How to create CRs using this form:
 Comprehensive information and tips about how to create CRs can be found at: http://www.3gpp.org/3G_Specs/CRs.htm. Below is a brief summary:

- 1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under <ftp://www.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2000-09 contains the specifications resulting from the September 2000 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

A.5 UTRAN Connected Mode Mobility

A.5.1 TDD/TDD Handover

NOTE: This section is included for consistency with numbering with section 5; currently no test covering requirements in sections 5.1.2.1 and 5.1.2.2 exists.

A.5.2 TDD/FDD Handover

NOTE: This section is included for consistency with numbering with section 5 currently no test covering requirements in sections 5.2.2.1 and 5.2.2.2 exists.

A.5.3 TDD/GSM Handover

NOTE: This section is included for consistency with numbering with section 5 currently no test covering requirements in sections 5.3.2.1 and 5.3.2.2 exists.

A.5.4 Cell Re-selection in CELL_FACH

A.5.4.1 One frequency present in neighbour list

A.5.4.1.1 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 Table A.5.1 and A.5.2

Table A.5.1 General test parameters for Cell Re-selection in CELL_FACH

	<u>Parameter</u>	<u>Unit</u>	<u>Value</u>	<u>Comment</u>
<u>initial condition</u>	<u>Active cell</u>		<u>Cell1</u>	
	<u>Neighbour cells</u>		<u>Cell2, Cell3,Cell4, Cell5, Cell6</u>	
<u>final condition</u>	<u>Active cell</u>		<u>Cell2</u>	
<u>T1</u>		<u>s</u>		<u>T1 need to be defined so that cell re-selection reaction time is taken into account.</u>
<u>T2</u>		<u>s</u>		<u>T2 need to be defined so that cell re-selection reaction time is taken into account.</u>

Table A.5.2 Cell specific test parameters for Cell Re-selection in CELL_FACH

<u>Parameter</u>	<u>Unit</u>	<u>Cell 1</u>				<u>Cell 2</u>				<u>Cell 3</u>			
<u>Timeslot Number</u>		<u>0</u>		<u>8</u>		<u>0</u>		<u>8</u>		<u>0</u>		<u>8</u>	
		<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>
<u>UTRA RF Channel Number</u>		<u>Channel 1</u>				<u>Channel 1</u>				<u>Channel 1</u>			
<u>PCCPCH Ec/Ior</u>	<u>dB</u>	<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>		
<u>SCH Ec/Ior</u>	<u>dB</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>
<u>SCH T_{offset}</u>		<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>5</u>	<u>5</u>	<u>5</u>	<u>5</u>	<u>10</u>	<u>10</u>	<u>10</u>	<u>10</u>
<u>PICH Ec/Ior</u>	<u>dB</u>			<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>
<u>OCNS Ec/Ior</u>	<u>dB</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>
<u>I_{or}/I_{oc}</u>	<u>dB</u>	<u>9</u>	<u>7</u>	<u>9</u>	<u>7</u>	<u>7</u>	<u>9</u>	<u>7</u>	<u>9</u>	<u>-1</u>	<u>-1</u>	<u>-1</u>	<u>-1</u>
<u>PCCPCH RSCP</u>	<u>dBm</u>	<u>-64</u>	<u>-66</u>			<u>-66</u>	<u>-64</u>			<u>-74</u>	<u>-74</u>		
<u>Qoffset</u>			<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
<u>Qhyst</u>	<u>dBm</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
<u>Treselection</u>			<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
<u>Qintrasearch</u>	<u>dB</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
		<u>Cell 4</u>				<u>Cell 5</u>				<u>Cell 6</u>			
<u>Timeslot</u>		<u>0</u>		<u>8</u>		<u>0</u>		<u>8</u>		<u>0</u>		<u>8</u>	
		<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>
<u>UTRA RF Channel Number</u>		<u>Channel 1</u>				<u>Channel 1</u>				<u>Channel 1</u>			
<u>PCCPCH Ec/Ior</u>	<u>dB</u>	<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>		
<u>SCH Ec/Ior</u>	<u>dB</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>
<u>SCH T_{offset}</u>		<u>15</u>	<u>15</u>	<u>15</u>	<u>15</u>	<u>20</u>	<u>20</u>	<u>20</u>	<u>20</u>	<u>25</u>	<u>25</u>	<u>25</u>	<u>25</u>
<u>PICH Ec/Ior</u>	<u>dB</u>			<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>
<u>OCNS</u>	<u>dB</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>
<u>I_{or}/I_{oc}</u>	<u>dB</u>	<u>-1</u>	<u>-1</u>	<u>-1</u>	<u>-1</u>	<u>-1</u>	<u>-1</u>	<u>-1</u>	<u>-1</u>	<u>-1</u>	<u>-1</u>	<u>-1</u>	<u>-1</u>
<u>PCCPCH RSCP</u>		<u>-74</u>	<u>-74</u>			<u>-74</u>	<u>-74</u>			<u>-74</u>	<u>-74</u>		
<u>Qoffset</u>			<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
<u>Qhyst</u>	<u>dBm</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
<u>Treselection</u>			<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
<u>Qintrasearch</u>	<u>dB</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
<u>I_{oc}</u>	<u>dBm/3.84 MHz</u>	<u>-70</u>											
<u>Propagation Condition</u>		<u>AWGN</u>											

Note: PCCPCH_RSCP is the quality measure for cell selection and re-selection.

A.5.4.1.2 Test Requirements

The UE shall select cell 2 within a cell re-selection delay specified in 5.4.2.1.1

A.5.4.2 Two frequencies present in the neighbour list

A.5.4.2.1 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 5.4.2.1.2. The test parameters are given in Table A5-3 and A5-4.

Table A.5.3: General test parameters for Cell Re-selection in CELL_FACH

	<u>Parameter</u>	<u>Unit</u>	<u>Value</u>	<u>Comment</u>
<u>initial condition</u>	<u>Active cell</u>		<u>Cell1</u>	
	<u>Neighbour cells</u>		<u>Cell2, Cell3, Cell4, Cell5, Cell6</u>	
<u>final condition</u>	<u>Active cell</u>		<u>Cell2</u>	
<u>T1</u>		<u>s</u>		<u>T1 need to be defined so that cell re-selection reaction time is taken into account.</u>
<u>T2</u>		<u>s</u>		<u>T2 need to be defined so that cell re-selection reaction time is taken into account.</u>

Table A.5.4: Cell specific test parameters for Cell re-selection in CELL_FACH state

<u>Parameter</u>	<u>Unit</u>	<u>Cell 1</u>				<u>Cell 2</u>				<u>Cell 3</u>			
<u>Timeslot Number</u>		<u>0</u>		<u>8</u>		<u>0</u>		<u>8</u>		<u>0</u>		<u>8</u>	
		<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>
<u>UTRA RF Channel Number</u>		<u>Channel 1</u>				<u>Channel 2</u>				<u>Channel 1</u>			
<u>PCCPCH Ec/Ior</u>	dB	<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>		
<u>SCH Ec/Ior</u>	dB	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>
<u>SCH T_{offset}</u>		<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>5</u>	<u>5</u>	<u>5</u>	<u>5</u>	<u>10</u>	<u>10</u>	<u>10</u>	<u>10</u>
<u>PICH Ec/Ior</u>	dB			<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>
<u>OCNS Ec/Ior</u>	dB	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>
<u>I_{or}/I_{oc}</u>	dB	<u>3</u>	<u>0</u>	<u>3</u>	<u>0</u>	<u>0</u>	<u>3</u>	<u>0</u>	<u>3</u>	<u>-3</u>	<u>-3</u>	<u>-3</u>	<u>-3</u>
<u>PCCPCH RSCP</u>	dBm	<u>-70</u>	<u>-73</u>			<u>-73</u>	<u>-70</u>			<u>-76</u>	<u>-76</u>		
<u>Q_{offset}</u>			<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
<u>Q_{hyst}</u>	dBm		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
<u>Treselection</u>			<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
<u>Q_{intrasearch}</u>	dB		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
		<u>Cell 4</u>				<u>Cell 5</u>				<u>Cell 6</u>			
<u>Timeslot</u>		<u>0</u>		<u>8</u>		<u>0</u>		<u>8</u>		<u>0</u>		<u>8</u>	
		<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>
<u>UTRA RF Channel Number</u>		<u>Channel 1</u>				<u>Channel 2</u>				<u>Channel 2</u>			
<u>PCCPCH Ec/Ior</u>	dB	<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>		
<u>SCH Ec/Ior</u>	dB	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>
<u>SCH T_{offset}</u>		<u>20</u>	<u>20</u>	<u>20</u>	<u>20</u>	<u>15</u>	<u>15</u>	<u>15</u>	<u>15</u>	<u>25</u>	<u>25</u>	<u>25</u>	<u>25</u>
<u>PICH Ec/Ior</u>	dB			<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>
<u>OCNS</u>	dB	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>
<u>I_{or}/I_{oc}</u>	dB	<u>-3</u>	<u>-3</u>	<u>-3</u>	<u>-3</u>	<u>-3</u>	<u>-3</u>	<u>-3</u>	<u>-3</u>	<u>-3</u>	<u>-3</u>	<u>-3</u>	<u>-3</u>
<u>PCCPCH RSCP</u>		<u>-76</u>	<u>-76</u>			<u>-76</u>	<u>-76</u>			<u>-76</u>	<u>-76</u>		
<u>Q_{offset}</u>			<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
<u>Q_{hyst}</u>	dBm		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
<u>Treselection</u>			<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
<u>Q_{intrasearch}</u>	dB		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
<u>I_{oc}</u>	dBm/3. 84 MHz	<u>-70</u>											
<u>Propagation Condition</u>		<u>AWGN</u>											

Note: PCCPCH_RSCP is the quality measure for cell selection and re-selection.

A.5.4.2.2 Test Requirements

The UE shall select cell 2 within a cell re-selection delay specified in 5.4.2.1.2

A.5.5 Cell Re-selection in CELL_PCH

A.5.5.1 One frequency present in the neighbour list

A.5.5.1.1 Test Purpose and Environment

The purpose of this test is to verify the requirement for the cell re-selection delay in CELL_PCH state in section 5.5.2.1.1.

The test parameters are given in Table A5.5 and A5.6

Table A.5.5: General test parameters for Cell Re-selection in CELL_PCH

	<u>Parameter</u>	<u>Unit</u>	<u>Value</u>	<u>Comment</u>
<u>initial condition</u>	<u>Active cell</u>		<u>Cell1</u>	
	<u>Neighbour cells</u>		<u>Cell2, Cell3,Cell4, Cell5, Cell6</u>	
<u>final condition</u>	<u>Active cell</u>		<u>Cell2</u>	
<u>T1</u>		<u>s</u>		<u>T1 need to be defined so that cell re-selection reaction time is taken into account.</u>
<u>T2</u>		<u>s</u>		<u>T2 need to be defined so that cell re-selection reaction time is taken into account.</u>

Table A.5.6: Cell specific test parameters for Cell re-selection in CELL_PCH state

<u>Parameter</u>	<u>Unit</u>	<u>Cell 1</u>				<u>Cell 2</u>				<u>Cell 3</u>			
<u>Timeslot Number</u>		<u>0</u>		<u>8</u>		<u>0</u>		<u>8</u>		<u>0</u>		<u>8</u>	
		<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>
<u>UTRA RF Channel Number</u>		<u>Channel 1</u>				<u>Channel 1</u>				<u>Channel 1</u>			
<u>PCCPCH Ec/Ior</u>	<u>dB</u>	<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>		
<u>SCH Ec/Ior</u>	<u>dB</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>
<u>SCH Toffset</u>		<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>5</u>	<u>5</u>	<u>5</u>	<u>5</u>	<u>10</u>	<u>10</u>	<u>10</u>	<u>10</u>
<u>PICH Ec/Ior</u>	<u>dB</u>			<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>
<u>OCNS Ec/Ior</u>	<u>dB</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>
<u>I_{or}/I_{oc}</u>	<u>dB</u>	<u>9</u>	<u>7</u>	<u>9</u>	<u>7</u>	<u>7</u>	<u>9</u>	<u>7</u>	<u>9</u>	<u>-1</u>	<u>-1</u>	<u>-1</u>	<u>-1</u>
<u>PCCPCH RSCP</u>	<u>dBm</u>	<u>-64</u>	<u>-66</u>			<u>-66</u>	<u>-64</u>			<u>-74</u>	<u>-74</u>		
<u>Qoffset</u>			<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
<u>Qhyst</u>	<u>dBm</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
<u>Treselection</u>			<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
<u>Qintrasearch</u>	<u>dB</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
		<u>Cell 4</u>				<u>Cell 5</u>				<u>Cell 6</u>			
<u>Timeslot</u>		<u>0</u>		<u>8</u>		<u>0</u>		<u>8</u>		<u>0</u>		<u>8</u>	
		<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>
<u>UTRA RF Channel Number</u>		<u>Channel 1</u>				<u>Channel 1</u>				<u>Channel 1</u>			
<u>PCCPCH Ec/Ior</u>	<u>dB</u>	<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>		
<u>SCH Ec/Ior</u>	<u>dB</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>
<u>SCH Toffset</u>		<u>15</u>	<u>15</u>	<u>15</u>	<u>15</u>	<u>20</u>	<u>20</u>	<u>20</u>	<u>20</u>	<u>25</u>	<u>25</u>	<u>25</u>	<u>25</u>
<u>PICH Ec/Ior</u>	<u>dB</u>			<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>
<u>OCNS</u>	<u>dB</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>
<u>I_{or}/I_{oc}</u>	<u>dB</u>	<u>-1</u>	<u>-1</u>	<u>-1</u>	<u>-1</u>	<u>-1</u>	<u>-1</u>	<u>-1</u>	<u>-1</u>	<u>-1</u>	<u>-1</u>	<u>-1</u>	<u>-1</u>
<u>PCCPCH RSCP</u>		<u>-74</u>	<u>-74</u>			<u>-74</u>	<u>-74</u>			<u>-74</u>	<u>-74</u>		
<u>Qoffset</u>			<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
<u>Qhyst</u>	<u>dBm</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
<u>Treselection</u>			<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
<u>Qintrasearch</u>	<u>dB</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
<u>I_{oc}</u>	<u>dBm/3.84 MHz</u>	<u>-70</u>											
<u>Propagation Condition</u>		<u>AWGN</u>											

Note: PCCPCH_RSCP is the quality measure for cell selection and re-selection.

A.5.5.1.2 Test Requirements

The UE shall select cell 2 within a cell re-selection delay specified in 5.5.2.1.1

A.5.5.2 Two frequencies present in the neighbour list

A.5.5.2.1 Test Purpose and Environment

The purpose of this test is to verify the requirement for the cell re-selection delay in CELL_PCH state in in section 5.5.2.1.2.

The test parameters are given in Table A.5.7 and A.5.8

Table A.5.7: General test parameters for Cell Re-selection in CELL_PCH

	Parameter	Unit	Value	Comment
<u>initial condition</u>	<u>Active cell</u>		<u>Cell1</u>	
	<u>Neighbour cells</u>		<u>Cell2, Cell3,Cell4, Cell5, Cell6</u>	
<u>final condition</u>	<u>Active cell</u>		<u>Cell2</u>	
<u>T1</u>		<u>s</u>		<u>T1 need to be defined so that cell re-selection reaction time is taken into account.</u>
<u>T2</u>		<u>s</u>		<u>T2 need to be defined so that cell re-selection reaction time is taken into account.</u>

Table A.5.8: Cell specific test parameters for Cell re-selection in CELL_PCH state

<u>Parameter</u>	<u>Unit</u>	<u>Cell 1</u>				<u>Cell 2</u>				<u>Cell 3</u>			
<u>Timeslot Number</u>		<u>0</u>		<u>8</u>		<u>0</u>		<u>8</u>		<u>0</u>		<u>8</u>	
		<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>
<u>UTRA RF Channel Number</u>		<u>Channel 1</u>				<u>Channel 2</u>				<u>Channel 1</u>			
<u>PCCPCH Ec/Ior</u>	<u>dB</u>	<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>		
<u>SCH Ec/Ior</u>	<u>dB</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>
<u>SCH T_{offset}</u>		<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>5</u>	<u>5</u>	<u>5</u>	<u>5</u>	<u>10</u>	<u>10</u>	<u>10</u>	<u>10</u>
<u>PICH Ec/Ior</u>	<u>dB</u>			<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>
<u>OCNS Ec/Ior</u>	<u>dB</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>
<u>I_{or}/I_{oc}</u>	<u>dB</u>	<u>3</u>	<u>0</u>	<u>3</u>	<u>0</u>	<u>0</u>	<u>3</u>	<u>0</u>	<u>3</u>	<u>-3</u>	<u>-3</u>	<u>-3</u>	<u>-3</u>
<u>PCCPCH RSCP</u>	<u>dBm</u>	<u>-70</u>	<u>-73</u>			<u>-73</u>	<u>-70</u>			<u>-76</u>	<u>-76</u>		
<u>Qoffset</u>			<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
<u>Qhyst</u>	<u>dBm</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
<u>Treselection</u>			<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
<u>Qintrasearch</u>	<u>dB</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
		<u>Cell 4</u>				<u>Cell 5</u>				<u>Cell 6</u>			
<u>Timeslot</u>		<u>0</u>		<u>8</u>		<u>0</u>		<u>8</u>		<u>0</u>		<u>8</u>	
		<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>
<u>UTRA RF Channel Number</u>		<u>Channel 1</u>				<u>Channel 2</u>				<u>Channel 2</u>			
<u>PCCPCH Ec/Ior</u>	<u>dB</u>	<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>		
<u>SCH Ec/Ior</u>	<u>dB</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>
<u>SCH T_{offset}</u>		<u>20</u>	<u>20</u>	<u>20</u>	<u>20</u>	<u>15</u>	<u>15</u>	<u>15</u>	<u>15</u>	<u>25</u>	<u>25</u>	<u>25</u>	<u>25</u>
<u>PICH Ec/Ior</u>	<u>dB</u>			<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>
<u>OCNS</u>	<u>dB</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>
<u>I_{or}/I_{oc}</u>	<u>dB</u>	<u>-3</u>	<u>-3</u>	<u>-3</u>	<u>-3</u>	<u>-3</u>	<u>-3</u>	<u>-3</u>	<u>-3</u>	<u>-3</u>	<u>-3</u>	<u>-3</u>	<u>-3</u>
<u>PCCPCH RSCP</u>		<u>-76</u>	<u>-76</u>			<u>-76</u>	<u>-76</u>			<u>-76</u>	<u>-76</u>		
<u>Qoffset</u>			<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
<u>Qhyst</u>	<u>dBm</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
<u>Treselection</u>			<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
<u>Qintrasearch</u>	<u>dB</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
<u>I_{oc}</u>	<u>dBm/3.84 MHz</u>	<u>-70</u>											
<u>Propagation Condition</u>		<u>AWGN</u>											

Note: PCCPCH_RSCP is the quality measure for cell selection and re-selection.

