

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

RP-010348

Title: Agreed CRs (Release '99 and Rel-4 category A) to TS 25.102

Source: TSG-RAN WG4

Agenda item: 8.4.3

WG4 doc	Status WG4	Spec	CR	Phase	Title	Cat	V old	V new
R4-010520	agreed	25.102	48	R99	Correction of signal descriptions in Receiver Characteristics section.	F	3.6.0	3.7.0
R4-010521	agreed	25.102	49	Rel-4	Correction of signal descriptions in Receiver Characteristics section.	A	4.0.0	4.1.0
R4-010524	agreed	25.102	50	R99	UE EVM definition	F	3.6.0	3.7.0
R4-010682	agreed	25.102	51	Rel-4	UE EVM definition	A	4.0.0	4.1.0
R4-010545	agreed	25.102	52	R99	Clarification of UARFCN channel number	F	3.6.0	3.7.0
R4-010800	agreed	25.102	53	Rel-4	Clarification of UARFCN channel number	A	4.0.0	4.1.0
R4-010567	agreed	25.102	54	R99	CR for UE Performance Requirements	F	3.6.0	3.7.0
R4-010738	agreed	25.102	55	Rel-4	CR for UE Performance Requirements	A	4.0.0	4.1.0
R4-010676	agreed	25.102	56	R99	Performance Test for Uplink Power Control	F	3.6.0	3.7.0
R4-010755	agreed	25.102	57	Rel-4	Performance Test for Uplink Power Control	A	4.0.0	4.1.0
R4-010677	agreed	25.102	58	R99	Corrections and note status changes from informative to normative	F	3.6.0	3.7.0
R4-010678	agreed	25.102	59	Rel-4	Corrections and note status changes from informative to normative	A	4.0.0	4.1.0
R4-010476	agreed	25.102	64	R99	BCH performance requirement	F	3.6.0	3.7.0
R4-010791	agreed	25.102	65	Rel-4	BCH performance requirement	A	4.0.0	4.1.0

CR-Form-v4	
CHANGE REQUEST	
⌘ 25.102 CR 48 ⌘ ev - ⌘	Current version: 3.6.0 ⌘

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

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

Title:	⌘ Correction of signal descriptions in Receiver Characteristics section.		
Source:	⌘ RAN WG4		
Work item code:	⌘ TEI	Date:	⌘ 21.05.2001
Category:	⌘ F	Release:	⌘ R99
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	F (correction)	2 (GSM Phase 2)	
	A (corresponds to a correction in an earlier release)	R96 (Release 1996)	
	B (addition of feature),	R97 (Release 1997)	
	C (functional modification of feature)	R98 (Release 1998)	
	D (editorial modification)	R99 (Release 1999)	
	Detailed explanations of the above categories can be found in 3GPP TR 21.900 .		REL-4 (Release 4)
			REL-5 (Release 5)

Reason for change:	⌘ Explicit signal description in blocking and spurious response sections.
Summary of change:	⌘ Replace unclear notations ("wanted signal" and "unwanted signal") by explicit descriptions.
Consequences if not approved:	⌘ Previous state can lead to misunderstanding.

Clauses affected:	⌘ 7.6.1, 7.7.1		
Other specs affected:	⌘ <input type="checkbox"/> Other core specifications	⌘	
	<input type="checkbox"/> Test specifications		
	<input type="checkbox"/> O&M Specifications		
Other comments:	⌘ This CR is based on a CR already proposed in R4-00040 and agreed in TSG#7 (RP-000016) but partially implemented in 25.102 V3.2.0		

How to create CRs using this form:

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

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

7.6 Blocking characteristics

The blocking characteristics is a measure of the receiver ability to receive a wanted signal at its assigned channel frequency in the presence of an unwanted interferer on frequencies other than those of the spurious response or the adjacent channels without this unwanted input signal causing a degradation of the performance of the receiver beyond a specified limit. The blocking performance shall apply at all frequencies except those at which a spurious response occur.

7.6.1 Minimum Requirement

The BER shall not exceed 0.001 for the parameters specified in table 7.6 and table 7.7. For table 7.7 up to 24 exceptions are allowed for spurious response frequencies in each assigned frequency channel when measured using a 1MHz step size.

Table 7.6: In-band blocking

Parameter	Offset	Offset	Unit
$\frac{\Sigma DPCH_Ec}{I_{or}}$	<u>0</u>	<u>0</u>	<u>dB</u>
\hat{I}_{or} Wanted Signal Level	<REFSENS> + 3 dB	<REFSENS> + 3 dB	dBm/3.84 MHz
I_{ouw} (modulated) Unwanted Signal Level (modulated)	-56	-44	dBm/3.84 MHz
F_{uw} (offset)	+10 or -10	+15 or -15	MHz

Table 7.7: Out of band blocking

Parameter	Band 1	Band 2	Band 3	Unit
$\frac{\Sigma DPCH_Ec}{I_{or}}$	<u>0</u>	<u>0</u>	<u>0</u>	<u>dB</u>
\hat{I}_{or} Wanted Signal Level	<REFSENS> + 3 dB	<REFSENS> + 3 dB	<REFSENS> + 3 dB	dBm/3.84 MHz
I_{ouw} (CW) Unwanted Signal Level (CW)	-44	-30	-15	dBm
F_{uw} For operation in frequency bands as defined in subclause 5.2(a)	1840 <f < 1885 1935 <f < 1995 2040 <f < 2085	1815 <f < 1840 2085 <f < 2110	1 < f < 1815 2110 < f < 12750	MHz
F_{uw} For operation in frequency bands as defined in subclause 5.2(b)	1790 < f < 1835 2005 < f < 2050	1765 < f < 1790 2050 < f < 2075	1 < f < 1765 2075 < f < 12750	MHz
F_{uw} For operation in frequency bands as defined in subclause 5.2(c)	1850 < f < 1895 1945 < f < 1990	1825 < f < 1850 1990 < f < 2015	1 < f < 1825 2015 < f < 12750	MHz

NOTES: 1. For operation referenced in 5.2(a), from 1885 <f < 1900 MHz, 1920 <f < 1935 MHz, 1995 <f < 2010 MHz and 2025 <f < 2040 MHz, the appropriate in-band blocking or adjacent channel selectivity in section 7.5.1 shall be applied.

- For operation referenced in 5.2(b), from 1835 < f < 1850 MHz and 1990 < f < 2005 MHz, the appropriate in-band blocking or adjacent channel selectivity in section 7.5.1 shall be applied.
- For operation referenced in 5.2(c), from 1895 < f < 1910 MHz and 1930 < f < 1945 MHz, the appropriate in-band blocking or adjacent channel selectivity in section 7.5.1 shall be applied.

7.7 Spurious response

Spurious response is a measure of the receiver's ability to receive a wanted signal on its assigned channel frequency without exceeding a given degradation due to the presence of an unwanted CW interfering signal at any other frequency at which a response is obtained i.e. for which the blocking limit is not met.

7.7.1 Minimum Requirement

The BER shall not exceed 0.001 for the parameters specified in Table 7.8.

