TSG RAN Meeting #15

Cheju, Korea, 5 - 8 March 2002

Title:CRs (R'99 and Rel-4/Rel-5 Category A) to TS 25.133 (1)Source:TSG RAN WG4

Agenda Item: 7.4.3

RAN4 Tdoc	Spec	CR	Rev	Phase	Title	Cat	Curr Ver	New Ver
R4-020109	25.133	256		R99	Clarification of measurement period for UTRA Carrier RSSI	F	3.8.0	3.9.0
R4-020110	25.133	257		Rel-4	Clarification of measurement period for UTRA Carrier RSSI	A	4.3.0	4.4.0
R4-020110	25.133	258		Rel-5	Clarification of measurement period for UTRA Carrier RSSI	A	5.1.0	5.2.0
R4-020240	25.133	303		R99	UTRAN GSM Cell Reselection	F	3.8.0	3.9.0
R4-020240 R4-020241	25.133	303		Rel-4	UTRAN GSM Cell Reselection	•	4.3.0	4.4.0
						A		
R4-020242	25.133	305		Rel-5	UTRAN GSM Cell Reselection	A	5.1.0	5.2.0
R4-020318	25.133	315		R99	Requirement for Blind HO from UTRAN to GSM (R99)	F	3.8.0	3.9.0
R4-020319	25.133	316		Rel-4	Requirement for Blind HO from UTRAN to GSM (Rel-4)	A	4.3.0	4.4.0
R4-020320	25.133	317		Rel-5	Requirement for Blind HO from UTRAN to GSM (Rel-5)	A	5.1.0	5.2.0
R4-020406	25.133	312	1	R99	Inclusion of AMR 2 requirement (R99)	F	3.8.0	3.9.0
R4-020407	25.133	313	1	Rel-4	Inclusion of AMR 2 requirement (Rel-4)	A	4.3.0	4.4.0
R4-020408	25.133	314	1	Rel-5	Inclusion of AMR 2 requirement (Rel-5)	Α	5.1.0	5.2.0
R4-020415	25.133	291	1	R99	FDD inter frequency measurements and test cases	F	3.8.0	3.9.0
R4-020494	25.133	294	1	Rel-4	FDD inter frequency measurements and test cases	Α	4.3.0	4.4.0
R4-020495	25.133	295	1	Rel-5	FDD inter frequency measurements and test cases	Α	5.1.0	5.2.0
R4-020416	25.133	259	1	R99	Mapping of UE Rx-Tx time difference type 1	F	3.8.0	3.9.0
R4-020417	25.133	260	1	Rel-4	Mapping of UE Rx-Tx time difference type 1	Α	4.3.0	4.4.0
R4-020418	25.133	261	1	Rel-5	Mapping of UE Rx-Tx time difference type 1	Α	5.1.0	5.2.0

RP-020020

3GPP TSG RAN WG4 Meeting #21

R4-020109

Sophia Antipolis, France 28th January - 1st February 2002

	CR-Form-v5											
												0.0
H	25.	133	CR	256		жrev	-	ж	Current ve	ersion:	3.8.0	ж
For <u>HELP</u> on us	For HELP on using this form, see bottom of this page or look at the pop-up text over the # symbols.											
Proposed change a	Proposed change affects: # (U)SIM ME/UE X Radio Access Network Core Network							etwork				
Title: ೫	Cla	rificati	on of r	neasurer	nent p	<mark>eriod fo</mark> i	UTR	<mark>A C</mark> a	arrier RSSI			
Source: #	RA	N WG	4									
Work item code: ℜ									Date:	೫ <mark>1/</mark> 2	2/2002	
	Detai be fo	F (con A (cor B (add C (fun D (edi led exp und in From what wher rega It is o perio Isola imple	rection) respon- respon- dition of ctional torial m blanatic 3GPP 3GPP the m the m re CPIC rding t clarified ified in ified in ified in ted Im	ds to a co f feature), modification ons of the TR 21.900 CH mera his meas d that the ent is equiner b section nter-freq pact Ana	rrection ion of fe n) above <u>0</u> . ent for ient pe sureme uent pe sureme sureme uent pe sureme uent pe sureme sure sureme sure sure sure sure sure sure sure sur	the UE r categorie the UE r criod is for ent performer be measure the measure the measure the CR g like ind	neasu or the ormar ction { t perio surem orrect clarifi icated	urem mea nce is 3. od fo nent j refe t is c es po	2	of the f (GS. (Rel (Rel (Rel (Rel 5) (Rel 5) (Rel Carrier It refer but not	ollowing rele M Phase 2) lease 1996) lease 1997) lease 1998) lease 1999) lease 4) lease 5) RSSI it is s to section ching is sta r RSSI measurem neasurem	not clear n 8 ted
Consequences if not approved:	ж	Diffe	rent U	Es may ι	use dif	ferent av	/eragi	ng ti	A carrier RS me and wo he same co	uld the	refore repo	
Clauses affected:	ж	9.1.3	5									
Other specs affected:	¥ [X Te	est spe	ore specification	าร	าร ฿		.121				
Other comments:	ж											

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at: <u>http://www.3gpp.org/3G_Specs/CRs.htm</u>. 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 <u>ftp://ftp.3gpp.org/specs/</u> 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.

9.1.3 UTRA Carrier RSSI

NOTE: This measurement is for Inter-frequency handover evaluation.

The measurement period is equal to the measurement period for UE CPICH measurements. Ffor CELL_DCH state the measurement period can be found in sub clause 8.1.2.2 for intra frequency measurements and in sub clause 8.1.2.2 for inter frequency measurements. The measurement period for CELL_FACH state can be found in sub clause 8.4.2.2 for intra frequency measurements and in sub clause 8.4.2.3 for inter frequency measurements.

9.1.3.1 Absolute accuracy requirement

Table 9.10: UTRA Carrier RSSI Inter frequency absolute accuracy

Parameter	Unit	Accura	acy [dB]	Conditions
Farameter	Onit	Normal condition	Extreme condition	lo [dBm]
UTRA Carrier RSSI	dBm	± 4	± 7	-9470
UTRA Camer RSSI	dBm	± 6	± 9	-7050

3GPP TSG RAN WG4 Meeting #21

R4-020320

Sophia Antipolis, France 28th January - 1st February 2002

	CHANGE REQUEST							
ж	25	.133 CR	<mark>317</mark> ж ге	v <mark>-</mark> *	Current version	["] 5.1.0 ["]		
For <u>HELP</u> on	For <u>HELP</u> on using this form, see bottom of this page or look at the pop-up text over the # symbols.							
Proposed change	affec	e ts:	X ME/UE	Radio A	ccess Network	Core Network		
Title: ៖	€ <mark>Re</mark>	quirement for Blin	d HO from UTR	AN to GSM	(Rel-5)			
Source: ೫	<mark>€ RA</mark>	NWG4						
Work item code:♯	€ <mark>ΤΕ</mark>	I			<i>Date:</i>	/2/2002		
Category: ३	Deta	one of the following F (correction) A (corresponds to B (addition of featu C (functional modified D (editorial modified attributed explanations of bound in 3GPP <u>TR 2</u>	a correction in an ure), fication of feature, cation) the above catego)	Use <u>one</u> of the 2 (GS e) R96 (Re R97 (Re R98 (Re R99 (Re REL-4 (Re	Rel-5 following releases: SM Phase 2) elease 1996) elease 1997) elease 1998) elease 1999) elease 4) elease 5)		
Basson for share	о, ¥	There is already	(an existing rec	uirement (de	and interrupt	ion time) when the		
Reason for chang	е: т	UE has not syn	chronised to the AND is received	target cell b I: The behav	efore the HANDO			
Summary of chan	ge: #	UTRAN see GS the synchronisa	M 45.008 sub 7 tion task. A refe	.2) is propos rence to the				
		An editorial corr	ection is also in	cluded in a r	eference to the 2	25.331.		
Consequences if not approved:	ж		Ue in case of fa	ilure during t	he synchronisation	If not approved, the on task (requested		
		uncomplete Would not affect	t implementatio	ns behaving		specification was the CR, would affect wise.		
Clauses affected:	ж	5.2.2.1 ; 5.4.2						
Other specs affected:	ж	Other core s Test specific O&M Specifi	ations	ж				
Other comments:	ж	This Cr is propo functionnality.	sed in R99 and	onwards be	cause this blind H	Ho is a Release 99		

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at: <u>http://www.3gpp.org/3G_Specs/CRs.htm</u>. 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 <u>ftp://ftp.3gpp.org/specs/</u> 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.

UTRAN Connected mode mobility

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

Requirements related to the measurements in support of the execution of the UTRAN connected mode mobility procedures are specified, currently not necessarily for all UTRAN connected mode states, in section 8.

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

UE behaviour in response to UTRAN RRC messages is described in TS25.331.

The purpose of Cell reselection in CELL_FACH, CELL_PCH and URA_PCH states is that the UE shall select a better cell according to the cell reselection criteria in TS 25.304. CELL_FACH, CELL_PCH and URA_PCH states are described in TS 25.331.

5.1 FDD/FDD Soft Handover

5.1.1 Introduction

Soft handover is a function in which the UE is connected to several UTRAN access points at the same time. Addition and/or release of radio links are controlled by the ACTIVE SET UPDATE procedure.

The soft handover function includes a measurement phase, a decision algorithm in UTRAN and the ACTIVE SET UPDATE procedure.

5.1.2 Requirements

5.1.2.1 Active set dimension

The UE shall be capable of supporting at least 6 radio links in the active set.

As described in TS 25.211, the UE may be informed by UTRAN that for one or more links in the active set neither S-CPICH or P-CPICH is available as phase reference and the UE shall thus use the Dedicated Pilot as phase reference. The UE shall then support at least 6 radio links in the active set, out of which up to 4 radio links are such that the Dedicated Pilot shall be used as a phase reference.

5.1.2.2 Active set update delay

The active set update delay is defined as the time from when the UE has received the ACTIVE SET UPDATE message from UTRAN, or at the time stated through the activation time when to perform the active set update, to the time when the UE successfully uses the set of radio links stated in that message for power control.

The active set update delay is depending on the number of known cells referred to in the ACTIVE SET UPDATE message. A cell is known if either or both of the following conditions are true:

- the UE has had radio links connected to the cell in the previous (old) active set
- the cell has been measured by the UE during the last 5 seconds and the SFN of the cell has been decoded by the UE..

And the phase reference is the primary CPICH.

The active set update delay shall be less than 50+10*KC+100*OC ms, where

KC is the number of known cells in the active set update message.

OC is the number of cells that are not known in the active set update message.

If the UE have radio links in the active set that it can not use for data detection (due to low signal level), the UE shall at least every 150 ms search for the radio link

5.1.2.3 Interruption Time

The UE shall not interrupt the data flow when adding, changing or removing radio links to the active set.

5.2 FDD/FDD Hard Handover

5.2.1 Introduction

The hard handover procedure is initiated from UTRAN with a RRC message that implies a hard handover, see TS 25.331 section 8.3.5.

5.2.2 Requirements

5.2.2.1 Hard handover delay

Procedure delay for all procedures, that can command a hard handover, are specified in [TS25.331 section 1113.5.2].

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

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

where:

 $D_{handover}$ equals the RRC procedure delay defined in TS25.331 Section 13.5.2 plus the interruption time stated in section 5.2.2.2.

5.2.2.2 Interruption time

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

If intra-frequency hard handover is commanded or inter-frequency hard handover is commanded when the UE does not need compressed mode to perform inter-frequency measurements, the interruption time shall be less than T_{interrupt1}

 $T_{interrupt1=}T_{IU}+40+20*KC+150*OC ms$

where

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

KC is the number of known target cells in the message, and

OC is the number of target cells that are not known in the message.

Note: The figure 40 ms is the time required for measuring the downlink DPCCH channel as stated in TS 25.214 section 4.3.1.2.

In the interruption requirement T_{interrupt1} a cell is known if either or both of the following conditions are true:

- the UE has had radio links connected to the cell in the previous (old) active set

- the cell has been measured by the UE during the last 5 seconds and the SFN of the cell has been decoded by the UE.

If inter-frequency hard handover is commanded and the UE needs compressed mode to perform inter-frequency measurements, the interruption time shall be less than $T_{interrupt2}$

 $T_{interrupt2} = T_{IU}+40+50*KC+150*OC ms$

In the interruption requirement T_{interrupt2} a cell is known if:

- the cell has been measured by the UE during the last 5 seconds.

The phase reference is the primary CPICH.

The requirements in this section assume that N312 has the smallest possible value i.e. only one insync is required.

5.3 FDD/TDD Handover

5.3.1 Introduction

The purpose of FDD/TDD hard handover is to change the mode between FDD and TDD. The handover procedure is initiated from UTRAN with a RRC message that implies a hard handover, refer to TS25.331.

Compressed mode according to the UE Capability may be used to be able to make any measurements on the other mode.

5.3.2 Requirements

These requirements shall apply only to FDD/TDD UE.

5.3.2.1 Hard handover delay

Procedure delay for all procedures, that can command a hard handover, are specified in TS25.331 section 13.5.2.

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

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

where:

 $D_{handover}$ equals the RRC procedure delay defined in TS25.331 Section 13.5.2 plus the interruption time stated in section 5.3.2.2.

5.3.2.2 Interruption time

The interruption time, i.e. the time between the end of the last TTI containing a transport block on the old DPDCH and the time the UE starts transmission of the new uplink DPCH. The interruption time shall be less than the value in table 5-3. There is different requirement on the interruption time depending on if the cell is known or not and if the SFN of the target cell needs to be decoded by the UE during the interruption time or not.

In this interruption requirement a cell is known if the cell has been measured by the UE during the last 5 seconds.

cell present in the handover command		Interruption time [ms]			
message	Know	vn cell	Unknown cell		
	SFN not to be decoded	SFN needs to be decoded	SFN needs to be decoded		
1	[100]	[130]	[400]		

Table 5.1: FDD/TDD interruption time

The interruption time includes the time that can elapse till the appearance of the channel required for the synchronisation, which can be up to one frame (10ms). And the time that can elapse till the appearance of the slot in which the new uplink DPCH shall be transmitted, which can be up to one frame (10ms).

The requirement in Table 5.1 for the unknown cell shall apply if the signal quality of the unknown cell is good enough for successful synchronisation with one attempt.