A.5.5.2.2 Test Requirements

The UE shall select cell 2 within a cell re-selection delay specified in 5.5.2.1.2

A.5.6 Cell Re-selection in URA_PCH

A.5.6.1 One frequency present in the neighbour list

A.5.6.1.1 Test Purpose and Environment

The purpose of this test is to verify the requirement for the cell re-selection delay in URA_PCH state in in section 5.6.2.1.1.

The test parameters are given in Table A.5.9 and A.5.10.

Cells possible for re-selection shall belong to different UTRAN Registration Areas (URA).

Table A.5.9: General test parameters for Cell Re-selection in URA_PCH

	<u>Parameter</u>	<u>Unit</u>	<u>Value</u>	<u>Comment</u>
<u>initial condition</u>	<u>Active cell</u>		<u>Cell1</u>	
	<u>Neighbour cells</u>		<u>Cell2, Cell3,Cell4, Cell5, Cell6</u>	
<u>final condition</u>	<u>Active cell</u>		<u>Cell2</u>	
<u>T1</u>		<u>s</u>		<u>T1 need to be defined so that cell re-selection reaction time is taken into account.</u>
<u>T2</u>		<u>s</u>		<u>T2 need to be defined so that cell re-selection reaction time is taken into account.</u>

Table A.5.10: Cell specific test parameters for Cell re-selection in URA PCH state

<u>Parameter</u>	<u>Unit</u>	<u>Cell 1</u>				<u>Cell 2</u>				<u>Cell 3</u>			
<u>Timeslot Number</u>		<u>0</u>		<u>8</u>		<u>0</u>		<u>8</u>		<u>0</u>		<u>8</u>	
		<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>
<u>UTRA RF Channel Number</u>		<u>Channel 1</u>				<u>Channel 1</u>				<u>Channel 1</u>			
<u>PCCPCH Ec/Ior</u>	<u>dB</u>	<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>		
<u>SCH Ec/Ior</u>	<u>dB</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>
<u>SCH T_{offset}</u>		<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>5</u>	<u>5</u>	<u>5</u>	<u>5</u>	<u>10</u>	<u>10</u>	<u>10</u>	<u>10</u>
<u>PICH Ec/Ior</u>	<u>dB</u>			<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>
<u>OCNS Ec/Ior</u>	<u>dB</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>
<u>I_{or}/I_{oc}</u>	<u>dB</u>	<u>9</u>	<u>7</u>	<u>9</u>	<u>7</u>	<u>7</u>	<u>9</u>	<u>7</u>	<u>9</u>	<u>-1</u>	<u>-1</u>	<u>-1</u>	<u>-1</u>
<u>PCCPCH RSCP</u>	<u>dBm</u>	<u>-64</u>	<u>-66</u>			<u>-66</u>	<u>-64</u>			<u>-74</u>	<u>-74</u>		
<u>Qoffset</u>			<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
<u>Qhyst</u>	<u>dBm</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
<u>Treselection</u>			<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
<u>Qintrasearch</u>	<u>dB</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
		<u>Cell 4</u>				<u>Cell 5</u>				<u>Cell 6</u>			
<u>Timeslot</u>		<u>0</u>		<u>8</u>		<u>0</u>		<u>8</u>		<u>0</u>		<u>8</u>	
		<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>
<u>UTRA RF Channel Number</u>		<u>Channel 1</u>				<u>Channel 1</u>				<u>Channel 1</u>			
<u>PCCPCH Ec/Ior</u>	<u>dB</u>	<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>		
<u>SCH Ec/Ior</u>	<u>dB</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>
<u>SCH T_{offset}</u>		<u>15</u>	<u>15</u>	<u>15</u>	<u>15</u>	<u>20</u>	<u>20</u>	<u>20</u>	<u>20</u>	<u>25</u>	<u>25</u>	<u>25</u>	<u>25</u>
<u>PICH Ec/Ior</u>	<u>dB</u>			<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>
<u>OCNS</u>	<u>dB</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>
<u>I_{or}/I_{oc}</u>	<u>dB</u>	<u>-1</u>	<u>-1</u>	<u>-1</u>	<u>-1</u>	<u>-1</u>	<u>-1</u>	<u>-1</u>	<u>-1</u>	<u>-1</u>	<u>-1</u>	<u>-1</u>	<u>-1</u>
<u>PCCPCH RSCP</u>		<u>-74</u>	<u>-74</u>			<u>-74</u>	<u>-74</u>			<u>-74</u>	<u>-74</u>		
<u>Qoffset</u>			<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
<u>Qhyst</u>	<u>dBm</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
<u>Treselection</u>			<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
<u>Qintrasearch</u>	<u>dB</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
<u>I_{oc}</u>	<u>dBm/3.84 MHz</u>	<u>-70</u>											
<u>Propagation Condition</u>		<u>AWGN</u>											

Note: PCCPCH_RSCP is the quality measure for cell selection and re-selection.

A.5.6.1.2 Test Requirements

The UE shall select cell 2 within a cell re-selection delay specified in 5.6.2.1.1

A.5.6.2 Two frequencies present in the neighbour list

A.5.6.2.1 Test Purpose and Environment

The purpose of this test is to verify the requirement for the cell re-selection delay in URA_PCH state in section 5.6.2.1.2.

The test parameters are given in Table A5.11 and A5.12.

Cells possible for re-selection shall belong to different UTRAN Registration Areas (URA).

Table A.5.11: General test parameters for Cell Re-selection in URA_PCH

	<u>Parameter</u>	<u>Unit</u>	<u>Value</u>	<u>Comment</u>
<u>initial condition</u>	<u>Active cell</u>		<u>Cell1</u>	
	<u>Neighbour cells</u>		<u>Cell2, Cell3, Cell4, Cell5, Cell6</u>	
<u>final condition</u>	<u>Active cell</u>		<u>Cell2</u>	
<u>T1</u>		<u>s</u>		<u>T1 need to be defined so that cell re-selection reaction time is taken into account.</u>
<u>T2</u>		<u>s</u>		<u>T2 need to be defined so that cell re-selection reaction time is taken into account.</u>

Table A.5.12: Cell specific test parameters for Cell re-selection in URA PCH state

<u>Parameter</u>	<u>Unit</u>	<u>Cell 1</u>				<u>Cell 2</u>				<u>Cell 3</u>			
<u>Timeslot Number</u>		<u>0</u>		<u>8</u>		<u>0</u>		<u>8</u>		<u>0</u>		<u>8</u>	
		<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>
<u>UTRA RF Channel Number</u>		<u>Channel 1</u>				<u>Channel 2</u>				<u>Channel 1</u>			
<u>PCCPCH Ec/Ior</u>	<u>dB</u>	<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>		
<u>SCH Ec/Ior</u>	<u>dB</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>
<u>SCH Toffset</u>		<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>5</u>	<u>5</u>	<u>5</u>	<u>5</u>	<u>10</u>	<u>10</u>	<u>10</u>	<u>10</u>
<u>PICH Ec/Ior</u>	<u>dB</u>			<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>
<u>OCNS Ec/Ior</u>	<u>dB</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>
<u>I_{or}/I_{oc}</u>	<u>dB</u>	<u>3</u>	<u>0</u>	<u>3</u>	<u>0</u>	<u>0</u>	<u>3</u>	<u>0</u>	<u>3</u>	<u>-3</u>	<u>-3</u>	<u>-3</u>	<u>-3</u>
<u>PCCPCH RSCP</u>	<u>dBm</u>	<u>-70</u>	<u>-73</u>			<u>-73</u>	<u>-70</u>			<u>-76</u>	<u>-76</u>		
<u>Qoffset</u>			<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
<u>Qhyst</u>	<u>dBm</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
<u>Treselection</u>			<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
<u>Qintrasearch</u>	<u>dB</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
		<u>Cell 4</u>				<u>Cell 5</u>				<u>Cell 6</u>			
<u>Timeslot</u>		<u>0</u>		<u>8</u>		<u>0</u>		<u>8</u>		<u>0</u>		<u>8</u>	
		<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>
<u>UTRA RF Channel Number</u>		<u>Channel 1</u>				<u>Channel 2</u>				<u>Channel 2</u>			
<u>PCCPCH Ec/Ior</u>	<u>dB</u>	<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>		
<u>SCH Ec/Ior</u>	<u>dB</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>
<u>SCH Toffset</u>		<u>20</u>	<u>20</u>	<u>20</u>	<u>20</u>	<u>15</u>	<u>15</u>	<u>15</u>	<u>15</u>	<u>25</u>	<u>25</u>	<u>25</u>	<u>25</u>
<u>PICH Ec/Ior</u>	<u>dB</u>			<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>			<u>-3</u>	<u>-3</u>
<u>OCNS</u>	<u>dB</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>
<u>I_{or}/I_{oc}</u>	<u>dB</u>	<u>-3</u>	<u>-3</u>	<u>-3</u>	<u>-3</u>	<u>-3</u>	<u>-3</u>	<u>-3</u>	<u>-3</u>	<u>-3</u>	<u>-3</u>	<u>-3</u>	<u>-3</u>
<u>PCCPCH RSCP</u>		<u>-76</u>	<u>-76</u>			<u>-76</u>	<u>-76</u>			<u>-76</u>	<u>-76</u>		
<u>Qoffset</u>			<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
<u>Qhyst</u>	<u>dBm</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
<u>Treselection</u>			<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
<u>Qintrasearch</u>	<u>dB</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>		<u>[]</u>
<u>I_{oc}</u>	<u>dBm/3.84 MHz</u>	<u>-70</u>											
<u>Propagation Condition</u>		<u>AWGN</u>											

Note: PCCPCH_RSCP is the quality measure for cell selection and re-selection.

A.5.6.2.2 Test Requirements

The UE shall select cell 2 within a cell re-selection delay specified in 5.6.2.1.2

CHANGE REQUEST

⌘ **25.123 CR 31** ⌘ rev **-** ⌘ Current version: **3.3.0** ⌘

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Proposed change affects: ⌘ (U)SIM ME/UE Radio Access Network Core Network

Title:	⌘ Re-structuring TS 25.123 Section 6+7				
Source:	⌘ RAN WG4				
Work item code:	⌘	Date:	⌘ 13-17 Nov 2000		
Category:	⌘ F	Release:	⌘ R99		
Use <u>one</u> of the following categories: F (essential correction) A (corresponds to a correction in an earlier release) B (Addition of feature), C (Functional modification of feature) D (Editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900.		Use <u>one</u> of the following releases: 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)			

Reason for change:	⌘ See Tdoc R4-000928 and R4-000919
Summary of change:	⌘ The requirements and the structure of this section is modified in order to fit with 25.133 structure and RAN2 specifications.
Consequences if not approved:	⌘ Inconsistency between specification 25.123 and 25.133 as well as RAN2 specifications

Clauses affected:	⌘
Other specs affected:	⌘ <input type="checkbox"/> Other core specifications ⌘ <input type="checkbox"/> Test specifications ⌘ <input type="checkbox"/> O&M Specifications ⌘
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~~6~~ ~~RRC connection control~~

~~[Editor's Note: This Clause specifies triggering requirements on the RRC Connection re-establishment Procedure]~~

~~6.1~~ ~~Radio access bearer control~~

~~[Editor's Note: Radio Access Bearer Control Procedures are a series of mechanisms used to control the UE and system resources. Some of these procedures cause Physical Channel Reconfiguration and Transport Channel Reconfiguration. This clause specifies time delay requirements on Physical Channel Reconfiguration and Transport Channel configuration in different reconfiguration cases.]~~

~~6~~ ~~7~~ Dynamic channel allocation

~~6.1~~ ~~7.1~~ Introduction

The channel assignment algorithm will be implemented on network side in the RNC. It will be distributed, interference adapted approach where each base station makes the channel assignment based on local signal strength measurements performed in the UE and the Node B. A priori knowledge about the used channels of the other base stations in the vicinity can be implicitly used without additional signalling traffic.

~~6.2~~ ~~7.2~~ Implementation requirements

The purpose of DCA is on one side the limitation of the interference (keeping required QoS) and on the other side to maximise the system capacity due to minimising reuse distance. The details on channel assignment policy are given in [12].

~~6.3~~ ~~7.3~~ Number of timeslots to be measured

The number of down link timeslots to be measured in the UE is broadcasted on the BCH in each cell. In general, the number of downlink timeslots in question will be less than 14, but in worst case the UE shall be capable to measure 14 downlink timeslots. In case of "simple UE" [FFS] timeslots shall at least be measured.

~~6.4~~ ~~7.4~~ Measurement reporting delay

In order to save battery life time, in idle mode no measurements are performed for DCA. ISCP measurements are started at call establishment. Taking into account that the measured interference of the timeslots is preferable averaged over [FFS] frames, the measurement reporting delay in connecting phase shall not exceed [FFS] milliseconds.

~~7~~ ~~8~~ Timing characteristics

~~7.1~~ ~~8.1~~ Timing Advance (TA) requirements

To update timing advance of a moving UE the UTRAN measures "RX Timing deviation". The measurements are reported to higher layers, where timing advance values are calculated and signaled to the UE. The measurement for timing advance is defined in 3GPP TS25.225 "Physical Layer Measurements (TDD)", the requirements on the measurement is specified in clause 11.2.9 "RX Timing Deviation". The UE shall adjust the timing of its transmissions within ± 0.5 chip of the signalled timing advance value.

8.27.2 Cell synchronization accuracy

8.2.17.2.1 Definition

Cell synchronization accuracy is defined as the maximum deviation in frame start times between any pair of cells that have overlapping coverage areas.

8.2.27.2.2 Minimum requirements

The cell synchronization accuracy shall be better than or equal to 3μs.

A.6 Dynamic channel allocation

NOTE: This section is included for consistency with numbering with section 6; currently no test covering requirements in this section exists.

A.7 Timing characteristics

NOTE: This section is included for consistency with numbering with section 7; currently no test covering requirements in this section exists.

Sophia, France 13th - 17th November 2000

CR-Form-v3

CHANGE REQUEST⌘ **25.123 CR 32** ⌘ rev **-** ⌘ Current version: **3.3.0** ⌘For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.Proposed change affects: ⌘ (U)SIM ME/UE Radio Access Network Core Network

Title:	⌘ Re-structuring TS 25.123 Section 8+A8
Source:	⌘ RAN WG4
Work item code:	⌘ Date: ⌘ 13-17 Nov 2000
Category:	⌘ F Release: ⌘ R99
<p>Use <u>one</u> of the following categories:</p> <p>F (essential correction) A (corresponds to a correction in an earlier release) B (Addition of feature), C (Functional modification of feature) D (Editorial modification)</p> <p>Detailed explanations of the above categories can be found in 3GPP TR 21.900.</p>	
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Reason for change:	⌘ See Tdoc R4-000930 and R4-000919
Summary of change:	⌘ The requirements and the structure of this section is modified in order to fit with 25.133 structure and RAN2 specifications.
Consequences if not approved:	⌘ Inconsistency between specification 25.123 and 25.133 as well as RAN2 specifications

Clauses affected:	⌘
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8 UE Measurements Procedures

8.1 Measurements in CELL_DCH State

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 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.

8.2.1 Requirements

8.1.2.1 TDD intra frequency measurements

During the CELL_DCH state the UE shall continuously measure detected intra frequency cells and search for new intra frequency cells in the monitoring set. In case the network requests the UE to report unlisted cells, the UE shall also search for intra frequency cells outside the monitored set. Intra frequency measurements can be performed (simultaneously to data reception from the active cell) in all time slots not allocated to transmission nor the time used for inter frequency measurements.

8.1.2.1.1 Identification of a new cell

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

$$T_{\text{identify intra}} = \text{Max} \left\{ [480] \text{ms}, T_{\text{basic identify TDD, intra}} \cdot \frac{T_{\text{Measurement Period, Intra}}}{T_{\text{Intra}}} \right\}$$

8.1.2.1.2 UE P-CCPCH measurement capability

In the CELL_DCH state the measurement period for intra frequency measurements is [200] ms. When no inter frequency measurement is scheduled, the UE shall be capable of performing P-CCPCH measurements for [6] detected intra-frequency cells and the UE physical layer shall be capable of reporting measurements to higher layers with the measurement period of [200] ms. The measurement accuracy for all measured cells shall be as specified in the section 9.

$$Y_{\text{measurement intra}} = \text{Floor} \left\{ X_{\text{basic measurement TDD}} \cdot \frac{T_{\text{Intra}}}{T_{\text{Measurement Period, Intra}}} \right\}$$

whereby function Floor(x) takes the integer part of x.

$$X_{\text{basic measurement TDD}} = [6]$$

$$T_{\text{Measurement Period, Intra}} = [200] \text{ ms. The measurement period for Intra frequency P-CCPCH measurements.}$$

T_{Intra} : This is the minimum time that is available for intra frequency measurements, during the measurement period with an arbitrarily chosen timing.

$T_{\text{basic_identify_TDD, intra}}$ = TBD 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.

8.1.2.1.3 Periodic Reporting

Reported measurements contained in periodically triggered measurement reports shall meet the requirements in section 9.

8.1.2.1.4 Event-triggered Periodic Reporting

Reported measurements contained 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 8.1.2.1.5 Event Triggered Reporting.

8.1.2.1.5 Event Triggered Reporting

Reported measurements contained 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 from when a report is triggered at the physical layer according to the event, 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.

