Source: **T1**

Title: **CR's to TS 34.122 v3.12.0 and v4.9.0 for approval**

Agenda item: **5.1.3**

Document for: **Approval**

This document contains the CRs to TS 34.122 v3.12.0 and v4.9.0. These CRs have been agreed by T1 and are put forward to TSG T for approval.

Tdoc #	**Title**	*CR#*	*rev*	*Cat*	*Version in*	*Version out*	*Release*
T1-031615	Addition of LCR GSM neighbour reporting	181	1	F	4.9.0	4.10.0	Rel-4
T1-031616	Addition of LCR GSM handover test	182	1	F	4.9.0	4.10.0	Rel-4
T1-031617	Update to LCR GSM RSSI measurement	183	1	F	4.9.0	4.10.0	Rel-4
T1-031618	Update to inter frequency measurements	184	1	F	4.9.0	4.10.0	Rel-4
T1-031619	Correction of LCR ISCP test case	185	1	F	4.9.0	4.10.0	Rel-4
T1-031620	Addition of TDD HSDPA section & creation Rel 5	186	1	B	4.9.0	4.10.0	Rel-5
T1-031621	HSDPA HS DSCH throughput (fixed and variable)	187	1	B	4.9.0	4.10.0	Rel-5
T1-031622	Addition of Reporting of HS DSCH CQI	188	1	B	4.9.0	4.10.0	Rel-5
T1-031623	Addition of HS-SCCH Detection Performance	189	1	B	4.9.0	4.10.0	Rel-5
T1-032000	Replace technical content by pointer to Rel-5 version	190		D	3.12.0	3.13.0	99
T1-032001	Replace technical content by pointer to Rel-5 version	191		D	4.9.0	4.10.0	Rel-4

CR-Form-v7

CHANGE REQUEST

| ⌘ | **34.122** CR **181** | ⌘ **rev** | **1** | ⌘ | Current version: | 4.9 | ⌘ |

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

Proposed change affects: UICC apps⌘ ☐   ME **X** Radio Access Network ☐ Core Network ☐

Title: ⌘	reporting of GSM neighbours in AWGN propagation condition
Source: ⌘	Siemens AG
Work item code: ⌘ LCRTDD	**Date:** ⌘ 21 Sept 2003

Category: ⌘ **F**

Use *one* of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Release: ⌘ Rel-4

Use *one* of the following releases:
2   *(GSM Phase 2)*
R96   *(Release 1996)*
R97   *(Release 1997)*
R98   *(Release 1998)*
R99   *(Release 1999)*
Rel-4   *(Release 4)*
Rel-5   *(Release 5)*
Rel-6   *(Release 6)*

Reason for change: ⌘	To reflect changes in core spec
Summary of change: ⌘	Addition of missing test case
Consequences if not approved: ⌘	Incomplete test documentation, not covering LCR TDD, GSM reporting cases.
Clauses affected: ⌘	Section 8.6.4.1.2 and sub clauses.

Other specs affected: ⌘		Y	N		
	Other core specifications			⌘	
	Test specifications				
	O&M Specifications				

Other comments: ⌘	This CR follows from CR 314 to 25.123

How to create CRs using this form:

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

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

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

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

8.6.4   GSM measurements

8.6.4.1   Correct reporting of GSM neighbours in AWGN propagation condition

8.6.4.1.1   3,84 Mcps TDD option

FFS

8.6.4.1.2   1,28 Mcps TDD option

FFS

8.6.4.1.2.1   Definition and applicability

.In the event triggered reporting period the measurement reporting delay is defined as the time between any event that will trigger a measurement report until the UE starts to transmit over the Uu interface. This requirement assumes that the measurement report is not delayed by other RRC signalling on the DCCH. This measurement reporting delay excludes a delay uncertainty resulted when inserting the measurement report to the TTI of the uplink DCCH. The delay uncertainty is twice the TTI of the uplink DCCH. The purpose of this test is to verify that the UE makes correct reporting of an event when doing inter frequency measurements on a neighbouring GSM cell. The test will partly verify the requirements in section 8.4 of [2].

 The requirements and this test apply to the combined GSM and TDD (1,28Mcps option) UE.

8.6.4.1.2.2   Minimum requirement

The purpose of this test is to verify that the UE makes correct reporting of an event when doing inter-RAT GSM measurements.

8.6.4.1.2.3   Test purpose

To verify that the UE meets the minimum time requirements for identifying neighbouring GSM cells.

8.6.4.1.2.4   Method of test

Two cells shall be present in the test, Cell 1 is current active TDD cell, cell 2 is a GSM cell. The test consists of three successive time periods, with a time duration of T1, T2 and T3 respectively. The test parameters are given in Tables 8.6.4.1.2.1 and 8.6.4.1.2.2 below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 3B and 3C shall be used. At the start of time duration T1, the UE may not have any timing information of cell 2. The power level of cell 2 is increased and then reduced, and a measurement report should be triggered at each transition.

Table 8.6.4.1.2.1 General test parameters for Correct reporting of GSM neighbours in AWGN propagation condition

Parameter	Unit	Value	Comment
DCH parameters		DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.102 section A.2.2. The DPCH is located in an other timeslot than 0.
Power Control		On	
Target quality value on DTCH	BLER	0.01	
Active cell		Cell 1	
Inter-RAT measurement quantity		GSM Carrier RSSI	
BSIC verification required		Required	
Threshold other system	dBm	-80	Absolute GSM carrier RSSI threshold for event 3B and 3C.
Hysteresis	dB	0	
Time to Trigger	ms	0	
Filter coefficient		0	
Monitored cell list size		12 TDD neighbours on Channel 1 6 GSM neighbours including ARFCN 1	Measurement control information is sent before T1 starts.
T Identify abort	s	5.0	
T Reconfirm abort	s	5.0	
T1	s	20	
T2	s	5	
T3	s	5	

Table 8.6.4.1.2.2 Cell specific test parameters for Correct reporting of GSM neighbours in AWGN propagation condition (cell 1) LCR TDD

Parameter	Unit	Cell 1 T1, T2, T3	
Timeslot Number		0	DwPTS
UTRA RF Channel Number		Channel 1	
PCCPCH_Ec/Ior	dB	-3	
DwPCH_Ec/Ior	dB		0
OCNS_Ec/Ior	dB	-3	
$\hat{I}_{or}/I_{oc}$	dB	3	
I_{oc}	dBm/1.28 MHz	-70	
PCCPCH_RSCP	dBm	-70	
Propagation Condition		AWGN	
Note 1: The power of the OCNS channel that is added shall make the total power from the cell to be equal to Ior. Note 2: PCCPCH RSCP levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.			

Table 8.6.4.1.2.3 Cell specific test parameters for Correct reporting of GSM neighbours in AWGN propagation condition (cell 2) GSM

Parameter	Unit	Cell 2		
		T1	T2	T3
Absolute RF Channel Number		ARFCN 1		
RXLEV	dBm	-85	-75	-85

8.6.4.1.2.5   Test Procedure

1) The RF parameters are set up according to test T1.(see Table 8.6.4.1.2.2 and Table 8.6.4.1.2.3)

2) The UE is switched on.

3) A call is set up according to the generic set-up procedure specified in TS 34.108 [3] subclause 7.4.2 to place the UE in CELL_DCH.

4) SS shall transmit the MEASUREMENT CONTROL message.

5) After 20 seconds from the beginning of T1, the SS shall switch the GSM level setting from T1 to T2.

6) UE shall transmit a MEASUREMENT REPORT message triggered by event 3C for cell 2. The measurement reporting delay from the beginning of T2 shall be less than 960 ms. If the UE fails to report the event within the required delay, then a failure is recorded. If the reporting delay for this event is within the required limit, the number of succesfull tests is increased by one.

7) After 5 seconds from the beginning of T2, the SS shall switch the GSM level setting from T2 to T3.

8) UE shall transmit a MEASUREMENT REPORT message triggered by event 3B for cell 2. The measurement reporting delay from the beginning of T3 shall be less than 960 ms. If the UE fails to report the event within the required delay, then a failure is recorded. If the reporting delay for this event is within the required limit, the number of succesfull tests is increased by one.

9) After 5 seconds from the beginning of T3, the UE is switched off. Any timing information of cell 2 is deleted in the UE.

10) After 5 seconds from the beginning of T3, the UE is switched off. Any timing information of cell 2 is deleted in the UE.

11) Repeat steps 1-7 [TBD] times.

Specific Message Contents

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

Note: Numbers in brackets after an item e.g "Message Type (10.2.17)" in the IE description are references to clause numbers in TS 25.331 [9] describing that item in more detail.

MEASUREMENT CONTROL message (step 4):

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
Measurement Information elements	
-Measurement Identity	1
-Measurement Command (10.3.7.46)	Modify
-Measurement Reporting Mode (10.3.7.49)	
-Measurement Report Transfer Mode	AM RLC
-Periodical Reporting / Event Trigger Reporting Mode	Event trigger
-Additional measurements list (10.3.7.1)	Not Present
-CHOICE *Measurement type*	Inter-frequency measurement
-Inter-frequency measurement (10.3.7.16)	
-Inter-frequency measurement objects list (10.3.7.13)	
-CHOICE *inter-frequency cell removal*	No inter-frequency cells removed
-New inter-frequency cells	1
-Inter-frequency cell id	1
-Frequency info (10.3.6.36)	
-CHOICE *mode*	GSM
-UARFCN uplink (Nu)	Not Present
-UARFCN downlink (Nd)	Same frequency as channel 2
-CHOICE reported cell	Report cells within active and/or monitored set on used frequency or within virtual active and/or monitored set on non-used frequency
-Maximum number of reported cells	3
-Parameters required for each non-used frequenc	
- Threshold non-used frequency	-18
- W non-used frequency	1
Physical channel information elements	
-DPCH compressed mode status info (10.3.6.34)	Not Present

First MEASUREMENT REPORT message (step 6)

Information Element	Value/remark
Message Type (10.2.17)	
Integrity check info	Not Present
Measurement identity	1
Measured Results (10.3.7.44)	
-CHOICE Measurement	Inter-frequency Measured results list
-Inter-frequency measured results	1
-Frequency info	
-CHOICE *mode*	GSM
-UARFCN uplink (Nu)	Not Present
-UARFCN downlink (Nd)	Same frequency as channel 2
-UTRA carrier RSSI	Not Present
Event results (10.3.7.7)	
-CHOICE event result	Inter-frequency measurement event results
-Inter-frequency event identity	3C
-Inter-frequency cells	1

Second MEASUREMENT REPORT message (step 8)

Information Element	Value/remark
Message Type (10.2.17)	
Integrity check info	Not Present
Measurement identity	1
Measured Results (10.3.7.44)	
-CHOICE Measurement	Inter-frequency Measured results list
-Inter-frequency measured results	1
-Frequency info	
-CHOICE mode	GSM
-UARFCN uplink (Nu)	Not Present
-UARFCN downlink (Nd)	Same frequency as channel 2
-UTRA carrier RSSI	Not Present
Event results (10.3.7.7)	
-CHOICE event result	Inter-frequency measurement event results
-Inter-frequency event identity	3B
-Inter-frequency cells	1

8.6.4.1.2.6   Test requirements

The UE shall send one Event 3C triggered measurement report for cell 2, with a measurement reporting delay less than 960 ms from the beginning of time period T2.

The UE shall send one Event 3B triggered measurement report for cell 2, with a measurement reporting delay less than 960 ms from the beginning of time period T3.

The UE shall not send event triggered measurement reports, as long as the reporting criteria are not fulfilled.

The rate of events correctly reported during repeated tests shall be at least 90%.

CR-Form-v7

CHANGE REQUEST

| ⌘ | **34.122** CR **182** | ⌘ **rev** **1** | ⌘ | Current version: | 4.9 | ⌘ |

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

Proposed change affects: UICC apps⌘ ☐   ME **X** Radio Access Network ☐   Core Network ☐

Title: ⌘	LCR TDD to GSM handover test	
Source: ⌘	Siemens AG	
Work item code: ⌘	LCRTDD	**Date:** ⌘ 21 Sept 2003

Category: ⌘ **F**

Use *one* of the following categories:
 F (correction)
 A (corresponds to a correction in an earlier release)
 B (addition of feature),
 C (functional modification of feature)
 D (editorial modification)
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Release: ⌘ Rel-4

Use *one* of the following releases:
 2 (GSM Phase 2)
 R96 (Release 1996)
 R97 (Release 1997)
 R98 (Release 1998)
 R99 (Release 1999)
 Rel-4 (Release 4)
 Rel-5 (Release 5)
 Rel-6 (Release 6)

Reason for change: ⌘	Addition of handover test in support of GSM interworking	
Summary of change: ⌘	LCR clauses added, in line with adition of test to core spec.	
Consequences if not approved: ⌘	Inconsistant test documentation, not covering core specifications.	

Clauses affected: ⌘	References and 8.3.3 and sub-clauses	

	Y	N		
Other specs affected: ⌘			Other core specifications ⌘	
			Test specifications	
			O&M Specifications	

Other comments: ⌘	CR to 25.123 was CR318/319 (Rel 4/5)	

How to create CRs using this form:

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

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

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

First Changed Section

---

2   References

......

....

....

[21]   3GPP TS 34.123-1: "User Equipment (UE) Conformance Specification; Part 1: Protocol Conformance Specification".

[22]   3GPP TS 25.225: "Physical Layer – Measurements (TDD)".

[23]   3GPP TS 51.010-1: " Mobile Station (MS) conformance specification; Part 1: Conformance specification".

End First Changed Section

Second Changed Section

8.3.3   TDD/GSM Handover

8.3.3.1   Definition and applicability

8.3.3.1.1   3,84 Mcps option

The UTRAN to GSM cell handover interruption time is defined as the time from the end of the last TTI containing an RRC message implying hard handover to the transmission on the channel of the new RAT.

The requirements and this test apply to the combined TDD (3,84 Mcps option) and GSM UE.

8.3.3.1.2   1,28 Mcps option

The UTRAN to GSM cell handover interruption time is defined as the time from the end of the last TTI containing an RRC message implying hard handover to the transmission on the channel of the new RAT.

The requirements and this test apply to the combined TDD (1,28 Mcps option) and GSM UE

Void.

8.3.3.2   Minimum requirement

8.3.3.2.1   3,84 Mcps option

The interruption time shall be less than 40 ms in the case where the UE has synchronised to the GSM cell before the HANDOVER FROM UTRAN COMMAND is received. The rate of correct handovers observed during repeated tests shall be at least 90% with a confidence level of [FFS]%.

The normative reference for this requirement is TS 25.123 [2] clauses 5.3.2 and A.5.3.

8.3.3.2.2   1,28 Mcps option

The UE shall begin to send access bursts on the new DCCH of the target cell less than 40 ms from the beginning of time period T3, as defined below.

Void.

8.3.3.3   Test purpose

8.3.3.3.1   3,84 Mcps option

To verify that the UE meets the minimum requirement.

8.3.3.3.2   1,28 Mcps option

To verify that the UE meets the minimum requirement.

Void.

8.3.3.4   Method of test

8.3.3.4.1   3,84 Mcps option

8.3.3.4.1.1   Initial conditions

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

Frequencies to be tested: mid range; see clause G.2.4. for TDD conditions, and clause A1.2 of TS 51.010-1 [23] for the corresponding GSM conditions.

[Editor's Note: Annex G.2 must be specified also for GSM; for instance as a reference to TS 51.010-1 clause A1.2]

The test parameters are given in Table 8.3.3.1, 8.3.3.2 and 8.3.3.3 below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 3C shall be used. The test consists of three successive time periods, with a time duration of T1, T2 and T3 respectively. At the start of time duration T1, the UE may not have any timing information of cell 2.

UTRAN shall send a HANDOVER FROM UTRAN COMMAND message with activation time at beginning of T3 with one active cell, cell 2. The HANDOVER FROM UTRAN COMMAND message shall be sent to the UE such that the delay between the last the end of the last received TTI containing the message and the beginning of T3 is at least equal to the RRC procedure delay as defined in [9]. In the GSM Handover command contained in this message, IE starting time shall not be included.

Cell 1 is a UTRA TDD cell and cell 2 is a GSM cell. The Beacon timeslot shall be transmitted in timeslot 0 for cell 1 and no second Beacon timeslot shall be provided for cell 1. The DL DPCH shall be transmitted in timeslot 1 and the UL DPCH shall be transmitted in timeslot 3.

