TSG-RAN Meeting #7 *TSGRP#6(00)0020*
Madrid, Spain, 13 – 15 March 2000

Title: **Agreed CRs to TS 25.123**

Source: **TSG-RAN WG4**

Agenda item: **6.2.3**

Spec	CR	Rev	Phas	Subject	Cat	Current	New	WG4 doc
25.123	001		R99	Update of test requirements for TDD/TDD Handover	F	3.0.0	3.1.0	R4-000154
25.123	002		R99	Update of the requirements for TDD/FDD Handover	F	3.0.0	3.1.0	R4-000156
25.123	003		R99	Update of Cell Selection and Re-selection sections	C	3.0.0	3.1.0	R4-000310
25.123	004		R99	Update of Power management and Radio Link Surveillance sections	F	3.0.0	3.1.0	R4-000311
25.123	005		R99	Update of measurements performance requirements	F	3.0.0	3.1.0	R4-000312
25.123	006		R99	Inclusion of transport channel BER	F	3.0.0	3.1.0	R4-000315
25.123	007		R99	Receiver Timing Advance	F	3.0.0	3.1.0	R4-000282

CHANGE REQUEST

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25.123	CR	001	Current Version:	3.0.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to: RAN#7	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑	for information		non-strategic		

Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: *(at least one should be marked with an X)* (U)SIM [ ] ME [X] UTRAN / Radio [X] Core Network [ ]

Source: RAN WG4 **Date:** 29/02/00

Subject: Update of test requirements for TDD/TDD Handover

Work item:

Category: *(only one category shall be marked with an X)*

F	Correction	X
A	Corresponds to a correction in an earlier release	
B	Addition of feature	
C	Functional modification of feature	
D	Editorial modification	

Release:

Phase 2	
Release 96	
Release 97	
Release 98	
Release 99	X
Release 00	

Reason for change: Update of test requirements in section RRC connection mobility

Clauses affected: 5.1.2.1

Other specs affected:

Other 3G core specifications		→ List of CRs:
Other GSM core specifications		→ List of CRs:
MS test specifications		→ List of CRs:
BSS test specifications		→ List of CRs:
O&M specifications		→ List of CRs:

Other comments:

4 RRC Connection mobility

5.1 Handover

5.1.1 Introduction

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 TS25.331.

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 RAN 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 3GPP RAN TS 25.224 'Physical layer procedures (TDD)' if the monitored cell is a TDD cell and in 3GPP RAN 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 Handover 3G to 3G

5.1.2.1 TDD/TDD Handover

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 section, 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.

The DL reference measurement channel 12.2 kbps shall be used.

5.1.2.2.1.2.1 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 frequenc. 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 Figure5-1. 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.

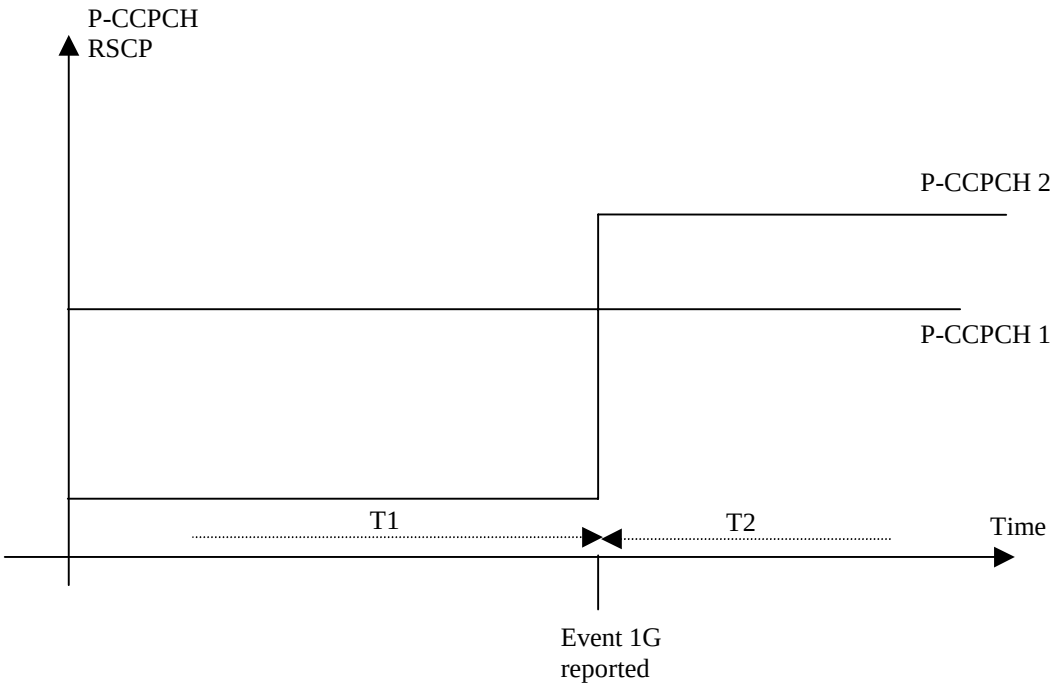

Figure 5-1: Illustration of parameters for handover measurement reporting test case

Table-5-1

Parameter	Unit	Cell 1				Cell 2			
Timeslot Number		0		8		0		8	
		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
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							

5.1.2.2.1.2.1.1 Requirements

The measurement reporting delay shall be less then [5] seconds in 90% of the cases.

All the reported entities shall be within the requirements, as defined in section 11.

~~The measurement reporting delay start is defined as the time from when a report is triggered at the physical layer, and in the end of an available sufficiently large measurement slot, according to the event or periodic mechanism set to trigger the measurement report. The measurement reporting delay end is defined as the time when the UE tries to transmit the measurement report over the Uu interface.~~

~~The measurement reporting delay is defined as the time between the measurement reporting delay start and the measurement reporting delay stop.~~

~~For all possible events defined in the measurement control messages as measurement reporting criteria, the measurement reporting delay shall not exceed the time stated in the table below.~~

~~**Table 4-1**~~

~~TTI for DCCH carrying measurement report [ms]~~	~~Maximum measurement reporting delay [ms]~~
~~10~~	
~~20~~	
~~40~~	
~~80~~	

~~5.1.2.1.1.2.1System Level Requirement on Measurement Reporting Delay~~

~~*[This Section specifies a system level requirement on measurement reporting delay for the network scenario described; when the values in*~~

~~*Table 4-1 in Section 5.1.2.2.1.2 will be specified, also the requirement described in this section will be taken into account; in this way a merge between the two sections will be possible]*~~

~~For handover purposes, the measurement reporting delay shall not exceed [5] seconds under the following network conditions: Initial serving cell at $\hat{I}_{or}$ = -70 dBm/3.84MHz, with 6 neighbours at $\hat{I}_{or}$ = -75 dBm/3.84MHz. Then the new cell is switched on at $\hat{I}_{or}$ = -60 dBm/3.84MHz, all steady signals.~~

5.1.2.1.1.3 Handover Delay

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 4-2

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

5.1.2.2 TDD/FDD Handover

5.1.1.2.1 Requirements

5.1.1.2.2 RF Parameters

5.1.4 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 utilise 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.

