TSG RAN Meeting #21 **RP-030416**
Frankfurt, Germany, 16 - 19 September 2003

Title **CRs (Rel-4 and Rel-5 Category A) to TS 25.123**
Source **TSG RAN WG4**
Agenda Item **7.5.4**

RAN4 Tdoc	Spec	CR	R	Cat	Rel	Curr Ver	Title	Work Item
R4-020676	25.123	308		F	Rel-4	4.9.0	Correction to test parameter for 3.84Mcps TDD cell re-selection for 1.28Mcps TDD in idle mode	LCRTDD-RF
R4-020677	25.123	309		A	Rel-5	5.5.0	Correction to test parameter for 3.84Mcps TDD cell re-selection for 1.28Mcps TDD in idle mode	LCRTDD-RF
R4-020678	25.123	310		F	Rel-4	4.9.0	Correction to Timing Advance of 1.28Mcps TDD option	LCRTDD-RF
R4-020679	25.123	311		A	Rel-5	5.5.0	Correction to Timing Advance of 1.28Mcps TDD option	LCRTDD-RF
R4-020680	25.123	312		F	Rel-4	4.9.0	Corrections to some measurement mappings in Section 9	LCRTDD-RF
R4-020681	25.123	313		A	Rel-5	5.5.0	Corrections to some measurement mappings in Section 9	LCRTDD-RF
R4-020682	25.123	314		F	Rel-4	4.9.0	Correction to 1.28Mcps TDD measurement and test case for GSM	LCRTDD-RF
R4-020683	25.123	315		A	Rel-5	5.5.0	Correction to 1.28Mcps TDD measurement and test case for GSM	LCRTDD-RF
R4-020684	25.123	316		F	Rel-4	4.9.0	Correction to inter frequency measurement requirements and test cases for 1.28Mcps TDD option	LCRTDD-RF
R4-020685	25.123	317		A	Rel-5	5.5.0	Correction to inter frequency measurement requirements and test cases for 1.28Mcps TDD option	LCRTDD-RF
R4-020697	25.123	318		F	Rel-4	4.9.0	TDD/GSM Handover Test Case for 1.28Mcps TDD	LCRTDD-RF
R4-020698	25.123	319		A	Rel-5	5.5.0	TDD/GSM Handover Test Case for 1.28Mcps TDD	LCRTDD-RF
R4-020699	25.123	320		F	Rel-4	4.9.0	GSM carrier RSSI Measurement Test Case for 1.28Mcps TDD	LCRTDD-RF
R4-020700	25.123	321		A	Rel-5	5.5.0	GSM carrier RSSI Measurement Test Case for 1.28Mcps TDD	LCRTDD-RF

3GPP TSG RAN WG4 (Radio) Meeting #28 **R4-030676**

Sophia Antipolis, France 18 - 22 August 2003

CR-Form-v7

CHANGE REQUEST

⌘ **25.123** **CR** **308** ⌘ **rev** ⌘ Current version: **4.9.0** ⌘

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

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

Title:	⌘	Correction to test parameter for 3.84Mcps TDD cell re-selection for 1.28Mcps TDD in idle mode
Source:	⌘	RAN WG4
Work item code:	⌘	LCRTDD-RF
Date:	⌘	08/09/2003
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:	⌘	In test case for 1.28Mcps TDD cell re-selection to 3.84Mcps TDD, test parameter about time period T1 and T2 are missing and OCNS_Ec/Ior need to be corrected.
Summary of change:	⌘	Time period parameter T1 and T2 are added and OCNS_Ec/Ior is corrected.
Consequences if not approved:	⌘	The test is ambiguous and couldn't be performed correctly. **Isolated Impact Analysis:** Would not affect the implementation if behaving as indicated in the CR, the implementation would be affected if not behaving as indicated in the CR.

Clauses affected:	⌘	A.4.2.2A

Other specs affected: ⌘	Y	N		⌘	
		X	Other core specifications		
	X		Test specifications		34.122
		X	O&M Specifications		

Other comments:	⌘	Equivalent CRs in other Releases: CR309 cat. A to 25.123 v5.5.0

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.

A.4.2.2A Scenario 2A: 3.84 Mcps TDD cell re-selection for 1.28 Mcps TDD UE

A.4.2.2A.1 Test Purpose and Environment

This test is to verify the requirement for the 1.28 Mcps TDD OPTION/3.84 Mcps TDD OPTION cell re-selection delay reported in section 4.2.

This scenario implies the presence of 1 low chip rate (1.28 Mcps TDD OPTION) and 1 high chip rate (3.84 Mcps TDD OPTION) cell as given in Table A.4.3B and A.4.4B.

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

Cell 1 and cell 2 shall belong to different Location Areas.

Table A.4.3B: General test parameters for TDD low chip rate to TDD high chip rate cell re-selection

Parameter		Unit	Value	Comment
Initial condition	Active cell		Cell1	1.28 Mcps TDD OPTION cell
	Neighbour cell		Cell2	3.84 Mcps TDD OPTION cell
Final condition	Active cell		Cell2	3.84 Mcps TDD OPTION cell
HCS			Not used	
UE_TXPWR_MAX_RACH		dBm	21	The value shall be used for all cells in the test.
Access Service Class (ASC#0) - Persistence value			1	Selected so that no additional delay is caused by the random access procedure. The value shall be used for all cells in the test.
T_{SI}		s	1,28	The value shall be used for all cells in the test.
DRX cycle length		s	1,28	The value shall be used for all cells in the test.
T1		s	30	
T2		s	15	

Table A.4.4B: Test parameters for TDD low chip rate to TDD high chip rate cell re-selection

Parameter	Unit	Cell 1				Cell 2			
Timeslot Number		0		DwPTS		0		8	
		T1	T2	T 1	T 2	T1	T2	T 1	T 2
UTRA RF Channel Number		Channel 1				Channel 2			
PCCPCH_Ec/Ior	dB	-3	-3			-3	-3		
DwPCH_Ec/Ior	dB			0	0	n.a.		n.a.	
SCH_Ec/Ior	dB	n.a.		n.a.		-9	-9	-9	-9
SCH_t_{offset}		n.a.		n.a.		0	0	0	0
PICH_Ec/Ior	dB							-3	-3
OCNS_Ec/Ior	dB	~~n.a.~~ -3		n.a.		-3,12	-3,12	-3,12	-3,12
$\hat{I}_{or}/I_{oc}$	dB	10	7			7	10	7	10
I_{oc}		-70 dBm/ 1.28 MHz				-70 dBm/ 3.84 MHz			
PCCPCH_RSCP	dBm	-63	-66			-66	-63		
Qrxlevmin	dBm	-103				-103			
$Qoffset1_{s,n}$	dB	C1, C2: 0				C2, C1: 0			
$Qhyst1_{s}$	dB	0				0			
Treselection	s	0				0			
Sintersearch	dB	not sent				not sent			
Propagation Condition		AWGN				AWGN			

A.4.2.2A.2 Test Requirements

The cell re-selection delay is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 2, and starts to send the RRC CONNECTION REQUEST message to perform a Location Registration on cell 2.

The cell re-selection delay shall be less than 8 s.

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

NOTE: The cell re-selection delay can be expressed as:

$$T_{evaluateTDD} + T_{SI}$$

where:

$T_{evaluateTDD}$ A DRX cycle length of 1280ms is assumed for this test case, this leads to a $T_{evaluate\ TDD}$ of 6.4s according to Table 4.1A in section 4.2.

T_{SI} Time required for receiving all the relevant system information data according to the reception procedure and the RRC procedure delay of system information blocks defined in [16] for a UTRAN cell (ms). 1280 ms is assumed in this test case.

This gives a total of 7.68 s, allow 8s in the test case.

3GPP TSG RAN WG4 (Radio) Meeting #28 **R4-030677**

Sophia Antipolis, France 18 - 22 August 2003

CR-Form-v7

CHANGE REQUEST

⌘ **25.123** **CR** **309** ⌘ **rev** ⌘ Current version: **5.5.0** ⌘

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

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

Title:	⌘	Correction to test parameter for 3.84Mcps TDD cell re-selection for 1.28Mcps TDD in idle mode
Source:	⌘	RAN WG4
Work item code:	⌘	LCRTDD-RF
Date:	⌘	08/09/2003
Category:	⌘	**A**
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:	⌘	In test case for 1.28Mcps TDD cell re-selection to 3.84Mcps TDD, test parameter about time period T1 and T2 are missing and OCNS_Ec/Ior need to be corrected.
Summary of change:	⌘	Time period parameter T1 and T2 are added and OCNS_Ec/Ior is corrected.
Consequences if not approved:	⌘	The test is ambiguous and couldn't be performed correctly. **Isolated Impact Analysis:** Would not affect the implementation if behaving as indicated in the CR, the implementation would be affected if not behaving as indicated in the CR.

Clauses affected:	⌘	A.4.2.2A			
Other specs affected:	⌘	Y / N	Other core specifications	⌘	
		N: X			
		Y: X	Test specifications		34.122
		N: X	O&M Specifications		
Other comments:	⌘	Equivalent CRs in other Releases: CR308 cat. F to 25.123 v4.9.0			

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.

A.4.2.2A Scenario 2A: 3.84 Mcps TDD cell re-selection for 1.28 Mcps TDD UE

A.4.2.2A.1 Test Purpose and Environment

This test is to verify the requirement for the 1.28 Mcps TDD OPTION/3.84 Mcps TDD OPTION cell re-selection delay reported in section 4.2.

This scenario implies the presence of 1 low chip rate (1.28 Mcps TDD OPTION) and 1 high chip rate (3.84 Mcps TDD OPTION) cell as given in Table A.4.3B and A.4.4B.

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

Cell 1 and cell 2 shall belong to different Location Areas.

Table A.4.3B: General test parameters for TDD low chip rate to TDD high chip rate cell re-selection

Parameter		Unit	Value	Comment
Initial condition	Active cell		Cell1	1.28 Mcps TDD OPTION cell
	Neighbour cell		Cell2	3.84 Mcps TDD OPTION cell
Final condition	Active cell		Cell2	3.84 Mcps TDD OPTION cell
HCS			Not used	
UE_TXPWR_MAX_RACH		dBm	21	The value shall be used for all cells in the test.
Access Service Class (ASC#0) - Persistence value			1	Selected so that no additional delay is caused by the random access procedure. The value shall be used for all cells in the test.
T_{SI}		s	1,28	The value shall be used for all cells in the test.
DRX cycle length		s	1,28	The value shall be used for all cells in the test.
T1		s	30	
T2		s	15	

Table A.4.4B: Test parameters for TDD low chip rate to TDD high chip rate cell re-selection

Parameter	Unit	Cell 1				Cell 2			
Timeslot Number		0		DwPTS		0		8	
		T1	T2	T 1	T 2	T1	T2	T 1	T 2
UTRA RF Channel Number		Channel 1				Channel 2			
PCCPCH_Ec/Ior	dB	-3	-3			-3	-3		
DwPCH_Ec/Ior	dB			0	0	n.a.		n.a.	
SCH_Ec/Ior	dB	n.a.		n.a.		-9	-9	-9	-9
SCH_t_{offset}		n.a.		n.a.		0	0	0	0
PICH_Ec/Ior	dB							-3	-3
OCNS_Ec/Ior	dB	~~n.a.~~ -3		n.a.		-3,12	-3,12	-3,12	-3,12
$\hat{I}_{or}/I_{oc}$	dB	10	7			7	10	7	10
I_{oc}		-70 dBm/ 1.28 MHz				-70 dBm/ 3.84 MHz			
PCCPCH_RSCP	dBm	-63	-66			-66	-63		
Qrxlevmin	dBm	-103				-103			
$Qoffset1_{s,n}$	dB	C1, C2: 0				C2, C1: 0			
$Qhyst1_{s}$	dB	0				0			
Treselection	s	0				0			
Sintersearch	dB	not sent				not sent			
Propagation Condition		AWGN				AWGN			

A.4.2.2A.2 Test Requirements

The cell re-selection delay is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 2, and starts to send the RRC CONNECTION REQUEST message to perform a Location Registration on cell 2.

The cell re-selection delay shall be less than 8 s.

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

NOTE: The cell re-selection delay can be expressed as:

$$T_{evaluateTDD} + T_{SI}$$

where:

$T_{evaluateTDD}$ A DRX cycle length of 1280ms is assumed for this test case, this leads to a $T_{evaluate\ TDD}$ of 6.4s according to Table 4.1A in section 4.2.

T_{SI} Time required for receiving all the relevant system information data according to the reception procedure and the RRC procedure delay of system information blocks defined in [16] for a UTRAN cell (ms). 1280 ms is assumed in this test case.

This gives a total of 7.68 s, allow 8s in the test case.

3GPP TSG RAN WG4 (Radio) Meeting #28 **R4-030678**

Sophia Antipolis, France 18 - 22 August 2003

CR-Form-v7

CHANGE REQUEST

⌘ **25.123** **CR** **310** ⌘ **rev** ⌘ Current version: **4.9.0** ⌘

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

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

Title:	⌘	Correction to Timing Advance of 1.28Mcps TDD option
Source:	⌘	RAN WG4
Work item code:	⌘	LCRTDD-RF
Date:	⌘	08/09/2003
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:	⌘	For timing advance characteristic of 1.28Mcps TDD option, UE adjusts its Tx timing in Uplink time slot. According to the frame structure, It may be performed in n=(1...6) time slots.
Summary of change:	⌘	Uplink time slot in that UE adjusts its Tx timing is corrected according to 1.28Mcps TDD frame structure.
Consequences if not approved:	⌘	The characteristic of timing advance adjustment of UE may cause misunderstanding and is not perfomed correctly. **Isolated Impact Anaysis:** The change doesn't affect the function of UE. Would not affect the implementation if behaving as indicated in the CR, the implemantation would be affected if not behaving as indicated in the CR.

Clauses affected:	⌘	7.1.2

Other specs affected:	⌘	Y	N		⌘	
			X	Other core specifications		34.122
		X		Test specifications		
			X	O&M Specifications		

Other comments:	⌘	Equivalent CRs in other Releases: CR311 cat. A to 25.123 v5.5.0

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.

7 Timing characteristics

7.1 Timing Advance

7.1.2 1.28 Mcps TDD option

For 1.28 Mcps TDD the timing advance in the UE is adjusted by means of uplink synchronization. For the random access procedure the node B commands the UE to adjust its synchronisation shift by means of signalling the received position of the UpPTS in the FPACH. During the connection the node B measures the timing in the uplink and transmits a SS (Synchronization Shift) command to the UE at least once per sub-frame.

These SS commands determined whether the UE synchronization shift is either left unchanged, or adjusted 1 step up or 1 step down. The step size of the SS adjustment is (k/8)Tc where k (=1,2, …,8) is signalled by higher layer signalling.

7.1.2.1 Uplink synchronization control requirements for UE for 1.28 Mcps TDD option

Uplink synchronization control is the ability of the UE transmitter to adjust its TX timing in accordance with one or more SS commands received in the downlink.

7.1.2.1.1 Uplink synchronization control steps

The SS step is the change in UE transmission timing in response to a single SS command, SS_cmd, received by the UE.

7.1.2.1.1.1 Minimum requirement

The UE transmitter shall have the capability of changing the transmission timing with a step size of 1/8, 2/8, 3/8, …, 1 chip according to the value of Δ_{SS}, within ~~n=(1,2,…,14)~~ n=(1,2,…,6) time slots excluding special timeslots (DwPTS, GP, UpPTS) after the SS_cmd arrived (closed loop). For the open loop any step being a multiple of 1/8 chip has to be allowed.

a) The minimum transmission timing step $\Delta_{SS,min}$ due to closed loop uplink synchronization control shall be within the range shown in Table 7.1.

b) In case uplink synchronization control implies larger adjustment than the minimum step the UE shall perform a multiple integer number of the minimum step. Within the implementation grid of the applicable timing steps of the UE the step being closest to the required step should be executed.

Table 7.1: Uplink synchronisation control range

SS_cmd	Uplink synchronisation control range for minimum step	
	1/8 chip step size	
	Lower	Upper
Up	1/9 chip	1/7 chip
Down	1/9 chip	1/7 chip

3GPP TSG RAN WG4 (Radio) Meeting #28 **R4-030679**

Sophia Antipolis, France 18 - 22 August 2003

CR-Form-v7

CHANGE REQUEST

⌘ **25.123** **CR** **311** ⌘ **rev** ⌘ Current version: **5.5.0** ⌘

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

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

Title:	⌘	Correction to Timing Advance of 1.28Mcps TDD option
Source:	⌘	RAN WG4
Work item code:	⌘	LCRTDD-RF
Date:	⌘	08/09/2003
Category:	⌘	**A**
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:	⌘	For timing advance characteristic of 1.28Mcps TDD option, UE adjusts its Tx timing in Uplink time slot. According to the frame structure, It may be performed in n=(1...6) time slots.
Summary of change:	⌘	Uplink time slot in that UE adjusts its Tx timing is corrected according to 1.28Mcps TDD frame structure.
Consequences if not approved:	⌘	The characteristic of timing advance adjustment of UE may cause misunderstanding and is not perfomed correctly. **Isolated Impact Anaysis:** The change doesn't affect the function of UE. Would not affect the implementation if behaving as indicated in the CR, the implemantation would be affected if not behaving as indicated in the CR.
Clauses affected:	⌘	7.1.2

Other specs affected: ⌘	Y	N		⌘	
		X	Other core specifications		34.122
	X		Test specifications		
		X	O&M Specifications		

Other comments:	⌘	Equivalent CRs in other Releases: CR310 cat. F to 25.123 v4.9.0

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.

7 Timing characteristics

7.1 Timing Advance

7.1.2 1.28 Mcps TDD option

For 1.28 Mcps TDD the timing advance in the UE is adjusted by means of uplink synchronization. For the random access procedure the node B commands the UE to adjust its synchronisation shift by means of signalling the received position of the UpPTS in the FPACH. During the connection the node B measures the timing in the uplink and transmits a SS (Synchronization Shift) command to the UE at least once per sub-frame.

These SS commands determined whether the UE synchronization shift is either left unchanged, or adjusted 1 step up or 1 step down. The step size of the SS adjustment is (k/8)Tc where k (=1,2, …,8) is signalled by higher layer signalling.

7.1.2.1 Uplink synchronization control requirements for UE for 1.28 Mcps TDD option

Uplink synchronization control is the ability of the UE transmitter to adjust its TX timing in accordance with one or more SS commands received in the downlink.

7.1.2.1.1 Uplink synchronization control steps

The SS step is the change in UE transmission timing in response to a single SS command, SS_cmd, received by the UE.

7.1.2.1.1.1 Minimum requirement

The UE transmitter shall have the capability of changing the transmission timing with a step size of 1/8, 2/8, 3/8, …, 1 chip according to the value of Δ_{SS}, within ~~n=(1,2,…,14)~~ n=(1,2,…,6) time slots excluding special timeslots (DwPTS, GP, UpPTS) after the SS_cmd arrived (closed loop). For the open loop any step being a multiple of 1/8 chip has to be allowed.

a) The minimum transmission timing step $\Delta_{SS,min}$ due to closed loop uplink synchronization control shall be within the range shown in Table 7.1.

b) In case uplink synchronization control implies larger adjustment than the minimum step the UE shall perform a multiple integer number of the minimum step. Within the implementation grid of the applicable timing steps of the UE the step being closest to the required step should be executed.