Table 8.3.3.1: General test parameters for TDD/GSM handover

Parameter	Unit	Value	Comment
DCH parameters		DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.102 section A.2.2
Power Control		On	
Target quality value on DTCH	BLER	0.01	
Initial conditions	Active cell	Cell 1	UTRA TDD cell
	Neighbour cell	Cell 2	GSM cell
Final condition	Active cell	Cell 2	GSM cell
Inter-RAT measurement quantity		GSM carrier RSSI	
BSIC verification required		Required	
Threshold other system	dBm	-80	Absolute GSM carrier RSSI threshold for Event 3C.
Hysteresis	dB	0	
Time to Trigger	ms	0	
Filter coefficient		0	
Monitored cell list size		12 TDD neighbours on Channel 1 6 GSM neighbours including ARFCN 1	Measurement control information is sent before the start of time period T1.
$T_{identify\ abort}$	s	5	
$T_{reconfirm\ abort}$	s	5	
T1	s	10	
T2	s	10	
T3	s	10	

Table 8.3.3.2: Cell Specific Parameters for Handover UTRAN to GSM cell case (cell 1)

Parameter	Unit	Cell 1					
DL timeslot number		**0**			**1**		
		T1	**T2**	**T3**	**T1**	**T2**	**T3**
UTRA RF Channel Number		Channel 1					
PCCPCH_Ec/Ior	dB	-3			n.a.		
SCH_Ec/Ior	dB	-9			n.a.		
SCH_t$_{offset}$	dB	0			n.a.		
DPCH_Ec/Ior	dB	n.a.			Note 1		n.a.
OCNS_Ec/Ior	dB	-3,12			Note 2		n.a.
$\hat{I}_{or}/I_{oc}$	dB	6			6		
PCCPCH RSCP	dBm	-68			n.a.		
I_{oc}	dBm/ 3,84 MHz	-70					
Propagation Condition		AWGN					
Note 1: The DPCH level is controlled by the power control loop Note 2: The power of the OCNS channel that is added shall make the total power from the cell to be equal to Ior .							

Table 8.3.3.3: Cell Specific Parameters for Handover UTRAN to GSM cell case (cell 2)

Parameter	Unit	Cell 2	
		T1	**T2, T3**
Absolute RF Channel Number		ARFCN 1	
RXLEV	DBm	-85	-75

8.3.3.4.1.2 Procedure

1) The RF parameters for cell 1 are set up according to T1.

2) The UE is switched on

3) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.4

4) The RF parameters for cell 2 are set up according to T1 and the SS configures a traffic channel

5) SS shall transmit a MEASUREMENT CONTROL message to cell 1

6) After 10 seconds, the SS shall switch the power settings from T1 to T2

7) UE shall transmit a MEASUREMENT REPORT message triggered by event 3C

8) SS shall transmit a HANDOVER FROM UTRAN COMMAND message with activation time at T3 and indicating the traffic channel of the target GSM cell to the UE through DCCH of the serving UTRAN cell.

9) After 10 seconds, the SS shall switch the power settings from T2 to T3

10) UE shall transmit a burst on the traffic channel of cell 2 implying that it has switched to the GSM cell. The UE sends a HANDOVER ACCESS message. If the UE transmits access bursts on the new DCCH of the target cell less than 40 ms from the beginning of time period T3, then the number of successful tests is increased by one.

[Editor's note: TS 34.108, 7.3.4 shall specify the messages HANDOVER ACCESS, PHYSICAL INFORMATION, SABM, UA and HANDOVER COMPLETE]

11) After 10 seconds, the UE is switched off. Any timing information of cell 2 is deleted in the UE.

12) Repeat step 1-11 [TBD] times

Specific Message Contents

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

Note: 10.x.y.z in the IE description refers to clauses in TS 25.331 [9].

Note: Numbers in brackets after an item e.g "Message Type (10.2.17)" in the IE description are references to clause numbers in TS 25.331 [9] describing that item in more detail.

MEASUREMENT CONTROL message (step 5):

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
Measurement Information elements	
-Measurement Identity	4
-Measurement Command (10.3.7.46)	Setup
-Measurement Reporting Mode (10.3.7.49)	
-Measurement Report Transfer Mode	AM RLC
-Periodical Reporting / Event Trigger Reporting Mode	Event trigger
-Additional measurements list (10.3.7.1)	Not Present
-CHOICE *Measurement type*	Inter-RAT measurement
-Inter-RAT measurement (10.3.7.27)	
-Inter-RAT measurement objects list (10.3.7.23)	Not Present
-Inter-RAT measurement quantity (10.3.7.29)	
-Measurement quantity for UTRAN quality estimate (10.3.7.38)	
-Filter coefficient	0
-CHOICE mode	TDD
-Measurement quantity list	1
-Measurement quantity	Primary CCPCH RSCP
-CHOICE system	GSM
-Measurement quantity	GSM Carrier RSSI
-Filter coefficient	0
-BSIC verification required	Required
-Inter-RAT reporting quantity (10.3.7.32)	Not Present
-Reporting cell status (10.3.7.61)	
-CHOICE reported cell	Report cells within active set or within virtual active set or of the other RAT
-Maximum number of reported cells	2
-CHOICE report criteria	Inter-RAT measurement reporting criteria
-Inter-RAT measurement reporting criteria (10.3.7.30)	
-Parameters required for each event	1
-Inter-RAT event identity (10.3.7.24)	Event 3C
-Threshold own system	Not Present
-W	Not Present
-Threshold other system	-80 dBm
-Hysteresis	0 dB
-Time to trigger	0 ms
-Reporting cell status (10.3.7.61)	Not Present
Physical channel information elements	
-DPCH compressed mode status info (10.3.6.34)	Not Present

HANDOVER FROM UTRAN COMMAND message (step 8):

Information Element	Value/remark
Message Type	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
-Activation time	At T3
RB information elements	
-RAB information list	1
-RAB Info	Not present
Other information elements	
-CHOICE System type	GSM
-Frequency Band	GSM/DCS 1800 Band
-GSM message	
-Single GSM message	[TBD]
-GSM message List	GSM HANDOVER COMMAND formatted as BIT STRING(1..512). The contents of the HANDOVER COMMAND see next table.

HANDOVER COMMAND

Same as the HANDOVER COMMAND for M = 2 in clause 26.6.5.1 of TS 51.010, except that the CHANNEL MODE IE is included with value = speech full rate or half rate version 3

MEASUREMENT REPORT message (step 7)

Information Element	Value/remark
Message Type (10.2.17)	
Integrity check info	Not Present
Measurement identity	1
Measured Results (10.3.7.44)	
-CHOICE Measurement	Inter-RAT Measured results list
-Inter-RAT-frequency measured results (10.3.7.26)	1
-CHOICE System	GSM
-Measured GSM cells	1
-GSM Carrier RSSI	Checked that this IE is present
-CHOICE BSIC	Verified BSIC
-inter-RAT cell id	Checked that this IE is present
-Observed Time difference to GSM cell	Not Present
Measured results on RACH	Not Present
Additional measured results	Not Present
Event results (10.3.7.7)	
-CHOICE event result	Inter-RAT measurement event results
-Inter-RAT event identity	3C
-Cells to report	1
-CHOICE BSIC	Verified BSIC
-inter-RAT cell id	Checked that this IE is present

8.3.3.4.2   1,28 Mcps option

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

Frequencies to be tested: mid range; see clause G.2.4 for TDD conditions, and clause A1.2 of TS 51.010-1 [24] for the corresponding GSM conditions.

The test parameters are given in Table 8.3.4.1, 8.3.4.2 and 8.3.4.3 below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 3C shall be used. The test consists of three successive time periods, with a time duration of T1, T2 and T3 respectively. At the start of time duration T1, the UE may not have any timing information of cell 2.

UTRAN shall send a HANDOVER FROM UTRAN COMMAND message with activation time at beginning of T3 with one active cell, cell 2. The HANDOVER FROM UTRAN COMMAND message shall be sent to the UE such that the delay between the last the end of the last received TTI containing the message and the beginning of T3 is at least equal to the RRC procedure delay as defined in [9]. In the GSM Handover command contained in this message, IE starting time shall not be included. At the start of time duration T1, the UE may not have any timing information of cell 2.

Cell 1 is a UTRA TDD cell and cell 2 is a GSM cell. The DL DPCH shall be transmitted in timeslot 4 and the UL DPCH shall be transmitted in timeslot 2.

Table 8.3.3.4.1: General test parameters for 1,28Mcps TDD/GSM handover

Parameter	Unit	Value	Comment
DCH parameters		DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.102 section A
Power Control		On	
Target quality value on DTCH	BLER	0.01	
Initial conditions	Active cell	Cell 1	UTRA TDD cell
	Neighbour cell	Cell 2	GSM cell
Final condition	Active cell	Cell 2	GSM cell
Inter-RAT measurement quantity		GSM carrier RSSI	
BSIC verification required		Required	
Threshold other system	dBm	-80	Absolute GSM carrier RSSI threshold for Event 3C.
Hysteresis	dB	0	
Time to Trigger	ms	0	
Filter coefficient		0	
Monitored cell list size		12 TDD neighbours on Channel 1 6 GSM neighbours including ARFCN 1	Measurement control information is sent before the start of time period T1.
$T_{identify\ abort}$	s	5	As specified in section 8.1A.2.5
$T_{reconfirm\ abort}$	s	5	As specified in section 8.1A.2.5
T1	s	10	
T2	s	10	
T3	s	10	

Table 8.3.3.4.2: Cell 1 (1,28Mcps)specific test parameters for TDD/GSM handover

Parameter	Unit	Cell 1					
DL timeslot number		0			DwPTS		
		T1	T2	T3	T1	T2	T3
UTRA RF Channel Number		Channel 1					
PCCPCH_Ec/Ior	dB	-3					
DwPCH_Ec/Ior	dB					0	
OCNS_Ec/Ior	dB	-3					
$\hat{I}_{or}/I_{oc}$	dB	5			5		
I_{oc}	dBm/ 1.28 MHz	-70					
Propagation Condition		AWGN					

Table 8.3.3.4.3: Cell 2 (GSM)specific test parameters for TDD/GSM handover

Parameter	Unit	Cell 2	
		T1	T2, T3

Absolute RF Channel Number		ARFCN 1	
RXLEV	dBm	-85	-75

8.3.3.4.2.2 Procedure

1) The RF parameters for cell 1 are set up according to T1.

2) The UE is switched on

3) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.4

4) The RF parameters for cell 2 are set up according to T1 and the SS configures a traffic channel

5) SS shall transmit a MEASUREMENT CONTROL message to cell 1

6) After 10 seconds, the SS shall switch the power settings from T1 to T2

7) UE shall transmit a MEASUREMENT REPORT message triggered by event 3C

8) SS shall transmit a HANDOVER FROM UTRAN COMMAND message with activation time at T3 and indicating the traffic channel of the target GSM cell to the UE through DCCH of the serving UTRAN cell.

9) After 10 seconds, the SS shall switch the power settings from T2 to T3

10) UE shall transmit a burst on the traffic channel of cell 2 implying that it has switched to the GSM cell. The UE sends a HANDOVER ACCESS message. If the UE transmits access bursts on the new DCCH of the target cell less than 40 ms from the beginning of time period T3, then the number of successful tests is increased by one.

[Editor's note: TS 34.108, 7.3.4 shall specify the messages HANDOVER ACCESS, PHYSICAL INFORMATION, SABM, UA and HANDOVER COMPLETE]

11) After 10 seconds, the UE is switched off. Any timing information of cell 2 is deleted in the UE.

12) Repeat step 1-11 [TBD] times

Specific Message Contents

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

Note: 10.x.y.z in the IE description refers to clauses in TS 25.331 [9].

MEASUREMENT CONTROL message (step 5):

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
Measurement Information elements	
-Measurement Identity	4
-Measurement Command (10.3.7.46)	Setup
-Measurement Reporting Mode (10.3.7.49)	
-Measurement Report Transfer Mode	AM RLC
-Periodical Reporting / Event Trigger Reporting Mode	Event trigger
-Additional measurements list (10.3.7.1)	Not Present
-CHOICE *Measurement type*	Inter-RAT measurement
-Inter-RAT measurement (10.3.7.27)	
-Inter-RAT measurement objects list (10.3.7.23)	Not Present
-Inter-RAT measurement quantity (10.3.7.29)	
-Measurement quantity for UTRAN quality estimate (10.3.7.38)	
-Filter coefficient	0
-CHOICE mode	TDD
-Measurement quantity list	1
-Measurement quantity	Primary CCPCH RSCP
-CHOICE system	GSM
-Measurement quantity	GSM Carrier RSSI
-Filter coefficient	0
-BSIC verification required	Required
-Inter-RAT reporting quantity (10.3.7.32)	Not Present
-Reporting cell status (10.3.7.61)	
-CHOICE reported cell	Report cells within active set or within virtual active set or of the other RAT
-Maximum number of reported cells	2
-CHOICE report criteria	Inter-RAT measurement reporting criteria
-Inter-RAT measurement reporting criteria (10.3.7.30)	
-Parameters required for each event	1
-Inter-RAT event identity (10.3.7.24)	Event 3C
-Threshold own system	Not Present
-W	Not Present
-Threshold other system	-80 dBm
-Hysteresis	0 dB
-Time to trigger	0 ms
-Reporting cell status (10.3.7.61)	Not Present
Physical channel information elements	
-DPCH compressed mode status info (10.3.6.34)	Not Present

HANDOVER FROM UTRAN COMMAND message (step 8):

Information Element	Value/remark
Message Type	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
-Activation time	At T3
RB information elements	
-RAB information list	1
-RAB Info	Not present
Other information elements	
-CHOICE System type	GSM
-Frequency Band	GSM/DCS 1800 Band
-GSM message	
-Single GSM message	[TBD]
-GSM message List	GSM HANDOVER COMMAND formatted as BIT STRING(1..512). The contents of the HANDOVER COMMAND see next table.

HANDOVER COMMAND

Same as the HANDOVER COMMAND for M = 2 in clause 26.6.5.1 of TS 51.010, except that the CHANNEL MODE IE is included with value = speech full rate or half rate version 3

MEASUREMENT REPORT message (step 7)

Information Element	Value/remark
Message Type (10.2.17)	
Integrity check info	Not Present
Measurement identity	1
Measured Results (10.3.7.44)	
-CHOICE Measurement	Inter-RAT Measured results list
-Inter-RAT-frequency measured results (10.3.7.26)	1
-CHOICE System	GSM
-Measured GSM cells	1
-GSM Carrier RSSI	Checked that this IE is present
-CHOICE BSIC	Verified BSIC
-inter-RAT cell id	Checked that this IE is present
-Observed Time difference to GSM cell	Not Present
Measured results on RACH	Not Present
Additional measured results	Not Present
Event results (10.3.7.7)	
-CHOICE event result	Inter-RAT measurement event results
-Inter-RAT event identity	3C
-Cells to report	1
-CHOICE BSIC	Verified BSIC
-inter-RAT cell id	Checked that this IE is present

8.3.3.5 Test requirements

8.3.3.5.1 3,84 Mcps option

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

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

8.3.3.5.2 1,28 Mcps option

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

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

Void.

<div align="right">CR-Form-v7</div>

CHANGE REQUEST

<table>
<tr><td>⌘</td><td>**34.122 CR 183**</td><td>⌘ **rev** **1**</td><td>⌘</td><td>Current version:</td><td>4.9</td><td>⌘</td></tr>
</table>

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

Proposed change affects: UICC apps⌘ ☐ ME **X** Radio Access Network ☐ Core Network ☐

Title: ⌘	Correction of GSM RSSI test for LCR TDD	
Source: ⌘	Siemens AG	
Work item code: ⌘	LCRTDD	**Date:** ⌘ 21 Sept 2003
Category: ⌘ **F**		**Release:** ⌘ Rel-4

<table>
<tr><td colspan="2">Use <u>one</u> of the following categories:
F (correction)
A (corresponds to a correction in an earlier release)
B (addition of feature),
C (functional modification of feature)
D (editorial modification)
Detailed explanations of the above categories can
be found in 3GPP TR 21.900.</td><td>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)
Rel-6 (Release 6)</td></tr>
</table>

Reason for change: ⌘	Correction of GSM RSSI test for LCR TDD
Summary of change: ⌘	GSM cell paramenter table amended in line with latest core specs. Additional Formatting error corrected.
Consequences if not approved: ⌘	Inconsistant test documentation, not following core spec.