NOTE: One synchronisation attempt can consist of coherent averaging using several frames.

5.4 FDD/GSM Handover

5.4.1 Introduction

The purpose of inter-RAT handover from UTRAN FDD to GSM is to transfer a connection between the UE and UTRAN FDD to GSM. The handover procedure is initiated from UTRAN with a RRC message (HANDOVER FROM UTRAN COMMAND). The procedure is described in TS25.331 section 8.3.7.

Compressed mode according to the UE Capability may be used to be able to make measurements on GSM.

5.4.2 Requirements

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

The requirements given below in Tables 5.2 and 5.3 for the case where the UE has not synchronised to the GSM cell before receiving the HANDOVER FROM UTRAN COMMAND are valid when the signal quality of the GSM cell is sufficient for successful synchronisation with one attempt. If the UE is unable to synchronise to the GSM cell on the first attempt, it shall continue to search for synchronisation information for up to 800 ms. If after 800 ms the UE has not synchronised to the GSM cell it shall follow the handover failure procedure specified in [16].

5.4.2.1 Handover delay

When the UE receives a RRC HANDOVER FROM UTRAN COMMAND with the activation time "now" or earlier than the value in table 5.2 from the end of the last TTI containing the RRC command, the UE shall be ready to transmit (as specified in GSM45.010) on the channel of the new RAT within the value in table 5.2 from the end of the last TTI containing the RRC command.

If the access is delayed to an indicated activation time later than the value in table 5.2 from the end of the last TTI containing the RRC command, the UE shall be ready to transmit (as specified in GSM 45.010) on the channel of the new RAT at the designated activation time.

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

UE synchronisation status	Handover delay [ms]
The UE has synchronised to the GSM cell before the	90
HANDOVER FROM UTRAN COMMAND is received	
The UE has not synchronised to the GSM cell before	190
the HANDOVER FROM UTRAN COMMAND is received	

Table 5.2: FDD/GSM handover -handover delay

5.4.2.2 Interruption time

The interruption time, i.e. the time between the end of the last TTI containing a transport block on the old channel and the time the UE is ready to transmit on the new channel, shall be less than The value in table 5.3. The requirement in table 5.3 for the case, that UE is not synchronised to the GSM cell before the HANDOVER FROM UTRAN COMMAND is received, is valid when the signal quality of the GSM cell is good enough for successful synchronisation with one attempt.

Table 5.3: FDD/GSM handover - interruption time

Synchronisation status	Interruption time [ms]
The UE has synchronised to the GSM cell before the	40
HANDOVER FROM UTRAN COMMAND is received	
The UE has not synchronised to the GSM cell before	140
the HANDOVER FROM UTRAN COMMAND is received	

5.5 Cell Re-selection in CELL_FACH

5.5.1 Introduction

When a Cell Re-selection process is triggered according to TS 25.331, the UE shall evaluate the cell re-selection criteria specified in TS 25.304, based on radio measurements, and if a better cell is found that cell is selected.

3GPP TSG RAN WG4 Meeting #21

R4-020319

Sophia Antipolis, France 28th January - 1st February 2002

	CHANGE REQUEST	CR-Form-v5					
ж	25.133 CR 316 #rev - #	Current version: 4.3.0 [#]					
For <u>HELP</u> on us	sing this form, see bottom of this page or look at th	e pop-up text over the X symbols.					
Proposed change a	Proposed change affects: # (U)SIM ME/UE X Radio Access Network Core Network						
Title: ೫	Requirement for Blind HO from UTRAN to GSM ((Rel-4)					
Source: ೫	RAN WG4						
Work item code: ℜ	TEI	Date: # 1/2/2002					
	 A Use <u>one</u> of the following categories: F (correction) A (corresponds to a correction in an earlier release B (addition of feature), C (functional modification of feature) D (editorial modification) Detailed explanations of the above categories can be found in 3GPP <u>TR 21.900</u>. 	Release: #Rel-4Use one of the following releases: 2(GSM Phase 2)e)R96(Release 1996)R97(Release 1997)R98(Release 1998)R99(Release 1999)REL-4(Release 4)REL-5(Release 5)					
Reason for change	: # There is already an existing requirement (de	lay and interruption time) when the					
Reason for change	UE has not synchronised to the target cell be UTRAN COMMAND is received: The behavior synchronisation fails is not specified.	efore the HANDOVER FROM					
Summary of chang	e: # The same time specified in the GSM specific UTRAN see GSM 45.008 sub 7.2) is propos the synchronisation task. A reference to the Failure is added when the synchronisation is An editorial correction is also included in a reference	ed, in order to give a limit in time for RRC procedure of the Handover s not completed before this limit.					
Consequences if not approved:	 The behavior of the Ue will be not specified behavior of the Ue in case of failure during the by a HO from UTRAN to GSM) is not specific isolated Impact analysis: Correction to a fundamental sectors. 	in a failure case. If not approved, the he synchronisation task (requested ed.					
	uncomplete. Would not affect implementations behaving implementations supporting the corrected fu	like indicated in the CR, would affect					
Clauses affected:	¥ 5.2.2.1 ; 5.4.2						
Other specs affected:	# Other core specifications # Test specifications 0&M Specifications						
Other comments:	# This Cr is proposed in R99 and onwards begins functionnality.	cause this blind Ho is a Release 99					

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at: <u>http://www.3gpp.org/3G_Specs/CRs.htm</u>. 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 <u>ftp://ftp.3gpp.org/specs/</u> 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.

5 UTRAN Connected mode mobility

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

Requirements related to the measurements in support of the execution of the UTRAN connected mode mobility procedures are specified, currently not necessarily for all UTRAN connected mode states, in section 8.

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

UE behaviour in response to UTRAN RRC messages is described in TS25.331.

The purpose of Cell reselection in CELL_FACH, CELL_PCH and URA_PCH states is that the UE shall select a better cell according to the cell reselection criteria in TS 25.304. CELL_FACH, CELL_PCH and URA_PCH states are described in TS 25.331.

5.1 FDD/FDD Soft Handover

5.1.1 Introduction

Soft handover is a function in which the UE is connected to several UTRAN access points at the same time. Addition and/or release of radio links are controlled by the ACTIVE SET UPDATE procedure.

The soft handover function includes a measurement phase, a decision algorithm in UTRAN and the ACTIVE SET UPDATE procedure.

5.1.2 Requirements

5.1.2.1 Active set dimension

The UE shall be capable of supporting at least 6 radio links in the active set.

5.1.2.2 Active set update delay

The active set update delay is defined as the time from when the UE has received the ACTIVE SET UPDATE message from UTRAN, or at the time stated through the activation time when to perform the active set update, to the time when the UE successfully uses the set of radio links stated in that message for power control.

The active set update delay is depending on the number of known cells referred to in the ACTIVE SET UPDATE message. A cell is known if either or both of the following conditions are true:

- the UE has had radio links connected to the cell in the previous (old) active set
- the cell has been measured by the UE during the last 5 seconds and the SFN of the cell has been decoded by the UE..

And the phase reference is the primary CPICH.

The active set update delay shall be less than 50+10*KC+100*OC ms, where

KC is the number of known cells in the active set update message.

OC is the number of cells that are not known in the active set update message.

If the UE have radio links in the active set that it can not use for data detection (due to low signal level), the UE shall at least every 150 ms search for the radio link

5.1.2.3 Interruption Time

The UE shall not interrupt the data flow when adding, changing or removing radio links to the active set.

5.2 FDD/FDD Hard Handover

5.2.1 Introduction

The hard handover procedure is initiated from UTRAN with a RRC message that implies a hard handover, see TS 25.331 section 8.3.5.

5.2.2 Requirements

5.2.2.1 Hard handover delay

Procedure delay for all procedures, that can command a hard handover, are specified in [TS25.331 section 1113.5.2].

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

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

where:

 $D_{handover}$ equals the RRC procedure delay defined in TS25.331 Section 13.5.2 plus the interruption time stated in section 5.2.2.2.

5.2.2.2 Interruption time

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

If intra-frequency hard handover is commanded or inter-frequency hard handover is commanded when the UE does not need compressed mode to perform inter-frequency measurements, the interruption time shall be less than T_{interrupt1}

T_{interrupt1=}T_{IU}+40+20*KC+150*OC ms

where

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

KC is the number of known target cells in the message, and

OC is the number of target cells that are not known in the message.

Note: The figure 40 ms is the time required for measuring the downlink DPCCH channel as stated in TS 25.214 section 4.3.1.2.

In the interruption requirement T_{interrupt1} a cell is known if either or both of the following conditions are true:

- the UE has had radio links connected to the cell in the previous (old) active set
- the cell has been measured by the UE during the last 5 seconds and the SFN of the cell has been decoded by the UE.

If inter-frequency hard handover is commanded and the UE needs compressed mode to perform inter-frequency measurements, the interruption time shall be less than $T_{interrupt2}$

 $T_{interrupt2} = T_{IU} + 40 + 50 \text{*KC} + 150 \text{*OC ms}$

In the interruption requirement T_{interrupt2} a cell is known if:

- the cell has been measured by the UE during the last 5 seconds.

The phase reference is the primary CPICH.

The requirements in this section assume that N312 has the smallest possible value i.e. only one insync is required.

5.3 FDD/TDD Handover

5.3.1 Introduction

The purpose of FDD/TDD hard handover is to change the mode between FDD and TDD. The handover procedure is initiated from UTRAN with a RRC message that implies a hard handover, refer to TS25.331.

Compressed mode according to the UE Capability may be used to be able to make any measurements on the other mode.

5.3.2 Requirements

These requirements shall apply only to FDD/TDD UE.

5.3.2.1 Hard handover delay

Procedure delay for all procedures, that can command a hard handover, are specified in TS25.331 section 13.5.2.

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

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

where:

 $D_{handover}$ equals the RRC procedure delay defined in TS25.331 Section 13.5.2 plus the interruption time stated in section 5.3.2.2.

5.3.2.2 Interruption time

The interruption time, i.e. the time between the end of the last TTI containing a transport block on the old DPDCH and the time the UE starts transmission of the new uplink DPCH. The interruption time shall be less than the value in table 5-3. There is different requirement on the interruption time depending on if the cell is known or not and if the SFN of the target cell needs to be decoded by the UE during the interruption time or not.

In this interruption requirement a cell is known if the cell has been measured by the UE during the last 5 seconds.

cell present in the handover command	Interruption time [ms]			
message	Know	vn cell	Unknown cell	
	SFN not to	SFN needs to	SFN needs to be decoded	
	be decoded	be decoded		
1	[100]	[130]	[400]	

Table 5.1: FDD/TDD interruption time

The interruption time includes the time that can elapse till the appearance of the channel required for the synchronisation, which can be up to one frame (10ms). And the time that can elapse till the appearance of the slot in which the new uplink DPCH shall be transmitted, which can be up to one frame (10ms).

The requirement in Table 5.1 for the unknown cell shall apply if the signal quality of the unknown cell is good enough for successful synchronisation with one attempt.

NOTE: One synchronisation attempt can consist of coherent averaging using several frames.

5.4 FDD/GSM Handover

5.4.1 Introduction

The purpose of inter-RAT handover from UTRAN FDD to GSM is to transfer a connection between the UE and UTRAN FDD to GSM. The handover procedure is initiated from UTRAN with a RRC message (HANDOVER FROM UTRAN COMMAND). The procedure is described in TS25.331 section 8.3.7.

Compressed mode according to the UE Capability may be used to be able to make measurements on GSM.

5.4.2 Requirements

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

The requirements given below in Tables 5.2 and 5.3 for the case where the UE has not synchronised to the GSM cell before receiving the HANDOVER FROM UTRAN COMMAND are valid when the signal quality of the GSM cell is sufficient for successful synchronisation with one attempt. If the UE is unable to synchronise to the GSM cell on the first attempt, it shall continue to search for synchronisation information for up to 800 ms. If after 800 ms the UE has not synchronised to the GSM cell it shall follow the handover failure procedure specified in [16].

5.4.2.1 Handover delay

When the UE receives a RRC HANDOVER FROM UTRAN COMMAND with the activation time "now" or earlier than the value in table 5.2 from the end of the last TTI containing the RRC command, the UE shall be ready to transmit (as specified in GSM 45.010) on the channel of the new RAT within the value in table 5.2 from the end of the last TTI containing the RRC command.

If the access is delayed to an indicated activation time later than the value in table 5.2 from the end of the last TTI containing the RRC command, the UE shall be ready to transmit (as specified in GSM 45.010) on the channel of the new RAT at the designated activation time.

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

Table 5.2: FDD/GSM	handover – handover	delay
--------------------	---------------------	-------

UE synchronisation status	handover delay [ms]
The UE has synchronised to the GSM cell before the	90
HANDOVER FROM UTRAN COMMAND is received	
The UE has not synchronised to the GSM cell before	190
the HANDOVER FROM UTRAN COMMAND is received	

5.4.2.2 Interruption time

The interruption time, i.e. the time between the end of the last TTI containing a transport block on the old channel and the time the UE is ready to transmit on the new channel, shall be less than The value in table 5.3. The requirement in table 5.3 for the case, that UE is not synchronised to the GSM cell before the HANDOVER FROM UTRAN COMMAND is received, is valid when the signal quality of the GSM cell is good enough for successful synchronisation with one attempt.

Synchronisation status	Interruption time [ms]
The UE has synchronised to the GSM cell before the	40
HANDOVER FROM UTRAN COMMAND is received	
The UE has not synchronised to the GSM cell before	140
the HANDOVER FROM UTRAN COMMAND is received	

Table 5.3: FDD/GSM handover - interruption time

5.5 Cell Re-selection in CELL_FACH

5.5.1 Introduction

When a Cell Re-selection process is triggered according to TS 25.331, the UE shall evaluate the cell re-selection criteria specified in TS 25.304, based on radio measurements, and if a better cell is found that cell is selected.