Table 7.1: Uplink synchronisation control range

SS_cmd	Uplink synchronisation control range for minimum step	
	1/8 chip step size	
	Lower	Upper
Up	1/9 chip	1/7 chip
Down	1/9 chip	1/7 chip

3GPP TSG RAN WG4 (Radio) Meeting #28 **R4-030680**

Sophia Antipolis, France 18 - 22 August 2003

CR-Form-v7

CHANGE REQUEST

⌘ **25.123** **CR** **312** ⌘ **rev** ⌘ Current version: **4.9.0** ⌘

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

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

Title:	⌘	Corrections to some measurement mappings in Section 9
Source:	⌘	RAN WG4
Work item code:	⌘	LCRTDD-RF
Date:	⌘	08/09/2003
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:	⌘	Some errors exit in measurement mappings for "Timing Advance(T_{ADV}) for 1.28Mcps TDD" and "SYNC-UL Timing Deviation for 1.28 Mcps".
Summary of change:	⌘	Correction to measurement mappings for "Timing Advance(T_{ADV}) for 1.28Mcps TDD" and "SYNC-UL Timing Deviation for 1.28 Mcps".
Consequences if not approved:	⌘	Measurement mapping can not cover the defined measured quantity value, and it causes that UE and NodeB cannot correctly perform reporting the measured value. **Isolated Impact Analysis:** The function of UE and NodeB will not be affted.

Clauses affected:	⌘	9.1.2.2, 9.2.1.1, 9.2.1.10, 9.2.1.11

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

Other comments:	⌘	Equivalent CRs in other Releases: CR313 cat. A to 25.123 v5.5.0

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.

9.1.2.2 Timing Advance (T_{ADV}) for 1.28 Mcps TDD

This measurement refers to TS25.225 subsection 5.1.14.

9.1.2.2.1 Accuracy requirements

Table 9.28A

Parameter	Unit	Accuracy	Conditions
			Range [chips]
Timing Advance	Chips period	+/- 0.125	0, …, 255.875

9.1.2.2.2 Range/mapping

The reporting range for *Timing Advance* is from 0 ... 255.875 chips.

In table 9.29A the mapping of the measured quantity is defined. The signalling range may be larger than the guaranteed accuracy range.

Table 9.29A

Reported value	Measured quantity value	Unit
~~TIMING_ADVANCE_0000~~	~~Timing Advance < 0~~	~~chip~~
TIMING_ADVANCE_~~0001~~0000	~~0 ≤~~ Timing Advance < 0.125	chip
TIMING_ADVANCE_~~0002~~0001	0.125 ≤ Timing Advance < 0.25	chip
…	…	…
TIMING_ADVANCE_~~1024~~1023	127.875≤ Timing Advance < 128	chip
…	…	…
TIMING_ADVANCE_2045	255.625 ≤ Timing Advance < 255.75	chip
TIMING_ADVANCE_2046	255.75 ≤ Timing Advance < 255.875	chip
TIMING_ADVANCE_2047	255.875 ≤ ~~RX~~ Timing Advance	chip

NOTE: This measurement can be used for timing advance (synchronisation shift) calculation for uplink synchronisation or location services.

<NEXT CHANGED SECTION>

9.2.1.1 RSCP

The measurement period shall be 100 ms.

9.2.1.1.1 Absolute accuracy requirements

9.2.1.1.1.1 3.84 Mcps TDD Option

Table 9.30: RSCP absolute accuracy for Wide Area BS

Parameter	Unit	Accuracy [dB]		Conditions
		Normal conditions	Extreme conditions	Io [dBm/3.84 MHz]
RSCP	~~DB~~dBm	± 6	± 9	-105..-74

Table 9.30A: RSCP absolute accuracy for Local Area BS

Parameter	Unit	Accuracy [dB]		Conditions
		Normal conditions	Extreme conditions	Io [dBm/3.84 MHz]
RSCP	~~DB~~dBm	± 6	± 9	-91..-60

9.2.1.1.1.2 1.28 Mcps TDD Option

Table 9.30B RSCP absolute accuracy for Wide Area BS

Parameter	Unit	Accuracy [dB]		Conditions
		Normal conditions	Extreme conditions	Io [dBm/1.28 MHz]
RSCP	~~dB~~dBm	± 6	± 9	-105..-74

Table 9.30C RSCP absolute accuracy for Local Area BS

Parameter	Unit	Accuracy [dB]		Conditions
		Normal conditions	Extreme conditions	Io [dBm/1.28 MHz]
RSCP	~~dB~~dBm	± 6	± 9	-91..-60

9.2.1.1.2 Relative accuracy requirements

The relative accuracy of RSCP in inter frequency case is defined as the RSCP measured from one UE compared to the RSCP measured from another UE.

9.2.1.1.2.1 3.84 Mcps TDD Option

Table 9.31: RSCP relative accuracy for Wide Area BS

Parameter	Unit	Accuracy [dB]	Conditions
			Io [dBm/3.84 MHz]
RSCP	~~dB~~dBm	± 3 for intra-frequency	-105..-74

Table 9.31A: RSCP relative accuracy for Local Area BS

Parameter	Unit	Accuracy [dB]	Conditions
			Io [dBm/3.84MHz]
RSCP	~~dB~~dBm	± 3 for intra-frequency	-91..-60

9.2.1.1.2.2 1.28 Mcps TDD Option

Table 9.31B RSCP relative accuracy for Wide Area BS

Parameter	Unit	Accuracy [dB]	Conditions
			Io [dBm/1.28MHz]
RSCP	~~dB~~dBm	± 3 for intra-frequency	-105..-74

Table 9.31C RSCP relative accuracy for Local Area BS

Parameter	Unit	Accuracy [dB]	Conditions
			Io [dBm/1.28MHz]
RSCP	~~dB~~dBm	± 3 for intra-frequency	-91..-60

9.2.1.1.3 Range/mapping

The reporting range for *RSCP* is from -120 ...-57 dBm.

In table 9.32 mapping of the measured quantity is defined. Signalling range may be larger than the guaranteed accuracy range.

Table 9.32

Reported value	Measured quantity value	Unit
RSCP_LEV _00	RSCP <–120,0	dBm
RSCP_LEV _01	-120,0 ≤ RSCP < –119,5	dBm
RSCP_LEV _02	-119,5 ≤ RSCP < –119,0	dBm
…	…	…
RSCP_LEV _125	-58,0 ≤ RSCP < -57,5	dBm
RSCP_LEV _126	-57,5 ≤ RSCP < -57,0	dBm
RSCP_LEV _127	-57,0 ≤ RSCP	dBm

<NEXT CHANGED SECTION>

9.2.1.10 SYNC-UL Timing Deviation for 1.28 Mcps

This measurement refers to TS25.225 subsection 5.2.8.1.

9.2.1.10.1 Accuracy requirements

Table 9.44AA

Parameter	Unit	Accuracy	Conditions
			Range [chips]
SYNC-UL Timing Deviation	chips period	+/- 0.125	0, …, 255.875

9.2.1.10.2 Range/mapping

The reporting range for *SYNC-UL Timing Deviation* is from 0 ... 255.875 chips.

In table 9.44B the mapping of the measured quantity is defined. Signaling range may be larger than the guaranteed accuracy range.

Table 9.44B

Reported value	Measured quantity value	Unit
~~SYNC_UL_TIME_DEV_0000~~	~~**SYNC-UL** Timing Deviation < 0~~	~~chip~~
SYNC_UL_TIME_DEV_~~0001~~0000	~~0 ≤~~ **SYNC-UL** Timing Deviation < 0.125	chip
SYNC_UL_TIME_DEV_~~0002~~0001	0.125 ≤ **SYNC-UL** Timing Deviation < 0.25	chip
…	…	…
SYNC_UL_TIME_DEV_~~1024~~1023	127.875 ≤ **SYNC-UL** Timing Deviation < 128	chip
…	…	…
SYNC_UL_TIME_DEV_2045	255.625 ≤ **SYNC-UL** Timing Deviation < 255.75	chip
SYNC_UL_TIME_DEV_2046	255.75 ≤ **SYNC-UL** Timing Deviation < 255.875	chip
SYNC_UL_TIME_DEV_2047	255.875 ≤ **SYNC-UL** Timing Deviation	chip

NOTE: This measurement can be used for timing advance (synchronisation shift) calculation for uplink synchronisation or location services.

9.2.1.11 Node B Synchronisation for 3.84 Mcps

Cell synchronisation burst timing is the time of start (defined by the first detected path in time) of the cell sync burst of a neighbouring cell. Type 1 is used for the initial phase of Node B synchronization. Type 2 is used for the steady-state phase of Node B synchronization. Both have different range.

The reference point for the cell sync burst timing measurement shall be the Rx antenna connector.

9.2.1.11.1 Cell Synchronisation burst timing Type1 and Type 2

Table 9.44C

Parameter	Unit	Accuracy [chip]	Conditions
Cell Synchronisation burst timing	chip	[+/-0,5 for both type 1 and type 2]	

9.2.1.11.2 Range/mapping Type 1

The reporting range for Cell Synchronisation burst timing type 1 is from -131072 to +131072 chips with 1/4 chip resolution.

In table 9.44D the mapping of measured quantity is defined for burst type 1.

Table 9.44D

Reported value	Measured quantity value	Unit
Burst_TIME__TYPE1_0000000	-131072 ≤ burst timing Type 1< -131071.75	chip
Burst_TIME__TYPE1_0000001	-131071.75 ≤ burst timing Type 1< -131071.5	chip
Burst_TIME__TYPE1_0000002	-131071.5 ≤ burst timing Type 1< -131071.25	chip
…	…	…
Burst_TIME__TYPE1_~~1048473~~1048573	131071.25 ≤ burst timing Type 1< 131071.5	chip
Burst_TIME__TYPE1_1048574	131071.5 ≤ burst timing Type 1< 131071.75	chip
Burst_TIME__TYPE1_1048575	131071.75 ≤ burst timing Type 1< 131072	chip

3GPP TSG RAN WG4 (Radio) Meeting #28 **R4-030681**

Sophia Antipolis, France 18 - 22 August 2003

CR-Form-v7

CHANGE REQUEST

⌘ **25.123** **CR** **313** ⌘ **rev** ⌘ Current version: **5.5.0** ⌘

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

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

Title:	⌘	Corrections to some measurement mappings in Section 9
Source:	⌘	RAN WG4
Work item code:	⌘	LCRTDD-RF
Date:	⌘	08/09/2003
Category:	⌘	**A**
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:	⌘	Some errors exit in measurement mappings for "Timing Advance(T_{ADV}) for 1.28Mcps TDD" and "SYNC-UL Timing Deviation for 1.28 Mcps".
Summary of change:	⌘	Correction to measurement mappings for "Timing Advance(T_{ADV}) for 1.28Mcps TDD" and "SYNC-UL Timing Deviation for 1.28 Mcps".
Consequences if not approved:	⌘	Measurement mapping can not cover the defined measured quantity value, and it causes that UE and NodeB cannot correctly perform reporting the measured value. **Isolated Impact Analysis:** The function of UE and NodeB will not be affted.
Clauses affected:	⌘	9.1.2.2, 9.2.1.1, 9.2.1.10, 9.2.1.11

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

Other comments:	⌘	Equivalent CRs in other Releases: CR312 cat. F to 25.123 v4.9.0

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.

9.1.2.2 Timing Advance (T_{ADV}) for 1.28 Mcps TDD

This measurement refers to TS25.225 subsection 5.1.14.

9.1.2.2.1 Accuracy requirements

Table 9.28A

Parameter	Unit	Accuracy	Conditions
			Range [chips]
Timing Advance	Chips period	+/- 0.125	0, …, 255.875

9.1.2.2.2 Range/mapping

The reporting range for *Timing Advance* is from 0 ... 255.875 chips.

In table 9.29A the mapping of the measured quantity is defined. The signalling range may be larger than the guaranteed accuracy range.

Table 9.29A

Reported value	Measured quantity value	Unit
~~TIMING_ADVANCE_0000~~	~~Timing Advance < 0~~	~~chip~~
TIMING_ADVANCE_~~0001~~0000	~~0 ≤~~ Timing Advance < 0.125	chip
TIMING_ADVANCE_~~0002~~0001	0.125 ≤ Timing Advance < 0.25	chip
…	…	…
TIMING_ADVANCE_~~1024~~1023	127.875≤ Timing Advance < 128	chip
…	…	…
TIMING_ADVANCE_2045	255.625 ≤ Timing Advance < 255.75	chip
TIMING_ADVANCE_2046	255.75 ≤ Timing Advance < 255.875	chip
TIMING_ADVANCE_2047	255.875 ≤ ~~RX~~ Timing Advance	chip

NOTE: This measurement can be used for timing advance (synchronisation shift) calculation for uplink synchronisation or location services.

<NEXT CHANGED SECTION>

9.2.1.1 RSCP

The measurement period shall be 100 ms.

9.2.1.1.1 Absolute accuracy requirements

9.2.1.1.1.1 3.84 Mcps TDD Option

Table 9.30: RSCP absolute accuracy for Wide Area BS

Parameter	Unit	Accuracy [dB]		Conditions
		Normal conditions	Extreme conditions	Io [dBm/3.84 MHz]
RSCP	~~DB~~dBm	± 6	± 9	-105..-74

Table 9.30A: RSCP absolute accuracy for Local Area BS

Parameter	Unit	Accuracy [dB]		Conditions
		Normal conditions	Extreme conditions	Io [dBm/3.84 MHz]
RSCP	~~DB~~dBm	± 6	± 9	-91..-60

9.2.1.1.1.2 1.28 Mcps TDD Option

Table 9.30B RSCP absolute accuracy for Wide Area BS

Parameter	Unit	Accuracy [dB]		Conditions
		Normal conditions	Extreme conditions	Io [dBm/1.28 MHz]
RSCP	~~dB~~dBm	± 6	± 9	-105..-74

Table 9.30C RSCP absolute accuracy for Local Area BS

Parameter	Unit	Accuracy [dB]		Conditions
		Normal conditions	Extreme conditions	Io [dBm/1.28 MHz]
RSCP	~~dB~~dBm	± 6	± 9	-91..-60

9.2.1.1.2 Relative accuracy requirements

The relative accuracy of RSCP in inter frequency case is defined as the RSCP measured from one UE compared to the RSCP measured from another UE.

9.2.1.1.2.1 3.84 Mcps TDD Option

Table 9.31: RSCP relative accuracy for Wide Area BS

Parameter	Unit	Accuracy [dB]	Conditions
			Io [dBm/3.84 MHz]
RSCP	~~dB~~dBm	± 3 for intra-frequency	-105..-74

Table 9.31A: RSCP relative accuracy for Local Area BS

Parameter	Unit	Accuracy [dB]	Conditions
			Io [dBm/3.84MHz]
RSCP	~~dB~~dBm	± 3 for intra-frequency	-91..-60

9.2.1.1.2.2 1.28 Mcps TDD Option

Table 9.31B RSCP relative accuracy for Wide Area BS

Parameter	Unit	Accuracy [dB]	Conditions
			Io [dBm/1.28MHz]
RSCP	~~dB~~dBm	± 3 for intra-frequency	-105..-74

Table 9.31C RSCP relative accuracy for Local Area BS

Parameter	Unit	Accuracy [dB]	Conditions
			Io [dBm/1.28MHz]
RSCP	~~dB~~dBm	± 3 for intra-frequency	-91..-60

9.2.1.1.3 Range/mapping

The reporting range for *RSCP* is from -120 ...-57 dBm.

In table 9.32 mapping of the measured quantity is defined. Signalling range may be larger than the guaranteed accuracy range.

Table 9.32

Reported value	Measured quantity value	Unit
RSCP_LEV _00	RSCP <–120,0	dBm
RSCP_LEV _01	-120,0 ≤ RSCP < –119,5	dBm
RSCP_LEV _02	-119,5 ≤ RSCP < –119,0	dBm
…	…	…
RSCP_LEV _125	-58,0 ≤ RSCP < -57,5	dBm
RSCP_LEV _126	-57,5 ≤ RSCP < -57,0	dBm
RSCP_LEV _127	-57,0 ≤ RSCP	dBm

<NEXT CHANGED SECTION>

9.2.1.10 SYNC-UL Timing Deviation for 1.28 Mcps

This measurement refers to TS25.225 subsection 5.2.8.1.

9.2.1.10.1 Accuracy requirements

Table 9.44AA

Parameter	Unit	Accuracy	Conditions
			Range [chips]
SYNC-UL Timing Deviation	chips period	+/- 0.125	0, …, 255.875

9.2.1.10.2 Range/mapping

The reporting range for *SYNC-UL Timing Deviation* is from 0 ... 255.875 chips.

In table 9.44B the mapping of the measured quantity is defined. Signaling range may be larger than the guaranteed accuracy range.

Table 9.44B

Reported value	Measured quantity value	Unit
~~SYNC_UL_TIME_DEV_0000~~	~~**SYNC-UL** Timing Deviation < 0~~	~~chip~~
SYNC_UL_TIME_DEV_~~0001~~0000	~~0 ≤~~ **SYNC-UL** Timing Deviation < 0.125	chip
SYNC_UL_TIME_DEV_~~0002~~0001	0.125 ≤ **SYNC-UL** Timing Deviation < 0.25	chip
…	…	…
SYNC_UL_TIME_DEV_~~1024~~1023	127.875 ≤ **SYNC-UL** Timing Deviation < 128	chip
…	…	…
SYNC_UL_TIME_DEV_2045	255.625 ≤ **SYNC-UL** Timing Deviation < 255.75	chip
SYNC_UL_TIME_DEV_2046	255.75 ≤ **SYNC-UL** Timing Deviation < 255.875	chip
SYNC_UL_TIME_DEV_2047	255.875 ≤ **SYNC-UL** Timing Deviation	chip

NOTE: This measurement can be used for timing advance (synchronisation shift) calculation for uplink synchronisation or location services.

9.2.1.11 Node B Synchronisation for 3.84 Mcps

Cell synchronisation burst timing is the time of start (defined by the first detected path in time) of the cell sync burst of a neighbouring cell. Type 1 is used for the initial phase of Node B synchronization. Type 2 is used for the steady-state phase of Node B synchronization. Both have different range.

The reference point for the cell sync burst timing measurement shall be the Rx antenna connector.

9.2.1.11.1 Cell Synchronisation burst timing Type1 and Type 2

Table 9.44C

Parameter	Unit	Accuracy [chip]	Conditions
Cell Synchronisation burst timing	chip	[+/-0,5 for both type 1 and type 2]	

9.2.1.11.2 Range/mapping Type 1

The reporting range for Cell Synchronisation burst timing type 1 is from -131072 to +131072 chips with 1/4 chip resolution.

In table 9.44D the mapping of measured quantity is defined for burst type 1.

Table 9.44D

Reported value	Measured quantity value	Unit
Burst_TIME__TYPE1_0000000	-131072 ≤ burst timing Type 1< -131071.75	chip
Burst_TIME__TYPE1_0000001	-131071.75 ≤ burst timing Type 1< -131071.5	chip
Burst_TIME__TYPE1_0000002	-131071.5 ≤ burst timing Type 1< -131071.25	chip
…	…	…
Burst_TIME__TYPE1_~~1048473~~1048573	131071.25 ≤ burst timing Type 1< 131071.5	chip
Burst_TIME__TYPE1_1048574	131071.5 ≤ burst timing Type 1< 131071.75	chip
Burst_TIME__TYPE1_1048575	131071.75 ≤ burst timing Type 1< 131072	chip

3GPP TSG RAN WG4 (Radio) Meeting #28 **R4-030682**

Sophia Antipolis, France 18 - 22 August 2003

CR-Form-v7

CHANGE REQUEST

⌘ **25.123** **CR** **314** ⌘ **rev** ⌘ Current version: **4.9.0** ⌘

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

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

Title:	⌘	Correction to 1.28Mcps TDD measurement and test case for GSM
Source:	⌘	RAN WG4
Work item code:	⌘	LCRTDD-RF
Date:	⌘	08/09/2003
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:	⌘	Pcrocedure need be clarifed for 1.28Mcps TDD-GSM measurement in CELL_DCH and CELL_FACH state. No test case is specified for GSM measurements of 1.28Mcps TDD.
Summary of change:	⌘	Correction to 1.28Mcps TDD-GSM measurement requirement in CELL_DCH and CELL_FACH state. Introduction of 1.28Mcps TDD test case for GSM measurements.
Consequences if not approved:	⌘	GSM measurements of 1.28Mcps TDD is not correctly performed and tested. If this is not performed correctly and tested inter-working with GSM can not be ensured! **Isolated Impact Analysis:** Would not affect the implementation if behaving as indicated in the CR, the implementation would be affected if not behaving as indicated in the CR.

