TSG-RAN Meeting #12 *RP-010353*
Stockholm, Sweden, 12 - 15 June 2001

Title: **Agreed CRs (Release '99 and Rel-4 category A) to TS 25.133 (1)**

Source: **TSG-RAN WG4**

Agenda item: **8.4.3**

WG4 doc	Status WG4	Spec	CR	Phase	Title	Cat	V old	V new
R4-010541	agreed	25.133	89	R99	Correction of FDD/TDD handover requirement.	F	3.5.0	3.6.0
R4-010542	agreed	25.133	90	Rel-4	Correction of FDD/TDD handover requirement.	A	4.0.0	4.1.0
R4-010543	agreed	25.133	91	R99	Extraction of TGSN_proposed	F	3.5.0	3.6.0
R4-010544	agreed	25.133	92	Rel-4	Extraction of TGSN_proposed	A	4.0.0	4.1.0
R4-010590	agreed	25.133	93	R99	Corrections to cell re-selection requirements	F	3.5.0	3.6.0
R4-010698	agreed	25.133	94	Rel-4	Corrections to cell re-selection requirements	A	4.0.0	4.1.0
R4-010636	agreed	25.133	95	R99	UTRAN to GSM cell reselection delay in CELL_FACH state	F	3.5.0	3.6.0
R4-010779	agreed	25.133	96	Rel-4	UTRAN to GSM cell reselection delay in CELL_FACH state	A	4.0.0	4.1.0
R4-010697	agreed	25.133	97	R99	Corrections for idle mode section	F	3.5.0	3.6.0
R4-010768	agreed	25.133	98	Rel-4	Corrections for idle mode section	A	4.0.0	4.1.0
R4-010706	agreed	25.133	99	R99	Cell-reselection test cases in CELL_PCH and URA_PCH	F	3.5.0	3.6.0
R4-010756	agreed	25.133	100	Rel-4	Cell-reselection test cases in CELL_PCH and URA_PCH	A	4.0.0	4.1.0
R4-010707	agreed	25.133	101	R99	Idle mode cell-reselection test cases	F	3.5.0	3.6.0
R4-010757	agreed	25.133	102	Rel-4	Idle mode cell-reselection test cases	A	4.0.0	4.1.0
R4-010710	agreed	25.133	103	R99	Measurements in CELL_FACH State	F	3.5.0	3.6.0
R4-010772	agreed	25.133	104	Rel-4	Measurements in CELL_FACH State	A	4.0.0	4.1.0
R4-010711	agreed	25.133	105	R99	Cell-reselection test cases in CELL_FACH	F	3.5.0	3.6.0
R4-010754	agreed	25.133	106	Rel-4	Cell-reselection test cases in CELL_FACH	A	4.0.0	4.1.0
R4-010713	agreed	25.133	107	R99	GSM measurements in CELL_DCH state	F	3.5.0	3.6.0
R4-010770	agreed	25.133	108	Rel-4	GSM measurements in CELL_DCH state	A	4.0.0	4.1.0

3GPP TSG RAN WG4 Meeting #17 R4-010756

Gothenburg, Sweden 21st - 25th May 2001

CR-Form-v3

CHANGE REQUEST

⌘ **25.133** **CR** **100** ⌘ rev **-** ⌘ Current version: **4.0.0** ⌘

*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:	⌘	Cell-reselection test cases in CELL_PCH and URA_PCH
Source:	⌘	RAN WG4
Work item code:	⌘	TEI
Date:	⌘	2001-05-24
Category:	⌘	**A**
Release:	⌘	REL-4

Use one of the following categories:
- ***F*** *(essential correction)*
- ***A*** *(corresponds to a correction in an earlier release)*
- ***B*** *(Addition of feature),*
- ***C*** *(Functional modification of feature)*
- ***D*** *(Editorial modification)*

Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
REL-4	*(Release 4)*
REL-5	*(Release 5)*

Reason for change:	⌘	Correction of the CELL_PCH and URA_PCH cell re-selection test cases in 25.133.
Summary of change:	⌘	Alignment of the cell re-selection test cases in section A.5.6 and A.5.7 with the general requirements. The proposed changes are identical to the idle mode cell re-selection test cases proposed in R4-010581.
Consequences if not approved:	⌘	The cell re-selection test cases in section A.5.6 and A.5.7 will not be correct.

Clauses affected:	⌘	A.5.6, A.5.7
Other specs affected:	⌘	☐ Other core specifications ☐ Test specifications ☐ O&M Specifications
	⌘	
Other comments:	⌘	

How to create CRs using this form:

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

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

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://www.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2000-09 contains the specifications resulting from the September 2000 TSG meetings.

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

A.5.6 Cell Re-selection in CELL_PCH

A.5.6.1 One frequency present in the neighbour list

A.5.6.1.1 Test Purpose and Environment

The purpose of this test is to verify the requirement for the cell re-selection delay in CELL_PCH state in section 5.6.2~~.1.1~~.

The test parameters are given in Table A5.5 and A5.6. The UE is requested to monitor neighbouring cells on 1 carrier. The maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell shall be 1280 ms.

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

Parameter		Unit	Value	Comment
initial condition	Active cell		Cell2	
	Neighbour cells		Cell1, Cell3,Cell4, Cell5, Cell6	
final condition	Active cell		Cell1	
Access Service Class (ASC#0) - Persistence value		-	1	Selected so that no additional delay is caused by the random access procedure. The value shall be used for all cells in the test.
DRX cycle length		s	1.28	The value shall be used for all cells in the test.
T1		s	15	T1 need to be defined so that cell re-selection reaction time is taken into account.
T2		s	15	T2 need to be defined so that cell re-selection reaction time is taken into account.

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

Parameter	Unit	Cell 1		Cell 2		Cell 3		Cell 4		Cell 5		Cell 6	
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number		Channel 1		Channel 1		Channel 1		Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior	dB	-10		-10		-10		-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12		-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12		-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15		-15		-15		-15	
OCNS_Ec/Ior	dB	-0.941		-0.941		-0.941		-0.941		-0.941		-0.941	
$\hat{I}_{or}/I_{oc}$	dB	7.3	10.27	10.27	7.3	0.27		0.27		0.27		0.27	
I_{oc}	dBm/3.84 MHz	-70											
CPICH_Ec/Io	dB	-16	-13	-13	-16	-23		-23		-23		-23	
Propagation Condition		AWGN											
Cell_selection_and_reselection_quality_measure		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N_0	
Qqualmin	dB	-20[-]		-20[-]		-20[-]		-20[-]		-20[-]		-20[-]	
Qrxlevmin	dBm	-115[-]		-115[-]		-115[-]		-115[-]		-115[-]		-115[-]	
UE_TXPWR_MAX_RACH	dBm	21[-]		21[-]		21[-]		21[-]		21[-]		21[-]	
Qoffset2$_{s,n}$	dB	C1, C2: 0[-] C1, C3: 0[-] C1, C4: 0[-] C1, C5: 0[-] C1, C6: 0[-]		C2, C1: 0[-] C2, C3: 0[-] C2, C4: 0[-] C2, C5: 0[-] C2, C6: 0[-]		C3, C1: 0[-] C3, C2: 0[-] C3, C4: 0[-] C3, C5: 0[-] C3, C6: 0[-]		C4, C1: 0[-] C4, C2: 0[-] C4, C3: 0[-] C4, C5: 0[-] C4, C6: 0[-]		C5, C1: 0[-] C5, C2: 0[-] C5, C3: 0[-] C5, C4: 0[-] C5, C6: 0[-]		C6, C1: 0[-] C6, C2: 0[-] C6, C3: 0[-] C6, C4: 0[-] C6, C5: 0[-]	
Qhyst2	dB	0[-]		0[-]		0[-]		0[-]		0[-]		0[-]	
PENALTY_TIME	s	0[-]		0[-]		0[-]		0[-]		0[-]		0[-]	
TEMPORARY_OFFSET	dB	0[-]		0[-]		0[-]		0[-]		0[-]		0[-]	
Treselection	s	0[-]		0[-]		0[-]		0[-]		0[-]		0[-]	
Sintrasearch	dB	not sent[-]		not sent[-]		not sent[-]		not sent[-]		not sent[-]		not sent[-]	

A.5.6.1.2 Test Requirements

~~The UE shall select cell 1 within a cell re-selection delay specified in 5.6.2.1.1~~

The cell re-selection delay is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 1, and starts to send preambles on the PRACH for sending the CELL UPDATE message with cause value “cell reselection” in Cell 1.

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

NOTE:

The cell re-selection delay can be expressed as: $T_{evaluateFDD} + T_{SI}$, where:

$T_{evaluateFDD}$ See section 5.6.2.

T_{SI} Maximum repetition period of relevant system info blocks that needs to be received by the UE to camp on a cell. 1280 ms is assumed in this test case.

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

A.5.6.2 Two frequencies present in the neighbour list

A.5.6.2.1 Test Purpose and Environment

The purpose of this test is to verify the requirement for the cell re-selection delay in CELL_PCH state in section 5.6.2~~1.2~~. The UE is requested to monitor neighbouring cells on 2 carriers. The maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell shall be 1280 ms.

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

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

Parameter		Unit	Value	Comment
initial condition	Active cell		Cell2	
	Neighbour cells		Cell1, Cell3,Cell4, Cell5, Cell6	
final condition	Active cell		Cell1	
Access Service Class (ASC#0) - Persistence value		-	1	Selected so that no additional delay is caused by the random access procedure. The value shall be used for all cells in the test.
DRX cycle length		s	1.28	The value shall be used for all cells in the test.
T1		s	30	T1 need to be defined so that cell re-selection reaction time is taken into account.
T2		s	15	T2 need to be defined so that cell re-selection reaction time is taken into account.

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

Parameter	Unit	Cell 1		Cell 2		Cell 3		Cell 4		Cell 5		Cell 6	
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number		Channel 1		Channel 2		Channel 1		Channel 1		Channel 2		Channel 2	
CPICH_Ec/Ior	dB	-10		-10		-10		-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12		-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12		-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15		-15		-15		-15	
OCNS_Ec/Ior	dB	-0.941		-0.941		-0.941		-0.941		-0.941		-0.941	
$\hat{I}_{or}/I_{oc}$	dB	-3.4	2.2	2.2	-3.4	-7.4	-4.8	-7.4	-4.8	-4.8	-7.4	-4.8	-7.4
I_{oc}	dBm/3.84 MHz	-70											
CPICH_Ec/Io	dB	-16	-13	-13	-16	-20		-20		-20		-20	
Propagation Condition		AWGN											
Cell_selection_and_reselection_quality_measure		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N_0	
Qqualmin	dB	-20[1]		-20[1]		-20[1]		-20[1]		-20[1]		-20[1]	
Qrxlevmin	dBm	-115[1]		-115[1]		-115[1]		-115[1]		-115[1]		-115[1]	
UE_TXPWR_MAX_RACH	dBm	21[1]		21[1]		21[1]		21[1]		21[1]		21[1]	
$Qoffset2_{s,n}$	dB	C1, C2: 0[1] C1, C3: 0[1] C1, C4: 0[1] C1, C5: 0[1] C1, C6: 0[1]		C2, C1: 0[1] C2, C3: 0[1] C2, C4: 0[1] C2, C5: 0[1] C2, C6: 0[1]		C3, C1: 0[1] C3, C2: 0[1] C3, C4: 0[1] C3, C5: 0[1] C3, C6: 0[1]		C4, C1: 0[1] C4, C2: 0[1] C4, C3: 0[1] C4, C5: 0[1] C4, C6: 0[1]		C5, C1: 0[1] C5, C2: 0[1] C5, C3: 0[1] C5, C4: 0[1] C5, C6: 0[1]		C6, C1: 0[1] C6, C2: 0[1] C6, C3: 0[1] C6, C4: 0[1] C6, C5: 0[1]	
Qhyst2	dB	0[1]		0[1]		0[1]		0[1]		0[1]		0[1]	
PENALTY_TIME	s	0[1]		0[1]		0[1]		0[1]		0[1]		0[1]	
TEMPORARY_OFFSET	dB	0[1]		0[1]		0[1]		0[1]		0[1]		0[1]	
Treselection	s	0[1]		0[1]		0[1]		0[1]		0[1]		0[1]	
Sintrasearch	dB	not sent[1]		not sent[1]		not sent[1]		not sent[1]		not sent[1]		not sent[1]	
Sintersearch	dB	not sent[1]		not sent[1]		not sent[1]		not sent[1]		not sent[1]		not sent[1]	

A.5.6.2.2 Test Requirements

~~The UE shall select cell 1 within a cell re-selection delay specified in 5.6.2.1.2~~

The cell re-selection delay is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 1, and starts to send preambles on the PRACH for sending the CELL UPDATE message with cause value "cell reselection" in Cell 1.

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

NOTE:

The cell re-selection delay can be expressed as: $T_{evaluateFDD} + T_{SI}$, where:

$T_{evaluateFDD}$ See section 5.6.2.

T_{SI} Maximum repetition period of relevant system info blocks that needs to be received by the UE to camp on a cell. 1280 ms is assumed in this test case.

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

A.5.7 Cell Re-selection in URA_PCH

A.5.7.1 One frequency present in the neighbour list

A.5.7.1.1 Test Purpose and Environment

The purpose of this test is to verify the requirement for the cell re-selection delay in URA_PCH state in section 5.7.2~~.1.1~~.

The test parameters are given in Table A.5.9 and A.5.10. The UE is requested to monitor neighbouring cells on 1 carrier. The maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell shall be 1280 ms.

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

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

Parameter		Unit	Value	Comment
initial condition	Active cell		Cell2	
	Neighbour cells		Cell1, Cell3,Cell4, Cell5, Cell6	
final condition	Active cell		Cell1	
Access Service Class (ASC#0) - Persistence value		-	1	Selected so that no additional delay is caused by the random access procedure. The value shall be used for all cells in the test.
DRX cycle length		s	1.28	The value shall be used for all cells in the test.
T1		s	15	T1 need to be defined so that cell re-selection reaction time is taken into account.
T2		s	15	T2 need to be defined so that cell re-selection reaction time is taken into account.

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

Parameter	Unit	Cell 1		Cell 2		Cell 3		Cell 4		Cell 5		Cell 6	
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number		Channel 1		Channel 1		Channel 1		Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior	dB	-10		-10		-10		-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12		-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12		-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15		-15		-15		-15	
OCNS_Ec/Ior	dB	-0.941		-0.941		-0.941		-0.941		-0.941		-0.941	
$\hat{I}_{or}/I_{oc}$	dB	7.3	10.27	10.27	7.3	0.27		0.27		0.27		0.27	
I_{oc}	dBm/3.84 MHz	-70											
CPICH_Ec/Io	dB	-16	-13	-13	-16	-23		-23		-23		-23	
Propagation Condition		AWGN											
Cell_selection_and_reselection_quality_measure		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N_0	
Qqualmin	dB	-20[-]		-20[-]		-20[-]		-20[-]		-20[-]		-20[-]	
Qrxlevmin	dBm	-115[-]		-115[-]		-115[-]		-115[-]		-115[-]		-115[-]	
UE_TXPWR_MAX_RACH	dBm	21[-]		21[-]		21[-]		21[-]		21[-]		21[-]	
Qoffset2$_{s,n}$	dB	C1, C2: 0[-] C1, C3: 0[-] C1, C4: 0[-] C1, C5: 0[-] C1, C6: 0[-]		C2, C1: 0[-] C2, C3: 0[-] C2, C4: 0[-] C2, C5: 0[-] C2, C6: 0[-]		C3, C1: 0[-] C3, C2: 0[-] C3, C4: 0[-] C3, C5: 0[-] C3, C6: 0[-]		C4, C1: 0[-] C4, C2: 0[-] C4, C3: 0[-] C4, C5: 0[-] C4, C6: 0[-]		C5, C1: 0[-] C5, C2: 0[-] C5, C3: 0[-] C5, C4: 0[-] C5, C6: 0[-]		C6, C1: 0[-] C6, C2: 0[-] C6, C3: 0[-] C6, C4: 0[-] C6, C5: 0[-]	
Qhyst2	dB	0[-]		0[-]		0[-]		0[-]		0[-]		0[-]	
PENALTY_TIME	s	0[-]		0[-]		0[-]		0[-]		0[-]		0[-]	
TEMPORARY_OFFSET	dB	0[-]		0[-]		0[-]		0[-]		0[-]		0[-]	
Treselection	s	0[-]		0[-]		0[-]		0[-]		0[-]		0[-]	
Sintrasearch	dB	not sent[-]		not sent[-]		not sent[-]		not sent[-]		not sent[-]		not sent[-]	

A.5.7.1.2 Test Requirements

~~The UE shall select cell 1 within a cell re-selection delay specified in 5.7.2.1.1~~

The cell re-selection delay is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 1, and starts to send preambles on the PRACH for sending the URA UPDATE message with cause value "URA reselection" in Cell 1.

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

NOTE:

The cell re-selection delay can be expressed as: $T_{evaluateFDD} + T_{SI}$, where:

$T_{evaluateFDD}$ See section 5.7.2.

T_{SI} Maximum repetition period of relevant system info blocks that needs to be received by the UE to camp on a cell. 1280 ms is assumed in this test case.

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

A.5.7.2 Two frequencies present in the neighbour list

A.5.7.2.1 Test Purpose and Environment

The purpose of this test is to verify the requirement for the cell re-selection delay in URA_PCH state in section 5.7.2~~.1.2~~.

The test parameters are given in Table A5.11 and A5.12. The UE is requested to monitor neighbouring cells on 2 carriers. The maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell shall be 1280 ms.

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

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

Parameter		Unit	Value	Comment
initial condition	Active cell		Cell2	
	Neighbour cells		Cell1, Cell3,Cell4, Cell5, Cell6	
final condition	Active cell		Cell1	
Access Service Class (ASC#0) - Persistence value		-	1	Selected so that no additional delay is caused by the random access procedure. The value shall be used for all cells in the test.
DRX cycle length		s	1.28	The value shall be used for all cells in the test.
T1		s	30	T1 need to be defined so that cell re-selection reaction time is taken into account.
T2		s	15	T2 need to be defined so that cell re-selection reaction time is taken into account.

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

Parameter	Unit	Cell 1		Cell 2		Cell 3		Cell 4		Cell 5		Cell 6	
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number		Channel 1		Channel 2		Channel 1		Channel 1		Channel 2		Channel 2	
CPICH_Ec/Ior	dB	-10		-10		-10		-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12		-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12		-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15		-15		-15		-15	
OCNS_Ec/Ior	dB	-0.941		-0.941		-0.941		-0.941		-0.941		-0.941	
$\hat{I}_{or}/I_{oc}$	dB	-3.4	2.2	2.2	-3.4	-7.4	-4.8	-7.4	-4.8	-4.8	-7.4	-4.8	-7.4
I_{oc}	dBm/3.84 MHz	-70											
CPICH_Ec/Io	dB	-16	-13	-13	-16	-20		-20		-20		-20	
Propagation Condition		AWGN											
Cell_selection_and_reselection_quality_measure		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N_0	
Qqualmin	dB	-20[-]		-20[-]		-20[-]		-20[-]		-20[-]		-20[-]	
Qrxlevmin	dBm	-115[-]		-115[-]		-115[-]		-115[-]		-115[-]		-115[-]	
UE_TXPWR_MAX_RACH	dBm	21[-]		21[-]		21[-]		21[-]		21[-]		21[-]	
Qoffset2$_{s,n}$	dB	C1, C2: 0[-] C1, C3: 0[-] C1, C4: 0[-] C1, C5: 0[-] C1, C6: 0[-]		C2, C1: 0[-] C2, C3: 0[-] C2, C4: 0[-] C2, C5: 0[-] C2, C6: 0[-]		C3, C1: 0[-] C3, C2: 0[-] C3, C4: 0[-] C3, C5: 0[-] C3, C6: 0[-]		C4, C1: 0[-] C4, C2: 0[-] C4, C3: 0[-] C4, C5: 0[-] C4, C6: 0[-]		C5, C1: 0[-] C5, C2: 0[-] C5, C3: 0[-] C5, C4: 0[-] C5, C6: 0[-]		C6, C1: 0[-] C6, C2: 0[-] C6, C3: 0[-] C6, C4: 0[-] C6, C5: 0[-]	
Qhyst2	dB	0[-]		0[-]		0[-]		0[-]		0[-]		0[-]	
PENALTY_TIME	s	0[-]		0[-]		0[-]		0[-]		0[-]		0[-]	
TEMPORARY_OFFSET	dB	0[-]		0[-]		0[-]		0[-]		0[-]		0[-]	
Treselection	s	0[-]		0[-]		0[-]		0[-]		0[-]		0[-]	
Sintrasearch	dB	not sent[-]		not sent[-]		not sent[-]		not sent[-]		not sent[-]		not sent[-]	
Sintersearch	dB	not sent[-]		not sent[-]		not sent[-]		not sent[-]		not sent[-]		not sent[-]	

A.5.7.2.2 Test Requirements

~~The UE shall select cell 1 within a cell re-selection delay specified in 5.7.2.1.2~~

The cell re-selection delay is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 1, and starts to send preambles on the PRACH for sending URA UPDATE message with cause value "URA reselection" in Cell 1.

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

NOTE:

The cell re-selection delay can be expressed as: $T_{evaluateFDD} + T_{SI}$, where:

$T_{evaluateFDD}$ See section 5.7.2.

T_{SI} Maximum repetition period of relevant system info blocks that needs to be received by the UE to camp on a cell. 1280 ms is assumed in this test case.

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

3GPP TSG RAN WG4 Meeting #17 **R4-010707**

Gothenburg, Sweden 21st - 25th May 2001

CR-Form-v3

CHANGE REQUEST

⌘ **25.133** **CR** **101** ⌘ rev **-** ⌘ Current version: **3.5.0** ⌘

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

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

Title:	⌘	Idle mode cell-reselection test cases
Source:	⌘	RAN WG4
Work item code:	⌘	TEI
Date:	⌘	2001-05-23
Category:	⌘	**F**
Release:	⌘	R99

Use one of the following categories:
- ***F*** *(essential correction)*
- ***A*** *(corresponds to a correction in an earlier release)*
- ***B*** *(Addition of feature),*
- ***C*** *(Functional modification of feature)*
- ***D*** *(Editorial modification)*

Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
REL-4	*(Release 4)*
REL-5	*(Release 5)*

Reason for change:	⌘	Correction of the idle mode cell re-selection test cases in 25.133.
Summary of change:	⌘	Alignment of the idle mode cell re-selection test cases in section A.4.2.1 and A.4.2.2 with the general requirements.
Consequences if not approved:	⌘	The cell idle mode re-selection test cases in section A.4.2.1 and A.4.2.2 will not be correct.

Clauses affected:	⌘	A.4.2.1, A.4.2.2
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: http://www.3gpp.org/3G_Specs/CRs.htm. Below is a brief summary:

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

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://www.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2000-09 contains the specifications resulting from the September 2000 TSG meetings.

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

A.4.2 Cell Re-Selection

Two scenarios are considered:

Scenario 1: Single carrier case

Scenario 2: Multi carrier case

For each of them a test is proposed.

NOTE: Existing scenarios cover only requirements in section 4.2.2.2. More scenarios, covering requirements in section 4.2.2.1, will be added later.

A.4.2.1 Scenario 1: Single carrier case

A.4.2.1.1 Test Purpose and Environment

This test is to verify the requirement for the cell re-selection delay in the single carrier case reported in section 4.2.2~~.2.1~~.

This scenario implies the presence of 1 carrier and 6 cells as given in tables A.4.1 and A.4.2. The UE is requested to monitor neighbouring cells on 1 carrier. The maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell shall be 1280 ms. Cell 1 and cell 2 shall belong to different Location Areas.

Table A.4.1: General test parameters for Cell Re-selection single carrier multi-cell case

Parameter		Unit	Value	Comment
Initial condition	Active cell		Cell2	
	Neighbour cells		Cell1, Cell3,Cell4, Cell5, Cell6	
Final condition	Active cell		Cell1	
Access Service Class (ASC#0) - Persistence value		-	1	Selected so that no additional delay is caused by the random access procedure. The value shall be used for all cells in the test.
DRX cycle length		s	1.28	The value shall be used for all cells in the test.
T1		s	15	T1 need to be defined so that cell re-selection reaction time is taken into account.
T2		s	15	T2 need to be defined so that cell re-selection reaction time is taken into account.