Clauses affected: ⌘	8.7.5

		Y	N		
Other specs affected:	⌘			Other core specifications ⌘	
				Test specifications	
				O&M Specifications	

Other comments: ⌘	Follows CR to core spec 25.123 CR699 (Rel 4)and CR700 (Rel5)

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.

NOTE: ~~If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.8.7.5 GSM carrier RSSI~~

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

8.7.5   GSM carrier RSSI

8.7.5.1.1   RSSI (RX_LEV) 3,84 Mcps TDD Option

 Void

8.7.5.1A.1   RSSI (RX_LEV) 1,28 Mcps TDD Option

8.7.5.1A.1.1   Definition and applicability

The absolute accuracy of GSM RSSI is defined as the RX_LEV measured in a GSM cell on one frequency compared to the actual power of that cell.

The requirements and this test apply only to UE supporting both 1,28Mcps UTRA TDD and GSM.

8.7.5.1A.1.2   Minimum Requirements

Table 8.7.5.1A.1.1: GSM RX_LEV absolute accuracy

Parameter	Unit	Accuracy [dB]		Conditions
		Normal condition	Extreme condition	Input level dBm
RX_LEV	dBm	± 4	± 6	-110…-70
	dBm	± 6	± 6	-70…-48
	dBm	± 9	± 9	-48..-38

```
RXLEV  0  =  less than         -110 dBm.
RXLEV  1  =  -110 dBm    to  -109 dBm
RXLEV  2  =  -109 dBm    to  -108 dBm
                  :
                  :
RXLEV  62 =  -49 dBm      to  -48 dBm
RXLEV  63 =  greater than       -48 dBm
```

The normative reference for this requirement is TS 45.008 [20] clause 8.1.2

8.7.5.1A.1.3   Test purpose

The purpose of this test is to verify that the GSM RSSI absolute measurement accuracy is within the specified limits.

This test will verify the requirements in section 9.1.1.5 and A.9.1.5 of TS25.123.

8.7.5.1A.1.4   Method of test

8.7.5.1A.1.4.1   Initial conditions

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

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

Cell 1 is a UTRA 1,28Mcps TDD cell and cell 2 is a GSM cell

A call is set up according to the test procedure specified in TS 34.108 [3] clause 7.3.2.3. The RF parameters for Test are set up according to table 8.7.5.1A.1.2.

Table 8.7.5.1A.1.2. General GSM RSSI test parameters

Parameter	Unit	Value	Comment
DCH parameters		DL reference measurement channel 12.2 kbps	As specified in TS 25.102 section A.2.2
Power Control		On	
Target quality value on DTCH	BLER	0.01	
Inter-RAT measurement quantity		GSM carrier RSSI	
BSIC verification required		No	
Monitored cell list size		6 GSM neighbours including ARFCN 1	

Table 8.7.5.1A.1.3 Cell 1 (TDD Cell) specific test parameters

Parameter	Unit	Cell 1	
UTRA RF Channel number		Channel 1	
PCCPCH_Ec/Ior	dB	-3	
OCNS_Ec/Ior	dB	-3,12	Note 2
DPCH_Ec/Ior	dB	n.a.	Note 1
Îor/Ioc	dB	6	
Io, Note 1	dBm / 1,28 MHz	-70	
Propagation condition		AWGN	
Note 1: The DPCH level is controlled by the power control loop			
Note 2: The power of the OCNS channel that is added shall make the total power from the cell to be equal to Ior.			

Parameter	Unit	Cell 1	
DL timeslot number		0	DwPTS
UTRA RF Channel number		Channel 1	
PCCPCH_Ec/Ior	dB	-3	
DwPCH_Ec/Ior	dB		0
OCNS_Ec/Ior	dB	-3	
Îor/Ioc	dB	3	
Ioc	dBm / 1.28MHz	-70	
Propagation condition		AWGN	

Table 8.7.5.1A.1.4 Cell 2 specific GSM Cell test parameters

Parameter	Unit	TEST1	TEST2	TEST3
UTRA RF Channel number		2		
Cell Level	dBm/200KHz	-100	-75	-50
Propagation condition		AWGN	AWGN	AWGN

8.7.5.1A.1.4.2 Procedure

1) SS shall transmit the MEASUREMENT CONTROL message for inter RAT measurement. In the measurement control information periodic reporting of the GSM carrier RSSI is requested to the UE.

2) UE shall transmit periodically MEASUREMENT REPORT messages.

3) SS shall check RX_LEV value of Cell 2 in the MEASUREMENT REPORT messages. Levels of Cell 2 reported by the UE are compared to the actual level of Cell 2 for each MEASUREMENT REPORT message.

4) SS shall count number of MEASUREMENT REPORT messages transmitted by UE. After 1000 MEASUREMENT REPORT messages have been received from UE, the GSM cell RF parameters are set up according to table 8.7.5.1A.1.4 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 2) and 3) above are repeated.

6) After further 1000 MEASUREMENT REPORT messages have been received from UE, the GSM cell RF parameters are set up according to table 8.7.5.1A.1.4 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 2) and 3) above are repeated.

7) After further 1000 MEASUREMENT REPORT messages have been received from UE, the SS shall transmit RRC CONNECTION RELEASE message.

8) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

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

~~Note: 10.x.y.z in the IE description refers to clauses in TS 25.331 [9].~~

Note: Numbers in brackets after an item e.g "Message Type (10.2.17)" in the IE description are references to clause numbers in TS 25.331 [9] describing that item in more detail.

MEASUREMENT CONTROL message for GSM RSSI measurement (Step 1):

Information Element	Value/Remark
Message Type (10.2.17)	
UE information elements -RRC transaction identifier -Integrity check info	 0 Not Present

Measurement Information elements
-Measurement Identity
-Measurement Command
-Measurement Reporting Mode
 - Measurement Report Transfer Mode
 - Periodical Reporting / Event Trigger Reporting Mode
-Additional measurement list
-CHOICE Measurement Type
 -Inter-frequency measurement object list
  -CHOICE Inter-frequency cell removal
  -New inter-frequency cells
  -Cell for measurement
 -Inter-frequency measurement quantity
  -CHOICE reporting criteria
  -Filter coefficient
  -CHOICE mode
   -Measurement quantity
 -Inter-frequency reporting quantity
  -UTRA Carrier RSSI
  -Frequency quality estimate
  -Non frequency related cell reporting quantities
   -SFN-SFN observed time difference reporting indicator
   -Cell synchronisation information reporting indicator
    -Maximum number of reported cells
 -Measurement validity
 -Inter-frequency set update
 -CHOICE report criteria
  -Amount of reporting
  -Reporting interval
	
	2
	Setup
	
	Acknowledged mode RLC
	Periodical reporting
	
	Not Present
	Inter-RAT measurement
	
	Not Present
	Cell 2 information is included
	Not Present
	
	Inter-frequency reporting criteria
	0
	GSM
	RX_LEV
	
	FALSE
	FALSE
	
	No report
	
	Report all active set cells + cells within monitored set on used frequency
	Virtual/active set cells + 2
	Not Present
	Not Present
	Periodical reporting criteria
	Infinity
	500 ms

Physical channel information elements -DPCH compressed mode status info	 Not Present

8.7.2.1.1.5 Test requirements

The RX_LEV measurement accuracy shall meet the requirements in clause 8.7.5.1A.1.1 for at least 900 of the reported levels at each input level.

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

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CHANGE REQUEST

| ⌘ | **34.122** CR **184** | ⌘ **rev** | **1** | ⌘ | Current version: | **4.9** | ⌘ |

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

Proposed change affects: UICC apps⌘ ☐   ME **X**   Radio Access Network ☐   Core Network ☐

| **Title:** | ⌘ | Correction of interfrequency measurements for LCR TDD |

| **Source:** | ⌘ | Siemens AG |

| **Work item code:** ⌘ | LCRTDD | | **Date:** ⌘ | 21 Sept 2003 |

| **Category:** | ⌘ | **F** | | **Release:** ⌘ | Rel-4 |

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can
be found in 3GPP TR 21.900.

Use one of the following releases:
2   *(GSM Phase 2)*
R96   *(Release 1996)*
R97   *(Release 1997)*
R98   *(Release 1998)*
R99   *(Release 1999)*
Rel-4   *(Release 4)*
Rel-5   *(Release 5)*
Rel-6   *(Release 6)*

| **Reason for change:** | ⌘ | Correction of interfrequency measurements test for LCR TDD |

| **Summary of change:** ⌘ | Test amended in line with corrections to latest core specs. |

| **Consequences if not approved:** | ⌘ | Inconsistant test documentation, not following core spec. |

| **Clauses affected:** | ⌘ | 8.6.2 to 8.6.3 |

		Y	**N**		
Other specs affected:	⌘			Other core specifications	⌘	
				Test specifications		
				O&M Specifications		

| **Other comments:** | ⌘ | Follows CRs to core spec 25.123 CR316 (Rel 4)and CR317 (Rel5) |

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

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

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

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

8.6.2 TDD inter frequency measurements

8.6.2.1 Correct reporting of neighbours in AWGN propagation condition

8.6.2.1.1 Definition and applicability

8.6.2.1.1.1 3,84 Mcps TDD Option

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

The requirements and this test apply to the TDD (3,84 Mcps option) UE.

8.6.2.1.1.2 1,28 Mcps TDD Option

The purpose of this test is to verify that the UE makes correct reporting of an event within the required times when doing inter frequency measurements on a neighbouring TDD cell. The test will partly verify the requirements in section 8.1A.2 and 9.1. of [2]. The requirements and this test apply to the TDD (1.28 Mcps option) UE.

8.6.2.1.2 Minimum requirement

8.6.2.1.2.1 3,84 Mcps TDD Option

When idle intervals are used for inter-frequency TDD measurements, the UE shall be able to identify a new detectable inter-frequency TDD cell belonging to the monitored set within

$$T_{identify\ inter} = Max\left\{5000, N_{basic\ identify\ TDD\ inter} \cdot \frac{T_{measurement\ period\ TDD\ inter}}{N_{TDD\ inter}} \cdot N_{Freq}\right\} ms$$

If the UE does not require idle intervals to perform inter-frequency TDD measurements, the UE shall be able to identify a new detectable inter-frequency TDD cell belonging to the monitored set within 5000 ms.

When idle intervals are used for TDD inter frequency measurements, the UE shall be capable of performing P-CCPCH RSCP measurements for $X_{measurement\ TDD\ inter}$ inter-frequency TDD cells per TDD frequency of the monitored set.

The UE physical layer shall be capable of reporting measurements to higher layers with measurement accuracy as specified in section 9 and with a measurement period of $T_{measurement\ inter}$.

$$T_{measurement\ inter} = Max\left\{T_{measurement\ period\ TDD\ inter}, N_{basic\ measurement\ TDD\ inter} \cdot \frac{T_{measurement\ period\ TDD\ inter}}{N_{TDD\ inter}} \cdot N_{Freq}\right\} ms$$

If the UE does not require idle intervals to perform TDD inter-frequency measurements, the measurement period for inter frequency P-CCPCH RSCP measurements shall be 480 ms.

Where,

$X_{measurement\ TDD\ inter} = 6$ (cells)

$T_{measurement\_period\ inter} = 480$ ms. The time period used for calculating the measurement period $T_{measurement\_inter}$ for inter frequency P-CCPCH RSCP measurements.

$N_{TDD\ inter}$: This is the available number of measurement opportunities for a Beacon timeslot of an inter-frequency TDD cell during the time period $T_{TDD\ inter}$. The UE shall consider that a measurement opportunity on a Beacon timeslot of an inter-frequency TDD cell is provided if an idle interval of length equal to or greater than 3 timeslots less 2*0.5 ms implementation margin for frequency switching per idle interval completely overlaps in time with the Beacon timeslot of the inter-frequency TDD cell.

$N_{basic\_identify\_TDD\ inter}$ = 80. This is a number of measurement opportunities for a Beacon timeslot of an inter-frequency TDD cell during the time period used in the inter frequency TDD equation where the maximum allowed time for the UE to identify a new detectable inter-frequency TDD cell is defined.

$N_{basic\_measurement\_TDD\ inter}$ = 5. This is a number of measurement opportunities for a Beacon timeslot of an inter-frequency TDD cell during the time period $T_{TDD\ inter}$ used in the inter-frequency TDD equation where the measurement period for inter-frequency P-CCPCH RSCP measurements is defined.

$N_{Freq\ TDD}$: This is the number of TDD frequencies indicated in the inter frequency measurement control information.

The event triggered measurement reporting delay, measured without L3 filtering shall be less than $T_{identify\ inter}$ defined in 25.123 [2]. When L3 filtering is used, an additional delay can be expected.

The normative reference for this requirement is TS 25.123 [2] clauses 8.1.2.3.1, 8.1.2.3.2 and A.8.2.1

8.6.2.1.2.2 1,28 Mcps TDD Option

The UE shall send the Event 2C triggered measurement report, with a measurement reporting delay less than [5]$T_{identify\ inter}$ s from the beginning of time period T2. When idle intervals are used for inter-frequency TDD measurements, the UE shall be able to identify a new detectable cell belonging to the monitored set within

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

when

N_{Inter}: This is the minimum number of sub-frame in that the signal of P-CCPCH and DwPCH can be received for inter frequency target cell during the period $T_{Measurement\_Period\ inter}$ with an arbitrarily chosen timing. It depends on the channel allocation and is calculated by assuming 2*0.1ms for implementation margin (for the description of the idle intervals see Annex A of 25.225).

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

If the UE does not require idle intervals to perform inter-frequency TDD measurements, the UE shall be able to identify a new detectable inter-frequency TDD cell belonging to the monitored set within 5000 ms.

A cell shall be considered detectable when P-CCPCH Ec/Io > -8 dB and DwPCH Ec/Io > -5 dB. When L3 filtering is used an additional delay can be expected.

The test consist of 2 successive time periods, with a time duration T1 and T2. The test parameters are given in tables A.8.2C and A.8.2D below. Two cells shall be present in the test, cell 1 being the active cell and cell 2 being a 1.28Mcps TDD option neighbour cell on the unused frequency.

In the measurement control information it is indicated to the UE that event-triggered reporting with Event 2C shall be used. P-CCPCH RSCP of the best cell on the unused frequency shall be reported together with Event 2C reporting. The measurement control message shall be sent to the UE such that the delay between the end of the last received TTI containing the message and the beginning of T1 is at least equal to the RRC procedure delay as defined in 25.331 [9]

8.6.2.1.3 Test purpose

8.6.2.1.3.1 3,84 Mcps TDD Option

To verify that the UE meets the minimum requirement.

8.6.2.1.3.2 1,28 Mcps TDD Option

To verify that the UE meets the minimum time requirements for identifying neighbouring TDD cells

8.6.2.1.4 Method of test

8.6.2.1.4.1 3,84 Mcps TDD Option

8.6.2.1.4.1.1 Initial conditions

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

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

The test parameters are given in Table 8.6.2.1.1 and 8.6.2.1.2. The test consists of 2 successive time periods, with a time duration T1 and T2. Two cells shall be present in the test, cell 1 being the serving cell and cell 2 being a UTRA TDD neighbour cell on the unused frequency. All cells shall be synchronised, i.e. share the same frame and timeslot timing.

In the measurement control information it is indicated to the UE that event-triggered reporting with Event 2C shall be used. P-CCPCH RSCP of the best cell on the unused frequency shall be reported together with Event 2C reporting. The Measurement control message shall be sent to the UE such that the delay between the end of the last received TTI containing the message and the beginning of T1 is at least equal to the RRC procedure delay as defined in [9].

The second Beacon timeslot shall be provided in timeslot 8 for both cell 1 and cell 2. The DL DPCH shall be transmitted in timeslot 1 and the UL DPCH shall be transmitted in timeslot 3. The TTI of the uplink DCCH shall be 20 ms.

Table 8.6.2.1.1: General test parameters for Correct reporting of TDD inter-frequency neighbours in AWGN propagation condition (3,84 Mcps option)

Parameter		Unit	Value	Comment
DPCH parameters			DL Reference Measurement Channel 12.2 kbps	As specified in Annex CTS 25.102 annex A.2.2
Power Control			On	
Target quality value on DTCH		BLER	0.01	
Initial conditions	Active cell		Cell 1	UTRA TDD cell
	Neighbour cell		Cell 2	UTRA TDD cell
Threshold non used frequency		dB	-71	Applicable for event 2C
Hysteresis		dB	0	Applicable for event 2C
Time to Trigger		ms	0	
Filter coefficient			0	
Monitored cell list size			24 on channel 1 16 on channel 2	
T1		s	10	
T2		s	10	

Table 8.6.2.1.2: Cell specific parameters for Correct reporting of TDD inter-frequency neighbours in AWGN propagation condition (3,84 Mcps option)

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 2			
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	9	-Infinity	9
I_{oc}	dBm/3,84 MHz	-70							
PCCPCH_RSCP	dB	-70	-70			-Infinity	-64		
Propagation Condition		AWGN							

8.6.2.1.4.1.2 Procedure

1) The RF parameters are set up according to T1.