5.1.4.1 Handover to GSM

This section 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 recommendations.

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].

CHANGE REQUEST

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25.123	CR	002	Current Version:	3.0.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to:	RAN#7	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: (U)SIM [ ] ME [X] UTRAN / Radio [X] Core Network [ ]
(at least one should be marked with an X)

Source: RAN WG4 **Date:** 29/02/00

Subject: Update of the requirements for TDD/FDD Handover

Work item:

Category: *(only one category shall be marked with an X)*

F	Correction		**Release:**	Phase 2	
A	Corresponds to a correction in an earlier release			Release 96	
B	Addition of feature			Release 97	
C	Functional modification of feature	X		Release 98	
D	Editorial modification			Release 99	X
				Release 00	

Reason for change: Finalisation of test requirements in section RRC connection mobility

Clauses affected: 5.1.2.2

Other specs affected:

Other 3G core specifications		→ List of CRs:
Other GSM core specifications		→ List of CRs:
MS test specifications		→ List of CRs:
BSS test specifications		→ List of CRs:
O&M specifications		→ List of CRs:

Other comments:

4 RRC Connection mobility

5.1 Handover

5.1.1 Introduction

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 TS25.331.

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 RAN 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 3GPP RAN TS 25.224 'Physical layer procedures (TDD)' if the monitored cell is a TDD cell and in 3GPP RAN 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 Handover 3G to 3G

5.1.2.1 TDD/TDD Handover

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 section, 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 start is defined as the time from when a report is triggered at the physical layer, and in the end of an available sufficiently large measurement slot, according to the event or periodic mechanism set to trigger the measurement report. The measurement reporting delay end is defined as the time when the UE tries to transmit the measurement report over the Uu interface.

The measurement reporting delay is defined as the time between the measurement reporting delay start and the measurement reporting delay stop.

For all possible events defined in the measurement control messages as measurement reporting criteria, the measurement reporting delay shall not exceed the time stated in the table below.

Table 4-1

TTI for DCCH carrying measurement report [ms]	Maximum measurement reporting delay [ms]
10	
20	
40	
80	

5.1.2.1.1.2.1 System Level Requirement on Measurement Reporting Delay

[This Section specifies a system level requirement on measurement reporting delay for the network scenario described; when the values in

Table 4-1 *in Section 5.1.2.2.1.2 will be specified, also the requirement described in this section will be taken into account; in this way a merge between the two sections will be possible]*

For handover purposes, the measurement reporting delay shall not exceed [5] seconds under the following network conditions: Initial serving cell at $\hat{I}_{or}$ = -70 dBm/3.84MHz, with 6 neighbours at $\hat{I}_{or}$ = -75 dBm/3.84MHz. Then the new cell is switched on at $\hat{I}_{or}$ = -60 dBm/3.84MHz, all steady signals.

5.1.2.1.1.3 Handover Delay

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 4-2

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

5.1.2.2 TDD/FDD Handover

The handover procedure is initiated from UTRAN with an handover command message. The handover procedure may cause the UE to change its frequency.

5.1.2.2.1 Requirements

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 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.

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_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.

Table 5-9

Parameter	**Unit**	**Cell 1**				**Cell 2**			
Timeslot Number		0		8		n.a	n.a.		
		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_t_{offset}		0	0	0	0	n.a.	n.a.		
PICH_Ec/Ior				-3	-3	[]	[]		
DCH_Ec/Ior	dB	[]	[]	[]	[]	[]	[]		
OCNS	dB	-4.28	-4.28	-4.28	-4.28	[]	[]		
$\hat{I}_{or}/I_{oc}$	dB	[]	[]	[]	[]	[]	[]		
I_{oc}	dBm/3.84 MHz	-70				-70			
CPICH_Ec/Io		n.a.				[]			
PCCPCH_RSCP	dB	[]	[]	[]	[]	n.a.	n.a.	n.a.	n.a.
Absolute Threshold (SIR)	dB	[]				[]			
Hysteresis	dB	[]				[]			
Time to Trigger	msec	[]				[]			
Propagation Condition		AWGN				AWGN			

5.1.2.2.1.2.1.1 Requirements

The measurement reporting delay shall be less then [5] seconds in 90% of the cases.

All the reported entities shall be within the requirements, as defined in section 10.

5.1.2.1.1.4 Handover Delay

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 5-10

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

~~5.1.1.2.1 Requirements~~

~~5.1.1.2.2 RF Parameters~~

5.1.4 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 utilise 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.

5.1.4.1 Handover to GSM

This section 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 recommendations.

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].

CHANGE REQUEST

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25.123	CR	003	Current Version:	3.0.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to: RAN#7 *list expected approval meeting # here ↑*	for approval	X	strategic		*(for SMG use only)*
	for information		non-strategic		

Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: *(at least one should be marked with an X)* (U)SIM [ ] ME [X] UTRAN / Radio [X] Core Network [ ]

Source: RAN WG4 **Date:** 02/03/00

Subject: Update of Cell Selection and Re-selection sections

Work item:

Category: *(only one category shall be marked with an X)*

F	Correction		**Release:**	Phase 2	
A	Corresponds to a correction in an earlier release			Release 96	
B	Addition of feature			Release 97	
C	Functional modification of feature	X		Release 98	
D	Editorial modification			Release 99	X
				Release 00	

Reason for change: Adaptation of test requirements for RF Cell Selection and Re-Selection (TDD) in sections 4.2 and 4.3. Introduction of performance requirements and related test cases for UTRAN to GSM cell re-selection in idle mode in sections 4.4 and 4.5; update of abbreviations in section 3

Clauses affected: 3, 4

Other specs affected:

Other 3G core specifications	[ ]	→ List of CRs:
Other GSM core specifications	[ ]	→ List of CRs:
MS test specifications	[ ]	→ List of CRs:
BSS test specifications	[ ]	→ List of CRs:
O&M specifications	[ ]	→ List of CRs:

Other comments:

[7] 25.103 RF parameters in support of RRM

[8] 25.141 Basestation conformance testing (FDD)

[9] 25.142 Basestation conformance testing (TDD)

[10] 25.113 Basestation EMC

[11] 25.942 RF System scenarios

[12] 25.922 RRM Strategies

[13] 25.215 Physical Layer Measurements (FDD)

[14] 25.225 Physical Layer Measurements (TDD)

[15] 25.302 Services provided by Physical Layer

[16] 25.331 RRC Protocol Specification

[17] 25.224 Physical Layer Procedures (TDD)

[18] 25.304 UE procedures in Idle Mode

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.

3.2 Symbols

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

<symbol> <Explanation>

Symbol	**Explanation**
[…]	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 section 3.3 and Annex C.

3.3 Abbreviations

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

RRM	Radio Resource Management
ACPR	Adjacent Channel Power 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
FER	Frame Error Rate
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.
$\frac{PCCPCH\_E_c}{I_{or}}$	The ratio of the average transmit energy per PN chip for the PCCPCH to the total transmit power spectral density.
PPM	Parts Per Million
OCNS	Orthogonal Channel Noise Simulator, a mechanism used to simulate the users or control signals on the other orthogonal channels of a Forward link.
PICH	Paging Indicator Channel
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

4 Idle Mode Tasks

4.1 Introduction

Note: The paging period and the repetition rate of relevant system information blocks needs to be defined.