Table A.4.2: Cell re-selection single carrier multi-cell case

Parameter	Unit	Cell 1		Cell 2		Cell 3		Cell 4		Cell 5		Cell 6	
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number		Channel 1		Channel 1		Channel 1		Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior	dB	-10		-10		-10		-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12		-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12		-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15		-15		-15		-15	
OCNS_Ec/Ior	dB	-0.941		-0.941		-0.941		-0.941		-0.941		-0.941	
$\hat{I}_{or}/I_{oc}$	dB	7.3	10.27	10.27	7.3	0.27		0.27		0.27		0.27	
I_{oc}	dBm / 3.84 MHz	-70											
CPICH_Ec/Io	dB	-16	-13	-13	-16	-23		-23		-23		-23	
Propagation Condition		AWGN											
Cell_selection_and_reselection_quality_measure		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N_0	
Qqualmin	dB	-20[-]		-20[-]		-20[-]		-20[-]		-20[-]		-20[-]	
Qrxlevmin	dBm	-115[-]		-115[-]		-115[-]		-115[-]		-115[-]		-115[-]	
UE_TXPWR_MAX_RACH	dB	21[-]		21[-]		21[-]		21[-]		21[-]		21[-]	
$Qoffset2_{s,n}$	dB	C1, C2: 0[-] C1, C3: 0[-] C1, C4: 0[-] C1, C5: 0[-] C1, C6: 0[-]		C2, C1: 0[-] C2, C3: 0[-] C2, C4: 0[-] C2, C5: 0[-] C2, C6: 0[-]		C3, C1: 0[-] C3, C2: 0[-] C3, C4: 0[-] C3, C5: 0[-] C3, C6: 0[-]		C4, C1: 0[-] C4, C2: 0[-] C4, C3: 0[-] C4, C5: 0[-] C4, C6: 0[-]		C5, C1: 0[-] C5, C2: 0[-] C5, C3: 0[-] C5, C4: 0[-] C5, C6: 0[-]		C6, C1: 0[-] C6, C2: 0[-] C6, C3: 0[-] C6, C4: 0[-] C6, C5: 0[-]	
Qhyst2	dB	0[-]		0[-]		0[-]		0[-]		0[-]		0[-]	
PENALTY_TIME	s	0[-]		0[-]		0[-]		0[-]		0[-]		0[-]	

TEMPORARY_OFFSET2	dB	0[ ]	0[ ]	0[ ]	0[ ]	0[ ]	0[ ]
Treselection	s	0[ ]	0[ ]	0[ ]	0[ ]	0[ ]	0[ ]
Sintrasearch	dB	not sent[ ]	not sent[ ]	not sent[ ]	not sent[ ]	not sent[ ]	not sent[ ]

A.4.2.1.2 Test Requirements

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

The cell re-selection delay is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 1, and starts to send preambles on the PRACH for sending the RRC CONNECTION REQUEST message to perform a Location Registration on cell 1.

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

NOTE:

The cell re-selection delay can be expressed as: $T_{evaluateFDD}$ + T_{SI}, where:

$T_{evaluateFDD}$ See Table 4.1 in section 4.2.2.

T_{SI} Maximum repetition period of relevant system info blocks that needs to be received by the UE to camp on a cell. 1280 ms is assumed in this test case.

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

A.4.2.2 Scenario 2: Multi carrier case

A.4.2.2.1 Test Purpose and Environment

This test is to verify the requirement for the cell re-selection delay in the multi carrier case reported in section 4.2.2~~.2.2~~.

This scenario implies the presence of 2 carriers and 6 cells as given in tables A.4.3 and A.4.4. The UE is requested to monitor neighbouring cells on 2 carriers. The maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell shall be 1280 ms. Cell 1 and cell 2 shall belong to different Location Areas.

Table A.4.3: General test parameters for Cell Re-selection in Multi carrier case

Parameter		Unit	Value	Comment
Initial condition	Active cell		Cell2	
	Neighbour cells		Cell1, Cell3,Cell4, Cell5, Cell6	
Final condition	Active cell		Cell1	
Access Service Class (ASC#0) - Persistence value		-	1	Selected so that no additional delay is caused by the random access procedure. The value shall be used for all cells in the test.
DRX cycle length		s	1.28	The value shall be used for all cells in the test.
T1		s	30	T1 need to be defined so that cell re-selection reaction time is taken into account.
T2		s	15	T2 need to be defined so that cell re-selection reaction time is taken into account.

Table A.4.4: Cell re-selection multi carrier multi cell case

Parameter	Unit	Cell 1		Cell 2		Cell 3		Cell 4		Cell 5		Cell 6	
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number		Channel 1		Channel 2		Channel 1		Channel 1		Channel 2		Channel 2	
CPICH_Ec/Ior	dB	-10		-10		-10		-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12		-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12		-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15		-15		-15		-15	
OCNS_Ec/Ior	dB	-0.941		-0.941		-0.941		-0.941		-0.941		-0.941	
$\hat{I}_{or}/I_{oc}$	dB	-3.4	2.2	2.2	-3.4	-7.4	-4.8	-7.4	-4.8	-4.8	-7.4	-4.8	-7.4
I_{oc}	dBm / 3.84 MHz	-70											
CPICH_Ec/Io	dB	-16	-13	-13	-16	-20		-20		-20		-20	
Propagation Condition		AWGN											
Cell_selection_and_reselection_quality_measure		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N_0	
Qqualmin	dB	-20[-]		-20[-]		-20[-]		-20[-]		-20[-]		-20[-]	
Qrxlevmin	dBm	-115[-]		-115[-]		-115[-]		-115[-]		-115[-]		-115[-]	
UE_TXPWR_MAX_RACH	dB	21[-]		21[-]		21[-]		21[-]		21[-]		21[-]	
$Qoffset2_{s,n}$	dB	C1, C2: 0[-] C1, C3: 0[-] C1, C4: 0[-] C1, C5: 0[-] C1, C6: 0[-]		C2, C1: 0[-] C2, C3: 0[-] C2, C4: 0[-] C2, C5: 0[-] C2, C6: 0[-]		C3, C1: 0[-] C3, C2: 0[-] C3, C4: 0[-] C3, C5: 0[-] C3, C6: 0[-]		C4, C1: 0[-] C4, C2: 0[-] C4, C3: 0[-] C4, C5: 0[-] C4, C6: 0[-]		C5, C1: 0[-] C5, C2: 0[-] C5, C3: 0[-] C5, C4: 0[-] C5, C6: 0[-]		C6, C1: 0[-] C6, C2: 0[-] C6, C3: 0[-] C6, C4: 0[-] C6, C5: 0[-]	
Qhyst2	dB	0[2]		0[2]		0[2]		0[2]		0[2]		0[2]	
PENALTY_TIME	s	0[-]		0[-]		0[-]		0[-]		0[-]		0[-]	

TEMPORARY_OFFSET	dB	0[,]	0[,]	0[,]	0[,]	0[,]	0[,]
Treselection	s	0[, 5]	0[, 5]	0[5]	0[, 5]	0[, 5]	0[5]
Sintrasearch	dB	not sent[,]	not sent[,]	not sent[,]	not sent[,]	not sent[,]	not sent[,]
Sintersearch	dB	not sent[, 8]	not sent[, 8]	not sent[, 8]	not sent[, 8]	not sent[, 8]	not sent[, 8]

A.4.2.2.2 Test Requirements

~~The requirements reported in section 4.2.2.2.2 shall be verified in more than [90%] of the cases.~~

The cell re-selection delay is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 1, and starts to send preambles on the PRACH for sending the RRC CONNECTION REQUEST message to perform a Location Registration on cell 1.

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

NOTE:

The cell re-selection delay can be expressed as: $T_{evaluateFDD} + T_{SI}$, where:

$T_{evaluateFDD}$	See Table 4.1 in section 4.2.2.
T_{SI}	Maximum repetition period of relevant system info blocks that needs to be received by the UE to camp on a cell. 1280 ms is assumed in this test case.

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

3GPP TSG RAN WG4 Meeting #17 **R4-010757**

Gothenburg, Sweden 21st - 25th May 2001

CR-Form-v3

CHANGE REQUEST

⌘ **25.133** **CR** **102** ⌘ rev **-** ⌘ Current version: **4.0.0** ⌘

*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:	⌘	Idle mode cell-reselection test cases
Source:	⌘	RAN WG4
Work item code:	⌘	TEI
Date:	⌘	2001-05-24
Category:	⌘	**A**
Release:	⌘	REL-4

Use one of the following categories:
- ***F*** *(essential correction)*
- ***A*** *(corresponds to a correction in an earlier release)*
- ***B*** *(Addition of feature),*
- ***C*** *(Functional modification of feature)*
- ***D*** *(Editorial modification)*

Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
REL-4	*(Release 4)*
REL-5	*(Release 5)*

Reason for change:	⌘	Correction of the idle mode cell re-selection test cases in 25.133
Summary of change:	⌘	Alignment of the idle mode cell re-selection test cases in section A.4.2.1 and A.4.2.2 with the general requirements.
Consequences if not approved:	⌘	The cell idle mode re-selection test cases in section A.4.2.1 and A.4.2.2will not be correct.

Clauses affected:	⌘	A.4.2.1, A.4.2.2
Other specs affected:	⌘	☐ Other core specifications ☐ Test specifications ☐ O&M Specifications
	⌘	
Other comments:	⌘	Corresponding R99 CR in R4-010707

How to create CRs using this form:

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

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

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://www.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2000-09 contains the specifications resulting from the September 2000 TSG meetings.

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

A.4.2 Cell Re-Selection

Two scenarios are considered:

Scenario 1: Single carrier case

Scenario 2: Multi carrier case

For each of them a test is proposed.

NOTE: Existing scenarios cover only requirements in section 4.2.2.2. More scenarios, covering requirements in section 4.2.2.1, will be added later.

A.4.2.1 Scenario 1: Single carrier case

A.4.2.1.1 Test Purpose and Environment

This test is to verify the requirement for the cell re-selection delay in the single carrier case reported in section 4.2.2~~.2.1~~.

This scenario implies the presence of 1 carrier and 6 cells as given in tables A.4.1 and A.4.2. The UE is requested to monitor neighbouring cells on 1 carrier. The maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell shall be 1280 ms. Cell 1 and cell 2 shall belong to different Location Areas.

Table A.4.1: General test parameters for Cell Re-selection single carrier multi-cell case

Parameter		Unit	Value	Comment
Initial condition	Active cell		Cell2	
	Neighbour cells		Cell1, Cell3,Cell4, Cell5, Cell6	
Final condition	Active cell		Cell1	
Access Service Class (ASC#0) - Persistence value		-	1	Selected so that no additional delay is caused by the random access procedure. The value shall be used for all cells in the test.
DRX cycle length		s	1.28	The value shall be used for all cells in the test.
T1		s	15	T1 need to be defined so that cell re-selection reaction time is taken into account.
T2		s	15	T2 need to be defined so that cell re-selection reaction time is taken into account.

Table A.4.2: Cell re-selection single carrier multi-cell case

Parameter	Unit	Cell 1		Cell 2		Cell 3		Cell 4		Cell 5		Cell 6	
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T
UTRA RF Channel Number		Channel 1		Channel 1		Channel 1		Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior	dB	-10		-10		-10		-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12		-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12		-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15		-15		-15		-15	
OCNS_Ec/Ior	dB	-0.941		-0.941		-0.941		-0.941		-0.941		-0.941	
$\hat{I}_{or}/I_{oc}$	dB	7.3	10.27	10.27	7.3	0.27		0.27		0.27		0.27	
I_{oc}	dBm / 3.84 MHz	-70											
CPICH_Ec/Io	dB	-16	-13	-13	-16	-23		-23		-23		-23	
Propagation Condition		AWGN											
Cell_selection_and_reselection_quality_measure		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N	
Qqualmin	dB	-20[-]		-20[-]		-20[-]		-20[-]		-20[-]		-20[-]	
Qrxlevmin	dBm	-115[-]		-115[-]		-115[-]		-115[-]		-115[-]		-115[-]	
UE_TXPWR_MAX_RACH	dB	21[-]		21[-]		21[-]		21[-]		21[-]		21[-]	
$Qoffset2_{s,n}$	dB	C1, C2: 0[-] C1, C3: 0[-] C1, C4: 0[-] C1, C5: 0[-] C1, C6: 0[-]		C2, C1: 0[-] C2, C3: 0[-] C2, C4: 0[-] C2, C5: 0[-] C2, C6: 0[-]		C3, C1: 0[-] C3, C2: 0[-] C3, C4: 0[-] C3, C5: 0[-] C3, C6: 0[-]		C4, C1: 0[-] C4, C2: 0[-] C4, C3: 0[-] C4, C5: 0[-] C4, C6: 0[-]		C5, C1: 0[-] C5, C2: 0[-] C5, C3: 0[-] C5, C4: 0[-] C5, C6: 0[-]		C6, C1: 0[-] C6, C2: 0[-] C6, C3: 0[-] C6, C4: 0[-] C6, C5: 0[-]	
Qhyst2	dB	0[-]		0[-]		0[-]		0[-]		0[-]		0[-]	
PENALTY_TIME	s	0[-]		0[-]		0[-]		0[-]		0[-]		0[-]	
TEMPORARY_OFFSET2	dB	0[-]		0[-]		0[-]		0[-]		0[-]		0[-]	
Treselection	s	0[-]		0[-]		0[-]		0[-]		0[-]		0[-]	
Sintrasearch	dB	not sent[-]		not sent[-]		not sent[-]		not sent[-]		not sent[-]		not sent[-]	

A.4.2.1.2 Test Requirements

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

The cell re-selection delay is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 1, and starts to send preambles on the PRACH for sending the RRC CONNECTION REQUEST message to perform a Location Registration on cell 1.

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

NOTE:

The cell re-selection delay can be expressed as: $T_{evaluateFDD} + T_{SI}$, where:

$T_{evaluateFDD}$ See Table 4.1 in section 4.2.2.

T_{SI} Maximum repetition period of relevant system info blocks that needs to be received by the UE to camp on a cell. 1280 ms is assumed in this test case.

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

A.4.2.2 Scenario 2: Multi carrier case

A.4.2.2.1 Test Purpose and Environment

This test is to verify the requirement for the cell re-selection delay in the multi carrier case reported in section 4.2.2~~.2.2~~.

This scenario implies the presence of 2 carriers and 6 cells as given in tables A.4.3 and A.4.4. The UE is requested to monitor neighbouring cells on 2 carriers. The maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell shall be 1280 ms. Cell 1 and cell 2 shall belong to different Location Areas.

Table A.4.3: General test parameters for Cell Re-selection in Multi carrier case

Parameter		Unit	Value	Comment
Initial condition	Active cell		Cell2	
	Neighbour cells		Cell1, Cell3,Cell4, Cell5, Cell6	
Final condition	Active cell		Cell1	
Access Service Class (ASC#0) - Persistence value		-	1	Selected so that no additional delay is caused by the random access procedure. The value shall be used for all cells in the test.
DRX cycle length		s	1.28	The value shall be used for all cells in the test.
T1		s	30	T1 need to be defined so that cell re-selection reaction time is taken into account.
T2		s	15	T2 need to be defined so that cell re-selection reaction time is taken into account.

Table A.4.4: Cell re-selection multi carrier multi cell case

Parameter	Unit	Cell 1		Cell 2		Cell 3		Cell 4		Cell 5		Cell 6	
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T
UTRA RF Channel Number		Channel 1		Channel 2		Channel 1		Channel 1		Channel 2		Channel 2	
CPICH_Ec/Ior	dB	-10		-10		-10		-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12		-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12		-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15		-15		-15		-15	
OCNS_Ec/Ior	dB	-0.941		-0.941		-0.941		-0.941		-0.941		-0.941	
$\hat{I}_{or}/I_{oc}$	dB	-3.4	2.2	2.2	-3.4	-7.4	-4.8	-7.4	-4.8	-4.8	-7.4	-4.8	-7
I_{oc}	dBm / 3.84 MHz	-70											
CPICH_Ec/Io	dB	-16	-13	-13	-16	-20		-20		-20		-20	
Propagation Condition		AWGN											
Cell_selection_and_reselection_quality_measure		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N	
Qqualmin	dB	-20[-]		-20[-]		-20[-]		-20[-]		-20[-]		-20[-]	
Qrxlevmin	dBm	-115[-]		-115[-]		-115[-]		-115[-]		-115[-]		-115[-]	
UE_TXPWR_MAX_RACH	dB	21[-]		21[-]		21[-]		21[-]		21[-]		21[-]	
Qoffset2$_{s,n}$	dB	C1, C2: 0[-] C1, C3: 0[-] C1, C4: 0[-] C1, C5: 0[-] C1, C6: 0[-]		C2, C1: 0[-] C2, C3: 0[-] C2, C4: 0[-] C2, C5: 0[-] C2, C6: 0[-]		C3, C1: 0[-] C3, C2: 0[-] C3, C4: 0[-] C3, C5: 0[-] C3, C6: 0[-]		C4, C1: 0[-] C4, C2: 0[-] C4, C3: 0[-] C4, C5: 0[-] C4, C6: 0[-]		C5, C1: 0[-] C5, C2: 0[-] C5, C3: 0[-] C5, C4: 0[-] C5, C6: 0[-]		C6, C1: 0[C6, C2: 0[C6, C3: 0[C6, C4: 0[C6, C5: 0[	
Qhyst2	dB	0[2]		0[2]		0[2]		0[2]		0[2]		0[2]	
PENALTY_TIME	s	0[-]		0[-]		0[-]		0[-]		0[-]		0[-]	
TEMPORARY_OFFSET	dB	0[-]		0[-]		0[-]		0[-]		0[-]		0[-]	
Treselection	s	0[-5]		0[-5]		0[5]		0[-5]		0[-5]		0[5]	
Sintrasearch	dB	not sent[-]		not sent[-]		not sent[-]		not sent[-]		not sent[-]		not sent[-	
Sintersearch	dB	not sent[-8]		not sent[-8]		not sent[-8]		not sent[-8]		not sent[-8]		not sent[-8	

A.4.2.2.2 Test Requirements

~~The requirements reported in section 4.2.2.2.2 shall be verified in more than [90%] of the cases.~~

The cell re-selection delay is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 1, and starts to send preambles on the PRACH for sending the RRC CONNECTION REQUEST message to perform a Location Registration on cell 1.

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

NOTE:

The cell re-selection delay can be expressed as: $T_{evaluateFDD} + T_{SI}$, where:

$T_{evaluateFDD}$	See Table 4.1 in section 4.2.2.
T_{SI}	Maximum repetition period of relevant system info blocks that needs to be received by the UE to camp on a cell. 1280 ms is assumed in this test case.

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

3GPP TSG RAN WG4 Meeting #17 **R4-010710**

Gothenburg, Sweden 21st - 25th May 2001

CR-Form-v4

CHANGE REQUEST

⌘ **25.133** **CR** **103** ⌘ ev **-** ⌘ Current version: **3.5.0** ⌘

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

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

Title:	⌘	**Correction of the parameters used for measurements in Cell-FACH**
Source:	⌘	RAN WG4
Work item code:	⌘	TEI
Date:	⌘	2001-05-16
Category:	⌘	**F**
Release:	⌘	R99

Use one of the following categories:
- ***F*** *(correction)*
- ***A*** *(corresponds to a correction in an earlier release)*
- ***B*** *(addition of feature),*
- ***C*** *(functional modification of feature)*
- ***D*** *(editorial modification)*

Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
REL-4	*(Release 4)*
REL-5	*(Release 5)*

Reason for change:	⌘	There is an error of the definition of M_REP compared with 25.331
Summary of change:	⌘	Replace M_REP with N_{TTI}*M_REP
Consequences if not approved:	⌘	The performance specification does not work with the actual measurement occasions

Clauses affected:	⌘	8.4.2
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: http://www.3gpp.org/3G_Specs/CRs.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

8.4 Measurements in CELL_FACH State

8.4.1 Introduction

This section contains requirements on the UE regarding measurement reporting in CELL_FACH state. The requirements are split in FDD intra frequency, FDD inter frequency, TDD and GSM measurements. The measurements are defined in TS 25.215, the measurement model is defined in TS 25.302 and measurement accuracies are specified in section 9. Control of measurement reporting is specified in TS 25.331 and parallel measurements are specified in section 8.2. Measurement occasions in CELL_FACH state are described in TS 25.331.

8.4.2 Requirements

8.4.2.1 UE Measurement Capability

The UE shall be able to monitor up to

32 intra frequency FDD cells and

32 inter frequency cells, including

- FDD mode cells distributed on up to 2 additional FDD carriers and
- Depending on UE Capability, TDD mode cells, distributed on up to 3 TDD carriers.

Depending on UE capability, the UE shall also in addition be able to monitor at least 32 GSM cells distributed on up to 32 GSM carriers.

The requirements in section 9 on CPICH Ec/Io and RSCP measurements are applicable for a UE performing measurements according to this section. For inter-frequency FDD, TDD and GSM cell re-selection, measurement occasions as specified in TS 25.331 are used to find and measure on other cells.

M_REP is the Measurement Occasion cycle length. The FACH Measurement Occasion of N_{TTI} frames will be repeated every N_{TTI} * M_REP frame. ~~in number of frames and~~ N_{TTI} is the number of frames in each measurement occasion, equal to the length of the largest TTI on the SCCPCH monitored by the UE.

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

For this three parameters are defined:

N_{FDD} is 0 or 1. If there are inter-frequency FDD cells in the neighbour list N_{FDD}=1, otherwise N_{FDD}=0.

N_{TDD} is 0 or 1. If the UE is capable of TDD and there are TDD cells in the neighbour list N_{TDD}=*1* otherwise N_{TDD} =0.

N_{GSM} is 0 or 1. If the UE is capable of GSM and there are GSM cells in the neighbour list, N_{GSM}=*1*, otherwise N_{GSM} =0.

The measurement time T_{meas} is then defined as

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

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

8.4.2.2 FDD intra frequency measurements

During the CELL_FACH state the UE shall continuously measure detected intra frequency cells and search for new intra frequency cells in the monitoring set. If a measurement occasion is activated, intra frequency measurements can be performed between the measurement occasions.

8.4.2.2.1 Identification of a new cell

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

$$T_{identify,intra} = Max\left\{800, Ceil\left\{\frac{T_{basic\ identify\ FDD,intra}}{N_{TTI}\cdot(M\_REP-1)\cdot 10}\right\}\cdot N_{TTI}\cdot M\_REP\cdot 10\right\}\ ms$$

where

$T_{basic\_identify\_FDD,\ intra}$ is specified in section 8.1.2.2.2,

N_{TTI} and M_REP is specified in section 8.4.2.1.

and when CPICH Ec/Io $\geq$ -20 dB, SCH_Ec/Io $\geq$ -20 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~~

8.4.2.2.2 UE CPICH measurement capability

In the CELL_FACH state the measurement period for intra frequency measurements is 200 ms. When no measurement occasion sequence is activated, the UE shall be capable of performing CPICH measurements for 8 detected intra-frequency cells and the UE physical layer shall be capable of reporting measurements to higher layers with the measurement period of 200 ms. When one measurement occasion sequence is activated, the UE shall be capable of performing CPICH measurements for the $Y_{measurement\ intra}$ strongest cells , where $Y_{measurement\ intra}$ is defined in the following equation. The measurement accuracy for all measured cells shall be as specified in the sub-clause 9.1.1 and 9.1.2.

~~$$Y_{measurement\ intra} = Floor\left\{X_{basic\ measurement\ FDD}\cdot MIN\left[\frac{N_{TTI}\cdot(M\_REP-1)}{N_{TTI}\cdot M\_REP}, \frac{T_{Measurement\_Period\ Intra}-10\cdot N_{TTI}}{10\cdot N_{TTI}\cdot M\_REP}\right]\right\}$$~~

$$Y_{measurement\ intra} = Floor\left\{X_{basic\ measurement\ FDD}\cdot\frac{T_{Measurement\_Period\ Intra}-Ceil\left\{\frac{T_{Measurement\_Period\ Intra}}{N_{TTI}\cdot M\_REP\cdot 10\,ms}\right\}\cdot N_{TTI}\cdot 10\,ms}{T_{Measurement\_Period\ Intra}}\right\}$$

cells

where

$X_{basic\ measurement\ FDD}$ is specified in section 8.1.2.2.2,

$T_{Measurement\_Period\ Intra}$ is specified in section 8.1.2.2.2,

M_REP and N_{TTI} is specified in section 8.4.2.1.