Table 7.8: Spurious Response

Parameter	Level	Unit
$\frac{\Sigma DPCH_Ec}{I_{or}}$	<u>0</u>	<u>dB</u>
$\frac{\hat{I}_{or} \text{ (Wanted Signal Level)}}{I_{ouw} \text{ (CW) Unwanted Signal Level (CW)}}$	<REFSENS> + 3 dB	dBm/3.84 MHz
$\frac{I_{ouw} \text{ (CW) Unwanted Signal Level (CW)}}{F_{uw}}$	-44	dBm
F_{uw}	Spurious response frequencies	MHz

CR-Form-v4		
CHANGE REQUEST		
⌘	25.102 CR 49	⌘ ev - ⌘ Current version: 4.0.0 ⌘

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

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

Title:	⌘ Correction of signal descriptions in Receiver Characteristics section.		
Source:	⌘ RAN WG4		
Work item code:	⌘ TEI	Date:	⌘ 21.05.2001
Category:	⌘ A	Release:	⌘ REL-4
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	F (correction)	2 (GSM Phase 2)	
	A (corresponds to a correction in an earlier release)	R96 (Release 1996)	
	B (addition of feature),	R97 (Release 1997)	
	C (functional modification of feature)	R98 (Release 1998)	
	D (editorial modification)	R99 (Release 1999)	
	Detailed explanations of the above categories can be found in 3GPP TR 21.900 .	REL-4 (Release 4)	
		REL-5 (Release 5)	

Reason for change:	⌘ Explicit signal description in blocking and spurious response sections.
Summary of change:	⌘ Replace unclear notations ("wanted signal" and "unwanted signal") by explicit descriptions.
Consequences if not approved:	⌘ Previous state can lead to misunderstanding.

Clauses affected:	⌘ 7.6.1.1,7.6.1.2, 7.7.1.1,7.7.1.2		
Other specs affected:	⌘ <input type="checkbox"/> Other core specifications	⌘	
	<input type="checkbox"/> Test specifications		
	<input type="checkbox"/> O&M Specifications		
Other comments:	⌘ This CR is based on a CR already proposed in R4-00040 and agreed in TSG#7 (RP-000016) but partially implemented in 25.102 V3.2.0		

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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.

7.6 Blocking characteristics

The blocking characteristics is a measure of the receiver ability to receive a wanted signal at its assigned channel frequency in the presence of an unwanted interferer on frequencies other than those of the spurious response or the adjacent channels without this unwanted input signal causing a degradation of the performance of the receiver beyond a specified limit. The blocking performance shall apply at all frequencies except those at which a spurious response occur.

7.6.1 Minimum Requirement

7.6.1.1 3.84 Mcps TDD Option

The BER shall not exceed 0.001 for the parameters specified in table 7.6 and table 7.7. For table 7.7 up to 24 exceptions are allowed for spurious response frequencies in each assigned frequency channel when measured using a 1MHz step size.

Table 7.6: In-band blocking (3.84 Mcps TDD Option)

Parameter	Offset	Offset	Unit
$\frac{\Sigma DPCH_Ec}{I_{or}}$	<u>0</u>	<u>0</u>	<u>dB</u>
\hat{I}_{or} Wanted Signal Level	<REFSENS> + 3 dB	<REFSENS> + 3 dB	dBm/3.84 MHz
I_{ouw} (modulated) Unwanted Signal Level (modulated)	-56	-44	dBm/3.84 MHz
F_{uw} (offset)	+10 or -10	+15 or -15	MHz

Table 7.7: Out of band blocking (3.84 Mcps TDD Option)

Parameter	Band 1	Band 2	Band 3	Unit
$\frac{\Sigma DPCH_Ec}{I_{or}}$	<u>0</u>	<u>0</u>	<u>0</u>	<u>dB</u>
\hat{I}_{or} Wanted Signal Level	<REFSENS> + 3 dB	<REFSENS> + 3 dB	<REFSENS> + 3 dB	dBm/3.84 MHz
I_{ouw} (CW) Unwanted Signal Level (CW)	-44	-30	-15	dBm
F_{uw} For operation in frequency bands as defined in subclause 5.2(a)	1840 <f <1885 1935 <f <1995 2040 <f <2085	1815 <f <1840 2085 <f <2110	1 <f <1815 2110 <f <12750	MHz
F_{uw} For operation in frequency bands as defined in subclause 5.2(b)	1790 <f < 1835 2005 <f < 2050	1765 <f < 1790 2050 <f < 2075	1 <f < 1765 2075 <f < 12750	MHz
F_{uw} For operation in frequency bands as defined in subclause 5.2(c)	1850 <f < 1895 1945 <f < 1990	1825 <f < 1850 1990 <f < 2015	1 <f < 1825 2015 <f < 12750	MHz

NOTES:

- 1) For operation referenced in 5.2(a), from 1885 <f < 1900 MHz, 1920 <f < 1935 MHz, 1995 <f < 2010 MHz and 2025 <f < 2040 MHz, the appropriate in-band blocking or adjacent channel selectivity in section 7.5.1 shall be applied.

- 2) For operation referenced in 5.2(b), from $1835 < f < 1850$ MHz and $1990 < f < 2005$ MHz, the appropriate in-band blocking or adjacent channel selectivity in section 7.5.1 shall be applied.
- 3) For operation referenced in 5.2(c), from $1895 < f < 1910$ MHz and $1930 < f < 1945$ MHz, the appropriate in-band blocking or adjacent channel selectivity in section 7.5.1 shall be applied.

7.6.1.2 1.28 Mcps TDD Option

The BER shall not exceed 0.001 for the parameters specified in table 7.6A and table 7.7A.

Table 7.6A: In-band blocking (1.28 Mcps TDD Option)

Parameter	Offset	Offset	Unit
$\frac{\Sigma DPCH_Ec}{I_{or}}$	<u>0</u>	<u>0</u>	<u>dB</u>
\hat{I}_{or} Wanted Signal Level	<REFSENS> + 3 dB	<REFSENS> + 3 dB	dBm/1.28 MHz
I_{ouw} (modulated) Unwanted Signal Level (modulated)	-61	-49	dBm/1.28 MHz
F_{uw} (offset)	+3.2 or -3.2	+4.8 or -4.8	MHz

Table 7.7A: Out of band blocking (1.28 Mcps TDD Option)

Parameter	Band 1	Band 2	Band 3	Unit
$\frac{\Sigma DPCH_Ec}{I_{or}}$	<u>0</u>	<u>0</u>	<u>0</u>	<u>dB</u>
\hat{I}_{or} Wanted Signal Level	<REFSENS> + 3 dB	<REFSENS> + 3 dB	<REFSENS> + 3 dB	dBm/1.28 MHz
I_{ouw} (CW) Unwanted Signal Level (CW)	-44	-30	-15	dBm
F_{uw} For operation in frequency bands as defined in subclause 5.2(a)	1840 <f < 1895.2 1924.8 <f < 2005.2 2029.8 <f < 2085	1815 <f < 1840 2085 <f < 2110	1 <f < 1815 2110 <f < 12750	MHz
F_{uw} For operation in frequency bands as defined in subclause 5.2(b)	1790 <f < 1845.2 1994.8 <f < 2050	1765 <f < 1790 2050 <f < 2075	1 <f < 1765 2075 <f < 12750	MHz
F_{uw} For operation in frequency bands as defined in subclause 5.2(c)	1850 <f < 1905.2 1934.8 <f < 1990	1825 <f < 1850 1990 <f < 2015	1 <f < 1825 2015 <f < 12750	MHz

NOTES:

- 1) For operation referenced in 5.2(a), from $1895.2 < f < 1900$ MHz, $1920 < f < 1924.8$ MHz, $2005.2 < f < 2010$ MHz and $2025 < f < 2029.8$ MHz, the appropriate in-band blocking or adjacent channel selectivity in section 7.5.1.2 shall be applied.
- 2) For operation referenced in 5.2(b), from $1845.2 < f < 1850$ MHz and $1990 < f < 1994.8$ MHz, the appropriate in-band blocking or adjacent channel selectivity in section 7.5.1.2 shall be applied.
- 3) For operation referenced in 5.2(c), from $1905.2 < f < 1910$ MHz and $1930 < f < 1934.8$ MHz, the appropriate in-band blocking or adjacent channel selectivity in section 7.5.1.2 shall be applied.