2) The UE is switched on.

3) A call is set up according to the generic set-up procedure specified in TS 34.108 [3] subclause 7.4.2 to place the UE in CELL_DCH.

4) SS shall transmit a MEASUREMENT CONTROL message.

5) After 10 seconds from the beginning of T1, the SS shall switch the power settings from T1 to T2.

6) UE shall transmit a MEASUREMENT REPORT message triggered by event 2c for cell 2. The measurement reporting delay from the beginning of T2 shall be less than 5080 ms. If the UE fails to report the event within the required delay, then a failure is recorded. If the reporting delay for this event is within the required limit, the number of succesfull tests is increased by one.

7) After 10 seconds from the beginning of T3, the UE is switched off. Any timing information of cell 2 is deleted in the UE.

8) Repeat steps 1-7 [TBD] times.

Specific Message Contents

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

Note: 10.x.y.z in the IE description refers to clauses in TS 25.331 [9].

Note: Numbers in brackets after an item e.g "Message Type (10.2.17)" in the IE description are references to clause numbers in TS 25.331 [9] describing that item in more detail.

MEASUREMENT CONTROL message (step 4):

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
Measurement Information elements	
-Measurement Identity	1
-Measurement Command (10.3.7.46)	Modify
-Measurement Reporting Mode (10.3.7.49)	
-Measurement Report Transfer Mode	AM RLC
-Periodical Reporting / Event Trigger Reporting Mode	Event trigger
-Additional measurements list (10.3.7.1)	Not Present
-CHOICE *Measurement type*	Inter-frequency measurement
-Inter-frequency measurement (10.3.7.16)	
-Inter-frequency measurement objects list (10.3.7.13)	
-CHOICE *inter-frequency cell removal*	No inter-frequency cells removed
-New inter-frequency cells	1
-Inter-frequency cell id	1
-Frequency info (10.3.6.36)	
-CHOICE *mode*	TDD
-UARFCN(Nt)	Same frequency as channel 2
-Cell info (10.3.7.2)	
-Cell individual offset	Not Present
-Reference time difference to cell	Not Present
-Read SFN indicator	False
-CHOICE *mode*	TDD
-Primary CCPCH info (10.3.6.57)	
-CHOICE mode	TDD
-CHOICE TDD option	3,84 Mcps TDD
-CHOICE Sync case	2
-Timeslot	0
-cell parameters ID	Set to cell parameters ID of cell 2
-SCTD indicator	FALSE
-Primary CCPCH Tx power	Set to Primary CCPCH Tx power of cell 2 as described in Table 8.6.2.1.2
-Timesllot list	Not Present
-Cell selection and re-selection info	Not Present
-Cell for measurement	Not Present
-Inter-frequency measurement quantity (10.3.7.18)	
-CHOICE *reporting critera*	Inter-frequency reporting criteria
-Filter coefficient (10.3.7.9)	0
-CHOICE *mode*	TDD
-Measurement quantity for frequency quality estimate	Primary CCPCH RSCP
-Inter-frequency reporting quantity (10.3.7.21)	
-UTRA carrier RSSI	
-Frequency quality estimate	
-Non frequency related cell reporting quantities (10.3.7.5)	
-SFN-SFN observed time difference reporting indicator	No report
-Cell synchronisation information reporting indicator	FALSE
-Cell identity reporting indicator	FALSE
-CHOICE mode	TDD
-Timeslot ISCP reporting indicator	FALSE
-Proposed TGSN Reporting required	FALSE
-Primary CCPCH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	FALSE
-Reporting cell status (10.3.7.61)	Not Present
-Measurement validity (10.3.7.51)	Not Present
-CHOICE *report criteria*	Inter-frequency measurement reporting criteria
-Inter-frequency measurement reporting criteria (10.3.7.19)	
-Parameters required for each event	1
-Intra-frequency event identity	Event 2C
-Threshold used frequency	Not Present
-W Used frequency	Not Present
-Hysteresis	0 dB
-Time to trigger	0 ms

Information Element/Group name	Value/Remark
-Reporting Cell Status (10.3..61) -CHOICE reported cell	Report cells within active and/or monitored set on used frequency or within virtual active and/or monitored set on non-used frequency
-Maximum number of reported cells	3
-Parameters required for each non-used frequenc	
- Threshold non-used frequency	-71
- W non-used frequency	1
Physical channel information elements -DPCH compressed mode status info (10.3.6.34)	Not Present

MEASUREMENT REPORT message (step 6)

Information Element	Value/remark
Message Type (10.2.17)	
Integrity check info	Not Present
Measurement identity	1
Measured Results (10.3.7.44)	
-CHOICE Measurement	Inter-frequency Measured results list
-Inter-frequency measured results	1
-Frequency info	
-CHOICE *mode*	TDD
-UARFCN(Nt)	Same frequency as channel 2
-UTRA carrier RSSI	Not Present
-Inter-frequency cell measured results	1
-Cell measured results (10.3.7.3)	
-Cell identity	Not Present
-SFN-SFN observed time difference	Not Present
-Cell synchronisation info	Not Present
-CHOICE mode	TDD
-Cell parameters ID	Set to cell parameters ID of Cell 2
-Proposed TGSN	Not Present
-Primary CCPCH RSCP	Checked that this IE is present
-Pathloss	Not Present
-Timeslot list	Not Present
Measured results on RACH	Not Present
Additional measured results	Not Present
Event results (10.3.7.7)	
-CHOICE event result	Inter-frequency measurement event results
-Inter-frequency event identity	2C
-Inter-frequency cells	1
-Frequency Info	
-CHOICE *mode*	TDD
-UARFCN(Nt)	Same frequency as channel 2
-CHOICE mode	TDD
-Primary CCPCH Info	
-CHOICE mode	TDD
-CHOICE TDD Option	3,84 Mcps TDD
-CHOICE Sync Case	Not Present
-Cell Parameters ID	Set to cell parameters ID of Cell 2
-SCTD Indicator	FALSE

8.6.2.1.4.2   1,28 Mcps TDD Option

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

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

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". General test parameters are given in the table 8.6.2.1.3 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 cell specific test parameters are shown in Table 8.6.2.1.4.

Table 8.6.2.1.3: General test parameters for correct reporting of TDD inter frequency neighbours in AWGN propagation condition 1,28Mcps option

Parameter	Unit	Value	Comment
DPCH parameters active cell		DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.102 section A. The DPCH is located in an other timeslot than 0
Power Control		On	
Active cell		Cell 1	
Threshold non used frequency	dB	-71	Absolute P-CCPCH RSCP threshold for event 2C
Hysteresis	dB	0	
Time to Trigger	ms	0	
Filter coefficient		0	
Monitored cell list size		24 on channel 1 16 on channel 2	Measurement control information is sent before T1 starts.
T1	s	10	
T2	s	10	

Parameter		Unit	Value	Comment
DPCH parameters active cell			DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.102 section A.2.2. The DPCH is located in an other timeslot than 0
Power Control			On	
Target quality value on DTCH		BLER	0.01	
Initial conditions	Active cell		Cell 1	1.28Mcps TDD cell
	Neighbour cell		Cell 2	1.28Mcps TDD cell
Final condtions	Active cell		Cell 1	
Threshold non used frequency		dBm	-71	Absolute P-CCPCH RSCP threshold for event 2C
W non-used frequency			1	Applicable for event 2C
Hysteresis		dB	0	
Time to Trigger		ms	0	
Filter coefficient			0	
Monitored cell list size			24 on channel 1 16 on channel 2	Measurement control information is sent before T1 starts.
T1		s	10	
T2		s	10	

Table 8.6.2.1.4 Cell Specific Parameters for Correct Reporting of Neighbours in AWGN Propagation Condition 1,28Mcps option

Parameter	Unit	Cell 1				Cell 2			
Timeslot Number		0		DwPTS		0		DwPTS	
		T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number		Channel 1				Channel 2			
PCCPCH_Ec/Ior	dB	-3				-3			
DwPCH_Ec/Ior	dB			0				0	
$\hat{I}_{or}/I_{oc}$	dB	3	3			-Infinity	6		
I_{oc}	dBm/1,28 MHz	-70							
PCCPCH_RSCP	dBm	-70	-70			-Infinity	-67		
Propagation Condition		AWGN							

Parameter	Unit	Cell 1				Cell 2			
Timeslot Number		0		DwPTS		0		DwPTS	
		T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number		Channel 1				Channel 2			
PCCPCH_Ec/Ior	dB	-3				-3			
DwPCH_Ec/Ior	dB			0				0	
OCNS_Ec/Ior	dB	-3				-3			
$\hat{I}_{or}/I_{oc}$	dB	3	3			-Infinity	6		
I_{oc}	dBm/1.28 MHz	-70							
PCCPCH_RSCP	dBm	-70	-70			-Infinity	-67		
Propagation Condition		AWGN							

NOTE: The DPCH of all cells are located in a timeslot other than 0.

8.6.2.1.4.2.2   Test Procedure

1) The RF parameters are set up according to T1.

2) The UE is switched on.

3) A call is set up according to the generic set-up procedure specified in TS 34.108 [3] subclause 7.4.2 to place the UE in CELL_DCH.

4) SS shall transmit a MEASUREMENT CONTROL message.

5) After 10 seconds from the beginning of T1, the SS shall switch the power settings from T1 to T2.

6) UE shall transmit a MEASUREMENT REPORT message triggered by event 2c for cell 2. The measurement reporting delay from the beginning of T2 shall be less than 5080 ms. If the UE fails to report the event within the required delay, then a failure is recorded. If the reporting delay for this event is within the required limit, the number of succesfull tests is increased by one.

7) After 10 seconds from the beginning of T3, the UE is switched off. Any timing information of cell 2 is deleted in the UE.

8) Repeat steps 1-7 [TBD] times.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3] and in Annex A of 34.123-1 [21], with the following exceptions:

Note: Numbers in brackets after an item e.g "Message Type (10.2.17)" in the IE description are references to clause numbers in TS 25.331 [9] describing that item in more detail.

Note: 10.x.y.z in the IE description refers to clauses in TS 25.331 [9].

MEASUREMENT CONTROL message (step 4):

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
Measurement Information elements	
-Measurement Identity	1
-Measurement Command (10.3.7.46)	Modify
-Measurement Reporting Mode (10.3.7.49)	
-Measurement Report Transfer Mode	AM RLC
-Periodical Reporting / Event Trigger Reporting Mode	Event trigger
-Additional measurements list (10.3.7.1)	Not Present
-CHOICE *Measurement type*	Inter-frequency measurement
-Inter-frequency measurement (10.3.7.16)	
-Inter-frequency measurement objects list (10.3.7.13)	
-CHOICE *inter-frequency cell removal*	No inter-frequency cells removed
-New inter-frequency cells	1
-Inter-frequency cell id	1
-Frequency info (10.3.6.36)	
-CHOICE *mode*	TDD
-UARFCN(Nt)	Same frequency as channel 2
-Cell info (10.3.7.2)	
-Cell individual offset	Not Present
-Reference time difference to cell	Not Present
-Read SFN indicator	False
-CHOICE *mode*	TDD
-Primary CCPCH info (10.3.6.57)	
-CHOICE mode	TDD
-CHOICE TDD option	1,28 Mcps TDD
-Timeslot	0
-cell parameters ID	Set to cell parameters ID of cell 2
-SCTD indicator	FALSE
-Primary CCPCH Tx power	Set to Primary CCPCH Tx power of cell 2 as described in Table 8.6.2.1.2
-Timesllot list	Not Present
-Cell selection and re-selection info	Not Present
-Cell for measurement	Not Present
-Inter-frequency measurement quantity (10.3.7.18)	
-CHOICE *reporting critera*	Inter-frequency reporting criteria
-Filter coefficient (10.3.7.9)	0
-CHOICE *mode*	TDD
-Measurement quantity for frequency quality estimate	Primary CCPCH RSCP
-Inter-frequency reporting quantity (10.3.7.21)	
-UTRA carrier RSSI	
-Frequency quality estimate	
-Non frequency related cell reporting quantities (10.3.7.5)	
-SFN-SFN observed time difference reporting indicator	No report
-Cell synchronisation information reporting indicator	FALSE
-Cell identity reporting indicator	FALSE
-CHOICE mode	TDD
-Timeslot ISCP reporting indicator	FALSE
-Proposed TGSN Reporting required	FALSE
-Primary CCPCH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	FALSE
-Reporting cell status (10.3.7.61)	Not Present
-Measurement validity (10.3.7.51)	Not Present
-CHOICE *report criteria*	Inter-frequency measurement reporting criteria
-Inter-frequency measurement reporting criteria (10.3.7.19)	
-Parameters required for each event	1
-Intra-frequency event identity	Event 2C
-Threshold used frequency	Not Present
-W Used frequency	Not Present
-Hysteresis	0 dB
-Time to trigger	0 ms
-Reporting Cell Status (10.3..61)	

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

MEASUREMENT REPORT message (step 6)

Information Element	Value/remark
Message Type (10.2.17)	
Integrity check info	Not Present
Measurement identity	1
Measured Results (10.3.7.44)	
-CHOICE Measurement	Inter-frequency Measured results list
-Inter-frequency measured results	1
-Frequency info	
-CHOICE *mode*	TDD
-UARFCN(Nt)	Same frequency as channel 2
-UTRA carrier RSSI	Not Present
-Inter-frequency cell measured results	1
-Cell measured results (10.3.7.3)	
-Cell identity	Not Present
-SFN-SFN observed time difference	Not Present
-Cell synchronisation info	Not Present
-CHOICE mode	TDD
-Cell parameters ID	Set to cell parameters ID of Cell 2
-Proposed TGSN	Not Present
-Primary CCPCH RSCP	Checked that this IE is present
-Pathloss	Not Present
-Timeslot list	Not Present
Measured results on RACH	Not Present
Additional measured results	Not Present
Event results (10.3.7.7)	
-CHOICE event result	Inter-frequency measurement event results
-Inter-frequency event identity	2C
-Inter-frequency cells	1
-Frequency Info	
-CHOICE *mode*	TDD
-UARFCN(Nt)	Same frequency as channel 2
-CHOICE mode	TDD
-Primary CCPCH Info	
-CHOICE mode	TDD
-CHOICE TDD Option	3,84 Mcps TDD
-CHOICE Sync Case	Not Present
-Cell Parameters ID	Set to cell parameters ID of Cell 2
-SCTD Indicator	FALSE

8.6.2.1.5   Test requirements

8.6.2.1.5.1   3,84 Mcps TDD Option

The UE shall send one Event 2C triggered measurement report for Cell 2 with a measurement reporting delay less than 5080ms from the beginning of time period T2.

The UE shall not send event triggered measurement reports, as long as the reporting criteria are not fulfilled.

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

8.6.2.1.5.2 1,28 Mcps TDD Option

The UE shall send an EVENT 2C message of cell 2 within 5080mS from the beginning of the time T2

The UE shall not send any event triggered measurement reports, as long as the reporting criteria are not fulfilled.

The rate of events correctly reported during repeated tests shall be at least 90%.

8.6.3 FDD measurements

8.6.3.1 Correct reporting of FDD neighbours in AWGN propagation condition

8.6.3.1.1 Definition and applicability

8.6.3.1.1.1 3,84 Mcps TDD Option

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

The requirements and this test apply to the combined FDD and TDD (3,84 Mcps option) UE.

8.6.3.1.1.2 1,28 Mcps TDD Option

~~The purpose of this test is to verify that the UE makes correct reporting of an event when doing inter frequency measurements on a neighbouring FDD cell. The test will partly verify the requirements in section 8 of [2].~~

The purpose of this test is to verify that the UE makes correct reporting of an event when measuring on UTRA FDD cells. This test will partly verify the requirements in section 8.1A.2 and 9.1. of [2]

The test consists of two successive time periods, with a time duration T1 and T2. Two cells shall be present in the test, cell 1 being current active 1.28Mcps TDD cell and cell 2 being a UTRA FDD neighbouring cell.