8.4.2.2.3 Periodic Reporting

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

8.4.2.2.4 Event Triggered Reporting

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

In CELL_FACH event triggered reporting can only be set for Traffic Volume measurements defined in TS 25.331.

8.4.2.3 FDD inter frequency measurements

In the CELL_FACH state when a measurement occasion sequence is provided by the network the UE shall continuously measure detected inter frequency cells and search for new inter frequency cells indicated in the measurement control information.

8.4.2.3.1 Identification of a new cell

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

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

where

$T_{basic\_identify\_FDD,inter}$	is specified in 8.1.2.3.2.
$N_{Freq,FDD}$	Number of FDD frequencies in the Inter-frequency cell info list
T_{Meas} and M_REP:	is specified in 8.4.2.1.
$T_{Inter\ FACH}$	$=(N_{TTI}*10 - 2*0.5)$ ms

and 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~~

8.4.2.3.2 Measurement period

When measurement occasions 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 9.1.2 with measurement period given by

$$T_{measurement\ inter} = Max\left\{T_{Measurement\_Period\ Inter}, 2 \cdot T_{meas}, Ceil\left\{\frac{T_{basic\ measurement\ FDD\ inter}}{T_{Inter\ FACH}}\right\} \cdot T_{meas} \cdot N_{Freq,FDD}\right\} \text{ ms}$$

where

$T_{basic\_measurement\_FDD,inter}$	is specified in section 8.1.2.3.2.
$T_{Measurement\_Period\ Inter}$	is specified in section 8.1.2.3.2.
T_{Meas}	is specified in section 8.4.2.1.
$N_{Freq,FDD}$ and $T_{Inter\ FACH}$	are specified in section 8.4.2.3.1

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

8.4.2.3.3 Periodic Reporting

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

8.4.2.3.4 Event Triggered Reporting

Reported measurements in event triggered measurement reports (Traffic Volume Measurement) shall meet the requirements in section 9.

8.4.2.4 TDD measurements

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

In the CELL_DCH state when a measurement occasion sequence is provided by the network the UE shall continuously measure detected inter frequency TDD cells and search for new TDD cells indicated in the measurement control information.

The UE shall be capable of measuring the requested measurement quantity of at least 32 cells on a maximum of 3 frequencies, different from the frequency currently used by the UE.

8.4.2.4.1 Identification of a new cell

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

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

$T_{basic\_identify\_TDD,inter}$ is specified in 8.1.2.4.2.

$N_{Freq,TDD}$ Number of TDD frequencies in the Inter-frequency cell info list

T_{Meas} is specified in section 8.4.2.1.

$T_{Inter\ FACH}$ is specified in section 8.4.2.3.1

8.4.2.4.2 Measurement period

When measurement occasion as previously described are scheduled for TDD 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

$$T_{\text{measurement TDD}} = Max\left\{T_{\text{Measurement\_Period TDD inter}}, 2 \cdot T_{\text{meas}}, Ceil\left\{\frac{T_{\text{basic measurement TDD inter}}}{T_{\text{Inter FACH}}}\right\} \cdot T_{\text{meas}} \cdot N_{Freq,TDD}\right\}$$

where

$T_{basic\_measurement\_TDD\ inter}$ is specified in section 8.1.2.4.2.

$T_{Measurement\_Period\ TDD\ inter}$ is specified in section 8.1.2.4.2.

T_{Meas} is specified in section 8.4.2.1.

$T_{Inter\ FACH}$ is specified in section 8.4.2.3.1

$N_{Freq,TDD}$ is specified in section 8.4.2.4.1

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

8.4.2.5 GSM measurements

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

In CELL_FACH state when measurement occasions are provided by the UTRAN the UE shall continuously measure GSM cells and search for new GSM cells given in the monitored set.

The reporting of measurements on a GSM cell can be requested with BSIC verified or BSIC non-verified. However, to support cell reselection the UE shall always perform BSIC verification in Cell FACH state.

If BSIC verified is requested for a GSM cell the UE shall only report measurement quantities for that GSM cell with a BSIC "verified" according to section 8.4.2.5.2. If BSIC verification is not required for the reporting of a GSM cell the

UE shall report measurement quantities for that GSM cell irrespectively if the BSIC has been verified or not verified according to section 8.4.2.5.2.

In section 8.4.2.1 the split of measurements between different modes and systems is defined. Every second measurement occasion scheduled for GSM measurements, as given by 8.4.2.1 shall be allocated for GSM initial BSIC identification.

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

If the UE does not need measurement occasions to perform GSM measurements, the requirements in GSM 05.08 shall apply.

8.4.2.5.1 GSM carrier RSSI

A UE supporting GSM measurements using measurement occasions shall meet the minimum number of GSM carrier RSSI measurements specified in Table 8.11. This measurement shall be based on measurement occasions allocated for GSM carrier RSSI measurements as described in 8.4.2.5. In the CELL_FACH state the measurement period for the GSM carrier RSSI measurement is 480 ms.

The UE shall meet the measurement accuracy requirements stated for RXLEV in TS 05.08, when the given measurement time allows the UE to take at least 3 GSM carrier RSSI samples per GSM carrier in the monitored set during the measurement period.

Table 8.11

Length of measurement occasion (frames)	Number of GSM carrier RSSI samples in each measurement occasion, $N_{GSM\ carrier\ RSSI}$.
1	16
2	32
4	64
8	128

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

8.4.2.5.2 BSIC verification

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

Initial BSIC identification
: Includes searching for the BSIC and decoding the BSIC for the first time when there is no knowledge about the relative timing between the FDD and GSM cell. The UE shall trigger the initial BSIC identification within 50% of the available measurement occasions used for GSM measurements as specified in 8.4.2.1. The requirements for Initial BSIC identification can be found in 8.4.2.5.2.1.

BSIC re-confirmation
: Tracking and decoding the BSIC of a GSM cell after initial BSIC identification is performed. The UE shall trigger the BSIC re-confirmation within the available measurement occasions used for GSM as specified in 8.4.2.1. The requirements for BSIC re-confirmation can be found in 8.4.2.5.2.2.

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

$T_{re\text{-}confirm\_GSM}$ indicates the maximum time allowed for the re-confirmation of the BSIC of one GSM cell in the BSIC re-confirmation procedure according to section 8.4.2.5.2.2.

The UE shall be able to decode a BSIC within a measurement occasion when the time difference between the middle of the received GSM synchronisation burst at the UE and the middle of the measurement occasion is within the limits specified in table 8.12.

Table 8.12: The measurement occasion length and maximum time difference for BSIC verification

Measurement occasion length [frames]	Maximum time difference [μs]
1	± 4100
2	± 9100
4	± 19100
8	± 39100

The UE shall be able to perform BSIC verification at levels down to the reference sensitivity level or reference interference levels as specified in TS 05.05.

8.4.2.5.2.1 Initial BSIC identification

This measurement shall be based on the measurement occasions allocated for Initial BSIC identification as described in 8.4.2.5.

The UE shall continuously attempt to decode the BSIC of SCH on the BCCH carrier of the 6 strongest BCCH carriers of the GSM cells indicated in the Inter-RAT cell info list. The UE shall give priority for BSIC decoding attempts in decreasing signal strength order to BCCH carriers with unknown BSIC. The strongest BCCH carrier is defined as the BCCH carrier having the highest measured GSM carrier RSSI value ~~after layer 3 filtering~~.

When the UE attempts to decode the BSIC of one GSM BCCH carrier with unknown BSIC, the UE shall use all available measurements occasions allocated for GSM initial BSIC identification according section 8.4.2.5 to attempt to decode the BSIC from that GSM BCCH carrier.

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

If the UE has not successfully decoded the BSIC of the GSM BCCH carrier within $T_{identify,\ GSM}$ ms, the UE shall abort the BSIC identification attempts for that GSM BCCH carrier. The UE shall continue to try to perform BSIC identification of the next GSM BCCH carrier in signal strength order. The GSM BCCH carrier for which the BSIC identification failed shall not be re-considered for BSIC identification until BSIC identification attempts have been made for all the rest of the 6 strongest GSM BCCH carriers in the monitored set with unknown BSIC.

$T_{identify\_GSM}$ is given for the combinations of T_{meas} and N_{TTI} that are given in table 8.13. The values given in table 8.13 represent the number of patterns required to guarantee at least two attempts to decode the BSIC for one GSM BCCH carrier.

Table 8.13: The worst-case time for identification of one previously not identified GSM cell

T_meas (ms)	N_TTI=1 frame $T_{identify,GSM}$(ms)	N_TTI=2 frames $T_{identify,GSM}$(ms)	N_TTI=4 frames $T_{identify,GSM}$(ms)	N_TTI=8 frames $T_{identify,GSM}$(ms)
20	1040	-	-	-
40	1600	800	-	-
60	2880	-	-	-
80	2880	1280	640	-
120	5280	2640	-	-
160	7680	2880	1280	640
240	29760	5280	1920	-
320	14080	6400	2560	1280
480	34560	12480	3840	1920
640	34560	12800	5120	2560
960		24960	5760	2840
1280		20480	10240	5120
1920			15360	5680
2560				10240
3840				15360

8.4.2.5.2.2 BSIC re-confirmation

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

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

For each measurement occasion allocated for GSM BSIC reconfirmation as described in 8.4.2.5, the UE shall attempt to decode the BSIC falling within the measurement occasion duration according to table 8.12. When the UE has to select one out of several possible GSM cells to reconfirm within the possible allocation of measurement occasions, according to 8.4.2.5, priority shall be given to the least recently decoded BSIC.

If the UE fails to decode the BSIC after two successive attempts the UE shall abort the BSIC re-confirmation attempts for that GSM cell. The GSM cell shall be treated as a new GSM cell with unidentified BSIC and the GSM cell shall be moved to the initial BSIC identification procedure, see section 8.4.2.5.2.1. The UE shall be able to make BSIC re-confirmation attempts for the 6 strongest GSM cells in the monitored list.

$T_{re\text{-}confirm\_GSM}$ is given for the combinations of T_{meas} and N_{TTI} that are given in table 8.14. The values given in table 8.14 represent the number of patterns required to guarantee at least two attempts to decode the BSIC for one GSM BCCH carrier. Different values for $T_{re\text{-}confirm\ GSM}$ might apply when more than one GSM cell is in the BSIC reconfirmation procedure at the same time.

Table 8.14: The worst-case time for reconfirmation of one previously identified GSM cell

T_meas (ms)	N_TTI=1 frame $T_{re\text{-}confirm,GSM}$ (ms)	N_TTI=2 frames $T_{re\text{-}confirm,GSM}$ (ms)	N_TTI=4 frames $T_{re\text{-}confirm,GSM}$ (ms)	N_TTI=8 frames $T_{re\text{-}confirm,GSM}$ (ms)
20	800	-	-	-
40	1360	640	-	-
60	2640	-	-	-
80	2880	1280	~~640~~1280	-
120	5040	2400	-	-
160	6400	2880	~~1280~~2560	~~640~~2560
240	17280	4800	~~1920~~3840	-
320	10880	6400	~~2560~~5120	~~1280~~5120
480	22080	9600	~~2880~~7680	~~1920~~7680
640	26880	12800	~~5120~~10240	~~2560~~10240
960		17280	~~5760~~15360	~~2840~~15360
1280		20480	~~10240~~20480	~~5120~~20480
1920			~~15360~~30720	~~5680~~30720
2560				~~10240~~40960
3840				~~15360~~61440

3GPP TSG RAN WG4 Meeting #17 **R4-010772**

Gothenburg, Sweden 21st - 25th May 2001

CR-Form-v4

CHANGE REQUEST

⌘ **25.133** **CR** **104** ⌘ ev **-** ⌘ Current version: **4.0.0** ⌘

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

Title:	⌘	**Correction of the parameters used for measurements in Cell-FACH**
Source:	⌘	RAN WG4
Work item code:	⌘	TEI
Date:	⌘	2001-05-16
Category:	⌘	**A**
Release:	⌘	REL-4

Use one of the following categories:
- ***F*** *(correction)*
- ***A*** *(corresponds to a correction in an earlier release)*
- ***B*** *(addition of feature),*
- ***C*** *(functional modification of feature)*
- ***D*** *(editorial modification)*

Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
REL-4	*(Release 4)*
REL-5	*(Release 5)*

Reason for change:	⌘	There is an error of the definition of M_REP compared with 25.331 RAN WG2 has removed L3-filtering from RACH reporting and cell reselection measurements as agreed in the RAN WG2/WG4 joint adhoc in Sophia Antipolis. The corresponding modifications should be made for TS25.133. GSM measurement requirements in CELL_FACH state are not fully aligned with the measurement scheduling defined in TS25.133.
Summary of change:	⌘	Replace M_REP with N_{TTI}*M_REP L3 filtering is removed from CELL_FACH state measurement requirements. GSM BSIC re-confirmation requirements in CELL_FACH state are corrected
Consequences if not approved:	⌘	The performance specification does not work with the actual measurement occasions The RAN WG2 procedures and RAN WG4 requirements are not aligned. BSIC re-confirmation requirements in CELL_FACH state are not aligned with measurement scheduling in CELL_FACH state.

Clauses affected:	⌘	8.4.2.1, 8.4.2.2.1, 8.4.2.2.2, 8.4.2.3.1, 8.4.2.5.2.1 and 8.4.2.5.2.2
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	Correspond to tdoc R4-010710

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

8.4 Measurements in CELL_FACH State

8.4.1 Introduction

This section contains requirements on the UE regarding measurement reporting in CELL_FACH state. The requirements are split in FDD intra frequency, FDD inter frequency, TDD and GSM measurements. The measurements are defined in TS 25.215, the measurement model is defined in TS 25.302 and measurement accuracies are specified in section 9. Control of measurement reporting is specified in TS 25.331 and parallel measurements are specified in section 8.2. Measurement occasions in CELL_FACH state are described in TS 25.331.

8.4.2 Requirements

8.4.2.1 UE Measurement Capability

The UE shall be able to monitor up to

- 32 intra frequency FDD cells and
- 32 inter frequency cells, including
  - FDD mode cells distributed on up to 2 additional FDD carriers and
  - Depending on UE Capability, TDD mode cells, distributed on up to 3 TDD carriers.

Depending on UE capability, the UE shall also in addition be able to monitor at least 32 GSM cells distributed on up to 32 GSM carriers.

The requirements in section 9 on CPICH Ec/Io and RSCP measurements are applicable for a UE performing measurements according to this section. For inter-frequency FDD, TDD and GSM cell re-selection, measurement occasions as specified in TS 25.331 are used to find and measure on other cells.

M_REP is the Measurement Occasion cycle length . The FACH Measurement Occasion of N_{TTI} frames will be repeated every N_{TTI} * M_REP frame. ~~in number of frames and~~ N_{TTI} is the number of frames in each measurement occasion, equal to the length of the largest TTI on the SCCPCH monitored by the UE.

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

For this three parameters are defined:

N_{FDD} is 0 or 1. If there are inter-frequency FDD cells in the neighbour list N_{FDD}=1, otherwise N_{FDD}=0.

N_{TDD} is 0 or 1. If the UE is capable of TDD and there are TDD cells in the neighbour list N_{TDD}=*1* otherwise N_{TDD} =0.

N_{GSM} is 0 or 1. If the UE is capable of GSM and there are GSM cells in the neighbour list, N_{GSM}=*1*, otherwise N_{GSM} =0.

The measurement time T_{meas} is then defined as

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

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

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

8.4.2.2 FDD intra frequency measurements

During the CELL_FACH state the UE shall continuously measure detected intra frequency cells and search for new intra frequency cells in the monitoring set. If a measurement occasion is activated, intra frequency measurements can be performed between the measurement occasions.

8.4.2.2.1 Identification of a new cell

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

$$T_{identify,intra} = Max\left\{800, Ceil\left\{\frac{T_{basic\ identify\ FDD,intra}}{N_{TTI}\cdot(M\_REP-1)\cdot 10}\right\}\cdot N_{TTI}\cdot M\_REP\cdot 10\right\}\ ms$$

~~$$T_{identify,intra} = Max\left\{800, Ceil\left\{\frac{T_{basic\ identify\ FDD,intra}}{(M\_REP - N_{TTI})\cdot 10}\right\}\cdot M\_REP\cdot 10\right\}\ ms$$~~

where

$T_{basic\_identify\_FDD,\ intra}$ is specified in section 8.1.2.2.2,

N_{TTI} and M_REP is specified in section 8.4.2.1.

and when CPICH Ec/Io $\geq$ -20 dB, SCH_Ec/Io $\geq$ -20 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~~

8.4.2.2.2 UE CPICH measurement capability

In the CELL_FACH state the measurement period for intra frequency measurements is 200 ms. When no measurement occasion sequence is activated, the UE shall be capable of performing CPICH measurements for 8 detected intra-frequency cells and the UE physical layer shall be capable of reporting measurements to higher layers with the measurement period of 200 ms. When one measurement occasion sequence is activated, the UE shall be capable of performing CPICH measurements for the $Y_{measurement\ intra}$ strongest cells , where $Y_{measurement\ intra}$ is defined in the following equation. The measurement accuracy for all measured cells shall be as specified in the sub-clause 9.1.1 and 9.1.2.

$$Y_{measurement\ intra} = Floor\left\{X_{basic\ measurement\ FDD}\cdot\frac{T_{Measurement\_Period\ Intra} - Ceil\left\{\frac{T_{Measurement\_Period\ Intra}}{N_{TTI}\cdot M\_REP\cdot 10\,ms}\right\}\cdot N_{TTI}\cdot 10\,ms}{T_{Measurement\_Period\ Intra}}\right\}$$

~~$$Y_{measurement\ intra} = Floor\left\{X_{basic\ measurement\ FDD}\cdot MIN\left[\frac{M\_REP - N_{TTI}}{M\_REP}, \frac{T_{Measurement\_Period\ Intra} - 10\cdot N_{TTI}}{10\cdot M\_REP}\right]\right\}$$~~ cells

where

$X_{basic\ measurement\ FDD}$ is specified in section 8.1.2.2.2,

$T_{Measurement\_Period\ Intra}$ is specified in section 8.1.2.2.2,

M_REP and N_{TTI} is specified in section 8.4.2.1.

8.4.2.2.3 Periodic Reporting

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

8.4.2.2.4 Event Triggered Reporting

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

In CELL_FACH event triggered reporting can only be set for Traffic Volume measurements defined in TS 25.331.

8.4.2.3 FDD inter frequency measurements

In the CELL_FACH state when a measurement occasion sequence is provided by the network the UE shall continuously measure detected inter frequency cells and search for new inter frequency cells indicated in the measurement control information.

8.4.2.3.1 Identification of a new cell

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

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

where

$T_{basic\_identify\_FDD,inter}$ is specified in 8.1.2.3.2.

$N_{Freq,FDD}$ Number of FDD frequencies in the Inter-frequency cell info list

T_{Meas} and M_REP: is specified in 8.4.2.1.

$T_{Inter\ FACH}$ $=(N_{TTI}*10 - 2*0.5)$ ms

and 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~~

8.4.2.3.2 Measurement period

When measurement occasions 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 9.1.2 with measurement period given by

$$T_{measurement\ inter} = Max\left\{T_{Measurement\_Period\ Inter}, 2 \cdot T_{meas}, Ceil\left\{\frac{T_{basic\ measurement\ FDD\ inter}}{T_{Inter\ FACH}}\right\} \cdot T_{meas} \cdot N_{Freq,FDD}\right\} \text{ ms}$$

where

$T_{basic\_measurement\_FDD,inter}$ is specified in section 8.1.2.3.2.

$T_{Measurement\_Period\ Inter}$ is specified in section 8.1.2.3.2.

T_{Meas} is specified in section 8.4.2.1.

$N_{Freq,FDD}$ and $T_{Inter\ FACH}$ are specified in section 8.4.2.3.1

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

8.4.2.3.3 Periodic Reporting

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

8.4.2.3.4 Event Triggered Reporting

Reported measurements in event triggered measurement reports (Traffic Volume Measurement) shall meet the requirements in section 9.

8.4.2.4 TDD measurements

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

In the CELL_DCH state when a measurement occasion sequence is provided by the network the UE shall continuously measure detected inter frequency TDD cells and search for new TDD cells indicated in the measurement control information.

The UE shall be capable of measuring the requested measurement quantity of at least 32 cells on a maximum of 3 frequencies, different from the frequency currently used by the UE.

8.4.2.4.1 Identification of a new cell

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

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

$T_{basic\_identify\_TDD,inter}$ is specified in 8.1.2.4.2.

$N_{Freq,TDD}$ Number of TDD frequencies in the Inter-frequency cell info list

T_{Meas} is specified in section 8.4.2.1.

$T_{Inter\ FACH}$ is specified in section 8.4.2.3.1

8.4.2.4.2 Measurement period

When measurement occasion as previously described are scheduled for TDD 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

$$T_{\text{measurement TDD}} = Max\left\{T_{\text{Measurement\_Period TDD inter}}, 2 \cdot T_{\text{meas}}, Ceil\left\{\frac{T_{\text{basic measurement TDD inter}}}{T_{\text{Inter FACH}}}\right\} \cdot T_{\text{meas}} \cdot N_{Freq,TDD}\right\}$$

where

$T_{basic\_measurement\_TDD\ inter}$ is specified in section 8.1.2.4.2.

$T_{Measurement\_Period\ TDD\ inter}$ is specified in section 8.1.2.4.2.

T_{Meas} is specified in section 8.4.2.1.

$T_{Inter\ FACH}$ is specified in section 8.4.2.3.1

$N_{Freq,TDD}$ is specified in section 8.4.2.4.1

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

8.4.2.5 GSM measurements

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

In CELL_FACH state when measurement occasions are provided by the UTRAN the UE shall continuously measure GSM cells and search for new GSM cells given in the monitored set.

The reporting of measurements on a GSM cell can be requested with BSIC verified or BSIC non-verified. However, to support cell reselection the UE shall always perform BSIC verification in Cell FACH state.

If BSIC verified is requested for a GSM cell the UE shall only report measurement quantities for that GSM cell with a BSIC "verified" according to section 8.4.2.5.2. If BSIC verification is not required for the reporting of a GSM cell the UE shall report measurement quantities for that GSM cell irrespectively if the BSIC has been verified or not verified according to section 8.4.2.5.2.

In section 8.4.2.1 the split of measurements between different modes and systems is defined. Every second measurement occasion scheduled for GSM measurements, as given by 8.4.2.1 shall be allocated for GSM initial BSIC identification.

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

If the UE does not need measurement occasions to perform GSM measurements, the requirements in GSM 05.08 shall apply.

8.4.2.5.1 GSM carrier RSSI

A UE supporting GSM measurements using measurement occasions shall meet the minimum number of GSM carrier RSSI measurements specified in Table 8.11. This measurement shall be based on measurement occasions allocated for GSM carrier RSSI measurements as described in 8.4.2.5. In the CELL_FACH state the measurement period for the GSM carrier RSSI measurement is 480 ms.

The UE shall meet the measurement accuracy requirements stated for RXLEV in TS 05.08, when the given measurement time allows the UE to take at least 3 GSM carrier RSSI samples per GSM carrier in the monitored set during the measurement period.

Table 8.11

Length of measurement occasion (frames)	Number of GSM carrier RSSI samples in each measurement occasion, $N_{GSM\ carrier\ RSSI}$.
1	16
2	32
4	64
8	128

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

8.4.2.5.2 BSIC verification

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

Initial BSIC identification

Includes searching for the BSIC and decoding the BSIC for the first time when there is no knowledge about the relative timing between the FDD and GSM cell. The UE shall trigger the initial BSIC identification within 50% of the available measurement occasions used for GSM measurements as specified in 8.4.2.1. The requirements for Initial BSIC identification can be found in 8.4.2.5.2.1.