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 RAN TS 25.304 ‘UE procedures in idle mode’ and the measurements carried out by the UE are explained in specification 3GPP RAN TS 25.225 ‘Physical Layer Measurements (TDD)’. The measurements performance requirements are specified in section 11.

4.2 RF Cell Selection Scenario

[Note: Some performance requirements in agreed scenarios are added into this section. 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.

4.2.1.2 Test Parameters

The stored information of the last registered PLMN is utilized in this test. The stored information includes 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	
UTRA RF Channel Number		Channel 1	
Timeslot Number		0	8
PCCPCH_Ec/Ior	~~DB~~dB	~~-3 -12~~	
SCH_Ec/Ior	~~DB~~dB	~~-9 -12~~	-9
SCH_t_{offset}		0	0
PICH_Ec/Ior	~~DB~~dB	~~-15~~	-3
OCNS_Ec/Ior	~~DB~~dB	~~-4.28 To Be Calculated~~	-4.28
$\hat{I}_{or}/I_{oc}$	~~DB~~dB	0	0
I_{oc}	~~DBm~~dBm/3.84 MHz	~~-70 -60~~	-70
PCCPCH RSCP	dBm	-73	
Propagation Condition		AWGN	AWGN
Qmin	~~DB~~ dBm	[ ]	[ ]
UE_TXPWR_MAX_RACH	~~DBm~~dBm	[ ]	[ ]

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

4.2.1.3 Performance Requirements

C~~orrect c~~ell selection shall be ~~greater~~ correct in more than [X%] of the cases~~with [Y%] confidence~~. Cell selection is correct if within [5] seconds the UE camps on the cell,.

4.2.2 Requirements for Cell Selection ~~multicarrier~~ single carrier multi cell case

4.2.2.1 Cell selection delay

The UE shall be capable of selecting a suitable cell within [5+x] seconds from switch on in the test case defined in following section in Table 4-2. 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.

4.2.2.2 Test Parameters

The stored information of the last registered PLMN is utilized 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	
UTRA RF Channel Number		Channel 1		Channel 1		Channel 1		Channel 1		Channel 1		Channel 1	
Timeslot Number		0	8	0	8	0	8	0	8	0	8	0	8
PCCPCH_Ec/Ior	dB	-3		-3		-3		-3		-3		-3	
SCH_Ec/Ior	dB	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9
SCH_t_{offset}		0	0	5	5	10	10	15	15	20	20	25	25
PICH_Ec/Ior	dB		-3		-3		-3		-3		-3		-3
OCNS	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											
PCCPCH RSCP	dBm	-63		-66		-70		-73		-76		-76	
Propagation Condition		AWGN											
Qmin	dBm	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
UE_TXPWR_MAX_RACH	dBm	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

~~Parameter~~	~~Unit~~	~~Cell 1~~	~~Cell 2~~	~~Cell 3~~	~~Cell 4~~	~~Cell 5~~	~~Cell 6~~
~~*UTRA RF Channel Number*~~		~~Channel 1~~	~~Channel 1~~	~~Channel 1~~	~~Channel 2~~	~~Channel 2~~	~~Channel 2~~
~~*PCCPCH_Ec/Ior*~~	~~dB~~	~~-12~~	~~-12~~	~~-12~~	~~-12~~	~~-12~~	~~-12~~
~~*SCH_Ec/Ior*~~	~~dB~~	~~-12~~	~~-12~~	~~-12~~	~~-12~~	~~-12~~	~~-12~~
~~*PICH_Ec/Ior*~~	~~dB~~	~~-15~~	~~-15~~	~~-15~~	~~-15~~	~~-15~~	~~-15~~
~~OCNS~~	~~dB~~	~~To Be Calculated~~	~~To Be Calculated~~	~~To Be Calculated~~	~~To Be Calculated~~	~~To Be Calculated~~	~~To Be Calculated~~
~~$\hat{I}_{or}/I_{oc}$~~	~~dB~~	~~0~~	~~4.8~~	~~9.5~~	~~4.8~~	~~5.9~~	~~9.5~~
~~I_{oc}~~	~~dBm/3.84 MHz~~	~~-60~~			~~-60~~		
~~Propagation Condition~~		~~AWGN~~			~~AWGN~~		
~~*Qmin*~~	~~dB~~	~~[ ]~~	~~[ ]~~	~~[ ]~~	~~[ ]~~	~~[ ]~~	~~[ ]~~
~~*UE_TXPWR_MAX_RACH*~~	~~dBm~~	~~[ ]~~	~~[ ]~~	~~[ ]~~	~~[ ]~~	~~[ ]~~	~~[ ]~~

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

4.2.2.3 Performance Requirements

~~Correct c~~ell selection shall be ~~greater~~ correct in more than [X%] ~~with [Y%] confidence~~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 section. More scenarios will be added later]

4.3.1 Requirements for 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 in the test case defined in the following section inTable 4-3 within [5] seconds from it becoming a cell to be re-selected according the cell re-selection criteria. The cells, which are possible to be re-reselected during the test are belonging to different location areas. ~~The cell re-selection delay is then defined as a time the UE needs for sending RRC Connection Request for Location Update message to UTRAN~~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.

4.3.1.2 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. 2 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			
Timeslot Number		0		8		0		8		0		8	
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number		Channel 1		Channel 1		Channel 1		Channel 1		Channel 1		Channel 1	
PCCPCH_Ec/Ior	dB	-3	-3			-3	-3			-3	-3		
SCH_Ec/Ior	dB	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9
SCH_t_{offset}		0	0	0	0	5	5	5	5	19	10	10	10
PICH_Ec/Ior	dB			-3	-3			-3	-3			-3	-3
OCNS_Ec/Ior	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
PCCPCH RSCP	dBm	-64	-66			-66	-64			-74	-74		
Qoffset		[ ]		[ ]		[ ]		[ ]		[ ]		[ ]	
Qhyst	dBm	[ ]		[ ]		[ ]		[ ]		[ ]		[ ]	
Treselection		[ ]		[ ]		[ ]		[ ]		[ ]		[ ]	
Qintrasearch	dB	[ ]		[ ]		[ ]		[ ]		[ ]		[ ]	
		Cell 4				Cell 5				Cell 6			
Timeslot		0		8		0		8		0		8	
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number		Channel 1		Channel 1		Channel 1		Channel 1		Channel 1		Channel 1	
PCCPCH_Ec/Ior	dB	-3	-3			-3	-3			-3	-3		
SCH_Ec/Ior	dB	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9
SCH_t_{offset}		15	15	15	15	20	20	20	20	25	25	25	25
PICH_Ec/Ior	dB			-3	-3			-3	-3			-3	-3
OCNS	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
PCCPCH RSCP		-74	-74			-74	-74			-74	-74		
Qoffset		[ ]		[ ]		[ ]		[ ]		[ ]		[ ]	
Qhyst	dBm	[ ]		[ ]		[ ]		[ ]		[ ]		[ ]	
Treselection		[ ]		[ ]		[ ]		[ ]		[ ]		[ ]	
Qintrasearch	dB	[ ]		[ ]		[ ]		[ ]		[ ]		[ ]	
I_{oc}	dBm/3.84 MHz	-70											
Propagation Condition		AWGN											