Editors Note: The test cases in section A.8 will need revisions to reflect the general requirements.

Unless otherwise stated, event triggered measurement reporting delay shall be less than 480 ms.

8.1.2.2 TDD inter frequency measurements

When signalled by the network during CELL_DCH state, the UE shall continuously measure detected inter frequency cells and search for new inter frequency cells indicated in the measurement control information.

8.1.2.2.1 Identification of a new cell

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

$$T_{\text{identify_inter}} = \text{Max} \left\{ [5]s, T_{\text{basic_identify_TDD,inter}} \cdot \frac{T_{\text{Measurement_Period, Inter}}}{T_{\text{Inter}}} \cdot N_{\text{Freq}} \right\}$$

8.1.2.2.2 Measurement period

When TDD inter frequency measurements are scheduled, the UE physical layer shall be capable of reporting measurements to higher layers with measurement accuracy as specified in section 9 with measurement period given by

$$T_{\text{measurement_inter}} = \text{Max} \left\{ [480]ms, T_{\text{basic_measurement_TDD_inter}} \cdot \frac{T_{\text{Measurement_Period, Inter}}}{T_{\text{Inter}}} \cdot N_{\text{Freq}} \right\}$$

In case of a dual receiver UE, the measurement period for inter frequency measurements is [480] ms.

$T_{\text{Measurement_Period_Inter}}$ = [480] ms. The period used for calculating the measurement period $T_{\text{measurement_inter}}$ for inter frequency P-CCPCH measurements.

T_{Inter}: This is the minimum time available for inter frequency measurements during the period T_{Measurement_Period inter} with an arbitrarily chosen timing. The minimum time depends on the channel allocation whereby HW settling time and synchronisation time has to be taken into account (for the description of the idle intervals see Annex A of 25.225).

T_{basic_identify_TDD,inter} = TBD ms. 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.

T_{basic_measurement_TDD,inter} = TBD ms. This is the time period used in the equation for defining the measurement period for inter frequency P-CCPCH measurements.

N_{Freq}: Number of TDD frequencies indicated in the measurement control information.

Note: It is still under consideration how to incorporate a time needed for adjusting asynchronous timing between intra and inter frequency measurement periods and UE HW settling time into the equations.

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 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 from when a report is triggered at the physical layer according to the event, 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 measurement reporting delay shall be less than [5] seconds.

8.1.2.3 FDD measurements

The requirements in this section apply only to UE supporting both TDD and FDD mode.

Editors note: The requirements in this section need to be revised.

The UE shall be capable of measuring the requested measurement quantity of at least [FFS] cells on a maximum of [FFS] frequencies, different from the frequency currently used by the UE.

8.1.2.3.1 Periodic Reporting

Reported measurements in periodically triggered measurement reports shall meet the requirements in section 9.

8.1.2.3.2 Event Triggered Reporting

Reported measurements in event triggered measurement reports shall meet the requirements in section 9.

Editors note: The measurement accuracy in combination with event triggered reporting is an open issue and the above sentence shall be revised when this is settled.

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 from when a report is triggered at the physical layer according to the event, 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 measurement reporting delay shall be less then [5] seconds.

8.1.2.4 GSM measurements

The requirements in this section applies only to UE supporting TDD and GSM.

When signalled by UTRAN during CELL_DCH state, the UE shall continuously measure GSM cells and search for new GSM cells given in the monitored set.

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

If BSIC verified is requested for a GSM cell the UE shall only report measurement quantities for that GSM cell with a BSIC “verified”. If BSIC verification is not required for a GSM cell the UE shall report measurement quantities for that GSM cell irrespectively if the BSIC has been verified or not verified.

For the UE performing GSM measurements, the requirements in GSM 05.08 shall apply.

8.1.2.4.1 GSM carrier RSSI

An UE supporting GSM measurements shall be able to measure GSM carrier RSSI levels of GSM cells from the monitored set with acquisition speed defined in table 8.1. In the CELL_DCH 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 GSM 05.08, when the given measurement time allows the UE to take the same amount of GSM carrier RSSI samples as stated in the GSM specification during the measurement period.

Table 8-1

<u>Idle Interval Length</u>	<u>Number of GSM carrier RSSI measurements.</u>
4	2
5	3
>5	≥4

In the calculation of the number of GSM carrier measurements based on the the idle interval length, the switching time [500 us] is already taken into account. For the description of the idle intervals see Annex A of 25.225.

8.1.2.4.2 BSIC verification

The procedure for UE measurements on a GSM cell with BSIC verified requested can be divided in 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 FDD and GSM cell. The UE shall trigger the initial BSIC identification within the available idle intervals as specified in TS 25.225, Annex A (Fig. A.1).

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 as specified in TS 25.225, Annex A (Fig. A.1).

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

The BSIC of a GSM cell is considered to be “verified” if the UE has demodulated 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 $T_{re-confirm\ GSM}$ seconds. Otherwise the BSIC of the GSM cell is considered as “non-verified”. The time requirement for initial BSIC identification, $T_{identify\ GSM}$, and the BSIC re-confirmation interval $T_{re-confirm\ GSM}$ can be found in the sections below.

If GSM measurements are requested with BSIC verified the UE shall be able to report at least the [6] strongest GSM cells with BSIC 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 GSM 05.05.

8.1.2.4.2.1 Initial BSIC identification

This measurement is performed in the idle intervals as specified in TS 25.225, Annex A (Fig. A.1).

For GSM cells that is requested with BSIC verified the UE shall attempt to demodulate the SCH on the BCCH carrier of as many GSM cells indicated in the measurement control information as possible. The UE shall give priority for synchronisation attempts in signal strength order. The UE shall be able to perform initial BSIC identification on one new GSM cell within the time specified in Annex A in TS 25.225.

When N new GSM cells are to be BSIC identified the time is changed to $N * T_{\text{identify GSM}}$, with

$T_{\text{identify GSM}} = \text{TBD ms}$. This is the time necessary to identify one new GSM cell.

Note: The details of the initial BSIC identification procedure must be further clarified.

8.1.2.4.2.2 BSIC re-confirmation

This measurement shall be based on the idle intervals as specified in TS 25.225, Annex A (Fig. A.1). The time requirement for BSIC re-confirmation is specified in Annex A in TS 25.225.

Note: The details of the BSIC re-confirmation procedure must be further clarified.

8.2 Parallel Measurements in CELL_DCH State

8.2.1 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. Control of measurement reporting is specified in TS 25.331 and measurements reporting delays are specified in section 8.1. For the description of the idle intervals see TS 25.225, Annex A.

8.2.2 Requirements

Editors note: The number of events that the UE shall be able to evaluate shall be considered either in this section or in a new section.

The requirements in section 9 are applicable for a UE performing measurements according to this section. [The UE shall be able to handle at least [x] TDD cells per carrier on at least [x] TDD carriers and at least [x] FDD cells per carrier on at least [x] FDD carriers and 32 GSM cells in the monitored set.]

The UE shall be able to perform parallel measurements according to table 8-2.

In addition to the requirements in table 8-2 the UE shall in parallel, in state CELL_DCH, also be able to measure and report the quantities according to section 8-2.

Table 8-2 Parallel measurement requirements

<u>Measurement quantity</u>	<u>Number of parallel measurements possible to request from the UE</u>
<u>Transport channel BLER</u>	<u>[1] per TrCh</u>
<u>UE transmitted power</u>	<u>[1]</u>
<u>SFN-SFN observed time difference type 2</u>	<u>[]</u>
<u>UE GPS Timing of Cell Frames for LCS</u>	<u>[]</u>

Editors Note: The presence of the measurements for location services needs to be revised.

8.3 Measurements in CELL FACH State

8.3.1 Introduction

This section contains requirements on the UE regarding measurement reporting in CELL FACH state. 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.

8.3.2 Requirements

TBD

A.8 UE Measurements Procedures

A.8.1 TDD intra frequency measurements

A.8.1.1 Event triggered reporting in AWGN propagation conditions

A.8.1.1.1 Test Purpose and Environment

This test will derive that the terminal makes correct reporting of an event Cell 1 is the active cell, Cell 2 is a neighbour cell on the used frequency. The power level on Cell 1 is kept constant and the power level of Cell 2 is changed using "change of best cell event" as illustrated in Figure A.8-1. The test parameters are shown in Table A.8-1. Hysteresis, absolute Threshold and Time to Trigger values are given in the table below and they are signalled from test device. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 1G shall be used. P-CCPCH RSCP of the best cell has to be reported together with Event 1G reporting. New measurement control information, which defines neighbour cells etc., is always sent before the event starts.

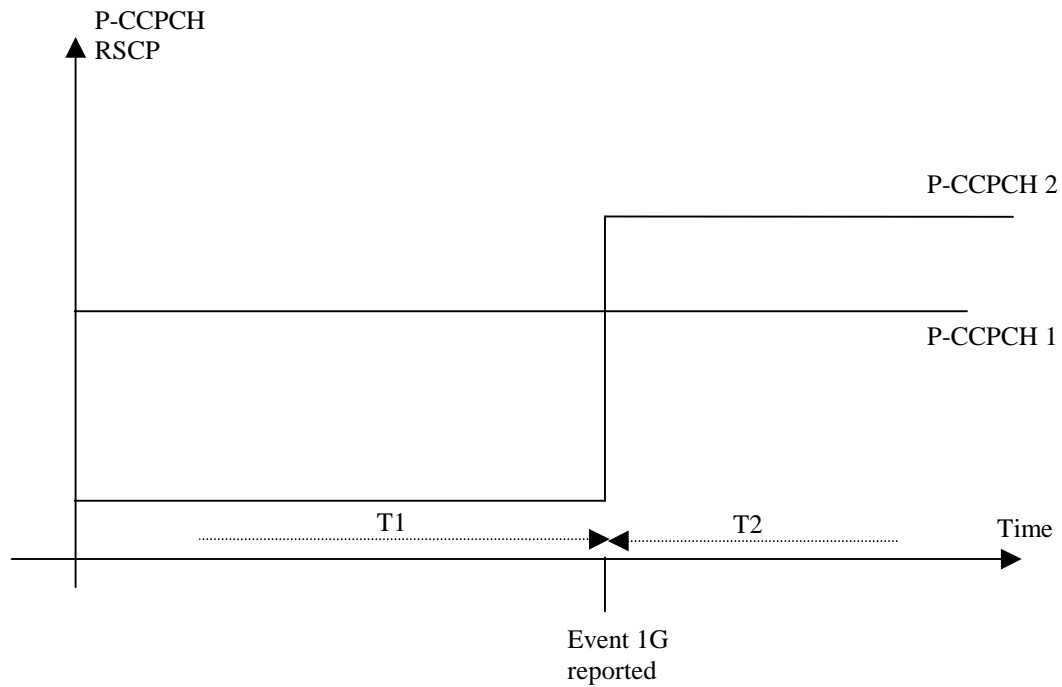


Figure A.8-1: Illustration of parameters for handover measurement reporting test case

Table A.8-1

Parameter	Unit	Cell 1				Cell 2			
		0		8		0		8	
Timeslot Number		T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number		Channel 1		Channel 1		Channel 1		Channel 1	
$PCCPCH_{Ec/Ior}$	dB	-3	-3			-3	-3		
$SCH_{Ec/Ior}$	dB	-9	-9	-9	-9	-9	-9	-9	-9
$SCH_{t_{offset}}$		0	0	0	0	15	15	15	15
$PICH_{Ec/Ior}$				-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	5	-Infinity	5
I_{oc}	dBm/3.8 4 MHz	-70							
$PCCPCH_{RSCP}$	dB	-70	-70			-Infinity	-68		
Absolute Threshold (SIR)	dB	[]							
Hysteresis	dB	[]							
Time to Trigger	msec	[]							
Propagation Condition		AWGN							

Note: The DPCH of all cells are located in an other timeslot than 0 or 8

A.8.1.1.2 Test Requirements

The UE shall send one Event 1G triggered measurement report, with a measurement reporting delay less than [480] ms 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.

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

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 8.1.2.2.

This test will derive that the terminal makes correct reporting of an event Cell 1 is the active cell, Cell 2 is a neighbour cell on the used frequency. The power level on Cell 1 is kept constant and the power level of Cell 2 is changed using "change of best cell event" as illustrated in Figure A.8-2. The test parameters are shown in Table A.8-2. Hysteresis, absolute Threshold and Time to Trigger values are given in the table below and they are signalled from test device. 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 has to be reported together with Event 2C reporting. New measurement control information, which defines neighbour cells etc., is always sent before the event starts.

The test parameters are shown in Table A.8-2.

Table A.8-2 Cell Specific Parameters for Correct Reporting of Neighbours in AWGN Propagation Condition

Parameter	Unit	Cell 1				Cell 2			
		0		8		0		8	
Timeslot Number		T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number		Channel 1		Channel 1		Channel 2		Channel 2	
PCCPCH Ec/Ior	dB	-3	-3			-3	-3		
SCH Ec/Ior	dB	-9	-9	-9	-9	-9	-9	-9	-9
SCH _{offset}		0	0	0	0	15	15	15	15
PICH Ec/Ior				-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	6	-Infinity	6
I_{oc}	dBm/3.8 4 MHz	-70							
PCCPCH RSCP	dB	-70	-70			-Infinity	-67		
Absolute Threshold (SIR)	dB	[]							
Hysteresis	dB	[]							
Time to Trigger	msec	[]							
Propagation Condition		AWGN							

Note: The DPCH of all cells are located in an other timeslot than 0 or 8

A.8.2.1.2 Test Requirements

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.

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

This test will derive that the terminal makes correct reporting of an event. Cell 1 is current active cell, Cell 2 is a FDD cell. The power level of CPICH Ec/Io of cell 2 and the P-CCPCH RSCP of cell 1 is changed. Hysteresis, Absolute threshold and Time to Trigger values are given in the table below and they are signalled from test device. New measurement control information, which defines neighbour cells etc., is always sent before the handover starts. The number of neighbour cells in the measurement control information is FFS. The test parameters are shown in Table A.8-3.

Table A.8-3

Parameter	Unit	Cell 1				Cell 2			
		0		8		n.a.		n.a.	
Timeslot Number									
		T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number		Channel 1				Channel 2			
CPICH Ec/Ior	dB	n.a.		n.a.		[]		[]	
PCCPCH Ec/Ior	dB	-3	-3			[]		[]	
SCH Ec/Ior	dB	-9	-9	-9	-9	[]		[]	
SCH Loffset		0	0	0	0	n.a.		n.a.	
PICH Ec/Ior				-3	-3	[]		[]	
DCH Ec/Ior	dB	n.a.	n.a.	n.a.	n.a.	[]		[]	
OCNS	dB	-4,28	-4,28	-4,28	-4,28	[]		[]	
\hat{I}_{or}/I_{oc}	dB	[]	[]	[]	[]	[]		[]	
I_{oc}	dBm/3.8 4 MHz	-70				-70			
CPICH Ec/Io		n.a.				[]			
PCCPCH RSCP	dB	[]	[]	[]	[]	n.a.		n.a.	
Absolute Threshold (SIR)	dB	[]				[]			
Hysteresis	dB	[]				[]			
Time to Trigger	msec	[]				[]			
Propagation Condition		AWGN				AWGN			

Note: The DPCH of the TDD cell is located in an other timeslot than 0 or 8

A.8.3.1.2 Test Requirements

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.

CHANGE REQUEST

⌘ **25.123 CR 33** ⌘ rev **-** ⌘ Current version: **3.3.0** ⌘

For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.

Proposed change affects: ⌘ (U)SIM ME/UE Radio Access Network Core Network

Title:	⌘ Re-structuring TS 25.123 Section 9+A9				
Source:	⌘ RAN WG4				
Work item code:	⌘	Date:	⌘ 13-17 Nov 2000		
Category:	⌘ F	Release:	⌘ R99		
Use <u>one</u> of the following categories: F (essential correction) A (corresponds to a correction in an earlier release) B (Addition of feature), C (Functional modification of feature) D (Editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900.		Use <u>one</u> of the following releases: 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)			

Reason for change:	⌘ See Tdoc R4-000932 and R4-000919
Summary of change:	⌘ The requirements and the structure of this section is modified in order to fit with 25.133 structure and RAN2 specifications.
Consequences if not approved:	⌘ Inconsistency between specification 25.123 and 25.133 as well as RAN2 specifications

Clauses affected:	⌘
Other specs affected:	⌘ <input type="checkbox"/> Other core specifications ⌘ <input type="checkbox"/> Test specifications ⌘ <input type="checkbox"/> O&M Specifications ⌘
Other comments:	⌘

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- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under <ftp://www.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2000-09 contains the specifications resulting from the September 2000 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

9 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.

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, clause A.3.1. This measurement channel is used both in active cell and cells to be measured.
- Physical channels used as defined in 3GPP TS 25.101 annex B.
- 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.
- Cell 1 is the active cell, if not otherwise stated.
- Single task reporting.
- Power control is active.

9.1 Measurements performance for UE

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 can be found in section 8.

9.1.1.1.1 Absolute accuracy requirements

Table 9.1 P-CCPCH RSCP absolute accuracy

Parameter	Unit	Accuracy [dB]		Conditions
		Normal condition	Extreme condition	Io [dBm]
<i>P-CCPCH RSCP</i>	<u>dBm</u>	± 6	± 9	<u>-94...-70</u>
	<u>dBm</u>	± 8	± 11	<u>-94...-50</u>

9.1.1.1.2 Relative accuracy requirements

Table 9.2 P-CCPCH RSCP relative accuracy

Parameter	Unit	Accuracy [dB]		Conditions
		Normal condition	Extreme condition	Io [dBm]
<i>P-CCPCH RSCP</i>	<u>dBm</u>	± 3	± 3	<u>-94...-50</u>

9.1.1.1.3 Range/mapping

The reporting range for *P-CCPCH RSCP* is from -115 ...-25 dBm.

In table 9.3 mapping of the measured quantity is defined. Signalling range may be larger than the guaranteed accuracy range.