BSIC re-confirmation

Tracking and decoding the BSIC of a GSM cell after initial BSIC identification is performed. The UE shall trigger

the BSIC re-confirmation within the available measurement occasions used for GSM as specified in 8.4.2.1. The requirements for BSIC re-confirmation can be found in 8.4.2.5.2.2.

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

$T_{re\text{-}confirm\_GSM}$ indicates the maximum time allowed for the re-confirmation of the BSIC of one GSM cell in the BSIC re-confirmation procedure according to section 8.4.2.5.2.2.

The UE shall be able to decode a BSIC within a measurement occasion when the time difference between the middle of the received GSM synchronisation burst at the UE and the middle of the measurement occasion is within the limits specified in table 8.12.

Table 8.12: The measurement occasion length and maximum time difference for BSIC verification

Measurement occasion length [frames]	Maximum time difference [μs]
1	± 4100
2	± 9100
4	± 19100
8	± 39100

The UE shall be able to perform BSIC verification at levels down to the reference sensitivity level or reference interference levels as specified in TS 05.05.

8.4.2.5.2.1 Initial BSIC identification

This measurement shall be based on the measurement occasions allocated for Initial BSIC identification as described in 8.4.2.5.

The UE shall continuously attempt to decode the BSIC of SCH on the BCCH carrier of the 6 strongest BCCH carriers of the GSM cells indicated in the Inter-RAT cell info list. The UE shall give priority for BSIC decoding attempts in decreasing signal strength order to BCCH carriers with unknown BSIC. The strongest BCCH carrier is defined as the BCCH carrier having the highest measured GSM carrier RSSI value ~~after layer 3 filtering~~.

When the UE attempts to decode the BSIC of one GSM BCCH carrier with unknown BSIC, the UE shall use all available measurements occasions allocated for GSM initial BSIC identification according section 8.4.2.5 to attempt to decode the BSIC from that GSM BCCH carrier.

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

If the UE has not successfully decoded the BSIC of the GSM BCCH carrier within $T_{identify,\ GSM}$ ms, the UE shall abort the BSIC identification attempts for that GSM BCCH carrier. The UE shall continue to try to perform BSIC identification of the next GSM BCCH carrier in signal strength order. The GSM BCCH carrier for which the BSIC identification failed shall not be re-considered for BSIC identification until BSIC identification attempts have been made for all the rest of the 6 strongest GSM BCCH carriers in the monitored set with unknown BSIC.

$T_{identify\_GSM}$ is given for the combinations of T_{meas} and N_{TTI} that are given in table 8.13. The values given in table 8.13 represent the number of patterns required to guarantee at least two attempts to decode the BSIC for one GSM BCCH carrier.

Table 8.13: The worst-case time for identification of one previously not identified GSM cell

T_meas (ms)	N_TTI=1 frame $T_{identify,GSM}$(ms)	N_TTI=2 frames $T_{identify,GSM}$(ms)	N_TTI=4 frames $T_{identify,GSM}$(ms)	N_TTI=8 frames $T_{identify,GSM}$(ms)
20	1040	-	-	-
40	1600	800	-	-
60	2880	-	-	-
80	2880	1280	640	-
120	5280	2640	-	-
160	7680	2880	1280	640
240	29760	5280	1920	-
320	14080	6400	2560	1280
480	34560	12480	3840	1920
640	34560	12800	5120	2560
960		24960	5760	2840
1280		20480	10240	5120
1920			15360	5680
2560				10240
3840				15360

8.4.2.5.2.2 BSIC re-confirmation

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

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

For each measurement occasion allocated for GSM BSIC reconfirmation as described in 8.4.2.5, the UE shall attempt to decode the BSIC falling within the measurement occasion duration according to table 8.12. When the UE has to select one out of several possible GSM cells to reconfirm within the possible allocation of measurement occasions, according to 8.4.2.5, priority shall be given to the least recently decoded BSIC.

If the UE fails to decode the BSIC after two successive attempts the UE shall abort the BSIC re-confirmation attempts for that GSM cell. The GSM cell shall be treated as a new GSM cell with unidentified BSIC and the GSM cell shall be moved to the initial BSIC identification procedure, see section 8.4.2.5.2.1. The UE shall be able to make BSIC re-confirmation attempts for the 6 strongest GSM cells in the monitored list.

$T_{re\text{-}confirm\_GSM}$ is given for the combinations of T_{meas} and N_{TTI} that are given in table 8.14. The values given in table 8.14 represent the number of patterns required to guarantee at least two attempts to decode the BSIC for one GSM BCCH carrier. Different values for $T_{re\text{-}confirm\ GSM}$ might apply when more than one GSM cell is in the BSIC reconfirmation procedure at the same time.

Table 8.14: The worst-case time for reconfirmation of one previously identified GSM cell

T_meas (ms)	N_TTI=1 frame $T_{re\text{-}confirm,GSM}$ (ms)	N_TTI=2 frames $T_{re\text{-}confirm,GSM}$ (ms)	N_TTI=4 frames $T_{re\text{-}confirm,GSM}$ (ms)	N_TTI=8 frames $T_{re\text{-}confirm,GSM}$ (ms)
20	800	-	-	-
40	1360	640	-	-
60	2640	-	-	-
80	2880	1280	1280~~640~~	-
120	5040	2400	-	-
160	6400	2880	2560~~1280~~	2560~~640~~
240	17280	4800	3840~~1920~~	-
320	10880	6400	5120~~2560~~	5120~~1280~~
480	22080	9600	7680~~2880~~	7680~~1920~~
640	26880	12800	10240~~5120~~	10240~~2560~~
960		17280	15360~~5760~~	15360~~2840~~
1280		20480	20480~~10240~~	20480~~5120~~
1920			30720~~15360~~	30720~~5680~~
2560				40960~~10240~~
3840				61440~~15360~~

3GPP TSG RAN WG4 Meeting #17 **R4-010711**

Gothenburg, Sweden 21st - 25th May 2001

CR-Form-v4

CHANGE REQUEST

⌘ **25.133** **CR** **105** ⌘ ev **-** ⌘ Current version: **3.5.0** ⌘

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

Title:	⌘	**Cell_FACH cell-reselection test cases**
Source:	⌘	RAN WG4
Work item code:	⌘	TEI
Date:	⌘	2001-05-16
Category:	⌘	**F**
Release:	⌘	R99

Use one of the following categories:
- ***F*** *(correction)*
- ***A*** *(corresponds to a correction in an earlier release)*
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Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
REL-4	*(Release 4)*
REL-5	*(Release 5)*

Reason for change:	⌘	The testcases for reselection in Cell-FACH are not complete and must be updated
Summary of change:	⌘	Add some missing parameters and fill in the table.
Consequences if not approved:	⌘	There are no testcase testing the reselection in Cell FACH.

Clauses affected:	⌘	A.5.5
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

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

A.5.5 Cell Re-selection in CELL_FACH

A.5.5.1 One frequency present in neighbour list

A.5.5.1.1 Test Purpose and Environment

The purpose of this test is to verify the requirement for the cell re-selection delay in CELL_FACH state in the single carrier case reported in section 5.5.2.1.1.

The test parameters are given in Table A.5.1 and A.5.2. The UE is requested to monitor neighbouring cells on 1 carrier. The maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell shall be 1280 ms.

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

Parameter		Unit	Value	Comment
Initial condition	Active cell		Cell2	
	Neighbour cells		Cell1, Cell3,Cell4, Cell5, Cell6	
Final condition	Active cell		Cell1	
Access Service Class (ASC#0) – Persistence value		-	1	Selected so that no additional delay is caused by the random access procedure. The value shall be used for all cells in the test.
T1		s~~S~~	15	~~T1 need to be defined so that cell re-selection reaction time is taken into account.~~
T2		s~~S~~	15	~~T2 need to be defined so that cell re-selection reaction time is taken into account.~~

The transport and physical parameters of the S-CCPCH carrying the FACH are defined in Table A.X and Table A.Y.

Table A.X: Physical channel parameters for S-CCPCH.

Parameter	Unit	Level
Channel bit rate	kbps	60
Channel symbol rate	ksps	30
Slot Format #I	-	4
TFCI	-	OFF
Power offsets of TFCI and Pilot fields relative to data field	dB	0

Table A.Y: Transport channel parameters for S-CCPCH

Parameter	FACH
Transport Channel Number	1
Transport Block Size	240
Transport Block Set Size	240
Transmission Time Interval	10 ms
Type of Error Protection	Convolution Coding
Coding Rate	½
Rate Matching attribute	256
Size of CRC	16
Position of TrCH in radio frame	Fixed

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

Parameter	Unit	Cell 1		Cell 2		Cell 3		Cell 4		Cell 5		Cell 6	
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number		Channel 1		Channel 1		Channel 1		Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior	~~D~~dB	-10		-10		-10		-10		-10		-10	
PCCPCH_Ec/Ior	~~DB~~dB	-12		-12		-12		-12		-12		-12	
SCH_Ec/Ior	~~DB~~dB	-12		-12		-12		-12		-12		-12	
PICH_Ec/Ior	~~DB~~dB	-15		-15		-15		-15		-15		-15	
S-CCPCH_Ec/Ior	dB	-12		-12		-12		-12		-12		-12	
OCNS_Ec/Ior	~~DB~~dB	-1.295~~-0.941~~		-1.295~~-0.941~~		-1.295~~-0.941~~		-1.295~~-0.941~~		-1.295~~-0.941~~		-1.295~~-0.941~~	
$\hat{I}_{or}/I_{oc}$	~~DB~~dB	7.3	10.27	10.27	7.3	0.27		0.27		0.27		0.27	
I_{oc}	d~~D~~Bm/3.84 MHz	-70											
CPICH_Ec/Io	~~DB~~dB	-16	-13	-13	-16	-23		-23		-23		-23	
Propagation Condition		AWGN											
Cell_selection_and_reselection_quality_measure		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N_0	
Qqualmin	~~DB~~dB	-20~~[.]~~		-20~~[.]~~		-20~~[.]~~		-20~~[.]~~		-20~~[.]~~		-20~~[.]~~	
Qrxlevmin	~~DBm~~dBm	-115~~[.]~~		-115~~[.]~~		-115~~[.]~~		-115~~[.]~~		-115~~[.]~~		-115~~[.]~~	
UE_TXPWR_MAX_RACH	~~DBm~~dBm	21~~[.]~~		21~~[.]~~		21~~[.]~~		21~~[.]~~		21~~[.]~~		21~~[.]~~	

Qoffset 2$_{s,n}$	dB	C1, C2: 0 C1, C3: 0 C1, C4: 0 C1, C5: 0 C1, C6: 0	C2, C1: 0 C2, C3: 0 C2, C4: 0 C2, C5: 0 C2, C6: 0	C3, C1: 0 C3, C2: 0 C3, C4: 0 C3, C5: 0 C3, C6: 0	C4, C1: 0 C4, C2: 0 C4, C3: 0 C4, C5: 0 C4, C6: 0	C5, C1: 0 C5, C2: 0 C5, C3: 0 C5, C4: 0 C5, C6: 0	C6, C1: 0 C6, C2: 0 C6, C3: 0 C6, C4: 0 C6, C5: 0
Qhyst 2	dB	0	0	0	0	0	0
PENALTY_TIME	s	0	0	0	0	0	0
TEMPORARY_OFFSET2	dB	0	0	0	0	0	0
Treselection	s	0	0	0	0	0	0
Sintrasearch	dB	not sent	not sent	not sent	not sent	not sent	not sent
IE “FACH Measurement occasion info”		not sent	not sent	not sent	not sent	not sent	not sent

A.5.5.1.2 Test Requirements

~~The UE shall select cell 1 within a cell re-selection delay specified in 5.5.2.1.1~~

The cell re-selection delay is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 1, and starts to send preambles on the PRACH for sending the the CELL UPDATE message with cause value "cell reselection" in Cell 1.

The cell re-selection delay shall be less than 2.5 s.

NOTE:

The cell re-selection delay is expressed as: $T_{reselection,\,intra} = T_{identify,\,intra} + T_{SI}$ ms, where:

$T_{identify,\,intra}$ Specified in 8.4.2.2.1 as 800 ms in this case.

T_{SI} Maximum repetition period of relevant system info blocks that needs to be received by the UE to camp on a cell. 1280 ms is assumed in this test case.

This gives a total of 2.08 s, allow 2.5 s in the test case.

A.5.5.2 Two frequencies present in the neighbour list

A.5.5.2.1 Test Purpose and Environment

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

The test parameters are given in tables A5.3 and A5.4. The UE is requested to monitor neighbouring cells on 2 carriers. The maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell shall be 1280 ms.

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

Parameter		Unit	Value	Comment
Initial condition	Active cell		Cell2	
	Neighbour cells		Cell1, Cell3,Cell4, Cell5, Cell6	
Final condition	Active cell		Cell1	
Access Service Class (ASC#0) – Persistence value		-	1	Selected so that no additional delay is caused by the random access procedure. The value shall be used for all cells in the test.
T1		s	15	~~T1 need to be defined so that cell re-selection reaction time is taken into account.~~
T2		s	15	~~T2 need to be defined so that cell re-selection reaction time is taken into account.~~

The transport and physical parameters of the S-CCPCH carrying the FACH are defined in Table A.X and Table A.Y.

Table A.X: Physical channel parameters for S-CCPCH.

Parameter	Unit	Level
Channel bit rate	kbps	60
Channel symbol rate	ksps	30
Slot Format #I	-	4
TFCI	-	OFF
Power offsets of TFCI and Pilot fields relative to data field	dB	0

Table A.Y: Transport channel parameters for S-CCPCH

Parameter	FACH
Transport Channel Number	1
Transport Block Size	240
Transport Block Set Size	240
Transmission Time Interval	10 ms
Type of Error Protection	Convolution Coding
Coding Rate	½
Rate Matching attribute	256
Size of CRC	16
Position of TrCH in radio frame	Fixed

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

Parameter	Unit	Cell 1		Cell 2		Cell 3		Cell 4		Cell 5		Cell 6	
		T1	T 2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number		Channel 1		Channel 2		Channel 1		Channel 1		Channel 2		Channel 2	
CPICH_Ec/Ior	dB	-10		-10		-10		-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12		-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12		-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15		-15		-15		-15	
S-CCPCH_Ec/Ior	dB	-12		-12		-12		-12		-12		-12	
OCNS_Ec/Ior	dB	-1.295-0.941		-1.295-0.941		-1.295-0.941		-1.295-0.941		-1.295-0.941		-1.295-0.941	
$\hat{I}_{or}/I_{oc}$	dB	-3.4	2.2	2.2	-3.4	-7.4	-4.8	-7.4	-4.8	-4.8	-7.4	-4.8	-7.4
I_{oc}	dBm/3.84 MHz	-70											
CPICH_Ec/Io	dB	-16	-13	-13	-16	-20		-20		-20		-20	
Propagation Condition		AWGN											
Cell_selection_and_reselection_quality_measure		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N_0	
Qqualmin	dB	-20[-]		-20[-]		-20[-]		-20[-]		-20[-]		-20[-]	
Qrxlevmin	dBm	-115[-]		-115[-]		-115[-]		-115[-]		-115[-]		-115[-]	
UE_TXPWR_MAX_RACH	dBm	21[-]		21[-]		21[-]		21[-]		21[-]		21[-]	
Qoffset2$_{s,n}$	dB	C1, C2: [-]0 C1, C3: [-]0 C1, C4: [-]0 C1, C5: [-]0 C1, C6: [-]0		C2, C1: [-]0 C2, C3: [-]0 C2, C4: [-]0 C2, C5: [-]0 C2, C6: [-]0		C3, C1: [-]0 C3, C2: [-]0 C3, C4: [-]0 C3, C5: [-]0 C3, C6: [-]0		C4, C1: [-]0 C4, C2: [-]0 C4, C3: [-]0 C4, C5: [-]0 C4, C6: [-]0		C5, C1: [-]0 C5, C2: [-]0 C5, C3: [-]0 C5, C4: [-]0 C5, C6: [-]0		C6, C1: [-]0 C6, C2: [-]0 C6, C3: [-]0 C6, C4: [-]0 C6, C5: [-]0	
Qhyst 2	dB	0[-]		0[-]		0[-]		0[-]		0[-]		0[-]	
PENALTY_TIME	s	0[-]		0[-]		0[-]		0[-]		0[-]		0[-]	
TEMPORARY_OFFSET2	dB	0[-]		0[-]		0[-]		0[-]		0[-]		0[-]	
Treselection	s	0[-]		0[-]		0[-]		0[-]		0[-]		0[-]	
Sintrasearch	dB	not sent[-]		not sent[-]		not sent[-]		not sent[-]		not sent[-]		not sent[-]	
Sintersearch	dB	not sent[-]		not sent[-]		not sent[-]		not sent[-]		not sent[-]		not sent[-]	
IE "FACH Measurement occasion info"		sent		sent		sent		sent		sent		sent	
FACH Measurement occasion cycle length coefficient		3		3		3		3		3		3	
Inter-frequency FDD measurement indicator		TRUE		TRUE		TRUE		TRUE		TRUE		TRUE	
Inter-frequency TDD measurement indicator		FALSE		FALSE		FALSE		FALSE		FALSE		FALSE	

A.5.5.2.2 Test Requirements

~~The UE shall select cell 1 within a cell re-selection delay specified in 5.5.2.1.2~~

The cell re-reselection delay is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 1, and starts to send preambles on the PRACH for sending the the CELL UPDATE message with cause value "cell reselection" in Cell 1.

The cell re-selection delay shall be less than 9 s.

NOTE:

The cell re-selection delay is expressed as: $T_{reselection,inter} = T_{identify,inter} + T_{SI}$ ms, where:

$T_{identify,inter}$	Specified in 8.4.2.3.1 as 7.12 s in this case.
T_{SI}	Maximum repetition period of relevant system info blocks that needs to be received by the UE to camp on a cell. 1280 ms is assumed in this test case.

. This gives a total of 8.4 s, allow 9 s in the test case.

3GPP TSG RAN WG4 Meeting #17 **R4-010754**

Gothenburg, Sweden 21st - 25th May 2001

CR-Form-v4

CHANGE REQUEST

⌘ **25.133** **CR** **106** ⌘ ev **-** ⌘ Current version: **4.0.0** ⌘

*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:	⌘	**Cell_FACH cell-reselection test cases**
Source:	⌘	RAN WG4
Work item code:	⌘	TEI
Date:	⌘	2001-05-16
Category:	⌘	**A**
Release:	⌘	REL-4

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

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

Reason for change:	⌘	The testcases for reselection in Cell-FACH are not complete and must be updated
Summary of change:	⌘	Add some missing parameters and fill in the table.
Consequences if not approved:	⌘	There are no testcase testing the reselection in Cell FACH.

Clauses affected:	⌘	A.5.5
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	Corresponding R99 CR in tdoc 711

How to create CRs using this form:

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

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

A.5.5 Cell Re-selection in CELL_FACH

A.5.5.1 One frequency present in neighbour list

A.5.5.1.1 Test Purpose and Environment

The purpose of this test is to verify the requirement for the cell re-selection delay in CELL_FACH state in the single carrier case reported in section 5.5.2.1.1.

The test parameters are given in Table A.5.1 and A.5.2. The UE is requested to monitor neighbouring cells on 1 carrier. The maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell shall be 1280 ms.

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

Parameter		Unit	Value	Comment
initial condition	Active cell		Cell2	
	Neighbour cells		Cell1, Cell3,Cell4, Cell5, Cell6	
final condition	Active cell		Cell1	
Access Service Class (ASC#0) – Persistence value		-	1	Selected so that no additional delay is caused by the random access procedure. The value shall be used for all cells in the test.
T1		s	15	~~T1 need to be defined so that cell re-selection reaction time is taken into account.~~
T2		s	15	~~T2 need to be defined so that cell re-selection reaction time is taken into account.~~

The transport and physical parameters of the S-CCPCH carrying the FACH are defined in Table A.X and Table A.Y.

Table A.X: Physical channel parameters for S-CCPCH.

Parameter	Unit	Level
Channel bit rate	kbps	60
Channel symbol rate	ksps	30
Slot Format #I	-	4
TFCI	-	OFF
Power offsets of TFCI and Pilot fields relative to data field	dB	0

Table A.Y: Transport channel parameters for S-CCPCH

Parameter	FACH
Transport Channel Number	1
Transport Block Size	240
Transport Block Set Size	240
Transmission Time Interval	10 ms
Type of Error Protection	Convolution Coding
Coding Rate	½
Rate Matching attribute	256
Size of CRC	16
Position of TrCH in radio frame	Fixed

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

Parameter	Unit	Cell 1		Cell 2		Cell 3		Cell 4		Cell 5		Cell 6	
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number		Channel 1		Channel 1		Channel 1		Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior	dB	-10		-10		-10		-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12		-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12		-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15		-15		-15		-15	
S-CCPCH_Ec/Ior	dB	-12		-12		-12		-12		-12		-12	
OCNS_Ec/Ior	dB	-1.295-0.941		-1.295-0.941		-1.295-0.941		-1.295-0.941		-1.295-0.941		-1.295-0.941	
$\hat{I}_{or}/I_{oc}$	dB	7.3	10.27	10.27	7.3	0.27		0.27		0.27		0.27	
I_{oc}	dBm/3.84 MHz	-70											
CPICH_Ec/Io	dB	-16	-13	-13	-16	-23		-23		-23		-23	
Propagation Condition		AWGN											
Cell_selection_and_reselection_quality_measure		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N_0	
Qqualmin	dB	-20[-]		-20[-]		-20[-]		-20[-]		-20[-]		-20[-]	
Qrxlevmin	dBm	-115[-]		-115[-]		-115[-]		-115[-]		-115[-]		-115[-]	
UE_TXPWR_MAX_RACH	dBm	21[-]		21[-]		21[-]		21[-]		21[-]		21[-]	
Qoffset $2_{s,n}$	dB	C1, C2: [-]0 C1, C3: [-]0 C1, C4: [-]0 C1, C5: [-]0 C1, C6: [-]0		C2, C1: [-]0 C2, C3: [-]0 C2, C4: [-]0 C2, C5: [-]0 C2, C6: [-]0		C3, C1: [-]0 C3, C2: [-]0 C3, C4: [-]0 C3, C5: [-]0 C3, C6: [-]0		C4, C1: [-]0 C4, C2: [-]0 C4, C3: [-]0 C4, C5: [-]0 C4, C6: [-]0		C5, C1: [-]0 C5, C2: [-]0 C5, C3: [-]0 C5, C4: [-]0 C5, C6: [-]0		C6, C1: [-]0 C6, C2: [-]0 C6, C3: [-]0 C6, C4: [-]0 C6, C5: [-]0	
Qhyst	dB	0[-]		0[-]		0[-]		0[-]		0[-]		0[-]	
PENALTY_TIME	s	0[-]		0[-]		0[-]		0[-]		0[-]		0[-]	
TEMPORARY_OFFSET2	dB	0[-]		0[-]		0[-]		0[-]		0[-]		0[-]	
Treselection	s	0[-]		0[-]		0[-]		0[-]		0[-]		0[-]	
Sintrasearch	dB	not sent[-]		not sent[-]		not sent[-]		not sent[-]		not sent[-]		not sent[-]	
IE "FACH Measurement occasion info"		not sent		not sent		not sent		not sent		not sent		not sent	

A.5.5.1.2 Test Requirements

The cell re-selection delay is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 1, and starts to send preambles on the PRACH for sending the the CELL UPDATE message with cause value "cell reselection" in Cell 1.

The cell re-selection delay shall be less than 2.5 s.

NOTE:

The cell re-selection delay is expressed as: $T_{reselection,\,intra} = T_{identify,\,intra} + T_{SI}$ ms, where:

$T_{identify,\,intra}$ Specified in 8.4.2.2.1 as 800 ms in this case.

T_{SI} Maximum repetition period of relevant system info blocks that needs to be received by the UE to camp on a cell. 1280 ms is assumed in this test case.

This gives a total of 2.08 s, allow 2.5 s in the test case.

~~The UE shall select cell 1 within a cell re-selection delay specified in 5.5.2.1.1~~

A.5.5.2 Two frequencies present in the neighbour list

A.5.5.2.1 Test Purpose and Environment

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

The test parameters are given in tables A5.3 and A5.4. The UE is requested to monitor neighbouring cells on 2 carriers. The maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell shall be 1280 ms.