7.7 Spurious response

Spurious response is a measure of the receiver's ability to receive a wanted signal on its assigned channel frequency without exceeding a given degradation due to the presence of an unwanted CW interfering signal at any other frequency at which a response is obtained i.e. for which the blocking limit is not met.

7.7.1 Minimum Requirement

7.7.1.1 3.84 Mcps TDD Option

The BER shall not exceed 0.001 for the parameters specified in Table 7.8.

Table 7.8: Spurious Response (3.84 Mcps TDD Option)

Parameter	Level	Unit
$\frac{\Sigma DPCH_Ec}{I_{or}}$	<u>0</u>	<u>dB</u>
$\frac{\hat{I}_{or} \text{ (Wanted Signal Level)}}{I_{ouw} \text{ (CW) Unwanted Signal Level (CW)}}$	<REFSENS> + 3 dB	dBm/3.84 MHz
$I_{ouw} \text{ (CW) Unwanted Signal Level (CW)}$	-44	dBm
F_{uw}	Spurious response frequencies	MHz

7.7.1.2 1.28 Mcps TDD Option

The BER shall not exceed 0.001 for the parameters specified in Table 7.8A.

Table 7.8A: Spurious Response (1.28 Mcps TDD Option)

Parameter	Level	Unit
$\frac{\Sigma DPCH_Ec}{I_{or}}$	<u>0</u>	<u>dB</u>
$\frac{\hat{I}_{or} \text{ (Wanted Signal Level)}}{I_{ouw} \text{ (CW) Unwanted Signal Level (CW)}}$	<REFSENS> + 3 dB	dBm/1.28 MHz
$I_{ouw} \text{ (CW) Unwanted Signal Level (CW)}$	-44	dBm
F_{uw}	Spurious response frequencies	MHz

Gothenburg, Sweden 21st - 25th May 2001

CR-Form-v4

CHANGE REQUEST

⌘ **25.102 CR 50** ⌘ ev **-** ⌘ Current version: **3.6.0** ⌘

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

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

Title:	⌘ UE EVM definition		
Source:	⌘ RAN WG4		
Work item code:	⌘ TEI	Date:	⌘ 21.05.2001
Category:	⌘ F	Release:	⌘ R99
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	F (correction)		2 (GSM Phase 2)
	A (corresponds to a correction in an earlier release)		R96 (Release 1996)
	B (addition of feature),		R97 (Release 1997)
	C (functional modification of feature)		R98 (Release 1998)
	D (editorial modification)		R99 (Release 1999)
	Detailed explanations of the above categories can be found in 3GPP TR_21_900.		REL-4 (Release 4)
			REL-5 (Release 5)

Reason for change:	⌘ The present definition of EVM is not correct and needs updating.
Summary of change:	⌘ The definition of EVM is updated to exclude errors due to frequency, phase, and amplitude, and to include a matched RRC filter in the measurement.
Consequences if not approved:	⌘ Ambiquity and errors in the EVM definition may lead to non-consistent measurement results.

Clauses affected:	⌘ 6.8.2		
Other specs affected:	⌘ <input type="checkbox"/> Other core specifications	⌘	TS 34.122
	<input checked="" type="checkbox"/> Test specifications		
	<input type="checkbox"/> O&M Specifications		
Other comments:	⌘		

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

6.8.2 Error Vector Magnitude

~~The Error Vector Magnitude is a measure of the difference between the measured waveform and the theoretical modulated waveform (the error vector). It is the square root of the ratio of the mean error vector power to the mean reference signal power expressed as a %. The measurement interval is one timeslot.~~

The Error Vector Magnitude is a measure of the difference between the reference waveform and the measured waveform. This difference is called the error vector. Both waveforms pass through a matched Root Raised Cosine filter with bandwidth 3,84 MHz and roll-off $\alpha = 0,22$. Both waveforms are then further modified by selecting the frequency, absolute phase, absolute amplitude and chip clock timing so as to minimise the error vector. The EVM result is defined as the square root of the ratio of the mean error vector power to the mean reference power expressed as a %. The measurement interval is one timeslot. See Annex B of TS 34.122 for further details.

Gothenburg, Sweden 21st - 25th May 2001

CR-Form-v4

CHANGE REQUEST⌘ **25.102 CR 51** ⌘ ev **-** ⌘ Current version: **4.0.0** ⌘For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.Proposed change affects: ⌘ (U)SIM ME/UE Radio Access Network Core Network

Title:	⌘ UE EVM definition		
Source:	⌘ RAN WG4		
Work item code:	⌘ TEI	Date:	⌘ 22.05.2001
Category:	⌘ A	Release:	⌘ REL-4
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	F (correction)		2 (GSM Phase 2)
	A (corresponds to a correction in an earlier release)		R96 (Release 1996)
	B (addition of feature),		R97 (Release 1997)
	C (functional modification of feature)		R98 (Release 1998)
	D (editorial modification)		R99 (Release 1999)
	Detailed explanations of the above categories can be found in 3GPP TR_21_900.		REL-4 (Release 4)
			REL-5 (Release 5)

Reason for change:	⌘ The present definition of EVM is not correct and needs updating.
Summary of change:	⌘ The definition of EVM is updated to exclude errors due to frequency, phase, and amplitude, and to include a matched RRC filter in the measurement. Both modes are taken into account.
Consequences if not approved:	⌘ Ambiguity and errors in the EVM definition may lead to non-consistent measurement results.

Clauses affected:	⌘ 6.8.2		
Other specs affected:	⌘ <input type="checkbox"/> Other core specifications	⌘	TS 34.122
	<input checked="" type="checkbox"/> Test specifications		
	<input type="checkbox"/> O&M Specifications		
Other comments:	⌘		

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

6.8.2 Error Vector Magnitude

~~The Error Vector Magnitude is a measure of the difference between the measured waveform and the theoretical modulated waveform (the error vector). It is the square root of the ratio of the mean error vector power to the mean reference signal power expressed as a %. The measurement interval is one timeslot.~~

The Error Vector Magnitude is a measure of the difference between the reference waveform and the measured waveform. This difference is called the error vector. Both waveforms pass through a matched Root Raised Cosine filter with bandwidth corresponding to the considered chip rate and roll-off $\alpha = 0,22$. Both waveforms are then further modified by selecting the frequency, absolute phase, absolute amplitude and chip clock timing so as to minimise the error vector. The EVM result is defined as the square root of the ratio of the mean error vector power to the mean reference power expressed as a %. The measurement interval is one timeslot. See Annex B of TS 34.122 for further details.

Gothenburg, Sweden 21st - 25th May 2001

CR-Form-v3

CHANGE REQUEST⌘ **25.102** **CR 52** ⌘ rev **-** ⌘ Current version: **3.6.0** ⌘For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.Proposed change affects: ⌘ (U)SIM ME/UE Radio Access Network Core Network

Title:	⌘ Clarification of UARFCN channel number		
Source:	⌘ RAN WG4		
Work item code:	⌘ TEI	Date:	⌘ 18. Apr. 2001
Category:	⌘ F	Release:	⌘ R99
Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:	
F (essential correction)		2 (GSM Phase 2)	
A (corresponds to a correction in an earlier release)		R96 (Release 1996)	
B (Addition of feature),		R97 (Release 1997)	
C (Functional modification of feature)		R98 (Release 1998)	
D (Editorial modification)		R99 (Release 1999)	
Detailed explanations of the above categories can be found in 3GPP TR 21.900.		REL-4 (Release 4)	
		REL-5 (Release 5)	

Reason for change:	⌘ Ambiguity in required UARFCN range
Summary of change:	⌘ The range of UARFCN is specified for each frequency band
Consequences if not approved:	⌘ Performance of UTRA is degraded due to possible cell selection time. High and low channel is now identified

Clauses affected:	⌘ New subclause 5.4.4	
Other specs affected:	⌘ <input type="checkbox"/> Other core specifications	⌘ TS 34.122
	<input checked="" type="checkbox"/> Test specifications	
	<input type="checkbox"/> O&M Specifications	
Other comments:	⌘	

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

- 1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under <ftp://www.3gpp.org/specs/>. For the latest version, look for the directory name with the latest date e.g. 2000-09 contains the specifications resulting from the September 2000 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

5 Frequency bands and channel arrangement

5.1 General

The information presented in this section is based on a chip rate of 3.84 Mcps.