In the measurement control information it is indicated to the UE hat event-triggered reporting with Event 2C shall be used and the CPICH RSCP of the best cell on the unused frequency shall be reported together with Event 2C.The measurement control message shall be sent to the UE such that the delay between the end of the last received TTI containing the message and the beginning of T1 is at least equal to the RRC procedure delay as defined in 25.331 [9].

8.6.3.1.2 Minimum requirement

8.6.3.1.2.1 3,84 Mcps TDD Option

When idle intervals are used for inter-frequency FDD measurements, the UE shall be able to identify a new detectable inter-frequency FDD cell belonging to the monitored set within

$$\mathrm{T_{identify\ FDD\ inter}} = Max\left\{5000, \mathrm{T_{basic\ identify\ FDD\ inter}} \cdot \frac{\mathrm{T_{measurement\ period\ FDD\ inter}}}{\mathrm{T_{FDD\ inter}}} \cdot N_{Freq}\right\} ms$$

If the UE does not require idle intervals to perform FDD inter-frequency measurements, the UE shall be able to identify a new detectable inter-frequency FDD cell belonging to the monitored set within 5000 ms.

When L3 filtering is used an additional delay can be expected.

An inter-frequency FDD cell shall be considered detectable, when CPICH Ec/Io $\geq$ -20 dB, SCH_Ec/Io $\geq$ -17 dB and SCH_Ec/Ior is equally divided between primary synchronisation code and secondary synchronisation code.

When idle intervals are used for FDD inter frequency measurements, the UE physical layer shall be capable of reporting measurements to higher layers with measurement period given by

$$T_{\text{measurement FDD inter}} = Max\left\{ T_{\text{measurement period FDD inter}}, T_{\text{basic measurement FDD inter}} \cdot \frac{T_{\text{measurement period FDD inter}}}{T_{\text{FDD inter available}}} \cdot N_{Freq,FDD} \right\} ms$$

If the UE does not require idle intervals to perform FDD inter-frequency measurements, the measurement period for inter frequency CPICH measurements shall be 480 ms.

The UE shall be capable of performing CPICH measurements for $X_{\text{measurement FDD inter}}$ inter-frequency FDD cells per frequency of the monitored set and the UE physical layer shall be capable of reporting measurements to higher layers with the measurement period of $T_{\text{measurement FDD inter}}$.

$X_{\text{basic measurement FDD inter}}$ = 6 (cells)

$T_{\text{measurement\_period FDD inter}}$ = 480 ms. The time period used for calculating the measurement period $T_{\text{measurement\_FDD inter}}$ for inter frequency CPICH measurements.

$T_{\text{FDD inter: available}}$: This is the available time for measurements on inter-frequency FDD cells. $T_{\text{FDD inter available}}$ shall be derived from $T_{\text{FDD inter}}$ by assuming 2*0.5 ms implementation margin for frequency switching per idle interval and by only taking into account the remaining number of full timeslots per idle interval. Idle intervals smaller than 3 timeslots shall not be taken into account for calculating $T_{\text{FDD inter available}}$.

$T_{\text{basic\_identify\_FDD inter}}$ = 800 ms. This is the time period used in the inter frequency equation where the maximum allowed time for the UE to identify a new detectable inter-frequency FDD cell is defined.

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

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

The event triggered measurement reporting delay, measured without L3 filtering shall be less than $T_{\text{identify inter}}$ defined in 25.123 [2]. When L3 filtering is used, an additional delay can be expected.

The normative reference for this requirement is TS 25.123 [2] clauses 8.1.2.4 and A.8.3.1

8.6.3.1.2.2 1,28 Mcps TDD Option

The UE shall send the Event 2C triggered measurement report, with a measurement reporting delay less than 5.08 s from the beginning of time period T2.

8.6.3.1.3 Test purpose

8.6.3.1.3.1 3,84 Mcps TDD Option

To verify that the UE meets the minimum requirement.

8.6.3.1.3.2 1,28 Mcps TDD Option

To verify that the UE meets the minimum time requirements for identifying neighbouring FDD cells.

8.6.3.1.4 Method of test

8.6.3.1.4.1 3,84 Mcps TDD Option

8.6.3.1.4.1.1 Initial conditions

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

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

The test parameters are given in Table 8.6.3.1.1 and 8.6.3.1.2. The test consists of two successive time periods, with time durations of T1 and T2 respectively. Two cells shall be present in the test, cell 1 being the serving UTRA TDD cell and cell 2 being a UTRA FDD neighbour cells on the unused frequency.

In the measurement control information it is indicated to the UE that event-triggered reporting with Event 2C shall be used and that CPICH Ec/I0 of the best cell on the unused frequency shall be reported together with Event 2C. The Measurement control message shall be sent to the UE such that the delay between the end of the last received TTI containing the message and the beginning of T1 is at least equal to the RRC procedure delay as defined in [9].

The second Beacon timeslot shall be provided in timeslot 8 for cell 1. The DL DPCH shall be transmitted in timeslot 1 and the UL DPCH shall be transmitted in timeslot 3. The TTI of the uplink DCCH shall be 20 ms.

Table 8.6.3.1.1: General test parameters for Correct reporting of FDD inter-frequency neighbours in AWGN propagation condition (3,84 Mcps option)

Parameter		Unit	Value	Comment
DPCH parameters			DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.102 section A.2.2
Power Control			On	
Target quality value on DTCH		BLER	0.01	
Initial conditions	Active cell		Cell 1	UTRA TDD cell
	Neighbour cell		Cell 2	UTRA FDD cell
Final conditions	Active cell		Cell 1	
Threshold non used frequency		dB	-18	Applicable for event 2C
W non-used frequency			1	Applicable for event 2C
Hysteresis		dB	0	Applicable for event 2C
Time to Trigger		ms	0	
Filter coefficient			0	
Monitored cell list size			6 TDD neighbours on channel 1 6 FDD neighbours on channel 2	
T1		s	15	
T2		s	10	

Table 8.6.3.1.2: Cell specific parameters for Correct reporting of FDD inter-frequency neighbours in AWGN propagation condition (3,84 Mcps option)

Parameter	Unit	Cell 1				Cell 2	
Timeslot Number		0		8		n.a	
		T1	T2	T1	T2	T1	T2
UTRA RF Channel Number		Channel 1				Channel 2	
CPICH_Ec/Ior	dB	n.a.		n.a.		-10	
PCCPCH_Ec/Ior	dB	-3	-3			-12	
SCH_Ec/Ior	dB	-9	-9	-9	-9	-12	
SCH_t_{offset}		0	0	0	0	n.a.	
PICH_Ec/Ior				-3	-3	-15	
OCNS	dB	-4,28	-4,28	-4,28	-4,28	-0,941	
$\hat{I}_{or}/I_{oc}$	dB	3	3	3	3	-infinity	-1.8
I_{oc}	dBm/ 3,84 MHz	-70				-70	
CPICH_Ec/Io		n.a.				-infinity	-14
PCCPCH_RSCP	dB	-70	-70	-70	-70	n.a.	
Propagation Condition		AWGN				AWGN	

8.6.3.1.4.1.2   Procedure

1) The RF parameters are set up according to T1.

2) The UE is switched on.

3) A call is set up according to the generic set-up procedure specified in TS 34.108 [3] subclause 7.4.2 to place the UE in CELL_DCH.

4) SS shall transmit a MEASUREMENT CONTROL message.

5) After 15 seconds from the beginning of T1, the SS shall switch the power settings from T1 to T2.

6) UE shall transmit a MEASUREMENT REPORT message triggered by event 2C for cell 2. The measurement reporting delay from the beginning of T2 shall be less than 5040 ms. If the UE fails to report the event within the required delay, then a failure is recorded. If the reporting delay for this event is within the required limit, the number of succesfull tests is increased by one.

7) After 10 seconds from the beginning of T2, the UE is switched off. Any timing information of cell 2 is deleted in the UE.

8) Repeat steps 1-7 [TBD] times.

Specific Message Contents

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

Note: 10.x.y.z in the IE description refers to clauses in TS 25.331 [9].

MEASUREMENT CONTROL message (step 4):

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
Measurement Information elements	
-Measurement Identity	1
-Measurement Command (10.3.7.46)	Modify
-Measurement Reporting Mode (10.3.7.49)	
-Measurement Report Transfer Mode	AM RLC
-Periodical Reporting / Event Trigger Reporting Mode	Event trigger
-Additional measurements list (10.3.7.1)	Not Present
-CHOICE *Measurement type*	Inter-frequency measurement
-Inter-frequency measurement (10.3.7.16)	
-Inter-frequency measurement objects list (10.3.7.13)	
-CHOICE *inter-frequency cell removal*	No inter-frequency cells removed
-New inter-frequency cells	1
-Inter-frequency cell id	1
-Frequency info (10.3.6.36)	
-CHOICE *mode*	FDD
-UARFCN uplink (Nu)	Not Present
-UARFCN downlink (Nd)	Same frequency as channel 2
-Cell info (10.3.7.2)	
-Cell individual offset	Not Present
-Reference time difference to cell	Not Present
-Read SFN indicator	False
-CHOICE *mode*	FDD
-Primary CPICH info	
-Primary scrambling code	Set to Primary scrambling code of Cell2
-Primary CPICH Tx Power	Set to Primary CPICH Tx Power of Cell2 described in Table 8.6.3.1.2
-Tx Diversity Indicator	FALSE
-Cell selection and re-selection info	Not Present
-Cell for measurement	Not Present
-Inter-frequency measurement quantity (10.3.7.18)	
-CHOICE *reporting critera*	Inter-frequency reporting criteria
-Filter coefficient (10.3.7.9)	0
-CHOICE *mode*	FDD
-Measurement quantity for frequency quality estimate	CPICH_Ec/No
-Inter-frequency reporting quantity (10.3.7.21)	
-UTRA carrier RSSI	
-Frequency quality estimate	
-Non frequency related cell reporting quantities (10.3.7.5)	
-SFN-SFN observed time difference reporting indicator	No report
-Cell synchronisation information reporting indicator	FALSE
-Cell identity reporting indicator	FALSE
-CHOICE mode	FDD
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	FALSE
-Pathloss reporting indicator	FALSE
-Reporting cell status (10.3.7.61)	Not Present
-Measurement validity (10.3.7.51)	Not Present
-CHOICE *report criteria*	Inter-frequency measurement reporting criteria
-Inter-frequency measurement reporting criteria (10.3.7.19)	
-Parameters required for each event	1
-Intra-frequency event identity	Event 2C
-Threshold used frequency	Not Present
-W Used frequency	Not Present
-Hysteresis	0 dB
-Time to trigger	0 ms
-Reporting Cell Status (10.3..61)	
-CHOICE reported cell	Report cells within active and/or monitored set on used frequency or within virtual active and/or monitored set on non-used frequency

Information Element/Group name	Value/Remark
-Maximum number of reported cells	3
-Parameters required for each non-used frequenc	
- Threshold non-used frequency	-18
- W non-used frequency	1
Physical channel information elements	
-DPCH compressed mode status info (10.3.6.34)	Not Present

MEASUREMENT REPORT message (step 6)

Information Element	Value/remark
Message Type (10.2.17)	
Integrity check info	Not Present
Measurement identity	1
Measured Results (10.3.7.44)	
-CHOICE Measurement	Inter-frequency Measured results list
-Inter-frequency measured results	1
-Frequency info	
-CHOICE *mode*	FDD
-UARFCN uplink (Nu)	Not Present
-UARFCN downlink (Nd)	Same frequency as channel 2
-UTRA carrier RSSI	Not Present
-Inter-frequency cell measured results	1
-Cell measured results (10.3.7.3)	
-Cell identity	Not Present
-SFN-SFN observed time difference	Not Present
-Cell synchronisation info	Not Present
-CHOICE mode	FDD
-Primary CPICH Info	
-Primary scrambling code	Set to Primary scrambling code of Cell2
-CPICH Ec/No	Checked that this IE is present
-CPICH RSCP	Not Present
-Pathloss	Not Present
Measured results on RACH	Not Present
Additional measured results	Not Present
Event results (10.3.7.7)	
-CHOICE event result	Inter-frequency measurement event results
-Inter-frequency event identity	2C
-Inter-frequency cells	1
-Frequency Info	
-CHOICE *mode*	FDD
-UARFCN uplink (Nu)	Not Present
-UARFCN downlink (Nd)	Same frequency as channel 2
-CHOICE mode	FDD
-Primary CPICH info	
-Primary Scrambling Code	Set to Primary scrambling code of Cell2

8.6.3.1.4.2   1,28 Mcps TDD Option

Cell 1 is current active TDD cell, Cell 2 is a FDD cell. The power level of CPICH RSCP of cell 2 and the P-CCPCH RSCP of cell 1 is changed. General test parameters are given in the table 8.6.3.1.3 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 test parameters are given in Table 8.6.3.1.4 below.

Table 8.6.3.1.3: General test parameters for Correct reporting of FDD neighbours in AWGN propagation condition 1,28Mcps option

Parameter	Unit	Value	Comment
DPCH parameters active cell		DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.102 section A. The DPCH is located in an other timeslot than 0.
Power Control		On	
Active cell		Cell 1	
Threshold non used frequency	dB	-86	Absolute CPICH RSCP threshold for event 2C
Hysteresis	dB	0	
W non-used frequency		1	Applicable for event 2C
Time to Trigger	ms	0	
Filter coefficient		0	
Monitored cell list size		24 on channel 1 16 on channel 2	Measurement control information is sent before T1 starts.
T1	s	10	
T2	s	10	

Parameter		Unit	Value	Comment
DPCH parameters active cell			DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.102 section A. The DPCH is located in an other timeslot than 0.
Power Control			On	
Target quality value on DTCH		BLER	0.01	
Active cell Initial conditions	Active cell		Cell 1	1.28Mcps TDD cell
	Neighbour cell		Cell2	FDD cell
Final conditions	Active cell		Cell 1	1.28Mcps TDD cell
Threshold non used frequency		dBm	-86	Absolute CPICH RSCP threshold for event 2C
Hysteresis		dB	0	
W non-used frequency			1	Applicable for event 2C
Time to Trigger		ms	0	
Filter coefficient			0	
Monitored cell list size			24 on channel 1 16 on channel 2 6 TDD neighbours on Channel 1 6 FDD neighbours on Channel 2	Measurement control information is sent before T1 starts.
T1		s	10	
T2		s	10	

Table 8.6.3.1.4 Cell Specific parameters for Correct reporting of FDD neighbours in AWGN propagation condition: 1,28Mcps option

Parameter	Unit	Cell 1				Cell 2	
Timeslot Number		0		DwPTS		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.		-10	-10
PCCPCH_Ec/Ior	dB	-3	-3			-12	-12
SCH_Ec/Ior	dB					-12	-12
PICH_Ec/Ior	dB					-15	-15
DwPCH_Ec/Ior	dB			0	0	n.a.	n.a.
OCNS	dB	[ ]	[ ]			-0,941	-0,941
$\hat{I}_{or}/I_{oc}$	dB	3	3	3	3	-Infinity	-2
I_{oc}	dBm/3,84 MHz	-70				-70	
CPICH_RSCP		n.a.				-Infinity	-82
PCCPCH_RSCP	DB	-70	-70			n.a.	n.a.
Propagation Condition		AWGN				AWGN	

Parameter	Unit	Cell 1				Cell 2	
Timeslot Number		0		DwPTS		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.		-10	-10
PCCPCH_Ec/Ior	dB	-3	-3			-12	-12
SCH_Ec/Ior	dB					-12	-12
PICH_Ec/Ior	dB					-15	-15
DwPCH_Ec/Ior	dB			0	0	n.a.	n.a.
OCNS	dB	[ ]-3	[ ]-3			-0,941	-0,941
$\hat{I}_{or}/I_{oc}$	dB	3	3	3	3	-Infinity	-2
I_{oc}	dBm/1.28 MHz	-70					
I_{oc}	dBm/3.84 MHz	-70				-70	
CPICH_RSCP	dBm	n.a.				-Infinity	-82
PCCPCH_RSCP	dBm	-70	-70			n.a.	n.a.
Propagation Condition		AWGN				AWGN	

Note: The DPCH of cell 1 is located in a timeslot other than 0.

8.6.3.1.4.2.1   Test Procedure

1) The RF parameters are set up according to T1.

2) The UE is switched on.

3) A call is set up according to the generic set-up procedure specified in TS 34.108 [3] subclause 7.4.2 to place the UE in CELL_DCH.