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

Parameter		Unit	Value	Comment
initial condition	Active cell		Cell2	
	Neighbour cells		Cell1, Cell3,Cell4, Cell5, Cell6	
final condition	Active cell		Cell1	
Access Service Class (ASC#0) – Persistence value		-	1	Selected so that no additional delay is caused by the random access procedure. The value shall be used for all cells in the test.
T1		s	15	~~T1 need to be defined so that cell re-selection reaction time is taken into account.~~
T2		s	15	~~T2 need to be defined so that cell re-selection reaction time is taken into account.~~

The transport and physical parameters of the S-CCPCH carrying the FACH are defined in Table A.X and Table A.Y.

Table A.X: Physical channel parameters for S-CCPCH.

Parameter	Unit	Level
Channel bit rate	kbps	60
Channel symbol rate	ksps	30
Slot Format #I	-	4
TFCI	-	OFF
Power offsets of TFCI and Pilot fields relative to data field	dB	0

Table A.Y: Transport channel parameters for S-CCPCH

Parameter	FACH
Transport Channel Number	1
Transport Block Size	240
Transport Block Set Size	240
Transmission Time Interval	10 ms
Type of Error Protection	Convolution Coding
Coding Rate	½
Rate Matching attribute	256
Size of CRC	16
Position of TrCH in radio frame	Fixed

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

Parameter	Unit	Cell 1		Cell 2		Cell 3		Cell 4		Cell 5		Cell 6	
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number		Channel 1		Channel 2		Channel 1		Channel 1		Channel 2		Channel 2	
CPICH_Ec/Ior	dB	-10		-10		-10		-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12		-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12		-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15		-15		-15		-15	
S-CCPCH_Ec/Ior	dB	-12		-12		-12		-12		-12		-12	
OCNS_Ec/Ior	dB	-1.295-0.941		-1.295-0.941		-1.295-0.941		-1.295-0.941		-1.295-0.941		-1.295-0.941	
$\hat{I}_{or}/I_{oc}$	dB	-3.4	2.2	2.2	-3.4	-7.4	-4.8	-7.4	-4.8	-4.8	-7.4	-4.8	-7.4
I_{oc}	dBm/3.84 MHz	-70											
CPICH_Ec/Io	dB	-16	-13	-13	-16	-20		-20		-20		-20	
Propagation Condition		AWGN											
Cell_selection_and_reselection_quality_measure		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N_0	
Qqualmin	dB	-20[-]		-20[-]		-20[-]		-20[-]		-20[-]		-20[-]	
Qrxlevmin	dBm	-115[-]		-115[-]		-115[-]		-115[-]		-115[-]		-115[-]	
UE_TXPWR_MAX_RACH	dBm	21[-]		21[-]		21[-]		21[-]		21[-]		21[-]	
Qoffset2$_{s,n}$	dB	C1, C2: [-]0 C1, C3: [-]0 C1, C4: [-]0 C1, C5: [-]0 C1, C6: [-]0		C2, C1: [-]0 C2, C3: [-]0 C2, C4: [-]0 C2, C5: [-]0 C2, C6: [-]0		C3, C1: [-]0 C3, C2: [-]0 C3, C4: [-]0 C3, C5: [-]0 C3, C6: [-]0		C4, C1: [-]0 C4, C2: [-]0 C4, C3: [-]0 C4, C5: [-]0 C4, C6: [-]0		C5, C1: [-]0 C5, C2: [-]0 C5, C3: [-]0 C5, C4: [-]0 C5, C6: [-]0		C6, C1: [-]0 C6, C2: [-]0 C6, C3: [-]0 C6, C4: [-]0 C6, C5: [-]0	
Qhyst 2	dB	0[-]		0[-]		0[-]		0[-]		0[-]		0[-]	
PENALTY_TIME	s	0[-]		0[-]		0[-]		0[-]		0[-]		0[-]	
TEMPORARY_OFFSET2	dB	0[-]		0[-]		0[-]		0[-]		0[-]		0[-]	
Treselection	s	0[-]		0[-]		0[-]		0[-]		0[-]		0[-]	
Sintrasearch	dB	not sent[-]		not sent[-]		not sent[-]		not sent[-]		not sent[-]		not sent[-]	
Sintersearch	dB	not sent[-]		not sent[-]		not sent[-]		not sent[-]		not sent[-]		not sent[-]	
IE "FACH Measurement occasion info"		sent		sent		sent		sent		sent		sent	
FACH Measurement occasion cycle length coefficient		3		3		3		3		3		3	
Inter-frequency FDD measurement indicator		TRUE		TRUE		TRUE		TRUE		TRUE		TRUE	
Inter-frequency TDD measurement indicator		FALSE		FALSE		FALSE		FALSE		FALSE		FALSE	

A.5.5.2.2 Test Requirements

The cell re-reselection delay is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 1, and starts to send preambles on the PRACH for sending the the CELL UPDATE message with cause value "cell reselection" in Cell 1.

The cell re-selection delay shall be less than 9s.

NOTE:

The cell re-selection delay is expressed as: $T_{reselection,\,inter} = T_{identify,\,inter} + T_{SI}$ ms, where:

$T_{identify,\,inter}$	Specified in 8.4.2.3.1 as 7.12 s in this case.
T_{SI}	Maximum repetition period of relevant system info blocks that needs to be received by the UE to camp on a cell. 1280 ms is assumed in this test case.

This gives a total of 8.4 s, allow 9 s in the test case.

~~The UE shall select cell 1 within a cell re-selection delay specified in 5.5.2.1.2~~

3GPP TSG RAN WG4 Meeting #17 **R4-010713**

Gothenburg, Sweden 21st - 25th May 2001

CR-Form-v3

CHANGE REQUEST

⌘ **TS25.133 CR 107** ⌘ rev **-** ⌘ Current version: **3.5.0** ⌘

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

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

Title:	⌘	GSM measurements in CELL_DCH state
Source:	⌘	RAN WG4
Work item code:	⌘	TEI
Date:	⌘	23-05-2001
Category:	⌘	**F**
Release:	⌘	R99

Use one of the following categories:
- ***F*** *(essential correction)*
- ***A*** *(corresponds to a correction in an earlier release)*
- ***B*** *(Addition of feature),*
- ***C*** *(Functional modification of feature)*
- ***D*** *(Editorial modification)*

Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
REL-4	*(Release 4)*
REL-5	*(Release 5)*

Reason for change:	⌘	Reporting of GSM cells in RAN WG4 and WG2, when BSIC verification is required, are not aligned. UE procedures and performance requirements are not defined when the network does not provide parallel GSM compressed mode patterns for GSM carrier RSSI measurements, BSIC identification and BSIC re-confirmation.
Summary of change:	⌘	- The definition for the reporting of GSM cells, which is not in line with TS25.331, is removed. - UE behaviour is described when the network does not provide parallel compressed mode pattern for different GSM measurements. - The following clarification is included: The GSM signal strength levels used in BSIC identification for arranging GSM cells in signal strength order are based on the latest GSM carrier RSSI measurement results available.
Consequences if not approved:	⌘	- Unknown UE behaviour when the network does not provide parallel compressed mode patterns for different GSM measurements - Discrepancies between TS25.133 and TS25.331

Clauses affected:	⌘	8.1.2.5, 8.1.2.5.2 and 8.1.2.5.2.1		
Other specs affected:	⌘	☐ Other core specifications ☒ Test specifications ☐ O&M Specifications	⌘	
Other comments:	⌘			

8.1.2.5 GSM measurements

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

In CELL_DCH state when a transmission gap pattern sequence is provided by the UTRAN the UE shall continuously measure GSM cells and search for new GSM cells given in the monitored set.

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

~~If BSIC verified is requested for a GSM cell the UE shall only report measurement quantities for that GSM cell with a BSIC "verified" according to section 8.1.2.5.2. If BSIC verification is not required for a GSM cell the UE shall report measurement quantities for that GSM cell irrespectively if the BSIC has been verified or not verified according to section8.1.2.5.2.~~

If the UE does not need compressed mode to perform GSM measurements, the requirements in TS 05.08 shall apply.

8.1.2.5.1 GSM carrier RSSI

A UE supporting GSM measurements using compressed mode shall meet the minimum number of GSM RSSI carrier measurements specified in table 8.4. This measurement shall be based on a transmission gap pattern sequence with purpose "GSM carrier RSSI measurements"

In order for the requirements in this subsection to apply the UTRAN must provide a transmission gap pattern sequence with measurement purpose GSM carrier RSSI measurements using the following combinations for TGL1, TGL2 and TGD:

Table 8.3

TGL1 [slots]	TGL2 [slots]	TGD [slots]
3	-	Undefined
4	-	Undefined
5	-	Undefined
7	-	Undefined
10	-	Undefined
14	-	Undefined
3	3	15…269
4	4	15…269
5	5	15…269
7	7	15…269
10	10	15…269
14	14	15…269

In the CELL_DCH state the measurement period for the GSM carrier RSSI measurement is 480 ms.

The UE shall meet the measurement accuracy requirements stated for RXLEV in TS 05.08, when the given measurement time allows the UE to take at least 3 GSM carrier RSSI samples per GSM carrier in the monitored set during the measurement period.

Table 8.4

TGL	Number of GSM carrier RSSI samples in each gap.
3	1
4	2
5	3
7	6
10	10
14	15

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

8.1.2.5.2 BSIC verification

In order for the requirements in the following subsections to apply the UTRAN must provide a transmission gap pattern sequence with measurement purpose GSM Initial BSIC identification or with measurement purpose GSM BSIC re-confirmation, using the following combinations for TGL1, TGL2 and TGD:

Table 8.5

TGL1 [slots]	TGL2 [slots]	TGD [slots]
5	-	undefined
7	-	undefined
10	-	undefined
14	-	undefined
5	5	15…269
7	7	15…269
10	10	15…269
14	14	15…269

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

Initial BSIC identification

Includes searching for the BSIC and decoding the BSIC for the first time when there is no knowledge about the relative timing between the FDD and GSM cell. The UE shall trigger the initial BSIC identification within the available transmission gap pattern sequence with purpose “GSM Initial BSIC identification”. The requirements for Initial BSIC identification can be found in 8.1.2.5.2.1.

BSIC re-confirmation

Tracking and decoding the BSIC of a GSM cell after initial BSIC identification is performed. The UE shall trigger the BSIC re-confirmation within the available transmission gap pattern sequence with purpose “GSM BSIC re-confirmation”. The requirements for BSIC re-confirmation can be found in 8.1.2.5.2.2.

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

If the network requests measurements on a GSM cell with BSIC verified, the UE shall behave as follows:

- The UE shall perform GSM carrier RSSI measurements according to Section 8.1.2.5.1 when ever a transmission gap pattern sequence with the purposes “GSM carrier RSSI measurements” is provided and the UE shall perform measurement reporting as defined in Section 8.6.7.6 of [16].
- The UE shall perform BSIC identification according to Section 8.1.2.5.2.1 when a “GSM Initial BSIC identification” transmission gap pattern sequence is activated. The UE shall use the last available GSM carrier RSSI measurement results for arranging GSM cells in signal strength order for performing BSIC identification.
- The UE shall perform BSIC re-confirmation according to Section 8.1.2.5.2.2 when a “GSM BSIC re-confirmation” transmission gap pattern sequence is activated.
- If a “GSM BSIC re-confirmation” transmission gap pattern sequence is not activated in parallel to a “GSM Initial BSIC identification” transmission gap pattern sequence or within one frame from the deactivation of a “GSM Initial BSIC identification” transmission gap pattern sequence, the BSIC shall be considered to be non-verified after the UE has performed one event evaluation or periodic reporting evaluation with verified BSIC and the corresponding reporting if reporting is required after the evaluation.

- The UE shall perform event evaluation for event-triggered reporting after the BSIC has been verified for a GSM cell. The UE shall use the last available GSM carrier RSSI measurement results in event evaluation and event-triggered reporting. Periodic reports shall be triggered according to the given reporting period even if the BSIC of a GSM cell has not been verified as defined in Sections 8.6.7.5 and 8.6.7.6 of [16]. Non verified BSIC shall be indicated in the measurement report.

The BSIC of a GSM cell is considered to be "verified" if the UE has decoded the SCH of the BCCH carrier and identified the BSIC at least one time (initial BSIC identification) and from that moment the BSIC shall be re-confirmed at least once every $T_{re\text{-}confirm\_abort}$ seconds. Otherwise the BSIC of the GSM cell is considered as "non-verified". If a transmission gap pattern sequence with a purpose "GSM BSIC re-confirmation " is not activated by the network after BSIC identified or the "GSM BSIC re-confirmation " transmission gap pattern sequence is deactivated, the UE shall behave as described previously in this section.

The parameters $N_{identify\_abort}$ and $T_{re\text{-}confirm\_abort}$ are defined by higher layers and are signalled to the UE together with the transmission gap pattern sequence. $N_{identify\_abort}$ indicates the maximum number of patterns that the UE shall use to attempt to decode the unknown BSIC of the GSM cell in the initial BSIC identification procedure. $T_{re\text{-}confirm\_abort}$ indicates the maximum time allowed for the re-confirmation of the BSIC of one GSM cell in the BSIC re-confirmation procedure.

The UE shall be able to decode a BSIC within a transmission gap when the time difference between the middle of the received GSM synchronisation burst at the UE and the middle of the effective transmission gap is within the limits specified in table 8.6.

The effective transmission gap is calculated by assuming both UL and DL compressed mode and applying the worst-case values for UL/DL timing offset and pilot field length of last DL gap slot.

Table 8.6: The gap length and maximum time difference for BSIC verification

Gap length [slots]	Maximum time difference [μs]
5	± 500
7	± 1200
10	± 2200
14	± 3500

The UE shall be able to perform BSIC verification at levels down to the reference sensitivity level or reference interference levels as specified in TS 05.05.

8.1.2.5.2.1 Initial BSIC identification

This measurement shall be based on a transmission gap pattern sequence with the purpose "GSM Initial BSIC identification"

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

When the UE attempts to decode the BSIC of one GSM BCCH carrier with unknown BSIC, the UE shall use all available transmission gaps, within the transmission gap pattern sequence with the purpose "GSM Initial BSIC identification", to attempt to decode the BSIC from that GSM BCCH carrier.

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

If the UE has not successfully decoded the BSIC of the GSM BCCH carrier within $N_{identify\_abort}$ successive patterns, the UE shall abort the BSIC identification attempts for that GSM BCCH carrier. The UE shall continue to try to perform BSIC identification of the next GSM BCCH carrier in signal strength order. The GSM BCCH carrier for which the

BSIC identification failed shall not be re-considered for BSIC identification until BSIC identification attempts have been made for all the rest of the 8 strongest GSM BCCH carriers in the monitored set with unknown BSIC.

$N_{identify\_abort}$ values are given for a set of reference patterns in table 8.7. $T_{identify\_abort}$ is the elapsed time during $N_{identify\_abort}$ transmission gap patterns (informative). The figures given in table 8.7 represent the number of patterns required to guarantee at least two attempts to decode the BSIC for one GSM BCCH carrier.

Table 8.7: The worst-case time for identification of one previously not identified GSM cell

	TGL1 [slots]	TGL2 [slots]	TGD [slots]	TGPL1 [frames]	TGPL2 [frames]	$T_{identify\ abort}$ [s]	$N_{identify\_abort}$ [patterns]
Pattern 1	7	-	undefined	3	TGPL1	1.53	51
Pattern 2	7	-	undefined	8	TGPL1	5.20	65
Pattern 3	7	7	47	8	TGPL1	2.00	25
Pattern 4	7	7	38	12	TGPL1	2.88	24
Pattern 5	14	-	undefined	8	TGPL1	1.76	22
Pattern 6	14	-	undefined	24	TGPL1	5.04	21
Pattern 7	14	14	45	12	TGPL1	1.44	12
Pattern 8	10	-	undefined	12	TGPL1	2.76	23
Pattern 9	10	10	75	12	TGPL1	1.56	13

8.1.2.5.2.2 BSIC re-confirmation

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

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

For each transmission gap of a transmission gap pattern sequence with the measurement purpose “GSM BSIC re-confirmation”, the UE shall attempt to decode the BSIC falling within the effective gap duration. If more than one BSIC can be decoded within the same gap, priority shall be given to the least recently decoded BSIC.

If the UE fails to decode the BSIC after two successive attempts or if the UE has not been able to re-confirm the BSIC for a GSM cell within $T_{re\text{-}confirm\_abort}$ seconds, the UE shall abort the BSIC re-confirmation attempts for that GSM cell. The GSM cell shall be treated as a new GSM cell with unidentified BSIC and the GSM cell shall be moved to the initial BSIC identification procedure, see section 8.1.2.5.2.1. The UE shall be able to make BSIC re-confirmation attempts for the 8 strongest GSM cells in the monitored list.

$N_{re\text{-}confirm\_abort}$ is the number of transmission gap patterns executed during $T_{re\text{-}confirm\_abort}$ (informative).

Table 8.8: The worst-case time for BSIC re-confirmation of one GSM cell

	TGL1 [slots]	TGL2 [slots]	TGD [slots]	TGPL1 [frames]	TGPL2 [frames]	$T_{re\text{-}confirm\_abort}$ [s]	$N_{re\text{-}confirm\_abort}$ [patterns]
Pattern 1	7	-	undefined	3	TGPL1	1.29	43
Pattern 2	7	-	undefined	8	TGPL1	4.96	62
Pattern 3	7	-	undefined	15	TGPL1	7.95	53
Pattern 4	7	7	69	23	TGPL1	9.89	43
Pattern 5	7	7	69	8	TGPL1	2.64	33
Pattern 6	14	-	undefined	8	TGPL1	1.52	19
Pattern 7	14	14	60	8	TGPL1	0.80	10
Pattern 8	10	-	undefined	8	TGPL1	1.76	22
Pattern 9	10	-	undefined	24	TGPL1	4.80	20
Pattern 10	7	7	47	8	TGPL1	1.76	22
Pattern 11	7	7	38	12	TGPL1	2.64	22
Pattern 12	14	-	undefined	24	TGPL1	4.80	20
Pattern 13	14	14	45	12	TGPL1	1.20	10
Pattern 14	10	-	undefined	12	TGPL1	2.52	21
Pattern 15	10	10	75	12	TGPL1	1.32	11

3GPP TSG RAN WG4 Meeting #17 **R4-010770**

Gothenburg, Sweden 21st - 25th May 2001

CR-Form-v3

CHANGE REQUEST

⌘ **TS25.133 CR 108** ⌘ rev **-** ⌘ Current version: **4.0.0** ⌘

*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:	⌘	GSM measurements in CELL_DCH state
Source:	⌘	RAN WG4
Work item code:	⌘	TEI
Date:	⌘	23-05-2001
Category:	⌘	**A**
Release:	⌘	REL-4

Use one of the following categories:
- ***F*** *(essential correction)*
- ***A*** *(corresponds to a correction in an earlier release)*
- ***B*** *(Addition of feature),*
- ***C*** *(Functional modification of feature)*
- ***D*** *(Editorial modification)*

Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
REL-4	*(Release 4)*
REL-5	*(Release 5)*

Reason for change:	⌘	Reporting of GSM cells in RAN WG4 and WG2, when BSIC verification is required, are not aligned. UE procedures and performance requirements are not defined when the network does not provide parallel GSM compressed mode patterns for GSM carrier RSSI measurements, BSIC identification and BSIC re-confirmation.
Summary of change:	⌘	- The definition for the reporting of GSM cells, which is not in line with TS25.331, is removed. - UE behaviour is described when the network does not provide parallel compressed mode pattern for different GSM measurements. - The following clarification is included: The GSM signal strength levels used in BSIC identification for arranging GSM cells in signal strength order are based on the latest GSM carrier RSSI measurement results available.
Consequences if not approved:	⌘	- Unknown UE behaviour when the network does not provide parallel compressed mode patterns for different GSM measurements - Discrepancies between TS25.133 and TS25.331

Clauses affected:	⌘	8.1.2.5, 8.1.2.5.2 and 8.1.2.5.2.1
Other specs affected:	⌘	☐ Other core specifications ⌘ **X** Test specifications ☐ O&M Specifications
Other comments:	⌘	

8.1.2.5 GSM measurements

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

In CELL_DCH state when a transmission gap pattern sequence is provided by the UTRAN the UE shall continuously measure GSM cells and search for new GSM cells given in the monitored set.

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

~~If BSIC verified is requested for a GSM cell the UE shall only report measurement quantities for that GSM cell with a BSIC "verified" according to section 8.1.2.5.2. If BSIC verification is not required for a GSM cell the UE shall report measurement quantities for that GSM cell irrespectively if the BSIC has been verified or not verified according to section 8.1.2.5.2.~~

If the UE does not need compressed mode to perform GSM measurements, the requirements in TS 05.08 shall apply.

8.1.2.5.1 GSM carrier RSSI

A UE supporting GSM measurements using compressed mode shall meet the minimum number of GSM RSSI carrier measurements specified in table 8.4. This measurement shall be based on a transmission gap pattern sequence with purpose "GSM carrier RSSI measurements"

In order for the requirements in this subsection to apply the UTRAN must provide a transmission gap pattern sequence with measurement purpose GSM carrier RSSI measurements using the following combinations for TGL1, TGL2 and TGD:

Table 8.3

TGL1 [slots]	TGL2 [slots]	TGD [slots]
3	-	undefined
4	-	undefined
5	-	undefined
7	-	undefined
10	-	undefined
14	-	undefined
3	3	15…269
4	4	15…269
5	5	15…269
7	7	15…269
10	10	15…269
14	14	15…269

In the CELL_DCH state the measurement period for the GSM carrier RSSI measurement is 480 ms.

The UE shall meet the measurement accuracy requirements stated for RXLEV in TS 05.08, when the given measurement time allows the UE to take at least 3 GSM carrier RSSI samples per GSM carrier in the monitored set during the measurement period.

Table 8.4

TGL	Number of GSM carrier RSSI samples in each gap.
3	1
4	2
5	3
7	6
10	10
14	15

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

8.1.2.5.2 BSIC verification

In order for the requirements in the following subsections to apply the UTRAN must provide a transmission gap pattern sequence with measurement purpose GSM Initial BSIC identification or with measurement purpose GSM BSIC re-confirmation, using the following combinations for TGL1, TGL2 and TGD:

Table 8.5

TGL1 [slots]	TGL2 [slots]	TGD [slots]
5	-	undefined
7	-	undefined
10	-	undefined
14	-	undefined
5	5	15…269
7	7	15…269
10	10	15…269
14	14	15…269

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

Initial BSIC identification

Includes searching for the BSIC and decoding the BSIC for the first time when there is no knowledge about the relative timing between the FDD and GSM cell. The UE shall trigger the initial BSIC identification within the available transmission gap pattern sequence with purpose “GSM Initial BSIC identification”. The requirements for Initial BSIC identification can be found in 8.1.2.5.2.1.

BSIC re-confirmation

Tracking and decoding the BSIC of a GSM cell after initial BSIC identification is performed. The UE shall trigger the BSIC re-confirmation within the available transmission gap pattern sequence with purpose “GSM BSIC re-confirmation”. The requirements for BSIC re-confirmation can be found in 8.1.2.5.2.2.

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

If the network requests measurements on a GSM cell with BSIC verified, the UE shall behave as follows:

- The UE shall perform GSM carrier RSSI measurements according to Section 8.1.2.5.1 when ever a transmission gap pattern sequence with the purposes “GSM carrier RSSI measurements” is provided and the UE shall perform measurement reporting as defined in Section 8.6.7.6 of [16].
- The UE shall perform BSIC identification according to Section 8.1.2.5.2.1 when a “GSM Initial BSIC identification” transmission gap pattern sequence is activated. The UE shall use the last available GSM

carrier RSSI measurement results for arranging GSM cells in signal strength order for performing BSIC identification.