Parameter	Unit	Cell 1		Cell 2		Cell 3		Cell 4		Cell 5		Cell 6	
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number		Channel 1		Channel 1		Channel 1		Channel 1		Channel 1		Channel 1	
PCCPCH_Ec/Ior	dB	-12		-12		-12		-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12		-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15		-15		-15		-15	
$\hat{I}_{or}/I_{oc}$	dB	-4.8	0	0	-4.8	-9.5		-9.5		-9.5		-9.5	
I_{oc}	dBm/3.84 MHz	-60											
Propagation Condition		AWGN											
Qoffset		[ ]		[ ]		[ ]		[ ]		[ ]		[ ]	
Qhyst	dBm	[ ]		[ ]		[ ]		[ ]		[ ]		[ ]	
Treselection		[ ]		[ ]		[ ]		[ ]		[ ]		[ ]	
Qintrasearch	dB	[ ]		[ ]		[ ]		[ ]		[ ]		[ ]	

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.

4.3.1.3 Performance Requirements

Correct cell re-selection shall be greater correct in more than [X%] with [Y%] confidenceof the cases. Cell re-selection is correct if within [5] seconds the UE re-reselects a new cell, which fulfills the cell re-selection criteria.

4.3.1.4 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].]

4.3.1.5 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 Requirements for UTRAN to GSM Cell Re-Selection

Note: These requirements are depending on supported UE capabilities.

Note: 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 UTRAN cell, the UE shall be capable of re-selecting a GSM cell in the test case defined in the following section in within [ ] seconds from it becoming a cell to be re-selected according the cell re-selection criteria for UTRAN to GSM. The cells, which are possible to be re-reselected 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.

4.3.2.2 Test Parameters

Tbd.

4.3.2.3 Performance Requirements

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

~~4.4 PLMN Selection and Re-Selection Scenario~~

~~4.5 Location Registration Scenario~~

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

25.123	CR	004	Current Version:	3.0.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to: RAN#7 *list expected approval meeting # here ↑*	for approval	X	strategic		*(for SMG use only)*
	for information		non-strategic		

Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: *(at least one should be marked with an X)* (U)SIM [ ] ME [X] UTRAN / Radio [X] Core Network [ ]

Source: RAN WG4 **Date:** 02/03/00

Subject: Update of Power management and Radio Link Surveillance sections

Work item:

Category: *(only one category shall be marked with an X)*

F	Correction	X
A	Corresponds to a correction in an earlier release	
B	Addition of feature	
C	Functional modification of feature	
D	Editorial modification	

Release:

Phase 2	
Release 96	
Release 97	
Release 98	
Release 99	X
Release 00	

Reason for change: This sections are removed taking into account that there are no requirements included, which would not be covered by other 3GPP specifications

Clauses affected: 8, 9

Other specs affected:

Other 3G core specifications	[ ]	→ List of CRs:
Other GSM core specifications	[ ]	→ List of CRs:
MS test specifications	[ ]	→ List of CRs:
BSS test specifications	[ ]	→ List of CRs:
O&M specifications	[ ]	→ List of CRs:

Other comments:

Reconfiguration. This section specifies time delay requirements on Physical Channel Reconfiguration and Transport Channel configuration in different reconfiguration cases.]

7 Dynamic Channel Allocation

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.

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].

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.

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.

~~8 Power Management~~

~~8.1 UE Output Power Dynamics~~

~~Power Control is used to limit the interference level.~~

~~8.1.1 UE Power Control~~

~~Open loop power control is the ability of the UE transmitter to sets its output power to a specified value. For the TDD mode the reciprocity of the channel allows accurate estimation of the required open loop transmit power.~~

~~The UE open loop power control error is specified in, S25.102 "UTRA (UE) TDD; Radio Transmission and Reception".~~

~~8.2 BS Output Power Dynamics~~

~~Power control is used to limit the interference level. The transmitter uses a quality based power control on the downlink.~~

~~8.2.1 Inner loop power control~~

~~Inner loop power control is the ability of the BS transmitter to adjust its output power in response to the UL received signal.~~

~~For inner loop correction on the Downlink Channel, the base station adjust its mean output power level in response to each valid power control bit received from the UE on the Uplink Traffic Channel. Inner Loop Control is based on SIR measurements at the UE receiver and the corresponding TPC command are generated by the UE.~~

~~8.2.1.1 Power control steps~~

~~The power control step is the step change in the DL transmitter output power in response to a TPC message from the UE. The reuirements on the Power Control Steps are specified in S25.105 "UTRA (BS) TDD; Radio Transmission and Reception".~~

~~8.2.1.2 Power control dynamic range~~

~~The power control dynamic range is the difference between the maximum and the minimum transmit output power for a specified reference condition. The requirements related to power Control Dynamic Range are specified in in S25.105 "UTRA (BS) TDD; Radio Transmission and Reception".~~

~~9 Radio Link Surveillance~~

10 Timing characterisitics

10.1 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 inTS25.225 “Physical Layer Measurements (TDD)”, the requirements on the measurement is specified in section 11.2.9 ‘RX Timing Deviation’.

11 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 TSG RAN WG2 S25.302 "Services Provided by Physical Layer". The physical layer measurements for TDD are described and defined in TSG RAN WG1 TS25.225 “Physical layer – Measurements (TDD)”. In this section for TDD, per each measurement the relevant requirements on performance in terms of accuracy are reported.

All measurements in this section are defined using the 12.2kbps reference channel.

Unless explicitly stated, all measurements shall be reported within the defined requirements in 90% of the cases with 95% confidence.

[Note: all the measurement accuracy values shall be harmonised with the FDD values reported in Section 10 of TS 25.133]

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

25.123	CR	005	Current Version:	3.0.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to: RAN#7	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑	for information		non-strategic		

Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: *(at least one should be marked with an X)* (U)SIM [ ] ME [X] UTRAN / Radio [X] Core Network [ ]

Source: RAN WG4 **Date:** 02/03/00

Subject: Update of measurements performance requirements

Work item:

Category: *(only one category shall be marked with an X)*

F	Correction	X
A	Corresponds to a correction in an earlier release	
B	Addition of feature	
C	Functional modification of feature	
D	Editorial modification	

Release:

Phase 2	
Release 96	
Release 97	
Release 98	
Release 99	X
Release 00	

Reason for change:

Clauses affected: 11

Other specs affected:

Other 3G core specifications	[ ]	→ List of CRs:
Other GSM core specifications	[ ]	→ List of CRs:
MS test specifications	[ ]	→ List of CRs:
BSS test specifications	[ ]	→ List of CRs:
O&M specifications	[ ]	→ List of CRs:

Other comments:

8.2.1 Inner loop power control

Inner loop power control is the ability of the BS transmitter to adjust its output power in response to the UL received signal.

For inner loop correction on the Downlink Channel, the base station adjust its mean output power level in response to each valid power control bit received from the UE on the Uplink Traffic Channel. Inner Loop Control is based on SIR measurements at the UE receiver and the corresponding TPC command are generated by the UE.