NOTE: Other chip rates may be considered in future releases.

5.2 Frequency bands

UTRA/TDD is designed to operate in the following bands;

- a) 1900 – 1920 MHz: Uplink and downlink transmission
- 2010 – 2025 MHz Uplink and downlink transmission
- b)* 1850 – 1910 MHz: Uplink and downlink transmission
- 1930 – 1990 MHz: Uplink and downlink transmission
- c)* 1910 – 1930 MHz: Uplink and downlink transmission

* Used in ITU Region 2

Additional allocations in ITU region 2 are FFS.

Deployment in existing or other frequency bands is not precluded.

5.3 TX–RX frequency separation

No TX-RX frequency separation is required as Time Division Duplex (TDD) is employed. Each TDMA frame consists of 15 timeslots where each timeslot can be allocated to either transmit or receive.

5.4 Channel arrangement

5.4.1 Channel spacing

The nominal channel spacing is 5 MHz, but this can be adjusted to optimise performance in a particular deployment scenario.

5.4.2 Channel raster

The channel raster is 200 kHz, which means that the carrier frequency must be a multiple of 200 kHz.

5.4.3 Channel number

The carrier frequency is designated by the UTRA absolute radio frequency channel number (UARFCN). The value of the UARFCN in the IMT2000 band is defined as follows:

$$N_t = 5 \cdot F \quad 0.0 \text{ MHz} \leq F \leq 3276.6 \text{ MHz} \quad \text{where } F \text{ is the carrier frequency in MHz}$$

5.4.4. UARFCN

The following UARFCN range shall be supported for each band.

Table 5.1: UTRA Absolute Radio Frequency Channel Number

<u>Frequency Band</u>	<u>Frequency Range</u>	<u>UARFCN Uplink and Downlink transmission</u>
<u>For operation in frequency band as defined in subclause 5.2 (a)</u>	<u>1900-1920 MHz</u>	<u>9512 to 9588</u>
	<u>2010-2025 MHz</u>	<u>10062 to 10113</u>
<u>For operation in frequency band as defined in subclause 5.2 (b)</u>	<u>1850-1910 MHz</u>	<u>9262 to 9538</u>
	<u>1930-1990 MHz</u>	<u>9662 to 9938</u>
<u>For operation in frequency band as defined in subclause 5.2 (c)</u>	<u>1910-1930 MHz</u>	<u>9562 to 9638</u>

Gothenburg, Sweden 21st - 25th May 2001

CR-Form-v4

CHANGE REQUEST⌘ **25.102** **CR 53** ⌘ rev **-** ⌘ Current version: **4.0.0** ⌘For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.Proposed change affects: ⌘ (U)SIM ME/UE Radio Access Network Core Network

Title:	⌘ Clarification of UARFCN channel number		
Source:	⌘ RAN WG4		
Work item code:	⌘ TEI	Date:	⌘ 31.May 2001
Category:	⌘ A	Release:	⌘ REL-4
Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:	
F (correction)		2 (GSM Phase 2)	
A (corresponds to a correction in an earlier release)		R96 (Release 1996)	
B (Addition of feature),		R97 (Release 1997)	
C (Functional modification of feature)		R98 (Release 1998)	
D (Editorial modification)		R99 (Release 1999)	
Detailed explanations of the above categories can be found in 3GPP TR 21.900.		REL-4 (Release 4)	
		REL-5 (Release 5)	

Reason for change:	⌘ REL-4 Cat A CR corresponding to R99 CR Tdoc R4-010545
Summary of change:	⌘ The range of UARFCN is specified for each frequency band (3.84 Mcps TDD option)
Consequences if not approved:	⌘ Inconsistencys between releases.

Clauses affected:	⌘ New subclause 5.4.4		
Other specs affected:	⌘ <input type="checkbox"/> Other core specifications	⌘	TS 34.122
	<input checked="" type="checkbox"/> Test specifications		
	<input type="checkbox"/> O&M Specifications		
Other comments:	⌘		

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

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

5 Frequency bands and channel arrangement

5.1 General

The information presented in this section is based on the chip rates of 3.84 Mcps Option and 1.28 Mcps Option..

NOTE: Other chip rates may be considered in future releases.

5.2 Frequency bands

UTRA/TDD is designed to operate in the following bands;

- a) 1900 – 1920 MHz: Uplink and downlink transmission
2010 – 2025 MHz Uplink and downlink transmission
- b)* 1850 – 1910 MHz: Uplink and downlink transmission
1930 – 1990 MHz: Uplink and downlink transmission
- c)* 1910 – 1930 MHz: Uplink and downlink transmission

* Used in ITU Region 2

Additional allocations in ITU region 2 are FFS.

Deployment in existing or other frequency bands is not precluded.

5.3 TX–RX frequency separation

5.3.1 3.84 Mcps TDD Option

No TX-RX frequency separation is required as Time Division Duplex (TDD) is employed. Each TDMA frame consists of 15 timeslots where each timeslot can be allocated to either transmit or receive.

5.3.2 1.28 Mcps TDD Option

No TX-RX frequency separation is required as Time Division Duplex (TDD) is employed. Each subframe consists of 7 main timeslots where all main timeslots (at least the first one) before the single switching point are allocated DL and all main timeslots (at least the last one) after the single switching point are allocated UL.

5.4 Channel arrangement

5.4.1 Channel spacing

5.4.1.1 3.84 Mcps TDD Option

The nominal channel spacing is 5 MHz, but this can be adjusted to optimise performance in a particular deployment scenario.

5.4.1.2 1.28 Mcps TDD Option

The nominal channel spacing is 1.6 MHz, but this can be adjusted to optimise performance in a particular deployment scenario.

5.4.2 Channel raster

The channel raster is 200 kHz, which means that the carrier frequency must be a multiple of 200 kHz.

5.4.3 Channel number

The carrier frequency is designated by the UTRA absolute radio frequency channel number (UARFCN). The value of the UARFCN in the IMT2000 band is defined as follows:

$$N_t = 5 \cdot F \quad 0.0 \text{ MHz} \leq F \leq 3276.6 \text{ MHz} \quad \text{where } F \text{ is the carrier frequency in MHz}$$

5.4.4. UARFCN

5.4.4.1 3.84 Mcps TDD Option

The following UARFCN range shall be supported for each band.