3GPP TSG RAN WG4 Meeting #21

R4-020318

Sophia Antipolis, France 28th January - 1st February 2002

CHANGE REQUEST								
¥	25	.133 CR	<mark>315</mark> ж го	ev -	# Current ver	sion: 3.8.0 [#]		
For <u>HELP</u> on u	For HELP on using this form, see bottom of this page or look at the pop-up text over the # symbols.							
Proposed change affects: # (U)SIM ME/UE X Radio Access Network Core Network								
Title: ដ	Re	quirement for Bl	ind HO from UT	RAN to GS	M (R99)			
Source: #	RA RA	NWG4						
Work item code: ₩	8				Date: ዝ	3 1/2/2002		
Category: ₩	Deta	 B (addition of fea C (functional mo D (editorial modi 	o a correction in a ature), dification of featur fication) of the above cate	e)	2	5 R99 f the following releases: (GSM Phase 2) (Release 1996) (Release 1997) (Release 1998) (Release 1999) (Release 4) (Release 5)		
Reason for change	o. X	There is alrea	dv an existing re	quirement	(delay and inter	ruption time) when the	e	
Reason for change	Reason for change: * There is already an existing requirement (delay and interruption time) when the UE has not synchronised to the target cell before the HANDOVER FROM UTRAN COMMAND is received: The behavior of the UE when this operation of synchronisation fails is not specified.							
Summary of chang	ge:	UTRAN see G the synchronis	SM 45.008 sub ation task. A rel	7.2) is prop ference to t	osed, in order the RRC proced	e Blind Ho from GSM to give a limit in time f ure of the Handover ted before this limit.		
		An editorial co	rrection is also i	ncluded in	a reference to t	he 25.331.		
Consequences if not approved:	ж	behavior of the		ailure durin	g the synchroni	ase. If not approved, t sation task (requested		
		uncomplete. Would not affe	-	ons behavi	ng like indicated	the specification was I in the CR, would affe herwise.	ect	
Clauses affected:	¥	5.2.2.1 ; 5.4.2						
Other specs affected:	ж	Other core Test specif O&M Speci		ж				
Other comments:	ж	This Cr is prop functionnality.	oosed in R99 an	d onwards	because this bli	nd Ho is a Release 99	9	

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at: <u>http://www.3gpp.org/3G_Specs/CRs.htm</u>. 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 <u>ftp://ftp.3gpp.org/specs/</u> 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.

5 UTRAN Connected mode mobility

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

Requirements related to the measurements in support of the execution of the UTRAN connected mode mobility procedures are specified, currently not necessarily for all UTRAN connected mode states, in section 8.

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

UE behaviour in response to UTRAN RRC messages is described in TS25.331.

The purpose of Cell reselection in CELL_FACH, CELL_PCH and URA_PCH states is that the UE shall select a better cell according to the cell reselection criteria in TS 25.304. CELL_FACH, CELL_PCH and URA_PCH states are described in TS 25.331.

5.1 FDD/FDD Soft Handover

5.1.1 Introduction

Soft handover is a function in which the UE is connected to several UTRAN access points at the same time. Addition and/or release of radio links are controlled by the ACTIVE SET UPDATE procedure.

The soft handover function includes a measurement phase, a decision algorithm in UTRAN and the ACTIVE SET UPDATE procedure.

5.1.2 Requirements

5.1.2.1 Active set dimension

The UE shall be capable of supporting at least 6 radio links in the active set.

5.1.2.2 Active set update delay

The active set update delay is defined as the time from when the UE has received the ACTIVE SET UPDATE message from UTRAN, or at the time stated through the activation time when to perform the active set update, to the time when the UE successfully uses the set of radio links stated in that message for power control.

The active set update delay is depending on the number of known cells referred to in the ACTIVE SET UPDATE message. A cell is known if either or both of the following conditions are true:

- the UE has had radio links connected to the cell in the previous (old) active set
- the cell has been measured by the UE during the last 5 seconds and the SFN of the cell has been decoded by the UE..

And the phase reference is the primary CPICH.

The active set update delay shall be less than 50+10*KC+100*OC ms, where

KC is the number of known cells in the active set update message.

OC is the number of cells that are not known in the active set update message.

If the UE have radio links in the active set that it can not use for data detection (due to low signal level), the UE shall at least every 150 ms search for the radio link

5.1.2.3 Interruption Time

The UE shall not interrupt the data flow when adding, changing or removing radio links to the active set.

5.2 FDD/FDD Hard Handover

5.2.1 Introduction

The hard handover procedure is initiated from UTRAN with a RRC message that implies a hard handover, see TS 25.331 section 8.3.5.

5.2.2 Requirements

5.2.2.1 Hard handover delay

Procedure delay for all procedures, that can command a hard handover, are specified in [TS25.331 section 1113.5.2].

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

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

where:

 $D_{handover}$ equals the RRC procedure delay defined in TS25.331 Section 13.5.2 plus the interruption time stated in section 5.2.2.2.

5.2.2.2 Interruption time

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

If intra-frequency hard handover is commanded or inter-frequency hard handover is commanded when the UE does not need compressed mode to perform inter-frequency measurements, the interruption time shall be less than T_{interrupt1}

T_{interrupt1=}T_{IU}+40+20*KC+150*OC ms

where

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

KC is the number of known target cells in the message, and

OC is the number of target cells that are not known in the message.

Note: The figure 40 ms is the time required for measuring the downlink DPCCH channel as stated in TS 25.214 section 4.3.1.2.

In the interruption requirement T_{interrupt1} a cell is known if either or both of the following conditions are true:

- the UE has had radio links connected to the cell in the previous (old) active set
- the cell has been measured by the UE during the last 5 seconds and the SFN of the cell has been decoded by the UE.

If inter-frequency hard handover is commanded and the UE needs compressed mode to perform inter-frequency measurements, the interruption time shall be less than $T_{interrupt2}$

 $T_{interrupt2} = T_{IU} + 40 + 50 \text{*KC} + 150 \text{*OC ms}$

In the interruption requirement T_{interrupt2} a cell is known if:

- the cell has been measured by the UE during the last 5 seconds.

The phase reference is the primary CPICH.

The requirements in this section assume that N312 has the smallest possible value i.e. only one insync is required.

5.3 FDD/TDD Handover

5.3.1 Introduction

The purpose of FDD/TDD hard handover is to change the mode between FDD and TDD. The handover procedure is initiated from UTRAN with a RRC message that implies a hard handover, refer to TS25.331.

Compressed mode according to the UE Capability may be used to be able to make any measurements on the other mode.

5.3.2 Requirements

These requirements shall apply only to FDD/TDD UE.

5.3.2.1 Hard handover delay

Procedure delay for all procedures, that can command a hard handover, are specified in TS25.331 section 13.5.2.

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

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

where:

 $D_{handover}$ equals the RRC procedure delay defined in TS25.331 Section 13.5.2 plus the interruption time stated in section 5.3.2.2.

5.3.2.2 Interruption time

The interruption time, i.e. the time between the end of the last TTI containing a transport block on the old DPDCH and the time the UE starts transmission of the new uplink DPCH. The interruption time shall be less than the value in table 5-3. There is different requirement on the interruption time depending on if the cell is known or not and if the SFN of the target cell needs to be decoded by the UE during the interruption time or not.

In this interruption requirement a cell is known if the cell has been measured by the UE during the last 5 seconds.

cell present in the handover command	Interruption time [ms]					
message	Know	vn cell	Unknown cell			
	SFN not to	SFN needs to	SFN needs to be decoded			
	be decoded	be decoded				
1	[100]	[130]	[400]			

Table 5.1: FDD/TDD interruption time

The interruption time includes the time that can elapse till the appearance of the channel required for the synchronisation, which can be up to one frame (10ms). And the time that can elapse till the appearance of the slot in which the new uplink DPCH shall be transmitted, which can be up to one frame (10ms).

The requirement in Table 5.1 for the unknown cell shall apply if the signal quality of the unknown cell is good enough for successful synchronisation with one attempt.

NOTE: One synchronisation attempt can consist of coherent averaging using several frames.

5.4 FDD/GSM Handover

5.4.1 Introduction

The purpose of inter-RAT handover from UTRAN FDD to GSM is to transfer a connection between the UE and UTRAN FDD to GSM. The handover procedure is initiated from UTRAN with a RRC message (HANDOVER FROM UTRAN COMMAND). The procedure is described in TS25.331 section 8.3.7.

Compressed mode according to the UE Capability may be used to be able to make measurements on GSM.

5.4.2 Requirements

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

The requirements given below in Tables 5.2 and 5.3 for the case where the UE has not synchronised to the GSM cell before receiving the HANDOVER FROM UTRAN COMMAND are valid when the signal quality of the GSM cell is sufficient for successful synchronisation with one attempt. If the UE is unable to synchronise to the GSM cell on the first attempt, it shall continue to search for synchronisation information for up to 800 ms. If after 800 ms the UE has not synchronised to the GSM cell it shall follow the handover failure procedure specified in [16].

5.4.2.1 Handover delay

When the UE receives a RRC HANDOVER FROM UTRAN COMMAND with the activation time "now" or earlier than the value in table 5.2 from the end of the last TTI containing the RRC command, the UE shall be ready to transmit (as specified in GSM 05.10) on the channel of the new RAT within the value in table 5.2 from the end of the last TTI containing the RRC command.

If the access is delayed to an indicated activation time later than the value in table 5.2 from the end of the last TTI containing the RRC command, the UE shall be ready to transmit (as specified in GSM 05.10) on the channel of the new RAT at the designated activation time.

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

Table 5.2: FDD/GSM h	handover –handover delay
----------------------	--------------------------

UE synchronisation status	handover delay [ms]
The UE has synchronised to the GSM cell before the	90
HANDOVER FROM UTRAN COMMAND is received	
The UE has not synchronised to the GSM cell before	190
the HANDOVER FROM UTRAN COMMAND is received	

5.4.2.2 Interruption time

The interruption time, i.e. the time between the end of the last TTI containing a transport block on the old channel and the time the UE is ready to transmit on the new channel, shall be less than The value in table 5.3. The requirement in table 5.3 for the case, that UE is not synchronised to the GSM cell before the HANDOVER FROM UTRAN COMMAND is received, is valid when the signal quality of the GSM cell is good enough for successful synchronisation with one attempt.

Synchronisation status	Interruption time [ms]
The UE has synchronised to the GSM cell before the	40
HANDOVER FROM UTRAN COMMAND is received	
The UE has not synchronised to the GSM cell before	140
the HANDOVER FROM UTRAN COMMAND is received	

Table 5.3: FDD/GSM handover - interruption time

5.5 Cell Re-selection in CELL_FACH

5.5.1 Introduction

When a Cell Re-selection process is triggered according to TS 25.331, the UE shall evaluate the cell re-selection criteria specified in TS 25.304, based on radio measurements, and if a better cell is found that cell is selected.

3GPP TSG RAN WG4 Meeting #21

R4-020408

Sophia Antipolis, France 28th January - 1st February 2002

	CR-Form-v5						
CHANGE REQUEST							
ж	25.133 CR 314 # rev 1 ^{# Current version: 5.1.0 [#]}						
For <u>HELP</u> on u	sing this form, see bottom of this page or look at the pop-up text over the $#$ symbols.						
Proposed change affects: # (U)SIM ME/UE X Radio Access Network Core Network							
Title: ೫	Inclusion of AMR 2 requirement (Rel-5)						
Source: भ	RAN WG4						
Work item code: ℜ	TEI Date: # 1/2/2002						
Category: ₩	ARelease: #Rel-5Use one of the following categories:Use one of the following releases:F (correction)2(GSM Phase 2)A (corresponds to a correction in an earlier release)R96(Release 1996)B (addition of feature),R97(Release 1997)C (functional modification of feature)R98(Release 1998)D (editorial modification)R99(Release 1999)Detailed explanations of the above categories canREL-4(Release 4)be found in 3GPP TR 21.900.REL-5(Release 5)						
Reason for change	<i>Reason for change:</i> # It was decided by CN#4 (see TS 23.153 Out of band trancoder control) to have the AMR2 taken as the default speech codec for all dual mode UE for R99 and onwards. Therefore an update to 25.133 is required.						
Summary of chang							
	In the UMTS_AMR case: the change of the Codec Mode can be performed every speech frame for both Uplink and Downlink. The current requirement is equal to 20+20= 40 ms and left unchanged. In the UMTS_AMR2 case: the change of the Codec Mode is done every speech frame for Downlink direction, and every second speech frame for Uplink direction.						
	Since AMR2 may take 20 additionnal ms to adapt the speech codec for the uplink, it is proposed to add 20 ms (one speech frame length) to UMTS_AMR requirement to define the UMTS_AMR2 requirement.						
Consequences if not approved:	A major requirement for the default speech codec AMR2 will be missing.						
Clauses affected:	¥ 6.4.2						
Other specs affected:	% Other core specifications % Test specifications O&M Specifications						

Other comments: %

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at: <u>http://www.3gpp.org/3G_Specs/CRs.htm</u>. 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 <u>ftp://ftp.3gpp.org/specs/</u> 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.

6.4 Transport format combination selection in UE

6.4.1 Introduction

When the UE estimates that a certain TFC would require more power than the maximum transmit power, it shall limit the usage of transport format combinations for the assigned transport format set, according to the functionality specified in section 11.4 in TS25.321. This in order to make it possible for the network operator to maximise the coverage. Transport format combination selection is described in section 11.4 of TS 25.321.

6.4.2 Requirements

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

The UE shall consider the *Elimination* criterion for a given TFC to be fulfilled if the estimated UE transmit power needed for this TFC is greater than the Maximum UE transmitter power for at least X out of Y successive measurement periods. The MAC in the UE shall consider that the TFC is in Excess-Power state for the purpose of TFC selection.

MAC in the UE shall indicate the available bitrate for each logical channel to upper layers within [15 ms] from the moment the *Elimination* criterion was fulfilled.

The UE shall consider the *Recovery* criterion for a given TFC to be fulfilled if the estimated UE transmit power needed for this TFC has not been greater than the Maximum UE transmitter power for at least Y successive measurement periods. The MAC in the UE shall consider that the TFC is in Supported state for the purpose of TFC selection.

MAC in the UE shall indicate the available bitrate for each logical channel to upper layers within T_{notify} from the moment the *Recovery* criterion was fulfilled.

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

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

where:

T_{notify} equals [15] ms, and

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

 $T_{L1 proc}$ equals 15 ms, and

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

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

 T_{adapt_n} equals the time it takes for higher layers to provide data to MAC in a new supported bitrate, for logical channel n. Table 6.1 defines T_{adapt} times for different services. For services where no codec is used T_{adapt} shall be considered to be equal to 0 ms.