Clauses affected:	⌘	8.1A.2.5, 8.4A.2.5, A.8.4			
Other specs affected:	⌘	**Y** / **N**	Other core specifications	⌘	
		☐ / ☒			
		☒ / ☐	Test specifications		34.122
		☐ / ☒	O&M Specifications		
Other comments:	⌘	Equivalent CRs in other Releases: CR315 cat. A to 25.123 v5.5.0			

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.

8.1A.2.5 GSM measurements

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

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

1) For a UE requiring idle intervals ~~or measurement occations~~ to perform GSM measurements. In CELL_DCH state ~~W~~when signalled by UTRAN and when idle intervals are used ~~during CELL_DCH state~~, the UE shall continuously measure GSM cells and search for new GSM cells given in the monitored set.

2) For a UE not requiring idle intervals ~~or measurement occations~~ to perform GSM measurements:

   - the UE shall measure all GSM cells present in the monitored set
   - the relevant requirements for GSM dedicated mode when a TCH channel is assigned in TS 45.008 shall apply. This is further detailed in the following sub-sections.

8.1A.2.5.1 GSM carrier RSSI

1) For a UE requiring idle intervals ~~or measurement occations~~ to perform GSM measurements

An UE supporting GSM measurements using idle intervals shall meet the minimum number of GSM RSSI carrier measurements specified in table 8.1A.

In the CELL_DCH state the measurement period, $T_{Measurement\ Period,\ GSM}$, for the GSM carrier RSSI measurement is 480 ms.

The UE shall meet the measurement accuracy requirements stated for RXLEV in TS 45.008, when the given measurement time allows the UE to the take at least 3 GSM carrier RSSI samples per GSM carrier in the monitored set during the measurement period.

Table 8.1A

Idle Interval Length (timeslots)	Number of GSM carrier RSSI ~~meaqsurements~~samples in each idle interval
3	1
4	2
5	3

For the description of the idle intervals see Annex A of 25.225.
In case the UE is not able to acquire the required number of samples per GSM carrier during one measurement period, the UE shall measure as many GSM carriers as possible during that measurement period using at least 3 samples per GSM carrier. The GSM carriers that were not measured during that measurement period shall be measured in the following measurement periods. This means that, in this particular case, the L1 reporting period to higher layers of a GSM neighbour can be a multiple of the measurement period.

2) For a UE not requiring idle intervals ~~or measurement occations~~ to perform GSM measurements

The samples allocated to each carrier shall as far as possible be uniformly distributed over each measurement period. At least 3 received signal level measurement samples are required per RSSI value. The measurement period is 480 ms.

8.1A.2.5.2 BSIC verification

1) For a UE requiring idle intervals ~~or measurement occasions~~ to perform GSM measurements

The procedure for BSIC verification on a GSM cell can be divided into the following two tasks:

1) Initial BSIC identification
   Includes searching for the BSIC and decoding the BSIC for the first time when there is no knowledge about the relative timing between the TDD and GSM cell. The UE shall trigger the initial BSIC identification within the

available idle intervals ~~as specified in TS 25.225, Annex A (Fig. A.1)~~. The requirements for Initial BSIC identification can be found in section 8.1A.2.5.2.1,"Initial BSIC identification".

2) BSIC re-confirmation
Tracking and decoding the BSIC of a GSM cell after initial BSIC identification is performed. The UE shall trigger the BSIC re-confirmation within the available idle intervals ~~as specified in TS 25.225, Annex A (Fig. A.1)~~. The requirements for ~~Initial~~ BSIC ~~identification~~ re-confirmation can be found in section 8.1A.2.5.2.2, "BSIC re-confirmation".

Measurements on a GSM cell can be requested with BSIC verified or BSIC non-verified. If GSM measurements are requested with BSIC verified the UE shall be able to report the GSM cells with BSIC verified for those cells where the verification of BSIC has been successful.

The UE shall use the last available GSM carrier RSSI measurement results for arranging GSM cells in signal strength order for performing BSIC identification. The UE shall perform event evaluation for event-triggered reporting after the BSIC has been verified for a GSM cell. The UE shall use the last available GSM carrier RSSI measurement results in event evaluation and event-triggered reporting. Periodic reports shall be triggered according to the given reporting period even if the BSIC of a GSM cell has not been verified. Non verified BSIC shall be indicated in the measurement report.

The BSIC of a GSM cell is considered to be “verified” if the UE has decoded the SCH of the BCCH carrier and identified the BSIC at least one time (initial BSIC identification) and from that moment the BSIC shall be re-confirmed at least once every $T_{\text{re-confirm abort}}$ seconds. Otherwise the BSIC of the GSM cell is considered as “non-verified”. The time requirement for initial BSIC identification, $T_{\text{identify abort}}$, and the BSIC re-confirmation interval $T_{\text{re-confirm abort}}$ can be found in the sections below.

~~The worst case time for identification of one previously not identified GSM cell measurement is specified in TS 25.225, Annex A.~~

The UE shall be able to perform BSIC verification at levels down to the reference sensitivity level or reference interference levels as specified in TS 45.005.

2) For a UE not requiring idle intervals ~~or measurement occations~~ to perform GSM measurements

If a BSIC is decoded and matches the expected value, it is considered as “verified”, else it is considered as “non verified”.

The UE shall be able to perform BSIC verification at levels down to the reference sensitivity level or reference interference levels as specified in TS 45.005.

8.1A.2.5.2.1 Initial BSIC identification

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

For GSM cells that are requested with BSIC verified the UE shall attempt to decode the SCH on the BCCH carrier of the8 strongest BCCH carriers of the GSM cells indicated in the measurement control information. The UE shall give priority for BSIC decoding attempts in decreasing signal strength order to BSIC carriers with unknown BSIC. The strongest BCCH carrier is defined as the BCCH carrier having the highest measured GSM carrier RSSI value after layer 3 filtering. The GSM signal strength levels used in BSIC identification for arranging GSM cells in signal strength order shall be based on the latest GSM carrier RSSI measurement results available.

If the BSIC of a GSM BCCH carriers has been successfully decoded the UE shall immediately continue BSIC identification with the next BCCH carrier, in signal strength order, with unknown BSIC. The GSM cell for which the BSIC has been successfully identified shall be moved to the BSIC re-confirmation procedure.

If the UE has not successfully decoded the BSIC of the GSM BCCH carrier within $T_{\text{identify abort}}$, the UE shall abort the BSIC identification attempts for that GSMBCCH carrier. The UE shall continue to try to perform BSIC identification of the next GSM BCCH carrier in signal strength order. The GSM BCCH carrier for which the BSIC identification failed shall not be re-considered for BSIC identification until BSIC decoding attempts have been made for all the rest of the 8 strongest GSM BCCH carriers in the monitored set with unknown BSIC.

~~The UE shall be able to perform initial BSIC decoding on one new GSM BCCH carrier within the time specified in Annex A in TS 25.225.~~

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

$T_{identify\ abort}$ = 5000 ms. This is the time necessary to identify one new GSM cell. It is assumed for the requirement that the slot allocation allows measurement windows in the idle periods to be of minimum duration necessary to perform the measurements.

8.1A.2.5.2.2 BSIC re-confirmation

The requirements of this section are applicable for BSIC re-confirmation.

The UE shall maintain the timing information of at least 8 identified GSM cells. Initial timing information is obtained from the initial BSIC identification. The timing information shall be updated every time the BSIC is decoded.

For each idle interval, the UE is able to use for BSIC re-confirmation, the UE shall attempt to decode the BSIC falling within the effective measurement window. If more than one BSIC can be decoded within the same measurement window given by the idle intervals, priority shall be given to the least recently decoded BSIC.

If the UE fails to decode the BSIC after two successive attempts or if the UE has not been able to re-confirm the BSIC for a GSM BCCH carrier within $T_{re\text{-}confirm\_abort}$ seconds, the UE shall abort the BSIC re-confirmation attempts for that GSM BCCH carrier. The GSM BCCH carrier shall be treated as a new GSM BCCH carrier with unidentified BSIC and the GSM BCCH carrier shall be moved to the initial BSIC decoding procedure, see section 8.1A.2.5.2.1. The UE shall be able to make BSIC re-confirmation attempts for the 8 strongest GSM cells in the monitored list.

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

$T_{re\text{-}confirm\ abort}$ =5000 ms. This is the BSIC reconfirmation interval.

It is assumed for the requirement that the slot allocation allows measurement windows in the idle periods to be of minimum duration necessary to perform the measurements.

8.1A.2.5.2.3 Periodic Reporting

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

8.1A.2.5.2.4 Event Triggered Reporting

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

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

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

The event triggered reporting delay requirement is valid when the UE for each GSM carrier in the monitored set can take the required number of samples during the measurement period $T_{Measurement\ Period,\ GSM}$ (see section 8.1A.2.5.1).

The event triggered measurement reporting delay for a GSM cell with verified BSIC, measured without L3 filtering shall be less than $2*T_{Measurement\ Period,\ GSM}$, where $T_{Measurement\ Period,\ GSM}$ is defined in Section 8.1A.2.5.1. When L3 filtering is used an additional delay can be expected. For a GSM cell with non-verified BSIC an additional delay according to section 8.1A.2.5.2.1 Initial BSIC identification can be expected.

<NEXT CHANGED SECTION>

8.4A.2.5 GSM measurements

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

To support cell reselection the UE shall always perform BSIC verification in Cell FACH state.

1) For a UE requiring idle intervals or measurement occasions to perform GSM measurements.When signalled by UTRAN during CELL_FACH state, the UE shall continuously measure GSM cells and search for new GSM cells given in the monitored set.

In section 8.4A.2.1 the split of measurements between different modes and systems is defined. Every second measurement window due to idle intervals and measurements occasions scheduled for GSM measurements, as given by 8.4A.2.1 shall be allocated for GSM initial BSIC identification.

The remaining measurement windows due to idle intervals and measurements occasions used for GSM measurements shall be scheduled as follows. 3 ~~occasions~~window out of 4 shall be allocated for GSM carrier RSSI measurements and 1 out of 4 shall be allocated for GSM BSIC reconfirmation. The scheduling of measurement windows between GSM carrier RSSI measurements and GSM BSIC reconfirmation is up to the UE.

2) For a UE not requiring idle intervals ~~or~~ and measurement occasions to perform GSM measurements:

- the UE shall measure all GSM cells present in the monitored set
- the relevant requirements for GSM dedicated mode when a TCH channel is assigned in TS 45.008 shall apply. This is further detailed in the following sub-sections.

8.4A.2.5.1 GSM carrier RSSI

1) For a UE requiring idle intervals or measurement occasions to perform GSM measurements.

An UE supporting GSM measurements shall meet the minimum number of GSM carrier RSSI measurements specified in table 8.8. This measurement shall be based on measurement ~~occasions~~windows allocated for GSM carrier RSSI measurements as described in 8.4A.2.5. In the CELL_FACH state the measurement period for the GSM carrier RSSI measurement is 480 ms.

The UE shall meet the measurement accuracy requirements stated for RXLEV in TS 45.008, when the given measurement time allows the UE to take at least 3 GSM carrier RSSI samples per GSM carrier in the monitored set during the measurement period.

Table 8.8

Measurement Window Length (slots)	Number of GSM carrier RSSI samples per measurement~~s~~ window.
3	1
4	2
5	3
7	6
15	16
30	32
60	64
120	128

In case the UE is not able to acquire the required number of samples per GSM carrier during one measurement period, the UE shall measure as many GSM carriers as possible during that measurement period using at least 3 samples per GSM carrier. The GSM carriers that were not measured during that measurement period shall be measured in the following measurement periods. This means that, in this particular case, the L1 reporting period to higher layers of a GSM neighbour can be a multiple of the measurement period.

2) For a UE not requiring idle intervals ~~or~~ and measurement occasions to perform GSM measurements:

The samples allocated to each carrier shall as far as possible be uniformly distributed over each measurement period. At least 3 received signal level measurement samples are required per RSSI value. The measurement period is 480 ms.

In case UTRA RACH procedure prevents the UE from acquiring the required number of samples per GSM carrier during one measurement period, the GSM carriers that were not measured during that measurement period shall be measured in the following measurement periods.

8.4A.2.5.2 BSIC verification

1) For a UE requiring idle intervals or measurement occasions to perform GSM measurements.

The procedure for BSIC verification on a GSM cell can be divided into the following two tasks:

Initial BSIC identification
Includes searching for the BSIC and decoding the BSIC for the first time when there is no knowledge about the relative timing between the TDD and GSM cell. The UE shall trigger the initial BSIC identification within 50% of the available measurement windows. The requirements for Initial BSIC identification can be found in 8.4A.2.5.2.1,Initial BSIC identification

BSIC re-confirmation
Tracking and decoding the BSIC of a GSM cell after initial BSIC identification is performed. The UE shall trigger the BSIC re-confirmation within the available measurement windows. The requirements for Initial BSIC identification can be found in 8.4A.2.5.2.2 BSIC re-confirmation.

Measurements on a GSM cell can be requested with BSIC verified or BSIC non-verified. If GSM measurements are requested with BSIC verified the UE shall be able to report the GSM cells with BSIC verified for those cells where the verification of BSIC has been successful.

The BSIC of a GSM cell is considered to be "verified" if the UE has decoded the SCH of the BCCH carrier and identified the BSIC at least one time (initial BSIC identification) and from that moment the BSIC shall be re-confirmed at least once every 6 times $T_{\text{re-confirm abort}}$ seconds. Otherwise the BSIC of the GSM cell is considered as "non-verified". The time requirement for initial BSIC identification, $T_{\text{identify abort}}$, and the BSIC re-confirmation interval $T_{\text{re-confirm abort}}$ can be found in the sections below.

~~The worst-case time for identification of one previously not identified GSM cell measurement is specified in TS 25.225, Annex A.~~

The UE shall be able to perform BSIC verification at levels down to the reference sensitivity level or reference interference levels as specified in TS 45.005.

2) For a UE not requiring idle intervals ~~or~~and measurement occasions to perform GSM measurements:

The UE shall attempt to check the BSIC for at least the 6 strongest GSM carriers at least every 10 seconds, to confirm that it is monitoring the same cell, as far as UTRA RACH procedure does not prevent UE from decoding BSIC.

If a BSIC is decoded and matches the expected value, it is considered as "verified", else it is considered as "non verified".

The UE shall be able to perform BSIC verification at levels down to the reference sensitivity level or reference interference levels as specified in TS 45.005.

8.4A.2.5.2.1 Initial BSIC identification

This measurement is performed in the measurement windows allocated for Initial BSIC identification as described in 8.4A.2.5.

For GSM cells that are requested with BSIC verified the UE shall continuously attempt to decode the SCH on the BCCH carrier of the ~~8~~6 strongest~~ -~~ BCCH carriers of the GSM cells indicated in the measurement control information. The UE shall give priority for BSIC decoding attempts in decreasing signal strength order to BSIC carriers with unknown BSIC. The strongest BCCH carrier is defined as the BCCH carrier having the highest measured GSM carrier RSSI value~~ after layer 3 filtering~~.

When the UE attempts to decode the BSIC of one GSM BCCH carrier with unknown BSIC, the UE shall use all available measurements ~~occasions~~ windows allocated for GSM initial BSIC identification according section 8.4A.2.5 to attempt to decode the BSIC from that GSM BCCH carrier.

If the BSIC of the GSM BCCH carrier has been successfully decoded the UE shall immediately continue BSIC identification with the next GSM BCCH carrier, in signal strength order, with unknown BSIC. The GSM cell for which the BSIC has been successfully identified shall be moved to the BSIC re-confirmation procedure.

If the UE has not successfully ~~identified~~ decoded the BSIC of the GSM BCCH carrier within $T_{\text{identify abort}}$, the UE shall abort the BSIC identification attempts for that GSM BCCH carrier. The UE shall continue to try to perform BSIC

identification of the next GSM BCCH ~~-~~carrier in signal strength order. ~~The~~ The GSM BCCH carrier for which the BSIC identification failed shall not be re-considered for BSIC identification until BSIC identification attempts have been made for all the rest of the ~~8~~6 strongest GSM BCCH carriers in the monitored set with unknown BSIC.

~~The UE shall be able to perform initial BSIC identification on one new GSM cell within the time specified in Annex A in TS 25.225.~~

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

$T_{identify\ abort}$ is specified in section 8.1A.2.5.

8.4A.2.5.2.2 BSIC re-confirmation

The requirements of this section are applicable for BSIC re-confirmation.

The UE shall maintain the timing information of ~~8~~6 identified GSM cells. Initial timing information is obtained from the initial BSIC identification. The timing information shall be updated every time the BSIC is decoded.

For each measurement window allocated for GSM BSIC reconfirmation as described in 8.4A.2.5, the UE shall attempt to decode the BSIC falling within the effective ~~idle interval~~ measurement window duration. If more than one BSIC can be decoded within the same measurement window, priority shall be given to the least recently decoded BSIC.

If the UE fails to decode the BSIC after two successive attempts ~~or if the UE has not been able to re-confirm the BSIC for a GSM cell within $T_{re\text{-}confirm\_abort}$ seconds~~, the UE shall abort the BSIC re-confirmation attempts for that GSM cell. The GSM cell shall be treated as a new GSM cell with unidentified BSIC and the GSM cell shall be moved to the initial BSIC identification procedure, see section 8.4A.2.5.2.1. The UE shall be able to make BSIC re-confirmation attempts for the ~~8~~6 strongest GSM cells in the monitored list.

~~The time requirement for BSIC re-confirmation is specified in Annex A in TS 25.225.~~

$T_{re\text{-}confirm\ abort}$ is specified in section 8.1A.2.5.

It is assumed for the requirement that the measurement windows possible due to higher layer parameters are of minimum duration necessary to perform the measurements.

<NEXT CHANGED SECTION>

A.8.4 GSM measurements

A.8.4.1 Correct reporting of GSM neighbours in AWGN propagation condition

A.8.4.1.1 Test Purpose and Environment

A.8.4.1.1.1 3.84 Mcps TDD option

The purpose of this test is to verify that the UE makes correct reporting of an event when doing GSM measurements. This test will partly verify the requirements in section 8.1.2.5. The requirements are also applicable for a UE not requiring idle intervals to perform GSM measurements.

The test parameters are given in Tables A.8.4.1, A.8.4.2 and A.8.4.3 below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 3B and 3C shall be used. The test consists of three successive time periods, with a time duration of T1, T2 and T3 respectively. At the start of time duration T1, the UE may not have any timing information of cell 2.

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

Table A.8.4.1: General test parameters for correct reporting of GSM neighbours in AWGN propagation condition

Parameter	Unit	Value	Comment
DCH parameters		DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.102 section A.2.2
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 Events 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 the start of time period T1.
$T_{identify\ abort}$	s	5	As specified in section 8.1.2.5
$T_{reconfirm\ abort}$	s	5	As specified in section 8.1.2.5
T1	s	10	
T2	s	10	
T3	s	10	

Table A.8.4.2: Cell specific parameters for correct reporting of GSM neighbours in AWGN propagation condition (cell 1)

Parameter	Unit	Cell 1	
		T1, T2, T3	
DL timeslot number		0	1
UTRA RF Channel number		Channel 1	
PCCPCH_Ec/Ior	dB	-3	n.a.
SCH_Ec/Ior	dB	-9	n.a.
SCH_t_{offset}		0	n.a.
OCNS_Ec/Ior	dB	-3,12	Note 2
DPCH_Ec/Ior	dB	n.a.	Note 1
Îor/Ioc	dB	6	6
Io, Note 1	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 A.8.4.3: Cell specific parameters for correct reporting of GSM neighbours in AWGN propagation condition (cell 2)

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

A.8.4.1.1.2 1.28 Mcps TDD option

~~Void~~

The purpose of this test is to verify that the UE makes correct reporting of an event when doing inter-RAT GSM measurements. This test will partly verify the requirements in section 8.1A.2.5. The requirements are also applicable for a UE not requiring idle intervals to perform GSM measurements.