Table 5.1: UTRA Absolute Radio Frequency Channel Number 3.84 Mcps TDD Option

<u>Frequency Band</u>	<u>Frequency Range</u>	<u>UARFCN Uplink and Downlink transmission</u>
<u>For operation in frequency band as defined in subclause 5.2 (a)</u>	<u>1900-1920 MHz</u>	<u>9512 to 9588</u>
	<u>2010-2025 MHz</u>	<u>10062 to 10113</u>
<u>For operation in frequency band as defined in subclause 5.2 (b)</u>	<u>1850-1910 MHz</u>	<u>9262 to 9538</u>
	<u>1930-1990 MHz</u>	<u>9662 to 9938</u>
<u>For operation in frequency band as defined in subclause 5.2 (c)</u>	<u>1910-1930 MHz</u>	<u>9562 to 9638</u>

5.4.4.2 1.28 Mcps TDD Option

(void)

Gothenburg, Sweden 21st - 25th May 2001

CR-Form-v3	
CHANGE REQUEST	
⌘	25.102 CR 54
⌘	rev
⌘	x
⌘	Current version:
⌘	3.6.0

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

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

Title:	⌘ UE Performance Requirements for 12.2 kbps, 64 kbps, 144 kbps and 384 kbps
Source:	⌘ RAN WG4
Work item code:	⌘ TEI
Date:	⌘ May 21, 2001
Category:	⌘ F
Release:	⌘ R99
<i>Use <u>one</u> of the following categories:</i>	
F (essential correction)	
A (corresponds to a correction in an earlier release)	
B (Addition of feature),	
C (Functional modification of feature)	
D (Editorial modification)	
Detailed explanations of the above categories can be found in 3GPP TR 21.900.	
<i>Use <u>one</u> of the following releases:</i>	
2 (GSM Phase 2)	
R96 (Release 1996)	
R97 (Release 1997)	
R98 (Release 1998)	
R99 (Release 1999)	
REL-4 (Release 4)	
REL-5 (Release 5)	

Reason for change:	⌘ Existing performance requirements do not take into account cell parameter cycling which is mandatory.
Summary of change:	⌘ UE Performance Requirements are revised in Section 8.
Consequences if not approved:	⌘ UE testing would require a special test mode.

Clauses affected:	⌘ 8.2.1.1, 8.3.1.1, 8.3.2.1, 8.3.3.1
Other specs Affected:	⌘ <input type="checkbox"/> Other core specifications
	<input type="checkbox"/> Test specifications
	<input type="checkbox"/> O&M Specifications
Other comments:	⌘

8.2 Demodulation in static propagation conditions

8.2.1 Demodulation of DCH

The performance requirement of DCH in static propagation conditions is determined by the maximum Block Error Ratio (BLER). The BLER is specified for each individual data rate of the DCH. DCH is mapped into the Dedicated Physical Channel (DPCH).

8.2.1.1 Minimum requirement

For the parameters specified in Table 8.2 the BLER should not exceed the piece-wise linear BLER curve specified in Table 8.3. These requirements are applicable for TFCS size 16.

Table 8.2: DCH parameters in static propagation conditions

Parameters	Unit	Test 1	Test 2	Test 3	Test 4
$\frac{\Sigma DPCH _ E_c}{I_{or}}$	dB	-6	-3	0	0
I_{oc}	dBm/3.84 MHz	-60			
<u>Cell Parameter*</u>		<u>0,1</u>			
<u>DPCH Channelization Codes*</u>	<u>C(k,Q)</u>	<u>C(i,16) i=1,2</u>	<u>C(i,16) i=1..5</u>	<u>C(i,16) i=1..9</u>	<u>C(i,16) i=1..8</u>
<u>OCNS Channelization Code*</u>	<u>C(k,Q)</u>	<u>C(3,16)</u>	<u>C(6,16)</u>	-	-
Information Data Rate	kbps	12.2	64	144	384

***Note: Refer to TS 25.223 for definition of channelization codes and cell parameter.**

Table 8.3: Performance requirements in AWGN channel.

Test Number	$\frac{\hat{I}_{or}}{I_{oc}}$ [dB]	BLER
1	<u>0.41.1</u>	10^{-2}
2	<u>2.33.5</u>	10^{-1}
	<u>2.63.8</u>	10^{-2}
3	<u>2.23.4</u>	10^{-1}
	<u>2.43.6</u>	10^{-2}
4	<u>4.62.7</u>	10^{-1}
	<u>4.83.0</u>	10^{-2}

8.3 Demodulation of DCH in multipath fading conditions

8.3.1 Multipath fading Case 1

The performance requirement of DCH is determined by the maximum Block Error Ratio (BLER). The BLER is specified for each individual data rate of the DCH. DCH is mapped into the Dedicated Physical Channel (DPCH).

8.3.1.1 Minimum requirement

For the parameters specified in Table 8.4 the BLER should not exceed the piece-wise linear BLER curve specified in Table 8.5. These requirement are applicable for TFCS size 16.

Table 8.4: DCH parameters in multipath Case 1 channel

Parameters	Unit	Test 1	Test 2	Test 3	Test 4
$\frac{\Sigma DPCH - E_c}{I_{or}}$	DB	-6	-3	0	0
I_{oc}	dBm/3.84 MHz	-60			
<u>Cell Parameter*</u>		<u>0,1</u>			
<u>DPCH Channelization Codes*</u>	<u>C(k,Q)</u>	<u>C(i,16) i=1,2</u>	<u>C(i,16) i=1..5</u>	<u>C(i,16) i=1..9</u>	<u>C(i,16) i=1..8</u>
<u>OCNS Channelization Code*</u>	<u>C(k,Q)</u>	<u>C(3,16)</u>	<u>C(6,16)</u>	-	-
Information Data Rate	kbps	12.2	64	144	384

***Note: Refer to TS 25.223 for definition of channelization codes and cell parameter.**

Table 8.5: Performance requirements in multipath Case 1 channel.

Test Number	$\frac{\hat{I}_{or}}{I_{oc}}$ [dB]	BLER
1	<u>13.513.9</u>	10^{-2}
2	<u>13.313.7</u>	10^{-1}
	<u>19.619.8</u>	10^{-2}
3	<u>13.314.1</u>	10^{-1}
	<u>19.720.6</u>	10^{-2}
4	<u>13.513.8</u>	10^{-1}
	<u>20.220.0</u>	10^{-2}

8.3.2 Multipath fading Case 2

The performance requirement of DCH is determined by the maximum Block Error Ratio (BLER). The BLER is specified for each individual data rate of the DCH. DCH is mapped into the Dedicated Physical Channel (DPCH).

8.3.2.1 Minimum requirement

For the parameters specified in Table 8.6 the BLER should not exceed the piece-wise linear BLER curve specified in Table 8.7. These requirements are applicable for TFCS size 16.

Table 8.6: DCH parameters in multipath Case 2 channel

Parameters	Unit	Test 1	Test 2	Test 3	Test 4
$\frac{\Sigma DPCH - E_c}{I_{or}}$	DB	-3	0	0	0
I_{oc}	dBm/3.84 MHz	-60			
<u>Cell Parameter*</u>		<u>0,1</u>			
<u>DPCH Channelization Codes*</u>	<u>C(k,Q)</u>	<u>C(i,16) i=1,2</u>	<u>C(i,16) i=1..5</u>	<u>C(i,16) i=1..9</u>	<u>C(i,16) i=1..8</u>
<u>OCNS Channelization Code*</u>	<u>C(k,Q)</u>	<u>C(3,16)</u>	-	-	-
Information Data Rate	kbps	12.2	64	144	384

***Note: Refer to TS 25.223 for definition of channelization codes and cell parameter.**

Table 8.7: Performance requirements in multipath Case 2 channel.

Test Number	$\frac{\hat{I}_{or}}{I_{oc}}$ [dB]	BLER
1	<u>5.55.8</u>	10^{-2}
2	<u>5.85.7</u>	10^{-1}
	<u>9.79.2</u>	10^{-2}
3	<u>9.59.3</u>	10^{-1}
	<u>13.212.7</u>	10^{-2}
4	<u>8.58.8</u>	10^{-1}
	<u>12.612.0</u>	10^{-2}

8.3.3 Multipath fading Case 3

The performance requirement of DCH is determined by the maximum Block Error Ratio (BLER). The BLER is specified for each individual data rate of the DCH. DCH is mapped into the Dedicated Physical Channel (DPCH).