Service	T _{adapt} [ms]
<u>UMTS_</u> AMR	40
UMTS_AMR2	<u>60</u>

Table 6.1: Tadapt

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

The Maximum UE transmitter power is defined as follows

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

where

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

UE maximum transmit power is defined by the UE power class, and specified in [3].

6.5 Maximum allowed UL TX Power

UTRAN may limit the power the UE is using on the uplink by setting the maximum allowed UL TX power IE defined in TS25.331.

3GPP TSG RAN WG4 Meeting #21

R4-020407

Sophia Antipolis, France 28th January - 1st February 2002

											CR-Form-v5
CHANGE REQUEST											
ж <mark>2</mark>	2 5. 1	133	CR	313	жrev	1	ж	Current vers	sion:	4.3.0	ж
For <u>HELP</u> on usir	na th	ie for	m soo hott	om of thi		look	ot th	o pop up toxt	ovor	tho ff our	nholo
			_								
Proposed change aff	fects	:: X	(U)SIM	ME	UE X	Rad	io A	ccess Networl	k 📃	Core Ne	twork
Title: ೫	Inclu	<mark>sion (</mark>	of AMR 2 re	quireme	nt(Rel-4)					
Source: भ ।	RAN	WG4	4								
Work item code: 🕱 🧧	TEI							Date: ₩	1/2	/2002	
D	lse <u>or</u> F A B C D etaile	(corr (corr (add (func (edit	the following rection) responds to a lition of featu ctional modific orial modific lanations of 3GPP <u>TR 21</u>	a correctio re), ication of f ation) the above	n in an ea eature)		eleas	Release: % Use <u>one</u> of 2 R96 R97 R98 R99 REL-4 REL-5	the fo (GSN (Rele (Rele (Rele (Rele		eases:
Reason for change: Summary of change:	Reason for change: # It was decided by CN#4 (see TS 23.153 Out of band trancoder control) to have the AMR2 taken as the default speech codec for all dual mode UE for R99 and onwards. Therefore an update to 25.133 is required. Summary of change: # An additional requirement is added to take into account the AMR2 speech codec:										
		spee 20+2 In the	ch frame fo 0= 40 ms a e UMTS_AM e for Downl	r both Up nd left ur /IR2 case	link and l changed e: the cha	Down nge c	ilink. of the	Codec Mode The current r Codec Mode ond speech fra	equir e is de	ement is e one every	equal to
		uplinl		osed to a	dd 20 ms	(one	spe	adapt the spe ech frame len uirement.			
		imple		behavin	g like indi	cated	d in t	rement.Would he CR, would vise.			ntations
Consequences if not approved:	ж	A ma	jor requirer	nent for t	he defaul	t spe	ech	codec AMR2	will b	e missing.	
Clauses affected:	ж	6.4.2									
Other specs affected:	ж		her core sp est specifica		ns ¥						

	O&M Specifications	
Other comments:	ж	

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at: <u>http://www.3gpp.org/3G_Specs/CRs.htm</u>. 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 <u>ftp://ftp.3gpp.org/specs/</u> 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.

6.4 Transport format combination selection in UE

6.4.1 Introduction

When the UE estimates that a certain TFC would require more power than the maximum transmit power, it shall limit the usage of transport format combinations for the assigned transport format set, according to the functionality specified in section 11.4 in TS25.321. This in order to make it possible for the network operator to maximise the coverage. Transport format combination selection is described in section 11.4 of TS 25.321.

6.4.2 Requirements

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

The UE shall consider the *Elimination* criterion for a given TFC to be fulfilled if the estimated UE transmit power needed for this TFC is greater than the Maximum UE transmitter power for at least X out of Y successive measurement periods. The MAC in the UE shall consider that the TFC is in Excess-Power state for the purpose of TFC selection.

MAC in the UE shall indicate the available bitrate for each logical channel to upper layers within [15 ms] from the moment the *Elimination* criterion was fulfilled.

The UE shall consider the *Recovery* criterion for a given TFC to be fulfilled if the estimated UE transmit power needed for this TFC has not been greater than the Maximum UE transmitter power for at least Y successive measurement periods. The MAC in the UE shall consider that the TFC is in Supported state for the purpose of TFC selection.

MAC in the UE shall indicate the available bitrate for each logical channel to upper layers within T_{notify} from the moment the *Recovery* criterion was fulfilled.

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

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

where:

 T_{notify} equals [15] ms, and

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

 $T_{L1 proc}$ equals 15 ms, and

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

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

 T_{adapt_n} equals the time it takes for higher layers to provide data to MAC in a new supported bitrate, for logical channel n. Table 6.1 defines T_{adapt} times for different services. For services where no codec is used T_{adapt} shall be considered to be equal to 0 ms.

Service	T _{adapt} [ms]
<u>UMTS_</u> AMR	40
UMTS_AMR2	<u>60</u>

Table 6.1: Tadapt

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

The Maximum UE transmitter power is defined as follows

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

where

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

UE maximum transmit power is defined by the UE power class, and specified in [3].

6.5 Maximum allowed UL TX Power

UTRAN may limit the power the UE is using on the uplink by setting the maximum allowed UL TX power IE defined in TS25.331.

3GPP TSG RAN WG4 Meeting #21

R4-020406

Sophia Antipolis, France 28th January - 1st February 2002

	CR-Form-v-						
CHANGE REQUEST							
ж	25.133 CR 312 # rev 1 ^{# Current version:} 3.8.0 [#]						
For HFI P on us	ing this form, see bottom of this page or look at the pop-up text over the X symbols.						
Proposed change at	ffects: # (U)SIM ME/UE X Radio Access Network Core Network						
Title: ೫	Inclusion of AMR 2 requirement (Rel-99)						
Source: ೫	RAN WG4						
Work item code: #	Date: # 1/2/2002						
[FRelease: %R99Use one of the following categories: F (correction)Use one of the following releases: 22(GSM Phase 2)A (corresponds to a correction in an earlier release)R96(Release 1996)B (addition of feature), C (functional modification of feature)R97(Release 1997)C (functional modification)R98(Release 1998)D (editorial modification)R99(Release 1999)Detailed explanations of the above categories can be found in 3GPP TR 21.900.REL-5(Release 5)						
Reason for change: Summary of change	Reason for change: # It was decided by CN#4 (see TS 23.153 Out of band trancoder control) to have the AMR2 taken as the default speech codec for all dual mode UE for R99 and onwards. Therefore an update to 25.133 is required. Summary of change: # An additional requirement is added to take into account the AMR2 speech codec:						
	In the UMTS_AMR case: the change of the Codec Mode can be performed every speech frame for both Uplink and Downlink. The current requirement is equal to 20+20= 40 ms and left unchanged. In the UMTS_AMR2 case: the change of the Codec Mode is done every speech frame for Downlink direction, and every second speech frame for Uplink direction. Since AMR2 may take 20 additionnal ms to adapt the speech codec for the						
	uplink, it is proposed to add 20 ms (one speech frame length) to UMTS_AMR requirement to define the UMTS_AMR2 requirement. Isolated Impact analysis: addition of a requirement. Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise.						
Consequences if not approved:	* A major requirement for the default speech codec AMR2 will be missing.						
Clauses affected:	¥ 6.4.2						
Other specs affected:	# Other core specifications # Test specifications						

	O&M Specifications	
Other comments:	ж	

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at: <u>http://www.3gpp.org/3G_Specs/CRs.htm</u>. 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 <u>ftp://ftp.3gpp.org/specs/</u> 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.

6.4 Transport format combination selection in UE

6.4.1 Introduction

When the UE estimates that a certain TFC would require more power than the maximum transmit power, it shall limit the usage of transport format combinations for the assigned transport format set, according to the functionality specified in section 11.4 in TS25.321. This in order to make it possible for the network operator to maximise the coverage. Transport format combination selection is described in section 11.4 of TS 25.321.

6.4.2 Requirements

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

The UE shall consider the *Elimination* criterion for a given TFC to be fulfilled if the estimated UE transmit power needed for this TFC is greater than the Maximum UE transmitter power for at least X out of Y successive measurement periods. The MAC in the UE shall consider that the TFC is in Excess-Power state for the purpose of TFC selection.

MAC in the UE shall indicate the available bit rate for each logical channel to upper layers within [15 ms] from the moment the *Elimination* criterion was fulfilled.

The UE shall consider the *Recovery* criterion for a given TFC to be fulfilled if the estimated UE transmit power needed for this TFC has not been greater than the Maximum UE transmitter power for at least Y successive measurement periods. The MAC in the UE shall consider that the TFC is in Supported state for the purpose of TFC selection.

MAC in the UE shall indicate the available bitrate for each logical channel to upper layers within T_{notify} from the moment the *Recovery* criterion was fulfilled.

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

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

where:

T_{notify} equals [15] ms, and

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

 $T_{L1 proc}$ equals 15 ms, and

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

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

 T_{adapt_n} equals the time it takes for higher layers to provide data to MAC in a new supported bitrate, for logical channel n. Table 6.1 defines T_{adapt} times for different services. For services where no codec is used T_{adapt} shall be considered to be equal to 0 ms.

Service	T _{adapt} [ms]
<u>UMTS_</u> AMR	40
UMTS_AMR2	<u>60</u>

Table 6.1: Tadapt

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

The Maximum UE transmitter power is defined as follows

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

where

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

UE maximum transmit power is defined by the UE power class, and specified in [3].

6.5 Maximum allowed UL TX Power

UTRAN may limit the power the UE is using on the uplink by setting the maximum allowed UL TX power IE defined in TS25.331.

3GPP TSG RAN WG4 Meeting #21

R4-020242

Sophia Antipolis, France 28th January - 1st February 2002

										CR-Form-v4
			CHAN	IGE RE	EQI	JEST				OKT OM V
ж	25	<mark>.133</mark> Cl	R <mark>305</mark>	ж	ev	- *	Current ve	ersior	^{n:} 5.1.	<mark>0</mark> ^ж
For <u>HELP</u> on using this form, see bottom of this page or look at the pop-up text over the $#$ symbols.										
Proposed change affects: # (U)SIM ME/UE Radio Access Network Core Network										
Title: ೫	UT	<mark>RAN –GS</mark> I	A Cell Rese	election						
Source: ೫	RA	N WG4								
Work item code: ₩	TE						Date:	Ж 🦯	1/2/2002	
Category: % A Release: % Rel-5 Use one of the following categories: Use one of the following releases: F (correction) 2 (GSM Phase 2) A (corresponds to a correction in an earlier release) R96 (Release 1996) B (addition of feature), R97 (Release 1997) C (functional modification of feature) R98 (Release 1998) D (editorial modification) R99 (Release 1999) Detailed explanations of the above categories can be found in 3GPP TR 21.900. REL-4 (Release 5)							92) 96) 97) 98)			
Reason for change	e: %		nents for T _e ment occas		RA ar	e not def	ined for U	E not	requirem	ent
Summary of chang	де: Ж	The defi	nition of T _{BC}	_{сн} and Т _{RA}	are	moved	so they app	oly to	both case	es
Consequences if not approved:	ж	Isolation in editorial en	reselection npact analysi ror when rhe ila are not co	is – this doe the CR wa	es not	impact im				ects an requirements
Clauses affected:	Ħ	5.5.2.1.4								
Other specs affected:	ж	X Test s	core specifi pecification Specificatio	S	ж	TS34.12	21			
Other comments:	ж									

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at: <u>http://www.3gpp.org/3G_Specs/CRs.htm</u>. 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 <u>ftp://ftp.3gpp.org/specs/</u> 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.

5.5.2.1.4 UTRAN-GSM Cell Reselection

The cell re-selection delay in CELL_FACH state to a GSM cell shall be less than

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

where

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

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

a) For UE requiring measurement occasions.

 $T_{identify, GSM}$ is specified in 8.4.2.5.2.1

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

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

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

where:

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

 $N_{GSM \ carrier \ RSSI}$ is specified in 8.4.2.5.1.

b) For UE not requiring measurement occasions

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

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

3GPP TSG RAN WG4 Meeting #21

R4-020241

Sophia Antipolis, France 28th January - 1st February 2002

Γ									CR-Form-v4
			CHAN	NGE RE	EQI	JEST			
ж	25	<mark>.133</mark>	CR <mark>304</mark>	ж	ev	- *	Current ver	sion: 4.3.() [#]
For <u>HELP</u> on using this form, see bottom of this page or look at the pop-up text over the $#$ symbols.									
Proposed change affects: # (U)SIM ME/UE Radio Access Network Core Network									
Title: #	UT	RAN –G	SM Cell Res	election					
Source: ೫	RA	N WG4							
Work item code: ℜ	TE						Date: ^ၝ	1/2/2002	
Category: % A Release: % Rel-4 Use one of the following categories: Use one of the following releases: F (correction) 2 (GSM Phase 2) A (corresponds to a correction in an earlier release) R96 (Release 1996) 8 B (addition of feature), R97 (Release 1997) 7 C (functional modification of feature) R98 (Release 1998) D (editorial modification) R99 (Release 1999) Detailed explanations of the above categories can be found in 3GPP TR 21.900. REL-5 (Release 5)							2) 6) 7) 8)		
Reason for change	e: X		rements for T urement occa		a ar	e not defi	ined for UE	not requireme	ent
Summary of chang	де: Ж	The de	efinition of T _B	_{ссн} and Т _{RA}	are	moved s	o they apply	y to both case	S
Consequences if not approved:	ж	Isolation editorial		sis – this doe e the CR was	s not	impact imp		and only corre	
Clauses affected:	Ħ	5.5.2.	1.4						
Other specs affected:	ж	X Tes	er core speci st specification M Specification	ns	ж	TS34.12	21		
Other comments:	ж								

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at: <u>http://www.3gpp.org/3G_Specs/CRs.htm</u>. 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.

5.5.2.1.4 UTRAN-GSM Cell Reselection

The cell re-selection delay in CELL_FACH state to a GSM cell shall be less than

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

where

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

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

a) For UE requiring measurement occasions.

