TSG RAN Meeting #17 **RP-020475**
Biarritz, France, 3 - 6 September, 2002

Title **CRs (R'99 and Rel-4/Rel-5 Category A) to TS 25.133**
Source **TSG RAN WG4**
Agenda Item **7.4.3**

RAN4 Tdoc	Spec	CR	R	Cat	Rel	Curr Ver	Title	Work Item
R4-021319	25.133	434	1	F	R99	3.10.0	Correction of Identification times in CELL_FACH state for BSIC identification	TEI
R4-021320	25.133	435	1	A	Rel-4	4.5.0	Correction of Identification times in CELL_FACH state for BSIC identification	TEI
R4-021321	25.133	436	1	A	Rel-5	5.3.0	Correction of Identification times in CELL_FACH state for BSIC identification	TEI
R4-021333	25.133	446	1	F	R99	3.10.0	Accuracy requirement of UE Rx-Tx time difference type 2	TEI
R4-021334	25.133	447	1	A	Rel-4	4.5.0	Accuracy requirement of UE Rx-Tx time difference type 2	TEI
R4-021335	25.133	448	1	A	Rel-5	5.3.0	Accuracy requirement of UE Rx-Tx time difference type 2	TEI
R4-021140	25.133	449		F	R99	3.10.0	Correction of CELL_FACH test case	TEI
R4-021141	25.133	450		A	Rel-4	4.5.0	Correction of CELL_FACH test case	TEI
R4-021142	25.133	451		A	Rel-5	5.3.0	Correction of CELL_FACH test case	TEI
R4-021336	25.133	458	1	F	R99	3.10.0	Correction of SCH side conditions and corrections of test cases	TEI
R4-021337	25.133	459	1	A	Rel-4	4.5.0	Correction of SCH side conditions and corrections of test cases	TEI
R4-021338	25.133	460	1	A	Rel-5	5.3.0	Correction of SCH side conditions and corrections of test cases	TEI

3GPP TSR RAN WG4 Meeting #24 **R4-021319**

Helsinki, Finland 12 - 16 August 2002

CR-Form-v7

CHANGE REQUEST

⌘ **25.133** **CR** **434** ⌘ **rev** **1** ⌘ Current version: **3.10.0** ⌘

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

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

Title:	⌘	**Correction of Identification times in CELL_FACH state for BSIC identification**
Source:	⌘	RAN WG4
Work item code:	⌘	TEI
Date:	⌘	21/08/2002
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)*
Rel-6	*(Release 6)*

Reason for change: ⌘

Table 8.13 is changed as follows :
- Inconsistencies with Table 8.10A :
  - Tmeas = 120 ms is not valid for N_TTI = 1 and N_TTI = 2.
  - Tmeas = 240 ms is not valid for N_TTI = 4
  - Tmeas = 80 ms is not valid for N_TTTI = 4
  - Last 2 lines are removed
- Some errors were found and corrected as follows :
  - for N_TTI = 8 ; Tmeas = 960 ms and Tmeas = 1920 ms : there seems to be typos which minored the values
  - Tmeas =480 ; N_TTI = 4 is reduced from 3840 to 2880
- One note is added :
  - for N_TTI = 1 ; Tmeas = 960 ms, 1280 and 1920 ms. These combinations of parameters result in long identification time which is not specified.

Also the DRX cycle is removed from the corresponding test case.

Summary of change: ⌘

Change the values in the table 8.13
Remove DRX cycle in test case of section A.5.5.3.

Isolated Impact: The CR has an isolated impact on the BSIC identification and reconfirmation procedures because the time allowed to do a cell-reselection is changed.

Consequences if not approved: ⌘

The specified values of $T_{identify,GSM}$, for the measurement occasion patterns will be erroneous.

	- the correction is needed because the system cannot function correctly without this correction. - Some (N_TTI;T_meas) combinations are inconsistent with Table 8.10A The UE is not able to accept other (N_TTI;T_meas) combinations than included in the Table 8.10A. The behaviour of the UE is not specified when configured by other combinations and therefore can be different from one manufacturer to another. One possible situation is that UTRAN assumes that the UE accept the combination whereas the UE rejects it. Removal of these combinations clear such situations. - When values in previous version were optimistic, UTRAN wrongly anticipated identification or re-confirm failure too soon. Then UTRAN concluded wrongly that the GSM cell was not detectable by the UE. - When values in previous version were pessimistic, UTRAN wrongly anticipated identification or re-confirm failure too late. One possible side effect was that UTRAN could slow down the re-selection time. - Some new values are added because some were missing. One possible misinterpretation is that the corresponding (N_TTI;T_meas) combinations are not usable by UTRAN which is not true. These hereabove faults happen with 100 % probablility when UTRAN configures the UE with the previous (N_TTI;T_meas) combinations.

Clauses affected:	⌘	8.4.2.5.2, A.5.5.3			
Other specs affected:	⌘	**Y**	**N**		
			X	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘	Equivalent CRs in other Releases: CR435r1 cat. A to 25.133 v4.5.0, CR436r1 cat. A to 25.133 v5.3.0			

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.

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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.

8.4.2.5.2 BSIC verification

a) For a UE requiring measurement occasions.

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.

b) For a UE not requiring measurement occasions

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

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

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

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)
80	2880	1280	-	-
~~120~~	~~5280~~	~~2640~~	-	-
160	7680	2880	1280	640
240	29760	5280	~~1920~~	-
320	14080	6400	2560	1280
480	34560	12480	~~3840~~2880	1920
640	34560	12800	5120	2560
960	*	24960	5760	~~2840~~3840
1280	*	20480	10240	5120
1920	*	34560	15360	~~5680~~7680
~~2560~~				~~10240~~
~~3840~~				~~15360~~

* Note : There are no performance requirements for these combinations of parameters because they result in long identification time.

--- New Section ---

A.5.5.3 Cell Reselection to GSM

A.5.5.3.1 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 5.5.2.1.4.

This scenario implies the presence of 1 UTRAN serving cell, and 1 GSM cell to be re-selected. The UE is requested to monitor neighbouring cells on 1 UMTS carrier and 6 GSM cells. Test parameters are given in Table, A.5.4A, A.5.4B, A.5.4C, A.5.4D, A.5.4E.

Table A.5.4A: General test parameters for UTRAN to GSM Cell Re-selection

Parameter		Unit	Value	Comment
Initial condition	Active cell		Cell1	
	Neighbour cell		Cell2	
Final condition	Active cell		Cell2	
~~DRX cycle length~~		~~s~~	~~1.28~~	
HCS				Not used
Neighbour cell list size			24 FDD neighbours on Channel 1 6 GSM neighbours including ARFCN 1	
T1		s	5	
T2		s	10	

The transport and physical parameters of the S-CCPCH carrying the FACH are defined in Table A.5.3A and Table A.5.3B.

Table A.5.4B: 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.5.4C: 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.5.4D: Cell re-selection UTRAN to GSM cell case (cell 1)

Parameter	Unit	Cell 1 (UTRA)	
		T1	T2
UTRA RF Channel Number		Channel 1	
CPICH_Ec/Ior	dB	-10	
PCCPCH_Ec/Ior	dB	-12	
SCH_Ec/Ior	dB	-12	
PICH_Ec/Ior	dB	-15	
S-CCPCH_Ec/Ior	dB	-12	
OCNS_Ec/Ior	dB	-1.295	
$\hat{I}_{or}/I_{oc}$	dB	0	-5
I_{oc}	dBm/3.84 MHz	-70	
CPICH_Ec/Io	dB	-13	-16.2
CPICH_RSCP	dBm	-80	-85
Propagation Condition		AWGN	
Cell_selection_and_reselection_quality_measure		CPICH Ec/Io	
Qqualmin	dB	-20	
Qrxlevmin	dBm	-115	
UE_TXPWR_MAX_RACH	dBm	21	
$Qoffset1_{s,n}$	dB	C1, C2: 0	
Qhyst1	dB	0	
Treselection	s	0	
$Ssearch_{RAT}$	dB	Not sent	
IE “FACH Measurement occasion info”		Sent	
FACH Measurement occasion cycle length coefficient		3	
Inter-frequency FDD measurement indicator		FALSE	
Inter-frequency TDD measurement indicator		FALSE	
Inter-RAT measurement indicators		Included	
>RAT type		GSM	

Table A.5.4E: Cell re-selection UTRAN to GSM cell case (cell 2)

Parameter	Unit	Cell 2 (GSM)	
		T1	T2
Absolute RF Channel Number		ARFCN 1	
RXLEV	dBm	-90	-75
RXLEV_ACCESS_MIN	dBm	-104	
MS_TXPWR_MAX_CCH	dBm	33	

A.5.5.3.2 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 starts to transmit the random access in Cell 2 (the GSM cell).

The cell re-selection delay shall be less than $5.5 + T_{RA}$ s.

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

NOTE: The cell re-selection delay can be expressed

$$T_{reselection,\,GSM} = T_{identify,GSM} + T_{measurement,\,GSM} + 40 + T_{BCCH} + T_{RA}\ \text{ms}$$

where:

$T_{identify,GSM}$ Specified in 8.4.2.5.2.1, here it is 2880 ms

$T_{measurement,\,GSM}$ Specified in 5.5.2.1.4, here it is 640 ms

T_{BCCH} According to [21], the maximum time allowed to read the BCCH data, when being synchronized to a BCCH carrier, is 1.9 s.

T_{RA} The additional delay caused by the random access procedure in the GSM cell. Shall be defined by T1/RF when the test case is further detailed in TS 34.121.

This gives a total of 5.46 +T_{RA} s, allow 5.5 + T_{RA} s.

3GPP TSR RAN WG4 Meeting #24 **R4-021320**

Helsinki, Finland 12 - 16 August 2002

CR-Form-v7

CHANGE REQUEST

⌘ **25.133** **CR** **435** ⌘ **rev** **1** ⌘ Current version: **4.5.0** ⌘

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

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

Title:	⌘	**Correction of Identification times in CELL_FACH state for BSIC identification**
Source:	⌘	RAN WG4
Work item code:	⌘	TEI
Date:	⌘	21/08/2002
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)*
Rel-6 *(Release 6)*

Reason for change: ⌘

Table 8.13 is changed as follows :
- Inconsistencies with Table 8.10A :
  - Tmeas = 120 ms is not valid for N_TTI = 1 and N_TTI = 2.
  - Tmeas = 240 ms is not valid for N_TTI = 4
  - Tmeas = 80 ms is not valid for N_TTTI = 4
  - Last 2 lines are removed
- Some errors were found and corrected as follows :
  - for N_TTI = 8 ; Tmeas = 960 ms and Tmeas = 1920 ms : there seems to be typos which minored the values
  - Tmeas =480 ; N_TTI = 4 is reduced from 3840 to 2880
- One note is added :
  - for N_TTI = 1 ; Tmeas = 960 ms, 1280 and 1920 ms. These combinations of parameters result in long identification time which is not specified.

Also the DRX cycle is removed from the corresponding test case.

Summary of change: ⌘

Change the values in the table 8.13
Remove DRX cycle in test case of section A.5.5.3.

Isolated Impact: The CR has an isolated impact on the BSIC identification and reconfirmation procedures because the time allowed to do a cell-reselection is changed.

Consequences if not approved: ⌘

The specified values of $T_{identify,GSM}$, for the measurement occasion patterns will be erroneous.

- the correction is needed because the system cannot function correctly without this correction.

  - Some (N_TTI;T_meas) combinations are inconsistent with Table 8.10A The UE is not able to accept other (N_TTI;T_meas) combinations than included in the Table 8.10A. The behaviour of the UE is not specified when configured by other combinations and therefore can be different from one manufacturer to another. One possible situation is that UTRAN assumes that the UE accept the combination whereas the UE rejects it. Removal of these combinations clear such situations.

  - When values in previous version were optimistic, UTRAN wrongly anticipated identification or re-confirm failure too soon. Then UTRAN concluded wrongly that the GSM cell was not detectable by the UE.

  - When values in previous version were pessimistic, UTRAN wrongly anticipated identification or re-confirm failure too late. One possible side effect was that UTRAN could slow down the re-selection time.

  - Some new values are added because some were missing. One possible misinterpretation is that the corresponding (N_TTI;T_meas) combinations are not usable by UTRAN which is not true.

These hereabove faults happen with 100 % probablility when UTRAN configures the UE with the previous (N_TTI;T_meas) combinations.

Clauses affected:	⌘	8.4.2.5.2, A.5.5.3			
Other specs affected:	⌘	**Y**	**N**		
			X	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘	Equivalent CRs in other Releases: CR434r1 cat. F to 25.133 v3.10.0, CR436r1 cat. A to 25.133 v5.3.0			

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8.4.2.5.2 BSIC verification

1) For a UE requiring measurement occasions.

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 45.005.

2) For a UE not requiring measurement occasions

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

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

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

8.4.2.5.2.1 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.

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)
80	2880	1280	-	-
~~120~~	~~5280~~	~~2640~~	-	-
160	7680	2880	1280	640
240	29760	5280	~~1920~~	-
320	14080	6400	2560	1280
480	34560	12480	~~3840~~2880	1920
640	34560	12800	5120	2560
960	*	24960	5760	~~2840~~3840
1280	*	20480	10240	5120
1920	*	34560	15360	~~5680~~7680
~~2560~~				~~10240~~
~~3840~~				~~15360~~

* Note : There are no performance requirements for these combinations of parameters because they result in long identification time.