8.2.1.1 Power control steps

The power control step is the step change in the DL transmitter output power in response to a TPC message from the UE. The reuirements on the Power Control Steps are specified in S25.105 "UTRA (BS) TDD; Radio Transmission and Reception".

8.2.1.2 Power control dynamic range

The power control dynamic range is the difference between the maximum and the minimum transmit output power for a specified reference condition. The requirements related to power Control Dynamic Range are specified in in S25.105 "UTRA (BS) TDD; Radio Transmission and Reception".

9 Radio Link Surveillance

10 Timing characterisitics

10.1 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 inTS25.225 “Physical Layer Measurements (TDD)”, the requirements on the measurement is specified in section 11.2.9 ‘RX Timing Deviation’.

11 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 TSG RAN WG2 S25.302 "Services Provided by Physical Layer". The physical layer measurements for TDD are described and defined in TSG RAN WG1 TS25.225 “Physical layer – Measurements (TDD)”. In this section 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 TS 25.102 annex A, section A.3.1. This measurement channel is used both in active cell and cells to be measured.

- Physical channels used as defined in 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.
- Single task reporting.
- Power control is active.

~~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 TSG RAN WG2 S25.302 "Services Provided by Physical Layer". The physical layer measurements for TDD are described and defined in TSG RAN WG1 TS25.225 "Physical layer – Measurements (TDD)". In this section for TDD, per each measurement the relevant requirements on performance in terms of accuracy are reported.~~

~~All measurements in this section are defined using the 12.2kbps reference channel.~~

~~Unless explicitly stated,~~

~~- all measurements shall be reported within the defined requirements in 90% of the cases with 95% confidence.~~

~~*[Note: all the measurement accuracy values shall be harmonised with the FDD values reported in Section 10 of TS 25.133]*~~

~~- Measurement channel is 12.2 kbps as per TS25.102~~

~~- Single event reporting is used~~

~~Definitions for the Measurements can be found in TS25.225~~

11.1 Measurements Performance for UE

11.1.1 PRIMARY COMMON CONTROL PHYSICAL CHANNEL MEASUREMENTS

These measurements consider *P-CCPCH RSCP* measurements.

11.1.1.1 Intra frequency test parameters

In this case all cells are in the same frequency. The table 10-1 and notes 1-4 define the limits of signal strengths and code powers, where the requirement is applicable.

Table 11-1

Parameter	Unit	Cell 1	Cell 2

UTRA RF Channel number		Channel 1		Channel 1	
Timeslot		0	8	0	8
P-CCPCH Ec/Ior	dB	-3	-	-3	-
SCH Ec/Ior	dB	-9	-9	-9	-9
PICH_Ec/Ior	dB	-	-3	-	-3
OCNS	dB	[]	[]	[]	[]
Îor/Ioc	DB	[ ]		[ ]	
Ioc	dBm/ 3.84 MHz	Note 4		Note 4	
Range 1:Io *Range 2: Io*	dBm	[ ] [ ]		[ ] [ ]	
Propagation condition	-	AWGN			

Note 1: *P-CCPCH_RSCP1,2* ≥ -[102] dBm.

Note 2: | *P-CCPCH_RSCP1 – PCCPCH_RSCP2* |≤ 20 dB.

Note 3: | *Io – P-CCPCH_Ec/Ior*| ≤ [20] dB.

Note 4: *Ioc* level shall be adjusted according the total signal power *Io* at receiver input and the geometry factor *Îor/Ioc*. *Io –13.7 dB= Ioc.*

11.1.1.2 P-CCPCH RSCP

11.1.1.2.1 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 10-1 is present.

Table 11-3 Range 1

Parameter	Value	Accuracy	
		Normal conditions	Extreme conditions
P-CCPCH_RSCP	dB	± 6	± 9

Table 11-4 Range 2

Parameter	Value	Accuracy	
		Normal conditions	Extreme conditions
P-CCPCH_RSCP	dB	± 8	± 11

11.1.1.2.2 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 1 are present.

Table 11-5 Range 2

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

~~**Requirement**~~	~~**Absolute accuracy:**~~ ~~**Normal Conditions**~~ ~~+/- [4] +/- 6dB for levels below -[70] -70dBm;~~ ~~+/- [6]+/- 8dB over the full range~~ ~~Valid for UTRA carrier RSSI >= -[95]dBm. -94dBm~~ ~~**Extreme Conditions**~~ ~~+/- [7] +/- 9dB for levels below -[70] -70dBm;~~ ~~+/- [9] +/- 11dB over the full range~~ ~~Valid for UTRA carrier RSSI >= -[95]dBm -94dBm~~ ~~**Relative accuracy:**~~ ~~+ [2] +/- 3dB dB for intra frequency~~ ~~+/- 6dB for inter frequency~~ ~~Valid when the minimum level > -[115] -102dBm, the difference in signal level < [20] <20dB and UTRA carrier RSSI>= -[95] -94dBm.~~

11.1.2 COMMON PILOT MEASUREMENTS

These measurement consider *CPICH RSCP* and *CPICH Ec/Io* measurements.

11.1.2.1 Intra frequency test parameters

In this case all cells are in the same frequency. The table 10-1 and notes 1-4 define the limits of signal strengths and code powers, where the requirement is applicable.

Table 11-6

Parameter	**Unit**	**Cell 1**	**Cell 2**
UTRA RF Channel number		Channel 1	Channel 1
CPICH_Ec/Ior	dB	-10	-10

PCCPCH_Ec/Ior	dB	-12	-12
SCH_Ec/Ior	dB	-12	-12
PICH_Ec/Ior	dB	-15	-15
DPCH_Ec/Ior	dB	-15	-15
OCNS	dB	-1.11	-1.11
Îor/Ioc	dB	10.5	10.5
Ioc	dBm/ 3.84 MHz	Note 4	Note 4
Range 1:Io *Range 2: Io*	dBm	-94…-70 -94…-50	-94…-70 -94…-50
Propagation condition	-	AWGN	

Note 1: *CPICH_RSCP1,2* ≥ -114 dBm.

Note 2: | *CPICH_RSCP1 – CPICH_RSCP2* |≤ 20 dB.

Note 3: | *Io – CPICH_Ec/Ior*| ≤ 20 dB.

Note 4: *Ioc* level shall be adjusted according the total signal power *Io* at receiver input and the geometry factor *Îor/Ioc*. *Io –13.7 dB= Ioc.*

~~10.1.1.2~~11.1.2.2 Inter frequency test parameters

In this case both cells are in different frequency and compressed mode is applied. The gap length is 7 [14 slots is FSS]. The table 10-2 and notes 1-5 define the limits of signal strengths and code powers, where the requirement is applicable.