Two cells shall be present in the test, Cell 1 is current active cell, cell 2 is a GSM cell. The test consists of three successive time periods, with a time duration of T1, T2 and T3 respectively. The test parameters are given in Tables A.8.4.4, A.8.4.5 and A.8.4.6 below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 3B and 3C shall be used. At the start of time duration T1, the UE may not have any timing information of cell 2.

Table A.8.4.4: 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 A.8.4.5: Cell specific test parameters for Correct reporting of GSM neighbours in AWGN propagation condition (cell 1)

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		-3	
$\hat{I}_{or}/I_{oc}$	dB	3	
I_{oc}	dBm/1.28 MHz	-70	
PCCPCH_RSCP	dB	-70	
Propagation Condition		AWGN	
Note 1: The 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 A.8.4.6: Cell specific test parameters for Correct reporting of GSM neighbours in AWGN propagation condition (cell 2)

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

A.8.4.1.2 Test Requirements

A.8.4.1.2.1 3.84 Mcps TDD option

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

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

The UE shall not send any Event 3B or 3C triggered measurement reports, as long as the reporting criteria are not fulfilled.

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

A.8.4.1.2.2 1.28 Mcps TDD option

~~Void~~

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 observed during repeated tests shall be at least 90%.

3GPP TSG RAN WG4 (Radio) Meeting #28 **R4-030683**

Sophia Antipolis, France 18 - 22 August 2003

CR-Form-v7

CHANGE REQUEST

⌘ **25.123** **CR** **315** ⌘ **rev** ⌘ Current version: **5.5.0** ⌘

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

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

Title:	⌘	Correction to 1.28Mcps TDD measurement and test case for GSM
Source:	⌘	RAN WG4
Work item code:	⌘	LCRTDD-RF
Date:	⌘	08/09/2003
Category:	⌘	**A**
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:	⌘	Pcrocedure need be clarifed for 1.28Mcps TDD-GSM measurement in CELL_DCH and CELL_FACH state. No test case is specified for GSM measurements of 1.28Mcps TDD.
Summary of change:	⌘	Correction to 1.28Mcps TDD-GSM measurement requirement in CELL_DCH and CELL_FACH state. Introduction of 1.28Mcps TDD test case for GSM measurements.
Consequences if not approved:	⌘	GSM measurements of 1.28Mcps TDD is not correctly performed and tested. If this is not performed correctly and tested inter-working with GSM can not be ensured! **Isolated Impact Analysis:** Would not affect the implementation if behaving as indicated in the CR, the implementation would be affected if not behaving as indicated in the CR.

Clauses affected:	⌘	8.1A.2.5, 8.4A.2.5, A.8.4			
Other specs affected:	⌘	**Y** / **N**	Other core specifications	⌘	
		☐ / ☒			
		☒ / ☐	Test specifications		34.122
		☐ / ☒	O&M Specifications		
Other comments:	⌘	Equivalent CRs in other Releases: CR314 cat. F to 25.123 v4.9.0			

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.

8.1A.2.5 GSM measurements

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

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

1) For a UE requiring idle intervals ~~or measurement occations~~ to perform GSM measurements. In CELL_DCH state ~~W~~when signalled by UTRAN and when idle intervals are used ~~during CELL_DCH state~~, the UE shall continuously measure GSM cells and search for new GSM cells given in the monitored set.

2) For a UE not requiring idle intervals ~~or measurement occations~~ to perform GSM measurements:

   - the UE shall measure all GSM cells present in the monitored set
   - the relevant requirements for GSM dedicated mode when a TCH channel is assigned in TS 45.008 shall apply. This is further detailed in the following sub-sections.

8.1A.2.5.1 GSM carrier RSSI

1) For a UE requiring idle intervals ~~or measurement occations~~ to perform GSM measurements

An UE supporting GSM measurements using idle intervals shall meet the minimum number of GSM RSSI carrier measurements specified in table 8.1A.

In the CELL_DCH state the measurement period, $T_{Measurement\ Period,\ GSM}$, for the GSM carrier RSSI measurement is 480 ms.

The UE shall meet the measurement accuracy requirements stated for RXLEV in TS 45.008, when the given measurement time allows the UE to the take at least 3 GSM carrier RSSI samples per GSM carrier in the monitored set during the measurement period.

Table 8.1A

Idle Interval Length (timeslots)	Number of GSM carrier RSSI ~~meaqsurements~~samples in each idle interval
3	1
4	2
5	3

For the description of the idle intervals see Annex A of 25.225.
In case the UE is not able to acquire the required number of samples per GSM carrier during one measurement period, the UE shall measure as many GSM carriers as possible during that measurement period using at least 3 samples per GSM carrier. The GSM carriers that were not measured during that measurement period shall be measured in the following measurement periods. This means that, in this particular case, the L1 reporting period to higher layers of a GSM neighbour can be a multiple of the measurement period.

2) For a UE not requiring idle intervals ~~or measurement occations~~ to perform GSM measurements

The samples allocated to each carrier shall as far as possible be uniformly distributed over each measurement period. At least 3 received signal level measurement samples are required per RSSI value. The measurement period is 480 ms.

8.1A.2.5.2 BSIC verification

1) For a UE requiring idle intervals ~~or measurement occasions~~ to perform GSM measurements

The procedure for BSIC verification on a GSM cell can be divided into the following two tasks:

1) Initial BSIC identification
   Includes searching for the BSIC and decoding the BSIC for the first time when there is no knowledge about the relative timing between the TDD and GSM cell. The UE shall trigger the initial BSIC identification within the

available idle intervals ~~as specified in TS 25.225, Annex A (Fig. A.1)~~. The requirements for Initial BSIC identification can be found in section 8.1A.2.5.2.1,"Initial BSIC identification".

2) BSIC re-confirmation
Tracking and decoding the BSIC of a GSM cell after initial BSIC identification is performed. The UE shall trigger the BSIC re-confirmation within the available idle intervals ~~as specified in TS 25.225, Annex A (Fig. A.1)~~. The requirements for ~~Initial~~ BSIC ~~identification~~ re-confirmation can be found in section 8.1A.2.5.2.2, "BSIC re-confirmation".

Measurements on a GSM cell can be requested with BSIC verified or BSIC non-verified. If GSM measurements are requested with BSIC verified the UE shall be able to report the GSM cells with BSIC verified for those cells where the verification of BSIC has been successful.

The UE shall use the last available GSM carrier RSSI measurement results for arranging GSM cells in signal strength order for performing BSIC identification. The UE shall perform event evaluation for event-triggered reporting after the BSIC has been verified for a GSM cell. The UE shall use the last available GSM carrier RSSI measurement results in event evaluation and event-triggered reporting. Periodic reports shall be triggered according to the given reporting period even if the BSIC of a GSM cell has not been verified. Non verified BSIC shall be indicated in the measurement report.

The BSIC of a GSM cell is considered to be “verified” if the UE has decoded the SCH of the BCCH carrier and identified the BSIC at least one time (initial BSIC identification) and from that moment the BSIC shall be re-confirmed at least once every $T_{\text{re-confirm abort}}$ seconds. Otherwise the BSIC of the GSM cell is considered as “non-verified”. The time requirement for initial BSIC identification, $T_{\text{identify abort}}$, and the BSIC re-confirmation interval $T_{\text{re-confirm abort}}$ can be found in the sections below.

~~The worst case time for identification of one previously not identified GSM cell measurement is specified in TS 25.225, Annex A.~~

The UE shall be able to perform BSIC verification at levels down to the reference sensitivity level or reference interference levels as specified in TS 45.005.

2) For a UE not requiring idle intervals ~~or measurement occations~~ to perform GSM measurements

If a BSIC is decoded and matches the expected value, it is considered as “verified”, else it is considered as “non verified”.

The UE shall be able to perform BSIC verification at levels down to the reference sensitivity level or reference interference levels as specified in TS 45.005.

8.1A.2.5.2.1 Initial BSIC identification

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

For GSM cells that are requested with BSIC verified the UE shall attempt to decode the SCH on the BCCH carrier of the8 strongest BCCH carriers of the GSM cells indicated in the measurement control information. The UE shall give priority for BSIC decoding attempts in decreasing signal strength order to BSIC carriers with unknown BSIC. The strongest BCCH carrier is defined as the BCCH carrier having the highest measured GSM carrier RSSI value after layer 3 filtering. The GSM signal strength levels used in BSIC identification for arranging GSM cells in signal strength order shall be based on the latest GSM carrier RSSI measurement results available.

If the BSIC of a GSM BCCH carriers has been successfully decoded the UE shall immediately continue BSIC identification with the next BCCH carrier, in signal strength order, with unknown BSIC. The GSM cell for which the BSIC has been successfully identified shall be moved to the BSIC re-confirmation procedure.

If the UE has not successfully decoded the BSIC of the GSM BCCH carrier within $T_{\text{identify abort}}$, the UE shall abort the BSIC identification attempts for that GSMBCCH carrier. The UE shall continue to try to perform BSIC identification of the next GSM BCCH carrier in signal strength order. The GSM BCCH carrier for which the BSIC identification failed shall not be re-considered for BSIC identification until BSIC decoding attempts have been made for all the rest of the 8 strongest GSM BCCH carriers in the monitored set with unknown BSIC.

~~The UE shall be able to perform initial BSIC decoding on one new GSM BCCH carrier within the time specified in Annex A in TS 25.225.~~

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

$T_{identify\ abort}$ = 5000 ms. This is the time necessary to identify one new GSM cell. It is assumed for the requirement that the slot allocation allows measurement windows in the idle periods to be of minimum duration necessary to perform the measurements.

8.1A.2.5.2.2 BSIC re-confirmation

The requirements of this section are applicable for BSIC re-confirmation.

The UE shall maintain the timing information of at least 8 identified GSM cells. Initial timing information is obtained from the initial BSIC identification. The timing information shall be updated every time the BSIC is decoded.

For each idle interval, the UE is able to use for BSIC re-confirmation, the UE shall attempt to decode the BSIC falling within the effective measurement window. If more than one BSIC can be decoded within the same measurement window given by the idle intervals, priority shall be given to the least recently decoded BSIC.

If the UE fails to decode the BSIC after two successive attempts or if the UE has not been able to re-confirm the BSIC for a GSM BCCH carrier within $T_{re\text{-}confirm\_abort}$ seconds, the UE shall abort the BSIC re-confirmation attempts for that GSM BCCH carrier. The GSM BCCH carrier shall be treated as a new GSM BCCH carrier with unidentified BSIC and the GSM BCCH carrier shall be moved to the initial BSIC decoding procedure, see section 8.1A.2.5.2.1. The UE shall be able to make BSIC re-confirmation attempts for the 8 strongest GSM cells in the monitored list.

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

$T_{re\text{-}confirm\ abort}$ =5000 ms. This is the BSIC reconfirmation interval.

It is assumed for the requirement that the slot allocation allows measurement windows in the idle periods to be of minimum duration necessary to perform the measurements.

8.1A.2.5.2.3 Periodic Reporting

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

8.1A.2.5.2.4 Event Triggered Reporting

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

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

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

The event triggered reporting delay requirement is valid when the UE for each GSM carrier in the monitored set can take the required number of samples during the measurement period $T_{Measurement\ Period,\ GSM}$ (see section 8.1A.2.5.1).

The event triggered measurement reporting delay for a GSM cell with verified BSIC, measured without L3 filtering shall be less than $2*T_{Measurement\ Period,\ GSM}$, where $T_{Measurement\ Period,\ GSM}$ is defined in Section 8.1A.2.5.1. When L3 filtering is used an additional delay can be expected. For a GSM cell with non-verified BSIC an additional delay according to section 8.1A.2.5.2.1 Initial BSIC identification can be expected.

<NEXT CHANGED SECTION>

8.4A.2.5 GSM measurements

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

To support cell reselection the UE shall always perform BSIC verification in Cell FACH state.

1) For a UE requiring idle intervals or measurement occasions to perform GSM measurements.When signalled by UTRAN during CELL_FACH state, the UE shall continuously measure GSM cells and search for new GSM cells given in the monitored set.

In section 8.4A.2.1 the split of measurements between different modes and systems is defined. Every second measurement window due to idle intervals and measurements occasions scheduled for GSM measurements, as given by 8.4A.2.1 shall be allocated for GSM initial BSIC identification.

The remaining measurement windows due to idle intervals and measurements occasions used for GSM measurements shall be scheduled as follows. 3 ~~occasions~~window out of 4 shall be allocated for GSM carrier RSSI measurements and 1 out of 4 shall be allocated for GSM BSIC reconfirmation. The scheduling of measurement windows between GSM carrier RSSI measurements and GSM BSIC reconfirmation is up to the UE.

2) For a UE not requiring idle intervals ~~or~~ and measurement occasions to perform GSM measurements:

- the UE shall measure all GSM cells present in the monitored set
- the relevant requirements for GSM dedicated mode when a TCH channel is assigned in TS 45.008 shall apply. This is further detailed in the following sub-sections.

8.4A.2.5.1 GSM carrier RSSI

1) For a UE requiring idle intervals or measurement occasions to perform GSM measurements.

An UE supporting GSM measurements shall meet the minimum number of GSM carrier RSSI measurements specified in table 8.8. This measurement shall be based on measurement ~~occasions~~windows allocated for GSM carrier RSSI measurements as described in 8.4A.2.5. In the CELL_FACH state the measurement period for the GSM carrier RSSI measurement is 480 ms.

The UE shall meet the measurement accuracy requirements stated for RXLEV in TS 45.008, when the given measurement time allows the UE to take at least 3 GSM carrier RSSI samples per GSM carrier in the monitored set during the measurement period.

Table 8.8

Measurement Window Length (slots)	Number of GSM carrier RSSI samples per measurement~~s~~ window.
3	1
4	2
5	3
7	6
15	16
30	32
60	64
120	128

In case the UE is not able to acquire the required number of samples per GSM carrier during one measurement period, the UE shall measure as many GSM carriers as possible during that measurement period using at least 3 samples per GSM carrier. The GSM carriers that were not measured during that measurement period shall be measured in the following measurement periods. This means that, in this particular case, the L1 reporting period to higher layers of a GSM neighbour can be a multiple of the measurement period.

2) For a UE not requiring idle intervals ~~or~~ and measurement occasions to perform GSM measurements:

The samples allocated to each carrier shall as far as possible be uniformly distributed over each measurement period. At least 3 received signal level measurement samples are required per RSSI value. The measurement period is 480 ms.

In case UTRA RACH procedure prevents the UE from acquiring the required number of samples per GSM carrier during one measurement period, the GSM carriers that were not measured during that measurement period shall be measured in the following measurement periods.

8.4A.2.5.2 BSIC verification

1) For a UE requiring idle intervals or measurement occasions to perform GSM measurements.

The procedure for BSIC verification on a GSM cell can be divided into the following two tasks:

Initial BSIC identification
Includes searching for the BSIC and decoding the BSIC for the first time when there is no knowledge about the relative timing between the TDD and GSM cell. The UE shall trigger the initial BSIC identification within 50% of the available measurement windows. The requirements for Initial BSIC identification can be found in 8.4A.2.5.2.1,Initial BSIC identification

BSIC re-confirmation
Tracking and decoding the BSIC of a GSM cell after initial BSIC identification is performed. The UE shall trigger the BSIC re-confirmation within the available measurement windows. The requirements for Initial BSIC identification can be found in 8.4A.2.5.2.2 BSIC re-confirmation.

Measurements on a GSM cell can be requested with BSIC verified or BSIC non-verified. If GSM measurements are requested with BSIC verified the UE shall be able to report the GSM cells with BSIC verified for those cells where the verification of BSIC has been successful.

The BSIC of a GSM cell is considered to be "verified" if the UE has decoded the SCH of the BCCH carrier and identified the BSIC at least one time (initial BSIC identification) and from that moment the BSIC shall be re-confirmed at least once every 6 times $T_{\text{re-confirm abort}}$ seconds. Otherwise the BSIC of the GSM cell is considered as "non-verified". The time requirement for initial BSIC identification, $T_{\text{identify abort}}$, and the BSIC re-confirmation interval $T_{\text{re-confirm abort}}$ can be found in the sections below.

~~The worst-case time for identification of one previously not identified GSM cell measurement is specified in TS 25.225, Annex A.~~

The UE shall be able to perform BSIC verification at levels down to the reference sensitivity level or reference interference levels as specified in TS 45.005.

2) For a UE not requiring idle intervals ~~or~~and measurement occasions to perform GSM measurements:

The UE shall attempt to check the BSIC for at least the 6 strongest GSM carriers at least every 10 seconds, to confirm that it is monitoring the same cell, as far as UTRA RACH procedure does not prevent UE from decoding BSIC.

If a BSIC is decoded and matches the expected value, it is considered as "verified", else it is considered as "non verified".

The UE shall be able to perform BSIC verification at levels down to the reference sensitivity level or reference interference levels as specified in TS 45.005.

8.4A.2.5.2.1 Initial BSIC identification

This measurement is performed in the measurement windows allocated for Initial BSIC identification as described in 8.4A.2.5.

For GSM cells that are requested with BSIC verified the UE shall continuously attempt to decode the SCH on the BCCH carrier of the ~~8~~6 strongest~~ -~~ BCCH carriers of the GSM cells indicated in the measurement control information. The UE shall give priority for BSIC decoding attempts in decreasing signal strength order to BSIC carriers with unknown BSIC. The strongest BCCH carrier is defined as the BCCH carrier having the highest measured GSM carrier RSSI value~~ after layer 3 filtering~~.

When the UE attempts to decode the BSIC of one GSM BCCH carrier with unknown BSIC, the UE shall use all available measurements ~~occasions~~ windows allocated for GSM initial BSIC identification according section 8.4A.2.5 to attempt to decode the BSIC from that GSM BCCH carrier.

If the BSIC of the GSM BCCH carrier has been successfully decoded the UE shall immediately continue BSIC identification with the next GSM BCCH carrier, in signal strength order, with unknown BSIC. The GSM cell for which the BSIC has been successfully identified shall be moved to the BSIC re-confirmation procedure.

If the UE has not successfully ~~identified~~ decoded the BSIC of the GSM BCCH carrier within $T_{\text{identify abort}}$, the UE shall abort the BSIC identification attempts for that GSM BCCH carrier. The UE shall continue to try to perform BSIC

identification of the next GSM BCCH ~~-~~carrier in signal strength order. ~~The~~ The GSM BCCH carrier for which the BSIC identification failed shall not be re-considered for BSIC identification until BSIC identification attempts have been made for all the rest of the ~~8~~6 strongest GSM BCCH carriers in the monitored set with unknown BSIC.

~~The UE shall be able to perform initial BSIC identification on one new GSM cell within the time specified in Annex A in TS 25.225.~~

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

$T_{identify\ abort}$ is specified in section 8.1A.2.5.

8.4A.2.5.2.2 BSIC re-confirmation

The requirements of this section are applicable for BSIC re-confirmation.

The UE shall maintain the timing information of ~~8~~6 identified GSM cells. Initial timing information is obtained from the initial BSIC identification. The timing information shall be updated every time the BSIC is decoded.

For each measurement window allocated for GSM BSIC reconfirmation as described in 8.4A.2.5, the UE shall attempt to decode the BSIC falling within the effective ~~idle interval~~ measurement window duration. If more than one BSIC can be decoded within the same measurement window, priority shall be given to the least recently decoded BSIC.

If the UE fails to decode the BSIC after two successive attempts ~~or if the UE has not been able to re-confirm the BSIC for a GSM cell within $T_{re\text{-}confirm\_abort}$ seconds~~, the UE shall abort the BSIC re-confirmation attempts for that GSM cell. The GSM cell shall be treated as a new GSM cell with unidentified BSIC and the GSM cell shall be moved to the initial BSIC identification procedure, see section 8.4A.2.5.2.1. The UE shall be able to make BSIC re-confirmation attempts for the ~~8~~6 strongest GSM cells in the monitored list.

~~The time requirement for BSIC re-confirmation is specified in Annex A in TS 25.225.~~

$T_{re\text{-}confirm\ abort}$ is specified in section 8.1A.2.5.

It is assumed for the requirement that the measurement windows possible due to higher layer parameters are of minimum duration necessary to perform the measurements.