--- New Section ---

A.5.5.3 Cell Reselection to GSM

A.5.5.3.1 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 5.5.2.1.4.

This scenario implies the presence of 1 UTRAN serving cell, and 1 GSM cell to be re-selected. The UE is requested to monitor neighbouring cells on 1 UMTS carrier and 6 GSM cells. Test parameters are given in Table, A.5.4A, A.5.4B, A.5.4C, A.5.4D, A.5.4E.

Table A.5.4A: General test parameters for UTRAN to GSM Cell Re-selection

Parameter		Unit	Value	Comment
Initial condition	Active cell		Cell1	
	Neighbour cell		Cell2	
Final condition	Active cell		Cell2	
~~DRX cycle length~~		~~s~~	~~1.28~~	
HCS				Not used
Neighbour cell list size			24 FDD neighbours on Channel 1 6 GSM neighbours including ARFCN 1	
T1		s	5	
T2		s	10	

The transport and physical parameters of the S-CCPCH carrying the FACH are defined in Table A.5.3A and Table A.5.3B.

Table A.5.4B: 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.5.4C: 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.5.4D: Cell re-selection UTRAN to GSM cell case (cell 1)

Parameter	Unit	Cell 1 (UTRA)	
		T1	T2
UTRA RF Channel Number		Channel 1	
CPICH_Ec/Ior	dB	-10	
PCCPCH_Ec/Ior	dB	-12	
SCH_Ec/Ior	dB	-12	
PICH_Ec/Ior	dB	-15	
S-CCPCH_Ec/Ior	dB	-12	
OCNS_Ec/Ior	dB	-1.295	
$\hat{I}_{or}/I_{oc}$	dB	0	-5
I_{oc}	dBm/3.84 MHz	-70	
CPICH_Ec/Io	dB	-13	-16.2
CPICH_RSCP	dBm	-80	-85
Propagation Condition		AWGN	
Cell_selection_and_reselection_quality_measure		CPICH Ec/Io	
Qqualmin	dB	-20	
Qrxlevmin	dBm	-115	
UE_TXPWR_MAX_RACH	dBm	21	
$Qoffset1_{s,n}$	dB	C1, C2: 0	
Qhyst1	dB	0	
Treselection	s	0	
$Ssearch_{RAT}$	dB	Not sent	
IE "FACH Measurement occasion info"		Sent	
FACH Measurement occasion cycle length coefficient		3	
Inter-frequency FDD measurement indicator		FALSE	
Inter-frequency TDD measurement indicator		FALSE	
Inter-RAT measurement indicators		Included	
>RAT type		GSM	

Table A.5.4E: Cell re-selection UTRAN to GSM cell case (cell 2)

Parameter	Unit	Cell 2 (GSM)	
		T1	T2
Absolute RF Channel Number		ARFCN 1	
RXLEV	dBm	-90	-75
RXLEV_ACCESS_MIN	dBm	-104	
MS_TXPWR_MAX_CCH	dBm	33	

A.5.5.3.2 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 starts to transmit the random access in Cell 2 (the GSM cell).

The cell re-selection delay shall be less than 5.5 + T_{RA} s.

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

NOTE: The cell re-selection delay can be expressed

$$T_{reselection,\,GSM} = T_{identify,GSM} + T_{measurement,\,GSM} + 40 + T_{BCCH} + T_{RA}\ \text{ms}$$

where:

$T_{identify,GSM}$	Specified in 8.4.2.5.2.1, here it is 2880 ms
$T_{measurement,\,GSM}$	Specified in 5.5.2.1.4, here it is 640 ms
T_{BCCH}	According to [21], the maximum time allowed to read the BCCH data, when being synchronized to a BCCH carrier, is 1.9 s.
T_{RA}	The additional delay caused by the random access procedure in the GSM cell. Shall be defined by T1/RF when the test case is further detailed in TS 34.121.

This gives a total of 5.46 +T_{RA} s, allow 5.5 + T_{RA} s.

3GPP TSR RAN WG4 Meeting #24 **R4-021321**

Helsinki, Finland 12 - 16 August 2002

CR-Form-v7

CHANGE REQUEST

⌘ **25.133** **CR** **436** ⌘ **rev** **1** ⌘ Current version: **5.3.0** ⌘

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

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

Title:	⌘	**Correction of Identification times in CELL_FACH state for BSIC identification**
Source:	⌘	RAN WG4
Work item code:	⌘	TEI
Date:	⌘	21/08/2002
Category:	⌘	**A**
Release:	⌘	Rel-5

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

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

Reason for change: ⌘

Table 8.13 is changed as follows :
- Inconsistencies with Table 8.10A :
  - Tmeas = 120 ms is not valid for N_TTI = 1 and N_TTI = 2.
  - Tmeas = 240 ms is not valid for N_TTI = 4
  - Tmeas = 80 ms is not valid for N_TTTI = 4
  - Last 2 lines are removed
- Some errors were found and corrected as follows :
  - for N_TTI = 8 ; Tmeas = 960 ms and Tmeas = 1920 ms : there seems to be typos which minored the values
  - Tmeas =480 ; N_TTI = 4 is reduced from 3840 to 2880
- One note is added :
  - for N_TTI = 1 ; Tmeas = 960 ms, 1280 and 1920 ms. These combinations of parameters result in long identification times which are not specified.

Also the DRX cycle is removed from the corresponding test case.

Summary of change: ⌘

Change the values in the table 8.13
Remove DRX cycle in test case of section A.5.5.3.

Isolated Impact: The CR has an isolated impact on the BSIC identification and reconfirmation procedures because the time allowed to do a cell-reselection is changed.

Consequences if not approved: ⌘

The specified values of $T_{identify,GSM}$, for the measurement occasion patterns will be erroneous.

	- the correction is needed because the system cannot function correctly without this correction. - Some (N_TTI;T_meas) combinations are inconsistent with Table 8.10A The UE is not able to accept other (N_TTI;T_meas) combinations than included in the Table 8.10A. The behaviour of the UE is not specified when configured by other combinations and therefore can be different from one manufacturer to another. One possible situation is that UTRAN assumes that the UE accept the combination whereas the UE rejects it. Removal of these combinations clear such situations. - When values in previous version were optimistic, UTRAN wrongly anticipated identification or re-confirm failure too soon. Then UTRAN concluded wrongly that the GSM cell was not detectable by the UE. - When values in previous version were pessimistic, UTRAN wrongly anticipated identification or re-confirm failure too late. One possible side effect was that UTRAN could slow down the re-selection time. - Some new values are added because some were missing. One possible misinterpretation is that the corresponding (N_TTI;T_meas) combinations are not usable by UTRAN which is not true. These hereabove faults happen with 100 % probablility when UTRAN configures the UE with the previous (N_TTI;T_meas) combinations.

Clauses affected:	⌘	8.4.2.5.2, A.5.5.3			
Other specs affected:	⌘	**Y**	**N**		
			X	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘	Equivalent CRs in other Releases: CR434r1 cat. F to 25.133 v3.10.0, CR435r1 cat. A to 25.133 v4.5.0			

How to create CRs using this form:

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

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

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

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

8.4.2.5.2 BSIC verification

1) For a UE requiring measurement occasions.

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 45.005.

2) For a UE not requiring measurement occasions

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

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

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

8.4.2.5.2.1 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.

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)
80	2880	1280	-	-
~~120~~	~~5280~~	~~2640~~	-	-
160	7680	2880	1280	640
240	29760	5280	~~1920~~	-
320	14080	6400	2560	1280
480	34560	12480	~~3840~~2880	1920
640	34560	12800	5120	2560
960	*	24960	5760	~~2840~~3840
1280	*	20480	10240	5120
1920	*	34560	15360	~~5680~~7680
~~2560~~				~~10240~~
~~3840~~				~~15360~~

* Note : There are no performance requirements for these combinations of parameters because they result in long identification time.

--- New Section ---

A.5.5.3 Cell Reselection to GSM

A.5.5.3.1 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 5.5.2.1.4.

This scenario implies the presence of 1 UTRAN serving cell, and 1 GSM cell to be re-selected. The UE is requested to monitor neighbouring cells on 1 UMTS carrier and 6 GSM cells. Test parameters are given in Table, A.5.4A, A.5.4B, A.5.4C, A.5.4D, A.5.4E.

Table A.5.4A: General test parameters for UTRAN to GSM Cell Re-selection

Parameter		Unit	Value	Comment
Initial condition	Active cell		Cell1	
	Neighbour cell		Cell2	
Final condition	Active cell		Cell2	
~~DRX cycle length~~		~~s~~	~~1.28~~	
HCS				Not used
Neighbour cell list size			24 FDD neighbours on Channel 1 6 GSM neighbours including ARFCN 1	
T1		s	5	
T2		s	10	

The transport and physical parameters of the S-CCPCH carrying the FACH are defined in Table A.5.3A and Table A.5.3B.

Table A.5.4B: 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.5.4C: 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.5.4D: Cell re-selection UTRAN to GSM cell case (cell 1)

Parameter	Unit	Cell 1 (UTRA)	
		T1	T2
UTRA RF Channel Number		Channel 1	
CPICH_Ec/Ior	dB	-10	
PCCPCH_Ec/Ior	dB	-12	
SCH_Ec/Ior	dB	-12	
PICH_Ec/Ior	dB	-15	
S-CCPCH_Ec/Ior	dB	-12	
OCNS_Ec/Ior	dB	-1.295	
$\hat{I}_{or}/I_{oc}$	dB	0	-5
I_{oc}	dBm/3.84 MHz	-70	
CPICH_Ec/Io	dB	-13	-16.2
CPICH_RSCP	dBm	-80	-85
Propagation Condition		AWGN	
Cell_selection_and_reselection_quality_measure		CPICH Ec/Io	
Qqualmin	dB	-20	
Qrxlevmin	dBm	-115	
UE_TXPWR_MAX_RACH	dBm	21	
$Qoffset1_{s,n}$	dB	C1, C2: 0	
Qhyst1	dB	0	
Treselection	s	0	
$Ssearch_{RAT}$	dB	Not sent	
IE "FACH Measurement occasion info"		Sent	
FACH Measurement occasion cycle length coefficient		3	
Inter-frequency FDD measurement indicator		FALSE	
Inter-frequency TDD measurement indicator		FALSE	
Inter-RAT measurement indicators		Included	
>RAT type		GSM	

Table A.5.4E: Cell re-selection UTRAN to GSM cell case (cell 2)

Parameter	Unit	Cell 2 (GSM)	
		T1	T2
Absolute RF Channel Number		ARFCN 1	
RXLEV	dBm	-90	-75
RXLEV_ACCESS_MIN	dBm	-104	
MS_TXPWR_MAX_CCH	dBm	33	

A.5.5.3.2 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 starts to transmit the random access in Cell 2 (the GSM cell).

The cell re-selection delay shall be less than 5.5 + T_{RA} s.

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

NOTE: The cell re-selection delay can be expressed

$$T_{reselection,\,GSM} = T_{identify,GSM} + T_{measurement,\,GSM} + 40 + T_{BCCH} + T_{RA}\ \text{ms}$$

where:

$T_{identify,GSM}$	Specified in 8.4.2.5.2.1, here it is 2880 ms
$T_{measurement,\,GSM}$	Specified in 5.5.2.1.4, here it is 640 ms
T_{BCCH}	According to [21], the maximum time allowed to read the BCCH data, when being synchronized to a BCCH carrier, is 1.9 s.
T_{RA}	The additional delay caused by the random access procedure in the GSM cell. Shall be defined by T1/RF when the test case is further detailed in TS 34.121.

This gives a total of 5.46 +T_{RA} s, allow 5.5 + T_{RA} s.

3GPP TSR RAN WG4 Meeting #24 **R4-021333**

Helsinki, Finland 12 - 16 August 2002

CR-Form-v7

CHANGE REQUEST

⌘ **25.133** **CR** **446** ⌘ **rev** **1** ⌘ Current version: **3.10.0** ⌘

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

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

Title:	⌘	Accuracy requirement of UE Rx-Tx time difference type 2
Source:	⌘	RAN WG4
Work item code:	⌘	TEI
Date:	⌘	21/08/2002
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)*
Rel-6	*(Release 6)*

Reason for change:	⌘	Currently the accuracy requirement of UE Rx-Tx time difference type 2 measurement is not defined.
Summary of change:	⌘	It is proposed that the accuracy requirement of UE Rx-Tx time difference type 2 measurement performance is +- 1 chip. Isolated impact analysis: Currently no requirement has been defined. Hence this analysis is not possible to assess. In case implementation fulfils this requirement, there is no impact.
Consequences if not approved:	⌘	No accuracy requirement exists for UE Rx-Tx time difference type 2 measurement. Hence the position estimate based on enhanced Cell-id cannot be assessed.