8.3.3.1 Minimum requirement

For the parameters specified in Table 8.8 the BLER should not exceed the piece-wise linear BLER curve specified in Table 8.9. These requirements are applicable for TFCS size 16.

Table 8.8: DCH parameters in multipath Case 3 channel

Parameters	Unit	Test 1	Test 2	Test 3	Test 4
$\frac{\Sigma DPCH _ E_c}{I_{or}}$	dB	-3	0	0	0
I_{oc}	dBm/3.84 MHz	-60			
Cell Parameter*		<u>0,1</u>			
DPCH Channelization Codes*	<u>C(k,Q)</u>	<u>C(i,16) i=1,2</u>	<u>C(i,16) i=1..5</u>	<u>C(i,16) i=1..9</u>	<u>C(i,16) i=1..8</u>
OCNS Channelization Code*	<u>C(k,Q)</u>	<u>C(3,16)</u>	-	-	-
Information Data Rate	kbps	12.2	64	144	384

***Note: Refer to TS 25.223 for definition of channelization codes and cell parameter.**

Table 8.9: Performance requirements in multipath Case 3 channel.

Test Number	$\frac{\hat{I}_{or}}{I_{oc}}$ [dB]	BLER
12.2 kbps	<u>4.74.8</u>	10^{-2}
64 kbps	<u>5.25.8</u>	10^{-1}
	<u>8.48.5</u>	10^{-2}
	<u>12.410.7</u>	10^{-3}
144 kbps	<u>11.710.3</u>	10^{-1}
	<u>15.213.3</u>	10^{-2}
	<u>17.816.0</u>	10^{-3}
384 kbps	<u>8.28.9</u>	10^{-1}
	<u>11.311.5</u>	10^{-2}
	<u>13.013.6</u>	10^{-3}

Gothenburg, Sweden 21st - 25th May 2001

CR-Form-v4	
CHANGE REQUEST	
⌘	25.102 CR 55 ⌘ rev x ⌘ Current version: 4.0.0 ⌘

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

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

Title:	⌘ UE Performance Requirements for 12.2 kbps, 64 kbps, 144 kbps and 384 kbps		
Source:	⌘ RAN WG4		
Work item code:	⌘ TEI	Date:	⌘ May 21, 2001
Category:	⌘ A	Release:	⌘ REL-4
<i>Use <u>one</u> of the following categories:</i>		<i>Use <u>one</u> of the following releases:</i>	
F (correction)		2 (GSM Phase 2)	
A (corresponds to a correction in an earlier release)		R96 (Release 1996)	
B (Addition of feature),		R97 (Release 1997)	
C (Functional modification of feature)		R98 (Release 1998)	
D (Editorial modification)		R99 (Release 1999)	
Detailed explanations of the above categories can be found in 3GPP TR 21.900.		REL-4 (Release 4)	
		REL-5 (Release 5)	

Reason for change:	⌘ Existing performance requirements do not take into account cell parameter cycling which is mandatory.
Summary of change:	⌘ UE Performance Requirements are revised in Section 8.
Consequences if not approved:	⌘ UE testing would require a special test mode.

Clauses affected:	⌘ 8.2.1.1, 8.3.1.1, 8.3.2.1, 8.3.3.1	
Other specs Affected:	⌘ <input type="checkbox"/> Other core specifications ⌘ <input checked="" type="checkbox"/> Test specifications ⌘ <input type="checkbox"/> O&M Specifications	34.122
Other comments:	⌘	

8.2 Demodulation in static propagation conditions

8.2.1 Demodulation of DCH

The performance requirement of DCH in static propagation conditions is determined by the maximum Block Error Ratio (BLER). The BLER is specified for each individual data rate of the DCH. DCH is mapped into the Dedicated Physical Channel (DPCH).

8.2.1.1 Minimum requirement

8.2.1.1.1 3.84 Mcps TDD Option

For the parameters specified in Table 8.2 the BLER should not exceed the piece-wise linear BLER curve specified in Table 8.3. These requirements are applicable for TFCS size 16.

Table 8.2: DCH parameters in static propagation conditions (3.84 Mcps TDD Option)

Parameters	Unit	Test 1	Test 2	Test 3	Test 4	Test 5	
$\frac{\Sigma DPCH - E_c}{I_{or}}$	dB	-6	-3	0	0	0	
I_{oc}	dBm/3.84 MHz	-60					
Cell Parameter*		0,1					:
DPCH Channelization Codes*	C(k,Q)	C(i,16) i=1,2	C(i,16) i=1..5	C(i,16) i=1..9	C(i,16) i=1..8	:	
OCNS Channelization Code*	C(k,Q)	C(3,16)	C(6,16)	-	-	-	
Information Data Rate	kbps	12.2	64	144	384	2048	

***Note: Refer to TS 25.223 for definition of channelization codes and cell parameter.**

Table 8.3: Performance requirements in AWGN channel (3.84 Mcps TDD Option).

Test Number	$\frac{\hat{I}_{or}}{I_{oc}}$ [dB]	BLER
1	1.10-4	10^{-2}
2	3.52-3	10^{-1}
	3.82-6	10^{-2}
3	3.42-2	10^{-1}
	3.62-4	10^{-2}
4	2.74-6	10^{-1}
	3.04-8	10^{-2}
5	3.5	10^{-1}
	3.6	10^{-2}

8.2.1.1.2 1.28 Mcps TDD Option

For the parameters specified in Table 8.2A the BLER should not exceed the piece-wise linear BLER curve specified in Table 8.3A.

Table 8.2A: DCH parameters in static propagation conditions (1.28 Mcps TDD Option)

Parameters	Unit	Test 1	Test 2	Test 3	Test 4
Number of DPCH _o		8	2	2	0
$\frac{DPCH_o - E_c}{I_{or}}$	dB	-10	-10	-10	0
I_{oc}	DBm/1.28MHz	-60			
Information Data Rate	Kbps	12.2	64	144	384

Table 8.3A: Performance requirements in AWGN channel (1.28 Mcps TDD Option)

Test Number	$\frac{\hat{I}_{or}}{I_{oc}}$ [dB]	BLER
1	3.1	10^{-2}
2	2.1	10^{-1}
	2.4	10^{-2}
3	2.5	10^{-1}
	2.8	10^{-2}
4	2.8	10^{-1}

8.3 Demodulation of DCH in multipath fading conditions

8.3.1 Multipath fading Case 1

The performance requirement of DCH is determined by the maximum Block Error Ratio (BLER). The BLER is specified for each individual data rate of the DCH. DCH is mapped into the Dedicated Physical Channel (DPCH).

8.3.1.1 Minimum requirement

8.3.1.1.1 3.84 Mcps TDD Option

For the parameters specified in Table 8.4 the BLER should not exceed the piece-wise linear BLER curve specified in Table 8.5. These requirement are applicable for TFCS size 16.

Table 8.4: DCH parameters in multipath Case 1 channel (3.84 Mcps TDD Option)

Parameters	Unit	Test 1	Test 2	Test 3	Test 4	Test 5
$\frac{\Sigma DPCH - E_c}{I_{or}}$	DB	-6	-3	0	0	0
I_{oc}	dBm/3.84 MHz	-60				
Cell Parameter*		0.1				:
DPCH Channelization Codes*	C(k,Q)	C(i,16) i=1,2	C(i,16) i=1..5	C(i,16) i=1..9	C(i,16) i=1..8	:
OCNS Channelization Code*	C(k,Q)	C(3,16)	C(6,16)	:	:	:
Information Data Rate	kbps	12.2	64	144	384	2048

***Note: Refer to TS 25.223 for definition of channelization codes and cell parameter.**

Table 8.5: Performance requirements in multipath Case 1 channel (3.84 Mcps TDD Option).