<NEXT CHANGED SECTION>

A.8.4 GSM measurements

A.8.4.1 Correct reporting of GSM neighbours in AWGN propagation condition

A.8.4.1.1 Test Purpose and Environment

A.8.4.1.1.1 3.84 Mcps TDD option

The purpose of this test is to verify that the UE makes correct reporting of an event when doing GSM measurements. This test will partly verify the requirements in section 8.1.2.5. The requirements are also applicable for a UE not requiring idle intervals to perform GSM measurements.

The test parameters are given in Tables A.8.4.1, A.8.4.2 and A.8.4.3 below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 3B and 3C shall be used. The test consists of three successive time periods, with a time duration of T1, T2 and T3 respectively. At the start of time duration T1, the UE may not have any timing information of cell 2.

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

Table A.8.4.1: General test parameters for correct reporting of GSM neighbours in AWGN propagation condition

Parameter	Unit	Value	Comment
DCH parameters		DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.102 section A.2.2
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 Events 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 the start of time period T1.
$T_{identify\ abort}$	s	5	As specified in section 8.1.2.5
$T_{reconfirm\ abort}$	s	5	As specified in section 8.1.2.5
T1	s	10	
T2	s	10	
T3	s	10	

Table A.8.4.2: Cell specific parameters for correct reporting of GSM neighbours in AWGN propagation condition (cell 1)

Parameter	Unit	Cell 1	
		T1, T2, T3	
DL timeslot number		0	1
UTRA RF Channel number		Channel 1	
PCCPCH_Ec/Ior	dB	-3	n.a.
SCH_Ec/Ior	dB	-9	n.a.
SCH_t_{offset}		0	n.a.
OCNS_Ec/Ior	dB	-3,12	Note 2
DPCH_Ec/Ior	dB	n.a.	Note 1
Îor/Ioc	dB	6	6
Io, Note 1	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 A.8.4.3: Cell specific parameters for correct reporting of GSM neighbours in AWGN propagation condition (cell 2)

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

A.8.4.1.1.2 1.28 Mcps TDD option

~~Void~~

The purpose of this test is to verify that the UE makes correct reporting of an event when doing inter-RAT GSM measurements. This test will partly verify the requirements in section 8.1A.2.5. The requirements are also applicable for a UE not requiring idle intervals to perform GSM measurements.

Two cells shall be present in the test, Cell 1 is current active cell, cell 2 is a GSM cell. The test consists of three successive time periods, with a time duration of T1, T2 and T3 respectively. The test parameters are given in Tables A.8.4.4, A.8.4.5 and A.8.4.6 below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 3B and 3C shall be used. At the start of time duration T1, the UE may not have any timing information of cell 2.

Table A.8.4.4: 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 A.8.4.5: Cell specific test parameters for Correct reporting of GSM neighbours in AWGN propagation condition (cell 1)

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		-3	
$\hat{I}_{or}/I_{oc}$	dB	3	
I_{oc}	dBm/1.28 MHz	-70	
PCCPCH_RSCP	dB	-70	
Propagation Condition		AWGN	
Note 1: The 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 A.8.4.6: Cell specific test parameters for Correct reporting of GSM neighbours in AWGN propagation condition (cell 2)

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

A.8.4.1.2 Test Requirements

A.8.4.1.2.1 3.84 Mcps TDD option

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

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

The UE shall not send any Event 3B or 3C triggered measurement reports, as long as the reporting criteria are not fulfilled.

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

A.8.4.1.2.2 1.28 Mcps TDD option

~~void~~

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 observed during repeated tests shall be at least 90%.

3GPP TSG RAN WG4 (Radio) Meeting #28 **R4-030684**

Sophia Antipolis, France 18 - 22 August 2003

CR-Form-v7

CHANGE REQUEST

⌘ **25.123** **CR** **316** ⌘ **rev** ⌘ Current version: **4.9.0** ⌘

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

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

Title:	⌘	Correction to inter frequency measurement requirements and test cases for 1.28Mcps TDD option
Source:	⌘	RAN WG4
Work item code:	⌘	LCRTDD-RF
Date:	⌘	08/09/2003
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:	⌘	For the 1.28Mcps TDD option, PCCPCH is always located in TS0 and DwPCH is always located in DwPTS. The measurement and identification is performed in the special periods of TS0 and DwPTS of target cell. Other timeslots need not to be taken into account for inter-frequency measurements and identification. If the receiving of TS0 and DwPTS overlaps with the receiving or transmiting toward serving cell, the measurement and identification of inter frequency cell will be impossible. The definition of T_{inter} and $T_{inter\ FACH}$ does not include this scene. Conditions need be clarified for inter-frequency FDD identification and measurement. Test conditions and parameters are incomplete in test cases for inter TDD-TDD/FDD measurement.
Summary of change:	⌘	Changing the formula for calculating the $T_{identify\ inter}$, $T_{measurement\ inter}$ for inter frequency measurements and the definition of the correlative variables. Clarifing the conditions for inter-frequency FDD measurement requirement. Completion of test condions and parameters in test cases for inter TDD-TDD/FDD measurement.
Consequences if not approved:	⌘	TDD-TDD/FDD measurement requirement incomplete or not feasible. The calculation of $T_{identify\ inter}$ and $T_{measurement\ inter}$ is not clear or correct. Test cases for TDD and FDD neighbours reporting in AWGN is not feasible. **Isolated Impact Analysis:**

	The Changes does not affect the function of UE. The implementation would not be affected if behaving as indicated in the CR, the implementation would be affected if not behaving as indicated in the CR.

Clauses affected:	⌘	8.1A.2.2, 8.1A.2.3, 8.1A.2.4, 8.4A.2.1, 8.4A.2.3, 8.4A.2.4, A.8.2.1, A.8.3.1			
Other specs affected:	⌘	**Y** / **N**	Other core specifications	⌘	
		X /	Test specifications		34.122
		/ X	O&M Specifications		
Other comments:	⌘	Equivalent CRs in other Releases: CR317 cat. A to 25.123 v5.5.0			

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.

8.1A General Measurements Requirements in CELL_DCH State (1.28 Mcps option)

8.1A.1 Introduction

This section contains requirements on the UE regarding measurement reporting in CELL_DCH state. The requirements are split in TDD intra frequency, TDD inter frequency, FDD and GSM measurements. These measurements may be used by the UTRAN, e.g. for handover decisions. The measurements are defined in TS 25.225, the measurement model is defined in TS 25.302 and measurement accuracies are specified in section 9. Control of measurement reporting is specified in TS 25.331 and parallel measurements are specified in section 8.2A. For the description of the idle intervals see TS 25.225, Annex A.

8.1A.2 Requirements

8.1A.2.1 UE Measurement Capability

The UE shall be able to monitor up to

- 32 intra frequency TDD cells, and
- 32 inter frequency cells, including
  - TDD cells distributed on up to 3 additional TDD carriers and
  - Depending on UE capability, FDD cells, distributed on up to 3 FDD carriers, and
- Depending on UE capability, -32 GSM cells distributed on up to 32 GSM carriers.

Performance requirements for different types of measurements and different number of cells are defined in the following sections.

The requirements in section 9 are applicable for a UE performing measurements according to this section.

The received P-CCPCH E_c/I_o is defined as

$$\left(\frac{P-CCPCH\_E_c}{I_o}\right)\Bigg|_{in\ dB} = \left(\frac{P-CCPCH\_E_c}{I_{or}}\right)\Bigg|_{in\ dB} - \frac{I_o}{\left(\hat{I}_{or}\right)}\Bigg|_{in\ dB}$$

The received DwPTS E_c/I_o is defined as

$$\left(\frac{DwPCH\_E_c}{I_o}\right)\Bigg|_{in\ dB} = \left(\frac{DwPCH\_E_c}{I_{or}}\right)\Bigg|_{in\ dB} - \frac{I_o}{\left(\hat{I}_{or}\right)}\Bigg|_{in\ dB}$$

8.1A.2.2 TDD intra frequency measurements

During the CELL_DCH state the UE shall continuously measure identified intra frequency cells and search for new intra frequency cells in the ~~monitoring~~ monitored set. In case the ~~network~~ UTRAN requests the UE to report detected set cells, the UE shall also search for intra frequency cells outside the monitored and active set set. Cells, which are neither included in the active set nor in the monitored set, and are identified by the UE belong to the detected set according to TS 25.331. Intra frequency measurements can be performed (simultaneously to data reception from the active cell) in all time slots not used for inter frequency measurements.

8.1A.2.2.1 Identification of a new cell

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

$$T_{identify\ \ intra} = T_{basic\ identify\ TDD,\ intra} \cdot \frac{N_{Period,\ Intra}}{N_{Intra}} ms$$

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

The UE shall be able to identify a new detectable cell not belonging to the monitored set within

$$T_{identify\ \ detected\ set} = 30s$$

when P-CCPCH Ec/Io ≥ -8 dB, DwPCH_Ec/Io ≥ -5 dB. When L3 filtering is used an additional delay can be expected.

8.1A.2.2.2 UE P-CCPCH RSCP measurement capability

In the CELL_DCH state the measurement period for intra frequency P-CCPCH RSCP measurements is 200 ms. When all TS0, DwPTS and main guard periods in the measurement period are scheduled for intra frequency measurements, the UE shall be capable of performing P-CCPCH RSCP measurements for 6 identified intra-frequency cells of the monitored set and the UE physical layer shall be capable of reporting these measurements to higher layers with the measurement period of 200 ms. When inter-frequency measurements required by the network have to be performed during periods of TS0, DwPTS or main guard period, the UE shall be capable of performing P-CCPCH RSCP measurements for at least $Y_{measurement\ intra}$ cells , where $Y_{measurement\ intra}$ is defined in the following equation. The measurement accuracy for all measured cells shall be as specified in the section 9. If the UE has identified more than $Y_{measurement\ intra}$ cells, the UE shall perform measurements of all identified cells but the reporting rate of P-CCPCH RSCP measurements of cells from UE physical layer to higher layers may be decreased.

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

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

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

$T_{Measurement\_Period,\ Intra}$ =200 ms. The measurement period for Intra frequency P-CCPCH RSCP measurements.

$N_{Period,Intra:}$ = 40 Number of subframes in $T_{Measurement\_Period,\ Intra.}$

N_{Intra} : This is the minimum number of sub-frame in that the period of TS0, DwPTS and main guard period is available for intra frequency measurements, during the measurement period.

$T_{basic\_identify\_TDD,\ intra}$ = 800 ms. This is the time period used in the intra frequency equation where the maximum allowed time for the UE to identify a new TDD cell is defined. ~~(side conditions are defined in subclause 8.1A.2.6).~~

The UE shall furthermore be capable of performing P-CCPCH measurements for at least 1 detected intra-frequency cell, in the detected set, and the UE physical layer shall be capable of reporting measurements to higher layers with the measurement period of 10 s. The measurement accuracy for all measured cells shall be as specified in the section 9.

8.1A.2.2.2A Timeslot ISCP measurement capability

In the CELL_DCH state the measurement period for intra frequency Timeslot ISCP measurements on arbitrary DL timeslots, including Beacon timeslots is 400 ms. When no inter frequency measurement is scheduled, the UE shall be capable of performing Timeslot ISCP measurements for a total of 5 different combinations of an arbitrary DL timeslot and an intra-frequency cell [16], including the current serving cell. The UE physical layer shall be capable of reporting Timeslot ISCP measurements to higher layers with the measurement period of 400 ms.

When inter-frequency measurements are required by the network, the UE shall be able to perform Timeslot ISCP measurements for at least $Y_{measurement\ intra\ ISCP}$ different combinations, where $Y_{measurement\ intra\ ISCP}$ is defined in the following equation. Any Timeslot ISCP measurement that could not be performed during that measurement period, shall be measured in the following measurement periods. The measurement accuracy of the Timeslot ISCP measurement shall be as specified in the section 9.

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

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

$X_{\text{basic measurement ISCP}}$ = 5 (combinations of an arbitrary DL timeslot and an intra-frequency cell)

$T_{\text{Measurement\_Period, Intra, ISCP}}$ = 400 ms. The measurement period for Intra frequency Timeslot ISCP measurements.

T_{Intra}: This is the minimum time (representing a time corresponding to an integer number of full slots) that is available for intra frequency measurements, during the measurement period with an arbitrarily chosen timing.

8.1A.2.2.3 Periodic Reporting

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

8.1A.2.2.4 Event-triggered Periodic Reporting

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

The first report in event triggered periodic measurement reporting shall meet the requirements specified in section 8.1A.2.2.5 Event Triggered Reporting.

8.1A.2.2.5 Event Triggered Reporting

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

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

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

The event triggered measurement reporting delay, on cells belonging to monitored set, measured without L3 filtering shall be less than $T_{\text{identify intra}}$ defined in Section 8.1A.2.2.1

If a cell belonging to monitored set has been detectable at least for the time period $T_{\text{identify\_intra}}$ and then enters or leaves the reporting range, the event triggered measurement reporting delay shall be less than $T_{\text{Measurement\_Period Intra}}$ when the L3 filter has not been used and the UE P-CCPCH measurement capabilities of Section 8.1A.2.2.2 are valid.

The event triggered measurement reporting delay on cells not belonging to monitored set, measured without L3 filtering, shall be less than the above defined $T_{\text{identify detected set}}$. defined in Section 8.1A.2.2.1.

8.1A.2.3 TDD inter frequency measurements

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

8.1A.2.3.1 Identification of a new cell

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

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

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

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.

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.

8.1A.2.3.2 UE P-CCPCH RSCP measurement capability

When idle intervals are used for TDD inter frequency measurements ~~are scheduled~~, the UE physical layer shall be capable of reporting P-CCPCH RSCP measurements to higher layers with measurement accuracy as specified in section 9 and with measurement period given by

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

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

~~In case of a dual receiver UE~~ If the UE does not require idle intervals to perform TDD inter-frequency measurements, the measurement period for inter frequency P-CCPCH RSCP measurements is 480 ms.

The UE shall be capable of performing P-CCPCH RSCP measurements for $X_{basic\ measurement\ TDD\ inter}$ inter-frequency cells per TDD frequency of the monitored set, and the UE physical layer shall be capable of reporting measurements to higher layers with the measurement period of $T_{Measurement\_\ Inter}$.

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

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

~~$T_{Inter:}$~~ ~~This is the minimum time available for inter frequency measurements during the period $T_{Measurement\_Period\ inter}$ with an arbitrarily chosen timing. The minimum time depends on the channel allocation and is calculated by assuming [2*0.1] ms for implementation margin (for the description of the idle intervals see Annex A of 25.225). It is assumed for the requirement that the slot allocation allows measurement windows in the idle periods to be of minimum duration necessary to perform the measurements.~~

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. ~~(side conditions are defined in subclause 8.1A.2.6).~~

$N_{basic\ identify\ TDD,\ Inter}$: = 160, Number of subframes in $T_{basic\ identify\ TDD,\ inter.}$

$T_{basic\_measurement\_TDD\ inter}$ = 50 ms. This is the time period used in the equation for defining the measurement period for inter frequency P-CCPCH RSCP measurements.

$N_{basic\ measurement\ TDD,\ Inter}$: = 10, Number of subframes in $T_{basic\ measurement\ TDD\ Inter.}$

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

8.1A.2.3.3 Periodic Reporting

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

8.1A.2.3.4 Event Triggered Reporting

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

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

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

The event triggered measurement reporting delay, measured without L3 filtering shall be less than $T_{identify\ inter}$ defined in Section 8.1A.2.3.1. When L3 filtering is used an additional delay can be expected.

8.1A.2.4 FDD measurements

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

In the CELL_DCH state when FDD inter frequency measurements are scheduled the UE shall continuously measure identified inter frequency FDD cells and search for new inter frequency FDD cells indicated in the measurement control information.

8.1A.2.4.1 Identification of a new cell

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

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

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

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

A cell shall be considered detectable when CPICH Ec/Io ≥ -20 dB, SCH_Ec/Io ≥ -17 dB and SCH_Ec/Ior is equally divided between primary synchronisation code and secondary synchronisation code. ~~When L3 filtering is used an additional delay can be expected.~~

8.1A.2.4.2 UE CPICH measurement capability

When idle intervals are used for FDD inter frequency measurements ~~are scheduled~~, the UE physical layer shall be capable of reporting measurements to higher layers with measurement accuracy as specified in sub-clause 9 with measurement period given by

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

If the UE does not need idle intervals to perform FDD measurements ~~in the idle intervals only~~, the measurement period for inter frequency measurements is 480 ms.

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

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

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

$T_{FDD\ inter:}$ This is the minimum time that is available for inter frequency measurements, during the period $T_{Measurement\_Period\ FDD\ inter}$ with an arbitrarily chosen timing. The minimum time depends on the channel allocation and is calculated by assuming ~~[~~2*0.1~~]~~ ms for implementation margin (for the description of the idle intervals see Annex A of 25.225). It is assumed for the requirement that the slot allocation allows measurement windows in the idle periods to be of minimum duration necessary to perform the measurements.

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

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

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

8.1A.2.4.3 Periodic Reporting

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

8.1A.2.4.4 Event Triggered Reporting

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

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

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

The event triggered measurement reporting delay, measured without L3 filtering shall be less than $T_{identify\ FDD\ inter}$ defined in Section 8.1A.2.4.1. When L3 filtering is used an additional delay can be expected.

If a cell has been detectable at least for the time period $T_{identify\_FDD\ inter}$ and then enters the reporting range, the event triggered measurement reporting delay shall be less than $T_{Measurement\_Period\ FDD\ Inter}$ provided the timing to that cell has not changed more than +/-32 chips while idle intervals have has not been available and the L3 filter has not been used.

<NEXT CHANGED SECTION>

8.4A Measurements in CELL_FACH State (1.28 Mcps option)

8.4A.1 Introduction

This section contains requirements on the UE regarding measurement reporting in CELL_FACH state. The requirements for cell re-selection are split in TDD intra frequency, TDD inter frequency, FDD and GSM measurements. The measurements are defined in TS 25.225, the measurement model is defined in TS 25.302 and measurement accuracies are specified in section 9. Control of measurement reporting is specified in TS 25.331 and parallel measurements are specified in section 8.2. For the description of the idle intervals see TS 25.225, Annex A.

8.4A.2 Requirements

8.4A.2.1 UE Measurement Capability

The UE shall be able to monitor up to

- 32 intra frequency TDD cells, and
- 32 inter frequency cells, including
  - TDD cells distributed on up to 3 additional TDD carriers and
  - Depending on UE capability, FDD cells, distributed on up to 3 FDD carriers.
- Depending on UE capability, 32 GSM cells distributed on up to 32 GSM carriers.

The requirements in section 9 on P-CCPCH RSCP measurements are applicable for a UE performing measurements according to this section. For inter-frequency FDD, TDD and GSM cell re-selection, measurement occasions as specified in TS 25.331 and, in addition, idle intervals as described in TS 25.225 are used to find and measure on these cells.

It is defined below how the measurements on different systems and modes are performed given the time allocated to that system. The requirements in this section are based on the assumption that the time during the measurement occasions and idle intervals that is allocated to each of the different modes and systems shall be equally shared by the modes which the UE has capability for and that are in the monitored set signalled by the network.

The UE is required to measure periodically once every time period T_{meas} on each of the modes and systems, FDD interfrequency cells, TDD interfrequency cells and GSM carriers, for which the corresponding parameter N_{FDD}, N_{TDD} and N_{GSM} is set to 1, within the measurement time T_{meas}

$$T_{meas} = \left[\left(N_{FDD} + N_{TDD} + N_{GSM}\right) \cdot N_{TTI} \cdot \text{M\_REP} \cdot 10\right] \text{ms}$$

where the following parameters are defined:

N_{TDD}	= 0 or 1. If there are inter-frequency TDD cells in the neighbour list N_{TDD}=1, otherwise N_{TDD}=0.
N_{FDD}	= 0 or 1. If the UE is capable of FDD and there are FDD cells in the neighbour list N_{FDD}=1 otherwise N_{FDD}=0.
N_{GSM}	= 0 or 1. If the UE is capable of GSM and there are GSM cells in the neighbour list, N_{GSM}=1, otherwise N_{GSM}=0.
M_REP	is the Measurement Occasion cycle length in number of frames as specified in TS 25.331.
N_{TTI}	is the number of frames in each measurement occasion, equal to the length of the largest TTI on the SCCPCH monitored by the UE.