Clauses affected:	⌘	9.1.9.2.1			
Other specs affected:	⌘	**Y** / **N**	Other core specifications	⌘	TS34.121
			Test specifications		
			O&M Specifications		
Other comments:	⌘	Equivalent CRs in other Releases: CR447r1 cat. A to 25.133 v4.5.0, CR448r1 cat. A to 25.133 v5.3.0			

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

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

9.1.9.2 UE Rx-Tx time difference type 2

NOTE: This measurement is used for UE positioning purposes.

It is optional for a terminal to support a subset of UE positioning methods. This measurement represents an instantaneous value that is time stamped as defined in the IE description in TS 25.331 [16].

9.1.9.2.1 Measurement requirement

Table 9.27

Parameter	Unit	Accuracy [chip]	Conditions
			Io [dBm/3.84 MHz]
UE RX-TX time difference	chip	± 1.0~~TBD~~	-94...-50

9.1.9.2.2 UE Rx-Tx time difference type 2 measurement report mapping

The reporting range is for *UE Rx-Tx time difference type2* is from 768 ... 1280 chip.

In table 9.28 the mapping of measured quantity is defined. The range in the signalling may be larger than the guaranteed accuracy range.

Table 9.28

Reported value	Measured quantity value	Unit
RX-TX_TIME _0000	UE Rx-Tx Time difference type 2 < 768.000	chip
RX-TX_TIME _0001	768.000 ≤ UE Rx-Tx Time difference type 2 < 768.0625	chip
RX-TX_TIME _0002	768.0625 ≤ UE Rx-Tx Time difference type 2 < 768.1250	chip
RX-TX_TIME _0003	768.1250 ≤ UE Rx-Tx Time difference type 2 < 768.1875	chip
…	…	…
RX-TX_TIME _8189	1279.7500 ≤ UE Rx-Tx Time difference type 2 < 1279.8125	chip
RX-TX_TIME _8190	1279.8125 ≤ UE Rx-Tx Time difference type 2 < 1279.8750	chip
RX-TX_TIME _8191	1279.8750 ≤ UE Rx-Tx Time difference type 2	chip

3GPP TSR RAN WG4 Meeting #24 **R4-021334**

Helsinki, Finland 12 - 16 August 2002

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CHANGE REQUEST

⌘ **25.133** **CR** **447** ⌘ **rev** **1** ⌘ Current version: **4.5.0** ⌘

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

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

Title:	⌘	Accuracy requirement of UE Rx-Tx time difference type 2
Source:	⌘	RAN WG4
Work item code:	⌘	TEI
Date:	⌘	21/08/2002
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)*
Rel-6	*(Release 6)*

Reason for change:	⌘	Currently the accuracy requirement of UE Rx-Tx time difference type 2 measurement is not defined.
Summary of change:	⌘	It is proposed that the accuracy requirement of UE Rx-Tx time difference type 2 measurement performance is +- 1 chip.
Consequences if not approved:	⌘	No accuracy requirement exists for UE Rx-Tx time difference type 2 measurement. Hence the position estimate based on enhanced Cell-id cannot be assessed.

Clauses affected:	⌘	9.1.9.2.1			
Other specs affected:	⌘	**Y** / **N**	Other core specifications	⌘	TS34.121
		X /	Test specifications		
		/ **X**	O&M Specifications		
Other comments:	⌘	Equivalent CRs in other Releases: CR446r1 cat. F to 25.133 v3.10.0, CR448r1 cat. A to 25.133 v5.3.0			

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

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

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

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

9.1.9.2 UE Rx-Tx time difference type 2

NOTE: This measurement is used for UE positioning purposes.

It is optional for a terminal to support a subset of UE positioning methods. This measurement represents an instantaneous value that is time stamped as defined in the IE description in TS 25.331 [16].

9.1.9.2.1 Measurement requirement

Table 9.27

Parameter	Unit	Accuracy [chip]	Conditions
			Io [dBm/3.84 MHz]
UE RX-TX time difference	chip	± 1.0~~TBD~~	-94...-50

9.1.9.2.2 UE Rx-Tx time difference type 2 measurement report mapping

The reporting range is for *UE Rx-Tx time difference type2* is from 768 ... 1280 chip.

In table 9.28 the mapping of measured quantity is defined. The range in the signalling may be larger than the guaranteed accuracy range.

Table 9.28

Reported value	Measured quantity value	Unit
RX-TX_TIME _0000	UE Rx-Tx Time difference type 2 < 768.000	chip
RX-TX_TIME _0001	768.000 ≤ UE Rx-Tx Time difference type 2 < 768.0625	chip
RX-TX_TIME _0002	768.0625 ≤ UE Rx-Tx Time difference type 2 < 768.1250	chip
RX-TX_TIME _0003	768.1250 ≤ UE Rx-Tx Time difference type 2 < 768.1875	chip
…	…	…
RX-TX_TIME _8189	1279.7500 ≤ UE Rx-Tx Time difference type 2 < 1279.8125	chip
RX-TX_TIME _8190	1279.8125 ≤ UE Rx-Tx Time difference type 2 < 1279.8750	chip
RX-TX_TIME _8191	1279.8750 ≤ UE Rx-Tx Time difference type 2	chip

3GPP TSR RAN WG4 Meeting #24 **R4-021335**

Helsinki, Finland 12 - 16 August 2002

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CHANGE REQUEST

⌘ **25.133** **CR** **448** ⌘ **rev** **1** ⌘ Current version: **5.3.0** ⌘

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

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

Title:	⌘	Accuracy requirement of UE Rx-Tx time difference type 2
Source:	⌘	RAN WG4
Work item code:	⌘	TEI
Date:	⌘	21/08/2002
Category:	⌘	**A**
Release:	⌘	Rel-5

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

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	Currently the accuracy requirement of UE Rx-Tx time difference type 2 measurement is not defined.
Summary of change:	⌘	It is proposed that the accuracy requirement of UE Rx-Tx time difference type 2 measurement performance is +- 1 chip.
Consequences if not approved:	⌘	No accuracy requirement exists for UE Rx-Tx time difference type 2 measurement. Hence the position estimate based on enhanced Cell-id cannot be assessed.

Clauses affected:	⌘	9.1.9.2.1

Other specs affected: ⌘	Y	N		⌘
		X	Other core specifications	
	X		Test specifications	TS34.121
		X	O&M Specifications	

Other comments: ⌘ Equivalent CRs in other Releases: CR446r1 cat. F to 25.133 v3.10.0, CR447r1 cat. A to 25.133 v4.5.0

How to create CRs using this form:

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

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

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

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

9.1.9.2 UE Rx-Tx time difference type 2

NOTE: This measurement is used for UE positioning purposes.

It is optional for a terminal to support a subset of UE positioning methods. This measurement represents an instantaneous value that is time stamped as defined in the IE description in TS 25.331 [16].

9.1.9.2.1 Measurement requirement

Table 9.27

Parameter	Unit	Accuracy [chip]	Conditions		
			Band I	Band II	Band III
			Io [dBm/3.84 MHz]	Io [dBm/3.84 MHz]	Io [dBm/3.84 MHz]
UE RX-TX time difference	chip	± 1.0~~TBD~~	-94...-50	-92…-50	-91…-50

9.1.9.2.2 UE Rx-Tx time difference type 2 measurement report mapping

The reporting range is for *UE Rx-Tx time difference type2* is from 768 ... 1280 chip.

In table 9.28 the mapping of measured quantity is defined. The range in the signalling may be larger than the guaranteed accuracy range.

Table 9.28

Reported value	Measured quantity value	Unit
RX-TX_TIME _0000	UE Rx-Tx Time difference type 2 < 768.000	chip
RX-TX_TIME _0001	768.000 ≤ UE Rx-Tx Time difference type 2 < 768.0625	chip
RX-TX_TIME _0002	768.0625 ≤ UE Rx-Tx Time difference type 2 < 768.1250	chip
RX-TX_TIME _0003	768.1250 ≤ UE Rx-Tx Time difference type 2 < 768.1875	chip
…	…	…
RX-TX_TIME _8189	1279.7500 ≤ UE Rx-Tx Time difference type 2 < 1279.8125	chip
RX-TX_TIME _8190	1279.8125 ≤ UE Rx-Tx Time difference type 2 < 1279.8750	chip
RX-TX_TIME _8191	1279.8750 ≤ UE Rx-Tx Time difference type 2	chip

3GPP TSR RAN WG4 Meeting #24 **R4-021140**

Helsinki, Finland 12 - 16 August 2002

CR-Form-v7

CHANGE REQUEST

⌘ **25.133** **CR** **449** ⌘ **rev** ⌘ Current version: **3.10.0** ⌘

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

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

Title:	⌘	Correction of CELL_FACH test case
Source:	⌘	RAN WG4
Work item code:	⌘	TEI
Date:	⌘	21/08/2002
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)*
Rel-6	*(Release 6)*

Reason for change:	⌘	Misalignment between SCH Ec/Io level in CELL_FACH test case and the corresponding general requirement. Now in the test case SCH Ec/Io level of Cell1 during T1 is –18 dB and the general SCH Ec/Io requirement for identifying a new inter-frequency cell in CELL_FACH state is –17 dB.
Summary of change:	⌘	Îr/Ioc is adjusted so that SCH Ec/Io becomes –17 dB
Consequences if not approved:	⌘	The test case "A.5.5.2 Two frequencies present in the neighbour list" does not satisfy the general requirements.

Clauses affected:	⌘	A.5.5.2.1			
Other specs affected:	⌘	Y / N	Other core specifications	⌘	TS34.121
		☐ / ☒			
		☒ / ☐	Test specifications		
		☐ / ☒	O&M Specifications		
Other comments:	⌘	Equivalent CRs in other Releases: CR450 cat. A to 25.133 v4.5.0, CR451 cat. A to 25.133 v5.3.0			

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

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

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

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

A.5.5.2 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.
HCS				Not used
T1		s	15	
T2		s	15	

The transport and physical parameters of the S-CCPCH carrying the FACH are defined in Table A.5.3A and Table A.5.3B.

Table A.5.3A: 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.5.3B: 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		-1.295		-1.295		-1.295		-1.295		-1.295	
$\hat{I}_{or}/I_{oc}$	dB	-1.8 3.4	2.2	2.2	-1.8 3.4	-6.8 7.4	-4.8	-6.8 7.4	-4.8	-4.8	-6.8 7.4	-4.8	-6.8 7.4
I_{oc}	dBm/3.84 MHz	-70											
CPICH_Ec/Io	dB	-15 16	-13	-13	-15 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	
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 1.9 s.

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

NOTE: The cell re-selection delay in this case is expressed as:

$$T_{reselection,inter} = T_{Measurement\ inter} + T_{IU} + 20 + T_{SI} + T_{RA}\ ms,$$

where:

$T_{measurement\ inter}$ is specified in 8.4.2.3.2 as 480 ms in this case.

T_{SI}: The time required for receiving all the relevant system information data according to the reception procedure and the RRC procedure delay of system information blocks defined in 25.331 for a UTRAN cell.1280 ms is assumed in this test case.

T_{RA}: T_{RA} is a delay is caused by the physical random access procedure described in TS 25.214 section 6.1. A persistence value is assumed to be 1 in this test case and therefore T_{RA} in this test case is 40 ms.

NOTE: Since 1280 ms is one of the typical values for repeating system information blocks, T_{SI} of 1280 ms could be increased by the RRC procedure delay in order to allow the SIB repetition period of 1280 ms.

This gives a total of 1.83 s, allow 1.9 s in the test case.

3GPP TSR RAN WG4 Meeting #24 **R4-021141**

Helsinki, Finland 12 - 16 August 2002

CR-Form-v7

CHANGE REQUEST

⌘ **25.133** **CR** **450** ⌘ **rev** ⌘ Current version: **4.5.0** ⌘

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

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

Title:	⌘	Correction of CELL_FACH test case
Source:	⌘	RAN WG4
Work item code:	⌘	TEI
Date:	⌘	21/08/2002
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)*
Rel-6	*(Release 6)*

Reason for change:	⌘	Misalignment between SCH Ec/Io level in CELL_FACH test case and the corresponding general requirement. Now in the test case SCH Ec/Io level of Cell1 during T1 is –18 dB and the general SCH Ec/Io requirement for identifying a new inter-frequency cell in CELL_FACH state is –17 dB.
Summary of change:	⌘	Îr/Ioc is adjusted so that SCH Ec/Io becomes –17 dB
Consequences if not approved:	⌘	The test case "A.5.5.2 Two frequencies present in the neighbour list" does not satisfy the general requirements.

Clauses affected:	⌘	A.5.5.2.1			
Other specs affected:	⌘	Y / N	Other core specifications	⌘	TS34.121
			Test specifications		
			O&M Specifications		
Other comments:	⌘	Equivalent CRs in other Releases: CR449 cat. F to 25.133 v3.10.0, CR451 cat. A to 25.133 v5.3.0			

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 change request.

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.
HCS				Not used
T1		s	15	
T2		s	15	

The transport and physical parameters of the S-CCPCH carrying the FACH are defined in Table A.5.3A and Table A.5.3B.