Table 9.3

Reported value	Measured quantity value	Unit
<u>P-CCPCH RSCP_LEV_00</u>	<u>P-CCPCH RSCP <-115</u>	<u>dBm</u>
<u>P-CCPCH RSCP_LEV_01</u>	<u>-115 ≤ P-CCPCH RSCP < -114</u>	<u>dBm</u>
<u>P-CCPCH RSCP_LEV_02</u>	<u>-114 ≤ P-CCPCH RSCP < -113</u>	<u>dBm</u>
<u>...</u>	<u>...</u>	<u>...</u>
<u>P-CCPCH RSCP_LEV_89</u>	<u>-27 ≤ P-CCPCH RSCP < -26</u>	<u>dBm</u>
<u>P-CCPCH RSCP_LEV_90</u>	<u>-26 ≤ P-CCPCH RSCP < -25</u>	<u>dBm</u>
<u>P-CCPCH RSCP_LEV_91</u>	<u>-25 ≤ P-CCPCH RSCP</u>	<u>dBm</u>

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 can be found in section 8.

9.1.1.2.1 CPICH RSCP

9.1.1.2.1.1 Inter frequency measurement relative accuracy requirement

The accuracy requirements in table 9-4 are valid under the following conditions:

- $CPICH_RSCP \geq -114$ dBm.
- $\left| P - CCPCH_RSCP \Big|_{in\ dB} - CPICH_RSCP \Big|_{in\ dB} \right| \leq 20dB$
- $|Channel\ 1\ I_o - Channel\ 2\ I_o| \leq 20$ dB.
- $\left(\frac{I_o}{\hat{I}_{or}} \right)_{in\ dB} - \left(\frac{CPICH_E_c}{I_{or}} \right)_{in\ dB} \leq 20dB$
- $\left(\frac{I_o}{\hat{I}_{or}} \right)_{in\ dB} - \left(\frac{SCH_E_c}{I_{or}} \right)_{in\ dB} \leq XdB$

Table 9-4 CPICH_RSCP Inter frequency relative accuracy

Parameter	Unit	Accuracy [dB]		Conditions Io [dBm]
		Normal condition	Extreme condition	
CPICH_RSCP	dBm	± 6	± 6	-94...-50

9.1.1.2.1.2 Range/mapping

The reporting range for CPICH RSCP is from 115 ...-25 dBm.

In table 9.5 mapping of the measured quantity is defined. Signalling range may be larger than the guaranteed accuracy range.

Table 9.5

Reported value	Measured quantity value	Unit
CPICH_RSCP_LEV_00	CPICH RSCP < -115	dBm
CPICH_RSCP_LEV_01	-115 ≤ CPICH RSCP < -114	dBm
CPICH_RSCP_LEV_02	-114 ≤ CPICH RSCP < -113	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/Io

9.1.1.2.2.1 Inter frequency measurement relative accuracy requirement

The accuracy requirements in table 9-4 are valid under the following conditions:

- $CPICH_RSCP \geq -114$ dBm.
- $\left| P - CCPCH_RSCP \right|_{in\ dB} - CPICH_RSCP \left|_{in\ dB} \right| \leq 20dB$
- $|Channel\ 1\ Io - Channel\ 2\ Io| \leq 20$ dB.
- $\frac{I_o}{\hat{I}_{or}} \left|_{in\ dB} - \left(\frac{CPICH - E_c}{I_{or}} \right) \right|_{in\ dB} \leq 20dB$
- $\frac{I_o}{\hat{I}_{or}} \left|_{in\ dB} - \left(\frac{SCH - E_c}{I_{or}} \right) \right|_{in\ dB} \leq XdB$

Table 9.6 CPICH Ec/Io Inter frequency relative accuracy

Parameter	Unit	Accuracy [dB]		Conditions
		Normal condition	Extreme condition	Io [dBm]
<i>CPICH Ec/Io</i>	<u>dBm</u>	± 6	± 6	<u>-94...-50</u>

9.1.1.2.2.2 Range/mapping

The reporting range for *CPICH Ec/Io* is from -24 ...0 dB.

In table 9.7 mapping of the measured quantity is defined. Signalling range may be larger than the guaranteed accuracy range.

Table 9.7

<u>Reported value</u>	<u>Measured quantity value</u>	<u>Unit</u>
<u>CPICH Ec/Io_00</u>	<u>CPICH Ec/Io < -24</u>	<u>dB</u>
<u>CPICH Ec/Io_01</u>	<u>-24 ≤ CPICH Ec/Io < -23.5</u>	<u>dB</u>
<u>CPICH Ec/Io_02</u>	<u>-23.5 ≤ CPICH Ec/Io < -23</u>	<u>dB</u>
<u>...</u>	<u>...</u>	<u>...</u>
<u>CPICH Ec/Io_48</u>	<u>-1 ≤ CPICH Ec/Io < -0.5</u>	<u>dB</u>
<u>CPICH Ec/Io_49</u>	<u>-0.5 ≤ CPICH Ec/Io < 0</u>	<u>dB</u>
<u>CPICH Ec/Io_50</u>	<u>0 ≤ CPICH Ec/Io</u>	<u>dB</u>

9.1.1.3 Timeslot ISCP

The measurement period for CELL_DCH state can be found in section 8.9.1.1.3.1 Absolute accuracy requirements

Table 9.8 Timeslot ISCP Intra frequency absolute accuracy

Parameter	Unit	Accuracy [dB]		Conditions
		Normal condition	Extreme condition	Io [dBm]
<i>Timeslot ISCP</i>	<u>dB</u>	± 6	± 9	<u>-94...-70</u>
	<u>dB</u>	± 8	± 11	<u>-94...-50</u>

9.1.1.3.2 Range/mapping

The reporting range for *Timeslot ISCP* is from -115...-25 dBm.

In table 9.9 mapping of the measured quantity is defined. Signalling range may be larger than the guaranteed accuracy range.

Table 9.9

<u>Reported value</u>	<u>Measured quantity value</u>	<u>Unit</u>
<u>UE_TS_ISCP_LEV_00</u>	<u>Timeslot ISCP < -115</u>	<u>dBm</u>
<u>UE_TS_ISCP_LEV_01</u>	<u>-115 ≤ Timeslot ISCP < -114</u>	<u>dBm</u>

<u>UE_TS_ISCP_LEV_02</u>	<u>-114 ≤ Timeslot_ISCP < -113</u>	<u>dBm</u>
<u>...</u>	<u>...</u>	<u>...</u>
<u>UE_TS_ISCP_LEV_89</u>	<u>-27 ≤ Timeslot_ISCP < -26</u>	<u>dBm</u>
<u>UE_TS_ISCP_LEV_90</u>	<u>-26 ≤ Timeslot_ISCP < -25</u>	<u>dBm</u>
<u>UE_TS_ISCP_LEV_91</u>	<u>-25 ≤ Timeslot_ISCP</u>	<u>dBm</u>

9.1.1.4 UTRA carrier RSSI

Note: The purpose of measurement is for Inter-frequency handover evaluation.

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.

Table 9.10 UTRA carrier RSSI Inter frequency absolute accuracy

<u>Parameter</u>	<u>Unit</u>	<u>Accuracy [dB]</u>		<u>Conditions</u>
		<u>Normal condition</u>	<u>Extreme condition</u>	<u>Io [dBm]</u>
<u>UTRA Carrier RSSI</u>	<u>dB</u>	<u>± 4</u>	<u>± 7</u>	<u>-94...-70</u>
	<u>dB</u>	<u>± 6</u>	<u>± 9</u>	<u>-94...-50</u>

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

The accuracy requirements in table 9-11 are valid under the following conditions:

| Channel 1_Io -Channel 2_Io | < 20 dB.

Table 9.11 UTRA carrier RSSI Inter frequency relative accuracy

<u>Parameter</u>	<u>Unit</u>	<u>Accuracy [dB]</u>		<u>Conditions</u>
		<u>Normal condition</u>	<u>Extreme condition</u>	<u>Io [dBm]</u>
<u>UTRA Carrier RSSI</u>	<u>dB</u>	<u>± 5</u>	<u>± 8</u>	<u>-94...-70</u>

9.1.1.4.3 Range/mapping

The reporting range for UTRA carrier RSSI is from -100 ...-25 dBm.

In table 9.12 mapping of the measured quantity is defined. Signalling range may be larger than the guaranteed accuracy range.

Table 9.12

<u>Reported value</u>	<u>Measured quantity value</u>	<u>Unit</u>
<u>UTRA_carrier_RSSI_LEV_00</u>	<u>UTRA carrier RSSI < -100</u>	<u>dBm</u>

<u>UTRA carrier RSSI LEV_01</u>	<u>$-100 \leq \text{UTRA carrier RSSI} < -99$</u>	<u>dBm</u>
<u>UTRA carrier RSSI LEV_02</u>	<u>$-99 \leq \text{UTRA carrier RSSI} < -98$</u>	<u>dBm</u>
<u>...</u>	<u>...</u>	<u>...</u>
<u>UTRA carrier RSSI LEV_74</u>	<u>$-27 \leq \text{UTRA carrier RSSI} < -26$</u>	<u>dBm</u>
<u>UTRA carrier RSSI LEV_75</u>	<u>$-26 \leq \text{UTRA carrier RSSI} < -25$</u>	<u>dBm</u>
<u>UTRA carrier RSSI LEV_76</u>	<u>$-25 \leq \text{UTRA carrier RSSI}$</u>	<u>dBm</u>

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.

If the UE does not need compressed mode to perform GSM measurements, the measurement accuracy requirements for RXLEV in GSM 05.08 shall apply.

The reporting range and mapping specified for RXLEV in GSM 05.08 shall apply.

9.1.1.6 SIR

The measurement period for CELL_DCH state can be found in section 8.

9.1.1.6.1 Absolute accuracy requirements

Table 9.13 SIR Intra frequency absolute accuracy

<u>Parameter</u>	<u>Unit</u>	<u>Accuracy [dB]</u>		<u>Conditions</u>
		<u>Normal conditions</u>	<u>Extreme conditions</u>	
<u>SIR</u>	<u>dB</u>	<u>± 3 dB for</u>	<u>[]</u>	<u>For $0 < \text{SIR} < 20$ dB and lo range -94...-50</u>
<u>SIR</u>	<u>dB</u>	<u>$\pm(3 - \text{SIR})$</u>	<u>[]</u>	<u>For $-7 \leq \text{SIR} \leq 0$ dB and lo range -94...-50</u>

9.1.1.6.2 Range/mapping

The reporting range for SIR is from -11 ...20 dBm.

In table 9.14 mapping of the measured quantity is defined. Signalling range may be larger than the guaranteed accuracy range.

Table 9.14

<u>Reported value</u>	<u>Measured quantity value</u>	<u>Unit</u>
<u>UE_SIR_00</u>	<u>$\text{SIR} < -11.0$</u>	<u>dB</u>

<u>UE_SIR_01</u>	<u>$-11,0 \leq \text{SIR} < -10,5$</u>	<u>dB</u>
<u>UE_SIR_02</u>	<u>$-10,5 \leq \text{SIR} < -10,0$</u>	<u>dB</u>
<u>...</u>	<u>...</u>	<u>...</u>
<u>UE_SIR_61</u>	<u>$-19 \leq \text{SIR} < 19,5$</u>	<u>dB</u>
<u>UE_SIR_62</u>	<u>$19,5 \leq \text{SIR} < 20$</u>	<u>dB</u>
<u>UE_SIR_63</u>	<u>$20 \leq \text{SIR}$</u>	<u>dB</u>

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 9.15 mapping of the measured quantity is defined. Signalling range may be larger than the guaranteed accuracy range.

Table 9.15

<u>Reported value</u>	<u>Measured quantity value</u>	<u>Unit</u>
<u>BLER_LOG_00</u>	<u>Transport channel BLER = 0</u>	<u>-</u>
<u>BLER_LOG_01</u>	<u>$-\infty < \text{Log10(Transport channel BLER)} < -4,03$</u>	<u>-</u>
<u>BLER_LOG_02</u>	<u>$-4,03 \leq \text{Log10(Transport channel BLER)} < -3,965$</u>	<u>-</u>
<u>BLER_LOG_03</u>	<u>$-3,965 \leq \text{Log10(Transport channel BLER)} < -3,9$</u>	<u>-</u>
<u>...</u>	<u>...</u>	<u>...</u>
<u>BLER_LOG_61</u>	<u>$-0,195 \leq \text{Log10(Transport channel BLER)} < -0,13$</u>	<u>-</u>
<u>BLER_LOG_62</u>	<u>$-0,13 \leq \text{Log10(Transport channel BLER)} < -0,065$</u>	<u>-</u>
<u>BLER_LOG_63</u>	<u>$-0,065 \leq \text{Log10(Transport channel BLER)} \leq 0$</u>	<u>-</u>

9.1.1.8 SFN-SFN observed time difference

The measurement period for CELL_DCH state can be found in section 8.

9.1.1.8.1 Accuracy requirements

Table 9.16 SFN-SFN observed time difference accuracy

<u>Parameter</u>	<u>Unit</u>	<u>Accuracy [chip]</u>	<u>Conditions</u>
			<u>lo [dBm]</u>
<u>SFN-SFN observed time difference</u>	<u>chip</u>	<u>+/-0,5 for both type 1 and 2</u>	<u>-94...-50</u>

9.1.1.8.2 Range/mapping

The reporting range for *SFN-SFN observed time difference type 1* is from 0 ... 9830400 chip.

In table 9.17 mapping of the measured quantity is defined. Signalling range may be larger than the guaranteed accuracy range.

Table 9.17

<u>Reported value</u>	<u>Measured quantity value</u>	<u>Unit</u>
<u>T1_SFN-SFN_TIME_0000000</u>	<u>$0 \leq \text{SFN-SFN observed time difference type 1} < 1$</u>	<u>chip</u>
<u>T1_SFN-SFN_TIME_0000001</u>	<u>$1 \leq \text{SFN-SFN observed time difference type 1} < 2$</u>	<u>chip</u>
<u>T1_SFN-SFN_TIME_0000002</u>	<u>$2 \leq \text{SFN-SFN observed time difference type 1} < 3$</u>	<u>chip</u>
<u>...</u>	<u>...</u>	<u>...</u>
<u>T1_SFN-SFN_TIME_9830397</u>	<u>$9830397 \leq \text{SFN-SFN observed time difference type 1} < 9830398$</u>	<u>chip</u>
<u>T1_SFN-SFN_TIME_9830398</u>	<u>$9830398 \leq \text{SFN-SFN observed time difference type 1} < 9830399$</u>	<u>chip</u>
<u>T1_SFN-SFN_TIME_9830399</u>	<u>$9830399 \leq \text{SFN-SFN observed time difference type 1} < 9830400$</u>	<u>chip</u>

The reporting range for *SFN-SFN observed time difference type 2* is from -1280 ... +1280 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

<u>Reported value</u>	<u>Measured quantity value</u>	<u>Unit</u>
<u>T2_SFN-SFN_TIME_00000</u>	<u>SFN-SFN observed time difference type 2 < -1280,0000</u>	<u>chip</u>
<u>T2_SFN-SFN_TIME_00001</u>	<u>$-1280,0000 \leq \text{SFN-SFN observed time difference type 2} < -1279,9375$</u>	<u>chip</u>

<u>T2_SFN-SFN_TIME_00002</u>	<u>-1279,9375 ≤ SFN-SFN observed time difference type 2 < -1279,8750</u>	<u>chip</u>
...
<u>T2_SFN-SFN_TIME_40959</u>	<u>1279,8750 ≤ SFN-SFN observed time difference type 2 < 1279,9375</u>	<u>chip</u>
<u>T2_SFN-SFN_TIME_40960</u>	<u>1279,9375 ≤ SFN-SFN observed time difference type 2 < 1280,0000</u>	<u>chip</u>
<u>T2_SFN-SFN_TIME_40961</u>	<u>1280,0000 ≤ SFN-SFN observed time difference type 2</u>	<u>chip</u>

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 is [10 s].

9.1.1.9.1 Accuracy requirements

Table 9.19 Observed time difference to GSM cell accuracy

<u>Parameter</u>	<u>Unit</u>	<u>Accuracy [chip]</u>	<u>Conditions</u>
<u>Observed time difference to GSM cell</u>	<u>chip</u>	<u>± 20</u>	

9.1.1.9.2 Range/mapping

The reporting range for *Observed time difference to GSM cell* is from 0 ... 3060/13 ms.

In table 9.20 mapping of the measured quantity is defined. Signalling range may be larger than the guaranteed accuracy range.

Table 9.20

<u>Reported value</u>	<u>Measured quantity value</u>	<u>Unit</u>
<u>GSM_TIME_0000</u>	<u>0 ≤ Observed time difference to GSM cell < 1x3060/(4096x13)</u>	<u>ms</u>
<u>GSM_TIME_0001</u>	<u>1x3060/(4096x13) ≤ Observed time difference to GSM cell < 2x3060/(4096x13)</u>	<u>ms</u>
<u>GSM_TIME_0002</u>	<u>2x3060/(4096x13) ≤ Observed time difference to GSM cell < 3x3060/(4096x13)</u>	<u>ms</u>
<u>GSM_TIME_0003</u>	<u>3x3060/(4096x13) ≤ Observed time difference to GSM cell < 4x3060/(4096x13)</u>	<u>ms</u>
...
<u>GSM_TIME_4093</u>	<u>4093x3060/(4096x13) ≤ Observed time difference to GSM cell < 4094x3060/(4096x13)</u>	<u>ms</u>

<u>GSM_TIME_4094</u>	$4094 \times 3060 / (4096 \times 13) \leq \text{Observed time difference to GSM cell} < 4095 \times 3060 / (4096 \times 13)$	ms
<u>GSM_TIME_4095</u>	$4095 \times 3060 / (4096 \times 13) \leq \text{Observed time difference to GSM cell} < 3060 / 13$	ms

9.1.1.10 UE GPS Timing of Cell Frames for LCS

9.1.1.10.1 Accuracy requirement

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.

Table 9.21

<u>Parameter</u>	<u>Unit</u>	<u>Accuracy [chip]</u>	<u>Conditions</u>
<u>UE GPS Timing of Cell Frames for LCS</u>	chip	□	

9.1.1.10.2 UE GPS timing of Cell Frames for LCS measurement report mapping

-

The reporting range for UE GPS timing of Cell Frames for LCS is from 0 ... 2319360000000 chip.