Test Number	$\frac{\hat{I}_{or}}{I_{oc}}$ [dB]	BLER
1	13.913.5	10^{-2}
2	13.713.3	10^{-1}
	19.819.6	10^{-2}
3	14.113.3	10^{-1}
	20.619.7	10^{-2}
4	13.813.5	10^{-1}
	20.020.2	10^{-2}
5	13.2	10^{-1}
	17.8	10^{-2}

8.3.1.1.2 1.28 Mcps TDD Option

For the parameters specified in Table 8.4A the BLER should not exceed the piece-wise linear BLER curve specified in Table 8.5A.

Table 8.4A: DCH parameters in multipath Case 1 channel (1.28 Mcps TDD Option)

Parameters	Unit	Test 1	Test 2	Test 3	Test 4
Number of DPCH _o		8	2	2	0
$\frac{DPCH_o - E_c}{I_{or}}$	DB	-10	-10	-10	0
I_{oc}	dBm/1.28MHz	-60			
Information Data Rate	Kbps	12.2	64	144	384

Table 8.5A: Performance requirements in multipath Case 1 channel (1.28 Mcps TDD Option)

Test Number	$\frac{\hat{I}_{or}}{I_{oc}}$ [dB]	BLER
1	22.2	10^{-2}
2	15.0	10^{-1}
	22.0	10^{-2}
3	16.0	10^{-1}
	23.0	10^{-2}
4	16.0	10^{-1}
	23.0	10^{-2}

8.3.2 Multipath fading Case 2

The performance requirement of DCH is determined by the maximum Block Error Ratio (BLER). The BLER is specified for each individual data rate of the DCH. DCH is mapped into the Dedicated Physical Channel (DPCH).

8.3.2.1 Minimum requirement

8.3.2.1.1 3.84 Mcps TDD Option

For the parameters specified in Table 8.6 the BLER should not exceed the piece-wise linear BLER curve specified in Table 8.7. These requirements are applicable for TFCS size 16.

Table 8.6: DCH parameters in multipath Case 2 channel (3.84 Mcps TDD Option)

Parameters	Unit	Test 1	Test 2	Test 3	Test 4	Test 5	
$\frac{\Sigma DPCH - E_c}{I_{or}}$	DB	-3	0	0	0	0	
I_{oc}	dBm/3.84 MHz	-60					
Cell Parameter*		0,1					-
DPCH Channelization Codes*	C(k,Q)	$\frac{C(i,16)}{i=1..2}$	$\frac{C(i,16)}{i=1..5}$	$\frac{C(i,16)}{i=1..9}$	$\frac{C(i,16)}{i=1..8}$	-	
OCNS Channelization Code*	C(k,Q)	C(3,16)	-	-	-	-	
Information Data Rate	kbps	12.2	64	144	384	2048	

***Note: Refer to TS 25.223 for definition of channelization codes and cell parameter.**

Table 8.7: Performance requirements in multipath Case 2 channel (3.84 Mcps TDD Option).

Test Number	$\frac{\hat{I}_{or}}{I_{oc}}$ [dB]	BLER
1	5.85.5	10^{-2}
2	5.75.8	10^{-1}
	9.29.7	10^{-2}
3	9.39.5	10^{-1}
	12.743.2	10^{-2}
4	8.88.5	10^{-1}
	12.042.6	10^{-2}
5	10.3	10^{-1}
	12.7	10^{-2}

8.3.2.1.2 1.28 Mcps TDD Option

For the parameters specified in Table 8.6A the BLER should not exceed the piece-wise linear BLER curve specified in Table 8.7A.

Table 8.6A: DCH parameters in multipath Case 2 channel (1.28 Mcps TDD Option)

Parameters	Unit	Test 1	Test 2	Test 3	Test 4
Number of DPCH _o		8	2	2	0
$\frac{DPCH_o - E_c}{I_{or}}$	dB	-10	-10	-10	0
I_{oc}	dBm/1.28MHz	-60			
Information Data Rate	Kbps	12.2	64	144	384

Table 8.7A: Performance requirements in multipath Case 2 channel (1.28 Mcps TDD Option)

Test Number	$\frac{\hat{I}_{or}}{I_{oc}}$ [dB]	BLER
1	13.2	10^{-2}
2	9.5	10^{-1}
	13.7	10^{-2}
3	10.0	10^{-1}
	14.0	10^{-2}
4	10.0	10^{-1}
	14.0	10^{-2}

8.3.3 Multipath fading Case 3

The performance requirement of DCH is determined by the maximum Block Error Ratio (BLER). The BLER is specified for each individual data rate of the DCH. DCH is mapped into the Dedicated Physical Channel (DPCH).

8.3.3.1 Minimum requirement

8.3.3.1.1 3.84 Mcps TDD Option

For the parameters specified in Table 8.8 the BLER should not exceed the piece-wise linear BLER curve specified in Table 8.9. These requirements are applicable for TFCS size 16.

Table 8.8: DCH parameters in multipath Case 3 channel (3.84 Mcps TDD Option)

Parameters	Unit	Test 1	Test 2	Test 3	Test 4	Test 5	
$\frac{\Sigma DPCH _ E_c}{I_{or}}$	dB	-3	0	0	0	0	
I_{oc}	dBm/3.84 MHz	-60					
Cell Parameter*		0.1					:
DPCH Channelization Codes*	$C(k,Q)$	$C(i,16)$ $i=1,2$	$C(i,16)$ $i=1..5$	$C(i,16)$ $i=1..9$	$C(i,16)$ $i=1..8$:	
OCNS Channelization Code*	$C(k,Q)$	$C(3,16)$:	:	:	:	
Information Data Rate	kbps	12.2	64	144	384	2048	

***Note: Refer to TS 25.223 for definition of channelization codes and cell parameter.**

Table 8.9: Performance requirements in multipath Case 3 channel (3.84 Mcps TDD Option).

Test Number	$\frac{\hat{I}_{or}}{I_{oc}}$ [dB]	BLER
1	4.84.7	10^{-2}
2	5.85.2	10^{-1}
	8.58.4	10^{-2}
	10.742.1	10^{-3}
3	10.344.7	10^{-1}
	13.345.2	10^{-2}
	16.047.8	10^{-3}
4	8.98.2	10^{-1}
	11.544.3	10^{-2}
	13.643.0	10^{-3}
5	9.4	10^{-1}
	11.5	10^{-2}
	13.6	10^{-3}

8.3.3.1.2 1.28 Mcps TDD Option

For the parameters specified in Table 8.8A the BLER should not exceed the piece-wise linear BLER curve specified in Table 8.9A.