Table A.5.3A: 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.5.3B: 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		-1.295		-1.295		-1.295		-1.295		-1.295	
$\lvert\hat{I}_{or}/I_{oc}$	dB	-1.8 ~~3.4~~	2.2	2.2	-1.8~~3.4~~	-6.8~~7.4~~	-4.8	-6.8~~7.4~~	-4.8	-4.8	-6.8~~7.4~~	-4.8	-6.8~~7.4~~
I_{oc}	dBm/3.84 MHz	-70											
CPICH_Ec/Io	dB	-15~~1 6~~	-13	-13	-15~~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	
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 1.9 s.

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

NOTE: The cell re-selection delay in this case is expressed as:

$$T_{reselection,\,inter} = T_{Measurement\ inter} + T_{IU} + 20 + T_{SI} + T_{RA}\ \text{ms},$$

where:

$T_{measurement\ inter}$is specified in 8.4.2.3.2 as 480 ms in this case.

T_{SI}: The time required for receiving all the relevant system information data according to the reception procedure and the RRC procedure delay of system information blocks defined in 25.331 for a UTRAN cell.1280 ms is assumed in this test case.

Note: Since 1280 ms is one of the typical values for repeating system information blocks, T_{SI} of 1280 ms could be increased by the RRC procedure delay in order to allow the SIB repetition period of 1280 ms.

T_{RA}: T_{RA} is a delay is caused by the physical random access procedure described in TS 25.214 section 6.1. A persistence value is assumed to be 1 in this test case and therefore T_{RA} in this test case is 40 ms.

This gives a total of 1.83 s, allow 1.9 s in the test case.

3GPP TSR RAN WG4 Meeting #24 **R4-021142**

Helsinki, Finland 12 - 16 August 2002

CR-Form-v7

CHANGE REQUEST

⌘ **25.133** **CR** **451** ⌘ **rev** ⌘ Current version: **5.3.0** ⌘

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

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

Title:	⌘	Correction of CELL_FACH test case
Source:	⌘	RAN WG4
Work item code:	⌘	TEI
Date:	⌘	21/08/2002
Category:	⌘	**A**
Release:	⌘	Rel-5

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

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	Misalignment between SCH Ec/Io level in CELL_FACH test case and the corresponding general requirement. Now in the test case SCH Ec/Io level of Cell1 during T1 is –18 dB and the general SCH Ec/Io requirement for identifying a new inter-frequency cell in CELL_FACH state is –17 dB.
Summary of change:	⌘	Îr/Ioc is adjusted so that SCH Ec/Io becomes –17 dB
Consequences if not approved:	⌘	The test case "A.5.5.2 Two frequencies present in the neighbour list" does not satisfy the general requirements.

Clauses affected:	⌘	A.5.5.2.1			
Other specs affected:	⌘	Y / N	Other core specifications	⌘	TS34.121
			Test specifications		
			O&M Specifications		
Other comments:	⌘	Equivalent CRs in other Releases: CR449 cat. F to 25.133 v3.10.0, CR450 cat. A to 25.133 v4.5.0			

How to create CRs using this form:

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

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

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

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

A.5.5.2 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.
HCS				Not used
T1		s	15	
T2		s	15	

The transport and physical parameters of the S-CCPCH carrying the FACH are defined in Table A.5.3A and Table A.5.3B.

Table A.5.3A: 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.5.3B: 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		-1.295		-1.295		-1.295		-1.295		-1.295	
$\lvert\hat{I}_{or}/I_{oc}$	dB	-1.8 ~~3.4~~	2.2	2.2	~~-3.4~~	-6.8 ~~7.4~~	-4.8	-6.8 ~~7.4~~	-4.8	-4.8	-6.8 ~~7.4~~	-4.8	-6.8 ~~7.4~~
I_{oc}	dBm/3.84 MHz	-70											
CPICH_Ec/Io	dB	-15 ~~16~~	-13	-13	-15 ~~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	
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 1.9 s.

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

NOTE: The cell re-selection delay in this case is expressed as:

$$T_{reselection,inter} = T_{Measurement\ inter} + T_{IU} + 20 + T_{SI} + T_{RA}\ \text{ms},$$

where:

$T_{measurement\ inter}$is specified in 8.4.2.3.2 as 480 ms in this case.

T_{SI}: The time required for receiving all the relevant system information data according to the reception procedure and the RRC procedure delay of system information blocks defined in 25.331 for a UTRAN cell.1280 ms is assumed in this test case.

Note: Since 1280 ms is one of the typical values for repeating system information blocks, T_{SI} of 1280 ms could be increased by the RRC procedure delay in order to allow the SIB repetition period of 1280 ms.

T_{RA}: T_{RA} is a delay is caused by the physical random access procedure described in TS 25.214 section 6.1. A persistence value is assumed to be 1 in this test case and therefore T_{RA} in this test case is 40 ms.

This gives a total of 1.83 s, allow 1.9 s in the test case.

3GPP TSR RAN WG4 Meeting #24 **R4-021336**

Helsinki, Finland 12 - 16 August 2002

CR-Form-v7

CHANGE REQUEST

⌘ **25.133** **CR** **458** ⌘ **rev** **1** ⌘ Current version: **3.10.0** ⌘

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

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

Title:	⌘	Correction of SCH side conditions and corrections of test cases
Source:	⌘	RAN WG4
Work item code:	⌘	TEI
Date:	⌘	21/08/2002
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)*
Rel-6	*(Release 6)*

Reason for change:	⌘	The SCH Ec/Io side condition for identification of a new cell could be misinterpreted to be the summed Ec/Io levels of several multipaths.
Summary of change:	⌘	- SCH side conditions for at least one channel tap - 14 slots transmission gap, which is FFS, is removed from the CPICH RSCP and Ec/Io inter-frequency test cases - In table A.5.0C Îor/Ioc and CPICH Ec/Io are changed to "- Infinity" instead of "Infinity" - CPICH Ec/Io inter-frequency absolute accuracy is removed from the title of Table A.9.4A, because the test case does not test the accuracy of absolute inter-frequency CPICH Ec/Io measurement. Isolated Impact Analysis: The CR has an isolated impact of the cell search requirements if it has been assumed that the SCH side condition is the summed Ec/Io levels of all the multipaths of the cells.
Consequences if not approved:	⌘	The SCH Ec/Io side condition for identification of a new cell could be misinterpreted to be the summed Ec/Io levels of several multipaths, which would result in unacceptably tight UE requirements. The "Infinity" error in the test case and unnecessary parameters in Table A.9.4A may cause errors in the test cases of T1/RF.

Clauses affected:	⌘	8.1.2.2.1, 8.1.2.3.1, 8.4.2.2.1, 8.4.2.3.1, A.9.1.2.1.2 and A.9.1.2.2

		Y	N		
Other specs	⌘		X	Other core specifications	⌘

affected:	X		Test specifications	TS34.121
		X	O&M Specifications	
Other comments: ⌘	Equivalent CRs in other Releases: CR459r1 cat. A to 25.133 v4.5.0, CR460r1 cat. A to 25.133 v5.3.0			

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

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

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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.

8.1.2.2 FDD intra frequency measurements

During the CELL_DCH state the UE shall continuously measure identified intra frequency cells and search for new intra frequency cells in the monitoring set. In case the network requests the UE to report detected set cells, the UE shall also search for intra frequency cells outside the monitored and active set. Cells, which are neither included in the active set nor in the monitored set, and are identified by the UE belong to the detected set according to TS 25.331. If compressed mode pattern sequences are activated, intra frequency measurements can be performed between the transmission gaps simultaneously for data reception from the active set cell/s.

8.1.2.2.1 Identification of a new cell

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

$$T_{\text{identify intra}} = Max\left\{800, T_{\text{basic identify FDD, intra}} \cdot \frac{T_{\text{Measurement Period, Intra}}}{T_{\text{Intra}}}\right\} ms$$

A cell shall be considered detectable when

- CPICH Ec/Io $\geq$ -20 dB,
- SCH_Ec/Io $\geq$ -20 dB for at least one channel tap 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.

In case of conflict when a compressed gap sequence is activated the UE may choose to prioritise the SFN decoding

8.1.2.2.2 UE CPICH measurement capability

In the CELL_DCH state the measurement period for intra frequency measurements is 200 ms. When no transmission gap pattern sequence is activated, the UE shall be capable of performing CPICH measurements for 8 identified intra-frequency cells of the monitored set and/or the active set, and the UE physical layer shall be capable of reporting measurements to higher layers with the measurement period of 200 ms. When one or more transmission gap pattern sequences are activated, the UE shall be capable of performing CPICH measurements for at least $Y_{\text{measurement intra}}$ cells , where $Y_{\text{measurement intra}}$ 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. If the UE has identified more than $Y_{\text{measurement intra}}$ cells, the UE shall perform measurements of all identified cells but the reporting rate of CPICH measurements of cells from UE physical layer to higher layers may be decreased.

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

where

$X_{\text{basic measurement FDD}}$ = 8 (cells)

$T_{\text{Measurement\_Period Intra}}$ = 200 ms. The measurement period for Intra frequency CPICH measurements.

T_{Intra} : This is the minimum time that is available for intra frequency measurements, during the measurement period with an arbitrarily chosen timing.

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

8.1.2.2.3 Periodic Reporting

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

8.1.2.2.4 Event-triggered Periodic Reporting

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

The first report in event triggered periodic measurement reporting shall meet the requirements specified in section 8.1.2.2.3 Event Triggered Reporting.

8.1.2.2.5 Event Triggered Reporting

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

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

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

Editors Note: The test cases in section A.8 will need revisions to reflect the general requirements.

The event triggered measurement reporting delay, on cells belonging to monitored set, measured without L3 filtering, shall be less than the above defined $T_{identify\ intra}$. . defined in Section 8.1.2.2.1

If a cell, belonging to monitored set, which the UE has identified and measured at least once over the measurement period, becomes undetectable for a period < 5 seconds and then the cell becomes detectable again and triggers an event, the measurement reporting delay shall be less than $T_{Measurement\_Period\ Intra}$ ms provided the timing to that cell has not changed more than +/-32 chips, the UE CPICH measurement capabilities of section 8.1.2.2.2 are valid and L3 filtering has not been used. When L3 filtering is used an additional delay can be expected.

If a cell belonging to monitored set has been detectable at least for the time period $T_{identify\_intra}$ and then enters or leaves the reporting range, the event triggered measurement reporting delay shall be less than $T_{Measurement\_Period\ Intra}$ when the L3 filter has not been used and the UE CPICH measurement capabilities of Section 8.1.2.2.2 are valid.

8.1.2.3 FDD inter frequency measurements

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

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

Table 8.1

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

8.1.2.3.1 Identification of a new cell

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

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

A cell shall be considered detectable when

- CPICH Ec/Io ≥ -20 dB,
- SCH_Ec/Io ≥ -17 dB for at least one channel tap and SCH_Ec/Ior is equally divided between primary synchronisation code and secondary synchronisation code.

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

8.1.2.3.2 UE CPICH measurement capability

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

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

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

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

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

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

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

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

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

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

8.4.2.2 FDD intra frequency measurements

During the CELL_FACH state the UE shall continuously measure identified intra frequency cells and search for new intra frequency cells in the monitoring 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

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

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.

A cell shall be considered detectable when

- CPICH Ec/Io ≥ -20 dB,
- SCH_Ec/Io ≥ -20 dB for at least one channel tap and SCH_Ec/Ior is equally divided between primary synchronisation code and secondary synchronisation code.

In case of conflict when a measurement occasion is activated the UE may choose to prioritise the SFN decoding

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 cycle is activated, the UE shall be capable of performing CPICH measurements for 8 identified intra-frequency cells of the monitored set and the UE physical layer shall be capable of reporting measurements to higher layers with the measurement period of 200 ms. When a measurement occasion cycle 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. If the UE has identified more than $Y_{measurement\ intra}$ cells, the UE shall perform measurements of all identified cells but the reporting rate of CPICH measurements of cells from UE physical layer to higher layers may be decreased.

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

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 RACH reporting

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

8.4.2.3 FDD inter frequency measurements

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

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 within

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

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 are specified in 8.4.2.1.

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

A cell shall be considered detectable when

- CPICH Ec/Io ≥ -20 dB,
- SCH_Ec/Io ≥ -17 dB for at least one channel tap and SCH_Ec/Ior is equally divided between primary synchronisation code and secondary synchronisation code.

8.4.2.3.2 UE CPICH measurement capability

When a measurement occasion cycle is 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 is 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.

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

$X_{basic\ measurement\ FDDinter}$ is defined in section 8.1.2.3.2

A.5.2.2 Handover to inter-frequency cell

A.5.2.2.1 Test Purpose and Environment

The purpose of this test is to verify the requirement for the inter frequency hard handover delay in CELL_DCH state as specified in section 5.2.2.1.

The test consists of three successive time periods, with a time duration T1, T2 and T3. The test parameters are given in tables A.5.0B and A.5.0C below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 1A and 2C shall be used. The CPICH Ec/I0 of the best cell on the unused frequency shall be reported together with Event 2C reporting. At the start of time duration T1, the UE may not have any timing information of cell 2.

UTRAN shall send a Physical Channel reconfiguration with activation time at beginning of T3 with one active cell, cell 2. The Physical Channel reconfiguration message shall be sent to the UE so that the whole message is available at the UE the RRC procedure delay prior to the beginning of T3. The RRC procedure delay is defined [16].