In table 9.22 mapping of the measured quantity is defined.

Table 9.22

<u>Reported value</u>	<u>Measured quantity value</u>	<u>Unit</u>
<u>GPS_TIME_0000000000000</u>	<u>UE GPS timing of Cell Frames for LCS < 0,0625</u>	chip
<u>GPS_TIME_0000000000001</u>	<u>0,0625 ≤ UE GPS timing of Cell Frames for LCS < 0,1250</u>	chip
<u>GPS_TIME_0000000000002</u>	<u>0,1250 ≤ UE GPS timing of Cell Frames for LCS < 0,1875</u>	chip
...
<u>GPS_TIME_37109759999997</u>	<u>231935999999,8125 ≤ UE GPS timing of Cell Frames for LCS < 231935999999,8750</u>	chip
<u>GPS_TIME_37109759999998</u>	<u>231935999999,8750 ≤ UE GPS timing of Cell Frames for LCS < 231935999999,9375</u>	chip
<u>GPS_TIME_37109759999999</u>	<u>231935999999,9375 ≤ UE GPS timing of Cell Frames for LCS < 2319360000000,0000</u>	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 for CELL_DCH state can be found in section 8.

9.1.1.11.1 Accuracy requirements

Table 9.23 SFN-CFN observed time difference accuracy for a TDD neighbour cell

<u>Parameter</u>	<u>Unit</u>	<u>Accuracy [chip]</u>	<u>Conditions</u>
			<u>lo [dBm]</u>
<u>SFN-CFN observed time difference</u>	<u>chip</u>	<u>+/-0.5</u>	<u>-94...-50</u>

Table 9.24 SFN-CFN observed time difference accuracy for a FDD neighbour cell

<u>Parameter</u>	<u>Unit</u>	<u>Accuracy [chip]</u>	<u>Conditions</u>
			<u>lo [dBm]</u>
<u>SFN-CFN observed time difference</u>	<u>chip</u>	<u>+/-1</u>	<u>-94...-50</u>

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 9.25 mapping of the measured quantity is defined. Signalling range may be larger than the guaranteed accuracy range.

Table 9.25 SFN-CFN observed time difference range/mapping for a TDD neighbour cell

<u>Reported value</u>	<u>Measured quantity value</u>	<u>Unit</u>
<u>SFN-CFN_TIME_000</u>	<u>0 ≤ SFN-CFN observed time difference < 1</u>	<u>frame</u>
<u>SFN-CFN_TIME_001</u>	<u>1 ≤ SFN-CFN observed time difference < 2</u>	<u>frame</u>
<u>SFN-CFN_TIME_002</u>	<u>2 ≤ SFN-CFN observed time difference < 3</u>	<u>frame</u>
<u>...</u>	<u>...</u>	<u>...</u>
<u>SFN-CFN_TIME_253</u>	<u>253 ≤ SFN-CFN observed time difference < 254</u>	<u>frame</u>
<u>SFN-CFN_TIME_254</u>	<u>254 ≤ SFN-CFN observed time difference < 255</u>	<u>frame</u>
<u>SFN-CFN_TIME_255</u>	<u>255 ≤ SFN-CFN observed time difference < 256</u>	<u>frame</u>

The reporting range for *SFN-CFN observed time difference* for a FDD neighbour cell is from 0 ... 9830400 chip.

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 FDD neighbour cell

Reported value	Measured quantity value	Unit
SFN-CFN_TIME_0000000	$0 \leq \text{SFN-CFN observed time difference} < 1$	chip
SFN-CFN_TIME_0000001	$1 \leq \text{SFN-CFN observed time difference} < 2$	chip
SFN-CFN_TIME_0000002	$2 \leq \text{SFN-CFN observed time difference} < 3$	chip
...
SFN-CFN_TIME_9830397	$9830397 \leq \text{SFN-CFN observed time difference} < 9830398$	chip
SFN-CFN_TIME_9830398	$9830398 \leq \text{SFN-CFN observed time difference} < 9830399$	chip
SFN-CFN_TIME_9830399	$9830399 \leq \text{SFN-CFN observed time difference} < 9830400$	chip

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 is [1 slot].

9.1.2.1.1 Absolute accuracy requirements

Table 9.27 UE transmitted power absolute accuracy

Parameter	Unit	PUEMAX	
		24dBm	21dBm
<i>UE transmitted power=PUEMAX</i>	dB	+1/-3	± 2
<i>UE transmitted power=PUEMAX-1</i>	dB	+1,5/-3,5	$\pm 2,5$
<i>UE transmitted power=PUEMAX-2</i>	dB	+2/-4	± 3
<i>UE transmitted power=PUEMAX-3</i>	dB	+2,5/-4,5	$\pm 3,5$
<i>PUEMAX-10\leqUE transmitted power<PUEMAX-3</i>	dB	+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 ...+33 dBm.

In table 9.28 mapping of the measured quantity is defined. The range in the signalling may be larger than the guaranteed accuracy range.

Table 9.28

<u>Reported value</u>	<u>Measured quantity value</u>	<u>Unit</u>
<u>UE_TX_POWER_021</u>	<u>-50 ≤ UE transmitted power < -49</u>	<u>dBm</u>
<u>UE_TX_POWER_022</u>	<u>-49 ≤ UE transmitted power < -48</u>	<u>dBm</u>
<u>UE_TX_POWER_023</u>	<u>-48 ≤ UE transmitted power < -47</u>	<u>dBm</u>
<u>...</u>	<u>...</u>	<u>...</u>
<u>UE_TX_POWER_102</u>	<u>31 ≤ UE transmitted power < 32</u>	<u>dBm</u>
<u>UE_TX_POWER_103</u>	<u>32 ≤ UE transmitted power < 33</u>	<u>dBm</u>
<u>UE_TX_POWER_104</u>	<u>33 ≤ UE transmitted power < 34</u>	<u>dBm</u>

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

Table 9.29 RSCP absolute accuracy

<u>Parameter</u>	<u>Unit</u>	<u>Accuracy [dB]</u>		<u>Conditions</u>
		<u>Normal conditions</u>	<u>Extreme conditions</u>	<u>Io [dBm]</u>
<u>RSCP</u>	<u>dB</u>	<u>± 6</u>	<u>± 9</u>	<u>-105...-74</u>

9.2.1.1.2 Relative accuracy requirements

Table 9.34 RSCP relative accuracy

<u>Parameter</u>	<u>Unit</u>	<u>Accuracy [dB]</u>	<u>Conditions</u>
			<u>Io [dBm]</u>
<u>RSCP</u>	<u>dB</u>	<u>± 3 for intra-frequency</u>	<u>-105...-74</u>

9.2.1.1.3 Range/mapping

The reporting range for *RSCP* is from -120 ...-80 dBm.

In table 9.31 mapping of the measured quantity is defined. Signalling range may be larger than the guaranteed accuracy range.

Table 9.31

<u>Reported value</u>	<u>Measured quantity value</u>	<u>Unit</u>
<u>RSCP_LEV_00</u>	<u>RSCP < -120,0</u>	<u>dBm</u>
<u>RSCP_LEV_01</u>	<u>-120,0 ≤ RSCP < -119,5</u>	<u>dBm</u>
<u>RSCP_LEV_02</u>	<u>-119,5 ≤ RSCP < -119,0</u>	<u>dBm</u>
<u>...</u>	<u>...</u>	<u>...</u>
<u>RSCP_LEV_79</u>	<u>-81,0 ≤ RSCP < -80,5</u>	<u>dBm</u>
<u>RSCP_LEV_80</u>	<u>-80,5 ≤ RSCP < -80,0</u>	<u>dBm</u>
<u>RSCP_LEV_81</u>	<u>-80,0 ≤ RSCP</u>	<u>dBm</u>

9.2.1.2 Timeslot ISCP

The measurement period shall be [100] ms.

9.2.1.2.1 Absolute accuracy requirements

Table 9.32 Timeslot ISCP Intra frequency absolute accuracy

<u>Parameter</u>	<u>Unit</u>	<u>Accuracy [dB]</u>		<u>Conditions</u>
		<u>Normal conditions</u>	<u>Extreme conditions</u>	<u>Io [dBm]</u>
<u>Timeslot ISCP</u>	<u>dB</u>	<u>± 6</u>	<u>± 9</u>	<u>-105...-74</u>

9.2.1.2.2 Range/mapping

The reporting range for *Timeslot ISCP* is from -120...-80 dBm.

In table 9.33 mapping of the measured quantity is defined. Signalling range may be larger than the guaranteed accuracy range.

Table 9.33

<u>Reported value</u>	<u>Measured quantity value</u>	<u>Unit</u>
<u>UTRAN_TS_ISCP_LEV_00</u>	<u>Timeslot_ISCP < -120,0</u>	<u>dBm</u>
<u>UTRAN_TS_ISCP_LEV_01</u>	<u>-120,0 ≤ Timeslot_ISCP < -119,5</u>	<u>dBm</u>
<u>UTRAN_TS_ISCP_LEV_02</u>	<u>-119,5 ≤ Timeslot_ISCP < -119,0</u>	<u>dBm</u>
<u>...</u>	<u>...</u>	<u>...</u>
<u>UTRAN_TS_ISCP_LEV_79</u>	<u>-81,0 ≤ Timeslot_ISCP < -80,5</u>	<u>dBm</u>
<u>UTRAN_TS_ISCP_LEV_80</u>	<u>-80,5 ≤ Timeslot_ISCP < -80,0</u>	<u>dBm</u>

<u>UTRAN_TS_ISCP_LEV_81</u>	<u>-80,0 ≤ Timeslot_ISCP</u>	<u>dBm</u>
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9.2.1.3 RECEIVED TOTAL WIDE BAND POWER

The measurement period shall be [100] ms.

9.2.1.3.1 Absolute accuracy requirements

Table 9.34 RECEIVED TOTAL WIDE BAND POWER Intra frequency absolute accuracy

<u>Parameter</u>	<u>Unit</u>	<u>Accuracy [dB]</u>	<u>Conditions</u>
			<u>Io [dBm]</u>
<u>RECEIVED TOTAL WIDE BAND POWER</u>	<u>dB</u>	<u>± 4</u>	<u>-105...-74</u>

9.2.1.3.2 Range/mapping

The reporting range for *RECEIVED TOTAL WIDE BAND POWER* is from -112 ... -50 dBm.

In table 9.35 mapping of the measured quantity is defined. Signalling range may be larger than the guaranteed accuracy range.

Table 9.35

<u>Reported value</u>	<u>Measured quantity value</u>	<u>Unit</u>
<u>RECEIVED TOTAL WIDE BAND POWER_LEV_000</u>	<u>RECEIVED TOTAL WIDE BAND POWER < -112,0</u>	<u>dBm</u>
<u>RECEIVED TOTAL WIDE BAND POWER_LEV_001</u>	<u>-112,0 ≤ RECEIVED TOTAL WIDE BAND POWER < -111,9</u>	<u>dBm</u>
<u>RECEIVED TOTAL WIDE BAND POWER_LEV_002</u>	<u>-111,9 ≤ RECEIVED TOTAL WIDE BAND POWER < -111,8</u>	<u>dBm</u>
<u>...</u>	<u>...</u>	<u>...</u>
<u>RECEIVED TOTAL WIDE BAND POWER_LEV_619</u>	<u>-50,2 ≤ RECEIVED TOTAL WIDE BAND POWER < -50,1</u>	<u>dBm</u>
<u>RECEIVED TOTAL WIDE BAND POWER_LEV_620</u>	<u>-50,1 ≤ RECEIVED TOTAL WIDE BAND POWER < -50,0</u>	<u>dBm</u>
<u>RECEIVED TOTAL WIDE BAND POWER_LEV_621</u>	<u>-50,0 ≤ RECEIVED TOTAL WIDE BAND POWER</u>	<u>dBm</u>

9.2.1.4 SIR

The measurement period shall be [80] ms.

9.2.1.4.1 Absolute accuracy requirements

Table 9.36 SIR Intra frequency absolute accuracy

<u>Parameter</u>	<u>Unit</u>	<u>Accuracy [dB]</u>	<u>Conditions</u>
			<u>Range</u>
<u>SIR</u>	<u>dB</u>	<u>± 3</u>	<u>For 0<SIR<20 dB when lo ≥ -105 dBm</u>
<u>SIR</u>	<u>dB</u>	<u>+/- (3 - SIR)</u>	<u>For -7<SIR<0 dB when lo > -105 dBm</u>

9.2.1.4.2 Range/mapping

The reporting range for SIR is from -11 ... 20 dB.

In table 9.37 mapping of the measured quantity is defined. Signalling range may be larger than the guaranteed accuracy range.

Table 9.37

<u>Reported value</u>	<u>Measured quantity value</u>	<u>Unit</u>
<u>UTRAN_SIR_00</u>	<u>SIR < -11,0</u>	<u>dB</u>
<u>UTRAN_SIR_01</u>	<u>-11,0 ≤ SIR < -10,5</u>	<u>dB</u>
<u>UTRAN_SIR_02</u>	<u>-10,5 ≤ SIR < -10,0</u>	<u>dB</u>
<u>...</u>	<u>...</u>	<u>...</u>
<u>UTRAN_SIR_61</u>	<u>19,0 ≤ SIR < 19,5</u>	<u>dB</u>
<u>UTRAN_SIR_62</u>	<u>19,5 ≤ SIR < 20,0</u>	<u>dB</u>
<u>UTRAN_SIR_63</u>	<u>20,0 ≤ SIR</u>	<u>dB</u>

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 9-48 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 9-38.

Table 9-38 Transport channel BER accuracy

<u>Parameter</u>	<u>Unit</u>	<u>Accuracy [% of the absolute BER value]</u>	<u>Conditions</u>
			<u>Range</u>
<u>TrpBER</u>	=	+/- 10	<u>Convolutional coding 1/3rd with any amount of repetition or a maximum of 25% puncturing: for absolute BER value ≤ 15%</u> <u>Convolutional coding 1/2 with any amount of repetition or no puncturing: for absolute BER value ≤ 15%</u> <u>Turbo coding 1/3rd with any amount of repetition or a maximum of 20% puncturing: for absolute BER value ≤ 15%.</u>

9.2.1.5.2 Range/mapping

The Transport channel BER reporting range is from 0 to 1.

In table 9.39 mapping of the measured quantity is defined. Signalling range may be larger than the guaranteed accuracy range.

Table 9.39

<u>Reported value</u>	<u>Measured quantity value</u>	<u>Unit</u>
<u>TrCh_BER_LOG_000</u>	<u>Transport channel BER = 0</u>	=
<u>TrCh_BER_LOG_001</u>	<u>-∞ < Log10(Transport channel BER) < -2,06375</u>	=
<u>TrCh_BER_LOG_002</u>	<u>-2,06375 ≤ Log10(Transport channel BER) < -2,055625</u>	=
<u>TrCh_BER_LOG_003</u>	<u>-2,055625 ≤ Log10(Transport channel BER) < -2,0475</u>	=
<u>...</u>	<u>...</u>	<u>...</u>
<u>TrCh_BER_LOG_253</u>	<u>-0,024375 ≤ Log10(Transport channel BER) < -0,01625</u>	=
<u>TrCh_BER_LOG_254</u>	<u>-0,01625 ≤ Log10(Transport channel BER) < -0,008125</u>	=
<u>TrCh_BER_LOG_255</u>	<u>-0,008125 ≤ Log10(Transport channel BER) ≤ 0</u>	=

9.2.1.6 RX Timing Deviation

The measurement period shall be [100] ms.

9.2.1.6.1 Accuracy requirements

Table 9.40 RX Timing Deviation accuracy

<u>Parameter</u>	<u>Unit</u>	<u>Accuracy [chip]</u>	<u>Conditions</u>
			<u>Range [chips]</u>
<u>RX Timing Deviation</u>	chip	+/- 0,5	<u>-256, ..., 256</u>

9.2.1.6.2 Range/mapping

The reporting range for RX Timing Deviation is from -256 ... 256 chips.

In table 9.41 mapping of the measured quantity is defined. Signalling range may be larger than the guaranteed accuracy range.

Table 9.41

<u>Reported value</u>	<u>Measured quantity value</u>	<u>Unit</u>
<u>RX_TIME_DEV_0001</u>	<u>RX Timing Deviation < -256,00</u>	<u>chip</u>
<u>RX_TIME_DEV_0002</u>	<u>-256,00 ≤ RX Timing Deviation < 255,75</u>	<u>chip</u>
<u>RX_TIME_DEV_0003</u>	<u>-255,75 ≤ RX Timing Deviation < -255,50</u>	<u>chip</u>
<u>...</u>	<u>...</u>	<u>...</u>
<u>RX_TIME_DEV_1024</u>	<u>000,00 ≤ RX Timing Deviation < 000,25</u>	<u>chip</u>
<u>...</u>	<u>...</u>	<u>...</u>
<u>RX_TIME_DEV_2046</u>	<u>255,5 ≤ RX Timing Deviation < 255,75</u>	<u>chip</u>
<u>RX_TIME_DEV_2047</u>	<u>255,75 ≤ RX Timing Deviation < 256,00</u>	<u>chip</u>
<u>RX_TIME_DEV_2048</u>	<u>256,00 ≤ RX Timing Deviation</u>	<u>chip</u>

Note: This measurement may be used for timing advance calculation or location services.

9.2.1.9 UTRAN GPS Timing of Cell Frames for LCS

9.2.1.9.1 Accuracy requirement

Only necessary for UEs supporting LCS.

Table 9.42

<u>Parameter</u>	<u>Unit</u>	<u>Accuracy [chip]</u>	<u>Conditions</u>
<u>UTRAN GPS timing of Cell Frames for LCS</u>	<u>chip</u>	<u>[]</u>	

9.2.1.9.2 Range/mapping

The reporting range for UTRAN GPS timing of Cell Frames for LCS is from 0 ... 2319360000000 chip.

In table 9.43 the mapping of measured quantity is defined.