The FACH Measurement Occasion of N_{TTI} frames will be repeated every N_{TTI} * M_REP frame.

8.4A.2.2 TDD intra frequency measurements

During the CELL_FACH state the UE shall continuously measure identified intra frequency cells and search for new intra frequency cells in the ~~monitoring~~ monitored set. Intra frequency measurements can be performed (simultaneously to data reception from the active cell) in all time slots not used for inter frequency measurements.

8.4A.2.2.1 Identification of a new cell

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

$$T_{identify\ intra} = T_{basic\ identify\ TDD,\ intra} \cdot \frac{N_{Period,\ Intra}}{N_{Intra}} \text{ ms}$$

A cell shall be considered detectable when P-CCPCH Ec/Io ≥ -8 dB, DwPCH_Ec/Io ≥ -5 dB.

8.4A.2.2.2 UE P-CCPCH RSCP measurement capability

In the CELL_FACH state the measurement period for intra frequency P-CCPCH RSCP measurements is 200 ms. When all TS0, DwPTS and main guard period in the measurement period are scheduled for intra frequency measurements, the UE shall be capable of performing P-CCPCH RSCP measurements for 6 identified intra-frequency cells of the monitored set and the UE physical layer shall be capable of reporting these measurements to higher layers with the measurement period of 200 ms. When inter-frequency measurements required by the network have to be performed during periods of TS0, DwPTS and main guard period, the UE shall be capable of performing P-CCPCH RSCP measurements for at least $Y_{measurement\ intra}$ cells , where $Y_{measurement\ intra}$ is defined in the following equation.. The measurement accuracy for all measured cells shall be as specified in the section 9. If the UE has identified more than $Y_{measurement\ intra}$ cells, the UE shall perform measurements of all identified cells but the reporting rate of P-CCPCH RSCP measurements of cells from UE physical layer to higher layers may be decreased.

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

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

$X_{basic\ measurement\ TDD}$ is specified in section 8.1A.2.2.2

$T_{Measurement\_Period,\ Intra}$ is specified in section 8.1A.2.2.2

$N_{Period,\ Intra}$: is specified in section 8.1A.2.2.2

N_{Intra} : is specified in section 8.1A.2.2.2

$T_{basic\_identify\_TDD,\ intra}$ is specified in section 8.1A.2.2.2

8.4A.2.2.2A Timeslot ISCP measurement capability

In the CELL_FACH state the measurement period for intra frequency Timeslot ISCP measurements on arbitrary DL timeslots, including Beacon timeslots is 400 ms. When no inter frequency measurement is scheduled, the UE shall be capable of performing Timeslot ISCP measurements on the current serving cell for 5 arbitrary DL timeslots. The UE physical layer shall be capable of reporting Timeslot ISCP measurements to higher layers with the measurement period of 400 ms.

When inter-frequency measurements are required by the network, the UE shall be able to perform Timeslot ISCP measurements on the current serving for at least $Y_{measurement\ intra\ ISCP}$ arbitrary DL timeslots, where $Y_{measurement\ intra\ ISCP}$ is defined in the following equation. Any Timeslot ISCP measurement that could not be performed during that measurement period, shall be measured in the following measurement periods. The measurement accuracy of the Timeslot ISCP measurement shall be as specified in the section 9.

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

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

$X_{basic\ measurement\ ISCP} = 5$ (arbitrary DL timeslots of the current serving cell)

$T_{Measurement\_Period,\ Intra,\ ISCP}$ is specified in section 8.1A.2.2.2A,

T_{Intra} is specified in section 8.1A.2.2.2A.

8.4A.2.2.3 RACH Reporting

Reported measurements in the measurement reports sent on the RACH shall meet the requirements in section 9.

8.4A.2.3 TDD inter frequency measurements

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

8.4A.2.3.1 Identification of a new cell

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

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

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

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

A cell shall be considered detectable when P-CCPCH Ec/Io ≥ -8 dB, DwPCH_Ec/Io ≥ -5 dB.

8.4A.2.3.2 UE P-CCPCH RSCP measurement capability

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

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

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

where

$T_{Measurement\_Period\ Inter}$ is specified in section 8.1A.2.3.2

~~$T_{Inter\ FACH}$: This is the minimum time that is available for the inter frequency P-CCPCH RSCP measurements during the period $T_{Measurement\_Period\ inter}$ with an arbitrarily chosen timing. The minimum time depends on the channel allocation and on measurement occasions during CELL_FACH state and is calculated by assuming [2*0.1] ms for implementation margin (for the description of the idle intervals see Annex A of 25.225 and for definition of measurement occasions during CELL_FACH state given by M_REP and TTI see TS 25.331). It is assumed for the requirement that the slot allocation allows measurement windows in the idle periods to be of minimum duration necessary to perform the measurements. During the measurement occasions for CELL_FACH state the UE shall measure primarily cells that can not be measured in the idle intervalls.~~

$N_{Inter\ FACH}$: This is the minimum number of sub-frame in that the signal of P-CCPCH and DwPCH can be received for inter frequency target cell during the period $T_{measurement\_Period\ Inter}$ with an arbitrarily chosen timing. It depends on the channel allocation and on measurement occasions during CELL-FACH state and is calculated by assuming 2*0.1ms for implementation margin (for the description of the idle intervals see Annex A of 25.225 and for definition of measurement occasions during CELL_FACH state given by M_REP and TTI see TS 25.331). During the measurement occasions for CELL_FACH state the UE shall measure primarily cells that can not be measured in the idle intervals.

$T_{basic\_identify\_TDD,inter}$ is specified in section 8.1A.2.3.2

$N_{basic\ identify\ TDD,\ Inter}$ is specified in section 8.1A.2.3.2

$T_{basic\_measurement\_TDD\ inter}$ is specified in section 8.1A.2.3.2

$N_{basic\ measurement\ TDD,\ Inter}$ is specified in section 8.1A.2.3.2

N_{Freq} is specified in section 8.1A.2.3.2

If the UE does not need measurement occasions and idle intervals to perform inter-frequency measurements, the measurement period for inter frequency measurements is 480ms.

The UE shall be capable of performing P-CCPCH measurements for $X_{basic\ measurement\ TDD\ inter}$ inter-frequency cells per TDD frequency of the monitored set, and the UE physical layer shall be capable of reporting measurements to higher layers with the measurement period of $T_{Measurement\_\ Inter}$.

$X_{basic\ measurement\ TDDinter}$ is defined in section 8.1A.2.3.2.

8.4A.2.4 FDD measurements

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

In the CELL_FACH state when FDD inter frequency measurements are scheduled the UE shall continuously measure identified inter frequency FDD cells and search for new inter frequency FDD cells indicated in the measurement control information.

8.4A.2.4.1 Identification of a new cell

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

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

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

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

8.4A.2.4.2 UE CPICH measurement capability

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

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

$T_{Measurement\_Period\ FDD\ inter}$ is specified in section 8.1A.2.4.2

~~$T_{Inter\ FACH:}$ is specified in section 8.4A.2.3.2~~

$T_{Inter\ FACH:}$ This is the minimum time that is available for the inter frequency measurements during the period $T_{Measurement\_Period\ FDD\ inter}$ with an arbitrarily chosen timing. The minimum time depends on the channel allocation and on measurement occasions during CELL_FACH state and is calculated by assuming 2*0.1 ms for implementation margin (for the description of the idle intervals see Annex A of 25.225 and for definition of measurement occasions during CELL_FACH state given by M_REP and TTI see TS 25.331). It is assumed for the requirement that the slot allocation allows measurement windows in the idle periods to be of minimum duration necessary to perform the measurements. During the measurement occasions for CELL_FACH state the UE shall measure primarily cells that can not be measured in the idle intervals.

$T_{basic\_identify\_FDD,inter}$ is specified in section 8.1A.2.4.2

$T_{basic\_measurement\_FDD\ inter}$ is specified in section 8.1A.2.4.2.

N_{Freq} is specified in section 8.1A.2.4.2

If the UE does not need measurement occasions and idle intervals to perform inter-frequency measurements, the measurement period for FDD measurements is 480 ms.

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

$X_{basic\ measurement\ FDDinter}$ is defined in section 8.1A.2.4.2

<NEXT CHANGED SECTION>

A.8.2 TDD inter frequency measurements

A.8.2.1 Correct reporting of neighbours in AWGN propagation condition

A.8.2.1.1 Test Purpose and Environment

A.8.2.1.1.1 3.84Mcps TDD option

The purpose of this test is to verify that the UE makes correct reporting of an event when doing inter frequency measurements. The test will partly verify the requirements in section 8.1.2. and 9.1

The test consists of 2 successive time periods, with a time duration T1 and T2. The test parameters are given in tables A.8.2A and A.8.2B below. Two cells shall be present in the test, cell 1 being the serving cell and cell 2 being a UTRA TDD neighbour cell on the unused frequency. All cells shall be synchronised, i.e. share the same frame and timeslot timing.

In the measurement control information it is indicated to the UE that event-triggered reporting with Event 2C shall be used. P-CCPCH RSCP of the best cell on the unused frequency shall be reported together with Event 2C reporting. The Measurement control message shall be sent to the UE such that the delay between the end of the last received TTI containing the message and the beginning of T1 is at least equal to the RRC procedure delay as defined in [16].

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

Table A.8.2A: General test parameters for correct reporting of TDD inter frequency neighbours in AWGN propagation condition

Parameter		Unit	Value	Comment
DPCH parameters			DL Reference Measurement Channel 12.2 kbps	As specified in TS 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 A.8.2B: Cell specific test parameters for correct reporting of TDD inter frequency neighbours in AWGN propagation condition

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							

A.8.2.1.1.2 1.28Mcps TDD option

The purpose of this test is to verify that the UE makes correct reporting of an event when doing inter frequency measurements. The test will partly verify the requirements in section 8.1A.2 and 9.1.

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

In the measurement control information it is indicated to the UE that event-triggered reporting with Event 2C shall be used. P-CCPCH RSCP of the best cell on the unused frequency shall be reported together with Event 2C reporting. The measurement control message shall be sent to the UE such that the delay between the end of the last received TTI containing the message and the beginning of T1 is at least equal to the RRC procedure delay as defined in [16].

~~This test will derive that the terminal makes correct reporting of an event Cell 1 is the active cell, Cell 2 is a neighbour cell on the used frequency. The power level on Cell 1 is kept constant and the power level of Cell 2 is changed using "change of best cell event". General test parameters are given in the table A.8.2C 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 A.8.2D.~~

Table A.8.2C: General test parameters for correct reporting of TDD inter frequency neighbours in AWGN propagation condition

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 A.8.2D Cell Specific Parameters for Correct Reporting of Neighbours in AWGN Propagation Condition

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.

A.8.2.1.2 Test Requirements

A.8.2.1.2.1 3.84Mcps TDD option

The UE shall send one Event 2C triggered measurement report, with a measurement reporting delay less than 5 s from the beginning of time period T2.

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

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

A.8.2.1.2.2 1.28Mcps TDD option

The UE shall send one Event 2C triggered measurement report, with a measurement reporting delay less than ~~[~~5~~]~~ s from the beginning of time period T2.

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

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

A.8.3 FDD measurements

A.8.3.1 Correct reporting of FDD neighbours in AWGN propagation condition

A.8.3.1.1 Test Purpose and Environment

A.8.3.1.1.1 3.84 Mcps TDD option

The purpose of this test is to verify that the UE makes correct reporting of events when measuring on UTRA FDD cells. This test will partly verify the requirements in section 8.1.2 and 9.1.

The test parameters are given in Table A.8.3A and A.8.3B below. The test consists of two successive time periods, with time durations of T1 and T2 respectively. Two cells shall be present in the test, cell 1 being the serving UTRA TDD cell and cell 2 being a UTRA FDD neighbour cells on the unused frequency.

In the measurement control information it is indicated to the UE that event-triggered reporting with Event 2C shall be used and that CPICH Ec/I0 of the best cell on the unused frequency shall be reported together with Event 2C. The Measurement control message shall be sent to the UE such that the delay between the end of the last received TTI containing the message and the beginning of T1 is at least equal to the RRC procedure delay as defined in [16].

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

Table A.8.3A: General test parameters for correct reporting of FDD neighbours in AWGN

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 A.8.3B: Cell specific parameters for correct reporting of FDD neighbours in AWGN propagation condition

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	

A.8.3.1.1.2 1.28 Mcps TDD option

~~This test will derive that the terminal makes correct reporting of an event. Cell 1 is current active cell, Cell 2 is a FDD cell. The power level of CPICH_RSCP of cell 2 and the P-CCPCH RSCP of cell 1 is changed. General test parameters are given in the table A.8.3C 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 A.8.3D below.~~

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

The test consists of two successive time periods, with a time duration T1 and T2. The test parameters are given in Table A.8.3C and A.8.3D. Two cells shall be present in the test, cell 1 being current active 1.28Mcps TDD cell and cell 2 being a UTRA FDD neighbouring cell.

In the measurement control information it is indicated to the UE hat event-triggered reporting with Event 2C shall be used and the CPICH RSCP of the best cell on the unused frequency shall be reported together with Event 2C.The measurement control message shall be sent to the UE such that the delay between the end of the last received TTI containing the message and the beginning of T1 is at least equal to the RRC procedure delay as defined in [16].

Table A.8.3C: General test parameters for Correct reporting of FDD neighbours in AWGN propagation condition

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 A.8.3D Cell Specific parameters for Correct reporting of FDD neighbours in AWGN propagation condition:

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.

A.8.3.1.2 Test Requirements

A.8.3.1.2.1 3.84 Mcps TDD option

The UE shall send one Event 2C triggered measurement report, with a measurement reporting delay less than 5 seconds from the start of time period T2.

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

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

A.8.3.1.2.2 1.28 Mcps TDD option

The UE shall send one Event 2C triggered measurement report, with a measurement reporting delay less than ~~[~~5~~]~~ s from the beginning of time period T2.

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

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

3GPP TSG RAN WG4 (Radio) Meeting #28 **R4-030685**

Sophia Antipolis, France 18 - 22 August 2003

CR-Form-v7

CHANGE REQUEST

⌘ **25.123** **CR** **317** ⌘ **rev** ⌘ Current version: **5.5.0** ⌘

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

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

Title:	⌘	Correction to inter frequency measurement requirements and test cases for 1.28Mcps TDD option
Source:	⌘	RAN WG4
Work item code:	⌘	LCRTDD-RF
Date:	⌘	08/09/2003
Category:	⌘	**A**
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:	⌘	For the 1.28Mcps TDD option, PCCPCH is always located in TS0 and DwPCH is always located in DwPTS. The measurement and identification is performed in the special periods of TS0 and DwPTS of target cell. Other timeslots need not to be taken into account for inter-frequency measurements and identification. If the receiving of TS0 and DwPTS overlaps with the receiving or transmiting toward serving cell, the measurement and identification of inter frequency cell will be impossible. The definition of T_{inter} and $T_{inter\ FACH}$ does not include this scene. Conditions need be clarified for inter-frequency FDD identification and measurement. Test conditions and parameters are incomplete in test cases for inter TDD-TDD/FDD measurement.
Summary of change:	⌘	Changing the formula for calculating the $T_{identify\ inter}$, $T_{measurement\ inter}$ for inter frequency measurements and the definition of the correlative variables. Clarifing the conditions for inter-frequency FDD measurement requirement. Completion of test condions and parameters in test cases for inter TDD-TDD/FDD measurement.
Consequences if not approved:	⌘	TDD-TDD/FDD measurement requirement incomplete or not feasible. The calculation of $T_{identify\ inter}$ and $T_{measurement\ inter}$ is not clear or correct. Test cases for TDD and FDD neighbours reporting in AWGN is not feasible. **Isolated Impact Analysis:**

	The Changes does not affect the function of UE. The implementation would not be affected if behaving as indicated in the CR, the implementation would be affected if not behaving as indicated in the CR.

Clauses affected:	⌘	8.1A.2.2, 8.1A.2.3, 8.1A.2.4, 8.4A.2.1, 8.4A.2.3, 8.4A.2.4, A.8.2.1, A.8.3.1			
Other specs affected:	⌘	**Y** / **N**	Other core specifications	⌘	
		X /	Test specifications		34.122
		/ X	O&M Specifications		
Other comments:	⌘	Equivalent CRs in other Releases: CR316 cat. F to 25.123 v4.9.0			

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.

8.1A General Measurements Requirements in CELL_DCH State (1.28 Mcps option)

8.1A.1 Introduction

This section contains requirements on the UE regarding measurement reporting in CELL_DCH state. The requirements are split in TDD intra frequency, TDD inter frequency, FDD and GSM measurements. These measurements may be used by the UTRAN, e.g. for handover decisions. The measurements are defined in TS 25.225, the measurement model is defined in TS 25.302 and measurement accuracies are specified in section 9. Control of measurement reporting is specified in TS 25.331 and parallel measurements are specified in section 8.2A. For the description of the idle intervals see TS 25.225, Annex A.

8.1A.2 Requirements

8.1A.2.1 UE Measurement Capability

The UE shall be able to monitor up to

- 32 intra frequency TDD cells, and
- 32 inter frequency cells, including
  - TDD cells distributed on up to 3 additional TDD carriers and
  - Depending on UE capability, FDD cells, distributed on up to 3 FDD carriers, and
- Depending on UE capability, -32 GSM cells distributed on up to 32 GSM carriers.

Performance requirements for different types of measurements and different number of cells are defined in the following sections.

The requirements in section 9 are applicable for a UE performing measurements according to this section.

The received P-CCPCH E_c/I_o is defined as

$$\left(\frac{P-CCPCH\_E_c}{I_o}\right)\Bigg|_{in\ dB} = \left(\frac{P-CCPCH\_E_c}{I_{or}}\right)\Bigg|_{in\ dB} - \frac{I_o}{\left(\hat{I}_{or}\right)}\Bigg|_{in\ dB}$$

The received DwPTS E_c/I_o is defined as

$$\left(\frac{DwPCH\_E_c}{I_o}\right)\Bigg|_{in\ dB} = \left(\frac{DwPCH\_E_c}{I_{or}}\right)\Bigg|_{in\ dB} - \frac{I_o}{\left(\hat{I}_{or}\right)}\Bigg|_{in\ dB}$$

8.1A.2.2 TDD intra frequency measurements

During the CELL_DCH state the UE shall continuously measure identified intra frequency cells and search for new intra frequency cells in the ~~monitoring~~ monitored set. In case the ~~network~~ UTRAN requests the UE to report detected set cells, the UE shall also search for intra frequency cells outside the monitored and active set set. Cells, which are neither included in the active set nor in the monitored set, and are identified by the UE belong to the detected set according to TS 25.331. Intra frequency measurements can be performed (simultaneously to data reception from the active cell) in all time slots not used for inter frequency measurements.

8.1A.2.2.1 Identification of a new cell

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

$$T_{identify\ \ intra} = T_{basic\ identify\ TDD,\ intra} \cdot \frac{N_{Period,\ Intra}}{N_{Intra}} ms$$

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

The UE shall be able to identify a new detectable cell not belonging to the monitored set within

$$T_{identify\ \ detected\ set} = 30s$$

when P-CCPCH Ec/Io ≥ -8 dB, DwPCH_Ec/Io ≥ -5 dB. When L3 filtering is used an additional delay can be expected.