4) SS shall transmit a MEASUREMENT CONTROL message.

5) After 15 seconds from the beginning of T1, the SS shall switch the power settings from T1 to T2.

6) UE shall transmit a MEASUREMENT REPORT message triggered by event 2C for cell 2. The measurement reporting delay from the beginning of T2 shall be less than 5040 ms. If the UE fails to report the event within the

required delay, then a failure is recorded. If the reporting delay for this event is within the required limit, the number of succesfull tests is increased by one.

7) After 10 seconds from the beginning of T2, the UE is switched off. Any timing information of cell 2 is deleted in the UE.

8) Repeat steps 1-7 [TBD] times.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3] and in Annex A of 34.123-1 [21], with the following exceptions:

Note: 10.x.y.z in the IE description refers to clauses in TS 25.331 [9].

MEASUREMENT CONTROL message (step 4):

Information Element/Group name	Value/Remark
Message Type (10.2.17)	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	Not Present
Measurement Information elements	
-Measurement Identity	1
-Measurement Command (10.3.7.46)	Modify
-Measurement Reporting Mode (10.3.7.49)	
-Measurement Report Transfer Mode	AM RLC
-Periodical Reporting / Event Trigger Reporting Mode	Event trigger
-Additional measurements list (10.3.7.1)	Not Present
-CHOICE *Measurement type*	Inter-frequency measurement
-Inter-frequency measurement (10.3.7.16)	
-Inter-frequency measurement objects list (10.3.7.13)	
-CHOICE *inter-frequency cell removal*	No inter-frequency cells removed
-New inter-frequency cells	1
-Inter-frequency cell id	1
-Frequency info (10.3.6.36)	
-CHOICE *mode*	FDD
-UARFCN uplink (Nu)	Not Present
-UARFCN downlink (Nd)	Same frequency as channel 2
-Cell info (10.3.7.2)	
-Cell individual offset	Not Present
-Reference time difference to cell	Not Present
-Read SFN indicator	False
-CHOICE *mode*	FDD
-Primary CPICH info	
-Primary scrambling code	Set to Primary scrambling code of Cell2
-Primary CPICH Tx Power	Set to Primary CPICH Tx Power of Cell2 described in Table 8.6.3.1.2
-Tx Diversity Indicator	FALSE
-Cell selection and re-selection info	Not Present
-Cell for measurement	Not Present
-Inter-frequency measurement quantity (10.3.7.18)	
-CHOICE *reporting critera*	Inter-frequency reporting criteria
-Filter coefficient (10.3.7.9)	0
-CHOICE *mode*	FDD
-Measurement quantity for frequency quality estimate	CPICH_Ec/No
-Inter-frequency reporting quantity (10.3.7.21)	
-UTRA carrier RSSI	
-Frequency quality estimate	
-Non frequency related cell reporting quantities (10.3.7.5)	
-SFN-SFN observed time difference reporting indicator	No report
-Cell synchronisation information reporting indicator	FALSE
-Cell identity reporting indicator	FALSE
-CHOICE mode	FDD
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	FALSE
-Pathloss reporting indicator	FALSE
-Reporting cell status (10.3.7.61)	Not Present
-Measurement validity (10.3.7.51)	Not Present
-CHOICE *report criteria*	Inter-frequency measurement reporting criteria
-Inter-frequency measurement reporting criteria (10.3.7.19)	
-Parameters required for each event	1
-Intra-frequency event identity	Event 2C
-Threshold used frequency	Not Present
-W Used frequency	Not Present
-Hysteresis	0 dB
-Time to trigger	0 ms
-Reporting Cell Status (10.3..61)	
-CHOICE reported cell	Report cells within active and/or monitored set on used frequency or within virtual active and/or monitored set on non-used frequency

Information Element/Group name	Value/Remark
-Maximum number of reported cells	3
-Parameters required for each non-used frequenc	
- Threshold non-used frequency	-18
- W non-used frequency	1
Physical channel information elements	
-DPCH compressed mode status info (10.3.6.34)	Not Present

MEASUREMENT REPORT message (step 6)

Information Element	Value/remark
Message Type (10.2.17)	
Integrity check info	Not Present
Measurement identity	1
Measured Results (10.3.7.44)	
-CHOICE Measurement	Inter-frequency Measured results list
-Inter-frequency measured results	1
-Frequency info	
-CHOICE *mode*	FDD
-UARFCN uplink (Nu)	Not Present
-UARFCN downlink (Nd)	Same frequency as channel 2
-UTRA carrier RSSI	Not Present
-Inter-frequency cell measured results	1
-Cell measured results (10.3.7.3)	
-Cell identity	Not Present
-SFN-SFN observed time difference	Not Present
-Cell synchronisation info	Not Present
-CHOICE mode	FDD
-Primary CPICH Info	
-Primary scrambling code	Set to Primary scrambling code of Cell2
-CPICH Ec/No	Checked that this IE is present
-CPICH RSCP	Not Present
-Pathloss	Not Present
Measured results on RACH	Not Present
Additional measured results	Not Present
Event results (10.3.7.7)	
-CHOICE event result	Inter-frequency measurement event results
-Inter-frequency event identity	2C
-Inter-frequency cells	1
-Frequency Info	
-CHOICE *mode*	FDD
-UARFCN uplink (Nu)	Not Present
-UARFCN downlink (Nd)	Same frequency as channel 2
-CHOICE mode	FDD
-Primary CPICH info	
-Primary Scrambling Code	Set to Primary scrambling code of Cell2

8.6.3.1.5   Test requirements

8.6.3.1.5.1   3,84 Mcps TDD Option

The UE shall send one Event 2C triggered measurement report for Cell 2 with a measurement reporting delay less than 5040ms from the beginning of time period T2.

The UE shall not send event triggered measurement reports, as long as the reporting criteria are not fulfilled.

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

8.6.3.1.5.2   1,28 Mcps TDD Option

The UE shall send one Event 2C triggered measurement report, with a measurement reporting delay less than 5080ms from the beginning of time period T2.

The UE shall not send any measurement reports, as long as the reporting criteria are not fulfilled.

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

CHANGE REQUEST

⌘ **34.122 CR 185** ⌘**rev** **1** ⌘ Current version: **4.9** ⌘

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

Proposed change affects: UICC apps⌘ ☐ ME **X** Radio Access Network ☐ Core Network ☐

Title: ⌘	Correction of ISCP measurements for LCR TDD	
Source: ⌘	Siemens AG	
Work item code:⌘	LCRTDD	**Date:** ⌘ 21 Sept 2003
Category: ⌘ **F**		**Release:** ⌘ Rel-4

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 *(GSM Phase 2)*
R96 *(Release 1996)*
R97 *(Release 1997)*
R98 *(Release 1998)*
R99 *(Release 1999)*
Rel-4 *(Release 4)*
Rel-5 *(Release 5)*
Rel-6 *(Release 6)*

Reason for change: ⌘	Correction of interfrequency measurements test for LCR TDD
Summary of change:⌘	Tests corrected to match core specs.
Consequences if not approved: ⌘	Inconsistant test documentation, not following core spec. As BS requirements in place of UE
Clauses affected: ⌘	8.7.3.1 and 8.7.3.1.A

	Y	N		
Other specs affected: ⌘			Other core specifications ⌘	
			Test specifications	
			O&M Specifications	

Other comments: ⌘	UE/BS Copy error when test case first created

How to create CRs using this form:

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

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

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

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

First Changed Section

8.7.3.1.1 Absolute accuracy requirement

8.7.3.1.1.1 Definition and applicability

The absolute accuracy of Timeslot ISCP is defined as the Timeslot ISCP meaasured from one cell / timeslot combination compared to the actual Timeslot ISCP level for the same cell / timeslot combination.

The requirements and this test apply to all types of UTRA TDD UE.

8.7.3.1.1.2 Minimum Requirements

The absolute accuracy requirements in table 8.7.3.1.1.1 are valid under the following conditions:

P-CCPCH RSCP ≥ -102 dBm.

$$\left(\frac{P-CCPCH\_E_c}{I_o} \right)\Bigg|_{in\ dB} \geq -8dB$$

$$\left(\frac{SCH\_E_c}{I_o} \right)\Bigg|_{in\ dB} \geq -13dB$$

Table 8.7.3.1.1.1: UE Timeslot ISCP intra frequency absolute accuracy (3,84Mcps option)

Parameter	Unit	Accuracy [dB]		Conditions
		Normal conditions	Extreme conditions	Io [dBm/ 3,84 MHz]
Timeslot ISCP	dB	± 6	± 9	-105..-74

Parameter	Unit	Accuracy [dB]		Conditions
		Normal condition	Extreme condition	Io [dBm/ 3.84 MHz]
Timeslot_ISCP	dBm	± 6	± 9	-94...-70
	dBm	± 8	± 11	-70...-50

The normative reference for this requirement is TS 25.123 [2] clauses 9.2.1.2.1.1 and A.9.1.3.

....

Second Changed Section

....

8.7.3.1A   Intra frequency measurement accuracy for 1,28 Mcps TDD Option

8.7.3.1A.1   Absolute accuracy requirement

8.7.3.1A.1.1   Definition and applicability

The absolute accuracy of Timeslot ISCP is defined as the Timeslot ISCP meaasured from one cell / timeslot combination compared to the actual Timeslot ISCP level for the same cell / timeslot combination.

The requirements and this test apply to all types of UTRA TDD UE.

8.7.3.1A.1.2   Minimum Requirements

The absolute accuracy requirements in table 8.7.3.1A.1.1 are valid under the following conditions:

P-CCPCH RSCP ≥ -102 dBm.

$$\left(\frac{P-CCPCH\_E_c}{I_o} \right)\Bigg|_{in\ dB} \geq -8dB$$

$$\left(\frac{SCH\_E_c}{I_o} \right)\Bigg|_{in\ dB} \geq -13dB$$

Table 8.7.3.1A.1.1:   1,28 Mcps UE TDD Timeslot ISCP intra frequency absolute accuracy (1,28 Mcps option)

Parameter	Unit	Accuracy [dB]		Conditions
		Normal conditions	Extreme conditions	Io [dBm/ 1,28 MHz]
Timeslot ISCP	dB	± 6	± 9	-105..-74

Parameter	Unit	Accuracy [dB]		Conditions
		Normal condition	Extreme condition	Io [dBm/ 1.28MHz]
Timeslot_ISCP	dBm	± 6	± 9	-94...-70
	dBm	± 8	± 11	-70...-50

The normative reference for this requirement is TS 25.123 [2] clauses 9.2.1.2.1.2

CR-Form-v7

CHANGE REQUEST

⌘ **34.122 CR 186** ⌘**rev 1** ⌘ Current version: **4.9** ⌘

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

Proposed change affects: UICC apps⌘ [ ] ME [**X**] Radio Access Network [ ] Core Network [ ]

c

Title: ⌘	HSDPA and creation of release 5
Source: ⌘	Siemens AG
Work item code:⌘	Rel-5
Date: ⌘	21 Sept 2003

Category: ⌘ **B**   **Release:** ⌘ Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can
be found in 3GPP TR 21.900.

Use one of the following releases:
2 *(GSM Phase 2)*
R96 *(Release 1996)*
R97 *(Release 1997)*
R98 *(Release 1998)*
R99 *(Release 1999)*
Rel-4 *(Release 4)*
Rel-5 *(Release 5)*
Rel-6 *(Release 6)*

Reason for change: ⌘	Support of HSDPA for TDD
Summary of change:⌘	New sections added, to allow additional tests required for support of HSDPA Also new sentence in 'scope' added relating to handling of release 5 features.
Consequences if not approved: ⌘	Incomplete test documentation, not covering HSDPA LCR TDD cases.

Clauses affected: ⌘	Section 1 (Scope) clarified for release 5, Addition of reference New Section 9 (HSDPA) introduced,

	Y	N		
Other specs ⌘			Other core specifications ⌘	
affected:			Test specifications	
			O&M Specifications	

Other comments: ⌘	This creates a Release 5 version of 34.122, with HSDPA sections and opens the way for the amalgamation of releases 99 and 4 if desired.

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downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

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

First changed section

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1   Scope

This present document specifies the measurement procedure for the conformance test of the mobile station that contain transmitting characteristics, receiving characteristics and performance requirements ~~and~~ in addition to requirements for support of RRM (Radio Resource Management) in both UTRATDD mode~~s of both options of the TDD mode of UTRA~~. The two options are the 3,84 Mcps TDD Option and 1,28 Mcps TDD Option, respectively.

The requirements are listed in different clauses only if the corresponding parameters deviate. More generally, tests are only applicable to those mobiles that are intended to support the appropriate functionality. To indicate the circumstances in which tests apply, this is noted in the "*definition and applicability*" part of the test.

For example only release 5 and later UE declared to support HSDPA shall be tested for this functionality. In the event that for some tests different conditions apply for different releases, this is indicated within the text of the test itself.

End of first changed section

Second Changed Section

---

2   References

…….

…….

…….

[21]   3GPP TS 34.123-1: "User Equipment (UE) Conformance Specification; Part 1: Protocol Conformance Specification".

[22]   3GPP TS 25.225: "Physical Layer – Measurements (TDD)".

[23]   3GPP TS 51.010-1: " Mobile Station (MS) conformance specification; Part 1: Conformance specification".

Ref 23 just added in CR 182…..

[24]   3GPP TS 25.306: "UE Radio Access capabilities definition".

End of Second Changed Section

Third Changed Section

8.7.12   UE transmitted power

Void

9 Performance requirements for HSDPA

9.1 General

Receiving performance test of the UE is implemented during communicating with the SS via air interface. The procedure uses normal call protocol until the UE is communicating on traffic channel basically. (Refer to TS 34.108 [3] Common Test Environments for User Equipment (UE) Conformance Testing.) On the traffic channel, the UE provides special function for testing that is described in Logical Test Interface and the UE is tested using this function. (Refer to TS 34.109 [4] Logical Test Interface (FDD/TDD) Special conformance testing functions.)

Unless otherwise stated the receiver characteristics are specified at the antenna connector of the UE. For UE(s) with an integral antenna only, a reference antenna with a gain of 0 dBi is assumed. UE with an integral antenna may be taken into account by converting these power levels into field strength requirements, assuming a 0 dBi gain antenna. Receiver characteristics for UE(s) with multiple antennas/antenna connectors are for further study.

The UE antenna performance has a significant impact on system performance, and minimum requirements on the antenna efficiency are therefore intended to be included in future versions of the present document. It is recognized that different requirements and test methods are likely to be required for the different types of UE.

All Bit Error ratio (BER) measurements shall be performed according to the general rules for statistical testing in Annex F.6.

9.2 Performance requirement for 3.84 Mcps TDD option

void

9.2.1 HS-DSCH throughput for Fixed Reference Channels

void

9.2.2 HS-DSCH throughput for Variable Reference Channels

void

9.2.3 Reporting of HS-DSCH Channel Quality Indicator

void

9.2.4 HS-SCCH Detection Performance

void

9.3 Performance requirements for 1.28 Mcps TDD option

End of Third Changed Section

CHANGE REQUEST

| ⌘ | **34.122** CR **187** | ⌘rev | **1** | ⌘ | Current version: | 4.9 | ⌘ |

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

Proposed change affects: UICC apps⌘ ☐   ME **X** Radio Access Network ☐ Core Network ☐
c

Title: ⌘	HSDPA HS-DSCH throughput (fixed and variable)	
Source: ⌘	Siemens AG	
Work item code:⌘	Rel-5	***Date:*** ⌘ 21 Sept 2003
Category: ⌘ **B**		***Release:*** ⌘ Rel-5

Use <u>one</u> of the following categories:
   F *(correction)*
   A *(corresponds to a correction in an earlier release)*
   B *(addition of feature),*
   C *(functional modification of feature)*
   D *(editorial modification)*
Detailed explanations of the above categories can
be found in 3GPP TR 21.900.

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)*
   Rel-6 *(Release 6)*

Reason for change: ⌘	Addition of tests in support of HSDPA for LCR TDD
Summary of change:⌘	New section added, with throughput tests required for HSDPA
Consequences if not approved: ⌘	Incomplete test documentation, not covering HSDPA LCR TDD cases.

Clauses affected: ⌘	9.3.1 and 9.3.2. Extension of Appendixes C (Reference channels) and D (Propagation models) to include LCR HSDPA cases

		Y	N		
Other specs affected:	⌘			Other core specifications	⌘
				Test specifications	
				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/specs/CR.htm.
Below is a brief summary:

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

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

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

9.3.1 HS-DSCH throughput for Fixed Reference Channels

The overall performance metric for HS-DSCH requirements is the throughput "R" measured on HS-DSCH.