Table 11-7

Parameter	**Unit**	**Cell 1**	**Cell 2**
UTRA RF Channel number		Channel 1	Channel 2
CPICH_Ec/Ior	dB	-10	-10
PCCPCH_Ec/Ior	dB	-12	-12
SCH_Ec/Ior	dB	-12	-12
PICH_Ec/Ior	dB	-15	-15
DPCH_Ec/Ior	dB	-15	-15
OCNS	dB	-1.11	-1.11
Îor/Ioc	dB	10.1	10.1
Ioc	dBm/ 3.84 MHz	Note 5	Note 5
Range 1:Io *Range 2: Io*	dBm	-94…-70 -94…-50	-94…-70 -94…-50
Propagation condition	-	AWGN	

Note 1: *CPICH_RSCP1,2* ≥ -114 dBm.

Note 2: | *CPICH_RSCP1 – CPICH_RSCP2* | ≤ 20 dB

Note 3: | *Channel 1 Io –Channel 2 Io*| ≤ 20 dB

Note 4: | *Io – CPICH Ec/Ior*| ≤ 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 *Îor/Ioc*. *Io –10.6 dB = Ioc.*

11.1.2.3 CPICH RSCP

[Informative note: This measurement is for handover evaluation, DL open loop power control, UL open loop power control and for the calculation of pathloss.]

10.1.2.1 Intra frequency measurements accuracy

The measurement period for CELL_DCH stage is [150 ms] and for CELL_FACH stage [600 ms].

10.1.2.1.1 Absolute accuracy requirement

The absolute accuracy of CPICH RSCP is defined as measured one code power after de-spreading. In this test only Cell 1 in table 10-1 is present.

Table 11-8 Range 1

Parameter	Value	Accuracy	
		Normal condition	Extreme condition
CPICH_RSCP	dB	± 6	± 9

Table 11-9 Range 2

Parameter	Value	Accuracy	
		Normal condition	Extreme condition
CPICH_RSCP	dB	± 8	± 11

10.1.2.1.2 Relative accuracy requirement

The relative accuracy of CPICH 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 1 are present.

Table 11-10 Range 2

Parameter	Value	Accuracy	
		Normal condition	Extreme condition
CPICH_RSCP	dB	± 3	± 3

10.1.2.2 Inter frequency measurement relative accuracy requirement

The measurement period for CELL_DCH stage is [240 ms], and for CELL_FACH stage [960 ms].

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 10-2 is used. In this test cells 1and 2 are present.

Table 11-11Range 2

Parameter	Value	Accuracy	
		Normal condition	Extreme condition
CPICH_RSCP	dB	± 6	± 6

~~10.1.3~~10.1.1 CPICH Ec/Io

[Informative note: This measurement is for Cell selection/re-selection and for handover evaluation.]

10.1.1.1 Intra frequency measurements accuracy

The measurement period for CELL_DCH stage is [150 ms], and for CELL_FACH stage [600ms].

10.1.3.1.1 Absolute accuracy requirement

The absolute accuracy of CPICH Ec/Io is defined as measured energy per chip divided by power density in the band from one cell. In this test only Cell 1 in table 10-1 is present.

Table 11-12 Range 2

Parameter	Value	Accuracy	
		Normal condition	Extreme condition
CPICH_Ec/Io	dB	± 4	± 4

10.1.3.1.2 Relative accuracy requirement

The relative accuracy of CPICH Ec/Io is defined as measured energy per chip divided by power density in the band received from active cell and one more cells. The reported value is relative to active cell value. In this test Cells 1 and 2 in table 10-1 are present.

Table 11-13 Range 2

Parameter	Value	Accuracy	
		Normal condition	Extreme condition
CPICH_Ec/Io	dB	± 3	± 3

10.1.1.2 Inter frequency measurement relative accuracy requirement

The measurement period for CELL_DCH stage is [240 ms], and for CELL_FACH stage [960 ms].

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 valus are relative to active cell value. In this test the parameters in table 10-2 is used. In this test cells 1and 2 are present.

Table 11-14 Range 2

Parameter	Value	Accuracy	
		Normal condition	Extreme condition
CPICH_Ec/Io	dB	± 6	± 6

11.1.2CPICH RSCP

Requirement	**Absolute accuracy:** **Normal Conditions** +/- [6] +/- 6dB for levels below [70] -70dBm; +/- [8] +/- 8dB over the full range Valid for UTRA carrier RSSI >= [95] -94dBm. **Extreme Conditions** +/- [9] +/- 9dB for levels below [70] -70dBm; +/- [11] +/- 11dB over the full range Valid for UTRA carrier RSSI >= [95] -94dBm. **Relative accuracy:** + [12] +/- 3dB for intra-frequency + [8] +/- 6dB for inter-frequency Valid when the minimum level > [115] -114dBm, the difference in signal level < [20] 20dB and UTRA carrier RSSI>= [95] -94dBm.

11.1.3RSCP

~~**Requirement**~~	~~**Absolute accuracy:**~~ ~~**Normal Conditions**~~ ~~+/- [4]dB for levels below - [70]dBm;~~ ~~+/- [6]dB over the full range~~ ~~Valid for UTRA carrier RSSI >= - [95]dBm.~~ ~~**Extreme Conditions**~~ ~~+/- [7]dB for levels below - [70]dBm;~~ ~~+/- [9]dB over the full range~~ ~~Valid for UTRA carrier RSSI >= - [95]dBm.~~ ~~**Relative accuracy:**~~ ~~+ [2] dB for intra frequency~~ ~~Valid when the minimum level > - [115] dBm, the difference in signal level < [20] dB and UTRA carrier RSSI>= [95]dBm.~~

~~11.1.4~~11.1.1 Timeslot ISCP

Requirement	**Absolute accuracy:** **Normal Conditions** ~~+/- [4]~~ +/-6dB for levels below ~~- [70]~~ -70dBm; ~~+/- [6]~~ +/-8dB over the full range Valid for UTRA carrier RSSI >= ~~- [95]~~ -94dBm. **Extreme Conditions** ~~+/- [7]~~ +/-9dB for levels below ~~- [70]~~ -70dBm; ~~+/- [9]~~ +/-11dB over the full range Valid for UTRA carrier RSSI >= ~~- [95]~~ –94dBm. ~~**Relative accuracy:**~~ ~~+ [2] dB for intra frequency~~ ~~Valid when the minimum level > - [115]dBm, the difference in signal level < [20]dB and UTRA carrier RSSI>= [95]dBm.~~

~~11.1.5~~11.1.2 UTRA carrier RSSI

Requirement	**Absolute accuracy:** **Normal Conditions** ~~+/- [4]~~ +/-4dB for levels below ~~-[70]~~ –70dBm ~~+/- [6]dB over the full range~~ Valid for levels >~~-[95]~~ -94dBm. **Extreme Conditions** ~~+/- [7]~~ +/-7dB for levels below ~~-[70]~~ -70dBm ~~+/- [9]dB over the full range~~ Valid for levels >~~-[95]~~ –94dBm. **Relative accuracy** (between measurements on two carriers): ~~+ [4]~~ +/-5dB over the full range Valid when the minimum level > ~~-[95]~~ -94 dBm and the difference <~~[20]~~ 20 dB.

~~11.1.6~~11.1.3 GSM carrier RSSI

Requirement	According to the definition of RXLEV in GSM 05.08.