 $T_{identify, GSM}$ is specified in 8.4.2.5.2.1

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

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

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

where:

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

 $N_{GSM \ carrier \ RSSI}$ is specified in 8.4.2.5.1.

b) For UE not requiring measurement occasions

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

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

3GPP TSG RAN WG4 Meeting #21

R4-020240

Sophia Antipolis, France 28th January - 1st February 2002

		CR-Form-v4						
	CHANGE REQUEST							
ж	25.133 CR 303 [#] ev - [#]	Current version: 3.8.0 [#]						
For HELP on using this form, see bottom of this page or look at the pop-up text over the # symbols.								
Proposed change affects: # (U)SIM ME/UE Radio Access Network Core Network								
Title: ¥	UTRAN –GSM Cell Reselection							
Source: ¥	RAN WG4							
Work item code: ₩		Date: ೫ <mark>1/2/2002</mark>						
Category: ¥	 F Use <u>one</u> of the following categories: F (correction) A (corresponds to a correction in an earlier release B (addition of feature), C (functional modification of feature) D (editorial modification) Detailed explanations of the above categories can be found in 3GPP <u>TR 21.900</u>. 	Release: %R99Use one 2of the following releases: 22(GSM Phase 2)e)R96(Release 1996)R97(Release 1997)R98(Release 1998)R99(Release 1999)REL-4(Release 4)REL-5(Release 5)						
Reason for change	e: # Requirements for T _{BCCH} and T _{RA} are not det measurement occasions	fined for UE not requirement						
Summary of chang	ge:	so they apply to both cases						
Consequences if not approved:	 The cell reselection delay was not defined. Isolation impact analysis – this does not impact im editorial error when rhe the CR was implemented. in the fomula are not complete. 							
Clauses affected:	₩ <mark>5.5.2.1.4</mark>							
Other specs affected:	XOther core specificationsXTS34.1XTest specifications0&M Specifications	21						
Other comments:	ж							

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at: <u>http://www.3gpp.org/3G_Specs/CRs.htm</u>. 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 <u>ftp://ftp.3gpp.org/specs/</u> 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.

5.5.2.1.4 UTRAN-GSM Cell Reselection

The cell re-selection delay in CELL_FACH state to a GSM cell shall be less than

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

where

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

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

a) For UE requiring measurement occasions.

 $T_{identify, GSM}$ is specified in 8.4.2.5.2.1

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

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

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

where:

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

 $N_{GSM \ carrier \ RSSI}$ is specified in 8.4.2.5.1.

b) For UE not requiring measurement occasions

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

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

3GPP TSG RAN WG4 Meeting #21

Ì

R4-020495

Sophia Antipolis, France 28th January - 1st February 2002

	CR-Form-v4								
	CHANGE REQUEST								
¥	25.133 CR 295 # ev 1 # Current version: 5.1.0 #								
For HELP on using this form, see bottom of this page or look at the pop-up text over the # symbols.									
Proposed change affects: # (U)SIM ME/UE X Radio Access Network Core Network									
Title: #	FDD inter frequency measurements and test cases								
Source: #	RAN WG4								
Work item code: भ	『 TEI Date: 米 1/2/2002								
Category: ¥	Release: # Rel-5 Use one of the following categories: Use one of the following releases: F (correction) 2 (GSM Phase 2) A (corresponds to a correction in an earlier release) R96 (Release 1996) B (addition of feature), R97 (Release 1997) C (functional modification of feature) R98 (Release 1998) D (editorial modification) R99 (Release 1999) Detailed explanations of the above categories can REL-4 (Release 4) be found in 3GPP TR 21.900. REL-5 (Release 5)								
Reason for change	e: # Test cases have not yet been aligned with the general performance requirements.								
	The current wording in the definition of Tinter in the general performance requirements does not exactly reflect the original intention. Hence, there could be several interpretations for the same parameter.								
Summary of chang	ge: 왜 1) The definition of T _{Inter} is corrected in the general requirements.								
	2) Test case A.8.2.1:								
	- The square brackets for T1 and T2 are removed from Test case A.8.2.1.								
	 Reporting delay requirement for Event 2C is corrected to be according to the identification time requirements defined in the general performance requirements. 								
	Idle length for slot format 11B = 4.266667 ms								
	Idle length with implementation margin (2*0.5 ms) is 3.266667 ms, which corresponds 4 full slots.								
	In this compressed mode pattern there are 16 gaps per 480 ms.								
	Allowed identification time for inter frequency cell = 9 s . (according to Section 8.1.2.3.1 Identification of a new cell)								
	 Reporting delay requirement for Event 1A is corrected to be according to the identification time requirements of intra frequency cells when compressed mode is activated. 								
	In the worst case there are 7 gaps per the measurement period (200 ms),								

	which means that T _{intra} becomes 167.33333 ms ((300 - 7*7) slots = 251 slots).
	Allowed identification time for intra frequency cell = 956.2 ms (according to Section 8.1.2.2.1 Identification of a new cell).
	3) Test case A.8.2.2 is removed from this release, since the test case is not yet finalised and the finishing of the test case would require further simulations in order to take the impact of fading propagation condition into account.
	Isolated Impact Analysis:
	The correction of the definition of T _{inter} has small impact on the requirement of identification time for inter frequency cell but the correction does not have any negative impact on the implementation of the UE following the original wording.
	The test case corrections of this CR follow the general performance requirements of TS25.133 and therefore the proposed modifications do not have an impact on implementation or on the requirements of TS25.133.
Consequences if not approved:	 The definition of T_{Inter could} be could be interpreted on more than one way. The inter frequency test cases are not aligned with the general performance requirements of TS25.133 and the test cases are not complete.
Clauses affected:	8.1.2.3.2, A.8.2.1.1, A.8.2.1.2 and A.8.2.2
Other specs affected:	# Other core specifications # X Test specifications 34.121 O&M Specifications 34.121

How to create CRs using this form:

ж

Other comments:

Comprehensive information and tips about how to create CRs can be found at: <u>http://www.3gpp.org/3G_Specs/CRs.htm</u>. 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 <u>ftp://ftp.3gpp.org/specs/</u> 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.

8.1.2.3 FDD inter frequency measurements

In the CELL_DCH state when a transmission gap pattern sequence with the "FDD measurements" purpose is provided by the network the UE shall continuously measure identified inter frequency cells and search for new inter frequency cells indicated in the measurement control information.

In order for the requirements in the following subsections to apply the UTRAN must provide a transmission gap pattern sequence with measurement purpose FDD measurement using the following combinations for TGL1, TGL2 and TGD:

TGL1 [slots]	TGL2 [slots]	TGD [slots]
7	-	undefined
14	-	undefined
10	-	undefined
7	7	15269
14	14	15269
10	5	15269

Table 8.1

8.1.2.3.1 Identification of a new cell

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

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

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

8.1.2.3.2 UE CPICH measurement capability

When transmission gaps are scheduled for FDD inter frequency measurements the UE physical layer shall be capable of reporting measurements to higher layers with measurement accuracy as specified in sub-clause 9.1.1 and 9.1.2 with measurement period given by

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

If the UE does not need compressed mode to perform inter-frequency measurements, the measurement period for inter frequency measurements is 480 ms.

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

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

 $T_{Measurement_Period Inter} = 480 \text{ ms.}$ The period used for calculating the measurement period $T_{measurement_inter}$ for inter frequency CPICH measurements.

 $T_{Inter::}$ This is the minimum time as full slots that is available for inter frequency measurements, during the period $T_{Measurement_Period inter}$ with an arbitrarily chosen timing. The minimum time per transmission gap is calculated by using the actual idle length within the transmission gap as given in the table 11 of Annex B in TS 25.212 and by assuming 2*0.5 ms for implementation margin_and after that taking only full slots into account in the calculation.

 $T_{\text{basic_identify}_{\text{FDD,inter}}} = 800 \text{ ms.}$ 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.

3

 $T_{\text{basic_measurement_FDD inter}} = 50 \text{ ms.}$ 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.

8.1.2.3.3 Periodic Reporting

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

A.8.2 FDD inter frequency measurements

A.8.2.1 Correct reporting of neighbours in AWGN propagation condition

5

A.8.2.1.1 Test Purpose and Environment

The purpose of this test is to verify that the UE makes correct reporting of an event when doing inter frequency measurements. The test will partly verify the requirements in section 8.1.2.2 and section 8.1.2.3.

The test consists of two successive time periods, with a time duration T1 and T2. The test parameters are given in tables A.8.9 and A.8.10 below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 1A and 2C shall be used. The CPICH Ec/I0 of the best cell on the unused frequency shall be reported together with Event 2C reporting.

Table A.8.9: General test parameters for Correct reporting of neighbours in AWGN propagation condition

Parameter Ur		Value	Comment
DCH parameters		DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.101 section A.3.1
Power Control		On	
Compressed mode		A.22 set 1	As specified in TS 25.101 section A.5.
Active cell		Cell 1	
Threshold non used frequency	dB	-18	Absolute Ec/I0 threshold for event 2C
Reporting range	dB	4	Applicable for event 1A
Hysteresis	dB	0	
W		1	Applicable for event 1A
W non-used frequency		1	Applicable for event 2C
Reporting deactivation threshold		0	Applicable for event 1A
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 the compressed mode pattern starts.
T1	S	[10]	
T2	S	[5]	

TableA.8.10: Cell Specific parameters for Correct reporting of neighbours in AWGN propagation condition

Parameter	Unit	Cell 1		Cel	Cell 2		ell 3	
		T1	T2	T1	T2	T1	T2	
UTRA RF Channel Number		Channel 1		Chan	Channel 1		Channel 2	
CPICH_Ec/lor	dB	-10		-10		-10		
PCCPCH_Ec/lor	dB	-12		-12		-12		
SCH_Ec/lor	dB	-12		-12		-12		
PICH_Ec/lor	dB	-15		-15		-15		
DPCH_Ec/lor	dB	-17		N/A		N/A		
OCNS		-1.049		-0.941		-0.941		
\hat{I}_{or}/I_{oc}	dB	0	4.39	<u>-</u> Infinity	2.39	-1.8	-1.8	
I _{oc}	dBm/3.84 MHz	-70				-70		
CPICH_Ec/lo	dB	-13	-13	-Infinity	-15	-14	-14	
Propagation Condition	AWGN							

A.8.2.1.2 Test Requirements

- a) The UE shall send one Event 2C triggered measurement report, with a measurement reporting delay less than <u>95</u> seconds from the beginning of time period T1.
- b) The UE shall send one Event 1A triggered measurement report, with a measurement reporting delay less than <u>956.2</u>800 ms 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.8.2.2 Correct reporting of neighbours in Fading propagation condition

A.8.2.2.1 Test Purpose and Environment

The purpose of this test is to verify that the UE makes correct reporting of an event when doing inter frequency measurements. The test will partly verify the requirements in section 8.1.2.2. The test parameters are given in Table A.8.11 and A.8.12. In the measurement control information it is indicated to the UE that event-triggered reporting 2C shall be used.

Table A.8.11: General test parameters for Correct reporting of neighbours in Fading propagation condition

Parameter	Unit	Value	Comment
DCH parameters		DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.101 section A.3.1
Power Control		On	
Compressed mode		Case 2.1	As specified in TS 25.101 section A.5.
Active cell		Cell 1	
Absolute Threshold (Ec/N0) for Event 2c	dB	-18	
Hysteresis	dB	0	
Time to Trigger	ms	0	
Filter coefficient		0	
Monitored cell list size		Total 24 X on frequency Channel 2	Measurement control information is sent before the compressed mode pattern starts.

Table A.8.12: Test parameters for Correct reporting of neighbours in Fading propagation condition

Parameter	Unit	Cell 1	Cell 2
UTRA RF Channel Number		Channel 1	Channel 2
CPICH_Ec/lor	dB	-10	-10
PCCPCH_Ec/lor	dB	-12	-12
SCH_Ec/lor	dB	-12	-12
PICH_Ec/lor	dB	-15	-15
DPCH_Ec/lor	dB	TBD	TBD
OCNS		[To Be Calculated]	[To Be Calculated]
\hat{I}_{or}/I_{oc}	dB	0	-1.8
I _{oc}	dBm/3.84 MHz	-70	-70
CPICH_Ec/lo	dB	-13	-14
Propagation Condition	Case 5 as specifi	ed in Annex B of TS25.10	1

A.8.2.2.2 Test Requirements

- a) The UE shall send one Event 2C triggered measurement report, with a measurement reporting delay less than 5 seconds from the start of the test.
- b) The UE shall not send any measurement reports, as long as the reporting criteria are not fulfilled.

6

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

A.8.3 TDD measurements

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

A.8.3.1.1 Test Purpose and Environment

The purpose of this test is to verify that the UE makes correct reporting of an event when measuring on a TDD cell. The test will partly verify the requirements in section 8.1.2.3.

The test consists of two successive time periods, with a time duration T1 and T2 respectively. The test parameters are given in Table A.8.13 and A.8.14. In the measurement control information it is indicated to the UE that event triggered reporting with Event 2C shall be used.