9.3.1.1 Definition and applicability

The HS-DSCH data throughput for fixed reference channels is defined by the capabilities of the UE as defined in [24] , and the throughput is measured by counting the amount of data succeesfully received at the UE by monitoring the ACK/NACK signalling field of the HS-SICH received at the SS, while random data is streamed from the SS to the UE.

The normative reference for this test is 25.102 [2], section 9.

The requirements and this test apply to 1,28 Mcps TDD UE from release 5 and later that support HSDPA.

9.3.1.2 Minimum requirements

For the parameters specified in tables 9.3.1.1 and 9.3.1.2 the measured throughput shall be equal to or better than the the specified value in table 9.3.1.3. The reference for this requirement is TS 25.102 [1] section 9.

9.3.1.3 Test purpose

To verify that the UE receiver is capable meeting the minimum requirements for support of HSDPA in the conditions defined below, for QPSK and 16QAM .modulation.

Table 9.3.1.1: Node-B Emulator Behaviour in response to ACK/NACK/DTX (Fixed reference channel)

HS-DPCCH ACK/NACK Field State	Node-B Emulator Behaviour
ACK	ACK: new transmission using 1st redundancy version (RV)
NACK	NACK: retransmission using the next RV (up to the maximum permitted number or RV's)
DTX	DTX: retransmission using the RV previously transmitted to the same H-ARQ process

Table 9.3.1.2: Test parameters for fixed reference measurement channel requirements for 1.4 Mbps UE class (1.28 Mcps TDD Option) QPSK

Parameters	Unit	Test 1	Test 2	Test 3	Test 4
HS-PDSCH Modulation	-	QPSK			
Scrambling code and basic midamble code number*	-	0			
HS-PDSCH Channelization Codes*	C(k,Q)	C(i,16) i=1..10			
Number of Hybrid ARQ processes	-	4			
Maximum number of Hybrid ARQ transmissions	-	4			
Redundancy and constellation version coding sequence	-	{0,0,0,0}			
$\dfrac{HS-PDSCH\_E_c}{I_{or}}$	dB	-10			
I_{oc}	dBm/1.28 MHz	-60			
*Note: Refer to TS 25.223 for definition of channelization codes, scrambling code and basic midamble code.					

Table 9.3.1.3: Performance requirements for fixed reference measurement channel requirement in multipath channels for 1.4 Mbps UE class (1.28 Mcps TDD Option) QPSK

Test Number	Propagation conditions	$\dfrac{\hat{I}_{or}}{I_{oc}}$ [dB]	R (Throughput) [kbps]
1	PA3	10	375
2	PB3	10	378
3	VA30	10	338
4	VA120	10	281

Table 9.3.1.4: Test parameters for fixed reference measurement channel requirements for 1.4 Mbps UE class (1.28 Mcps TDD Option) 16QAM

Parameters	Unit	Test 1	Test 2	Test 3	Test 4
HS-PDSCH Modulation	-	16QAM			
Scrambling code and basic midamble code number*	-	0			
HS-PDSCH Channelization Codes*	C(k,Q)	C(i,16) i=1..9			
Number of Hybrid ARQ processes	-	4			
Maximum number of Hybrid ARQ transmissions	-	4			
Redundancy and constellation version coding sequence	-	{6,2,1,5}			
$\dfrac{HS-PDSCH\_E_c}{I_{or}}$	dB	-9.5			
I$_{oc}$	dBm/1.28 MHz	-60			
*Note: Refer to TS 25.223 for definition of channelization codes, scrambling code and basic midamble code.					

Table 9.3.1.5: Performance requirements for fixed reference measurement channel requirement in multipath channels for 1.4 Mbps UE class (1.28 Mcps TDD Option) 16QAM

Test Number	Propagation conditions	$\dfrac{\hat{I}_{or}}{I_{oc}}$ [dB]	R (Throughput) [kbps]
1	PA3	10	379
2	PB3	10	353
3	VA30	10	326
4	VA120	10	289

These RF channels are described in Appendix D

9.3.1.4   Method of test

9.3.1.4.1   Initial conditions

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

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

1) Connect SS, multipath fading simulator and an AWGN source to the UE antenna connector as shown in figure A.10.

2) Set Ack/Nack handling at the SS as table 9.3.1.1

3) Set up a call according to the Generic call setup procedure.

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

9.3.1.4.2 Procedure

FFS

9.3.1.5 Test Requirements

FFS

9.3.2   HS-DSCH throughput for Variable Reference Channels

The overall performance metric for HS-DSCH requirements is the throughput "R" measured on HS-DSCH.

9.3.2.1 Definition and applicability

The HS-DSCH data throughput for variable reference channels is defined by the capabilities of the UE as defined in [24] , and the throughput is measured by counting the amount of data succeefully received at the UE by monitoring the ACK/NACK signalling field of the HS-SICH received at the SS, while random data is streamed from the SS to the UE.

The normative reference for this test is 25.102 [2], section 9.

The requirements and this test apply to 1,28 Mcps TDD UE from release 5 and later that support HSDPA.

9.3.2.2   Minimum requirements

For the parameters specified in tables 9.3.2.1 the measured throughput shall be equal to or better than the the specified value in table 9.3.3.2. The reference for this requirement is TS 25.102 [1] section 9.

9.3.2.3   Test purpose

To verify that the UE receiver is capable meeting the minimum requirements for support of HSDPA in the conditions defined below, with the selection of QPSK and 16QAM modulation, and appropriate blocksize being determined by the SS based on the CQI reported by the UE..

Table 9.3.2.1: Test parameters for variable reference measurement channel requirements for 1.4 Mbps UE class (1.28 Mcps TDD Option)

Parameters	Unit	Test 1	Test 2	Test 3	Test 4	Test 5	Test 6
HS-PDSCH Modulation and transport block size	-	* See note 1					
Scrambling code and basic midamble code number * See note 2	-	0					
Number of DPCH$_o$ per timeslot	-	0			7		
Number of HS-PDSCH codes per timeslot	-	10			3		
HS-PDSCH Channelization Codes * See note 2	C(k,Q)	C(i,16) i=1..10			TBD		
Number of Hybrid ARQ processes	-	4					
Maximum number of Hybrid ARQ transmissions	-	1					
Redundancy and constellation version coding sequence	Xrv	0					
$\dfrac{HS-PDSCH\_E_c}{I_{or}}$	dB	-10			-10		
I_{oc}	dBm/1.28 MHz	-60					
Note 1) As requested by the last received CQI report							
Note 2) Refer to TS 25.223 for definition of channelization codes, scrambling code and basic midamble code.							
Note 3) If the indicated CQI is 0, the Node-B emulator shall format the next HS-PDSCH transmission with the transport block size and the modulation scheme that were previously used.							

Table 9.3.2.2: Performance requirements for variable reference measurement channel requirement in multipath channels for 1.4 Mbps UE class (1.28 Mcps TDD Option)

Test Number	Propagation conditions	$\dfrac{\hat{I}_{or}}{I_{oc}}$ [dB]	R (Throughput) [kbps]
1	PA3	10	445
2	PB3	10	446
3	VA30	10	271
4	PA3	8	98
5	PB3	8	100
6	VA30	8	64

These RF channels are described in Appendix D.

9.3.2.4 Method of test

9.3.2.4.1 Initial conditions

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

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

1) Connect SS, multipath fading simulator and an AWGN source to the UE antenna connector as shown in figure A.10.

2) Set Ack/Nack handling at the SS such that regardless of the response from the UE (Ack, Nack or DTX) new data is sent each time, this is because HARQ transmissions are set to one, i.e. no re-transmission of failed blocks.

3) Set up a call according to the Generic call setup procedure.

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

9.3.2.4.2 Procedure

FFS

9.3.2.5 Test Requirements

FFS

Second Changed Section

Annex C (normative): Measurement channels

C.1 General

Void.

C.2 UL Reference measurement channels

....

....

C.3 DL Reference measurement channels

....

....

C.4 HSDPA reference measurement channels

C.4.1 HSDPA reference measurement channels for 3,84 Mcps TDD option

Void

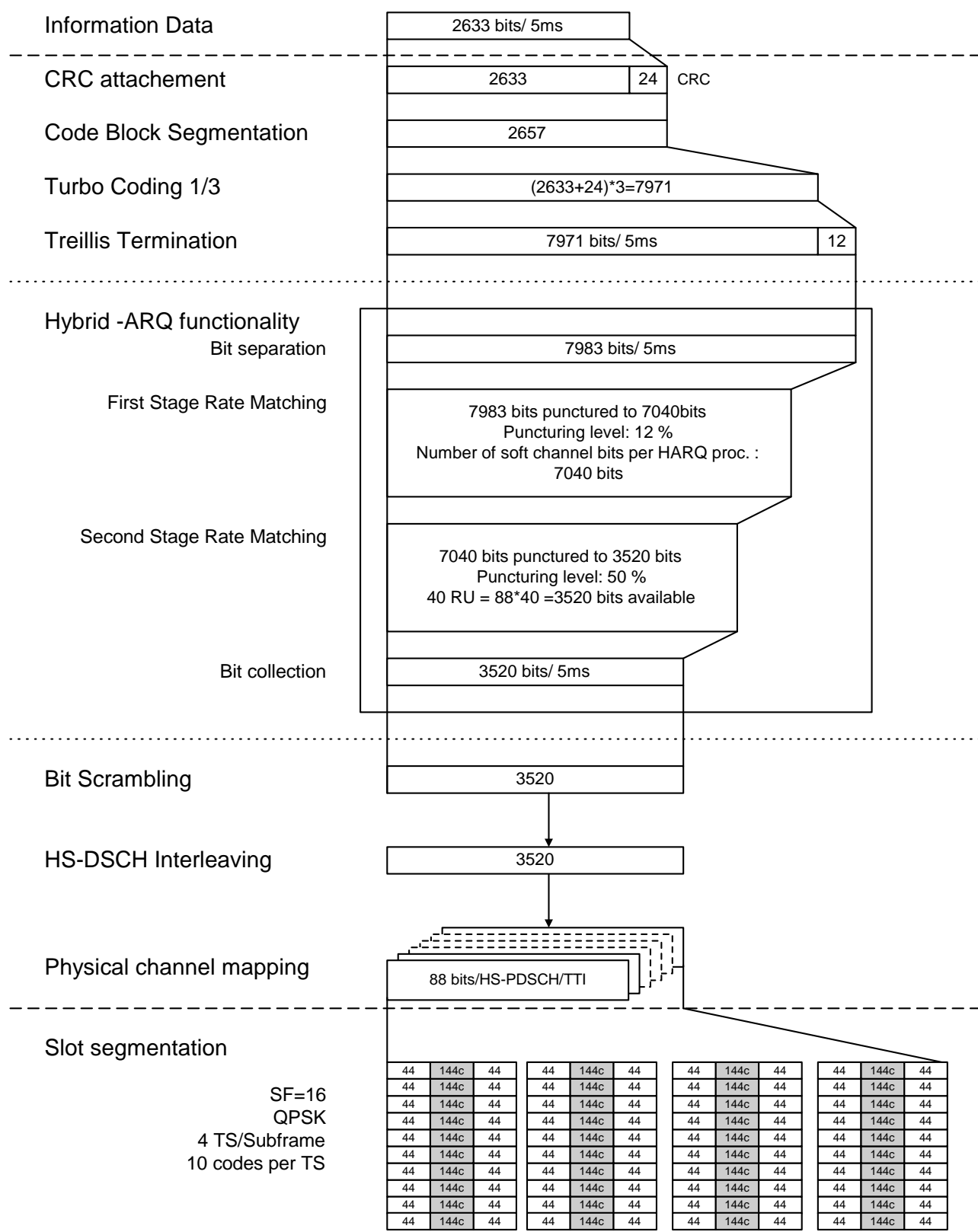## C.4.2 HSDPA reference measurement channels for 1.28 Mcps TDD option

C.4.2.1 Reference measurement channels for 1.4 Mbps UE class

C.4.2.1.1 QPSK modulation scheme

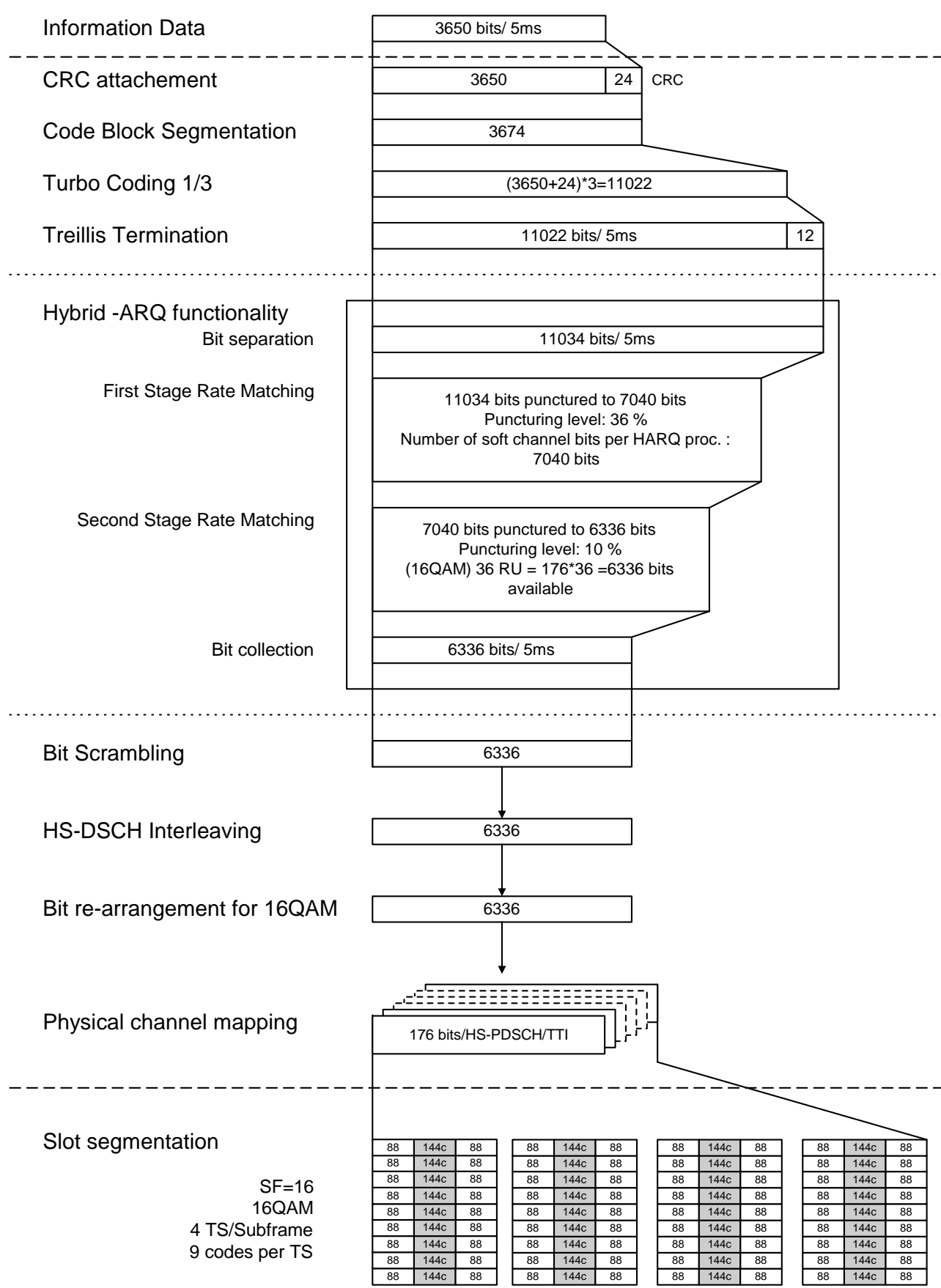| Parameter	Value
Maximum information data rate	526 kbps
RU´s allocated	4TS (10*SF16) = 40RU/5ms
Midamble	144 chips
Puncturing level at code rate 1/3 : first stage/second stage	12% / 50%

Information Data	2633 bits/ 5ms
CRC attachement	2633 | 24 CRC
Code Block Segmentation	2657
Turbo Coding 1/3	(2633+24)*3=7971
Treillis Termination	7971 bits/ 5ms | 12