~~11.1.7~~11.1.4 SIR

Requirement	Absolute accuracy: for [ ]<[ ]dB when UTRA carrier RSSI>=-94dBm

~~11.1.8CPICH Ec/No~~

~~**Requirement**~~	~~**Absolute accuracy** (measured on one code):~~ ~~+/- [3]~~ ~~+/-4dB over the full range when UTRA carrier RSSI>= -[95]~~ ~~-94dBm and CPICH RSCP >= -[115]~~ ~~-114dBm.~~ ~~**Relative accuracy** (between measurements on two codes):~~ ~~+ [3] +/-3dB for intra-frequency~~ ~~+ [6] +/-6dB for inter-frequency~~ ~~When UTRA carrier RSSI>= -[95]~~ ~~-94dBm and CPICH RSCP >= -[115]~~ ~~-114dBm.~~

~~11.1.9~~11.1.5 Physical channel BER

Requirement	+/-10% of the absolute Physical channel BER value

~~11.1.10~~11.1.6 Transport channel BLER

Requirement	The UE shall report the CRC results

~~11.1.11~~11.1.7 UE transmitted power

Requirement	**Absolute accuracy:** **Normal Conditions** ~~+ [9]~~ +/-9dB over the full range. **Extreme Conditions** ~~+ [12]~~ +/-12dB over the full range.

~~11.1.12~~11.1.8 SFN-SFN observed time difference

Requirement	~~+/- [0.5]~~ +/-0.5 chips period for both type 1 and type 2.

~~11.1.13~~11.1.9 Observed time difference to GSM cell

Requirement	~~+ [20]~~ +/-20chips.

11.2 Measurements Performance for UTRAN

11.2.1 RSCP

Requirement	**Absolute accuracy:** **Normal Conditions** ~~+/- [4]~~ +/-6dB for levels below –70dBm; ~~+/- [6]~~ +/-8dB over the full range Valid for RSSI >= -94dBm **Extreme Conditions** ~~+/- [7]~~ +/-9dB for levels below –70dBm; ~~+/- [9]~~ +/-11dB over the full range Valid for RSSI >= -94dBm **Relative accuracy:** ~~+ [2]~~ +/-3dB for intra-frequency Valid when the minimum level > -95-10log10(SF)dBm, the difference in signal level < 20dB and RSSI>= –94dBm.

11.2.2 Timeslot ISCP

Requirement	**Absolute accuracy:** **Normal Conditions** ~~+/- [4]~~ +/-6dB for levels below –70dBm; ~~+/- [6]~~ +/-8dB over the full range **Extreme Conditions** ~~+/- [7]~~ +/-9dB for levels below –70dBm; ~~+/- [9]~~ +/-11dB over the full range ~~**Relative accuracy:**~~ ~~+ [2] dB for intra-frequency~~

11.2.3 RSSI

Requirement	**Absolute accuracy:** ~~+/- [4]~~ +/-4dB over the full range.

11.2.4 SIR

Requirement	**Absolute accuracy**: ~~+/- [3]~~ +/-3dB for 0<SIR<10 dB when RSSI>=~~ [105]~~ –104dBm.

11.2.5 Physical channel BER

Requirement	+/-10% of the absolute BER value

11.2.6 Transport channel BLER

Requirement	

11.2.7 Transmitted carrier power

Requirement	~~**Absolute accuracy:**~~ **Accuracy:** 40% for 5%<(transmitted carrier power)<=100% ~~+ [3]dB over the full range.~~ ~~**Relative accuracy** (relative to the maximum transmit power):~~ ~~+ [2]dB over the full range.~~

11.2.8 Transmitted code power

Requirement	**Absolute accuracy:** ~~+ [3]~~ [+/-3]dB over the full range. **Relative accuracy** (relative to the maximum transmit power): ~~+ [2]~~ +/-2dB over the full range.

11.2.9 RX Timing Deviation

Requirement	~~+/- [0.5]~~ +/-0.5 chips period

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

~~12Annex A Measurement Definition (Informative)~~

~~In this Annex the definitions of those Measurements whose requirements are specified in Section 11 of this specification are reported for information. The complete list of measurements is specified in TSG RAN WG2 TS25.302 "Services Provided by Physical Layer". ". The physical layer measurements for TDD are described and defined in TSG RAN WG1 TS25.225 "Physical layer – Measurements (TDD)".~~

~~12.1Measurements Performance for UE~~

~~12.1.1P-CCPCH RSCP~~

~~**Definition**~~	~~Received Signal Code Power, the received power on P-CCPCH of own or neighbour cell after despreading. The reference point for the RSCP is the antenna connector at the UE.~~

~~12.1.2CPICH RSCP~~

~~**Definition**~~	~~Received Signal Code Power, the received power on the CPICH code after despreading. The reference point for the RSCP is the antenna connector at the UE.~~

~~12.1.3RSCP~~

~~**Definition**~~	~~Received Signal Code Power, the received power on the code of a specified DPCH or PDSCH after despreading. The reference point for the RSCP is the antenna connector at the UE.~~

~~12.1.4Timeslot ISCP~~

~~**Definition**~~	~~Interference Signal Code Power, the interference on the received signal in a specified timeslot after despreading. Only the non-orthogonal part of the interference is included in the measurement. The reference point for the ISCP is the antenna connector at the UE.~~

12.1.5UTRA carrier RSSI

Definition	Received Signal Strength Indicator, the wide band received power within the relevant channel bandwidth in a specified timeslot. Measurement shall be performed on a UTRAN DL carrier. The reference point for the RSSI is the antenna connector at the UE.

12.1.6GSM carrier RSSI

Definition	Received Signal Strength Indicator, the wide band received power within the relevant channel bandwidth in a specified timeslot. Measurement shall be performed on a GSM BCCH carrier. The reference point for the RSSI is the antenna connector at the UE.

12.1.7SIR

Definition	Signal to Interference Ratio, defined as the RSCP of a DPCH or PDSCH divided by ISCP of the same timeslot. The reference point for the SIR is the antenna connector of the UE.

12.1.8CPICH Ec/No

Definition	The received energy per chip divided by the power density in the band. The Ec/No is identical to RSCP/RSSI. The reference point for Ec/No is the antenna connector at the UE.

12.1.9Physical channel BER

Definition	The physical channel BER is an estimation of the average bit error rate (BER) before channel decoding of the data.

12.1.10Transport channel BLER

Definition	Estimation of the transport channel block error rate (BLER). The BLER estimation shall be based on evaluating the CRC on each transport block.

12.1.11UE transmitted power

Definition	The total UE transmitted power on one carrier measured in a timeslot. The reference point for the UE transmitted power shall be the UE antenna connector.