Table 9.43

<u>Reported value</u>	<u>Measured quantity value</u>	<u>Unit</u>
<u>GPS_TIME_0000000000000</u>	<u>UTRAN GPS timing of Cell Frames for LCS < 0,0625</u>	<u>chip</u>
<u>GPS_TIME_0000000000001</u>	<u>0,0625 ≤ UTRAN GPS timing of Cell Frames for LCS < 0,1250</u>	<u>chip</u>
<u>GPS_TIME_0000000000002</u>	<u>0,1250 ≤ UTRAN GPS timing of Cell Frames for LCS < 0,1875</u>	<u>chip</u>
<u>...</u>	<u>...</u>	<u>...</u>

<u>GPS_TIME_37109759999997</u>	<u>231935999999,8125 ≤ UTRAN GPS timing of Cell Frames for LCS < 231935999999,8750</u>	<u>chip</u>
<u>GPS_TIME_37109759999998</u>	<u>231935999999,8750 ≤ UTRAN GPS timing of Cell Frames for LCS < 231935999999,9375</u>	<u>chip</u>
<u>GPS_TIME_37109759999999</u>	<u>231935999999,9375 ≤ UTRAN GPS timing of Cell Frames for LCS < 231936000000,0000</u>	<u>chip</u>

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 9.44 Transmitted carrier power accuracy

<u>Parameter</u>	<u>Unit</u>	<u>Accuracy [% units]</u>	<u>Conditions</u>
			<u>Range</u>
<u>Transmitted carrier power</u>	<u>%</u>	<u>± 10</u>	<u>For 10% ≤ Transmitted carrier power ≤ 90%</u>

9.2.2.1.2 Range/mapping

The reporting range for *Transmitted carrier power* is from 0 ... 100 %.

In table 9.45 mapping of the measured quantity is defined. Signalling range may be larger than the guaranteed accuracy range.

Table 9.45

<u>Reported value</u>	<u>Measured quantity value</u>	<u>Unit</u>
<u>UTRAN_TX_POWER_000</u>	<u>Transmitted carrier power = 0</u>	<u>%</u>
<u>UTRAN_TX_POWER_001</u>	<u>0 < Transmitted carrier power ≤ 1</u>	<u>%</u>
<u>UTRAN_TX_POWER_002</u>	<u>1 < Transmitted carrier power ≤ 2</u>	<u>%</u>
<u>UTRAN_TX_POWER_003</u>	<u>2 < Transmitted carrier power ≤ 3</u>	<u>%</u>
<u>...</u>	<u>...</u>	<u>...</u>
<u>UTRAN_TX_POWER_098</u>	<u>97 < Transmitted carrier power ≤ 98</u>	<u>%</u>
<u>UTRAN_TX_POWER_099</u>	<u>98 < Transmitted carrier power ≤ 99</u>	<u>%</u>
<u>UTRAN_TX_POWER_100</u>	<u>99 < Transmitted carrier power ≤ 100</u>	<u>%</u>

9.2.2.2 Transmitted code power

The measurement period shall be [100] ms.

9.2.2.2.1 Absolute accuracy requirements

Table 9.46 Transmitted code power absolute accuracy

<u>Parameter</u>	<u>Unit</u>	<u>Accuracy [dB]</u>	<u>Conditions</u>
			<u>Range</u>
<u>Transmitted code power</u>	<u>dB</u>	<u>± 3</u>	<u>Over the full range</u>

9.2.2.2.2 Relative accuracy requirements

Table 9.47 Transmitted code power relative accuracy

<u>Parameter</u>	<u>Unit</u>	<u>Accuracy [dB]</u>	<u>Conditions</u>
			<u>Range</u>
<u>Transmitted code power</u>	<u>dB</u>	<u>± 2</u>	<u>Over the full range</u>

9.2.2.2.3 Range/mappingThe reporting range for *Transmitted code power* is from -10 ... 46 dBm.

In table 9.48 the mapping of measured quantity is defined. The range in the signalling may be larger than the guaranteed accuracy range.

Table 9.48

<u>Reported value</u>	<u>Measured quantity value</u>	<u>Unit</u>
<u>UTRAN_CODE_POWER_010</u>	<u>$-10,0 \leq \text{Transmitted code power} < -9,5$</u>	<u>dBm</u>
<u>UTRAN_CODE_POWER_011</u>	<u>$-9,5 \leq \text{Transmitted code power} < -9,0$</u>	<u>dBm</u>
<u>UTRAN_CODE_POWER_012</u>	<u>$-9,0 \leq \text{Transmitted code power} < -8,5$</u>	<u>dBm</u>
<u>...</u>	<u>...</u>	<u>...</u>
<u>UTRAN_CODE_POWER_120</u>	<u>$45,0 \leq \text{Transmitted code power} < 45,5$</u>	<u>dBm</u>
<u>UTRAN_CODE_POWER_121</u>	<u>$45,5 \leq \text{Transmitted code power} < 46,0$</u>	<u>dBm</u>
<u>UTRAN_CODE_POWER_122</u>	<u>$46,0 \leq \text{Transmitted code power} < 46,5$</u>	<u>dBm</u>

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.

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, clause A.3.1. This measurement channel is used both in active cell and cells to be measured.
- Physical channels used as defined in 3GPP TS 25.101 annex B.
- 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.
- Cell 1 is the active cell, if not otherwise stated.
- Single task reporting.
- Power control is active.

9.1 Measurements performance for UE

9.1.1 Performance for UE measurements in downlink (RX)

If not otherwise stated, the test parameters in table 9.1 should be applied for UE RX measurements requirements in this clause.

Table 9.1 Intra frequency test parameters for UE RX Measurements

Parameter	Unit	Cell 1		Cell 2	
<i>UTRA RF Channel number</i>		Channel 1		Channel 1	
<i>Timeslot</i>		0	8	0	8
<i>P-CCPCH Ec/Ior</i>	dB	-3	-	-3	-
<i>SCH Ec/Ior</i>	dB	-9	-9	-9	-9
<i>PICH Ec/Ior</i>	dB	-	-3	-	-3
<i>DPCH Ec/Ior</i>	dB	{}	{}	{}	{}
<i>OCNS</i>	dB	{}	{}	{}	{}
<i>Ior/Ioe</i>	dB	{}		{}	
<i>Ioe</i>	dBm/3.84 MHz	-70		-70	
<i>Range 1: Io</i>	dBm	-94..-70		-94..-70	
<i>Range 2: Io</i>		-94..-50		-94..-50	
<i>Propagation condition</i>	-	AWGN		AWGN	

9.1.1.1 COMMON CONTROL PHYSICAL CHANNEL MEASUREMENTS

These measurements consider P_{CCPCH_RSCP} measurements for TDD cells and CPICH RSCP and CPICH Ec/Io measurements for FDD cells respectively. The corresponding measurements are necessary for UEs supporting the individual mode(s) only.

9.1.1.1.1 P-CCPCH RSCP (TDD)

9.1.1.1.1.1 Intra-frequency test parameters

In this case all cells are in the same frequency. The table 9.2 and notes 1-4 define the limits of signal strengths and code powers, where the requirement is applicable.

Table 9.2 P-CCPCH RSCP intra-frequency test parameters

Parameter	Unit	Cell 1		Cell 2	
<i>UTRA RF Channel number</i>		Channel 1		Channel 1	
<i>Timeslot</i>		0	8	0	8
<i>P-CCPCH Ec/Ior</i>	dB	-3	-	-3	-
<i>SCH Ec/Ior</i>	dB	-9	-9	-9	-9
<i>PICH Ec/Ior</i>	dB	-	-3	-	-3
<i>OCNS</i>	dB	[-]	[-]	[-]	[-]
<i>Ior/Aoc</i>	dB	[-]		[-]	
<i>Ioc</i>	dBm/3.84 MHz	Note 4		Note 4	
<i>Range 1: Io</i>	dBm	-94..-70		-94..-70	
<i>Range 2: Io</i>		-94..-50		-94..-50	
<i>Propagation condition</i>	-	AWGN			

Note 1: $P_{CCPCH_RSCP1,2} \geq -102$ dBm.

Note 2: $|P_{CCPCH_RSCP1} - P_{CCPCH_RSCP2}| \leq 20$ dB.

Note 3: $|Io - P_{CCPCH_Ec/Ior}| \leq \{20\}$ dB.

Note 4: Ioc level shall be adjusted according the total signal power Io at receiver input and the geometry factor Ior/Aoc .

9.1.1.1.1.2 Absolute accuracy requirements

The absolute accuracy of P-CCPCH RSCP is defined as measured one code power after de-spreading. In this test only Cell 1 in table 9.2 is present.

Table 9.3 P-CCPCH_RSCP Intra-frequency absolute accuracy

Parameter	Value	Range	Accuracy	
			Normal conditions	Extreme conditions
<i>P-CCPCH_RSCP</i>	dB	1	± 6	± 9
	dB	2	± 8	± 11

9.1.1.1.1.3 Relative accuracy requirements

The relative accuracy of P-CCPCH RSCP is defined as measured code powers from active cell and one or more cells after de-spreading. The reported value is relative to active cell value. In this test Cell 1 and 2 in table 9.2 are present.

Table 9.4 P-CCPCH_RSCP Intra frequency relative accuracy

Parameter	Unit	Accuracy	
		Normal conditions	Extreme conditions
P-CCPCH_RSCP	dB	±3	±3

9.1.1.1.1.4 Range/mapping

Range/mapping	<p>P-CCPCH_RSCP is given with a resolution of 1 dB with the range [-115, ..., -25] dBm. P-CCPCH_RSCP shall be reported in the unit P-CCPCH_RSCP_LEV where:</p> <p>P-CCPCH_RSCP_LEV_00: P-CCPCH_RSCP < -115dBm</p> <p>P-CCPCH_RSCP_LEV_01: -115dBm ≤ P-CCPCH_RSCP < -114dBm</p> <p>P-CCPCH_RSCP_LEV_02: -114dBm ≤ P-CCPCH_RSCP < -113dBm</p> <p>...</p> <p>P-CCPCH_RSCP_LEV_89: -27dBm ≤ P-CCPCH_RSCP < -26dBm</p> <p>P-CCPCH_RSCP_LEV_90: -26dBm ≤ P-CCPCH_RSCP < -25dBm</p> <p>P-CCPCH_RSCP_LEV_91: -25dBm ≤ P-CCPCH_RSCP</p>
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9.1.1.1.2 CPICH measurements (FDD)

These measurements consider CPICH_RSCP and CPICH_Ec/Io measurements. Only necessary for UEs supporting FDD.

9.1.1.1.2.1 Inter frequency test parameters

In this case both cells are in different frequency. Table 9.5 and notes 1-5 define the limits of signal strengths and code powers, where the requirement is applicable.

Table 9.5 CPICH Inter frequency test parameters

Parameter	Unit	Cell 1		Cell 2
		0	8	n.a
Timeslot Number				n.a
UTRA RF Channel Number		Channel 1		Channel 2
CPICH_Ec/Ior	dB	n.a.	n.a.	-10
P-CCPCH_Ec/Ior	dB	-3		-12
SCH_Ec/Ior	dB	-9	-9	-12
SCH_t_offset		0	0	n.a.
PICH_Ec/Ior			-3	-15
DPCH_Ec/Ior	dB	[-]	[-]	-15
OCNS	dB	-4.28	-4.28	-1.11
I_hat_or/I_oc	dB	[-]	[-]	10.5
I_oc	dBm/3.84 MHz	-70		Note 5
Range 1: Io	dBm	-94..-70		-94..-70
Range 2: Io	dBm	-94..-50		-94..-50
Propagation condition	-	AWGN		AWGN

Note 1: $CPICH_RSCP_{1,2} \geq -114$ dBm.

Note 2: $|CPICH_RSCP_1 - CPICH_RSCP_2| \leq 20$ dB

Note 3: $|Channel\ 1_Io - Channel\ 2_Io| \leq 20$ dB

Note 4: $|Io - CPICH_Ec/Io| \leq 20$ dB

Note 5: Ioc level shall be adjusted in each carrier frequency according the total signal power Io at receiver input and the geometry factor Ior/Ioc . $Io - 10.6\ dB = Ioc$.

9.1.1.1.2.2 CPICH RSCP

[Informative note: This measurement is for handover.]

9.1.1.1.2.2.1 Inter frequency measurement relative accuracy requirement

The relative accuracy of CPICH RSCP in inter frequency case is defined as measured code powers after de-spreading from active cell and one or more cells received from two or more RF carriers. The reported values are relative to active cell value. In this test parameters in table 9.5 are used. In this test cells 1 and 2 are present.

Table 9.6 CPICH_RSCP Inter frequency relative accuracy

Parameter	Unit	Accuracy	
		Normal condition	Extreme condition
<i>CPICH_RSCP</i>	dB	± 6	± 6

9.1.1.1.2.2.2 Range/mapping

CPICH RSCP is given with a resolution of 1 dB with the range [-115, ..., -25] dBm.
 CPICH RSCP shall be reported in the unit CPICH_RSCP_LEV where:
 CPICH_RSCP_LEV_00: $CPICH_RSCP < -115$ dBm
 CPICH_RSCP_LEV_01: -115 dBm $\leq CPICH_RSCP < -114$ dBm
 CPICH_RSCP_LEV_02: -114 dBm $\leq CPICH_RSCP < -113$ dBm
 ...
 CPICH_RSCP_LEV_89: -27 dBm $\leq CPICH_RSCP < -26$ dBm
 CPICH_RSCP_LEV_90: -26 dBm $\leq CPICH_RSCP < -25$ dBm
 CPICH_RSCP_LEV_91: -25 dBm $\leq CPICH_RSCP$

9.1.1.1.2.3 CPICH Ec/Io

9.1.1.1.2.3.1 Inter frequency measurement relative accuracy requirement

The relative accuracy of CPICH Ec/Io in the inter frequency case is defined as measured energy per chip divided by power density in the band. The reported values are relative to active cell value. In this test the parameters in table 9.5 is used. In this test cells 1 and 2 are present.

Table 9.7 CPICH Ec/Io Inter frequency relative accuracy

Parameter	Unit	Accuracy	
		Normal condition	Extreme condition
<i>CPICH_Ec/Io</i>	dB	± 6	± 6

9.1.1.1.2.3.2 Range/mapping

CPICH_Ec/No is given with a resolution of 1 dB with the range [-24, ..., 0] dB.
 CPICH_Ec/No shall be reported in the unit CPICH_Ec/No where:
 CPICH_Ec/No_00: CPICH_Ec/No < -24dB
 CPICH_Ec/No_01: -24dB ≤ CPICH_Ec/No < -23dB
 CPICH_Ec/No_02: -23dB ≤ CPICH_Ec/No < -22dB
 ...
 CPICH_Ec/No_23: -2dB ≤ CPICH_Ec/No < -1dB
 CPICH_Ec/No_24: -1dB ≤ CPICH_Ec/No < 0dB
 CPICH_Ec/No_25: 0dB ≤ CPICH_Ec/No

9.1.1.2 Timeslot ISCP

9.1.1.2.1 Absolute accuracy requirements

Table 9.8 Timeslot_ISCP Intra frequency absolute accuracy

Parameter	Value	Range	Accuracy	
			Normal conditions	Extreme conditions
<i>Timeslot_ISCP</i>	dB	1	±6	±9
	dB	2	±8	±11

9.1.1.2.2 Range/mapping

Timeslot ISCP is given with a resolution of 1 dB with the range [-115, ..., -25] dBm.
 Timeslot ISCP shall be reported in the unit UE_TS_ISCP_LEV where:
 UE_TS_ISCP_LEV_00: Timeslot_ISCP < -115dBm
 UE_TS_ISCP_LEV_01: -115dBm ≤ Timeslot_ISCP < -114dBm
 UE_TS_ISCP_LEV_02: -114dBm ≤ Timeslot_ISCP < -113dBm
 ...
 UE_TS_ISCP_LEV_89: -27dBm ≤ Timeslot_ISCP < -26dBm
 UE_TS_ISCP_LEV_90: -26dBm ≤ Timeslot_ISCP < -25dBm
 UE_TS_ISCP_LEV_91: -25dBm ≤ Timeslot_ISCP

9.1.1.3 UTRA carrier RSSI

NOTE: The purpose of measurement is for Inter-frequency handover evaluation.

9.1.1.3.1 Test parameters for requirement

The table 9.9 and notes 1,2 define the limits of signal strengths, where the requirement is applicable.

Table 9.9 UTRA carrier RSSI Inter frequency test parameters

Parameter	Unit	Cell 1	Cell 2
<i>UTRA RF Channel number</i>	-	Channel 1	Channel 2
<i>I_{or}/I_{oc}</i>	dB	-1	-1
<i>I_{oc}</i>	dBm/ 3.84 MHz	Note 2	Note 2
<i>Range 1: I_o</i>	dBm/ 3.84 MHz	-94...-70	-94...-70
<i>Range 2: I_o</i>		-94...-50	-94...-50
<i>Propagation condition</i>	-	AWGN	

NOTE 1: For relative accuracy requirement $|Channel\ 1_{Io} - Channel\ 2_{Io}| < 20\ dB$.

NOTE 2: I_{oc} level shall be adjusted according the total signal power I_o at receiver input and the geometry factor \hat{I}_o/I_{oc} .

9.1.1.3.2 Absolute accuracy requirement

Absolute accuracy case only one carrier is applied (Cell 1).

Table 9.10 UTRA carrier RSSI Inter frequency absolute accuracy

Parameter	Value	Range	Accuracy	
			Normal conditions	Extreme conditions
UTRA Carrier RSSI	dB	1	±4	±7
	dB	2	±6	±9

9.1.1.3.3 Relative accuracy requirement

Relative accuracy requirement is defined as active cell frequency UTRAN RSSI compared to measured other frequency UTRAN RSSI level. In relative accuracy test case both carriers in table 9.9 are used.