- The UE shall perform BSIC re-confirmation according to Section 8.1.2.5.2.2 when a "GSM BSIC re-confirmation" transmission gap pattern sequence is activated.
- If a "GSM BSIC re-confirmation" transmission gap pattern sequence is not activated in parallel to a "GSM Initial BSIC identification" transmission gap pattern sequence or within one frame from the deactivation of a "GSM Initial BSIC identification" transmission gap pattern sequence, the BSIC shall be considered to be non-verified after the UE has performed one event evaluation or periodic reporting evaluation with verified BSIC and the corresponding reporting if reporting is required after the evaluation.
- The UE shall perform event evaluation for event-triggered reporting after the BSIC has been verified for a GSM cell. The UE shall use the last available GSM carrier RSSI measurement results in event evaluation and event-triggered reporting. Periodic reports shall be triggered according to the given reporting period even if the BSIC of a GSM cell has not been verified as defined in Sections 8.6.7.5 and 8.6.7.6 of [16]. Non verified BSIC shall be indicated in the measurement report.

The BSIC of a GSM cell is considered to be "verified" if the UE has decoded the SCH of the BCCH carrier and identified the BSIC at least one time (initial BSIC identification) and from that moment the BSIC shall be re-confirmed at least once every $T_{re\text{-}confirm\_abort}$ seconds. Otherwise the BSIC of the GSM cell is considered as "non-verified". If a transmission gap pattern sequence with a purpose "GSM BSIC re-confirmation " is not activated by the network after BSIC identified or the "GSM BSIC re-confirmation " transmission gap pattern sequence is deactivated, the UE shall behave as described previously in this section.

The parameters $N_{identify\_abort}$ and $T_{re\text{-}confirm\_abort}$ are defined by higher layers and are signalled to the UE together with the transmission gap pattern sequence. $N_{identify\_abort}$ indicates the maximum number of patterns that the UE shall use to attempt to decode the unknown BSIC of the GSM cell in the initial BSIC identification procedure. $T_{re\text{-}confirm\_abort}$ indicates the maximum time allowed for the re-confirmation of the BSIC of one GSM cell in the BSIC re-confirmation procedure.

The UE shall be able to decode a BSIC within a transmission gap when the time difference between the middle of the received GSM synchronisation burst at the UE and the middle of the effective transmission gap is within the limits specified in table 8.6.

The effective transmission gap is calculated by assuming both UL and DL compressed mode and applying the worst-case values for UL/DL timing offset and pilot field length of last DL gap slot.

Table 8.6: The gap length and maximum time difference for BSIC verification

Gap length [slots]	Maximum time difference [μs]
5	± 500
7	± 1200
10	± 2200
14	± 3500

The UE shall be able to perform BSIC verification at levels down to the reference sensitivity level or reference interference levels as specified in TS 05.05.

8.1.2.5.2.1 Initial BSIC identification

This measurement shall be based on a transmission gap pattern sequence with the purpose "GSM Initial BSIC identification"

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

3 filtering. The GSM signal strength levels used in BSIC identification for arranging GSM cells in signal strength order shall be based on the latest GSM carrier RSSI measurement results available.

When the UE attempts to decode the BSIC of one GSM BCCH carrier with unknown BSIC, the UE shall use all available transmission gaps, within the transmission gap pattern sequence with the purpose "GSM Initial BSIC identification", to attempt to decode the BSIC from that GSM BCCH carrier.

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

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

$N_{identify\_abort}$ values are given for a set of reference patterns in table 8.7. $T_{identify\_abort}$ is the elapsed time during $N_{identify\_abort}$ transmission gap patterns (informative). The figures given in table 8.7 represent the number of patterns required to guarantee at least two attempts to decode the BSIC for one GSM BCCH carrier.

Table 8.7: The worst-case time for identification of one previously not identified GSM cell

	TGL1 [slots]	TGL2 [slots]	TGD [slots]	TGPL1 [frames]	TGPL2 [frames]	$T_{identify\ abort}$ [s]	$N_{identify\_abort}$ [patterns]
Pattern 1	7	-	undefined	3	TGPL1	1.53	51
Pattern 2	7	-	undefined	8	TGPL1	5.20	65
Pattern 3	7	7	47	8	TGPL1	2.00	25
Pattern 4	7	7	38	12	TGPL1	2.88	24
Pattern 5	14	-	undefined	8	TGPL1	1.76	22
Pattern 6	14	-	undefined	24	TGPL1	5.04	21
Pattern 7	14	14	45	12	TGPL1	1.44	12
Pattern 8	10	-	undefined	12	TGPL1	2.76	23
Pattern 9	10	10	75	12	TGPL1	1.56	13

8.1.2.5.2.2 BSIC re-confirmation

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

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

For each transmission gap of a transmission gap pattern sequence with the measurement purpose "GSM BSIC re-confirmation", the UE shall attempt to decode the BSIC falling within the effective gap duration. If more than one BSIC can be decoded within the same gap, priority shall be given to the least recently decoded BSIC.

If the UE fails to decode the BSIC after two successive attempts or if the UE has not been able to re-confirm the BSIC for a GSM cell within $T_{re\text{-}confirm\_abort}$ seconds, the UE shall abort the BSIC re-confirmation attempts for that GSM cell. The GSM cell shall be treated as a new GSM cell with unidentified BSIC and the GSM cell shall be moved to the initial BSIC identification procedure, see section 8.1.2.5.2.1. The UE shall be able to make BSIC re-confirmation attempts for the 8 strongest GSM cells in the monitored list.

$N_{re\text{-}confirm\_abort}$ is the number of transmission gap patterns executed during $T_{re\text{-}confirm\_abort}$ (informative).

Table 8.8: The worst-case time for BSIC re-confirmation of one GSM cell

	TGL1 [slots]	TGL2 [slots]	TGD [slots]	TGPL1 [frames]	TGPL2 [frames]	$T_{re\text{-}confirm\_abort}$ [s]	$N_{re\text{-}confirm\_abort}$ [patterns]
Pattern 1	7	-	undefined	3	TGPL1	1.29	43
Pattern 2	7	-	undefined	8	TGPL1	4.96	62
Pattern 3	7	-	undefined	15	TGPL1	7.95	53
Pattern 4	7	7	69	23	TGPL1	9.89	43
Pattern 5	7	7	69	8	TGPL1	2.64	33
Pattern 6	14	-	undefined	8	TGPL1	1.52	19
Pattern 7	14	14	60	8	TGPL1	0.80	10
Pattern 8	10	-	undefined	8	TGPL1	1.76	22
Pattern 9	10	-	undefined	24	TGPL1	4.80	20
Pattern 10	7	7	47	8	TGPL1	1.76	22
Pattern 11	7	7	38	12	TGPL1	2.64	22
Pattern 12	14	-	undefined	24	TGPL1	4.80	20
Pattern 13	14	14	45	12	TGPL1	1.20	10
Pattern 14	10	-	undefined	12	TGPL1	2.52	21
Pattern 15	10	10	75	12	TGPL1	1.32	11

3GPP TSG RAN WG4 Meeting #17 R4-010541

Gothenburg, Sweden 21st - 25th May 2001

CR-Form-v4

CHANGE REQUEST

⌘ 25.133 CR 89 ⌘ ev - ⌘ Current version: 3.5.0 ⌘

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

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

Title:	⌘	Correction of FDD/TDD handover requirement.
Source:	⌘	RAN WG4
Work item code:	⌘	TEI
Date:	⌘	2001-05-21
Category:	⌘	F
Release:	⌘	R99

Use one of the following categories:
- ***F*** *(correction)*
- ***A*** *(corresponds to a correction in an earlier release)*
- ***B*** *(addition of feature),*
- ***C*** *(functional modification of feature)*
- ***D*** *(editorial modification)*

Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
REL-4	*(Release 4)*
REL-5	*(Release 5)*

Reason for change:	⌘	Clarification of requirements in TS25.133.
Summary of change:	⌘	The interruption time already includes the time required for the FDD/TDD re-configuration, thus the corresponding statement has to be corrected.
Consequences if not approved:	⌘	Incorrect requirement for FDD/TDD handover based on an undefined statement.

Clauses affected:	⌘	5.3
Other specs affected:	⌘	☐ Other core specifications ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

How to create CRs using this form:

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

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

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

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~~11.5]~~.

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 ~~plus the time required for any kind of baseband or RF reconfiguration due to the change of the UTRAN mode~~.

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.

The definition of known cell is specified in section 5.1.2.2.

Table 5.1: FDD/TDD interruption time

cell present in the handover command message	Interruption time [ms]	
	Known cell	Unknown cell
1	[100]	[350]

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.

3GPP TSG RAN WG4 Meeting #17 R4-010542

Gothenburg, Sweden 21st - 25th May 2001

CR-Form-v4

CHANGE REQUEST

⌘ **25.133** **CR** **90** ⌘ ev **-** ⌘ Current version: **4.0.0** ⌘

*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 **X** Core Network ☐

Title:	⌘	Correction of FDD/TDD handover requirement.
Source:	⌘	RAN WG4
Work item code:	⌘	TEI
Date:	⌘	2001-05-21
Category:	⌘	**A**
Release:	⌘	REL-4

Use one of the following categories:
- ***F*** *(correction)*
- ***A*** *(corresponds to a correction in an earlier release)*
- ***B*** *(addition of feature),*
- ***C*** *(functional modification of feature)*
- ***D*** *(editorial modification)*

Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
REL-4	*(Release 4)*
REL-5	*(Release 5)*

Reason for change:	⌘	Corresponding REL-4 CR for R4-010541Clarification of requirements in TS25.133.
Summary of change:	⌘	The interruption time already includes the time required for the FDD/TDD re-configuration, thus the corresponding statement has to be corrected.
Consequences if not approved:	⌘	Incorrect requirement for FDD/TDD handover based on an undefined statement.

Clauses affected:	⌘	5.3
Other specs affected:	⌘	☐ Other core specifications ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

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

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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~~11.5]~~.

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 ~~plus the time required for any kind of baseband or RF reconfiguration due to the change of the UTRAN mode~~.

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.

The definition of known cell is specified in section 5.1.2.2.

Table 5.1: FDD/TDD interruption time

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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.

3GPP TSG RAN WG4 Meeting #17 R4-010543

Gothenburg, Sweden 21st - 25th May 2001

CR-Form-v4

CHANGE REQUEST

⌘ 25.133 CR 91 ⌘ ev - ⌘ Current version: 3.5.0 ⌘

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

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

Title:	⌘	Extraction of TGSN_proposed
Source:	⌘	RAN WG4
Work item code:	⌘	TEI
Date:	⌘	2001-05-21
Category:	⌘	F
Release:	⌘	R99

Use one of the following categories:
- ***F*** *(correction)*
- ***A*** *(corresponds to a correction in an earlier release)*
- ***B*** *(addition of feature),*
- ***C*** *(functional modification of feature)*
- ***D*** *(editorial modification)*

Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
REL-4	*(Release 4)*
REL-5	*(Release 5)*

Reason for change:	⌘	The extraction of TGSN_proposed is currently undefined.
Summary of change:	⌘	Requirements on the calculation and reporting of TGSN proposed in the UE are included in section TDD measurements for UE measurements procedures.
Consequences if not approved:	⌘	Undefined extraction of optional parameter TGSN proposed in the measurement report.

Clauses affected:	⌘	8.1.2.4
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

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

8.1.2.4 TDD measurements

The requirements in this section apply only to UE supporting both TDD and FDD mode.
In the CELL_DCH the UE shall continuously measure detected inter frequency TDD 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 TDD measurement using the following combinations for TGL1, TGL2 and TGD:

Table 8.2

TGL1 [slots]	TGL2 [slots]	TGD [slots]
10	-	undefined
10	10	15…269
14	7	15…269

If reporting of the values for TGSN_proposed is requested by the network while P-CCPCH RSCP is measured by the UE, and this is supported by the UE, values for TGSN_proposed shall be extracted by use of the following formula and reported to the network together with the P-CCPCH RSCP results in the measurement report:

TGSN_proposed= FDD slot in which the starting point of the P-CCPCH slot of the monitored TDD cell was observed – 1 slot

3GPP TSG RAN WG4 Meeting #17 R4-010544

Gothenburg, Sweden 21st - 25th May 2001

CR-Form-v4

CHANGE REQUEST

⌘ **25.133** **CR** **92** ⌘ ev **-** ⌘ Current version: **4.0.0** ⌘

*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 **X** Core Network ☐

Title:	⌘	Extraction of TGSN_proposed
Source:	⌘	RAN WG4
Work item code:	⌘	TEI
Date:	⌘	2001-05-21
Category:	⌘	**A**
Release:	⌘	REL-4

Use one of the following categories:
- ***F*** *(correction)*
- ***A*** *(corresponds to a correction in an earlier release)*
- ***B*** *(addition of feature),*
- ***C*** *(functional modification of feature)*
- ***D*** *(editorial modification)*

Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
REL-4	*(Release 4)*
REL-5	*(Release 5)*

Reason for change:	⌘	Corresponding REL-4 CR to document R4-010543:The extraction of TGSN_proposed is currently undefined.
Summary of change:	⌘	Requirements on the calculation and reporting of TGSN proposed in the UE are included in section TDD measurements for UE measurements procedures.
Consequences if not approved:	⌘	Undefined extraction of optional parameter TGSN proposed in the measurement report. Inconsistency between different releases.

Clauses affected:	⌘	8.1.2.4
Other specs affected:	⌘	☐ Other core specifications ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

How to create CRs using this form:

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

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

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

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

8.1.2.4 TDD measurements

The requirements in this section apply only to UE supporting both TDD and FDD mode.
In the CELL_DCH the UE shall continuously measure detected inter frequency TDD 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 TDD measurement using the following combinations for TGL1, TGL2 and TGD:

Table 8.2

TGL1 [slots]	TGL2 [slots]	TGD [slots]
10	-	undefined
10	10	15…269
14	7	15…269

If reporting of the values for TGSN_proposed is requested by the network while P-CCPCH RSCP is measured by the UE, and this is supported by the UE, values for TGSN proposed shall be extracted by use of the following formula and reported to the network together with the P-CCPCH RSCP results in the measurement report:

TGSN_proposed= FDD slot in which the starting point of the P-CCPCH slot of the monitored TDD cell was observed – 1 slot

3GPP TSG RAN WG4 Meeting #17 **R4-010590**

Gothenburg, Sweden 21st - 25th May 2001

CR-Form-v3

CHANGE REQUEST

⌘ **25.133** **CR** **93** ⌘ rev **-** ⌘ Current version: **3.5.0** ⌘

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

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

Title:	⌘	Corrections to cell re-selection requirements
Source:	⌘	RAN WG4
Work item code:	⌘	TEI
Date:	⌘	2001-05-02
Category:	⌘	**F**
Release:	⌘	R99

Use one of the following categories:
- ***F*** *(essential correction)*
- ***A*** *(corresponds to a correction in an earlier release)*
- ***B*** *(Addition of feature),*
- ***C*** *(Functional modification of feature)*
- ***D*** *(Editorial modification)*

Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
REL-4	*(Release 4)*
REL-5	*(Release 5)*

Reason for change:	⌘	The time value for triggering cell selection procedures for the selected PLMN, in case UE does not find any suitable cell among the neighbour cells indicated in the measurement control system information, is [TBD].
Summary of change:	⌘	"12 s" inserted instead of [TBD] value.
Consequences if not approved:	⌘	TBD value remaining in specification.

Clauses affected:	⌘	4.2.2.1
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

How to create CRs using this form:

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

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

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

4.2.2.1 Measurement and evaluation of cell selection criteria S of serving cell

The UE shall measure the CPICH Ec/Io and CPICH RSCP level of the serving cell and evaluate the cell selection criterion S defined in TS25.304 for the serving cell at least every DRX cycle. The UE shall filter the CPICH Ec/Io and CPICH RSCP measurements of the serving cell using at least 2 measurements, which are taken so that the time difference between the measurements is at least $T_{measureFDD}/2$ (see table 4.1).

If the UE has evaluated in N_{serv} consecutive DRX cycles that the serving cell does not fulfil the cell selection criterion S, the UE shall initiate the measurements of all neighbour cells indicated in the measurement control system information, regardless of the measurement rules currently limiting UE measurement activities.

If the UE has not found any new suitable cell based ~~the~~ on searches and measurements of the neighbour cells indicated in the measurement control system information for ~~[TBD]~~ 12 s, the UE shall initiate cell selection procedures for the selected PLMN as defined in TS25.304.

3GPP TSG RAN WG4 Meeting #17 **R4-010698**

Gothenburg, Sweden 21st - 25th May 2001

CR-Form-v3

CHANGE REQUEST

⌘ **25.133** **CR** **94** ⌘ rev **-** ⌘ Current version: **4.0.0** ⌘

*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 **X** Core Network ☐

Title:	⌘	Corrections to cell re-selection requirements
Source:	⌘	RAN WG4
Work item code:	⌘	TEI
Date:	⌘	2001-05-23
Category:	⌘	**A**
Release:	⌘	REL-4

Use one of the following categories:
- ***F*** *(essential correction)*
- ***A*** *(corresponds to a correction in an earlier release)*
- ***B*** *(Addition of feature),*
- ***C*** *(Functional modification of feature)*
- ***D*** *(Editorial modification)*

Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
REL-4	*(Release 4)*
REL-5	*(Release 5)*

Reason for change:	⌘	The time value for triggering cell selection procedures for the selected PLMN, in case UE does not find any suitable cell among the neighbour cells indicated in the measurement control system information, is [TBD].
Summary of change:	⌘	"12 s" inserted instead of [TBD] value.
Consequences if not approved:	⌘	TBD value remaining in specification.

Clauses affected:	⌘	4.2.2.1
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	Corresponding R99 CR in R4-010590.

How to create CRs using this form:

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

4.2.2.1 Measurement and evaluation of cell selection criteria S of serving cell

The UE shall measure the CPICH Ec/Io and CPICH RSCP level of the serving cell and evaluate the cell selection criterion S defined in TS25.304 for the serving cell at least every DRX cycle. The UE shall filter the CPICH Ec/Io and CPICH RSCP measurements of the serving cell using at least 2 measurements, which are taken so that the time difference between the measurements is at least $T_{measureFDD}/2$ (see table 4.1).

If the UE has evaluated in N_{serv} consecutive DRX cycles that the serving cell does not fulfil the cell selection criterion S, the UE shall initiate the measurements of all neighbour cells indicated in the measurement control system information, regardless of the measurement rules currently limiting UE measurement activities.

If the UE has not found any new suitable cell based ~~the~~ on searches and measurements of the neighbour cells indicated in the measurement control system information for ~~[TBD]~~ 12 s, the UE shall initiate cell selection procedures for the selected PLMN as defined in TS25.304.

3GPP TSG RAN WG4 Meeting #17 **R4-010636**

Gothenburg, Sweden 21st - 25th May 2001

CR-Form-v3

CHANGE REQUEST

⌘ **TS25.133 CR 95** ⌘ rev **-** ⌘ Current version: **3.5.0** ⌘

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

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

Title:	⌘	UTRAN to GSM cell reselection delay in CELL_FACH state
Source:	⌘	RAN WG4
Work item code:	⌘	TEI
Date:	⌘	15-05-2001
Category:	⌘	**F**
Release:	⌘	R99

Use one of the following categories:
- ***F*** *(essential correction)*
- ***A*** *(corresponds to a correction in an earlier release)*
- ***B*** *(Addition of feature),*
- ***C*** *(Functional modification of feature)*
- ***D*** *(Editorial modification)*

Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
REL-4	*(Release 4)*
REL-5	*(Release 5)*

Reason for change: ⌘

TS25.133 includes contradictory requirements. $T_{measurement,\ GSM}$ is defined to be 8 * $N_{carriers}$ * T_{meas} / $N_{GSM\ carrier\ RSSI}$, where
$N_{carriers}$ is the number of GSM carriers in the Inter-RAT cell info list (1...32)
$N_{GSM\ carrier\ RSSI}$ is the number of GSM carrier RSSI samples that the UE shall be able to take in each measurement occasion. {16, 32, 64, 128} depedending on the length of the measurement occasion.
T_{meas} is a time period in which one GSM measurement occasion occurs.

This means that $T_{measurement,\ GSM}$ could get values between 1/16 * T_{meas} and 16$T_{meas.}$ Obviously, $T_{measurement,\ GSM}$ cannot be less that the time period in which one GSM measurement occasion occurs. All GSM measurement occasions are not allocated for RSSI measurements and therefore $T_{measurement,\ GSM}$ has to be more than one T_{meas}. Since every second measurement occasion shall be allocated for initial BSIC identifications and 3 out of 4 of the rest of the measurement occasions shall be allocated RSSI measurements, in the worst case the first measurement occasion, which is allocated for GSM RSSI measurement, may occur after 4* T_{meas}.

Since the measurement period is defined to be 480 ms, $T_{measurement,\ GSM}$ could not be less than the measurement period either.

Summary of change: ⌘

$T_{measurement,\ GSM}$ is changed to
Max{ 8 * $N_{carriers}$ * T_{meas} / $N_{GSM\ carrier\ RSSI}$, 4* T_{meas}, 480 ms}

Consequences if not approved: ⌘

TS25.133 would have contradictory requirements.

Clauses affected: ⌘ 5.5.2.1.4

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

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.

5.5.2 Requirements

The Cell reselection delays specified below are applicable when the RRC parameter $T_{reselection}$ is set to 0. Otherwise the Cell reselection delay is increased $T_{reselection}$ s.

The measurements CPICH Ec/Io and CPICH RSCP shall be used for cell reselection in Cell-FACH state to another FDD cell, P-CCPCH RSCP shall be used for re-selection to a TDD cell and GSM carrier RSSI shall be used for cell re-selection to a GSM cell. The accuracies of the measurements used for a cell-reselection in an AWGN environment shall comply with the requirements in chapter 9.

5.5.2.1 Cell re-selection delay

The cell re-selection delay is defined as the time between the occurrence of an event which will trigger Cell Reselection process and the moment in time when the UE starts sending the RRC CELL UPDATE message to the UTRAN.

5.5.2.1.1 Intra frequency cell reselection

The cell re-selection delay in CELL_FACH state to a cell in the same frequency shall be less than

$$T_{reselection,\,intra} = T_{identify,\,intra} + T_{SI} \quad ms$$

where

$T_{identify\_intra}$ = Specified in 8.4.2.2.1.

T_{SI} = The maximum repetition period of all relevant system information blocks that needs to be received by the UE to camp on a cell.

This requirement assumes radio conditions to be sufficient, so reading of system information can be done without errors.

5.5.2.1.2 Inter frequency cell reselection

The cell re-selection delay in CELL_FACH state to a FDD cell on a different frequency shall be less than

$$T_{reselection,\ inter} = T_{identify,\,inter} + T_{SI} \quad ms$$

.where

$T_{identify,\,,inter}$ Specified in 8.4.2.3.1.

T_{SI} = The maximum repetition frequency of all relevant system information blocks that needs to be received by the UE to camp on a cell.

This requirement assumes radio conditions to be sufficient, so that reading of system information can be done without errors.

5.5.2.1.3 FDD-TDD cell reselection

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

$$T_{reselection,\,TDD} = T_{identify,\,TDD} + T_{SI} \quad ms$$

where

$T_{identify, TDD}$ Specified in 8.4.2.4.1.

T_{SI} = The maximum repetition frequency of all relevant system information blocks that needs to be received by the UE to camp o a cell.

This requirement assumes radio conditions to be sufficient, so that reading of system information can be done without errors.

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

$$T_{reselection, GSM} = T_{identify, GSM} + T_{measurement, GSM} + T_{SI} \quad \text{ms}$$

where

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

$$T_{measurement, GSM} = 8 \cdot \frac{N_{carriers}}{N_{GSM\ carrier\ RSSI}} \cdot T_{meas}$$

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

$N_{carriers}$ 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.

T_{SI} = The maximum repetition frequency of all relevant system information blocks that needs to be received by the UE to camp on a cell.