12.1.12SFN-SFN observed time difference

Definition	SFN-SFN observed time difference is the time difference of the reception times of frames from two cells (serving and target) measured in the UE and expressed in chips. It is distinguished in two types: Type 2 applies if the serving and the target cell have the same frame timing and SFN numbering. Type 1 applies in all other cases. **Type 1:** SFN-SFN observed time difference = OFF×38400+ T_m in chips, where: $T_m = T_{RxSFNk} - T_{RxSFNi}$, given in chip units with the range [0, 1, …, 38399] chips T_{RxSFNi}: time of start of the received frame SFN_i of the serving TDD cell i. T_{RxSFNk}: time of start of the received frame SFN_k of the target UTRA cell k after the time instant T_{RxSFNi} in the UE. If the next frame of the target UTRA cell is received exactly at T_{RxSFNi} then $T_{RxSFNk} = T_{RxSFNi}$ (which leads to T_m=0). OFF=(SFN_k- SFN_i) mod 256, given in number of frames with the range [0, 1, …, 255] frames SFNi : system frame number for downlink frame from serving TDD cell i in the UE at the time T_{RxSFNi}. SFNk : system frame number for downlink frame from target UTRA cell k received in the UE at the time T_{RxSFNk} (for FDD: the P-CCPCH frame) **Type 2:** SFN-SFN observed time difference = $T_{RxTSk} - T_{RxTSi}$, in chips, where T_{RxTSi}: time of start of a timeslot received of the serving TDD cell i. T_{RxTSk}: time of start of a timeslot received from the target UTRA cell k that is closest in time to the start of the timeslot of the serving TDD cell i.

12.1.13Observed time difference to GSM cell

Definition	Observed time difference to GSM cell is the time difference T_m in ms, where $T_m = T_{RxGSMk} - T_{RxSFN0i}$ $T_{RxSFN0i}$: time of start of the received frame SFN=0 of the serving TDD cell i T_{RxGSMk}: time of start of the received 51-GSM-multiframe of the considered target GSM beacon frequency k which is following next after the start of frame SFN=0 of the serving TDD cell.

12.2Measurements Performance for UTRAN

12.2.1RSCP

Definition	Received Signal Code Power, the received power on one DPCH, PRACH or PUSCH code after despreading. The reference point for the RSCP shall be the antenna connector.

12.2.2 Timeslot ISCP

Definition	Interference Signal Code Power, the interference on the received signal in a specified timeslot after despreading. Only the non-orthogonal part of the interference is included in the measurement. The reference point for the ISCP shall be the antenna connector.

12.2.3 RSSI

Definition	Received Signal Strength Indicator, the wide band received power within the UTRAN UL channel bandwidth in a specified timeslot. The reference point for the RSSI shall be the antenna connector.

12.2.4 SIR

Definition	Signal to Interference Ratio, defined as the RSCP of the DPCH or PUSCH divided by ISCP of the same timeslot. The reference point for the SIR shall be the antenna connector.

12.2.5 Physical channel BER

Definition	The physical channel BER is an estimation of the average bit error rate (BER) of a DPCH or PUSCH before channel decoding of the data.

12.2.6 Transport channel BLER

Definition	Estimation of the transport channel block error rate (BLER) of a DCH or USCH. The BLER estimation shall be based on evaluating the CRC on each transport block.

12.2.7 Transmitted carrier power

Definition	Transmitted carrier power, is the total transmitted power on one DL carrier from one UTRAN access point measured in a timeslot. The reference point for the UTRAN total transmitted power measurement shall be the antenna connector.

12.2.8 Transmitted code power

Definition	Transmitted Code Power, is the transmitted power on one carrier and one channelisation code in one timeslot. The reference point for the transmitted code power measurement shall be the antenna connector at the UTRAN access point cabinet.

12.2.9 RX Timing Deviation

Definition	'RX Timing Deviation' is the time difference $T_{RXdev} = T_{TS} - T_{RXpath}$ in chips, with T_{RXpath} : time of the reception in the Node B of the first significant uplink path to be used in the detection process T_{TS} : time of the beginning of the respective slot according to the Node B internal timing

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

History

Document history		
V3.0.0	December 1999	Approved by TSG-RAN

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

25.123	CR	006	Current Version:	3.0.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to:	RAN#7	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: *(at least one should be marked with an X)* (U)SIM [ ] ME [ ] UTRAN / Radio [X] Core Network [ ]

Source: RAN WG4 **Date:** 02-03-00

Subject: Inclusion of transport channel BER

Work item:

Category: *(only one category shall be marked with an X)*

F	Correction	X	**Release:**	Phase 2	
A	Corresponds to a correction in an earlier release			Release 96	
B	Addition of feature			Release 97	
C	Functional modification of feature			Release 98	
D	Editorial modification			Release 99	X
				Release 00	

Reason for change: As a consequence to WG1 changes.

Clauses affected: Section 11.2

Other specs affected:

Other 3G core specifications		→ List of CRs:	
Other GSM core specifications		→ List of CRs:	
MS test specifications	X	→ List of CRs:	
BSS test specifications		→ List of CRs:	
O&M specifications		→ List of CRs:	

Other comments:

help.doc

<--------- double-click here for help and instructions on how to create a CR.

11.2.1 Physical channel BER

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

11.2.1.1 Accuracy requirement

Table 10-14

Parameter	Accuracy	Range
BER	+/- 10% of the absolute BER value.	

~~**Requirement**~~	

11.2.2 Transport channel BLER

Requirement	

~~10.2.1~~11.2.3 Transport Channel BER

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

~~10.2.1.1~~11.2.3.1 Accuracy requirement

Parameter	Accuracy	Range
TrpBER	+/- []% of the absolute BER value.	

CHANGE REQUEST

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25.123	CR	007	Current Version:	3.0.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to: RAN#7 *list expected approval meeting # here ↑*	for approval	X	strategic		*(for SMG use only)*
	for information		non-strategic		

Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from:* ftp://ftp.3gpp.org/Information/CR-Form-v2.doc

Proposed change affects: *(at least one should be marked with an X)* (U)SIM [ ] ME [X] UTRAN / Radio [ ] Core Network [ ]

Source: RAN WG4 **Date:** 29.02.00

Subject: Receiver Timing Advance

Work item:

Category: *(only one category Shall be marked With an X)*

F	Correction	X	**Release:**	Phase 2	
A	Corresponds to a correction in an earlier release			Release 96	
B	Addition of feature			Release 97	
C	Functional modification of feature			Release 98	
D	Editorial modification			Release 99	X
				Release 00	

Reason for change: Requirement for timing advance was not defined.

Clauses affected: 10.1

Other specs Affected:

Other 3G core specifications		→ List of CRs:	
Other GSM core specifications		→ List of CRs:	
MS test specifications		→ List of CRs:	
BSS test specifications		→ List of CRs:	
O&M specifications		→ List of CRs:	

Other comments:

9 Radio Link Surveillance

10 Timing characterisitics

10.1 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 inTS25.225 “Physical Layer Measurements (TDD)”, the requirements on the measurement is specified in section 11.2.9 ‘RX Timing Deviation’. The UE shall adjust the timing of its transmissions within ±0.5 chip of the signaled timing advance value.

11 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 TSG RAN WG2 S25.302 "Services Provided by Physical Layer". The physical layer measurements for TDD are described and defined in TSG RAN WG1 TS25.225 “Physical layer – Measurements (TDD)”. In this section for TDD, per each measurement the relevant requirements on performance in terms of accuracy are reported.

All measurements in this section are defined using the 12.2kbps reference channel.

Unless explicitly stated, all measurements shall be reported within the defined requirements in 90% of the cases with 95% confidence.

[Note: all the measurement accuracy values shall be harmonised with the FDD values reported in Section 10 of TS 25.133]