Table 9.11 UTRA carrier RSSI Inter frequency relative accuracy

Parameter	Unit	Accuracy	
		Normal condition	Extreme condition
I_o	dBm	±5	±8

9.1.1.3.4 Range/mapping

UTRA carrier RSSI is given with a resolution of 1 dB with the range [-94, ..., -32] dBm.
 UTRA carrier RSSI shall be reported in the unit UTRA_carrier_RSSI_LEV where:
 UTRA_carrier_RSSI_LEV_00: UTRA_carrier_RSSI < -94dBm
 UTRA_carrier_RSSI_LEV_01: -94dBm ≤ UTRA_carrier_RSSI < -93dBm
 UTRA_carrier_RSSI_LEV_02: -93dBm ≤ UTRA_carrier_RSSI < -92dBm
 ...
 UTRA_carrier_RSSI_LEV_61: -34dBm ≤ UTRA_carrier_RSSI < -33dBm
 UTRA_carrier_RSSI_LEV_62: -33dBm ≤ UTRA_carrier_RSSI < -32dBm
 UTRA_carrier_RSSI_LEV_63: -32dBm ≤ UTRA_carrier_RSSI

9.1.1.4 GSM carrier RSSI

NOTE: The measurement is for Inter radio access technology (RAT) handover.

Only necessary for UEs supporting GSM.

The accuracy requirement is specified in GSM 05.08.

9.1.1.4.1 Range/mapping

According to the definition of RXLEV in GSM 05.08.

9.1.1.5 SIR

9.1.1.5.1 Absolute accuracy requirements

Table 9.12 SIR Intra frequency absolute accuracy

Parameter	Unit	Accuracy	
		Normal conditions	Extreme conditions
SIR	dB	± 3 dB for $0 < SIR < 20$ dB	{}
SIR	dB	$\pm(3 - SIR)$ for $-7 \leq SIR \leq 0$ dB	{}

9.1.1.5.2 Range/mapping

SIR is given with a resolution of 0.5 dB with the range [-11, ..., 20] dB.
 SIR shall be reported in the unit UE_SIR where:
 UE_SIR_00: SIR < -11.0dB
 UE_SIR_01: -11.0dB ≤ SIR < -10.5dB
 UE_SIR_02: -10.5dB ≤ SIR < -10.0dB

 UE_SIR_61: 19.0dB ≤ SIR < 19.5dB
 UE_SIR_62: 19.5dB ≤ SIR < 20.0dB
 UE_SIR_63: 20.0dB ≤ SIR

9.1.1.6 Transport channel BLER

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).

Requirement	The UE shall report the CRC results
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9.1.1.6.1 Range/mapping

Transport channel BLER is given with a logarithmic resolution of 0.065 with the range $[10^{-4.03} \dots 1]$ including a separate case Transport channel BLER=0.
 Transport channel BLER shall be reported in the unit BLER_LOG, where:
 BLER_LOG_00: BLER = 0
 BLER_LOG_01: $-\infty < \text{Log}_{10}(\text{Transport channel BLER}) < -4.030$
 BLER_LOG_02: $-4.030 \leq \text{Log}_{10}(\text{Transport channel BLER}) < -3.965$
 BLER_LOG_03: $-3.965 \leq \text{Log}_{10}(\text{Transport channel BLER}) < -3.900$

 BLER_LOG_61: $-0.195 \leq \text{Log}_{10}(\text{Transport channel BLER}) < -0.130$
 BLER_LOG_62: $-0.130 \leq \text{Log}_{10}(\text{Transport channel BLER}) < -0.065$
 BLER_LOG_63: $-0.065 \leq \text{Log}_{10}(\text{Transport channel BLER}) \leq 0.000$

9.1.1.7 SFN-SFN observed time difference

9.1.1.7.1 Accuracy requirements

Table 9.13 SFN-SFN observed time difference accuracy

Parameter	Unit	Accuracy
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<i>SFN-SFN observed time difference</i>	chips period	+/-0.5 for both type 1 and 2
-----------------------------------------	--------------	------------------------------

9.1.1.7.2 Range/mapping

<p>Type 1: SFN-SFN observed time difference is given with a resolution of 1 chip with the range [0; 9830400) chips (24 bits). SFN-SFN observed time difference shall be reported in the unit T1_SFN-SFN_TIME, where T1_SFN-SFN_TIME_N: $N * 1 \text{ chip} \leq \text{SFN-SFN observed time difference} < (N+1) * 1 \text{ chip}$ With N= 0, 1, 2, ..., 9830399</p> <p>Type 2: SFN-SFN observed time difference is given with a resolution of 0.25 chip with the range (-1280; 1280] chips (14 bits). SFN-SFN observed time difference shall be reported in the unit T2_SFN-SFN_TIME, where T2_SFN-SFN_TIME_N: $N * 0.25 \text{ chip} - 1280 \text{ chips} \leq \text{SFN-SFN observed time difference} \leq (N+1) * 0.25 \text{ chip} - 1280 \text{ chips}$ With N= 0, 1, 2, ..., 10239</p>

9.1.1.8 Observed time difference to GSM cell

Only necessary for UEs supporting GSM.

9.1.1.8.1 Accuracy requirements

Table 9.14 Observed time difference to GSM cell accuracy

Parameter	Unit	Accuracy
<i>Observed time difference to GSM cell</i>	chips period	+/-20

9.1.1.8.2 Range/mapping

Observed time difference to GSM cell is given with a resolution of 3060ms/(13*4096) (12 bit) with the range [0, 3060/13) ms. Observed time difference to GSM cell shall be reported in the unit GSM_TIME, where GSM_TIME_N: $N * 3060\text{ms}/(13*4096) \leq \text{Observed time difference to GSM cell} < (N+1) * 3060\text{ms}/(13*4096)$ With N= 0, 1, 2, ..., 4095

9.1.1.9 UE GPS Timing of Cell Frames for LCS

9.1.1.9.1 Accuracy requirement

Only necessary for UEs supporting LCS.

Table 9.15

Parameter	Unit	Accuracy
<i>UE GPS timing of Cell Frames for LCS</i>	chips period	±

9.1.1.9.2 UE GPS timing of Cell Frames for LCS measurement report mapping

The reporting range is for UE GPS timing of Cell Frames for LCS is from 0 ... 2319360000000 chip.

Table 9.16

Reported value	Measured quantity value	Unit
GPS_TIME_0000000000000	UE GPS timing of Cell Frames for LCS < 0.0625	chip
GPS_TIME_00000000000001	$0.0625 \leq$ UE GPS timing of Cell Frames for LCS < 0.1250	chip
GPS_TIME_00000000000002	$0.1250 \leq$ UE GPS timing of Cell Frames for LCS < 0.1875	chip
GPS_TIME_37109759999997	$231935999999.8125 \leq$ UE GPS timing of Cell Frames for LCS < 231935999999.8750	chip
GPS_TIME_37109759999998	$231935999999.8750 \leq$ UE GPS timing of Cell Frames for LCS < 231935999999.9375	chip
GPS_TIME_37109759999999	$231935999999.9375 \leq$ UE GPS timing of Cell Frames for LCS < 2319360000000.0000	chip

9.1.1.10 SFN-CFN observed time difference

Note: This measurement is for handover timing purposes to identify active cell and neighbour cell time difference.

9.1.1.10.1 Accuracy requirements

Table 9.17 SFN-CFN observed time difference accuracy for a TDD neighbour cell

Parameter	Unit	Accuracy
<i>SFN-CFN observed time difference</i>	frames period	± 0.5

Table 9.18 SFN-CFN observed time difference accuracy for a FDD neighbour cell

Parameter	Unit	Accuracy
<i>SFN-CFN observed time difference</i>	chips period	± 1

9.1.1.10.2 Range/mapping

Table 9.19 SFN-CFN observed time difference range/mapping for a TDD neighbour cell

Reported value	Measured quantity value	Unit
SFN-CFN_TIME_000	$0 \leq$ Time difference ≤ 1	frame

SFN-CFN_TIME_001	$1 \leq \text{Time difference} < 2$	frame
SFN-CFN_TIME_002	$2 \leq \text{Time difference} < 3$	frame
...
SFN-CFN_TIME_253	$253 \leq \text{Time difference} < 254$	frame
SFN-CFN_TIME_254	$254 \leq \text{Time difference} < 255$	frame
SFN-CFN_TIME_255	$255 \leq \text{Time difference} \leq 256$	frame

Note 1:—The reporting range is for SFN-CFN observed time difference is from 0 ... 256 frame.

Table 9.20 SFN-CFN observed time difference range/mapping for a FDD neighbour cell

Reported value	Measured quantity value	Unit
SFN-CFN_TIME_00000	$0 \leq \text{Time difference} \leq 1$	chip
SFN-CFN_TIME_00001	$1 \leq \text{Time difference} < 2$	chip
SFN-CFN_TIME_00002	$2 \leq \text{Time difference} < 3$	chip
...
SFN-CFN_TIME_38397	$38397 \leq \text{Time difference} < 38398$	chip
SFN-CFN_TIME_38398	$38398 \leq \text{Time difference} < 38399$	chip
SFN-CFN_TIME_38399	$38399 \leq \text{Time difference} \leq 38400$	chip

Note 1:—The reporting range is for SFN-CFN observed time difference is from 0 ... 38400 chip.

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

9.1.2.1.1 Absolute accuracy requirements

Table 9.21 UE transmitted power absolute accuracy

Parameter	Unit	PUEMAX	
		24dBm	21dBm
<i>UE transmitted power=PUEMAX</i>	dB	+1/-3	±2
<i>UE transmitted power=PUEMAX-1</i>	dB	+1.5/-3.5	±2.5
<i>UE transmitted power=PUEMAX-2</i>	dB	+2/-4	±3
<i>UE transmitted power=PUEMAX-3</i>	dB	+2.5/-4.5	±3.5
<i>PUEMAX-10 ≤ UE transmitted power < PUEMAX-3</i>	dB	+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

UE transmitted power is given with a resolution of 1 dB with the range [-50, ..., 33] dBm. UE transmitted power shall be reported in the unit UE_TX_POWER, where:

UE_TX_POWER_000 to UE_TX_POWER_020: reserved
 UE_TX_POWER_021: -50dBm ≤ UE_transmitted_power < -49dBm
 UE_TX_POWER_022: -49dBm ≤ UE_transmitted_power < -48dBm
 UE_TX_POWER_023: -48dBm ≤ UE_transmitted_power < -47dBm
 ...
 UE_TX_POWER_102: -31dBm ≤ UE_transmitted_power < -32dBm
 UE_TX_POWER_103: -32dBm ≤ UE_transmitted_power < -33dBm
 UE_TX_POWER_104: -33dBm ≤ UE_transmitted_power < -34dBm

9.2 Measurements Performance for UTRAN

9.2.1 Performance for UTRAN Measurements in Uplink (RX)

If not otherwise stated, the test parameters in table 9.22 should be applied for UE RX measurements requirements in this clause.

Table 9.22 Intra frequency test parameters for UTRAN RX Measurements

Parameter	Unit	Cell 1
<i>UTRA RF Channel number</i>		Channel 1
<i>Timeslot</i>		{}
<i>DPCH Ec/Ior</i>	dB	{}
<i>Ior/Ioe</i>	dB	{}
<i>Ioe</i>	dBm/ 3.84 MHz	-89
<i>Range: Io</i>	dBm	-105..-74
<i>Propagation condition</i>	-	AWGN

9.2.1.1 RSCP

9.2.1.1.1 Absolute accuracy requirements

Table 9.23 RSCP Intra frequency absolute accuracy

Parameter	Unit	Accuracy	
		Normal conditions	Extreme conditions
<i>RSCP</i>	dB	+/-6dB	+/-9dB

9.2.1.1.2 Relative accuracy requirements

Table 9.24 RSCP Intra frequency relative accuracy

Parameter	Unit	Accuracy
<i>RSCP</i>	dB	+/-3dB for intra-frequency

9.2.1.1.3 Range/mapping

RSCP is given with a resolution of 0.5 dB with the range [-120, ..., -80] dBm.
 RSCP shall be reported in the unit RSCP_LEV where:
 RSCP_LEV_00: RSCP < -120.0dBm
 RSCP_LEV_01: -120.0dBm ≤ RSCP < -119.5dBm
 RSCP_LEV_02: -119.5dBm ≤ RSCP < -119.0dBm
 ...
 RSCP_LEV_79: -81.0dBm ≤ RSCP < -80.5dBm
 RSCP_LEV_80: -80.5dBm ≤ RSCP < -80.0dBm
 RSCP_LEV_81: -80.0dBm ≤ RSCP

9.2.1.2 Timeslot ISCP

9.2.1.2.1 Absolute accuracy requirements

Table 9.25 Timeslot ISCP Intra frequency absolute accuracy

Parameter	Unit	Accuracy	
		Normal conditions	Extreme conditions
<i>Timeslot ISCP</i>	dB	+/-6dB	+/-9dB

9.2.1.2.2 Range/mapping

Timeslot ISCP is given with a resolution of 0.5 dB with the range [-120, ..., -80] dBm.
 Timeslot ISCP shall be reported in the unit UTRAN_TS_ISCP_LEV where:
 UTRAN_TS_ISCP_LEV_00: Timeslot_ISCP < -120.0dBm
 UTRAN_TS_ISCP_LEV_01: -120.0dBm ≤ Timeslot_ISCP < -119.5dBm
 UTRAN_TS_ISCP_LEV_02: -119.5dBm ≤ Timeslot_ISCP < -119.0dBm
 ...
 UTRAN_TS_ISCP_LEV_79: -81.0dBm ≤ Timeslot_ISCP < -80.5dBm
 UTRAN_TS_ISCP_LEV_80: -80.5dBm ≤ Timeslot_ISCP < -80.0dBm
 UTRAN_TS_ISCP_LEV_81: -80.0dBm ≤ Timeslot_ISCP

9.2.1.3 RSSI

9.2.1.3.1 Absolute accuracy requirements

Table 9.26 RSSI Intra frequency absolute accuracy

Parameter	Unit	Accuracy
<i>RSSI</i>	dB	± 4 dB

9.2.1.3.2 Range/mapping

RSSI is given with a resolution of 0.1dB with the range [-112, ..., -50] dBm.
 RSSI shall be reported in the unit *RSSI_LEV*, where:

<i>RSSI_LEV_000</i> :	$\text{RSSI} < -112.0\text{dBm}$
<i>RSSI_LEV_001</i> :	$-112.0\text{dBm} \leq \text{RSSI} < -111.9\text{dBm}$
<i>RSSI_LEV_002</i> :	$-111.9\text{dBm} \leq \text{RSSI} < -111.8\text{dBm}$
...	
<i>RSSI_LEV_619</i> :	$-50.2\text{dBm} \leq \text{RSSI} < -50.1\text{dBm}$
<i>RSSI_LEV_620</i> :	$-50.1\text{dBm} \leq \text{RSSI} < -50.0\text{dBm}$
<i>RSSI_LEV_621</i> :	$-50.0\text{dBm} \leq \text{RSSI}$

9.2.1.4 SIR

9.2.1.4.1 Absolute accuracy requirements

Table 9.27 SIR Intra frequency absolute accuracy

Parameter	Unit	Accuracy
<i>SIR</i>	dB	± 3 dB for $0 < \text{SIR} < 20$ dB
<i>SIR</i>	dB	$\pm (3 - \text{SIR})$ dB for $-7 \leq \text{SIR} \leq 0$ dB

9.2.1.4.2 Range/mapping

SIR is given with a resolution of 0.5 dB with the range [-11, ..., 20] dB.
 SIR shall be reported in the unit *UTRAN_SIR* where:

<i>UTRAN_SIR_00</i> :	$\text{SIR} < -11.0\text{dB}$
<i>UTRAN_SIR_01</i> :	$-11.0\text{dB} \leq \text{SIR} < -10.5\text{dB}$
<i>UTRAN_SIR_02</i> :	$-10.5\text{dB} \leq \text{SIR} < -10.0\text{dB}$
....	
<i>UTRAN_SIR_61</i> :	$19.0\text{dB} \leq \text{SIR} < 19.5\text{dB}$
<i>UTRAN_SIR_62</i> :	$19.5\text{dB} \leq \text{SIR} < 20.0\text{dB}$
<i>UTRAN_SIR_63</i> :	$20.0\text{dB} \leq \text{SIR}$

9.2.1.5 Transport Channel BER

The measurement period shall be equal to the [TTI] of the transport channel.

9.2.1.5.1 Accuracy requirement

Table 9.28 Transport channel BER accuracy

Parameter	Unit	Accuracy
<i>TrpBER</i>	-	+/- [% of the absolute BER value]

9.2.1.5.2 Range/mapping

Transport channel BER is given with a logarithmic resolution of 0.008125 within the range $[10^{-2.06375} \dots 1]$ with two separate cases Transport channel BER=0 and Transport channel BER between 0 and $10^{-2.06375}$.

Transport channel BER shall be reported in the unit TrCH_BER_LOG, where:

TrCH_BER_LOG_000: Transport channel BER = 0

TrCH_BER_LOG_001: $-\infty < \text{Log}_{10}(\text{Transport channel BER}) < -2.06375$

TrCH_BER_LOG_002: $-2.06375 \leq \text{Log}_{10}(\text{Transport channel BER}) < -2.055625$

TrCH_BER_LOG_003: $-2.055625 \leq \text{Log}_{10}(\text{Transport channel BER}) < -2.0475$

...

TrCH_BER_LOG_253: $-0.024375 \leq \text{Log}_{10}(\text{Transport channel BER}) < -0.01625$

TrCH_BER_LOG_254: $-0.01625 \leq \text{Log}_{10}(\text{Transport channel BER}) < -0.008125$

TrCH_BER_LOG_255: $-0.008125 \leq \text{Log}_{10}(\text{Transport channel BER}) \leq 0.000$

9.2.1.6 RX Timing Deviation

9.2.1.6.1 Accuracy requirements

Table 9.29 RX Timing Deviation accuracy

Parameter	Unit	Accuracy
<i>RX Timing Deviation</i>	-chips period	+/-0.5

9.2.1.6.2 Range/mapping

RX Timing Deviation is given with a resolution of 0.25 chip with the range [-256; 256) chips (11 bit).
 RX Timing Deviation cell shall be reported in the unit RX_TIME_DEV, where
 RX_TIME_DEV: $(N * 0.25 - 256) \text{ chips} \leq \text{RX Timing Deviation} < ((N+1) * 0.25 - 256) \text{ chips}$
 With N= 0, 1, 2, ..., 2047

Note: This measurement can be used for timing advance calculation or location services.