Table A.5.0B: General test parameters for Handover to inter-frequency cell

Parameter		Unit	Value	Comment
DCH parameters			DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.101 section A.3.1
Power Control			On	
Target quality value on DTCH		BLER	0.01	
Compressed mode			A.22 set 1	As specified in TS 25.101 section A.5.
Initial conditions	Active cell		Cell 1	
	Neighbour cell		Cell 2	
Final conditions	Active cell		Cell 2	
Threshold non used frequency		dB	-18	Absolute Ec/I0 threshold for event 2C
Reporting range		dB	4	Applicable for event 1A
Hysteresis		dB	0	
W			1	Applicable for event 1A
W non-used frequency			1	Applicable for event 2C
Reporting deactivation threshold			0	Applicable for event 1A
Time to Trigger		ms	0	
Filter coefficient			0	
T1		s	5	
T2		s	10	
T3		s	5	

TableA.5.0C: Cell Specific parameters for Handover to inter-frequency cell

Parameter	Unit	Cell 1			Cell 2		
		T1	T2	T3	T1	T2	T3
UTRA RF Channel Number		Channel 1			Channel 2		
CPICH_Ec/Ior	dB	-10			-10		
PCCPCH_Ec/Ior	dB	-12			-12		
SCH_Ec/Ior	dB	-12			-12		
PICH_Ec/Ior	dB	-15			-15		
DPCH_Ec/Ior	dB	Note1	Note 1	Note 3	N/A	N/A	Note1
OCNS		Note 2			-0.941	-0.941	Note 2
$\hat{I}_{or}/I_{oc}$	dB	0			- Infinity	-1.8	-1.8
I_{oc}	dBm/3.84 MHz	-70					
CPICH_Ec/Io	dB	-13			- Infinity	-14	
Propagation Condition		AWGN					
Note 1: The DPCH level is controlled by the power control loop Note 2: The power of the OCNS channel that is added shall make the total power from the cell to be equal to I_{or}. Note 3: The DPCH may not be power controlled by the power control loop.							

A.5.2.2.2 Test Requirements

The UE shall start to transmit the UL DPCCH to Cell 2 less than 100 ms from the beginning of time period T3.

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

A.9 Measurement Performance Requirements

Unless explicitly stated:

- Reported measurements shall be within defined range in 90 % of the cases.
- Measurement channel is 12.2 kbps as defined in TS 25.101 annex A, sub-clause A.3.1. This measurement channel is used both in active cell and cells to be measured.
- Physical channels used as defined in TS 25.101 annex C.
- Cell 1 is the active cell.
- Single task reporting.
- Power control is active.

A.9.1 Measurement Performance for UE

A.9.1.1 CPICH RSCP

A.9.1.1.1 Test Purpose and Environment

The purpose of this test is to verify that the CPICH RSCP measurement accuracy is within the specified limits. This test will verify the requirements in section 9.1.1.

A.9.1.1.1.1 Intra frequency test parameters

In this case all cells are on the same frequency. Both CPICH RSCP intra frequency absolute and relative accuracy requirements are tested by using test parameters in Table A.9.1.

Table A.9.1: CPICH RSCP Intra frequency test parameters

Parameter	Unit	Test 1		Test 2		Test 3	
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior	dB	-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15	
DPCH_Ec/Ior	dB	-15	-	-15	-	-15	-
OCNS_Ec/Ior	dB	-1.11	-0.94	-1.11	-0.94	-1.11	-0.94
Ioc	dBm/ 3.84 MHz	-75.54		-59.98		-97.52	
Îor/Ioc	dB	4	0	9	0	0	-6.53
CPICH RSCP, Note 1	dBm	-81.5	-85.5	-60.98	-69.88	-107.5	-114.0
Io, Note 1	dBm/3.84 MHz	-69		-50		-94	
Propagation condition	-	AWGN		AWGN		AWGN	
NOTE 1: CPICH RSCP and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.							
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.							

A.9.1.1.1.2 Inter frequency test parameters

In this case both cells are on different frequencies and compressed mode is applied. The gap length is 7, detailed definition is in TS 25.101 annex A.5, Set 1 of Table A.22~~ [14 slots is FSS]~~. CPICH RSCP inter frequency relative accuracy requirements are tested by using test parameters in Table A.9.2.

Table A.9.2: CPICH RSCP Inter frequency tests parameters

Parameter	Unit	Test 1		Test 2	
		Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1	Channel 2	Channel 1	Channel 2
CPICH_Ec/Ior	dB	-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12	
SCH_Ec/Ior	dB	-12		-12	
PICH_Ec/Ior	dB	-15		-15	
DPCH_Ec/Ior	dB	-15	-	-15	-
OCNS_Ec/Ior	dB	-1.11	-0.94	-1.11	-0.94
Ioc	dBm/3.84 MHz	-60.00	-60.00	-84.00	-94.46
Îor/Ioc	dB	9.54	9.54	0	-9.54
CPICH RSCP, Note 1	dBm	-60.46	-60.46	-94.0	-114.0
Io, Note 1	dBm/3.84 MHz	-50.00	-50.00	-81.0	-94.0
Propagation condition	-	AWGN		AWGN	
NOTE 1: CPICH RSCP and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.					
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for test 2 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.					

A.9.1.1.2 Test Requirements

The CPICH RSCP measurement accuracy shall meet the requirements in section 9.1.1.

A.9.1.2 CPICH Ec/Io

A.9.1.2.1 Test Purpose and Environment

The purpose of this test is to verify that the CPICH Ec/Io measurement accuracy is within the specified limits. This test will verify the requirements in section 9.1.2.

A.9.1.2.1.1 Intra frequency test parameters

In this case all cells are in the same frequency. Both CPICH Ec/Io absolute and relative accuracy requirements are tested by using test parameters in Table A.9.3.

Table A.9.3: CPICH Ec/Io Intra frequency test parameters

Parameter	Unit	Test 1		Test 2		Test 3	
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior	dB	-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15	
DPCH_Ec/Ior	dB	-15	-	-15	-	-6	-
OCNS_Ec/Ior	dB	-1.11	-0.94	-1.11	-0.94	.2.56	-0.94
Ioc	dBm/ 3.84 MHz	-56.98		-89.07		-94.98	
Îor/Ioc	dB	3.0	3.0	-2.9	-2.9	-9.0	-9.0
CPICH Ec/Io, Note 1	dBm	-14.0	-14.0	-16.0	-16.0	-20.0	-20.0
Io, Note 1	dBm/3.84 MHz	-50		-86		-94	
Propagation condition	-	AWGN		AWGN		AWGN	
NOTE 1: CPICH Ec/Io and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.							
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.							

A.9.1.2.1.2 Inter frequency test parameters

In this case both cells are in different frequency and compressed mode is applied. The gap length is 7, detailed definition is in TS 25.101 annex A.5, Set 1 of Table A.22 ~~[14 slots is FSS]~~. CPICH Ec/Io inter frequency relative accuracy requirements are tested by using test parameters in Table A.9.4.

Table A.9.4: CPICH Ec/Io Inter frequency tests parameters

Parameter	Unit	Test 1		Test 2		Test 3	
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1	Channel 2	Channel 1	Channel 2	Channel 1	Channel 2
CPICH_Ec/Ior	dB	-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15	
DPCH_Ec/Ior	dB	-15	-	-6	-	-6	-
OCNS_Ec/Ior	dB	-1.11	-0.94	-2.56	-0.94	-2.56	-0.94
Ioc	dBm/ 3.84 MHz	-52.22	-52.22	-87.27	-87.27	-94.46	-94.46
Îor/Ioc	dB	-1.75	-1.75	-4.7	-4.7	-9.54	-9.54
CPICH Ec/Io, Note 1	dBm	-14.0	-14.0	-16.0	-16.0	-20.0	-20.0
Io, Note 1	dBm/3.84 MHz	-50	-50	-86	-86	-94	-94
Propagation condition	-	AWGN		AWGN		AWGN	
NOTE 1: CPICH Ec/Io and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.							
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.							

A.9.1.2.2 Test Requirements

The CPICH Ec/Io measurement accuracy shall meet the requirements in section 9.1.2. In case of the ~~absolute CPICH_Ec/Io measurement accuracy and~~ relative inter-frequency CPICH_Ec/Io measurement accuracy test cases the effect of assumed thermal noise and noise generated in the receiver (–99 dBm) shall be added into the required accuracy defined in Section 9.1.2 as shown in Table A.9.4A.

Table A.9.4A: CPICH_Ec/Io Intra ~~and Inter frequency~~ absolute accuracy and CPICH_Ec/Io Inter frequency relative accuracy

Parameter	Unit	Accuracy [dB]		Conditions
		Normal condition	Extreme condition	Io [dBm]
CPICH_Ec/Io	DB	-2.7…1.5 for -14 ≤ CPICH Ec/Io –3.2…2 for -16 ≤ CPICH Ec/Io < -14 –4.2…3 for -20 ≤ CPICH Ec/Io < -16	-4.2…3	-94...-87
		± 1.5 for -14 ≤ CPICH Ec/Io ± 2 for -16 ≤ CPICH Ec/Io < -14 ± 3 for -20 ≤ CPICH Ec/Io < -16	± 3	-87...-50

A.9.1.3 UTRA Carrier RSSI

A.9.1.3.1 Test Purpose and Environment

The purpose of this test is to verify that the UTRA Carrier RSSI measurement accuracy is within the specified limits. This test will verify the requirements in section 9.1.3. In this case both cells are in different frequency and compressed mode is applied. The gap length is 7, detailed definition is in TS 25.101 annex A.5, Set 1 of Table A.22. UTRA Carrier RSSI accuracy requirements are tested by using test parameters in Table A.9.5.

Table A.9.5: UTRA Carrier RSSI Inter frequency test parameters

Parameter	Unit	Test 1		Test 2		Test 3	
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1	Channel 2	Channel 1	Channel 2	Channel 1	Channel 2
CPICH_Ec/Ior	dB	-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15	
DPCH_Ec/Ior	dB	-15	-	-6	-	-6	-
OCNS_Ec/Ior	dB	-1.11	-0.94	-2.56	-0.94	-2.56	-0.94
Ioc	dBm/ 3.84 MHz	-52.22	-52.22	-70.27	-70.27	-94.46	-94.46
$\hat{I}$or/Ioc	dB	-1.75	-1.75	-4.7	-4.7	-9.54	-9.54
CPICH Ec/Io, Note 1	dBm	-14.0	-14.0	-16.0	-16.0	-20.0	-20.0
Io, Note 1	dBm/3.84 MHz	-50	-50	-69	-69	-94	-94
Propagation condition	-	AWGN		AWGN		AWGN	
NOTE 1: CPICH Ec/Io and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.							
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.							

A.9.1.3.2 Test Requirements

The UTRA Carrier RSSI measurement accuracy shall meet the requirements in section 9.1.3. The effect of assumed thermal noise and noise generated in the receiver (–99 dBm) shall be added into the required accuracy defined in Section 9.1.2 as shown in Table A.9.5A.

Table A.9.5A: UTRA Carrier RSSI absolute and relative accuracy

Parameter	Unit	Accuracy [dB]		Conditions
		Normal condition	Extreme condition	Io [dBm/3.84 MHz]
UTRA Carrier RSSI	dBm	-4…5.2	-7…8.2	-94…-87
	dBm	± 4	± 7	-87...-70
	dBm	± 6	± 9	-70...-50

3GPP TSR RAN WG4 Meeting #24 **R4-021337**

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CR-Form-v7

CHANGE REQUEST

⌘ **25.133** **CR** **459** ⌘ **rev** **1** ⌘ Current version: **4.5.0** ⌘

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

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

Title:	⌘	Correction of SCH side conditions and corrections of test cases
Source:	⌘	RAN WG4
Work item code:	⌘	TEI
Date:	⌘	21/08/2002
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)*
Rel-6	*(Release 6)*

Reason for change:	⌘	The SCH Ec/Io side condition for identification of a new cell could be misinterpreted to be the summed Ec/Io levels of several multipaths.
Summary of change:	⌘	- SCH side conditions for at least one channel tap - 14 slots transmission gap, which is FFS, is removed from the CPICH RSCP and Ec/Io inter-frequency test cases - In table A.5.0C Îor/Ioc and CPICH Ec/Io are changed to "- Infinity" instead of "Infinity" - CPICH Ec/Io inter-frequency absolute accuracy is removed from the title of Table A.9.4A, because the test case does not test the accuracy of absolute inter-frequency CPICH Ec/Io measurement. Isolated Impact Analysis: The CR has an isolated impact of the cell search requirements if it has been assumed that the SCH side condition is the summed Ec/Io levels of all the multipaths of the cells.
Consequences if not approved:	⌘	The SCH Ec/Io side condition for identification of a new cell could be misinterpreted to be the summed Ec/Io levels of several multipaths, which would result in unacceptably tight UE requirements. The "Infinity" error in the test case and unnecessary parameters in Table A.9.4A may cause errors in the test cases of T1/RF.