8.1A.2.2.2 UE P-CCPCH RSCP measurement capability

In the CELL_DCH state the measurement period for intra frequency P-CCPCH RSCP measurements is 200 ms. When all TS0, DwPTS and main guard periods in the measurement period are scheduled for intra frequency measurements, the UE shall be capable of performing P-CCPCH RSCP measurements for 6 identified intra-frequency cells of the monitored set and the UE physical layer shall be capable of reporting these measurements to higher layers with the measurement period of 200 ms. When inter-frequency measurements required by the network have to be performed during periods of TS0, DwPTS or main guard period, the UE shall be capable of performing P-CCPCH RSCP measurements for at least $Y_{measurement\ intra}$ cells , where $Y_{measurement\ intra}$ is defined in the following equation. The measurement accuracy for all measured cells shall be as specified in the section 9. If the UE has identified more than $Y_{measurement\ intra}$ cells, the UE shall perform measurements of all identified cells but the reporting rate of P-CCPCH RSCP measurements of cells from UE physical layer to higher layers may be decreased.

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

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

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

$T_{Measurement\_Period,\ Intra}$ =200 ms. The measurement period for Intra frequency P-CCPCH RSCP measurements.

$N_{Period,Intra:}$ = 40 Number of subframes in $T_{Measurement\_Period,\ Intra.}$

N_{Intra} : This is the minimum number of sub-frame in that the period of TS0, DwPTS and main guard period is available for intra frequency measurements, during the measurement period.

$T_{basic\_identify\_TDD,\ intra}$ = 800 ms. This is the time period used in the intra frequency equation where the maximum allowed time for the UE to identify a new TDD cell is defined. ~~(side conditions are defined in subclause 8.1A.2.6).~~

The UE shall furthermore be capable of performing P-CCPCH measurements for at least 1 detected intra-frequency cell, in the detected set, and the UE physical layer shall be capable of reporting measurements to higher layers with the measurement period of 10 s. The measurement accuracy for all measured cells shall be as specified in the section 9.

8.1A.2.2.2A Timeslot ISCP measurement capability

In the CELL_DCH state the measurement period for intra frequency Timeslot ISCP measurements on arbitrary DL timeslots, including Beacon timeslots is 400 ms. When no inter frequency measurement is scheduled, the UE shall be capable of performing Timeslot ISCP measurements for a total of 5 different combinations of an arbitrary DL timeslot and an intra-frequency cell [16], including the current serving cell. The UE physical layer shall be capable of reporting Timeslot ISCP measurements to higher layers with the measurement period of 400 ms.

When inter-frequency measurements are required by the network, the UE shall be able to perform Timeslot ISCP measurements for at least $Y_{measurement\ intra\ ISCP}$ different combinations, where $Y_{measurement\ intra\ ISCP}$ is defined in the following equation. Any Timeslot ISCP measurement that could not be performed during that measurement period, shall be measured in the following measurement periods. The measurement accuracy of the Timeslot ISCP measurement shall be as specified in the section 9.

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

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

$X_{\text{basic measurement ISCP}}$ = 5 (combinations of an arbitrary DL timeslot and an intra-frequency cell)

$T_{\text{Measurement\_Period, Intra, ISCP}}$ = 400 ms. The measurement period for Intra frequency Timeslot ISCP measurements.

T_{Intra}: This is the minimum time (representing a time corresponding to an integer number of full slots) that is available for intra frequency measurements, during the measurement period with an arbitrarily chosen timing.

8.1A.2.2.3 Periodic Reporting

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

8.1A.2.2.4 Event-triggered Periodic Reporting

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

The first report in event triggered periodic measurement reporting shall meet the requirements specified in section 8.1A.2.2.5 Event Triggered Reporting.

8.1A.2.2.5 Event Triggered Reporting

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

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

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

The event triggered measurement reporting delay, on cells belonging to monitored set, measured without L3 filtering shall be less than $T_{\text{identify intra}}$ defined in Section 8.1A.2.2.1

If a cell belonging to monitored set has been detectable at least for the time period $T_{\text{identify\_intra}}$ and then enters or leaves the reporting range, the event triggered measurement reporting delay shall be less than $T_{\text{Measurement\_Period Intra}}$ when the L3 filter has not been used and the UE P-CCPCH measurement capabilities of Section 8.1A.2.2.2 are valid.

The event triggered measurement reporting delay on cells not belonging to monitored set, measured without L3 filtering, shall be less than the above defined $T_{\text{identify detected set}}$. defined in Section 8.1A.2.2.1.

8.1A.2.3 TDD inter frequency measurements

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

8.1A.2.3.1 Identification of a new cell

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

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

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

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.

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.

8.1A.2.3.2 UE P-CCPCH RSCP measurement capability

When idle intervals are used for TDD inter frequency measurements ~~are scheduled~~, the UE physical layer shall be capable of reporting P-CCPCH RSCP measurements to higher layers with measurement accuracy as specified in section 9 and with measurement period given by

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

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

~~In case of a dual receiver UE~~ If the UE does not require idle intervals to perform TDD inter-frequency measurements, the measurement period for inter frequency P-CCPCH RSCP measurements is 480 ms.

The UE shall be capable of performing P-CCPCH RSCP measurements for $X_{basic\ measurement\ TDD\ inter}$ inter-frequency cells per TDD frequency of the monitored set, and the UE physical layer shall be capable of reporting measurements to higher layers with the measurement period of $T_{Measurement\_\ Inter}$.

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

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

~~$T_{Inter:}$~~ ~~This is the minimum time available for inter frequency measurements during the period $T_{Measurement\_Period\ inter}$ with an arbitrarily chosen timing. The minimum time depends on the channel allocation and is calculated by assuming [2*0.1] ms for implementation margin (for the description of the idle intervals see Annex A of 25.225). It is assumed for the requirement that the slot allocation allows measurement windows in the idle periods to be of minimum duration necessary to perform the measurements.~~

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. ~~(side conditions are defined in subclause 8.1A.2.6).~~

$N_{basic\ identify\ TDD,\ Inter}$: = 160, Number of subframes in $T_{basic\ identify\ TDD,\ inter.}$

$T_{basic\_measurement\_TDD\ inter}$ = 50 ms. This is the time period used in the equation for defining the measurement period for inter frequency P-CCPCH RSCP measurements.

$N_{basic\ measurement\ TDD,\ Inter}$: = 10, Number of subframes in $T_{basic\ measurement\ TDD\ Inter.}$

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

8.1A.2.3.3 Periodic Reporting

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

8.1A.2.3.4 Event Triggered Reporting

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

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

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

The event triggered measurement reporting delay, measured without L3 filtering shall be less than $T_{identify\ inter}$ defined in Section 8.1A.2.3.1. When L3 filtering is used an additional delay can be expected.

8.1A.2.4 FDD measurements

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

In the CELL_DCH state when FDD inter frequency measurements are scheduled the UE shall continuously measure identified inter frequency FDD cells and search for new inter frequency FDD cells indicated in the measurement control information.

8.1A.2.4.1 Identification of a new cell

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

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

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

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

A cell shall be considered detectable when CPICH Ec/Io ≥ -20 dB, SCH_Ec/Io ≥ -17 dB and SCH_Ec/Ior is equally divided between primary synchronisation code and secondary synchronisation code. ~~When L3 filtering is used an additional delay can be expected.~~

8.1A.2.4.2 UE CPICH measurement capability

When idle intervals are used for FDD inter frequency measurements ~~are scheduled~~, the UE physical layer shall be capable of reporting measurements to higher layers with measurement accuracy as specified in sub-clause 9 with measurement period given by

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

If the UE does not need idle intervals to perform FDD measurements ~~in the idle intervals only~~, the measurement period for inter frequency measurements is 480 ms.

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

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

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

$T_{FDD\ inter:}$ This is the minimum time that is available for inter frequency measurements, during the period $T_{Measurement\_Period\ FDD\ inter}$ with an arbitrarily chosen timing. The minimum time depends on the channel allocation and is calculated by assuming ~~[~~2*0.1~~]~~ ms for implementation margin (for the description of the idle intervals see Annex A of 25.225). It is assumed for the requirement that the slot allocation allows measurement windows in the idle periods to be of minimum duration necessary to perform the measurements.

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

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

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

8.1A.2.4.3 Periodic Reporting

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

8.1A.2.4.4 Event Triggered Reporting

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

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

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

The event triggered measurement reporting delay, measured without L3 filtering shall be less than $T_{identify\ FDD\ inter}$ defined in Section 8.1A.2.4.1. When L3 filtering is used an additional delay can be expected.

If a cell has been detectable at least for the time period $T_{identify\_FDD\ inter}$ and then enters the reporting range, the event triggered measurement reporting delay shall be less than $T_{Measurement\_Period\ FDD\ Inter}$ provided the timing to that cell has not changed more than +/-32 chips while idle intervals have has not been available and the L3 filter has not been used.

<NEXT CHANGED SECTION>

8.4A Measurements in CELL_FACH State (1.28 Mcps option)

8.4A.1 Introduction

This section contains requirements on the UE regarding measurement reporting in CELL_FACH state. The requirements for cell re-selection are split in TDD intra frequency, TDD inter frequency, FDD and GSM measurements. The measurements are defined in TS 25.225, the measurement model is defined in TS 25.302 and measurement accuracies are specified in section 9. Control of measurement reporting is specified in TS 25.331 and parallel measurements are specified in section 8.2. For the description of the idle intervals see TS 25.225, Annex A.

8.4A.2 Requirements

8.4A.2.1 UE Measurement Capability

The UE shall be able to monitor up to

- 32 intra frequency TDD cells, and
- 32 inter frequency cells, including
  - TDD cells distributed on up to 3 additional TDD carriers and
  - Depending on UE capability, FDD cells, distributed on up to 3 FDD carriers.
- Depending on UE capability, 32 GSM cells distributed on up to 32 GSM carriers.

The requirements in section 9 on P-CCPCH RSCP measurements are applicable for a UE performing measurements according to this section. For inter-frequency FDD, TDD and GSM cell re-selection, measurement occasions as specified in TS 25.331 and, in addition, idle intervals as described in TS 25.225 are used to find and measure on these cells.

It is defined below how the measurements on different systems and modes are performed given the time allocated to that system. The requirements in this section are based on the assumption that the time during the measurement occasions and idle intervals that is allocated to each of the different modes and systems shall be equally shared by the modes which the UE has capability for and that are in the monitored set signalled by the network.

The UE is required to measure periodically once every time period T_{meas} on each of the modes and systems, FDD interfrequency cells, TDD interfrequency cells and GSM carriers, for which the corresponding parameter N_{FDD}, N_{TDD} and N_{GSM} is set to 1, within the measurement time T_{meas}

$$T_{meas} = \left[\left(N_{FDD} + N_{TDD} + N_{GSM}\right) \cdot N_{TTI} \cdot \text{M\_REP} \cdot 10\right] \text{ms}$$

where the following parameters are defined:

N_{TDD}	= 0 or 1. If there are inter-frequency TDD cells in the neighbour list N_{TDD}=1, otherwise N_{TDD}=0.
N_{FDD}	= 0 or 1. If the UE is capable of FDD and there are FDD cells in the neighbour list N_{FDD}=1 otherwise N_{FDD}=0.
N_{GSM}	= 0 or 1. If the UE is capable of GSM and there are GSM cells in the neighbour list, N_{GSM}=1, otherwise N_{GSM}=0.
M_REP	is the Measurement Occasion cycle length in number of frames as specified in TS 25.331.
N_{TTI}	is the number of frames in each measurement occasion, equal to the length of the largest TTI on the SCCPCH monitored by the UE.

The FACH Measurement Occasion of N_{TTI} frames will be repeated every N_{TTI} * M_REP frame.

8.4A.2.2 TDD intra frequency measurements

During the CELL_FACH state the UE shall continuously measure identified intra frequency cells and search for new intra frequency cells in the ~~monitoring~~ monitored set. Intra frequency measurements can be performed (simultaneously to data reception from the active cell) in all time slots not used for inter frequency measurements.

8.4A.2.2.1 Identification of a new cell

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

$$T_{identify\ intra} = T_{basic\ identify\ TDD,\ intra} \cdot \frac{N_{Period,\ Intra}}{N_{Intra}} \text{ ms}$$

A cell shall be considered detectable when P-CCPCH Ec/Io ≥ -8 dB, DwPCH_Ec/Io ≥ -5 dB.

8.4A.2.2.2 UE P-CCPCH RSCP measurement capability

In the CELL_FACH state the measurement period for intra frequency P-CCPCH RSCP measurements is 200 ms. When all TS0, DwPTS and main guard period in the measurement period are scheduled for intra frequency measurements, the UE shall be capable of performing P-CCPCH RSCP measurements for 6 identified intra-frequency cells of the monitored set and the UE physical layer shall be capable of reporting these measurements to higher layers with the measurement period of 200 ms. When inter-frequency measurements required by the network have to be performed during periods of TS0, DwPTS and main guard period, the UE shall be capable of performing P-CCPCH RSCP measurements for at least $Y_{measurement\ intra}$ cells , where $Y_{measurement\ intra}$ is defined in the following equation.. The measurement accuracy for all measured cells shall be as specified in the section 9. If the UE has identified more than $Y_{measurement\ intra}$ cells, the UE shall perform measurements of all identified cells but the reporting rate of P-CCPCH RSCP measurements of cells from UE physical layer to higher layers may be decreased.

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

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

$X_{basic\ measurement\ TDD}$ is specified in section 8.1A.2.2.2

$T_{Measurement\_Period,\ Intra}$ is specified in section 8.1A.2.2.2

$N_{Period,\ Intra}$: is specified in section 8.1A.2.2.2

N_{Intra} : is specified in section 8.1A.2.2.2

$T_{basic\_identify\_TDD,\ intra}$ is specified in section 8.1A.2.2.2

8.4A.2.2.2A Timeslot ISCP measurement capability

In the CELL_FACH state the measurement period for intra frequency Timeslot ISCP measurements on arbitrary DL timeslots, including Beacon timeslots is 400 ms. When no inter frequency measurement is scheduled, the UE shall be capable of performing Timeslot ISCP measurements on the current serving cell for 5 arbitrary DL timeslots. The UE physical layer shall be capable of reporting Timeslot ISCP measurements to higher layers with the measurement period of 400 ms.

When inter-frequency measurements are required by the network, the UE shall be able to perform Timeslot ISCP measurements on the current serving for at least $Y_{measurement\ intra\ ISCP}$ arbitrary DL timeslots, where $Y_{measurement\ intra\ ISCP}$ is defined in the following equation. Any Timeslot ISCP measurement that could not be performed during that measurement period, shall be measured in the following measurement periods. The measurement accuracy of the Timeslot ISCP measurement shall be as specified in the section 9.

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

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

$X_{basic\ measurement\ ISCP} = 5$ (arbitrary DL timeslots of the current serving cell)

$T_{Measurement\_Period,\ Intra,\ ISCP}$ is specified in section 8.1A.2.2.2A,

T_{Intra} is specified in section 8.1A.2.2.2A.

8.4A.2.2.3 RACH Reporting

Reported measurements in the measurement reports sent on the RACH shall meet the requirements in section 9.

8.4A.2.3 TDD inter frequency measurements

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

8.4A.2.3.1 Identification of a new cell

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

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

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

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

A cell shall be considered detectable when P-CCPCH Ec/Io ≥ -8 dB, DwPCH_Ec/Io ≥ -5 dB.

8.4A.2.3.2 UE P-CCPCH RSCP measurement capability

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

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

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

where

$T_{Measurement\_Period\ Inter}$ is specified in section 8.1A.2.3.2

~~$T_{Inter\ FACH}$: This is the minimum time that is available for the inter frequency P-CCPCH RSCP measurements during the period $T_{Measurement\_Period\ inter}$ with an arbitrarily chosen timing. The minimum time depends on the channel allocation and on measurement occasions during CELL_FACH state and is calculated by assuming [2*0.1] ms for implementation margin (for the description of the idle intervals see Annex A of 25.225 and for definition of measurement occasions during CELL_FACH state given by M_REP and TTI see TS 25.331). It is assumed for the requirement that the slot allocation allows measurement windows in the idle periods to be of minimum duration necessary to perform the measurements. During the measurement occasions for CELL_FACH state the UE shall measure primarily cells that can not be measured in the idle intervalls.~~

$N_{Inter\ FACH}$: This is the minimum number of sub-frame in that the signal of P-CCPCH and DwPCH can be received for inter frequency target cell during the period $T_{measurement\_Period\ Inter}$ with an arbitrarily chosen timing. It depends on the channel allocation and on measurement occasions during CELL-FACH state and is calculated by assuming 2*0.1ms for implementation margin (for the description of the idle intervals see Annex A of 25.225 and for definition of measurement occasions during CELL_FACH state given by M_REP and TTI see TS 25.331). During the measurement occasions for CELL_FACH state the UE shall measure primarily cells that can not be measured in the idle intervals.

$T_{basic\_identify\_TDD,inter}$ is specified in section 8.1A.2.3.2

$N_{basic\ identify\ TDD,\ Inter}$ is specified in section 8.1A.2.3.2

$T_{basic\_measurement\_TDD\ inter}$ is specified in section 8.1A.2.3.2

$N_{basic\ measurement\ TDD,\ Inter}$ is specified in section 8.1A.2.3.2

N_{Freq} is specified in section 8.1A.2.3.2

If the UE does not need measurement occasions and idle intervals to perform inter-frequency measurements, the measurement period for inter frequency measurements is 480ms.

The UE shall be capable of performing P-CCPCH measurements for $X_{\text{basic measurement TDD inter}}$ inter-frequency cells per TDD frequency of the monitored set, and the UE physical layer shall be capable of reporting measurements to higher layers with the measurement period of $T_{\text{Measurement\_ Inter}}$.

$X_{\text{basic measurement TDDinter}}$ is defined in section 8.1A.2.3.2.

8.4A.2.4 FDD measurements

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

In the CELL_FACH state when FDD inter frequency measurements are scheduled the UE shall continuously measure identified inter frequency FDD cells and search for new inter frequency FDD cells indicated in the measurement control information.

8.4A.2.4.1 Identification of a new cell

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

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

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

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

8.4A.2.4.2 UE CPICH measurement capability

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

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

$T_{\text{Measurement\_Period FDD inter}}$ is specified in section 8.1A.2.4.2

~~$T_{\text{Inter FACH:}}$ is specified in section 8.4A.2.3.2~~

$T_{\text{Inter FACH:}}$ This is the minimum time that is available for the inter frequency measurements during the period $T_{\text{Measurement\_Period FDD inter}}$ with an arbitrarily chosen timing. The minimum time depends on the channel allocation and on measurement occasions during CELL_FACH state and is calculated by assuming 2*0.1 ms for implementation margin (for the description of the idle intervals see Annex A of 25.225 and for definition of measurement occasions during CELL_FACH state given by M_REP and TTI see TS 25.331). It is assumed for the requirement that the slot allocation allows measurement windows in the idle periods to be of minimum duration necessary to perform the measurements. During the measurement occasions for CELL_FACH state the UE shall measure primarily cells that can not be measured in the idle intervals.

$T_{\text{basic\_identify\_FDD,inter}}$ is specified in section 8.1A.2.4.2

$T_{\text{basic\_measurement\_FDD inter}}$ is specified in section 8.1A.2.4.2.

N_{Freq} is specified in section 8.1A.2.4.2

If the UE does not need measurement occasions and idle intervals to perform inter-frequency measurements, the measurement period for FDD measurements is 480 ms.

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

$X_{basic\ measurement\ FDDinter}$ is defined in section 8.1A.2.4.2

<NEXT CHANGED SECTION>

A.8.2 TDD inter frequency measurements

A.8.2.1 Correct reporting of neighbours in AWGN propagation condition

A.8.2.1.1 Test Purpose and Environment

A.8.2.1.1.1 3.84Mcps TDD option

The purpose of this test is to verify that the UE makes correct reporting of an event when doing inter frequency measurements. The test will partly verify the requirements in section 8.1.2. and 9.1

The test consists of 2 successive time periods, with a time duration T1 and T2. The test parameters are given in tables A.8.2A and A.8.2B below. Two cells shall be present in the test, cell 1 being the serving cell and cell 2 being a UTRA TDD neighbour cell on the unused frequency. All cells shall be synchronised, i.e. share the same frame and timeslot timing.