9.2.1.9 UTRAN GPS Timing of Cell Frames for LCS

9.2.1.9.1 Accuracy requirement

Only necessary for UEs supporting LCS.

Table 9.30

Parameter	Unit	Accuracy
<i>UTRAN GPS timing of Cell Frames for LCS</i>	chips period	±

9.2.1.9.2 UTRAN GPS timing of Cell Frames for LCS measurement report mapping

The reporting range is for UTRAN GPS timing of Cell Frames for LCS is from 0 ... 2319360000000 chip.

Table 9.31

Reported value	Measured quantity value	Unit
GPS_TIME_00000000000000	UTRAN GPS timing of Cell Frames for LCS < 0.0625	chip
GPS_TIME_00000000000001	0.0625 ≤ UTRAN GPS timing of Cell Frames for LCS < 0.1250	chip
GPS_TIME_00000000000002	0.1250 ≤ UTRAN GPS timing of Cell Frames for LCS < 0.1875	chip
...
GPS_TIME_37109759999997	231935999999.8125 ≤ UTRAN GPS timing of Cell Frames for LCS < 231935999999.8750	chip
GPS_TIME_37109759999998	231935999999.8750 ≤ UTRAN GPS timing of Cell Frames for LCS < 231935999999.9375	chip
GPS_TIME_37109759999999	231935999999.9375 ≤ UTRAN GPS timing of Cell Frames for LCS < 231936000000.0000	chip

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

9.2.2.1.1 Accuracy requirements

Table 9.32 Transmitted carrier power accuracy

Parameter	Unit	Accuracy
<i>Transmitted carrier power</i>	-	±10% in the range 10% ≤ TX carrier power ratio ≤ 90%

9.2.2.1.2 Range/mapping

Transmitted carrier power is given with a resolution of 1% with the range [0, ..., 100]%. Transmitted carrier power shall be reported in the unit UTRAN_TX_POWER, where:
 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

9.2.2.2.1 Absolute accuracy requirements

Table 9.33 Transmitted code power absolute accuracy

Parameter	Unit	Accuracy
<i>Transmitted code power</i>	dB	[+/-3]dB

9.2.2.2.2 Relative accuracy requirements

Table 9.34 Transmitted code power relative accuracy

Parameter	Unit	Accuracy
<i>Transmitted code power</i>	dB	+/-2dB

9.2.2.2.3 Range/mapping

Transmitted code power is given with a resolution of 0.5dB with the range [-10, ..., 46] dBm. Transmitted code power shall be reported in the unit UTRAN_TX_CODE_POWER, where:
 UTRAN_TX_CODE_POWER_000 to UTRAN_TX_CODE_POWER_009: reserved
 UTRAN_TX_CODE_POWER_010: -10.0dBm ≤ CODE_POWER < -9.5dBm
 UTRAN_TX_CODE_POWER_011: -9.5dBm ≤ CODE_POWER < -8.5dBm
 UTRAN_TX_CODE_POWER_012: -8.5dBm ≤ CODE_POWER < -7.5dBm
 ...
 UTRAN_TX_CODE_POWER_120: 45.0dBm ≤ CODE_POWER < 45.5dBm
 UTRAN_TX_CODE_POWER_121: 45.5dBm ≤ CODE_POWER < 46.0dBm
 UTRAN_TX_CODE_POWER_122: 46.0dBm ≤ CODE_POWER < 46.5dBm

A.9 Measurement Performance Requirements

Unless explicitly stated:

- Reported measurements shall be within defined range in 90 % of the cases.
- Measurement channel is 12.2 kbps as defined in 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

If not otherwise stated, the test parameters in table A.9.1 should be applied for UE RX measurements requirements in this clause.

A.9.1.1 TDD intra frequency measurements

In this case all cells are on the same frequency. The table A.9.1 and notes 1-5 define the limits of signal strengths and code powers, where the requirement is applicable.

Table A.9.1 Intra frequency test parameters for UE RX Measurements

<u>Parameter</u>	<u>Unit</u>	<u>Cell 1</u>		<u>Cell 2</u>	
<u>UTRA RF Channel number</u>		<u>Channel 1</u>		<u>Channel 1</u>	
<u>Timeslot</u>		<u>0</u>	<u>8</u>	<u>0</u>	<u>8</u>
<u>P-CCPCH Ec/Ior</u>	<u>dB</u>	<u>-3</u>	<u>-</u>	<u>-3</u>	<u>-</u>
<u>SCH Ec/Ior</u>	<u>dB</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>
<u>PICH Ec/Ior</u>	<u>dB</u>	<u>-</u>	<u>-3</u>	<u>-</u>	<u>-3</u>
<u>OCNS</u>	<u>dB</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>
<u>I^or/I_{oc}</u>	<u>dB</u>	<u>[]</u>		<u>[]</u>	
<u>I_{oc}</u>	<u>dBm/ 3,84 MHz</u>	<u>-70</u>		<u>-70</u>	
<u>Range 1:I_o</u>	<u>dBm</u>	<u>-94..-70</u>		<u>-94..-70</u>	
<u>Range 2: I_o</u>		<u>-94..-50</u>		<u>-94..-50</u>	
<u>Propagation condition</u>	<u>-</u>	<u>AWGN</u>		<u>AWGN</u>	

Note 1: P-CCPCH RSCP1,2 ≥ -[102] dBm.

Note 2: | P-CCPCH RSCP1 – PCCPCH RSCP2 | ≤ 20 dB.

Note 3: | I_o – P-CCPCH Ec/Ior | ≤ [20] dB.

Note 4: I_{oc} level shall be adjusted according the total signal power I_o at receiver input and the geometry factor I^or/I_{oc}.

Note 5: The DPCH of all cells are located in an other timeslot than 0 or 8

A.9.1.2 TDD inter frequency measurements

In this case all cells are on the same frequency. The table A.9.2 and notes 1-5 define the limits of signal strengths and code powers, where the requirement is applicable.

Table A.9.2 Inter frequency test parameters for UE RX Measurements

<u>Parameter</u>	<u>Unit</u>	<u>Cell 1</u>	<u>Cell 2</u>
------------------	-------------	---------------	---------------

<u>UTRA RF Channel number</u>		<u>Channel 1</u>		<u>Channel 2</u>	
<u>Timeslot</u>		<u>0</u>	<u>8</u>	<u>0</u>	<u>8</u>
<u>P-CCPCH Ec/Ior</u>	<u>dB</u>	<u>-3</u>	<u>-</u>	<u>-3</u>	<u>-</u>
<u>SCH Ec/Ior</u>	<u>dB</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>	<u>-9</u>
<u>PICH Ec/Ior</u>	<u>dB</u>	<u>-</u>	<u>-3</u>	<u>-</u>	<u>-3</u>
<u>OCNS</u>	<u>dB</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>	<u>-4,28</u>
<u>I_{or}/I_{oc}</u>	<u>dB</u>	<u>[]</u>		<u>[]</u>	
<u>I_{oc}</u>	<u>dBm/ 3,84 MHz</u>	<u>-70</u>		<u>-70</u>	
<u>Range 1: I_o</u>	<u>dBm</u>	<u>-94..-70</u>		<u>-94..-70</u>	
<u>Range 2: I_o</u>		<u>-94..-50</u>		<u>-94..-50</u>	
<u>Propagation condition</u>	<u>-</u>	<u>AWGN</u>		<u>AWGN</u>	

Note 1: P-CCPCH RSCP_{1,2} ≥ -[102] dBm.

Note 2: | P-CCPCH RSCP₁ – PCCPCH RSCP₂ | ≤ 20 dB.

Note 3: | I_o – P-CCPCH Ec/Ior | ≤ [20] dB.

Note 4: I_{oc} level shall be adjusted according the total signal power I_o at receiver input and the geometry factor I_{or}/I_{oc}.

Note 5: The DPCH of all cells are located in an other timeslot than 0 or 8

A.9.1.1 FDD inter frequency measurements

In this case both cells are in different frequency. Table A.9.3 and notes 1-6 define the limits of signal strengths and code powers, where the requirement is applicable.

Table A.9.3 CPICH Inter frequency test parameters

<u>Parameter</u>	<u>Unit</u>	<u>Cell 1</u>		<u>Cell 2</u>
<u>Timeslot Number</u>		<u>0</u>	<u>8</u>	<u>n.a</u>
<u>UTRA RF Channel Number</u>		<u>Channel 1</u>		<u>Channel 2</u>
<u>CPICH Ec/Ior</u>	<u>dB</u>	<u>n.a.</u>	<u>n.a.</u>	<u>-10</u>
<u>P-CCPCH Ec/Ior</u>	<u>dB</u>	<u>-3</u>		<u>-12</u>
<u>SCH Ec/Ior</u>	<u>dB</u>	<u>-9</u>	<u>-9</u>	<u>-12</u>
<u>SCH t_{offset}</u>		<u>0</u>	<u>0</u>	<u>n.a.</u>
<u>PICH Ec/Ior</u>			<u>-3</u>	<u>-15</u>
<u>DPCH Ec/Ior</u>	<u>dB</u>	<u>n.a.</u>	<u>n.a.</u>	<u>-15</u>
<u>OCNS</u>	<u>dB</u>	<u>-4.28</u>	<u>-4.28</u>	<u>-1,11</u>
<u>\hat{I}_{or}/I_{oc}</u>	<u>dB</u>	<u>∏</u>	<u>∏</u>	<u>10,5</u>
<u>I_{oc}</u>	<u>dBm/3, 84 MHz</u>	<u>-70</u>		<u>Note 5</u>
<u>Range 1: I_o</u>	<u>dBm</u>	<u>-94...-70</u>		<u>-94...-70</u>
<u>Range 2: I_o</u>		<u>-94...-50</u>		<u>-94...-50</u>
<u>Propagation condition</u>	<u>:</u>	<u>AWGN</u>		<u>AWGN</u>

Note 1: $CPICH_RSCP_{1,2} \geq -114$ dBm.

Note 2: $|CPICH_RSCP_1 - CPICH_RSCP_2| \leq 20$ dB

Note 3: $|Channel\ 1\ I_o - Channel\ 2\ I_o| \leq 20$ dB

Note 4: $|I_o - CPICH\ Ec/Ior| \leq 20$ dB

Note 5: I_{oc} level shall be adjusted in each carrier frequency according the total signal power I_o at receiver input and the geometry factor \hat{I}_{or}/I_{oc} . $I_o - 10,6$ dB = I_{oc}

Note 6: The DPCH of the TDD cell is located in an other timeslot than 0 or 8

A.9.1.1 UTRA carrier RSSI inter frequency measurements

The table A.9.4 and notes 1,2 define the limits of signal strengths, where the requirement is applicable.

Table A.9.4 UTRA carrier RSSI Inter frequency test parameters

<u>Parameter</u>	<u>Unit</u>	<u>Cell 1</u>	<u>Cell 2</u>
<u>UTRA RF Channel number</u>	<u>:</u>	<u>Channel 1</u>	<u>Channel 2</u>
<u>\hat{I}_{or}/I_{oc}</u>	<u>dB</u>	<u>-1</u>	<u>-1</u>
<u>I_{oc}</u>	<u>dBm/ 3.84 MHz</u>	<u>Note 2</u>	<u>Note 2</u>
<u>Range 1: I_o</u>		<u>-94...-70</u>	<u>-94...-70</u>
<u>Range 2: I_o</u>	<u>dBm/ 3.84 MHz</u>	<u>-94...-50</u>	<u>-94...-50</u>
<u>Propagation condition</u>	<u>:</u>	<u>AWGN</u>	

Note 1: For relative accuracy requirement / Channel 1 I_o – Channel 2 I_o / < 20 dB.

Note 2: I_{oc} level shall be adjusted according the total signal power I_o at receiver input and the geometry factor \hat{I}_{or}/I_{oc} .

A.9.2 Measurement Performance for UTRAN

A.9.2.1 UTRAN RX measurements

If not otherwise stated, the test parameters in table A.9.5 should be applied for UTRAN RX measurements requirements in this clause.

Table A.9.5 Intra frequency test parameters for UTRAN RX Measurements

<u>Parameter</u>	<u>Unit</u>	<u>Cell 1</u>
<u>UTRA RF Channel number</u>		<u>Channel 1</u>
<u>Timeslot</u>		[]
<u>DPCH E_c/I_{or}</u>	<u>dB</u>	[]
<u>\hat{I}_{or}/I_{oc}</u>	<u>dB</u>	[]
<u>I_{oc}</u>	<u>dBm/ 3,84 MHz</u>	<u>-89</u>
<u>Range: I_o</u>	<u>dBm</u>	<u>-105..-74</u>
<u>Propagation condition</u>	=	<u>AWGN</u>

CHANGE REQUEST

⌘ **25.123 CR 34** ⌘ rev **-** ⌘ Current version: **3.3.0** ⌘

For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.

Proposed change affects: ⌘ (U)SIM ME/UE Radio Access Network Core Network

Title:	⌘ Re-structuring TS 25.123 Annex A1-3		
Source:	⌘ RAN WG4		
Work item code:	⌘	Date:	⌘ 13-17 Nov 2000
Category:	⌘ F	Release:	⌘ R99
Use <u>one</u> of the following categories: F (essential correction) A (corresponds to a correction in an earlier release) B (Addition of feature), C (Functional modification of feature) D (Editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900.		Use <u>one</u> of the following releases: 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)	

Reason for change:	⌘ See Tdoc R4-000934 and R4-000919
Summary of change:	⌘ The requirements and the structure of this section is modified in order to fit with 25.133 structure and RAN2 specifications.
Consequences if not approved:	⌘ Inconsistency between specification 25.123 and 25.133 as well as RAN2 specifications

Clauses affected:	⌘
Other specs affected:	⌘ <input type="checkbox"/> Other core specifications ⌘ <input type="checkbox"/> Test specifications ⌘ <input type="checkbox"/> O&M Specifications ⌘
Other comments:	⌘

How to create CRs using this form:

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

- 1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under <ftp://www.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2000-09 contains the specifications resulting from the September 2000 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

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

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 selection delay and cell re-selection delay.
- In UTRAN Connected Mode Mobility (A.5) there is measurement reporting delay and cell re-selection 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 is observed during repeated tests and a limit is set on the rate of correct events, usually 90% correct events are required. How the limit is applied in the test depends on the confidence required, further detailed are in TS 34.122.

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 he limits, in a way similar to the requirements on delay.

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)

Physical layer timing requirements

All requirements on “Timing Characteristics” (A.7) are absolute limits on timing accuracy.

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 Reserved for Future Use

Editors Note: This section is included in order to make the following section numbering, match the sections in the beginning of this specification.

Annex A-B (informative): Change History

CRs approved by TSG-RAN#7.

RAN doc	Spec	CR	Rev	Phase	Subject	Cat	Old Version	New Version
RP-000020	25.123	001		R99	Update of test requirements for TDD/TDD Handover	F	3.0.0	3.1.0
RP-000020	25.123	002		R99	Update of the requirements for TDD/FDD Handover	F	3.0.0	3.1.0
RP-000020	25.123	003		R99	Update of Cell Selection and Re-selection sections	C	3.0.0	3.1.0
RP-000020	25.123	004		R99	Update of Power management and Radio Link Surveillance sections	F	3.0.0	3.1.0
RP-000020	25.123	005		R99	Update of measurements performance requirements	F	3.0.0	3.1.0
RP-000020	25.123	006		R99	Inclusion of transport channel BER	F	3.0.0	3.1.0
RP-000020	25.123	007		R99	Receiver Timing Advance	F	3.0.0	3.1.0
April 2000	25.123	-	-	R99	MCC Editorial update and clause 10 renumbering	A	3.1.0	3.1.1

CRs approved by TSG-RAN#8.

RAN Doc	Spec	CR	Re v	Phas e	Subject	Cat	Version - Current	Version- New
RP-000209	25.123	008		R99	Correction of UTRAN "Transmitted carrier power" accuracy requirements	F	3.1.1	3.2.0
RP-000209	25.123	009		R99	Measurement reporting delay	F	3.1.1	3.2.0
RP-000209	25.123	010		R99	Update of UE SIR Measurements performance requirements	F	3.1.1	3.2.0
RP-000209	25.123	011		R99	UE Transport Channel BLER measurement	F	3.1.1	3.2.0
RP-000209	25.123	012		R99	Editorial corrections of 25.123	F	3.1.1	3.2.0
RP-000209	25.123	013		R99	Range and mapping in TS 25.123 (TDD)	F	3.1.1	3.2.0
RP-000209	25.123	014		R99	Requirement for UE Tx Power Measurement	F	3.1.1	3.2.0
RP-000209	25.123	015		R99	Addition of test parameters to RRM Measurements performance requirements	F	3.1.1	3.2.0

CRs approved by TSG-RAN#9.

RAN Doc	Spec	CR	Re v	Phas e	Subject	Cat	Version - Current	Version- New
RP-000399	25.123	16		R99	Handling of measurement uncertainties in conformance testing (TDD) for RRM measurements	F	3.2.0	3.3.0
RP-000399	25.123	17		R99	Basestation Physical Channel BER Measurement	F	3.2.0	3.3.0
RP-000399	25.123	18		R99	Repetition Period of System Information	F	3.2.0	3.3.0
RP-000399	25.123	19		R99	RRC connection mobility in cell_FACH, cell_PCH and URA_PCH	F	3.2.0	3.3.0
RP-000399	25.123	20		R99	Basestation SIR Measurement	F	3.2.0	3.3.0
RP-000399	25.123	21		R99	UE SIR Measurement Accuracy	F	3.2.0	3.3.0
RP-000399	25.123	22		R99	UE TS ISCP range/mapping correction	F	3.2.0	3.3.0
RP-000399	25.123	23		R99	Alignment of TDD measurements for UE: SFN-CFN observed time difference	F	3.2.0	3.3.0
RP-000399	25.123	24		R99	UTRAN Transport Channel BLER	F	3.2.0	3.3.0
RP-000399	25.123	25		R99	Accuracy requirements for Node-B synchronization	F	3.2.0	3.3.0
RP-000399	25.123	26		R99	Alignment of TDD measurements with FDD: GPS related measurements	F	3.2.0	3.3.0