Clauses affected:	⌘	8.1.2.2.1, 8.1.2.3.1, 8.4.2.2.1, 8.4.2.3.1, A.9.1.2.1.2 and A.9.1.2.2			
		Y	**N**		
Other specs	⌘	☐	☒	Other core specifications	⌘

affected:	X	Test specifications	TS34.121
	X	O&M Specifications	
Other comments: ⌘	Equivalent CRs in other Releases: CR458r1 cat. F to 25.133 v3.10.0, CR460r1 cat. A to 25.133 v5.3.0		

How to create CRs using this form:

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

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

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

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

8.1.2.2 FDD intra frequency measurements

During the CELL_DCH state the UE shall continuously measure identified intra frequency cells and search for new intra frequency cells in the monitoring set. In case the network requests the UE to report detected set cells, the UE shall also search for intra frequency cells outside the monitored and active set. Cells, which are neither included in the active set nor in the monitored set, and are identified by the UE belong to the detected set according to TS 25.331. If compressed mode pattern sequences are activated, intra frequency measurements can be performed between the transmission gaps simultaneously for data reception from the active set cell/s.

8.1.2.2.1 Identification of a new cell

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

$$T_{identify\ \ intra} = Max\left\{800, T_{basic\ identify\ FDD,\ intra} \cdot \frac{T_{Measurement\ Period,\ Intra}}{T_{Intra}}\right\} ms$$

A cell shall be considered detectable when

- CPICH Ec/Io ≥ -20 dB,
- SCH_Ec/Io ≥ -20 dB for at least one channel tap 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.

In case of conflict when a compressed gap sequence is activated the UE may choose to prioritise the SFN decoding

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

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

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

8.1.2.2.2 UE CPICH measurement capability

In the CELL_DCH state the measurement period for intra frequency measurements is 200 ms. When no transmission gap pattern sequence is activated, the UE shall be capable of performing CPICH measurements for 8 identified-intra-frequency cells of the monitored set and/or the active set, and the UE physical layer shall be capable of reporting measurements to higher layers with the measurement period of 200 ms. When one or more transmission gap pattern sequences are activated, the UE shall be capable of performing CPICH measurements for at least $Y_{measurement\ intra}$ cells , where $Y_{measurement\ intra}$ is defined in the following equation. The measurement accuracy for all measured cells shall be as specified in the sub-clause 9.1.1 and 9.1.2. If the UE has identified more than $Y_{measurement\ intra}$ cells, the UE shall perform measurements of all identified cells but the reporting rate of CPICH measurements of cells from UE physical layer to higher layers may be decreased.

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

where

$X_{basic\ measurement\ FDD}$ = 8 (cells)

$T_{Measurement\_Period\ Intra}$ = 200 ms. The measurement period for Intra frequency CPICH measurements.

T_{Intra} : This is the minimum time that is available for intra frequency measurements, during the measurement period with an arbitrarily chosen timing.

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

The UE shall furthermore be capable of performing CPICH measurements for at least 1 detected intra-frequency cell, in the detected set, and the UE physical layer shall be capable of reporting measurements to higher layers with the measurement period of 10 s. The measurement accuracy for all measured cells shall be as specified in the sub-clause 9.1.1 and 9.1.2.

8.1.2.2.3 Periodic Reporting

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

8.1.2.2.4 Event-triggered Periodic Reporting

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

The first report in event triggered periodic measurement reporting shall meet the requirements specified in section 8.1.2.2.3 Event Triggered Reporting.

8.1.2.2.5 Event Triggered Reporting

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

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

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

Editors Note: The test cases in section A.8 will need revisions to reflect the general requirements.

The event triggered measurement reporting delay, on cells belonging to monitored set, measured without L3 filtering, shall be less than the above defined $T_{identify\ intra}$. defined in Section 8.1.2.2.1

If a cell, belonging to monitored set, which the UE has identified and measured at least once over the measurement period, becomes undetectable for a period < 5 seconds and then the cell becomes detectable again and triggers an event, the measurement reporting delay shall be less than $T_{Measurement\_Period\ Intra}$ ms provided the timing to that cell has not changed more than +/-32 chips, the UE CPICH measurement capabilities of section 8.1.2.2.2 are valid and L3 filtering has not been used. When L3 filtering is used an additional delay can be expected.

If a cell belonging to monitored set has been detectable at least for the time period $T_{identify\_intra}$ and then enters or leaves the reporting range, the event triggered measurement reporting delay shall be less than $T_{Measurement\_Period\ Intra}$ when the L3 filter has not been used and the UE CPICH measurement capabilities of Section 8.1.2.2.2 are valid.

The event triggered measurement reporting delay on cells not belonging to monitored set, measured without L3 filtering, shall be less than the above defined $T_{identify\ detected\ set}$. defined in Section 8.1.2.2.1.

8.1.2.3 FDD inter frequency measurements

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

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

Table 8.1

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

8.1.2.3.1 Identification of a new cell

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

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

A cell shall be considered detectable when

- CPICH Ec/Io $\geq$ -20 dB,
- SCH_Ec/Io $\geq$ -17 dB and SCH_Ec/Ior for at least one channel tap is equally divided between primary synchronisation code and secondary synchronisation code.

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

8.1.2.3.2 UE CPICH measurement capability

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

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

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

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

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

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

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

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

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

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

8.4.2.2 FDD intra frequency measurements

During the CELL_FACH state the UE shall continuously measure identified intra frequency cells and search for new intra frequency cells in the monitoring 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

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

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.

A cell shall be considered detectable when

- CPICH Ec/Io ≥ -20 dB,
- SCH_Ec/Io ≥ -20 dB for at least one channel tap and SCH_Ec/Ior is equally divided between primary synchronisation code and secondary synchronisation code.

In case of conflict when a measurement occasion is activated the UE may choose to prioritise the SFN decoding

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 cycle is activated, the UE shall be capable of performing CPICH measurements for 8 identified intra-frequency cells of the monitored set and the UE physical layer shall be capable of reporting measurements to higher layers with the measurement period of 200 ms. When a measurement occasion cycle 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. If the UE has identified more than $Y_{measurement\ intra}$ cells, the UE shall perform measurements of all identified cells but the reporting rate of CPICH measurements of cells from UE physical layer to higher layers may be decreased.

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

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 RACH reporting

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

8.4.2.3 FDD inter frequency measurements

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

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 within

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

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 are specified in 8.4.2.1.

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

A cell shall be considered detectable when

- CPICH Ec/Io $\geq$ -20 dB,
- SCH_Ec/Io $\geq$ -17 dB for at least one channel tap and SCH_Ec/Ior is equally divided between primary synchronisation code and secondary synchronisation code.

8.4.2.3.2 UE CPICH measurement capability

When a measurement occasion cycle is 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 is 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.

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

$X_{basic\ measurement\ FDDinter}$ is defined in section 8.1.2.3.2

A.5.2.2 Handover to inter-frequency cell

A.5.2.2.1 Test Purpose and Environment

The purpose of this test is to verify the requirement for the inter frequency hard handover delay in CELL_DCH state as specified in section 5.2.2.1.

The test consists of three successive time periods, with a time duration T1, T2 and T3. The test parameters are given in tables A.5.0B and A.5.0C below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 1A and 2C shall be used. The CPICH Ec/I0 of the best cell on the unused frequency shall be reported together with Event 2C reporting. At the start of time duration T1, the UE may not have any timing information of cell 2.

UTRAN shall send a Physical Channel reconfiguration with activation time at beginning of T3 with one active cell, cell 2. The Physical Channel reconfiguration message shall be sent to the UE so that the whole message is available at the UE the RRC procedure delay prior to the beginning of T3. The RRC procedure delay is defined [16].

Table A.5.0B: General test parameters for Handover to inter-frequency cell

Parameter		Unit	Value	Comment
DCH parameters			DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.101 section A.3.1
Power Control			On	
Target quality value on DTCH		BLER	0.01	
Compressed mode			A.22 set 1	As specified in TS 25.101 section A.5.
Initial conditions	Active cell		Cell 1	
	Neighbour cell		Cell 2	
Final conditions	Active cell		Cell 2	
Threshold non used frequency		dB	-18	Absolute Ec/I0 threshold for event 2C
Reporting range		dB	4	Applicable for event 1A
Hysteresis		dB	0	
W			1	Applicable for event 1A
W non-used frequency			1	Applicable for event 2C
Reporting deactivation threshold			0	Applicable for event 1A
Time to Trigger		ms	0	
Filter coefficient			0	
T1		s	5	
T2		s	10	
T3		s	5	

TableA.5.0C: Cell Specific parameters for Handover to inter-frequency cell

Parameter	Unit	Cell 1			Cell 2		
		T1	T2	T3	T1	T2	T3
UTRA RF Channel Number		Channel 1			Channel 2		
CPICH_Ec/Ior	dB	-10			-10		
PCCPCH_Ec/Ior	dB	-12			-12		
SCH_Ec/Ior	dB	-12			-12		
PICH_Ec/Ior	dB	-15			-15		
DPCH_Ec/Ior	dB	Note 1	Note 1	Note3	N/A	N/A	Note 1
OCNS		Note 2			-0.941	-0.941	Note 2
$\hat{I}_{or}/I_{oc}$	dB	0			-Infinity	-1.8	-1.8
I_{oc}	dBm/3.84 MHz	-70					
CPICH_Ec/Io	dB	-13			-Infinity	-14	-14
Propagation Condition		AWGN					
Note 1: The DPCH level is controlled by the power control loop Note 2: The power of the OCNS channel that is added shall make the total power from the cell to be equal to I_{or}. Note 3: The DPCH may not be power controlled by the power control loop.							

A.5.2.2.2 Test Requirements

The UE shall start to transmit the UL DPCCH to Cell 2 less than 100 ms from the beginning of time period T3.

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

A.9 Measurement Performance Requirements

Unless explicitly stated:

- Reported measurements shall be within defined range in 90 % of the cases.
- Measurement channel is 12.2 kbps as defined in TS 25.101 annex A, sub-clause A.3.1. This measurement channel is used both in active cell and cells to be measured.
- Physical channels used as defined in TS 25.101 annex C.
- Cell 1 is the active cell.
- Single task reporting.
- Power control is active.

A.9.1 Measurement Performance for UE

A.9.1.1 CPICH RSCP

A.9.1.1.1 Test Purpose and Environment

The purpose of this test is to verify that the CPICH RSCP measurement accuracy is within the specified limits. This test will verify the requirements in section 9.1.1.

A.9.1.1.1.1 Intra frequency test parameters

In this case all cells are on the same frequency. Both CPICH RSCP intra frequency absolute and relative accuracy requirements are tested by using test parameters in Table A.9.1.

Table A.9.1: CPICH RSCP Intra frequency test parameters

Parameter	Unit	Test 1		Test 2		Test 3	
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior	dB	-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15	
DPCH_Ec/Ior	dB	-15	-	-15	-	-15	-
OCNS_Ec/Ior	dB	-1.11	-0.94	-1.11	-0.94	-1.11	-0.94
Ioc	dBm/ 3.84 MHz	-75.54		-59.98		-97.52	
Îor/Ioc	dB	4	0	9	0	0	-6.53
CPICH RSCP, Note 1	dBm	-81.5	-85.5	-60.98	-69.88	-107.5	-114.0
Io, Note 1	dBm/3.84 MHz	-69		-50		-94	
Propagation condition	-	AWGN		AWGN		AWGN	
NOTE 1: CPICH RSCP and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.							
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.							

A.9.1.1.1.2 Inter frequency test parameters

In this case both cells are on different frequencies and compressed mode is applied. The gap length is 7, detailed definition is in TS 25.101 annex A.5, Set 1 of Table A.22~~ [14 slots is FSS]~~. CPICH RSCP inter frequency relative accuracy requirements are tested by using test parameters in Table A.9.2.

Table A.9.2: CPICH RSCP Inter frequency tests parameters

Parameter	Unit	Test 1		Test 2	
		Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1	Channel 2	Channel 1	Channel 2
CPICH_Ec/Ior	dB	-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12	
SCH_Ec/Ior	dB	-12		-12	
PICH_Ec/Ior	dB	-15		-15	
DPCH_Ec/Ior	dB	-15	-	-15	-
OCNS_Ec/Ior	dB	-1.11	-0.94	-1.11	-0.94
Ioc	dBm/ 3.84 MHz	-60.00	-60.00	-84.00	-94.46
Îor/Ioc	dB	9.54	9.54	0	-9.54
CPICH RSCP, Note 1	dBm	-60.46	-60.46	-94.0	-114.0
Io, Note 1	dBm/3.84 MHz	-50.00	-50.00	-81.0	-94.0
Propagation condition	-	AWGN		AWGN	
NOTE 1: CPICH RSCP and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.					
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for test 2 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.					

A.9.1.1.2 Test Requirements

The CPICH RSCP measurement accuracy shall meet the requirements in section 9.1.1.

A.9.1.2 CPICH Ec/Io

A.9.1.2.1 Test Purpose and Environment

The purpose of this test is to verify that the CPICH Ec/Io measurement accuracy is within the specified limits. This test will verify the requirements in section 9.1.2.