Table A.8.13: General test parameters for Correct reporting of TDD neighbours in AWGN propagation condition

Parameter	Unit	Value	Comment
DCH parameters		DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.101 section A.3.1
Power Control		On	
Compressed mode		Case 2.1	Gap length specified in section 8.1.2.3 and the other parameters as specified in TS 25.101 section A.5.
Active cell		Cell 1	
Reporting Threshold	dB		
Hysteresis	dB		
Time to Trigger	ms		
Filter coefficient			
Monitored cell list size		Total X Y on frequency Channel 2	Measurement control information is sent before the compressed mode pattern starts.
T1	S		
T2	S		

Table A.8.14: Cell specific test parameters for Correct reporting of TDD neighbours in AWGN propagation condition

Parameter	Unit	Ce	Cell 2				
Timeslot Number		n.a.		0		l	8
		T1	T2	T1	T2	T1	T2
UTRA RF Channel		Channel 1		Chann	പ 2		
Number		Channer		Chann			
CPICH_Ec/lor	dB	[]	[]	n.a.		n.a.	
PCCPCH_Ec/lor	dB	[]	[]	-3	-3		
SCH_Ec/lor	dB	[]	[]	-9	-9	-9	-9
SCH_t _{offset}		n.a.	n.a.	15	15	15	15
PICH_Ec/lor		[]	[]			-3	-3
DCH_Ec/lor	dB	[]	[]	-	-	-	-
OCNS	dB	[]	[]	-4.28	-4.28	-4.28	-4.28
\hat{I}_{or}/I_{oc}	dB	[]	[]	[]	[]	[]	[]
I _{oc}	dBm/3.84 MHz	-70		-70			
CPICH_Ec/lo		[]		n.a.			
PCCPCH_RSCP	dB	n.a.	n.a.	[]	[]	[]	[]
Propagation Condition		AWGN					

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

A.8.3.1.2 Test Requirements

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

3GPP TSG RAN WG4 Meeting #21

Ì

R4-020494

Sophia Antipolis, France 28th January - 1st February 2002

	CR-Form-v4					
	CHANGE REQUEST					
¥	25.133 CR 294 # ev 1 # Current version: 4.3.0 #					
For <u>HELP</u> on L	using this form, see bottom of this page or look at the pop-up text over the $#$ symbols.					
Proposed change affects: # (U)SIM ME/UE X Radio Access Network Core Network						
Title: #	FDD inter frequency measurements and test cases					
Source: ¥	RAN WG4					
Work item code: ₩	『 TEI Date: 육 1/2/2002					
Category: ₩	Release: # Rel-4 Use one of the following categories: Use one of the following releases: F (correction) 2 (GSM Phase 2) A (corresponds to a correction in an earlier release) R96 (Release 1996) B (addition of feature), R97 (Release 1997) C (functional modification of feature) R98 (Release 1998) D (editorial modification) R99 (Release 1999) Detailed explanations of the above categories can REL-4 (Release 4) be found in 3GPP TR 21.900. REL-5 (Release 5)					
Reason for change	e: ೫ Test cases have not yet been aligned with the general performance requirements.					
	The current wording in the definition of Tinter in the general performance requirements does not exactly reflect the original intention. Hence, there could be several interpretations for the same parameter.					
Summary of chang	ge: # 1) The definition of T _{Inter} is corrected in the general requirements.					
	2) Test case A.8.2.1:					
	- The square brackets for T1 and T2 are removed from Test case A.8.2.1.					
	- Reporting delay requirement for Event 2C is corrected to be according to the identification time requirements defined in the general performance requirements.					
	Idle length for slot format 11B = 4.266667 ms					
	Idle length with implementation margin (2*0.5 ms) is 3.266667 ms, which corresponds 4 full slots.					
	In this compressed mode pattern there are 16 gaps per 480 ms.					
	Allowed identification time for inter frequency cell = 9 s. (according to Section 8.1.2.3.1 Identification of a new cell)					
	 Reporting delay requirement for Event 1A is corrected to be according to the identification time requirements of intra frequency cells when compressed mode is activated. 					
	In the worst case there are 7 gaps per the measurement period (200 ms),					

	which means that T _{intra} becomes 167.33333 ms ((300 - 7*7) slots = 251 slots).
	Allowed identification time for intra frequency cell = 956.2 ms (according to Section 8.1.2.2.1 Identification of a new cell).
	3) Test case A.8.2.2 is removed from this release, since the test case is not yet finalised and the finishing of the test case would require further simulations in order to take the impact of fading propagation condition into account.
	Isolated Impact Analysis:
	The correction of the definition of T _{inter} has small impact on the requirement of identification time for inter frequency cell but the correction does not have any negative impact on the implementation of the UE following the original wording.
	The test case corrections of this CR follow the general performance requirements of TS25.133 and therefore the proposed modifications do not have an impact on implementation or on the requirements of TS25.133.
Consequences if not approved:	 The definition of T_{Inter could} be could be interpreted on more than one way. The inter frequency test cases are not aligned with the general performance requirements of TS25.133 and the test cases are not complete.
Clauses affected:	8.1.2.3.2, A.8.2.1.1, A.8.2.1.2 and A.8.2.2
Other specs affected:	# Other core specifications # X Test specifications 34.121 O&M Specifications 34.121

How to create CRs using this form:

ж

Other comments:

Comprehensive information and tips about how to create CRs can be found at: <u>http://www.3gpp.org/3G_Specs/CRs.htm</u>. 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 <u>ftp://ftp.3gpp.org/specs/</u> 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.

8.1.2.3 FDD inter frequency measurements

In the CELL_DCH state when a transmission gap pattern sequence with the "FDD measurements" purpose is provided by the network the UE shall continuously measure identified inter frequency cells and search for new inter frequency cells indicated in the measurement control information.

In order for the requirements in the following subsections to apply the UTRAN must provide a transmission gap pattern sequence with measurement purpose FDD measurement using the following combinations for TGL1, TGL2 and TGD:

TGL1 [slots]	TGL2 [slots]	TGD [slots]
7	-	undefined
14	-	undefined
10	-	undefined
7	7	15269
14	14	15269
10	5	15269

Table 8.1

8.1.2.3.1 Identification of a new cell

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

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

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

8.1.2.3.2 **UE CPICH** measurement capability

When transmission gaps are scheduled for FDD inter frequency measurements the UE physical layer shall be capable of reporting measurements to higher layers with measurement accuracy as specified in sub-clause 9.1.1 and 9.1.2 with measurement period given by

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

If the UE does not need compressed mode to perform inter-frequency measurements, the measurement period for inter frequency 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 or the virtual active set, and the UE physical layer shall be capable of reporting measurements to higher layers with the measurement period of T_{Measurement Inter.}

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

 $T_{Measurement_Period Inter} = 480 \text{ ms.}$ The period used for calculating the measurement period $T_{measurement inter}$ for inter frequency CPICH measurements.

 $T_{Inter.:}$ This is the minimum time as full slots that is available for inter frequency measurements, during the period T_{Measurement Period inter} with an arbitrarily chosen timing. The minimum time per transmission gap is calculated by using the actual idle length within the transmission gap as given in the table 11 of Annex B in TS 25.212 and by assuming 2*0.5 ms for implementation margin and after that taking only full slots into account in the calculation.

 $T_{\text{basic_identify}_{\text{FDD,inter}}} = 800 \text{ ms.}$ 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.

3

 $T_{basic_measurement_FDD inter} = 50$ 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.

8.1.2.3.3 Periodic Reporting

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

A.8.2 FDD inter frequency measurements

A.8.2.1 Correct reporting of neighbours in AWGN propagation condition

5

A.8.2.1.1 Test Purpose and Environment

The purpose of this test is to verify that the UE makes correct reporting of an event when doing inter frequency measurements. The test will partly verify the requirements in section 8.1.2.2 and section 8.1.2.3.

The test consists of two successive time periods, with a time duration T1 and T2. The test parameters are given in tables A.8.9 and A.8.10 below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 1A and 2C shall be used. The CPICH Ec/I0 of the best cell on the unused frequency shall be reported together with Event 2C reporting.

Table A.8.9: General test parameters for Correct reporting of neighbours in AWGN propagation condition

Parameter	Unit	Value	Comment
DCH parameters		DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.101 section A.3.1
Power Control		On	
Compressed mode		A.22 set 1	As specified in TS 25.101 section A.5.
Active cell		Cell 1	
Threshold non used frequency	dB	-18	Absolute Ec/I0 threshold for event 2C
Reporting range	dB	4	Applicable for event 1A
Hysteresis	dB	0	
W		1	Applicable for event 1A
W non-used frequency		1	Applicable for event 2C
Reporting deactivation threshold		0	Applicable for event 1A
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 the compressed mode pattern starts.
T1	S	[10]	
T2	S	[5]	

TableA.8.10: Cell Specific parameters for Correct reporting of neighbours in AWGN propagation condition

Parameter	Unit	Cell 1		Cell 2		Cell 3	
		T1	T2	T1	T2	T1	T2
UTRA RF Channel Number		Chai	nnel 1	Chan	nel 1	Chai	nnel 2
CPICH_Ec/lor	dB	-10		-10		-10	
PCCPCH_Ec/lor	dB	-12		-12		-12	
SCH_Ec/lor	dB	-12		-12		-12	
PICH_Ec/lor	dB	-15		-15		-15	
DPCH_Ec/lor	dB	-17		N/A		N/A	
OCNS		-1.049	-	-0.941		-0.941	
\hat{I}_{or}/I_{oc}	dB	0	4.39	-Infinity	2.39	-1.8	-1.8
I _{oc}	dBm/3.84 MHz	-70				-70	
CPICH_Ec/lo	dB	-13	-13	-Infinity	-15	-14	-14
Propagation Condition	AWGN						

3GPP

A.8.2.1.2 Test Requirements

- a) The UE shall send one Event 2C triggered measurement report, with a measurement reporting delay less than <u>95</u> seconds from the beginning of time period T1.
- b) The UE shall send one Event 1A triggered measurement report, with a measurement reporting delay less than <u>956.2</u>800 ms 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.8.2.2 Correct reporting of neighbours in Fading propagation condition

A.8.2.2.1 Test Purpose and Environment

The purpose of this test is to verify that the UE makes correct reporting of an event when doing inter frequency measurements. The test will partly verify the requirements in section 8.1.2.2. The test parameters are given in Table A.8.11 and A.8.12. In the measurement control information it is indicated to the UE that event-triggered reporting 2C shall be used.

Table A.8.11: General test parameters for Correct reporting of neighbours in Fading propagation condition

Parameter	Unit	Value	Comment
DCH parameters		DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.101 section A.3.1
Power Control		On	
Compressed mode		Case 2.1	As specified in TS 25.101 section A.5.
Active cell		Cell 1	
Absolute Threshold (Ec/N0) for Event 2c	dB	-18	
Hysteresis	dB	0	
Time to Trigger	ms	0	
Filter coefficient		0	
Monitored cell list size		Total 24 X on frequency Channel 2	Measurement control information is sent before the compressed mode pattern starts.

Table A.8.12: Test parameters for Correct reporting of neighbours in Fading propagation condition

Parameter	Unit	Cell 1	Cell 2
UTRA RF Channel Number		Channel 1	Channel 2
CPICH_Ec/lor	dB	-10	-10
PCCPCH_Ec/lor	dB	-12	-12
SCH_Ec/lor	dB	-12	-12
PICH_Ec/lor	dB	-15	-15
DPCH_Ec/lor	dB	TBD	TBD
OCNS		[To Be Calculated]	[To Be Calculated]
\hat{I}_{or}/I_{oc}	dB	0	-1.8
I _{oc}	dBm/3.84 MHz	-70	-70
CPICH_Ec/lo	dB	-13	-14
Propagation Condition	Case 5 as specifie	ed in Annex B of TS25.10 ⁴	1

A.8.2.2.2 Test Requirements

- a) The UE shall send one Event 2C triggered measurement report, with a measurement reporting delay less than 5 seconds from the start of the test.
- b) 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 TBD%.

A.8.3 TDD measurements

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

A.8.3.1.1 Test Purpose and Environment

The purpose of this test is to verify that the UE makes correct reporting of an event when measuring on a TDD cell. The test will partly verify the requirements in section 8.1.2.3.

The test consists of two successive time periods, with a time duration T1 and T2 respectively. The test parameters are given in Table A.8.13 and A.8.14. In the measurement control information it is indicated to the UE that event triggered reporting with Event 2C shall be used.

Table A.8.13: General test parameters for Correct reporting of TDD neighbours in AWGN propagation condition

Parameter	Unit	Value	Comment
DCH parameters		DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.101 section A.3.1
Power Control		On	
Compressed mode		Case 2.1	Gap length specified in section 8.1.2.3 and the other parameters as specified in TS 25.101 section A.5.
Active cell		Cell 1	
Reporting Threshold	dB		
Hysteresis	dB		
Time to Trigger	ms		
Filter coefficient			
Monitored cell list size		Total X Y on frequency Channel 2	Measurement control information is sent before the compressed mode pattern starts.
T1	S		
T2	S		

Table A.8.14: Cell specific test parameters for Correct reporting of TDD neighbours in AWGN propagation condition

Parameter	Unit	Ce	1		Ce	ll 2	
Timeslot Number		n.a.		0		8	
		T1	T2	T1	T2	T1	T2
UTRA RF Channel		Channel 1		Chann	2 ام		
Number		Charmer		Onann			
CPICH_Ec/lor	dB	[]	[]	n.a.		n.a.	-
PCCPCH_Ec/lor	dB	[]	[]	-3	-3		
SCH_Ec/lor	dB	[]	[]	-9	-9	-9	-9
SCH_t _{offset}		n.a.	n.a.	15	15	15	15
PICH_Ec/lor		[]	[]			-3	-3
DCH_Ec/lor	dB	[]	[]	-	-	-	-
OCNS	dB	[]	[]	-4.28	-4.28	-4.28	-4.28
\hat{I}_{or}/I_{oc}	dB	[]	[]	[]	[]	[]	[]
I _{oc}	dBm/3.84 MHz	-70		-70			
CPICH_Ec/lo		[]		n.a.			
PCCPCH_RSCP	dB	n.a.	n.a.	[]	[]	[]	[]
Propagation Condition		AWGN					

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

A.8.3.1.2 Test Requirements

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

3GPP TSG RAN WG4 Meeting #21

R4-020415

Sophia Antipolis, France 28th January - 1st February 2002

	CR-Form-v4					
	CHANGE REQUEST					
ж	25.133 CR 291 [#] ev 1 [#] Current version: 3.8.0 [#]					
For <u>HELP</u> on u	Ising this form, see bottom of this page or look at the pop-up text over the $#$ symbols.					
Proposed change affects: # (U)SIM ME/UE X Radio Access Network Core Network						
Title: ೫	FDD inter frequency measurements and test cases					
Source: अ	RAN WG4					
Work item code: ℜ	Date: ₩ 1/2/2002					
Category: ₩	FRelease: %R99Use one of the following categories:Use one of the following releases:F (correction)2A (corresponds to a correction in an earlier release)R96B (addition of feature),R97C (functional modification of feature)R98D (editorial modification)R99D tetailed explanations of the above categories canREL-4be found in 3GPP TR 21.900.REL-5					
	The current wording in the definition of Tinter in the general performance requirements does not exactly reflect the original intention. Hence, there could be several interpretations for the same parameter.					
Summary of chang	ge: 能 1) The definition of T _{Inter} is corrected in the general requirements.					
	2) Test case A.8.2.1:					
	- The square brackets for T1 and T2 are removed from Test case A.8.2.1.					
	- Reporting delay requirement for Event 2C is corrected to be according to the identification time requirements defined in the general performance requirements.					
	Idle length for slot format 11B = 4.266667 ms					
	Idle length with implementation margin (2*0.5 ms) is 3.266667 ms, which corresponds 4 full slots.					
	In this compressed mode pattern there are 16 gaps per 480 ms.					
	Allowed identification time for inter frequency cell = 9 s . (according to Section 8.1.2.3.1 Identification of a new cell)					
	- Reporting delay requirement for Event 1A is corrected to be according to the identification time requirements of intra frequency cells when compressed mode is activated.					
	In the worst case there are 7 gaps per the measurement period (200 ms),					

	which means that T_{intra} becomes 167.33333 ms ((300 - 7*7) slots = 251 slots).				
	Allowed identification time for intra frequency cell = 956.2 ms (according to Section 8.1.2.2.1 Identification of a new cell).				
	Isolated Impact Analysis:				
	The correction of the definition of T_{inter} has small impact on the requirement of identification time for inter frequency cell but the correction does not have any negative impact on the implementation of the UE following the original wording.				
	The test case corrections of this CR follow the general performance requirements of TS25.133 and therefore the proposed modifications do not have an impact on implementation or on the requirements of TS25.133.				
Consequences if	* The definition of T _{Inter could} be could be interpreted on more than one way.				
not approved:	The inter frequency test cases are not aligned with the general performance requirements of TS25.133 and the test cases are not complete.				
Clauses affected:	# 8.1.2.3.2, A.8.2.1.1 and A.8.2.1.2				
Other specs affected:	X Other core specifications % X Test specifications 34.121 O&M Specifications O&M Specifications				
Other comments:	¥				

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at: <u>http://www.3gpp.org/3G_Specs/CRs.htm</u>. 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 <u>ftp://ftp.3gpp.org/specs/</u> 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.