3GPP TSG RAN WG4 Meeting #17 **R4-010779**

Gothenburg, Sweden 21st - 25th May 2001

CR-Form-v3

CHANGE REQUEST

⌘ **TS25.133 CR 96** ⌘ rev **-** ⌘ Current version: **4.0.0** ⌘

*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:	⌘	UTRAN to GSM cell reselection delay in CELL_FACH state
Source:	⌘	RAN WG4
Work item code:	⌘	TEI
Date:	⌘	15-05-2001
Category:	⌘	**A**
Release:	⌘	REL-4

Use one of the following categories:
- ***F*** *(essential correction)*
- ***A*** *(corresponds to a correction in an earlier release)*
- ***B*** *(Addition of feature),*
- ***C*** *(Functional modification of feature)*
- ***D*** *(Editorial modification)*

Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
REL-4	*(Release 4)*
REL-5	*(Release 5)*

Reason for change: ⌘

TS25.133 includes contradictory requirements. $T_{measurement,\ GSM}$ is defined to be 8 * $N_{carriers}$ * T_{meas} / $N_{GSM\ carrier\ RSSI}$, where
$N_{carriers}$ is the number of GSM carriers in the Inter-RAT cell info list (1...32)
$N_{GSM\ carrier\ RSSI}$ is the number of GSM carrier RSSI samples that the UE shall be able to take in each measurement occasion. {16, 32, 64, 128} depedending on the length of the measurement occasion.
T_{meas} is a time period in which one GSM measurement occasion occurs.

This means that $T_{measurement,\ GSM}$ could get values between 1/16 * T_{meas} and 16$T_{meas.}$ Obviously, $T_{measurement,\ GSM}$ cannot be less that the time period in which one GSM measurement occasion occurs. All GSM measurement occasions are not allocated for RSSI measurements and therefore $T_{measurement,\ GSM}$ has to be more than one T_{meas}. Since every second measurement occasion shall be allocated for initial BSIC identifications and 3 out of 4 of the rest of the measurement occasions shall be allocated RSSI measurements, in the worst case the first measurement occasion, which is allocated for GSM RSSI measurement, may occur after 4* T_{meas}.

Since the measurement period is defined to be 480 ms, $T_{measurement,\ GSM}$ could not be less than the measurement period either.

Summary of change: ⌘

$T_{measurement,\ GSM}$ is changed to
Max{ 8 * $N_{carriers}$ * T_{meas} / $N_{GSM\ carrier\ RSSI}$, 4* T_{meas}, 480 ms}

Consequences if not approved: ⌘

TS25.133 would have contradictory requirements.

Clauses affected: ⌘ 5.5.2.1.4

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

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.

5.5.2 Requirements

The Cell reselection delays specified below are applicable when the RRC parameter $T_{reselection}$ is set to 0. Otherwise the Cell reselection delay is increased $T_{reselection}$ s.

The measurements CPICH Ec/Io and CPICH RSCP shall be used for cell reselection in Cell-FACH state to another FDD cell, P-CCPCH RSCP shall be used for re-selection to a TDD cell and GSM carrier RSSI shall be used for cell re-selection to a GSM cell. The accuracies of the measurements used for a cell-reselection in an AWGN environment shall comply with the requirements in chapter 9.

5.5.2.1 Cell re-selection delay

The cell re-selection delay is defined as the time between the occurrence of an event which will trigger Cell Reselection process and the moment in time when the UE starts sending the RRC CELL UPDATE message to the UTRAN.

5.5.2.1.1 Intra frequency cell reselection

The cell re-selection delay in CELL_FACH state to a cell in the same frequency shall be less than

$$T_{reselection,\,intra} = T_{identify,\,intra} + T_{SI} \quad ms$$

where

$T_{identify\_intra}$ = Specified in 8.4.2.2.1.

T_{SI} = The maximum repetition period of all relevant system information blocks that needs to be received by the UE to camp on a cell.

This requirement assumes radio conditions to be sufficient, so reading of system information can be done without errors.

5.5.2.1.2 Inter frequency cell reselection

The cell re-selection delay in CELL_FACH state to a FDD cell on a different frequency shall be less than

$$T_{reselection,\ inter} = T_{identify,\,inter} + T_{SI} \quad ms$$

.where

$T_{identify,\,,inter}$ Specified in 8.4.2.3.1.

T_{SI} = The maximum repetition frequency of all relevant system information blocks that needs to be received by the UE to camp on a cell.

This requirement assumes radio conditions to be sufficient, so that reading of system information can be done without errors.

5.5.2.1.3 FDD-TDD cell reselection

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

$$T_{reselection,\,TDD} = T_{identify,\,TDD} + T_{SI} \quad ms$$

where

$T_{identify, TDD}$ Specified in 8.4.2.4.1.

T_{SI} = The maximum repetition frequency of all relevant system information blocks that needs to be received by the UE to camp o a cell.

This requirement assumes radio conditions to be sufficient, so that reading of system information can be done without errors.

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

$$T_{reselection, GSM} = T_{identify, GSM} + T_{measurement, GSM} + T_{SI} \quad \text{ms}$$

where

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

$$T_{measurement, GSM} = 8 \cdot \frac{N_{carriers}}{N_{GSM\ carrier\ RSSI}} \cdot T_{meas}$$

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

$N_{carriers}$ 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.

T_{SI} = The maximum repetition frequency of all relevant system information blocks that needs to be received by the UE to camp on a cell.

3GPP TSG RAN WG4 Meeting #17 **R4-010697**

Gothenburg, Sweden 21st - 25th May 2001

CR-Form-v3

CHANGE REQUEST

⌘ **25.133** **CR** **97** ⌘ rev **-** ⌘ Current version: **3.5.0** ⌘

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

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

Title:	⌘	Correction for idle mode section
Source:	⌘	RAN WG4
Work item code:	⌘	TEI
Date:	⌘	17-05-2001
Category:	⌘	**F**
Release:	⌘	R99

Use one of the following categories:
- ***F*** *(essential correction)*
- ***A*** *(corresponds to a correction in an earlier release)*
- ***B*** *(Addition of feature),*
- ***C*** *(Functional modification of feature)*
- ***D*** *(Editorial modification)*

Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
REL-4	*(Release 4)*
REL-5	*(Release 5)*

Reason for change:	⌘	RAN WG2 has made a principle agreement to remove the mapping function. This should also be removed from TS25.133 so that cell reselection test cases without the mapping function could be defined.
Summary of change:	⌘	- The notes regarding mapping function and the quantization of the measurement quantity are removed, since they will be removed from TS25.304 as well. - Clarification that a new cell has to be better ranked - Clarification on UE behaviour in case the Treselection timer is used.
Consequences if not approved:	⌘	After this RAN WG4 meeting cell reselection requirements in TS25.133 and procedures in TS25.304 would not be aligned.

Clauses affected:	⌘	4.2.2, 4.2.2.2, 4.2.2.3 and 4.2.2.4
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

4 Idle Mode Tasks

4.1 Cell Selection

4.1.1 Introduction

After a UE has switched on and a PLMN has been selected, the Cell selection process takes place, as described in TS25.304. This process allows the UE to select a suitable cell where to camp on in order to access available services. In this process the UE can use stored information (*Stored information cell selection*) or not (*Initial cell selection*).

4.2 Cell Re-selection

4.2.1 Introduction

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

When the UE is in *Camped Normally* state on a FDD cell, UE shall attempt to detect, synchronise, and monitor intra-frequency, inter-frequency and inter-RAT cells indicated in the measurement control system information of the serving cell. UE measurement activity is also controlled by measurement rules defined in TS25.304, allowing the UE to limit its measurement activity if certain conditions are fulfilled.

4.2.2 Requirements

~~The cell reselection requirements in the following sections are valid when the mapping function defined is TS25.304 is not used. The cell reselection requirements do not include any inaccuracy caused by the quantization of the measurement quantity defined in the cell reselection criteria in TS25.304.~~

4.2.2.1 Measurement and evaluation of cell selection criteria S of serving cell

The UE shall measure the CPICH Ec/Io and CPICH RSCP level of the serving cell and evaluate the cell selection criterion S defined in TS25.304 for the serving cell at least every DRX cycle. The UE shall filter the CPICH Ec/Io and CPICH RSCP measurements of the serving cell using at least 2 measurements, which are taken so that the time difference between the measurements is at least $T_{measureFDD}/2$ (see table 4.1).

If the UE has evaluated in N_{serv} consecutive DRX cycles that the serving cell does not fulfil the cell selection criterion S, the UE shall initiate the measurements of all neighbour cells indicated in the measurement control system information, regardless of the measurement rules currently limiting UE measurement activities.

If the UE has not found any new suitable cell based the on searches and measurements of the neighbour cells indicated in the measurement control system information for [TBD] s, the UE shall initiate cell selection procedures for the selected PLMN as defined in TS25.304.

4.2.2.2 Measurements of intra-frequency cells

The UE shall measure CPICH Ec/Io and CPICH RSCP at least every $T_{measureFDD}$ (see table 4.1) for intra-frequency cells that are detected and measured according to the measurement rules. $T_{measureFDD}$ is defined in Table 4.1. The UE shall filter CPICH Ec/Io and CPICH RSCP measurements of each measured intra-frequency cell using at least 2 measurements, which are taken so that the time difference between the measurements is at least $T_{measureFDD}/2$.

The filtering shall be such that the UE shall be capable of evaluating that an intra-frequency cell has become better ranked than the serving cell within $T_{evaluateFDD}$ (see table 4.1), from the moment the intra-frequency cell became at least 3 dB better ranked than the current serving cell, provided that Treselection timer is set to zero and either CPICH Ec/Io or CPICH RSCP is used as measurement quantity for cell reselection.

~~If parameter Treselection has value different from zero, the UE shall evaluate an intra-frequency cell better than the serving cell during the Treselection time, before the UE shall reselect the new cell.~~

If Treselection timer has a non zero value and the intra-frequency cell is better ranked than the serving cell, the UE shall evaluate this intra-frequency cell for the Treselection time. If this cell remains better ranked within this duration, then the UE shall reselect that cell.

4.2.2.3 Measurements of inter-frequency FDD cells

The UE shall measure CPICH Ec/Io and CPICH RSCP at least every $(N_{carrier}-1) * T_{measureFDD}$ (see table 4.1) for inter-frequency cells that are detected and measured according to the measurement rules. The parameter $N_{carrier}$ is the number of carriers used for FDD cells. The UE shall filter CPICH Ec/Io and CPICH RSCP measurements of each measured inter-frequency cell using at least 2 measurements, which are taken so that the time difference between the measurements is at least $T_{measureFDD}/2$.

If CPICH Ec/Io is used as measurement quantity for cell reselection, the filtering shall be such that the UE shall be capable of evaluating that an already detected inter-frequency cell has become better ranked than the serving cell within $(N_{carrier}-1) * T_{evaluateFDD}$ (see table 4.1) from the moment the inter-frequency cell became at least 3 dB better than the current serving cell provided that Treselection timer is set to zero. For non-detected inter-frequency cells, the filtering shall be such that the UE shall be capable of evaluating that inter-frequency cell has become better ranked than the serving cell within 30 s from the moment the inter-frequency cell became at least 3 dB better ranked than the current serving cell provided that Treselection timer is set to zero.

If CPICH RSCP is used as measurement quantity for cell reselection, the filtering shall be such that the UE shall be capable of evaluating that an already detected inter-frequency cell has become better ranked than the serving cell within $(N_{carrier}-1) * T_{evaluateFDD}$ from the moment the inter-frequency cell became at least 5 dB better than the current serving cell provided that Treselection timer is set to zero. For non-detected inter-frequency cells, the filtering shall be such that the UE shall be capable of evaluating that inter-frequency cell has become better ranked than the serving cell within 30 s from the moment the inter-frequency cell became at least 5 dB better ranked than the current serving cell provided that Treselection timer is set to zero.

~~If Treselection timer has value different from zero, the UE shall evaluate an inter-frequency cell better than the serving cell during the Treselection time, before the UE shall reselect the new cell.~~

If Treselection timer has a non zero value and the inter-frequency cell is better ranked than the serving cell, the UE shall evaluate this inter-frequency cell for the Treselection time. If this cell remains better ranked within this duration, then the UE shall reselect that cell.

4.2.2.4 Measurements of inter-frequency TDD cells

The UE shall measure the PCCPCH RSCP of each TDD neighbour cell indicated in the measurement control system information of the serving cell, according to the measurement rules defined in TS25.304, at least every $T_{measureTDD}$ (see table 4.1 TS25.133). The UE shall filter PCCPCH RSCP measurements of each measured inter-frequency cell using at least 2 measurements, which are taken so that the time difference between the measurements is at least $T_{measureTDD}/2$.

The filtering of PCCPCH RSCP shall be such that the UE shall be capable of evaluating that an already detected inter-frequency cell has become better ranked than the serving cell within $N_{carrierTDD} * T_{evaluateTDD}$ from the moment the inter-frequency cell became at least 3 dB better ranked than the current serving cell provided that Treselection timer is set to zero. For non-detected inter-frequency cells, the filtering shall be such that the UE shall be capable of evaluating that inter-frequency cell has become better ranked than the serving cell within 30 s from the moment the inter-frequency cell became at least 3 dB better ranked than the current serving cell provided that Treselection timer is set to zero.

~~If Treselection timer has a value different from zero, the UE shall evaluate an inter-frequency cell better ranked than the serving cell during the Treselection time, before the UE shall reselect the new cell.~~If

Treselection timer has a non zero value and the inter-frequency cell is better ranked than the serving cell, the UE shall evaluate this inter-frequency cell for the Treselection time. If this cell remains better ranked within this duration, then the UE shall reselect that cell.

The ranking of the cells shall be made according to the cell reselection criteria specified in TS25.304. ~~The use of mapping functions is indicated in the broadcast.~~

4.2.2.5 Measurements of inter-RAT GSM cells

The UE shall measure the signal level of each GSM neighbour cell indicated in the measurement control system information of the serving cell, according to the measurement rules defined in TS25.304, at least every $T_{measureGSM}$ (see table 4.1). The UE shall maintain a running average of 4 measurements for each cell. The measurement samples for each cell shall be as far as possible uniformly distributed over the averaging period.

The UE shall attempt to verify the BSIC for each of the 4 best ranked GSM BCCH carriers (the best ranked according to the cell reselection criteria defined in TS25.304) at least every 30 seconds if GSM cells are measured according to the measurement rules. If a change of BSIC is detected for one GSM cell then that GSM BCCH carrier shall be treated as a new GSM neighbour cell.

If the UE detects a BSIC, which is not indicated in the measurement control system information, the UE shall not consider that GSM BCCH carrier in cell reselection. The UE also shall not consider the GSM BCCH carrier in cell reselection, if the UE can not demodulate the BSIC of that GSM BCCH carrier.

4.2.2.6 Evaluation of cell re-selection criteria

The UE shall evaluate the cell re-selection criteria defined in TS 25.304 for the cells, which have new measurement results available, at least every DRX cycle.

UE shall perform cell reselection immediately after the UE has found a higher ranked suitable cell, unless less than 1 second has elapsed from the moment the UE started camping on the current cell.

4.2.2.7 Maximum interruption in paging reception

UE shall perform the cell re-selection with minimum interruption in monitoring downlink channels for paging reception.

At intra-frequency cell re-selection, the UE shall monitor the downlink of current serving cell for paging reception until the UE is capable to start monitoring downlink channels of the target intra-frequency cell for paging reception. The interruption time shall not exceed 50 ms.

At inter-frequency and inter-RAT cell re-selection, the UE shall monitor the downlink of current serving cell for paging reception until the UE is capable to start monitoring downlink channels for paging reception of the target inter-frequency cell. The interruption time must not exceed T_REP + 50 ms. T_REP is the longest repetition period for the system information required to be read by the UE to camp on the cell.

These requirements assume sufficient radio conditions, so that decoding of system information can be made without errors.

Table 4.1: $T_{measureFDD}$, $T_{evaluateFDD}$, $T_{measureTDD}$, $T_{evaluateTDD}$, and $T_{measureGSM}$

DRX cycle length [s]	N_{serv} [number of DRX cycles]	$T_{measureFDD}$ [s] (number of DRX cycles)	$T_{evaluateFDD}$ [s] (number of DRX cycles)	$T_{measureTDD}$ [s] (number of DRX cycles)	$T_{evaluateTDD}$ [s] (number of DRX cycles)	$T_{measureGSM}$ [s] (number of DRX cycles)
0.08	4	0.64 (8 DRX cycles)	2.56 (32 DRX cycles)	0.64 (8 DRX cycles)	2.56 (32 DRX cycles)	2.56 (32 DRX cycles)
0.16	4	0.64 (4)	2.56 (16)	0.64 (4)	2.56 (16)	2.56 (16)
0.32	4	1.28 (4)	5.12 (16)	1.28 (4)	5.12 (16)	5.12 (16)
0.64	4	1.28 (2)	5.12 (8)	1.28 (2)	5.12 (8)	5.12 (8)
1.28	2	1.28 (1)	6.4 (5)	1.28 (1)	6.4 (5)	6.4 (5)
2.56	2	2.56 (1)	7.68 (3)	2.56 (1)	7.68 (3)	7.68 (3)
5.12	1	5.12 (1)	10.24 (2)	5.12 (1)	10.24 (2)	10.24 (2)

In idle mode, UE shall support DRX cycles lengths 0.64, 1.28, 2.56 and 5.12 s, according to [16].

4.2.2.8 Number of cells in cell lists

- For idle mode cell re-selection purposes, the UE shall be capable of monitoring:
- 32 intra-frequency cells (including serving cell),
- 32 inter-frequency cells, including
    - FDD mode cells on maximum 2 additional carriers, and
    - TDD mode cells, and
- 32 inter RAT GSM cells,

as indicated in cell information lists sent in system information (BCCH).

3GPP TSG RAN WG4 Meeting #17 **R4-010768**

Gothenburg, Sweden 21st - 25th May 2001

CR-Form-v3

CHANGE REQUEST

⌘ **25.133** **CR** **98** ⌘ rev **-** ⌘ Current version: **4.0.0** ⌘

*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:	⌘	Correction for idle mode section
Source:	⌘	RAN WG4
Work item code:	⌘	TEI
Date:	⌘	24-05-2001
Category:	⌘	**A**
Release:	⌘	REL-4

Use one of the following categories:
- ***F*** *(essential correction)*
- ***A*** *(corresponds to a correction in an earlier release)*
- ***B*** *(Addition of feature),*
- ***C*** *(Functional modification of feature)*
- ***D*** *(Editorial modification)*

Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
REL-4	*(Release 4)*
REL-5	*(Release 5)*

Reason for change:	⌘	RAN WG2 has made a principle agreement to remove the mapping function. This should also be removed from TS25.133 so that cell reselection test cases without the mapping function could be defined.
Summary of change:	⌘	- The notes regarding mapping function and the quantization of the measurement quantity are removed, since they will be removed from TS25.304 as well. - Clarification that a new cell has to be better ranked - Clarification on UE behaviour in case the Treselection timer is used.
Consequences if not approved:	⌘	After this RAN WG4 meeting cell reselection requirements in TS25.133 and procedures in TS25.304 would not be aligned.

Clauses affected:	⌘	4.2.2, 4.2.2.2, 4.2.2.3 and 4.2.2.4
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

4 Idle Mode Tasks

4.1 Cell Selection

4.1.1 Introduction

After a UE has switched on and a PLMN has been selected, the Cell selection process takes place, as described in TS25.304. This process allows the UE to select a suitable cell where to camp on in order to access available services. In this process the UE can use stored information (*Stored information cell selection*) or not (*Initial cell selection*).

4.2 Cell Re-selection

4.2.1 Introduction

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

When the UE is in *Camped Normally* state on a FDD cell, UE shall attempt to detect, synchronise, and monitor intra-frequency, inter-frequency and inter-RAT cells indicated in the measurement control system information of the serving cell. UE measurement activity is also controlled by measurement rules defined in TS25.304, allowing the UE to limit its measurement activity if certain conditions are fulfilled.

4.2.2 Requirements

~~The cell reselection requirements in the following sections are valid when the mapping function defined is TS25.304 is not used. The cell reselection requirements do not include any inaccuracy caused by the quantization of the measurement quantity defined in the cell reselection criteria in TS25.304.~~

4.2.2.1 Measurement and evaluation of cell selection criteria S of serving cell

The UE shall measure the CPICH Ec/Io and CPICH RSCP level of the serving cell and evaluate the cell selection criterion S defined in TS25.304 for the serving cell at least every DRX cycle. The UE shall filter the CPICH Ec/Io and CPICH RSCP measurements of the serving cell using at least 2 measurements, which are taken so that the time difference between the measurements is at least $T_{measureFDD}/2$ (see table 4.1).

If the UE has evaluated in N_{serv} consecutive DRX cycles that the serving cell does not fulfil the cell selection criterion S, the UE shall initiate the measurements of all neighbour cells indicated in the measurement control system information, regardless of the measurement rules currently limiting UE measurement activities.

If the UE has not found any new suitable cell based the on searches and measurements of the neighbour cells indicated in the measurement control system information for [TBD] s, the UE shall initiate cell selection procedures for the selected PLMN as defined in TS25.304.

4.2.2.2 Measurements of intra-frequency cells

The UE shall measure CPICH Ec/Io and CPICH RSCP at least every $T_{measureFDD}$ (see table 4.1) for intra-frequency cells that are detected and measured according to the measurement rules. $T_{measureFDD}$ is defined in Table 4.1. The UE shall filter CPICH Ec/Io and CPICH RSCP measurements of each measured intra-frequency cell using at least 2 measurements, which are taken so that the time difference between the measurements is at least $T_{measureFDD}/2$.

The filtering shall be such that the UE shall be capable of evaluating that an intra-frequency cell has become better ranked than the serving cell within $T_{evaluateFDD}$ (see table 4.1), from the moment the intra-frequency cell became at least 3 dB better ranked than the current serving cell, provided that Treselection timer is set to zero and either CPICH Ec/Io or CPICH RSCP is used as measurement quantity for cell reselection.

~~If parameter Treselection has value different from zero, the UE shall evaluate an intra-frequency cell better than the serving cell during the Treselection time, before the UE shall reselect the new cell.~~

If Treselection timer has a non zero value and the intra-frequency cell is better ranked than the serving cell, the UE shall evaluate this intra-frequency cell for the Treselection time. If this cell remains better ranked within this duration, then the UE shall reselect that cell.

4.2.2.3 Measurements of inter-frequency FDD cells

The UE shall measure CPICH Ec/Io and CPICH RSCP at least every $(N_{carrier}-1) * T_{measureFDD}$ (see table 4.1) for inter-frequency cells that are detected and measured according to the measurement rules. The parameter $N_{carrier}$ is the number of carriers used for FDD cells. The UE shall filter CPICH Ec/Io and CPICH RSCP measurements of each measured inter-frequency cell using at least 2 measurements, which are taken so that the time difference between the measurements is at least $T_{measureFDD}/2$.

If CPICH Ec/Io is used as measurement quantity for cell reselection, the filtering shall be such that the UE shall be capable of evaluating that an already detected inter-frequency cell has become better ranked than the serving cell within $(N_{carrier}-1) * T_{evaluateFDD}$ (see table 4.1) from the moment the inter-frequency cell became at least 3 dB better than the current serving cell provided that Treselection timer is set to zero. For non-detected inter-frequency cells, the filtering shall be such that the UE shall be capable of evaluating that inter-frequency cell has become better ranked than the serving cell within 30 s from the moment the inter-frequency cell became at least 3 dB better ranked than the current serving cell provided that Treselection timer is set to zero.

If CPICH RSCP is used as measurement quantity for cell reselection, the filtering shall be such that the UE shall be capable of evaluating that an already detected inter-frequency cell has become better ranked than the serving cell within $(N_{carrier}-1) * T_{evaluateFDD}$ from the moment the inter-frequency cell became at least 5 dB better than the current serving cell provided that Treselection timer is set to zero. For non-detected inter-frequency cells, the filtering shall be such that the UE shall be capable of evaluating that inter-frequency cell has become better ranked than the serving cell within 30 s from the moment the inter-frequency cell became at least 5 dB better ranked than the current serving cell provided that Treselection timer is set to zero.

~~If Treselection timer has value different from zero, the UE shall evaluate an inter-frequency cell better than the serving cell during the Treselection time, before the UE shall reselect the new cell.~~

If Treselection timer has a non zero value and the inter-frequency cell is better ranked than the serving cell, the UE shall evaluate this inter-frequency cell for the Treselection time. If this cell remains better ranked within this duration, then the UE shall reselect that cell.