A.9.1.2.1.1 Intra frequency test parameters

In this case all cells are in the same frequency. Both CPICH Ec/Io absolute and relative accuracy requirements are tested by using test parameters in Table A.9.3

Table A.9.3: CPICH Ec/Io Intra frequency test parameters

Parameter	Unit	Test 1		Test 2		Test 3	
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior	dB	-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15	
DPCH_Ec/Ior	dB	-15	-	-15	-	-6	-
OCNS_Ec/Ior	dB	-1.11	-0.94	-1.11	-0.94	.2.56	-0.94
Ioc	dBm/ 3.84 MHz	-56.98		-89.07		-94.98	
Îor/Ioc	dB	3.0	3.0	-2.9	-2.9	-9.0	-9.0
CPICH Ec/Io, Note 1	dBm	-14.0	-14.0	-16.0	-16.0	-20.0	-20.0
Io, Note 1	dBm/3.84 MHz	-50		-86		-94	
Propagation condition	-	AWGN		AWGN		AWGN	
NOTE 1: CPICH Ec/Io and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.							
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.							

A.9.1.2.1.2 Inter frequency test parameters

In this case both cells are in different frequency and compressed mode is applied. The gap length is 7, detailed definition is in TS 25.101 annex A.5, Set 1 of Table A.22 ~~[14 slots is FSS]~~. CPICH Ec/Io inter frequency relative accuracy requirements are tested by using test parameters in Table A.9.4.

Table A.9.4: CPICH Ec/Io Inter frequency tests parameters

Parameter	Unit	Test 1		Test 2		Test 3	
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1	Channel 2	Channel 1	Channel 2	Channel 1	Channel 2
CPICH_Ec/Ior	dB	-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15	
DPCH_Ec/Ior	dB	-15	-	-6	-	-6	-
OCNS_Ec/Ior	dB	-1.11	-0.94	-2.56	-0.94	-2.56	-0.94
Ioc	dBm/ 3.84 MHz	-52.22	-52.22	-87.27	-87.27	-94.46	-94.46
Îor/Ioc	dB	-1.75	-1.75	-4.7	-4.7	-9.54	-9.54
CPICH Ec/Io, Note 1	dBm	-14.0	-14.0	-16.0	-16.0	-20.0	-20.0
Io, Note 1	dBm/3.84 MHz	-50	-50	-86	-86	-94	-94
Propagation condition	-	AWGN		AWGN		AWGN	
NOTE 1: CPICH Ec/Io and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.							
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.							

A.9.1.2.2 Test Requirements

The CPICH Ec/Io measurement accuracy shall meet the requirements in section 9.1.2. In case of ~~the absolute CPICH_Ec/Io measurement accuracy and~~ relative inter-frequency CPICH_Ec/Io measurement accuracy test cases the effect of assumed thermal noise and noise generated in the receiver (–99 dBm) shall be added into the required accuracy defined in Section 9.1.2 as shown in Table A.9.4A.

Table A.9.4A: CPICH_Ec/Io Intra ~~and Inter frequency~~ absolute accuracy and CPICH_Ec/Io Inter frequency relative accuracy

Parameter	Unit	Accuracy [dB]		Conditions
		Normal condition	Extreme condition	Io [dBm/3.84 MHz]
CPICH_Ec/Io	dB	-2.7…1.5 for -14 ≤ CPICH Ec/Io –3.2…2 for -16 ≤ CPICH Ec/Io < -14 –4.2…3 for -20 ≤ CPICH Ec/Io < -16	-4.2…3	-94...-87
		± 1.5 for -14 ≤ CPICH Ec/Io ± 2 for -16 ≤ CPICH Ec/Io < -14 ± 3 for -20 ≤ CPICH Ec/Io < -16	± 3	-87...-50

A.9.1.3 UTRA Carrier RSSI

A.9.1.3.1 Test Purpose and Environment

The purpose of this test is to verify that the UTRA Carrier RSSI measurement accuracy is within the specified limits. This test will verify the requirements in section 9.1.3. In this case both cells are in different frequency and compressed mode is applied. The gap length is 7, detailed definition is in TS 25.101 annex A.5, Set 1 of Table A.22. UTRA Carrier RSSI accuracy requirements are tested by using test parameters in Table A.9.5.

Table A.9.5: UTRA Carrier RSSI Inter frequency test parameters

Parameter	Unit	Test 1		Test 2		Test 3	
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1	Channel 2	Channel 1	Channel 2	Channel 1	Channel 2
CPICH_Ec/Ior	dB	-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15	
DPCH_Ec/Ior	dB	-15	-	-6	-	-6	-
OCNS_Ec/Ior	dB	-1.11	-0.94	-2.56	-0.94	-2.56	-0.94
Ioc	dBm/ 3.84 MHz	-52.22	-52.22	-70.27	-70.27	-94.46	-94.46
$\hat{I}$or/Ioc	dB	-1.75	-1.75	-4.7	-4.7	-9.54	-9.54
CPICH Ec/Io, Note 1	dBm	-14.0	-14.0	-16.0	-16.0	-20.0	-20.0
Io, Note 1	dBm/3.84 MHz	-50	-50	-69	-69	-94	-94
Propagation condition	-	AWGN		AWGN		AWGN	
NOTE 1: CPICH Ec/Io and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.							
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.							

A.9.1.3.2 Test Requirements

The UTRA Carrier RSSI measurement accuracy shall meet the requirements in section 9.1.3. The effect of assumed thermal noise and noise generated in the receiver (–99 dBm) shall be added into the required accuracy defined in Section 9.1.2 as shown in Table A.9.5A.

Table A.9.5A: UTRA Carrier RSSI absolute and relative accuracy

Parameter	Unit	Accuracy [dB]		Conditions
		Normal condition	Extreme condition	Io [dBm/3.84 MHz]
UTRA Carrier RSSI	dBm	-4…5.2	-7…8.2	-94…-87
	dBm	± 4	± 7	-87...-70
	dBm	± 6	± 9	-70...-50

3GPP TSR RAN WG4 Meeting #24 **R4-021338**

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CR-Form-v7

CHANGE REQUEST

⌘ **25.133** **CR** **460** ⌘ **rev** **1** ⌘ Current version: **5.3.0** ⌘

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

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

Title:	⌘	Correction of SCH side conditions and corrections of test cases
Source:	⌘	RAN WG4
Work item code:	⌘	TEI
Date:	⌘	21/08/2002
Category:	⌘	**A**
Release:	⌘	Rel-5

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

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	The SCH Ec/Io side condition for identification of a new cell could be misinterpreted to be the summed Ec/Io levels of several multipaths.
Summary of change:	⌘	- SCH side conditions for at least one channel tap - 14 slots transmission gap, which is FFS, is removed from the CPICH RSCP and Ec/Io inter-frequency test cases - In table A.5.0C Îor/Ioc and CPICH Ec/Io are changed to "- Infinity" instead of "Infinity" - CPICH Ec/Io inter-frequency absolute accuracy is removed from the title of Table A.9.4A, because the test case does not test the accuracy of absolute inter-frequency CPICH Ec/Io measurement. Isolated Impact Analysis: The CR has an isolated impact of the cell search requirements if it has been assumed that the SCH side condition is the summed Ec/Io levels of all the multipaths of the cells.
Consequences if not approved:	⌘	The SCH Ec/Io side condition for identification of a new cell could be misinterpreted to be the summed Ec/Io levels of several multipaths, which would result in unacceptably tight UE requirements. The "Infinity" error in the test case and unnecessary parameters in Table A.9.4A may cause errors in the test cases of T1/RF.
Clauses affected:	⌘	8.1.2.2.1, 8.1.2.3.1, 8.4.2.2.1, 8.4.2.3.1, A.9.1.2.1.2 and A.9.1.2.2

Y **N**

Other specs affected:	⌘		X	Other core specifications	⌘ TS34.121
		X		Test specifications	
			X	O&M Specifications	
Other comments:	⌘	Equivalent CRs in other Releases: CR458r1 cat. F to 25.133 v3.10.0, CR459r1 cat. A to 25.133 v4.5.0			

How to create CRs using this form:

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

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

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

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

8.1.2.2 FDD intra frequency measurements

During the CELL_DCH state the UE shall continuously measure identified intra frequency cells and search for new intra frequency cells in the monitoring set. In case the network requests the UE to report detected set cells, the UE shall also search for intra frequency cells outside the monitored and active set. Cells, which are neither included in the active set nor in the monitored set, and are identified by the UE belong to the detected set according to TS 25.331. If compressed mode pattern sequences are activated, intra frequency measurements can be performed between the transmission gaps simultaneously for data reception from the active set cell/s.

8.1.2.2.1 Identification of a new cell

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

$$T_{identify\ intra} = Max\left\{800, T_{basic\ identify\ FDD,\ intra} \cdot \frac{T_{Measurement\ Period,\ Intra}}{T_{Intra}}\right\} ms$$

A cell shall be considered detectable when

- CPICH Ec/Io ≥ -20 dB,
- SCH_Ec/Io ≥ -20 dB for at least one channel tap 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.

In case of conflict when a compressed gap sequence is activated the UE may choose to prioritise the SFN decoding

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

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

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

8.1.2.2.2 UE CPICH measurement capability

In the CELL_DCH state the measurement period for intra frequency measurements is 200 ms. When no transmission gap pattern sequence is activated, the UE shall be capable of performing CPICH measurements for 8 identified-intra-frequency cells of the monitored set and/or the active set, and the UE physical layer shall be capable of reporting measurements to higher layers with the measurement period of 200 ms. When one or more transmission gap pattern sequences are activated, the UE shall be capable of performing CPICH measurements for at least $Y_{measurement\ intra}$ cells , where $Y_{measurement\ intra}$ is defined in the following equation. The measurement accuracy for all measured cells shall be as specified in the sub-clause 9.1.1 and 9.1.2. If the UE has identified more than $Y_{measurement\ intra}$ cells, the UE shall perform measurements of all identified cells but the reporting rate of CPICH measurements of cells from UE physical layer to higher layers may be decreased.

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

where

$X_{basic\ measurement\ FDD}$ = 8 (cells)

$T_{Measurement\_Period\ Intra}$ = 200 ms. The measurement period for Intra frequency CPICH measurements.

T_{Intra} : This is the minimum time that is available for intra frequency measurements, during the measurement period with an arbitrarily chosen timing.

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

The UE shall furthermore be capable of performing CPICH measurements for at least 1 detected intra-frequency cell, in the detected set, and the UE physical layer shall be capable of reporting measurements to higher layers with the measurement period of 10 s. The measurement accuracy for all measured cells shall be as specified in the sub-clause 9.1.1 and 9.1.2.

8.1.2.2.3 Periodic Reporting

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

8.1.2.2.4 Event-triggered Periodic Reporting

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

The first report in event triggered periodic measurement reporting shall meet the requirements specified in section 8.1.2.2.3 Event Triggered Reporting.

8.1.2.2.5 Event Triggered Reporting

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

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

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

Editors Note: The test cases in section A.8 will need revisions to reflect the general requirements.

The event triggered measurement reporting delay, on cells belonging to monitored set, measured without L3 filtering, shall be less than the above defined $T_{identify\ intra,\cdot}$ defined in Section 8.1.2.2.1

If a cell, belonging to monitored set, which the UE has identified and measured at least once over the measurement period, becomes undetectable for a period < 5 seconds and then the cell becomes detectable again and triggers an event, the measurement reporting delay shall be less than $T_{Measurement\_Period\ Intra}$ ms provided the timing to that cell has not changed more than +/-32 chips, the UE CPICH measurement capabilities of section 8.1.2.2.2 are valid and L3 filtering has not been used. When L3 filtering is used an additional delay can be expected.

If a cell belonging to monitored set has been detectable at least for the time period $T_{identify\_intra}$ and then enters or leaves the reporting range, the event triggered measurement reporting delay shall be less than $T_{Measurement\_Period\ Intra}$ when the L3 filter has not been used and the UE CPICH measurement capabilities of Section 8.1.2.2.2 are valid.

The event triggered measurement reporting delay on cells not belonging to monitored set, measured without L3 filtering, shall be less than the above defined $T_{identify\ detected\ set,}$ defined in Section 8.1.2.2.1.

8.1.2.3 FDD inter frequency measurements

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

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

Table 8.1

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

8.1.2.3.1 Identification of a new cell

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

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

A cell shall be considered detectable when

- CPICH Ec/Io ≥ -20 dB,
- SCH_Ec/Io ≥ -17 dB for at least one channel tap and SCH_Ec/Ior is equally divided between primary synchronisation code and secondary synchronisation code.

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

8.1.2.3.2 UE CPICH measurement capability

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

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

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

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

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

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

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

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

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

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

8.4.2.2 FDD intra frequency measurements

During the CELL_FACH state the UE shall continuously measure identified intra frequency cells and search for new intra frequency cells in the monitoring 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

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

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.

A cell shall be considered detectable when

- CPICH Ec/Io $\geq$ -20 dB,
- SCH_Ec/Io $\geq$ -20 dB for at least one channel tap and SCH_Ec/Ior is equally divided between primary synchronisation code and secondary synchronisation code.