In the measurement control information it is indicated to the UE that event-triggered reporting with Event 2C shall be used. P-CCPCH RSCP of the best cell on the unused frequency shall be reported together with Event 2C reporting. The Measurement control message shall be sent to the UE such that the delay between the end of the last received TTI containing the message and the beginning of T1 is at least equal to the RRC procedure delay as defined in [16].

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

Table A.8.2A: General test parameters for correct reporting of TDD inter frequency neighbours in AWGN propagation condition

Parameter		Unit	Value	Comment
DPCH parameters			DL Reference Measurement Channel 12.2 kbps	As specified in TS 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 A.8.2B: Cell specific test parameters for correct reporting of TDD inter frequency neighbours in AWGN propagation condition

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							

A.8.2.1.1.2 1.28Mcps TDD option

The purpose of this test is to verify that the UE makes correct reporting of an event when doing inter frequency measurements. The test will partly verify the requirements in section 8.1A.2 and 9.1.

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

In the measurement control information it is indicated to the UE that event-triggered reporting with Event 2C shall be used. P-CCPCH RSCP of the best cell on the unused frequency shall be reported together with Event 2C reporting. The measurement control message shall be sent to the UE such that the delay between the end of the last received TTI containing the message and the beginning of T1 is at least equal to the RRC procedure delay as defined in [16].

~~This test will derive that the terminal makes correct reporting of an event Cell 1 is the active cell, Cell 2 is a neighbour cell on the used frequency. The power level on Cell 1 is kept constant and the power level of Cell 2 is changed using "change of best cell event". General test parameters are given in the table A.8.2C 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 A.8.2D.~~

Table A.8.2C: General test parameters for correct reporting of TDD inter frequency neighbours in AWGN propagation condition

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 A.8.2D Cell Specific Parameters for Correct Reporting of Neighbours in AWGN Propagation Condition

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.

A.8.2.1.2 Test Requirements

A.8.2.1.2.1 3.84Mcps TDD option

The UE shall send one Event 2C triggered measurement report, with a measurement reporting delay less than 5 s from the beginning of time period T2.

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

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

A.8.2.1.2.2 1.28Mcps TDD option

The UE shall send one Event 2C triggered measurement report, with a measurement reporting delay less than ~~[~~5~~]~~ s from the beginning of time period T2.

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

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

A.8.3 FDD measurements

A.8.3.1 Correct reporting of FDD neighbours in AWGN propagation condition

A.8.3.1.1 Test Purpose and Environment

A.8.3.1.1.1 3.84 Mcps TDD option

The purpose of this test is to verify that the UE makes correct reporting of events when measuring on UTRA FDD cells. This test will partly verify the requirements in section 8.1.2 and 9.1.

The test parameters are given in Table A.8.3A and A.8.3B below. The test consists of two successive time periods, with time durations of T1 and T2 respectively. Two cells shall be present in the test, cell 1 being the serving UTRA TDD cell and cell 2 being a UTRA FDD neighbour cells on the unused frequency.

In the measurement control information it is indicated to the UE that event-triggered reporting with Event 2C shall be used and that CPICH Ec/I0 of the best cell on the unused frequency shall be reported together with Event 2C. The Measurement control message shall be sent to the UE such that the delay between the end of the last received TTI containing the message and the beginning of T1 is at least equal to the RRC procedure delay as defined in [16].

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

Table A.8.3A: General test parameters for correct reporting of FDD neighbours in AWGN

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 A.8.3B: Cell specific parameters for correct reporting of FDD neighbours in AWGN propagation condition

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	

A.8.3.1.1.2 1.28 Mcps TDD option

~~This test will derive that the terminal makes correct reporting of an event. Cell 1 is current active cell, Cell 2 is a FDD cell. The power level of CPICH_RSCP of cell 2 and the P-CCPCH RSCP of cell 1 is changed. General test parameters are given in the table A.8.3C 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 A.8.3D below.~~

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

The test consists of two successive time periods, with a time duration T1 and T2. The test parameters are given in Table A.8.3C and A.8.3D. Two cells shall be present in the test, cell 1 being current active 1.28Mcps TDD cell and cell 2 being a UTRA FDD neighbouring cell.

In the measurement control information it is indicated to the UE hat event-triggered reporting with Event 2C shall be used and the CPICH RSCP of the best cell on the unused frequency shall be reported together with Event 2C.The measurement control message shall be sent to the UE such that the delay between the end of the last received TTI containing the message and the beginning of T1 is at least equal to the RRC procedure delay as defined in [16].

Table A.8.3C: General test parameters for Correct reporting of FDD neighbours in AWGN propagation condition

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 A.8.3D Cell Specific parameters for Correct reporting of FDD neighbours in AWGN propagation condition:

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.

A.8.3.1.2 Test Requirements

A.8.3.1.2.1 3.84 Mcps TDD option

The UE shall send one Event 2C triggered measurement report, with a measurement reporting delay less than 5 seconds from the start of time period T2.

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

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

A.8.3.1.2.2 1.28 Mcps TDD option

The UE shall send one Event 2C triggered measurement report, with a measurement reporting delay less than ~~[~~5~~]~~ s from the beginning of time period T2.

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

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

3GPP TSG RAN WG4 (Radio) Meeting #28 **R4-030697**

Sophia Antipolis, France 18 - 22 August 2003

CR-Form-v7

CHANGE REQUEST

⌘ **25.123** **CR** **318** ⌘ **rev** ⌘ Current version: **4.9.0** ⌘

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

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

Title:	⌘	TDD/GSM Handover Test Case for 1.28Mcps TDD
Source:	⌘	RAN WG4
Work item code:	⌘	LCRTDD-RF
Date:	⌘	08/09/2003
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:	⌘	Measurement Test Case needs to be clarifed for 1.28Mcps TDD/GSM Handover for LCRTDD. No test case is specified for 1.28Mcps TDD.
Summary of change:	⌘	Introduction of 1.28Mcps TDD test case for TDD/GSM Handover.
Consequences if not approved:	⌘	TDD/GSM Handover of 1.28Mcps TDD is not correctly performed and tested. If this is not performed correctly and tested inter-working with GSM can not be ensured. **Isolated Impact Analysis:** Would not affect the implementation if behaving as indicated in the CR, the implementation would be affected if not behaving as indicated in the CR.
Clauses affected:	⌘	A.5.3.1.2, A.5.3.2.2

Other specs affected:	⌘	Y	N		⌘	
			X	Other core specifications		
		X		Test specifications		34.122
			X	O&M Specifications		

Other comments:	⌘	Equivalent CRs in other Releases: CR319 cat. A to 25.123 v5.5.0

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.

A.5.3 TDD/GSM Handover

A.5.3.1 Test Purpose and Environment

A.5.3.1.1 3.84 Mcps TDD option

The purpose of this test is to verify the requirement for the UTRA TDD to GSM handover delay reported in section 5.4.2.1.

The test parameters are given in Tables A.5.3.1, A.5.3.2 and A.5.3.3 below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 3C shall be used. The test consists of three successive time periods, with a time duration of T1, T2 and T3 respectively. At the start of time duration T1, the UE may not have any timing information of cell 2.

UTRAN shall send a HANDOVER FROM UTRAN COMMAND message with activation time 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 [16]. In the GSM Handover command contained in this message, IE starting time shall not be included.

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

Table A.5.3.1: General test parameters for TDD/GSM handover

Parameter	Unit	Value	Comment
DCH parameters		DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.102 section A.2.2
Power Control		On	
Target quality value on DTCH	BLER	0.01	
Initial conditions	Active cell	Cell 1	UTRA TDD cell
	Neighbour cell	Cell 2	GSM cell
Final condition	Active cell	Cell 2	GSM cell
Inter-RAT measurement quantity		GSM carrier RSSI	
BSIC verification required		Required	
Threshold other system	dBm	-80	Absolute GSM carrier RSSI threshold for Event 3C.
Hysteresis	dB	0	
Time to Trigger	ms	0	
Filter coefficient		0	
Monitored cell list size		12 TDD neighbours on Channel 1 6 GSM neighbours including ARFCN 1	Measurement control information is sent before the start of time period T1.
$T_{identify\ abort}$	s	5	As specified in section 8.1.2.5
$T_{reconfirm\ abort}$	s	5	As specified in section 8.1.2.5
T1	s	10	
T2	s	10	
T3	s	10	

Table A.5.3.2: Cell 1 specific test parameters for TDD/GSM handover

Parameter	Unit	Cell 1					
DL timeslot number		**0**			**1**		
		T1	**T2**	**T3**	**T1**	**T2**	**T3**
UTRA RF Channel Number		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 A.5.3.3: Cell 2 specific test parameters for TDD/GSM handover

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

A.5.3.1.2 1.28Mcps TDD option

The purpose of this test is to verify the requirement for the UTRA TDD to GSM handover delay reported in section 5.3.2.

The test parameters are given in Tables A.5.3.1A, A.5.3.2A and A.5.3.3A 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 so that the whole message is available at the UE the RRC procedure delay prior to the beginning of T3. The RRC procedure delay is defined in [16]. 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 DL DPCH shall be transmitted in timeslot 4 and the UL DPCH shall be transmitted in timeslot 2.

Table A.5.3.1A: General test parameters for TDD/GSM handover

Parameter	Unit	Value	Comment
DCH parameters		DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.102 section A
Power Control		On	
Target quality value on DTCH	BLER	0.01	
Initial conditions	Active cell	Cell 1	UTRA TDD cell
	Neighbour cell	Cell 2	GSM cell
Final condition	Active cell	Cell 2	GSM cell
Inter-RAT 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 A.5.3.2A: Cell 1 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 A.5.3.3A: Cell 2 specific test parameters for TDD/GSM handover

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

~~void~~

A.5.3.2 Test Requirements

A.5.3.2.1 3.84 Mcps TDD option

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

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

A.5.3.2.2 1.28 Mcps TDD option

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

The rate of correct handovers observed during repeated tests shall be at least 90%.~~void~~

3GPP TSG RAN WG4 (Radio) Meeting #28 **R4-030698**

Sophia Antipolis, France 18 - 22 August 2003

CR-Form-v7

CHANGE REQUEST

⌘ **25.123** **CR** **319** ⌘ **rev** ⌘ Current version: **5.5.0** ⌘

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

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

Title:	⌘	TDD/GSM Handover Test Case for 1.28Mcps TDD
Source:	⌘	RAN WG4
Work item code:	⌘	LCRTDD-RF
Date:	⌘	08/09/2003
Category:	⌘	**A**
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:	⌘	Measurement Test Case needs to be clarifed for 1.28Mcps TDD/GSM Handover for LCRTDD. No test case is specified for 1.28Mcps TDD.
Summary of change:	⌘	Introduction of 1.28Mcps TDD test case for TDD/GSM Handover.
Consequences if not approved:	⌘	TDD/GSM Handover of 1.28Mcps TDD is not correctly performed and tested. If this is not performed correctly and tested inter-working with GSM can not be ensured. **Isolated Impact Analysis:** Would not affect the implementation if behaving as indicated in the CR, the implementation would be affected if not behaving as indicated in the CR.
Clauses affected:	⌘	A.5.3.1.2, A.5.3.2.2

Other specs affected:	⌘	Y	N		⌘	
			X	Other core specifications		34.122
		X		Test specifications		
			X	O&M Specifications		

Other comments:	⌘	Equivalent CRs in other Releases: CR318 cat. F to 25.123 v4.9.0

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.

A.5.3 TDD/GSM Handover

A.5.3.1 Test Purpose and Environment

A.5.3.1.1 3.84 Mcps TDD option

The purpose of this test is to verify the requirement for the UTRA TDD to GSM handover delay reported in section 5.4.2.1.

The test parameters are given in Tables A.5.3.1, A.5.3.2 and A.5.3.3 below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 3C shall be used. The test consists of three successive time periods, with a time duration of T1, T2 and T3 respectively. At the start of time duration T1, the UE may not have any timing information of cell 2.

UTRAN shall send a HANDOVER FROM UTRAN COMMAND message with activation time 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 [16]. In the GSM Handover command contained in this message, IE starting time shall not be included.

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

Table A.5.3.1: General test parameters for TDD/GSM handover

Parameter	Unit	Value	Comment
DCH parameters		DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.102 section A.2.2
Power Control		On	
Target quality value on DTCH	BLER	0.01	
Initial conditions	Active cell	Cell 1	UTRA TDD cell
	Neighbour cell	Cell 2	GSM cell
Final condition	Active cell	Cell 2	GSM cell
Inter-RAT measurement quantity		GSM carrier RSSI	
BSIC verification required		Required	
Threshold other system	dBm	-80	Absolute GSM carrier RSSI threshold for Event 3C.
Hysteresis	dB	0	
Time to Trigger	ms	0	
Filter coefficient		0	
Monitored cell list size		12 TDD neighbours on Channel 1 6 GSM neighbours including ARFCN 1	Measurement control information is sent before the start of time period T1.
$T_{identify\ abort}$	s	5	As specified in section 8.1.2.5
$T_{reconfirm\ abort}$	s	5	As specified in section 8.1.2.5
T1	s	10	
T2	s	10	
T3	s	10	

Table A.5.3.2: Cell 1 specific test parameters for TDD/GSM handover

Parameter	Unit	Cell 1					
DL timeslot number		**0**			**1**		
		T1	**T2**	**T3**	**T1**	**T2**	**T3**
UTRA RF Channel Number		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 A.5.3.3: Cell 2 specific test parameters for TDD/GSM handover

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

A.5.3.1.2 1.28Mcps TDD option

The purpose of this test is to verify the requirement for the UTRA TDD to GSM handover delay reported in section 5.3.2.

The test parameters are given in Tables A.5.3.1A, A.5.3.2A and A.5.3.3A 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 so that the whole message is available at the UE the RRC procedure delay prior to the beginning of T3. The RRC procedure delay is defined in [16]. 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 DL DPCH shall be transmitted in timeslot 4 and the UL DPCH shall be transmitted in timeslot 2.

Table A.5.3.1A: General test parameters for TDD/GSM handover

Parameter	Unit	Value	Comment
DCH parameters		DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.102 section A
Power Control		On	
Target quality value on DTCH	BLER	0.01	
Initial conditions	Active cell	Cell 1	UTRA TDD cell
	Neighbour cell	Cell 2	GSM cell
Final condition	Active cell	Cell 2	GSM cell
Inter-RAT 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 A.5.3.2A: Cell 1 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 A.5.3.3A: Cell 2 specific test parameters for TDD/GSM handover

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

~~void~~

A.5.3.2 Test Requirements

A.5.3.2.1 3.84 Mcps TDD option

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

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

A.5.3.2.2 1.28 Mcps TDD option

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

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

~~void~~

3GPP TSG RAN WG4 (Radio) Meeting #28 **R4-030699**

Sophia Antipolis, France 18 - 22 August 2003

CR-Form-v7

CHANGE REQUEST

⌘ **25.123** **CR** **320** ⌘ **rev** ⌘ Current version: **4.9.0** ⌘

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

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

Title:	⌘	GSM carrier RSSI Measurement Test Case for 1.28Mcps TDD
Source:	⌘	RAN WG4
Work item code:	⌘	LCRTDD-RF
Date:	⌘	08/09/2003
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:	⌘	Measurement Test Case needs to be clarifed for GSM RSSI measurement for LCRTDD. No test case is specified for GSM carrier RSSI measurements of 1.28Mcps TDD.
Summary of change:	⌘	Introduction of 1.28Mcps TDD test case for GSM carrier RSSI measurements.
Consequences if not approved:	⌘	GSM carrier RSSI measurements of 1.28Mcps TDD is not correctly performed and tested. If this is not performed correctly and tested inter-working with GSM can not be ensured. **Isolated Impact Analysis:** Would not affect the implementation if behaving as indicated in the CR, the implementation would be affected if not behaving as indicated in the CR.
Clauses affected:	⌘	A.9.2.5

Other specs affected: ⌘	Y	N		⌘
		X	Other core specifications	
	X		Test specifications	34.122
		X	O&M Specifications	

Other comments:	⌘	Equivalent CRs in other Releases: CR321 cat. A to 25.123 v5.5.0

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.

A.9.2.5 GSM carrier RSSI

A.9.2.5.1 Test Purpose and Environment

The purpose of this test is to verify that the GSM Carrier RSSI measurement accuracy is within the specified limits. This test will verify the requirements in section 9.1.1.5.

Cell 1 is a UTRA TDD cell and cell 2 is a GSM cell. In the measurement control information it is indicated to the UE that periodic reporting of the GSM carrier RSSI measurement is used.

The DL DPCH shall be transmitted in timeslot 4 and the UL DPCH shall be transmitted in timeslot 2.

A.9.2.5.1.1 Inter RAT test parameters

GSM carrier RSSI accuracy requirements are tested by using test parameters in Table A.9.16A and A.9.16B.

The limits of the GSM test parameters are defined in [21].

Table A.9.16A: General GSM Carrier RSSI test parameters

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

Table A.9.16B: Cell 1 specific GSM Carrier RSSI test parameters

Parameter	Unit	Cell 1	
DL timeslot number		0	DwPTS
UTRA RF Channel number		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	

A.9.2.5.2 Test Requirements

The GSM Carrier RSSI measurement accuracy shall meet the requirements in section 9.1.5.

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

~~NOTE: This section is included for consistency with numbering in section 9, currently no test covering requirements in sections 9.1.1.5 exists~~.

3GPP TSG RAN WG4 (Radio) Meeting #28 **R4-030700**

Sophia Antipolis, France 18 - 22 August 2003

CR-Form-v7

CHANGE REQUEST

⌘ **25.123** **CR** **321** ⌘ **rev** ⌘ Current version: **5.5.0** ⌘

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

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

Title:	⌘	GSM carrier RSSI Measurement Test Case for 1.28Mcps TDD
Source:	⌘	RAN WG4
Work item code:	⌘	LCRTDD-RF
Date:	⌘	08/09/2003
Category:	⌘	**A**
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:	⌘	Measurement Test Case needs to be clarifed for GSM RSSI measurement for LCRTDD. No test case is specified for GSM carrier RSSI measurements of 1.28Mcps TDD.
Summary of change:	⌘	Introduction of 1.28Mcps TDD test case for GSM carrier RSSI measurements.
Consequences if not approved:	⌘	GSM carrier RSSI measurements of 1.28Mcps TDD is not correctly performed and tested. If this is not performed correctly and tested inter-working with GSM can not be ensured. **Isolated Impact Analysis:** Would not affect the implementation if behaving as indicated in the CR, the implementation would be affected if not behaving as indicated in the CR.

Clauses affected:	⌘	A.9.2.5			
Other specs affected:	⌘	**Y** / **N**	Other core specifications	⌘	
		☐ / ☒			
		☒ / ☐	Test specifications		34.122
		☐ / ☒	O&M Specifications		
Other comments:	⌘	Equivalent CRs in other Releases: CR320 cat. F to 25.123 v4.9.0			

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.

A.9.2.5 GSM carrier RSSI

A.9.2.5.1 Test Purpose and Environment

The purpose of this test is to verify that the GSM Carrier RSSI measurement accuracy is within the specified limits. This test will verify the requirements in section 9.1.1.5.

Cell 1 is a UTRA TDD cell and cell 2 is a GSM cell. In the measurement control information it is indicated to the UE that periodic reporting of the GSM carrier RSSI measurement is used.

The DL DPCH shall be transmitted in timeslot 4 and the UL DPCH shall be transmitted in timeslot 2.

A.9.2.5.1.1 Inter RAT test parameters

GSM carrier RSSI accuracy requirements are tested by using test parameters in Table A.9.16A and A.9.16B.

The limits of the GSM test parameters are defined in [21].

Table A.9.16A: General GSM Carrier RSSI test parameters

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

Table A.9.16B: Cell 1 specific GSM Carrier RSSI test parameters

Parameter	Unit	Cell 1	
DL timeslot number		0	DwPTS
UTRA RF Channel number		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	

A.9.2.5.2 Test Requirements

The GSM Carrier RSSI measurement accuracy shall meet the requirements in section 9.1.5.

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

~~NOTE: This section is included for consistency with numbering in section 9, currently no test covering requirements in sections 9.1.1.5 exists.~~