Hybrid -ARQ functionality

Bit separation — 7983 bits/ 5ms

First Stage Rate Matching —
7983 bits punctured to 7040bits
Puncturing level: 12 %
Number of soft channel bits per HARQ proc. :
7040 bits

Second Stage Rate Matching —
7040 bits punctured to 3520 bits
Puncturing level: 50 %
40 RU = 88*40 =3520 bits available

Bit collection — 3520 bits/ 5ms

Bit Scrambling	3520
HS-DSCH Interleaving	3520
Physical channel mapping	88 bits/HS-PDSCH/TTI

Slot segmentation

SF=16
QPSK
4 TS/Subframe
10 codes per TS

44	144c	44		44	144c	44		44	144c	44		44	144c	44
44	144c	44		44	144c	44		44	144c	44		44	144c	44
44	144c	44		44	144c	44		44	144c	44		44	144c	44
44	144c	44		44	144c	44		44	144c	44		44	144c	44
44	144c	44		44	144c	44		44	144c	44		44	144c	44
44	144c	44		44	144c	44		44	144c	44		44	144c	44
44	144c	44		44	144c	44		44	144c	44		44	144c	44
44	144c	44		44	144c	44		44	144c	44		44	144c	44
44	144c	44		44	144c	44		44	144c	44		44	144c	44
44	144c	44		44	144c	44		44	144c	44		44	144c	44

C.4.2.1.2   16QAM modulation scheme

Parameter	Value
Maximum information data rate	730 kbps
RU´s allocated	4TS (9*SF16) = 36RU/5ms

Midamble	144 chips
Puncturing level at code rate 1/3 : first stage/second stage	36% / 10%

Information Data	3650 bits/ 5ms		

CRC attachement	3650	24	CRC

Code Block Segmentation	3674

Turbo Coding 1/3	(3650+24)*3=11022

Treillis Termination	11022 bits/ 5ms	12

Hybrid -ARQ functionality

Bit separation

	11034 bits/ 5ms

First Stage Rate Matching

11034 bits punctured to 7040 bits
Puncturing level: 36 %
Number of soft channel bits per HARQ proc. :
7040 bits

Second Stage Rate Matching

7040 bits punctured to 6336 bits
Puncturing level: 10 %
(16QAM) 36 RU = 176*36 =6336 bits
available

Bit collection

6336 bits/ 5ms

Bit Scrambling	6336

HS-DSCH Interleaving	6336

Bit re-arrangement for 16QAM	6336

Physical channel mapping

176 bits/HS-PDSCH/TTI

Slot segmentation

SF=16
16QAM
4 TS/Subframe
9 codes per TS

88	144c	88		88	144c	88		88	144c	88		88	144c	88
88	144c	88		88	144c	88		88	144c	88		88	144c	88
88	144c	88		88	144c	88		88	144c	88		88	144c	88
88	144c	88		88	144c	88		88	144c	88		88	144c	88
88	144c	88		88	144c	88		88	144c	88		88	144c	88
88	144c	88		88	144c	88		88	144c	88		88	144c	88
88	144c	88		88	144c	88		88	144c	88		88	144c	88
88	144c	88		88	144c	88		88	144c	88		88	144c	88
88	144c	88		88	144c	88		88	144c	88		88	144c	88

C.4.3　Variable Reference Channel definition for 3,84 Mcps and 1,28 Mcps TDD options

The variable reference measurement channels are defined by:

a) The maximum information bit payload that is determined by the UE capability class under test and the allocated resource units (and hence implicitly by the CQI table applicable to the UE under test as derived from TS25.321).

b) The most recently received UE CQI report.

End of Second Changed Section

Third Changed Section

Annex D (normative):
Propagation conditions

D.1   Test Environments

Table D.1 details the test services, the information data and the propagation conditions.

Table D.1: Test Environments for UE Performance Specifications

Test Services	Information Data Rate	Static	Multipath Case 1	Multipath Case 2	Multipath Case 3
		Performance metric			
Paging Message			-	-	-
FACH Message			-	-	-
Circuit Switched Services	12,2 kbps	BLER <	BLER <	BLER <	BLER <
	64 kbps	BLER <	BLER <	BLER <	BLER <
	144 kbps	BLER <	BLER <	BLER <	BLER <
	384 kbps	BLER <	BLER <	BLER <	BLER <
	2048 kbps	BLER <	-	-	-
Packet Switched Data	TBD	TBD	TBD	TBD	TBD

D.2   Propagation Conditions

D.2.1   Static propagation condition

The propagation for the static performance measurement is an Additive White Gaussian Noise (AWGN) environment. No fading and multi-paths exist for this propagation model.

D.2.2   Multi-path fading propagation conditions

D.2.2.1   3,84 Mcps TDD Option

Table D.2.2.1 shows propagation conditions that are used for the performance measurements in multi-path fading environment. All taps have classical Doppler spectrum.

Table D.2.2.1: 3,84 Mcps Propagation Conditions for Multi path Fading Environments

Case 1, speed 3km/h		Case 2, speed 3 km/h		Case 3, speed 120 km/h		Case 4, speed 3 km/h	
Relative Delay [ns]	Relative Mean Power [dB]	Relative Delay [ns]	Relative Mean Power [dB]	Relative Delay [ns]	Relative Mean Power [dB]	Relative Delay [ns]	Relative Mean Power [dB]
0	0	0	0	0	0	0	0
976	-10	976	0	260	-3	976	0
		12000	0	521	-6		
				781	-9		

D.2.2.2   1,28 Mcps TDD Option

Table D2.2.2.1 shows propagation conditions that are used for the performance measurements in multi-path fading environment. Table D2.2.2.2 shows propagation conditions that are used for HSDPA performance measurements in multi-path fading environments. All taps in both tables have classical Doppler spectrum.

Table D.2.2.2.1: 1,28Mcps Propagation Conditions for Multi-Path Fading Environments

Case 1, speed 3km/h		Case 2, speed 3km/h		Case 3, speed 120km/h	
Relative Delay [ns]	Relative Mean Power [dB]	Relative Delay [ns]	Relative Mean Power [dB]	Relative Delay [ns]	Relative Mean Power [dB]
0	0	0	0	0	0
2928	-10	2928	0	781	-3
		12000	0	1563	-6
				2344	-9

Table D.2.2.2.2: 1,28Mcps Propagation Conditions for Multi-Path Fading Environments for HSDPA Performance Requirements

ITU Pedestrian A Speed 3km/h (PA3)		ITU Pedestrian B Speed 3Km/h (PB3)		ITU vehicular A Speed 30km/h (VA30)		ITU vehicular A Speed 120km/h (VA120)	
Relative Delay [ns]	Relative Mean Power [dB]	Relative Delay [ns]	Relative Mean Power [dB]	Relative Delay [ns]	Relative Mean Power [dB]	Relative Delay [ns]	Relative Mean Power [dB]
0	0	0	0	0	0	0	0
110	-9.7	200	-0.9	310	-1.0	310	-1.0
190	-19.2	800	-4.9	710	-9.0	710	-9.0
410	-22.8	1200	-8.0	1090	-10.0	1090	-10.0
		2300	-7.8	1730	-15.0	1730	-15.0
		3700	-23.9	2510	-20	2510	-20

CR-Form-v7

CHANGE REQUEST

| ⌘ | **34.122** CR **188** | ⌘ **rev** | **1** | ⌘ | Current version: | **4.9** | ⌘ |

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Proposed change affects: UICC apps⌘ ☐   ME **X** Radio Access Network ☐   Core Network ☐

c

Title: ⌘	Reporting of HSDPA CQI test	
Source: ⌘	Siemens AG	
Work item code: ⌘	Rel-5	***Date:*** ⌘ 21 Sept 2003
Category: ⌘ **B**		***Release:*** ⌘ Rel-5

Use <u>one</u> of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

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)
Rel-6   (Release 6)

Reason for change: ⌘	Addition of tests in suport of HSDPA for LCR TDD
Summary of change: ⌘	New section added, with tests required for support of HSDPA Also new sentence in 'scope' added relating to handling of release 5 features.
Consequences if not approved: ⌘	Incomplete test documentation, not covering HSDPA LCR TDD cases.

Clauses affected: ⌘	9.3.3

	Y	**N**	
Other specs affected: ⌘			Other core specifications ⌘
			Test specifications
			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://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

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

9.3.3　Reporting of HS-DSCH Channel Quality Indicator

9.3.3.1 Definition and applicability

The reporting accuracy of channel quality indicator (CQI) under AWGN environments is determined by the reporting variance and the BLER performance using the transport format indicated by the reported CQI median. The CQI is measured while random data is streamed from the SS to the UE.

The normative reference for this test is 25.102 [2], section 9.

The requirements and this test apply to 1,28 Mcps TDD UE from release 5 and later that support HSDPA.

9.3.3.2　Minimum requirements

For the parameters specified in tables 9.3.3.1 the UE shall report a CQI value within the limits of table 9.3.3.2.

9.3.3.3　Test purpose

To verify that the UE receiver is capable meeting the minimum requirements for support of HSDPA in the conditions defined below, such that CQI reported by the UE falls within the acceptable range.

Table 9.3.3.1: Test parameters for CQI reporting measurement channel requirements for 1.4 Mbps UE class (1.28 Mcps TDD Option)

Parameter	Unit	Value			
		Test1	Test2	Test3	Test4
Number of TS	-	4	4	4	4
Number of DPCH$_0$		7	7	0	0
umber of HS-PDSCH codes per timeslot	-	3	3	10	10
HS-DSCH$_j$ Ec/Ior	dB	-10	-10	-10	-10
HS-DSCH Channelization Codes	C(k,Q)	C(i,16) $1{\le}i{\le}3$	C(i,16) $1{\le}i{\le}3$	C(i,16) $1{\le}i{\le}10$	C(i,16) $1{\le}i{\le}10$
Number of HARQ processes	-	4			
Maximum number of HARQ transmissions	-	1			
$\hat{I}_{or}/I_{oc}$	dB	1	8	1	8

Table 9.3.3.2 Performance requirements for CQI reporting measurement channel requirements for 1.4 Mbps UE class (1.28 Mcps TDD Option

Test	Permitted CQI ange from median (x)	% of time that CQI must be within +/- x of median (Y)	Maximum BLER for median reported CQI
Test 1	+/- 3	90	
Test 2	+/- 2	90	10%
Test 3	+/- 3	90	
Test 4	+/- 2	90	

9.3.3.4　Method of test

9.3.3.4.1　Initial conditions

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

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

1) Connect SS, multipath fading simulator and an AWGN source to the UE antenna connector as shown in figure A.10.

2)) Set Ack/Nack handling at the SS such that regardless of the response from the UE (Ack, Nack or DTX) new data is sent each time, this is because HARQ transmissions are set to one, i.e. no re-transmission of failed blocks.

3) Set up a call according to the Generic call setup procedure.

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

9.3.3.4.2 Procedure

FFS

9.3.3.5 Test Requirements

FFS

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CHANGE REQUEST

⌘	**34.122** CR **189**	⌘ **rev**	**1**	⌘	Current version:	**4.9**	⌘

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Proposed change affects: UICC apps⌘ ☐ ME **X** Radio Access Network ☐ Core Network ☐
c

Title:	⌘	HS-SCCH detection test

Source:	⌘	Siemens AG

Work item code: ⌘	Rel-5		*Date:* ⌘	21 Sept 2003

Category:	⌘	**B**		*Release:* ⌘	Rel-5

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R97   (Release 1997)
R98   (Release 1998)
R99   (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change: ⌘	Support of HSDPA for LCR TDD

Summary of change: ⌘	New section added, with tests required for support of HSDPA

Consequences if not approved:	⌘	Incomplete test documentation, not covering HSDPA LCR TDD cases.

Clauses affected:	⌘	9.3.4

		Y	N		
Other specs affected:	⌘			Other core specifications	⌘
				Test specifications	
				O&M Specifications	

Other comments:	⌘	

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9.3.4 HS-SCCH Detection Performance

9.3.4.1 Definition and applicability

The detection performance of the HS-SCCH is determined by the probability of event E_m, which is declared when the UE is signaled on HS-SCCH, but DTX is observed in the corresponding HS-SICH ACK/NACK field. The probability of event E_m is denoted $P(E_m)$.

This corresponds to case when the SS indicates to the UE via the HS-SCCH that HSDPA data is to be sent, but the UE fails to decode this correctly.

The normative reference for this test is 25.102 [2], section 9.

The requirements and this test apply to 1,28 Mcps TDD UE from release 5 and later that support HSDPA.

9.3.4.2 Minimum requirements

For the parameters specified in tables 9.3.1.1 and 9.3.1.2 the measured throughput shall be equal to or better than the the specified value in table 9.3.1.3. The reference for this requirement is TS 25.102 [1] section 9.

9.3.4.3 Test purpose

To verify that the UE receiver is capable meeting the minimum requirements for support of HSDPA in the conditions defined below, and does not report a DTX when valid data was sent, more often than the performance limits allow.

Table 9.3.4.1: Test parameters for HS-SCCH detection (1.28Mcps TDD option)

Parameter	Unit	Test 1	Test2
Number of TS under test	-	1	
Number of HS-SCCH codes per timeslot	-	8 (4 x2)	
Scrambling code and basic midamble code number*	-	0	
Number of DPCH$_o$	-	2	
Number of H-ARQ process	-	4	
HS-SCCH UE Identity $(x_{ue,1} , x_{ue,2} , \ldots , x_{ue,16})$	-	UE1 = 0000000000000000 (UE1 under test) UE2 = 0101010101010101 UE3 = 1010101010101010 UE4 = 1111111111111111	
HS-SCCH Channelization Codes*	C(k,Q)	C(i,16) $1{\leq}i{\leq}8$	
HS-SCCH Channelization Codes for UE under test	C(k,Q)	C(i,16) $1{\leq}i{\leq}2$	
DPCH$_o$ Channelization Codes	C(k,Q)	C(i,16) $9{\leq}i{\leq}10$	
$\dfrac{HS-SCCH_i \_ E_c}{I_{or}}$	dB	-10	
I$_{oc}$	dBm/1.28MHz	-60	
Note *: Refer to TS 25.223 for definition of channelization codes, scrambling code and basic midamble code.			

Table 9.3.4.2: Minimum requirement for HS-SCCH detection (1.28Mcps TDD option)

Test Number	Propagation Conditions	$\dfrac{\hat{I}_{or}}{I_{oc}}$ **(dB)**	$P(E_m)$
1	PA3	16	0.01
2	VA30	12	0.01

The propagation conditions are described in Annex D.

9.3.2.4 Method of test

9.3.2.4.1 Initial conditions

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

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

1) Connect SS, multipath fading simulator and an AWGN source to the UE antenna connector as shown in figure A.10.

2) Set Ack/Nack handling at the SS as table 9.3.1.1 (Fixed channel test)

3) Set up a call according to the Generic call setup procedure.

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

9.3.2.4.2 Procedure

FFS

9.3.2.5 Test Requirements

FFS

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⌘	**34.122** CR **190**	⌘**rev**		⌘	Current version:	3.12.0	⌘

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Source: ⌘	MCC	
Work item code: ⌘	TEI	***Date:*** ⌘ 5 Dec 2003
Category: ⌘	**D**	***Release:*** ⌘ Rel-99

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Rel-6   (Release 6)

Reason for change: ⌘	The Release 99, Release 4 and Release 5 versions of this document are very similar and do not justify to maintain three different versions. For this reason, T1#21 decided to cover Releases 99, 4 and 5 by a single version, the version 5, where clear indications are made for text applying to specific release(s). All the other text apllies by default to the three releases.
Summary of change: ⌘	All the technical content of 3.13.0 is replaced by a pointer to the version 5 of this TS.
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Clauses affected: ⌘	All

	Y	N		
Other specs affected: ⌘		X	Other core specifications	⌘
		X	Test specifications	
		X	O&M Specifications	

Other comments: ⌘	Submitted directly by MCC to TSG T#22 following T1#21 decision.

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1 Scope

The present document specifies the measurement procedures for the conformance test of the user equipment (UE) that contain transmitting characteristics, receiving characteristics and performance requirements in FDD mode.

2 References, Definitions and Technical Content

3GPP TS 34.122Version 5 covers all Release 99 aspects.

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Clauses affected: ⌘	All

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Other comments: ⌘	Submitted directly by MCC to TSG T#22 following T1#21 decision.

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The present document specifies the measurement procedures for the conformance test of the user equipment (UE) that contain transmitting characteristics, receiving characteristics and performance requirements in FDD mode.

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