8.1.2.3 FDD inter frequency measurements

In the CELL_DCH state when a transmission gap pattern sequence with the "FDD measurements" purpose is provided by the network the UE shall continuously measure identified inter frequency cells and search for new inter frequency cells indicated in the measurement control information.

In order for the requirements in the following subsections to apply the UTRAN must provide a transmission gap pattern sequence with measurement purpose FDD measurement using the following combinations for TGL1, TGL2 and TGD:

TGL1 [slots]	TGL2 [slots]	TGD [slots]
7	-	undefined
14	-	undefined
10	-	undefined
7	7	15269
14	14	15269
10	5	15269

Table 8.1

8.1.2.3.1 Identification of a new cell

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

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

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

8.1.2.3.2 UE CPICH measurement capability

When transmission gaps are scheduled for FDD inter frequency measurements the UE physical layer shall be capable of reporting measurements to higher layers with measurement accuracy as specified in sub-clause 9.1.1 and 9.1.2 with measurement period given by

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

If the UE does not need compressed mode to perform inter-frequency measurements, the measurement period for inter frequency measurements is 480 ms.

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

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

 $T_{Measurement_Period Inter} = 480 \text{ ms.}$ The period used for calculating the measurement period $T_{measurement_inter}$ for inter frequency CPICH measurements.

 $T_{\text{basic_identify}_{\text{FDD,inter}}} = 800 \text{ ms.}$ 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.

8.1.2.3.3 Periodic Reporting

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

A.8.2 FDD inter frequency measurements

A.8.2.1 Correct reporting of neighbours in AWGN propagation condition

5

A.8.2.1.1 Test Purpose and Environment

The purpose of this test is to verify that the UE makes correct reporting of an event when doing inter frequency measurements. The test will partly verify the requirements in section 8.1.2.2 and section 8.1.2.3.

The test consists of two successive time periods, with a time duration T1 and T2. The test parameters are given in tables A.8.9 and A.8.10 below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 1A and 2C shall be used. The CPICH Ec/I0 of the best cell on the unused frequency shall be reported together with Event 2C reporting.

Table A.8.9: General test parameters for Correct reporting of neighbours in AWGN propagation condition

Parameter	Unit	Value	Comment
DCH parameters		DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.101 section A.3.1
Power Control		On	
Compressed mode		A.22 set 1	As specified in TS 25.101 section A.5.
Active cell		Cell 1	
Threshold non used frequency	dB	-18	Absolute Ec/I0 threshold for event 2C
Reporting range	dB	4	Applicable for event 1A
Hysteresis	dB	0	
W		1	Applicable for event 1A
W non-used frequency		1	Applicable for event 2C
Reporting deactivation threshold		0	Applicable for event 1A
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 the compressed mode pattern starts.
T1	S	[10]	
T2	S	[5]	

TableA.8.10: Cell Specific parameters for Correct reporting of neighbours in AWGN propagation condition

Parameter	Unit	Cell 1		Cell 2		Cell 3	
		T1	T2	T1	T2	T1	T2
UTRA RF Channel Number		Char	nnel 1	Chan	nel 1	Cha	nnel 2
CPICH_Ec/lor	dB	-10		-10		-10	
PCCPCH_Ec/lor	dB	-12		-12		-12	
SCH_Ec/lor	dB	-12		-12		-12	
PICH_Ec/lor	dB	-15		-15		-15	
DPCH_Ec/lor	dB	-17		N/A		N/A	
OCNS		-1.049		-0.941		-0.941	
\hat{I}_{or}/I_{oc}	dB	0	4.39	-Infinity	2.39	-1.8	-1.8
I _{oc}	dBm/3.84 MHz	-70				-70	
CPICH_Ec/lo	dB	-13	-13	Infinity	-15	-14	-14
Propagation Condition	AWGN						

A.8.2.1.2 Test Requirements

- a) The UE shall send one Event 2C triggered measurement report, with a measurement reporting delay less than <u>95</u> seconds from the beginning of time period T1.
- b) The UE shall send one Event 1A triggered measurement report, with a measurement reporting delay less than <u>956.2800</u> ms 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.8.2.2 Correct reporting of neighbours in Fading propagation condition

A.8.2.2.1 Test Purpose and Environment

The purpose of this test is to verify that the UE makes correct reporting of an event when doing inter frequency measurements. The test will partly verify the requirements in section 8.1.2.2. The test parameters are given in Table A.8.11 and A.8.12. In the measurement control information it is indicated to the UE that event-triggered reporting 2C shall be used.

Table A.8.11: General test parameters for Correct reporting of neighbours in Fading propagation condition

Parameter	Unit	Value	Comment
DCH parameters		DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.101 section A.3.1
Power Control		On	
Compressed mode		Case 2.1	As specified in TS 25.101 section A.5.
Active cell		Cell 1	
Absolute Threshold (Ec/N0) for Event 2c	dB	-18	
Hysteresis	dB	0	
Time to Trigger	ms	0	
Filter coefficient		0	
Monitored cell list size		Total 24 X on frequency Channel 2	Measurement control information is sent before the compressed mode pattern starts.

Table A.8.12: Test parameters for Correct reporting of neighbours in Fading propagation condition

Parameter	Unit	Cell 1	Cell 2
UTRA RF Channel Number		Channel 1	Channel 2
CPICH_Ec/lor	dB	-10	-10
PCCPCH_Ec/lor	dB	-12	-12
SCH_Ec/lor	dB	-12	-12
PICH_Ec/lor	dB	-15	-15
DPCH_Ec/lor	dB	TBD	TBD
OCNS		[To Be Calculated]	[To Be Calculated]
\hat{I}_{or}/I_{oc}	dB	0	-1.8
I _{oc}	dBm/3.84 MHz	-70	-70
CPICH_Ec/lo	dB	-13	-14
Propagation Condition	Case 5 as specifi	ed in Annex B of TS25.10 ⁴	

A.8.2.2.2 Test Requirements

- a) The UE shall send one Event 2C triggered measurement report, with a measurement reporting delay less than 5 seconds from the start of the test.
- b) 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 TBD%.

Sophia Antipolis, France 28th January - 1st February 2002

CHANGE REQUEST					
ж	25.133 CR 261 # ev 1 # Current version: 5.1.0 #				
For <u>HELP</u> o	using this form, see bottom of this page or look at the pop-up text over the $#$ symbols.				
Proposed chan	e affects: # (U)SIM ME/UE X Radio Access Network X Core Network				
Title:	Mapping of UE Rx-Tx time difference type 1				
Source:	f RAN WG4				
Work item code	\$ TEI Date: ೫ 1/2/2002				
Category:	Release: % Rel-5 Use one of the following categories: Use one of the following releases: F (correction) 2 (GSM Phase 2) A (corresponds to a correction in an earlier release) R96 (Release 1996) B (addition of feature), R97 (Release 1997) C (functional modification of feature) R98 (Release 1998) D (editorial modification) R99 (Release 1999) Detailed explanations of the above categories can be found in 3GPP TR 21.900. REL-4 (Release 4)				
	re: # The current mapping of the UE Rx-Tx time difference type 1 measurement in 25.133 is not inline with the signalling range defined in 25.331. rge: # The mapping of the UE Rx-Tx time difference type 1 is aligned with the mapping in 25.331, i.e. by changing the granularity in the reporting from 1/16 th of a chip to 1 chip. To avoid having RAN2 to change the integer range in 25.331 also the the mapping to integers is aligned with what is currently specified in 25.331, i.e. starting at the value 768 and ending at the value 1280.				
	Also the brackets around the measurement period (100ms) is proposed to be removed as it has been in the specification for a very long time and has not been questioned. Isolated Impact analysis: Correction to a function where the specification was: • Contradictory between 25.133 and 25.331 Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise.				
	 The corrected functionality is the UE Rx-Tx time difference type 1 measurement. If the network implements the change but not the UE, there will be a mismatch in the number of bits expected for the reporting of the measurement quantity If the UE implements the change but not the network, there will be a mismatch in the number of bits expected for the reporting of the measurement quantity 				
Consequences not approved:	* The mapping of the UE Rx-Tx time difference measurement will not be inline with the signalling defined in 25.331 meaning that it will not be clear which measured value the signalled value corresponds too. Therefore the measurement will not be useful.				

Other specs affected:	Ħ	Other core specifications # X Test specifications 34.121 O&M Specifications •
Other comments:	ж	Corresponding R99 CR in Tdoc R4-020416

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at: <u>http://www.3gpp.org/3G_Specs/CRs.htm</u>. 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 <u>ftp://ftp.3gpp.org/specs/</u> 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.

9.1.9 UE Rx-Tx time difference

9.1.9.1 UE Rx-Tx time difference type 1

NOTE: This measurement is used for call set up purposes to compensate propagation delay of DL and UL.

The measurement period in CELL_DCH state is [100 ms]