In case of conflict when a measurement occasion is activated the UE may choose to prioritise the SFN decoding

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 cycle is activated, the UE shall be capable of performing CPICH measurements for 8 identified intra-frequency cells of the monitored set and the UE physical layer shall be capable of reporting measurements to higher layers with the measurement period of 200 ms. When a measurement occasion cycle 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. If the UE has identified more than $Y_{measurement\ intra}$ cells, the UE shall perform measurements of all identified cells but the reporting rate of CPICH measurements of cells from UE physical layer to higher layers may be decreased.

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

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 RACH reporting

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

8.4.2.3 FDD inter frequency measurements

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

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 within

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

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 are specified in 8.4.2.1.

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

A cell shall be considered detectable when

- CPICH Ec/Io ≥ -20 dB,
- SCH_Ec/Io ≥ -17 dB for at least one channel tap and SCH_Ec/Ior is equally divided between primary synchronisation code and secondary synchronisation code.

8.4.2.3.2 UE CPICH measurement capability

When a measurement occasion cycle is 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 is 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.

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

$X_{basic\ measurement\ FDDinter}$ is defined in section 8.1.2.3.2

A.5.2.2 Handover to inter-frequency cell

A.5.2.2.1 Test Purpose and Environment

The purpose of this test is to verify the requirement for the inter frequency hard handover delay in CELL_DCH state as specified in section 5.2.2.1.

The test consists of three successive time periods, with a time duration T1, T2 and T3. The test parameters are given in tables A.5.0B and A.5.0C below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 1A and 2C shall be used. The CPICH Ec/I0 of the best cell on the unused frequency shall be reported together with Event 2C reporting. At the start of time duration T1, the UE may not have any timing information of cell 2.

UTRAN shall send a Physical Channel reconfiguration with activation time at beginning of T3 with one active cell, cell 2. The Physical Channel reconfiguration message shall be sent to the UE so that the whole message is available at the UE the RRC procedure delay prior to the beginning of T3. The RRC procedure delay is defined [16].

Table A.5.0B: General test parameters for Handover to inter-frequency cell

Parameter		Unit	Value	Comment
DCH parameters			DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.101 section A.3.1
Power Control			On	
Target quality value on DTCH		BLER	0.01	
Compressed mode			A.22 set 1	As specified in TS 25.101 section A.5.
Initial conditions	Active cell		Cell 1	
	Neighbour cell		Cell 2	
Final conditions	Active cell		Cell 2	
Threshold non used frequency		dB	-18	Absolute Ec/I0 threshold for event 2C
Reporting range		dB	4	Applicable for event 1A
Hysteresis		dB	0	
W			1	Applicable for event 1A
W non-used frequency			1	Applicable for event 2C
Reporting deactivation threshold			0	Applicable for event 1A
Time to Trigger		ms	0	
Filter coefficient			0	
T1		s	5	
T2		s	10	
T3		s	5	

TableA.5.0C: Cell Specific parameters for Handover to inter-frequency cell

Parameter	Unit	Cell 1			Cell 2		
		T1	T2	T3	T1	T2	T3
UTRA RF Channel Number		Channel 1			Channel 2		
CPICH_Ec/Ior	dB	-10			-10		
PCCPCH_Ec/Ior	dB	-12			-12		
SCH_Ec/Ior	dB	-12			-12		
PICH_Ec/Ior	dB	-15			-15		
DPCH_Ec/Ior	dB	Note 1	Note 1	Note3	N/A	N/A	Note 1
OCNS		Note 2			-0.941	-0.941	Note 2
$\hat{I}_{or}/I_{oc}$	dB	0			-Infinity	-1.8	-1.8
I_{oc}	dBm/3.84 MHz	-70					
CPICH_Ec/Io	dB	-13			-Intifinty	-14	-14
Propagation Condition		AWGN					
Note 1: The DPCH level is controlled by the power control loop Note 2: The power of the OCNS channel that is added shall make the total power from the cell to be equal to I_{or}. Note 3: The DPCH may not be power controlled by the power control loop.							

A.5.2.2.2 Test Requirements

The UE shall start to transmit the UL DPCCH to Cell 2 less than 100 ms from the beginning of time period T3.

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

A.9 Measurement Performance Requirements

Unless explicitly stated:

- Reported measurements shall be within defined range in 90 % of the cases.
- Measurement channel is 12.2 kbps as defined in TS 25.101 annex A, sub-clause A.3.1. This measurement channel is used both in active cell and cells to be measured.
- Physical channels used as defined in TS 25.101 annex C.
- Cell 1 is the active cell.
- Single task reporting.
- Power control is active.

A.9.1 Measurement Performance for UE

A.9.1.1 CPICH RSCP

A.9.1.1.1 Test Purpose and Environment

The purpose of this test is to verify that the CPICH RSCP measurement accuracy is within the specified limits. This test will verify the requirements in section 9.1.1.

A.9.1.1.1.1 Intra frequency test parameters

In this case all cells are on the same frequency. Both CPICH RSCP intra frequency absolute and relative accuracy requirements are tested by using test parameters in Table A.9.1.

Table A.9.1: CPICH RSCP Intra frequency test parameters

Parameter	Unit	Test 1		Test 2		Test 3	
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior	dB	-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15	
DPCH_Ec/Ior	dB	-15	-	-15	-	-15	-
OCNS_Ec/Ior	dB	-1.11	-0.94	-1.11	-0.94	-1.11	-0.94
Ioc	dBm/ 3.84 MHz	-75.54		-59.98		-97.52	
Îor/Ioc	dB	4	0	9	0	0	-6.53
CPICH RSCP, Note 1	dBm	-81.5	-85.5	-60.98	-69.88	-107.5	-114.0
Io, Note 1	dBm/3.84 MHz	-69		-50		-94	
Propagation condition	-	AWGN		AWGN		AWGN	
NOTE 1: CPICH RSCP and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.							
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.							

A.9.1.1.1.2 Inter frequency test parameters

In this case both cells are on different frequencies and compressed mode is applied. The gap length is 7, detailed definition is in TS 25.101 annex A.5, Set 1 of Table A.22 ~~[14 slots is FSS].~~. CPICH RSCP inter frequency relative accuracy requirements are tested by using test parameters in Table A.9.2.

Table A.9.2: CPICH RSCP Inter frequency tests parameters

Parameter	Unit	Test 1		Test 2	
		Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1	Channel 2	Channel 1	Channel 2
CPICH_Ec/Ior	dB	-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12	
SCH_Ec/Ior	dB	-12		-12	
PICH_Ec/Ior	dB	-15		-15	
DPCH_Ec/Ior	dB	-15	-	-15	-
OCNS_Ec/Ior	dB	-1.11	-0.94	-1.11	-0.94
Ioc	dBm/3.84 MHz	-60.00	-60.00	-84.00	-94.46
Îor/Ioc	dB	9.54	9.54	0	-9.54
CPICH RSCP, Note 1	dBm	-60.46	-60.46	-94.0	-114.0
Io, Note 1	dBm/3.84 MHz	-50.00	-50.00	-81.0	-94.0
Propagation condition	-	AWGN		AWGN	
NOTE 1: CPICH RSCP and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.					
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for test 2 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.					

A.9.1.1.2 Test Requirements

The CPICH RSCP measurement accuracy shall meet the requirements in section 9.1.1.

A.9.1.2 CPICH Ec/Io

A.9.1.2.1 Test Purpose and Environment

The purpose of this test is to verify that the CPICH Ec/Io measurement accuracy is within the specified limits. This test will verify the requirements in section 9.1.2.

A.9.1.2.1.1 Intra frequency test parameters

In this case all cells are in the same frequency. Both CPICH Ec/Io absolute and relative accuracy requirements are tested by using test parameters in Table A.9.3

Table A.9.3: CPICH Ec/Io Intra frequency test parameters

Parameter	Unit	Test 1		Test 2		Test 3	
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior	dB	-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15	
DPCH_Ec/Ior	dB	-15	-	-15	-	-6	-
OCNS_Ec/Ior	dB	-1.11	-0.94	-1.11	-0.94	.2.56	-0.94
Ioc	dBm/ 3.84 MHz	-56.98		-89.07		-94.98	
Îor/Ioc	dB	3.0	3.0	-2.9	-2.9	-9.0	-9.0
CPICH Ec/Io, Note 1	dBm	-14.0	-14.0	-16.0	-16.0	-20.0	-20.0
Io, Note 1	dBm/3.84 MHz	-50		-86		-94	
Propagation condition	-	AWGN		AWGN		AWGN	
NOTE 1: CPICH Ec/Io and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.							
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.							

A.9.1.2.1.2 Inter frequency test parameters

In this case both cells are in different frequency and compressed mode is applied. The gap length is 7, detailed definition is in TS 25.101 annex A.5, Set 1 of Table A.22 ~~[14 slots is FSS]~~. CPICH Ec/Io inter frequency relative accuracy requirements are tested by using test parameters in Table A.9.4.

Table A.9.4: CPICH Ec/Io Inter frequency tests parameters

Parameter	Unit	Test 1		Test 2		Test 3	
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1	Channel 2	Channel 1	Channel 2	Channel 1	Channel 2
CPICH_Ec/Ior	dB	-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15	
DPCH_Ec/Ior	dB	-15	-	-6	-	-6	-
OCNS_Ec/Ior	dB	-1.11	-0.94	-2.56	-0.94	-2.56	-0.94
Ioc	dBm/ 3.84 MHz	-52.22	-52.22	-87.27	-87.27	-94.46	-94.46
$\hat{I}$or/Ioc	dB	-1.75	-1.75	-4.7	-4.7	-9.54	-9.54
CPICH Ec/Io, Note 1	dBm	-14.0	-14.0	-16.0	-16.0	-20.0	-20.0
Io, Note 1	dBm/3.84 MHz	-50	-50	-86	-86	-94	-94
Propagation condition	-	AWGN		AWGN		AWGN	
NOTE 1: CPICH Ec/Io and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.							
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.							

A.9.1.2.2 Test Requirements

The CPICH Ec/Io measurement accuracy shall meet the requirements in section 9.1.2. In case of the ~~absolute CPICH_Ec/Io measurement accuracy and~~ relative inter-frequency CPICH_Ec/Io measurement accuracy test cases the effect of assumed thermal noise and noise generated in the receiver (–99 dBm) shall be added into the required accuracy defined in Section 9.1.2 as shown in Table A.9.4A.

Table A.9.4A: CPICH_Ec/Io Intra ~~and Inter frequency~~ absolute accuracy and CPICH_Ec/Io Inter frequency relative accuracy

Parameter	Unit	Accuracy [dB]		Conditions
		Normal condition	Extreme condition	Io [dBm/3.84 MHz]
CPICH_Ec/Io	dB	-2.7…1.5 for -14 ≤ CPICH Ec/Io –3.2…2 for -16 ≤ CPICH Ec/Io < -14 –4.2…3 for -20 ≤ CPICH Ec/Io < -16	-4.2…3	-94...-87
		± 1.5 for -14 ≤ CPICH Ec/Io ± 2 for -16 ≤ CPICH Ec/Io < -14 ± 3 for -20 ≤ CPICH Ec/Io < -16	± 3	-87...-50

A.9.1.3 UTRA Carrier RSSI

A.9.1.3.1 Test Purpose and Environment

The purpose of this test is to verify that the UTRA Carrier RSSI measurement accuracy is within the specified limits. This test will verify the requirements in section 9.1.3. In this case both cells are in different frequency and compressed mode is applied. The gap length is 7, detailed definition is in TS 25.101 annex A.5, Set 1 of Table A.22. UTRA Carrier RSSI accuracy requirements are tested by using test parameters in Table A.9.5.

Table A.9.5: UTRA Carrier RSSI Inter frequency test parameters

Parameter	Unit	Test 1		Test 2		Test 3	
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1	Channel 2	Channel 1	Channel 2	Channel 1	Channel 2
CPICH_Ec/Ior	dB	-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15	
DPCH_Ec/Ior	dB	-15	-	-6	-	-6	-
OCNS_Ec/Ior	dB	-1.11	-0.94	-2.56	-0.94	-2.56	-0.94
Ioc	dBm/ 3.84 MHz	-52.22	-52.22	-70.27	-70.27	-94.46	-94.46
$\hat{I}$or/Ioc	dB	-1.75	-1.75	-4.7	-4.7	-9.54	-9.54
CPICH Ec/Io, Note 1	dBm	-14.0	-14.0	-16.0	-16.0	-20.0	-20.0
Io, Note 1	dBm/3.84 MHz	-50	-50	-69	-69	-94	-94
Propagation condition	-	AWGN		AWGN		AWGN	
NOTE 1: CPICH Ec/Io and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.							
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.							

A.9.1.3.2 Test Requirements

The UTRA Carrier RSSI measurement accuracy shall meet the requirements in section 9.1.3. The effect of assumed thermal noise and noise generated in the receiver (–99 dBm) shall be added into the required accuracy defined in Section 9.1.2 as shown in Table A.9.5A.

Table A.9.5A: UTRA Carrier RSSI absolute and relative accuracy

Parameter	Unit	Accuracy [dB]		Conditions
		Normal condition	Extreme condition	Io [dBm/3.84 MHz]
UTRA Carrier RSSI	dBm	-4…5.2	-7…8.2	-94…-87
	dBm	± 4	± 7	-87...-70
	dBm	± 6	± 9	-70...-50