4.2.2.4 Measurements of inter-frequency TDD cells

The UE shall measure the PCCPCH RSCP of each TDD neighbour cell indicated in the measurement control system information of the serving cell, according to the measurement rules defined in TS25.304, at least every $T_{measureTDD}$ (see table 4.1 TS25.133). The UE shall filter PCCPCH RSCP measurements of each measured inter-frequency cell using at least 2 measurements, which are taken so that the time difference between the measurements is at least $T_{measureTDD}/2$.

The filtering of PCCPCH RSCP shall be such that the UE shall be capable of evaluating that an already detected inter-frequency cell has become better ranked than the serving cell within $N_{carrierTDD} * T_{evaluateTDD}$ from the moment the inter-frequency cell became at least 3 dB better ranked than the current serving cell provided that Treselection timer is set to zero. For non-detected inter-frequency cells, the filtering shall be such that the UE shall be capable of evaluating that inter-frequency cell has become better ranked than the serving cell within 30 s from the moment the inter-frequency cell became at least 3 dB better ranked than the current serving cell provided that Treselection timer is set to zero.

~~If Treselection timer has a value different from zero, the UE shall evaluate an inter-frequency cell better ranked than the serving cell during the Treselection time, before the UE shall reselect the new cell.~~If

Treselection timer has a non zero value and the inter-frequency cell is better ranked than the serving cell, the UE shall evaluate this inter-frequency cell for the Treselection time. If this cell remains better ranked within this duration, then the UE shall reselect that cell.

The ranking of the cells shall be made according to the cell reselection criteria specified in TS25.304. ~~The use of mapping functions is indicated in the broadcast.~~

4.2.2.5 Measurements of inter-RAT GSM cells

The UE shall measure the signal level of each GSM neighbour cell indicated in the measurement control system information of the serving cell, according to the measurement rules defined in TS25.304, at least every $T_{measureGSM}$ (see table 4.1). The UE shall maintain a running average of 4 measurements for each cell. The measurement samples for each cell shall be as far as possible uniformly distributed over the averaging period.

The UE shall attempt to verify the BSIC for each of the 4 best ranked GSM BCCH carriers (the best ranked according to the cell reselection criteria defined in TS25.304) at least every 30 seconds if GSM cells are measured according to the measurement rules. If a change of BSIC is detected for one GSM cell then that GSM BCCH carrier shall be treated as a new GSM neighbour cell.

If the UE detects a BSIC, which is not indicated in the measurement control system information, the UE shall not consider that GSM BCCH carrier in cell reselection. The UE also shall not consider the GSM BCCH carrier in cell reselection, if the UE can not demodulate the BSIC of that GSM BCCH carrier.

4.2.2.6 Evaluation of cell re-selection criteria

The UE shall evaluate the cell re-selection criteria defined in TS 25.304 for the cells, which have new measurement results available, at least every DRX cycle.

UE shall perform cell reselection immediately after the UE has found a higher ranked suitable cell, unless less than 1 second has elapsed from the moment the UE started camping on the current cell.

4.2.2.7 Maximum interruption in paging reception

UE shall perform the cell re-selection with minimum interruption in monitoring downlink channels for paging reception.

At intra-frequency cell re-selection, the UE shall monitor the downlink of current serving cell for paging reception until the UE is capable to start monitoring downlink channels of the target intra-frequency cell for paging reception. The interruption time shall not exceed 50 ms.

At inter-frequency and inter-RAT cell re-selection, the UE shall monitor the downlink of current serving cell for paging reception until the UE is capable to start monitoring downlink channels for paging reception of the target inter-frequency cell. The interruption time must not exceed T_REP + 50 ms. T_REP is the longest repetition period for the system information required to be read by the UE to camp on the cell.

These requirements assume sufficient radio conditions, so that decoding of system information can be made without errors.

Table 4.1: $T_{measureFDD}$, $T_{evaluateFDD}$, $T_{measureTDD}$, $T_{evaluateTDD}$, and $T_{measureGSM}$

DRX cycle length [s]	N_{serv} [number of DRX cycles]	$T_{measureFDD}$ [s] (number of DRX cycles)	$T_{evaluateFDD}$ [s] (number of DRX cycles)	$T_{measureTDD}$ [s] (number of DRX cycles)	$T_{evaluateTDD}$ [s] (number of DRX cycles)	$T_{measureGSM}$ [s] (number of DRX cycles)
0.08	4	0.64 (8 DRX cycles)	2.56 (32 DRX cycles)	0.64 (8 DRX cycles)	2.56 (32 DRX cycles)	2.56 (32 DRX cycles)
0.16	4	0.64 (4)	2.56 (16)	0.64 (4)	2.56 (16)	2.56 (16)
0.32	4	1.28 (4)	5.12 (16)	1.28 (4)	5.12 (16)	5.12 (16)
0.64	4	1.28 (2)	5.12 (8)	1.28 (2)	5.12 (8)	5.12 (8)
1.28	2	1.28 (1)	6.4 (5)	1.28 (1)	6.4 (5)	6.4 (5)
2.56	2	2.56 (1)	7.68 (3)	2.56 (1)	7.68 (3)	7.68 (3)
5.12	1	5.12 (1)	10.24 (2)	5.12 (1)	10.24 (2)	10.24 (2)

In idle mode, UE shall support DRX cycles lengths 0.64, 1.28, 2.56 and 5.12 s, according to [16].

4.2.2.8 Number of cells in cell lists

- For idle mode cell re-selection purposes, the UE shall be capable of monitoring:
- 32 intra-frequency cells (including serving cell),
- 32 inter-frequency cells, including
    - FDD mode cells on maximum 2 additional carriers, and
    - TDD mode cells, and
- 32 inter RAT GSM cells,

as indicated in cell information lists sent in system information (BCCH).

3GPP TSG RAN WG4 Meeting #17 R4-010706

Gothenburg, Sweden 21st - 25th May 2001

CR-Form-v3

CHANGE REQUEST

⌘ **25.133** **CR** **99** ⌘ rev **-** ⌘ Current version: **3.5.0** ⌘

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

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

Title:	⌘	Cell-reselection test cases in CELL_PCH and URA_PCH
Source:	⌘	RAN WG4
Work item code:	⌘	TEI
Date:	⌘	2001-05-23
Category:	⌘	**F**
Release:	⌘	R99

Use one of the following categories:
- ***F*** *(essential correction)*
- ***A*** *(corresponds to a correction in an earlier release)*
- ***B*** *(Addition of feature),*
- ***C*** *(Functional modification of feature)*
- ***D*** *(Editorial modification)*

Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
REL-4	*(Release 4)*
REL-5	*(Release 5)*

Reason for change:	⌘	Correction of the CELL_PCH and URA_PCH cell re-selection test cases in 25.133.
Summary of change:	⌘	Alignment of the cell re-selection test cases in section A.5.6 and A.5.7 with the general requirements. The proposed changes are identical to the idle mode cell re-selection test cases proposed in R4-010707.
Consequences if not approved:	⌘	The cell re-selection test cases in section A.5.6 and A.5.7 will not be correct.

Clauses affected:	⌘	A.5.6, A.5.7
Other specs affected:	⌘	☐ Other core specifications ☐ Test specifications ☐ O&M Specifications
	⌘	
Other comments:	⌘	

How to create CRs using this form:

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

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

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://www.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2000-09 contains the specifications resulting from the September 2000 TSG meetings.

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

A.5.6 Cell Re-selection in CELL_PCH

A.5.6.1 One frequency present in the neighbour list

A.5.6.1.1 Test Purpose and Environment

The purpose of this test is to verify the requirement for the cell re-selection delay in CELL_PCH state in section 5.6.2~~.1.1~~.

The test parameters are given in Table A5.5 and A5.6. The UE is requested to monitor neighbouring cells on 1 carrier. The maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell shall be 1280 ms.

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

Parameter		Unit	Value	Comment
initial condition	Active cell		Cell2	
	Neighbour cells		Cell1, Cell3,Cell4, Cell5, Cell6	
final condition	Active cell		Cell1	
Access Service Class (ASC#0) - Persistence value		-	1	Selected so that no additional delay is caused by the random access procedure. The value shall be used for all cells in the test.
DRX cycle length		s	1.28	The value shall be used for all cells in the test.
T1		s	15	T1 need to be defined so that cell re-selection reaction time is taken into account.
T2		s	15	T2 need to be defined so that cell re-selection reaction time is taken into account.

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

Parameter	Unit	Cell 1		Cell 2		Cell 3		Cell 4		Cell 5		Cell 6	
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number		Channel 1		Channel 1		Channel 1		Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior	dB	-10		-10		-10		-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12		-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12		-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15		-15		-15		-15	
OCNS_Ec/Ior	dB	-0.941		-0.941		-0.941		-0.941		-0.941		-0.941	
$\hat{I}_{or}/I_{oc}$	dB	7.3	10.27	10.27	7.3	0.27		0.27		0.27		0.27	
I_{oc}	dBm/3.84 MHz	-70											
CPICH_Ec/Io	dB	-16	-13	-13	-16	-23		-23		-23		-23	
Propagation Condition		AWGN											
Cell_selection_and_reselection_quality_measure		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N_0	
Qqualmin	dB	-20[-]		-20[-]		-20[-]		-20[-]		-20[-]		-20[-]	
Qrxlevmin	dBm	-115[-]		-115[-]		-115[-]		-115[-]		-115[-]		-115[-]	
UE_TXPWR_MAX_RACH	dBm	21[-]		21[-]		21[-]		21[-]		21[-]		21[-]	
Qoffset$2_{s,n}$	dB	C1, C2: 0[-] C1, C3: 0[-] C1, C4: 0[-] C1, C5: 0[-] C1, C6: 0[-]		C2, C1: 0[-] C2, C3: 0[-] C2, C4: 0[-] C2, C5: 0[-] C2, C6: 0[-]		C3, C1: 0[-] C3, C2: 0[-] C3, C4: 0[-] C3, C5: 0[-] C3, C6: 0[-]		C4, C1: 0[-] C4, C2: 0[-] C4, C3: 0[-] C4, C5: 0[-] C4, C6: 0[-]		C5, C1: 0[-] C5, C2: 0[-] C5, C3: 0[-] C5, C4: 0[-] C5, C6: 0[-]		C6, C1: 0[-] C6, C2: 0[-] C6, C3: 0[-] C6, C4: 0[-] C6, C5: 0[-]	
Qhyst2	dB	0[-]		0[-]		0[-]		0[-]		0[-]		0[-]	
PENALTY_TIME	s	0[-]		0[-]		0[-]		0[-]		0[-]		0[-]	
TEMPORARY_OFFSET	dB	0[-]		0[-]		0[-]		0[-]		0[-]		0[-]	
Treselection	s	0[-]		0[-]		0[-]		0[-]		0[-]		0[-]	
Sintrasearch	dB	not sent[-]		not sent[-]		not sent[-]		not sent[-]		not sent[-]		not sent[-]	

A.5.6.1.2 Test Requirements

~~The UE shall select cell 1 within a cell re-selection delay specified in 5.6.2.1.1~~

The cell re-selection delay is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 1, and starts to send preambles on the PRACH for sending the CELL UPDATE message with cause value "cell reselection" in Cell 1.

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

NOTE:

The cell re-selection delay can be expressed as: $T_{evaluateFDD}$ + T_{SI}, where:

$T_{evaluateFDD}$ See section 5.6.2.

T_{SI} Maximum repetition period of relevant system info blocks that needs to be received by the UE to camp on a cell. 1280 ms is assumed in this test case.

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

A.5.6.2 Two frequencies present in the neighbour list

A.5.6.2.1 Test Purpose and Environment

The purpose of this test is to verify the requirement for the cell re-selection delay in CELL_PCH state in section 5.6.2~~.1.2~~. The UE is requested to monitor neighbouring cells on 2 carriers. The maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell shall be 1280 ms.

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

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

Parameter		Unit	Value	Comment
initial condition	Active cell		Cell2	
	Neighbour cells		Cell1, Cell3,Cell4, Cell5, Cell6	
final condition	Active cell		Cell1	
Access Service Class (ASC#0) - Persistence value		-	1	Selected so that no additional delay is caused by the random access procedure. The value shall be used for all cells in the test.
DRX cycle length		s	1.28	The value shall be used for all cells in the test.
T1		s	30	T1 need to be defined so that cell re-selection reaction time is taken into account.
T2		s	15	T2 need to be defined so that cell re-selection reaction time is taken into account.

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

Parameter	Unit	Cell 1		Cell 2		Cell 3		Cell 4		Cell 5		Cell 6	
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number		Channel 1		Channel 2		Channel 1		Channel 1		Channel 2		Channel 2	
CPICH_Ec/Ior	dB	-10		-10		-10		-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12		-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12		-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15		-15		-15		-15	
OCNS_Ec/Ior	dB	-0.941		-0.941		-0.941		-0.941		-0.941		-0.941	
$\hat{I}_{or}/I_{oc}$	dB	-3.4	2.2	2.2	-3.4	-7.4	-4.8	-7.4	-4.8	-4.8	-7.4	-4.8	-7.4
I_{oc}	dBm/3.84 MHz	-70											
CPICH_Ec/Io	dB	-16	-13	-13	-16	-20		-20		-20		-20	
Propagation Condition		AWGN											
Cell_selection_and_reselection_quality_measure		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N_0	
Qqualmin	dB	-20[-]		-20[-]		-20[-]		-20[-]		-20[-]		-20[-]	
Qrxlevmin	dBm	-115[-]		-115[-]		-115[-]		-115[-]		-115[-]		-115[-]	
UE_TXPWR_MAX_RACH	dBm	21[-]		21[-]		21[-]		21[-]		21[-]		21[-]	
Qoffset2$_{s,n}$	dB	C1, C2: 0[-] C1, C3: 0[-] C1, C4: 0[-] C1, C5: 0[-] C1, C6: 0[-]		C2, C1: 0[-] C2, C3: 0[-] C2, C4: 0[-] C2, C5: 0[-] C2, C6: 0[-]		C3, C1: 0[-] C3, C2: 0[-] C3, C4: 0[-] C3, C5: 0[-] C3, C6: 0[-]		C4, C1: 0[-] C4, C2: 0[-] C4, C3: 0[-] C4, C5: 0[-] C4, C6: 0[-]		C5, C1: 0[-] C5, C2: 0[-] C5, C3: 0[-] C5, C4: 0[-] C5, C6: 0[-]		C6, C1: 0[-] C6, C2: 0[-] C6, C3: 0[-] C6, C4: 0[-] C6, C5: 0[-]	
Qhyst2	dB	0[-]		0[-]		0[-]		0[-]		0[-]		0[-]	
PENALTY_TIME	s	0[-]		0[-]		0[-]		0[-]		0[-]		0[-]	
TEMPORARY_OFFSET	dB	0[-]		0[-]		0[-]		0[-]		0[-]		0[-]	
Treselection	s	0[-]		0[-]		0[-]		0[-]		0[-]		0[-]	
Sintrasearch	dB	not sent[-]		not sent[-]		not sent[-]		not sent[-]		not sent[-]		not sent[-]	
Sintersearch	dB	not sent[-]		not sent[-]		not sent[-]		not sent[-]		not sent[-]		not sent[-]	

A.5.6.2.2 Test Requirements

~~The UE shall select cell 1 within a cell re-selection delay specified in 5.6.2.1.2~~

The cell re-selection delay is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 1, and starts to send preambles on the PRACH for sending the CELL UPDATE message with cause value "cell reselection" in Cell 1.

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

NOTE:

The cell re-selection delay can be expressed as: $T_{evaluateFDD} + T_{SI}$, where:

$T_{evaluateFDD}$ See section 5.6.2.

T_{SI} Maximum repetition period of relevant system info blocks that needs to be received by the UE to camp on a cell. 1280 ms is assumed in this test case.

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

A.5.7 Cell Re-selection in URA_PCH

A.5.7.1 One frequency present in the neighbour list

A.5.7.1.1 Test Purpose and Environment

The purpose of this test is to verify the requirement for the cell re-selection delay in URA_PCH state in section 5.7.2~~.1.1~~.

The test parameters are given in Table A.5.9 and A.5.10. The UE is requested to monitor neighbouring cells on 1 carrier. The maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell shall be 1280 ms.

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

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

Parameter		Unit	Value	Comment
initial condition	Active cell		Cell2	
	Neighbour cells		Cell1, Cell3,Cell4, Cell5, Cell6	
final condition	Active cell		Cell1	
Access Service Class (ASC#0) - Persistence value		-	1	Selected so that no additional delay is caused by the random access procedure. The value shall be used for all cells in the test.
DRX cycle length		s	1.28	The value shall be used for all cells in the test.
T1		s	15	T1 need to be defined so that cell re-selection reaction time is taken into account.
T2		s	15	T2 need to be defined so that cell re-selection reaction time is taken into account.

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

Parameter	Unit	Cell 1		Cell 2		Cell 3		Cell 4		Cell 5		Cell 6	
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number		Channel 1		Channel 1		Channel 1		Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior	dB	-10		-10		-10		-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12		-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12		-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15		-15		-15		-15	
OCNS_Ec/Ior	dB	-0.941		-0.941		-0.941		-0.941		-0.941		-0.941	
$\hat{I}_{or}/I_{oc}$	dB	7.3	10.27	10.27	7.3	0.27		0.27		0.27		0.27	
I_{oc}	dBm/3.84 MHz	-70											
CPICH_Ec/Io	dB	-16	-13	-13	-16	-23		-23		-23		-23	
Propagation Condition		AWGN											
Cell_selection_and_reselection_quality_measure		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N_0	
Qqualmin	dB	-20[-]		-20[-]		-20[-]		-20[-]		-20[-]		-20[-]	
Qrxlevmin	dBm	-115[-]		-115[-]		-115[-]		-115[-]		-115[-]		-115[-]	
UE_TXPWR_MAX_RACH	dBm	21[-]		21[-]		21[-]		21[-]		21[-]		21[-]	
Qoffset2$_{s,n}$	dB	C1, C2: 0[-] C1, C3: 0[-] C1, C4: 0[-] C1, C5: 0[-] C1, C6: 0[-]		C2, C1: 0[-] C2, C3: 0[-] C2, C4: 0[-] C2, C5: 0[-] C2, C6: 0[-]		C3, C1: 0[-] C3, C2: 0[-] C3, C4: 0[-] C3, C5: 0[-] C3, C6: 0[-]		C4, C1: 0[-] C4, C2: 0[-] C4, C3: 0[-] C4, C5: 0[-] C4, C6: 0[-]		C5, C1: 0[-] C5, C2: 0[-] C5, C3: 0[-] C5, C4: 0[-] C5, C6: 0[-]		C6, C1: 0[-] C6, C2: 0[-] C6, C3: 0[-] C6, C4: 0[-] C6, C5: 0[-]	
Qhyst2	dB	0[-]		0[-]		0[-]		0[-]		0[-]		0[-]	
PENALTY_TIME	s	0[-]		0[-]		0[-]		0[-]		0[-]		0[-]	
TEMPORARY_OFFSET	dB	0[-]		0[-]		0[-]		0[-]		0[-]		0[-]	
Treselection	s	0[-]		0[-]		0[-]		0[-]		0[-]		0[-]	
Sintrasearch	dB	not sent[-]		not sent[-]		not sent[-]		not sent[-]		not sent[-]		not sent[-]	

A.5.7.1.2 Test Requirements

~~The UE shall select cell 1 within a cell re-selection delay specified in 5.7.2.1.1~~

The cell re-selection delay is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 1, and starts to send preambles on the PRACH for sending the URA UPDATE message with cause value "URA reselection" in Cell 1.

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

NOTE:

The cell re-selection delay can be expressed as: $T_{evaluateFDD}$ + T_{SI}, where:

$T_{evaluateFDD}$ See section 5.7.2.

T_{SI} Maximum repetition period of relevant system info blocks that needs to be received by the UE to camp on a cell. 1280 ms is assumed in this test case.

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

A.5.7.2 Two frequencies present in the neighbour list

A.5.7.2.1 Test Purpose and Environment

The purpose of this test is to verify the requirement for the cell re-selection delay in URA_PCH state in section 5.7.2~~.1.2~~.

The test parameters are given in Table A5.11 and A5.12. The UE is requested to monitor neighbouring cells on 2 carriers. The maximum repetition period of the relevant system info blocks that needs to be received by the UE to camp on a cell shall be 1280 ms.

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

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

Parameter		Unit	Value	Comment
initial condition	Active cell		Cell2	
	Neighbour cells		Cell1, Cell3,Cell4, Cell5, Cell6	
final condition	Active cell		Cell1	
Access Service Class (ASC#0) - Persistence value		-	1	Selected so that no additional delay is caused by the random access procedure. The value shall be used for all cells in the test.
DRX cycle length		s	1.28	The value shall be used for all cells in the test.
T1		s	30	T1 need to be defined so that cell re-selection reaction time is taken into account.
T2		s	15	T2 need to be defined so that cell re-selection reaction time is taken into account.

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

Parameter	Unit	Cell 1		Cell 2		Cell 3		Cell 4		Cell 5		Cell 6	
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number		Channel 1		Channel 2		Channel 1		Channel 1		Channel 2		Channel 2	
CPICH_Ec/Ior	dB	-10		-10		-10		-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12		-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12		-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15		-15		-15		-15	
OCNS_Ec/Ior	dB	-0.941		-0.941		-0.941		-0.941		-0.941		-0.941	
$\hat{I}_{or}/I_{oc}$	dB	-3.4	2.2	2.2	-3.4	-7.4	-4.8	-7.4	-4.8	-4.8	-7.4	-4.8	-7.4
I_{oc}	dBm/3.84 MHz	-70											
CPICH_Ec/Io	dB	-16	-13	-13	-16	-20		-20		-20		-20	
Propagation Condition		AWGN											
Cell_selection_and_reselection_quality_measure		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N_0		CPICH E_c/N_0	
Qqualmin	dB	-20[-]		-20[-]		-20[-]		-20[-]		-20[-]		-20[-]	
Qrxlevmin	dBm	-115[-]		-115[-]		-115[-]		-115[-]		-115[-]		-115[-]	
UE_TXPWR_MAX_RACH	dBm	21[-]		21[-]		21[-]		21[-]		21[-]		21[-]	
Qoffset2$_{s,n}$	dB	C1, C2: 0[-] C1, C3: 0[-] C1, C4: 0[-] C1, C5: 0[-] C1, C6: 0[-]		C2, C1: 0[-] C2, C3: 0[-] C2, C4: 0[-] C2, C5: 0[-] C2, C6: 0[-]		C3, C1: 0[-] C3, C2: 0[-] C3, C4: 0[-] C3, C5: 0[-] C3, C6: 0[-]		C4, C1: 0[-] C4, C2: 0[-] C4, C3: 0[-] C4, C5: 0[-] C4, C6: 0[-]		C5, C1: 0[-] C5, C2: 0[-] C5, C3: 0[-] C5, C4: 0[-] C5, C6: 0[-]		C6, C1: 0[-] C6, C2: 0[-] C6, C3: 0[-] C6, C4: 0[-] C6, C5: 0[-]	
Qhyst2	dB	0[-]		0[-]		0[-]		0[-]		0[-]		0[-]	
PENALTY_TIME	s	0[-]		0[-]		0[-]		0[-]		0[-]		0[-]	
TEMPORARY_OFFSET	dB	0[-]		0[-]		0[-]		0[-]		0[-]		0[-]	
Treselection	s	0[-]		0[-]		0[-]		0[-]		0[-]		0[-]	
Sintrasearch	dB	not sent[-]		not sent[-]		not sent[-]		not sent[-]		not sent[-]		not sent[-]	
Sintersearch	dB	not sent[-]		not sent[-]		not sent[-]		not sent[-]		not sent[-]		not sent[-]	

A.5.7.2.2 Test Requirements

The UE shall select cell 1 within a cell re-selection delay specified in 5.7.2.1.2

The cell re-selection delay is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 1, and starts to send preambles on the PRACH for sending URA UPDATE message with cause value "URA reselection" in Cell 1.

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

NOTE:

The cell re-selection delay can be expressed as: $T_{evaluateFDD} + T_{SI}$, where:

$T_{evaluateFDD}$ See section 5.7.2.

T_{SI} Maximum repetition period of relevant system info blocks that needs to be received by the UE to camp on a cell. 1280 ms is assumed in this test case.

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