9.1.9.1.1 Measurement requirement

Т	ab	le	9.	25
	~~~	•••	•	

Parameter	Unit	Accuracy [chip]	Conditions
Falailletei	Onit	Accuracy [chip]	lo [dBm]
UE RX-TX time difference	chip	± 1.5	-9450

### 9.1.9.1.2 UE Rx-Tx time difference type 1 measurement report mapping

The reporting range is for UE Rx-Tx time difference type 1 is from 768 ... 1280 chip.

In table 9.26 the mapping of measured quantity is defined. The range in the signalling may be larger than the guaranteed accuracy range.

Reported value	Measured quantity value	Unit
RX-TX_TIME _ <u>7680000</u>	UE Rx-Tx Time difference type 1< 768-000	chip
RX-TX_TIME _ <u>7690001</u>	$768-000 \le UE Rx-Tx Time difference type 1 < 7698-0625$	chip
RX-TX_TIME _ <u>770</u> 0002	7698.0625 ≤ UE Rx-Tx Time difference type 1< 77068.1250	chip
RX-TX_TIME _ <u>771<mark>0003</mark></u>	$770_{68.1250} \le UE Rx$ -Tx Time difference type 1< $771_{68.1875}$	chip
RX-TX_TIME _ <u>1277<mark>8190</mark></u>	127 <u>6<mark>9.8125</mark> ≤ UE Rx-Tx Time difference type 1&lt;</u> 127 <u>7<mark>9.8750</mark></u>	chip
RX-TX_TIME _ <u>1278</u> 8191	$127\frac{9.8750}{2} \le UE \text{ Rx-Tx Time difference type 1<}$ $127\frac{89.9375}{2}$	chip
RX-TX_TIME _ <u>1279</u> 8192	127 <u>89.9375</u> ≤ UE Rx-Tx Time difference type 1< 12 <u>7980.0000</u>	chip
RX-TX_TIME _1280 <mark>8193</mark>	1280 <del>.0000</del> ≤ UE Rx-Tx Time difference type 1	chip

### Table 9.26

# Sophia Antipolis, France 28th January - 1st February 2002

CR-Form-v4						
ж	<b>25.133</b> CR <b>260 #</b> ev <b>1 #</b> Current version: <b>4.3.0 #</b>					
For <u>HELP</u> o	using this form, see bottom of this page or look at the pop-up text over the X symbols.					
Proposed chang	e affects: # (U)SIM ME/UE X Radio Access Network X Core Network					
Title:	Mapping of UE Rx-Tx time difference type 1					
Source:	RAN WG4					
Work item code	^ま TEI <i>Date:</i> 第 <u>1/2/2002</u>					
Category:	Release: %Rel-4Use one of the following categories:Use one of the following releases:F (correction)2A (corresponds to a correction in an earlier release)R96B (addition of feature),R97C (functional modification of feature)R98D (editorial modification)R99D tetailed explanations of the above categories canREL-4be found in 3GPP TR 21.900.REL-5					
	<ul> <li>The current mapping of the UE Rx-Tx time difference type 1 measurement in 25.133 is not inline with the signalling range defined in 25.331.</li> <li>The mapping of the UE Rx-Tx time difference type 1 is aligned with the mapping in 25.331, i.e. by changing the granularity in the reporting from 1/16th of a chip to chip. To avoid having RAN2 to change the integer range in 25.331 also the the</li> </ul>					
	<ul> <li>mapping to integers is aligned with what is currently specified in 25.331, i.e. starting at the value 768 and ending at the value 1280.</li> <li>Also the brackets around the measurement period (100ms) is proposed to be removed as it has been in the specification for a very long time and has not been questioned.</li> <li>Isolated Impact analysis:</li> <li>Correction to a function where the specification was: <ul> <li>Contradictory between 25.133 and 25.331</li> <li>Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise.</li> </ul> </li> <li>The corrected functionality is the UE Rx-Tx time difference type 1 measurement <ul> <li>If the network implements the change but not the UE, there will be a mismatch in the number of bits expected for the reporting of the measurement quantity</li> <li>If the UE implements the change but not the network, there will be a mismatch in the number of bits expected for the reporting of the measurement quantity</li> </ul> </li> </ul>					
Consequences not approved:	* The mapping of the UE Rx-Tx time difference measurement will not be inline with the signalling defined in 25.331 meaning that it will not be clear which measured value the signalled value corresponds too. Therefore the measurement will not be useful.					

Other specs affected:	Ħ	Other core specifications       #         X       Test specifications       34.121         O&M Specifications       •		
Other comments:	ж	Corresponding R99 CR in Tdoc R4-020416		

#### How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at: <u>http://www.3gpp.org/3G_Specs/CRs.htm</u>. 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 <u>ftp://ftp.3gpp.org/specs/</u> 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.

# 9.1.9 UE Rx-Tx time difference

### 9.1.9.1 UE Rx-Tx time difference type 1

NOTE: This measurement is used for call set up purposes to compensate propagation delay of DL and UL.

The measurement period in CELL_DCH state is [100 ms]

### 9.1.9.1.1 Measurement requirement

Tal	ble	9.2	5
		• • • •	-

Parameter	Unit		Conditions
Falailletei	Onic	Unit Accuracy [chip]	
UE RX-TX time difference	chip	± 1.5	-9450

#### 9.1.9.1.2 UE Rx-Tx time difference type 1 measurement report mapping

The reporting range is for UE Rx-Tx time difference type 1 is from 768 ... 1280 chip.

In table 9.26 the mapping of measured quantity is defined. The range in the signalling may be larger than the guaranteed accuracy range.

Reported value	Measured quantity value		
RX-TX_TIME _7680000	UE Rx-Tx Time difference type 1< 768-000	chip	
RX-TX_TIME _769 <mark>0001</mark>	$768.000 \le UE Rx-Tx Time difference type 1 < 7698.0625$	chip	
RX-TX_TIME _ <u>770</u> 0002	$7698.0625 \le UE Rx-Tx$ Time difference type 1< 77068.1250	chip	
RX-TX_TIME _ <u>771<mark>0003</mark></u>	$7\underline{70}_{68.1250} \le UE \text{ Rx-Tx Time difference type 1<} 7\underline{71}_{68.1875}$	chip	
RX-TX_TIME _ <u>1277<mark>8190</mark></u>	$12769.8125 \le UE Rx-Tx Time difference type 1 < 12779.8750$	chip	
RX-TX_TIME _ <u>1278<mark>8191</mark></u>	$127\frac{9.8750}{2} \le UE \text{ Rx-Tx Time difference type 1<}$ $127\frac{89.9375}{2}$	chip	
RX-TX_TIME _ <u>1279<mark>8192</mark></u>	127 <u>8</u> <del>9.9375</del> ≤ UE Rx-Tx Time difference type 1< 1279 <u>80.0000</u>	chip	
RX-TX_TIME 1280 <mark>8193</mark>	1280 <del>.0000</del> ≤ UE Rx-Tx Time difference type 1	chip	

#### Table 9.26

# Sophia Antipolis, France 28th January - 1st February 2002

CR-Form-V4						
ж	<b>25.133</b> CR <b>259 #</b> ev <b>1 #</b> Current version: <b>3.8.0 #</b>					
For <u>HELP</u>	using this form, see bottom of this page or look at the pop-up text over the $#$ symbols.					
Proposed chai	affects: # (U)SIM ME/UE X Radio Access Network X Core Network					
Title:	Mapping of UE Rx-Tx time difference type 1					
Source:	RAN WG4					
Work item cod	B Date: 第 1/2/2002					
Category:	F       Release: %       R99         Use one of the following categories:       Use one of the following releases:       2       (GSM Phase 2)         A (corresponds to a correction in an earlier release)       R96       (Release 1996)         B (addition of feature),       R97       (Release 1997)         C (functional modification of feature)       R98       (Release 1998)         D (editorial modification)       R99       (Release 1999)         Detailed explanations of the above categories can be found in 3GPP <u>TR 21.900</u> .       REL-4       (Release 4)					
	<ul> <li>e: # The current mapping of the UE Rx-Tx time difference type 1 measurement in 25.133 is not inline with the signalling range defined in 25.331.</li> <li>ge: # The mapping of the UE Rx-Tx time difference type 1 is aligned with the mapping in 25.331, i.e. by changing the granularity in the reporting from 1/16th of a chip to 1 chip. To avoid having RAN2 to change the integer range in 25.331 also the the mapping to integers is aligned with what is currently specified in 25.331, i.e.</li> </ul>					
	<ul> <li>starting at the value 768 and ending at the value 1280.</li> <li>Also the brackets around the measurement period (100ms) is proposed to be removed as it has been in the specification for a very long time and has not been questioned.</li> <li><u>Isolated Impact analysis:</u> Correction to a function where the specification was: <ul> <li>Contradictory between 25.133 and 25.331</li> <li>Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise.</li> </ul> </li> <li>The corrected functionality is the UE Rx-Tx time difference type 1 measurement. <ul> <li>If the network implements the change but not the UE, there will be a</li> </ul> </li> </ul>					
Consequences not approved:	<ul> <li>mismatch in the number of bits expected for the reporting of the measurement quantity</li> <li>If the UE implements the change but not the network, there will be a mismatch in the number of bits expected for the reporting of the measurement quantity</li> <li>The mapping of the UE Rx-Tx time difference measurement will not be inline with the signalling defined in 25.331 meaning that it will not be clear which measured value the signalled value corresponds too. Therefore the measurement will not be useful.</li> </ul>					

Other specs affected:	ж	Other core specifications#XTest specificationsO&M Specifications	34.121
Other comments:	ж		

#### How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at: <u>http://www.3gpp.org/3G_Specs/CRs.htm</u>. 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 <u>ftp://ftp.3gpp.org/specs/</u> 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.

# 9.1.9 UE Rx-Tx time difference

### 9.1.9.1 UE Rx-Tx time difference type 1

NOTE: This measurement is used for call set up purposes to compensate propagation delay of DL and UL.

The measurement period in CELL_DCH state is [100 ms]

#### 9.1.9.1.1 Measurement requirement

Та	ble	9.	25
14		<b>U</b> .,	20

Parameter	Unit		Conditions
Falailletei	Onic	Unit Accuracy [chip]	
UE RX-TX time difference	chip	± 1.5	-9450

#### 9.1.9.1.2 UE Rx-Tx time difference type 1 measurement report mapping

The reporting range is for UE Rx-Tx time difference type 1 is from 768 ... 1280 chip.

In table 9.26 the mapping of measured quantity is defined. The range in the signalling may be larger than the guaranteed accuracy range.

Reported value	Measured quantity value		
RX-TX_TIME _ <u>768</u> 0000	UE Rx-Tx Time difference type 1< 768-000	chip	
RX-TX_TIME _ <u>769<mark>0001</mark></u>	$768-000 \le UE Rx-Tx$ Time difference type 1< $7698-0625$	chip	
RX-TX_TIME _ <u>770<mark>0002</mark></u>	$7698.0625 \le UE Rx-Tx Time difference type 1 < 77068.1250$	chip	
RX-TX_TIME _ <u>771<mark>0003</mark></u>	$7\underline{70}_{68.1250} \le UE \text{ Rx-Tx Time difference type 1<} 7\underline{71}_{68.1875}$	chip	
RX-TX_TIME _ <u>1277<mark>8190</mark></u>	127 <mark>69.8125</mark> ≤ UE Rx-Tx Time difference type 1< 127 <mark>79.8750</mark>	chip	
RX-TX_TIME _ <u>1278<mark>8191</mark></u>	$127\frac{9.8750}{2} \le UE \text{ Rx-Tx Time difference type 1<}$ $127\frac{89.9375}{2}$	chip	
RX-TX_TIME _ <u>1279<mark>8192</mark></u>	127 <mark>89.9375</mark> ≤ UE Rx-Tx Time difference type 1< 12 <u>79</u> 80.0000	chip	
RX-TX_TIME _1280 <mark>8193</mark>	12 <u>79</u> 80.0000 ≤ UE Rx-Tx Time difference type 1	chip	

#### Table 9.26

# 3GPP TSG RAN WG4 Meeting #21

R4-020111

Sophia Antipolis, France 28th January - 1st February 2002

CR-Form-v5 CHANGE REQUEST					
H	25.133 CR 258 <b># rev</b> - ^{# Current version:} 5.1.0 [#]				
For <u>HELP</u> on us	ng this form, see bottom of this page or look at the pop-up text over the # symbol	ls.			
Proposed change a	ects: # (U)SIM ME/UE X Radio Access Network Core Netwo	rk			
Title: ¥	Clarification of measurement period for UTRA Carrier RSSI				
Source: #	RAN WG4				
Work item code: ₩	TEI         Date: 第         1/2/2002				
Category: #	se one of the following categories:       Use one of the following release.         F (correction)       2       (GSM Phase 2)         A (corresponds to a correction in an earlier release)       R96       (Release 1996)         B (addition of feature),       R97       (Release 1997)         C (functional modification of feature)       R98       (Release 1998)         D (editorial modification)       R99       (Release 1999)         etailed explanations of the above categories can       REL-4       (Release 4)         e found in 3GPP TR 21.900.       REL-5       (Release 5)         #       From the requirement for the UE measurement UTRA Carrier RSSI it is not of what the measurement period is for the measurement. It refers to section 8 where CPICH merasurement performance is specified but nothing is stated regarding this measurement in section 8.				
Summary of chang	<ul> <li>It is clarified that the measurement period for the UTRA carrier RSSI measurement is equal to the measurement period for CPICH measurements specified in section 8. Also an incorrect reference stating the measurement period for inter-frequency measurement is corrected.</li> <li><u>Isolated Impact Analysis:</u> The CR clarifies possible ambiguities. Would not at implementations behaving like indicated in the CR, would affect implementation that do not behave like indicated in the CR.</li> </ul>	ffect			
Consequences if not approved:	The specified measurement period for UTRA carrier RSSI will be unclear. Different UEs may use different averaging time and would therefore report different measurement results even under the same conditions.				
Clauses affected:	¥ 9.1.3				
Other specs affected:	#       Other core specifications       #         X       Test specifications       34.121         O&M Specifications				
Other comments:	Corresponding R99 CR in Tdoc R4-020109				

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at: <u>http://www.3gpp.org/3G_Specs/CRs.htm</u>. 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 <u>ftp://ftp.3gpp.org/specs/</u> 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.

## 9.1.3 UTRA Carrier RSSI

#### NOTE: This measurement is for Inter-frequency handover evaluation.

The measurement period is equal to the measurement period for UE CPICH measurements.  $\underline{\mathbf{fF}}$  or CELL_DCH state the measurement period can be found in sub clause 8.1.2.2 for intra frequency measurements and in sub clause 8.1.2.2 for inter frequency measurements. The measurement period for CELL_FACH state can be found in sub clause 8.4.2.2 for intra frequency measurements and in sub clause 8.4.2.3 for inter frequency measurements.

## 9.1.3.1 Absolute accuracy requirement

#### Table 9.10: UTRA Carrier RSSIInter frequency absolute accuracy

Parameter	Unit	Accuracy [dB]		Conditions
Farameter	Unit	Normal condition	Extreme condition	lo [dBm]
UTRA Carrier RSSI	dBm	± 4	± 7	-9470
UTRA Camer RSSI	dBm	± 6	± 9	-7050

3GPP TSG RAN WG4 Meeting #21

R4-020110

Sophia Antipolis, France 28th January - 1st February 2002

												CR-Form-v5
CHANGE REQUEST												
ж	25	. <mark>133</mark>	CR	257		жrev	-	Ħ	Current ver	sion:	4.3.0	ж
For <b>HELP</b> on using this form, see bottom of this page or look at the pop-up text over the <b>#</b> symbols.												
Proposed change affects: # (U)SIM ME/UE X Radio Access Network Core Network												
Title: ೫	Cla	rificati	on of n	neasuren	nent p	eriod for	UTR	<mark>A C</mark> a	arrier RSSI			
Source: ೫	RA	N WG	4									
Work item code: ℜ	TE								Date: ३	€ <mark>1/2</mark>	2/2002	
Category: #	what the measurement period is for the measurement. It refers to section 8 where CPICH merasurement performance is specified but nothing is stated regarding this measurement in section 8.											
Consequences if not approved:	X	imple that The Diffe	ementa do not specifie rent UI	tions bel behave I ed meas Es may u	having ike ind ureme ise diff	like ind licated in nt period erent av	cated the for l eragi	J in th CR. JTR/ ng ti	ossible ambi he CR, woul A carrier RS me and wou	d affeo SI will Id thei	ct impleme be unclea refore repo	entations r.
[				easureine	entres	uits eve			ne same con	uliions	5.	
Clauses affected:	ж	9.1.3	}									
Other specs affected:	Ħ	X Te	est spe	re specif cification ecificatio	IS	ıs ¥		.121				
Other comments:	ж	Corr	espond	ling R99	CR in	Tdoc R4	<mark>1-020</mark>	109				

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at: <u>http://www.3gpp.org/3G_Specs/CRs.htm</u>. 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 <u>ftp://ftp.3gpp.org/specs/</u> 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.

## 9.1.3 UTRA Carrier RSSI

#### NOTE: This measurement is for Inter-frequency handover evaluation.

The measurement period is equal to the measurement period for UE CPICH measurements.  $\underline{\mathbf{fF}}$  or CELL_DCH state the measurement period can be found in sub clause 8.1.2.2 for intra frequency measurements and in sub clause 8.1.2.2 for inter frequency measurements. The measurement period for CELL_FACH state can be found in sub clause 8.4.2.2 for intra frequency measurements and in sub clause 8.4.2.3 for inter frequency measurements.

## 9.1.3.1 Absolute accuracy requirement

#### Table 9.10: UTRA Carrier RSSIInter frequency absolute accuracy

Parameter	Unit	Accura	Conditions	
Falameter	Unit	Normal condition	Extreme condition	lo [dBm]
UTRA Carrier RSSI	dBm	± 4	± 7	-9470
	dBm	± 6	± 9	-7050