Table 8.8A: DCH parameters in multipath Case 3 channel (1.28 Mcps TDD Option)

Parameters	Unit	Test 1	Test 2	Test 3	Test 4
Number of DPCH _o		8	2	2	0
$\frac{DPCH_o - E_c}{I_{or}}$	dB	-10	-10	-10	0
I_{oc}	dBm/1.28MHz	-60			
Information Data Rate	Kbps	12.2	64	144	384

Table 8.9A: Performance requirements in multipath Case 3 channel (1.28 Mcps TDD Option)

Test Number	$\frac{\hat{I}_{or}}{I_{oc}}$ [dB]	BLER
1	10.8	10^{-2}
2	8.3	10^{-1}
	11.1	10^{-2}
	13.8	10^{-3}
3	8.7	10^{-1}
	10.6	10^{-2}
	11.8	10^{-3}
4	8.8	10^{-1}
	10.3	10^{-2}
	11.5	10^{-3}

CHANGE REQUEST

⌘ **25.102 CR 56** ⌘ ev **-** ⌘ Current version: **3.6.0** ⌘

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

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

Title:	⌘ Uplink Power Control for Dedicated Channels		
Source:	⌘ RAN WG4		
Work item code:	⌘ TEI	Date:	⌘ 21 May, 2001
Category:	⌘ F	Release:	⌘ R99
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	F (correction)		2 (GSM Phase 2)
	A (corresponds to a correction in an earlier release)		R96 (Release 1996)
	B (addition of feature),		R97 (Release 1997)
	C (functional modification of feature)		R98 (Release 1998)
	D (editorial modification)		R99 (Release 1999)
	Detailed explanations of the above categories can be found in 3GPP TR 21.900 .		REL-4 (Release 4)
			REL-5 (Release 5)

Reason for change:	⌘ UL Power Control Functionality has been specified by WG1 and WG2 Standards, and therefore, performance requirements are needed in WG4 specifications.
Summary of change:	⌘ Performance requirements are stated for a UE applying open loop power control for Uplink Dedicated Channels.
Consequences if not approved:	⌘ Network or terminal operation or both may be compromised.

Clauses affected:	⌘ 8.6
Other specs affected:	⌘ <input type="checkbox"/> Other core specifications ⌘ <input checked="" type="checkbox"/> Test specifications ⌘ <input type="checkbox"/> O&M Specifications 34.122
Other comments:	⌘

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

8.6 Uplink Power Control

Power control in the uplink is the ability of the UE to converge to the required link quality set by the network while using minimum uplink power.

8.6.1 Test Conditions

During period T1, the PCCPCH and a second Beacon Channel are transmitted in the DL in designated slots within each frame and at the same power level.

The UE transmits, using the channel of TS25.105, Annex A.2.1 UL reference measurement channel (12.2 kbps) in one UL slot. For different parts of the test, different UL slots will be designated.

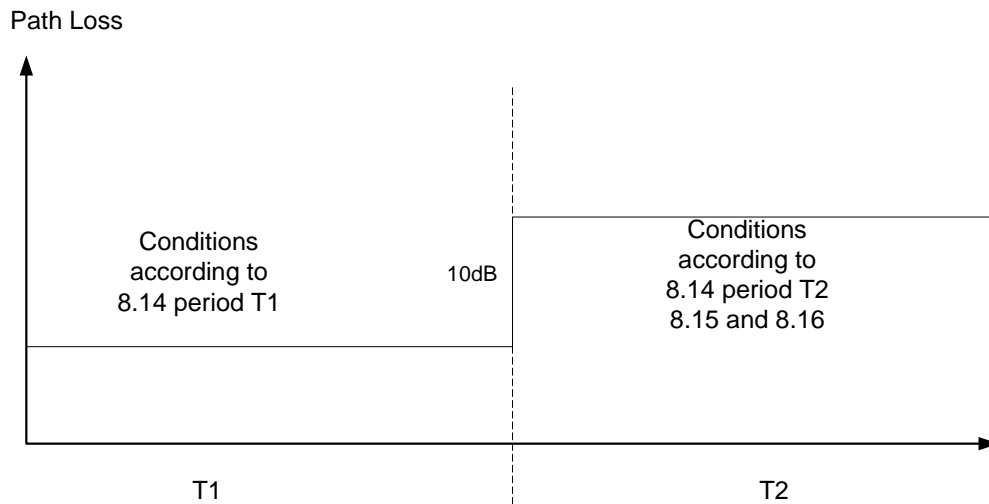
The values of table 8.14, period T1 shall be selected. Then, with the received PCCPCH and Beacon power set at -60 dBm, the value of DPCH constant value shall be adjusted so that the mean UE output power is 5 dBm. These conditions are held steady during period T1.

Periods T1 and T2 are each 5 seconds long.

Table 8.14

UL Power Control Test Conditions

		Period T1	Period T2
I_{BTS} all slots	dBm	-60	
PCCPCH Power -Broadcast	dBm	18	
PCCPCH power - Received	dBm	-60	-70
Mean UE transmit power	dBm	5	According to tables 8.15 and 8.16
SIR_{TARGET}	dB	6	
I_{oc} in PCCPCH and Beacon Slots	dBm	-60	
IE (information element) Alpha	As defined in 25.331	1.0	
PCCPCH slot position	Integer 0 -14	0	
Beacon slot position	Integer 0-14	8	



8.6.2 Performance

At the end of period T1, the PCCPCH and Beacon Received power shall be simultaneously decreased by 10 dB. These conditions are summarized in table 8.14, period T2.

For the first frame including the change in received power the UE output power shall satisfy the values in table 8.15.

For the 20th frame after the change in received power the UE output power shall satisfy the values in table 8.16.

Table 8.15

Required UE Output Power, Frame Containing Power Level Change

<u>Parameter</u>	<u>Units</u>	<u>Value</u>	
<u>UL transmission slot position</u>		<u>1,9</u>	<u>7,14</u>
<u>UE output power</u>	<u>dBm</u>	<u>15 ±4.0</u>	<u>5 ±0.5</u>

Table 8.16

Required UE Output Power, 20 Frames after Power Level Change

<u>Parameter</u>	<u>Units</u>	<u>Value</u>	
<u>UL transmission slot position</u>		<u>1,9</u>	<u>7,14</u>
<u>UE output power</u>	<u>dBm</u>	<u>15 ±4.0</u>	<u>15 ±4.0</u>

CR-Form-v4

CHANGE REQUEST

⌘ **25.102 CR 57** ⌘ ev **-** ⌘ Current version: **4.0.0** ⌘

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

Title:	⌘ Uplink Power Control for Dedicated Channels		
Source:	⌘ RAN WG4		
Work item code:	⌘ TEI	Date:	⌘ 21 May, 2001
Category:	⌘ A	Release:	⌘ REL-4
	Use <u>one</u> of the following categories: F (correction) A (corresponds to a correction in an earlier release) B (addition of feature), C (functional modification of feature) D (editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900 .		Use <u>one</u> of the following releases: 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)

Reason for change:	⌘ UL Power Control Functionality has been specified by WG1 and WG2 Standards, and therefore, performance requirements are needed in WG4 specifications.
Summary of change:	⌘ Performance requirements are stated for a UE applying open loop power control for Uplink Dedicated Channels.
Consequences if not approved:	⌘ Network or terminal operation or both may be compromised.

Clauses affected:	⌘ 8.6						
Other specs affected:	<table style="width: 100%;"> <tr> <td style="width: 50%;"><input type="checkbox"/> Other core specifications</td> <td style="width: 50%;"></td> </tr> <tr> <td><input checked="" type="checkbox"/> Test specifications</td> <td>34.122</td> </tr> <tr> <td><input type="checkbox"/> O&M Specifications</td> <td></td> </tr> </table>	<input type="checkbox"/> Other core specifications		<input checked="" type="checkbox"/> Test specifications	34.122	<input type="checkbox"/> O&M Specifications	
<input type="checkbox"/> Other core specifications							
<input checked="" type="checkbox"/> Test specifications	34.122						
<input type="checkbox"/> O&M Specifications							
Other comments:	⌘						

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8.6 Uplink Power Control for 3.84 Mcps TDD Option

Power control in the uplink is the ability of the UE to converge to the required link quality set by the network while using minimum uplink power.

8.6.1 Test Conditions

During period T1, the PCCPCH and a second Beacon Channel are transmitted in the DL in designated slots within each frame and at the same power level.

The UE transmits, using the channel of TS25.105, Annex A.2.1 UL reference measurement channel (12.2 kbps) in one UL slot. For different parts of the test, different UL slots will be designated.

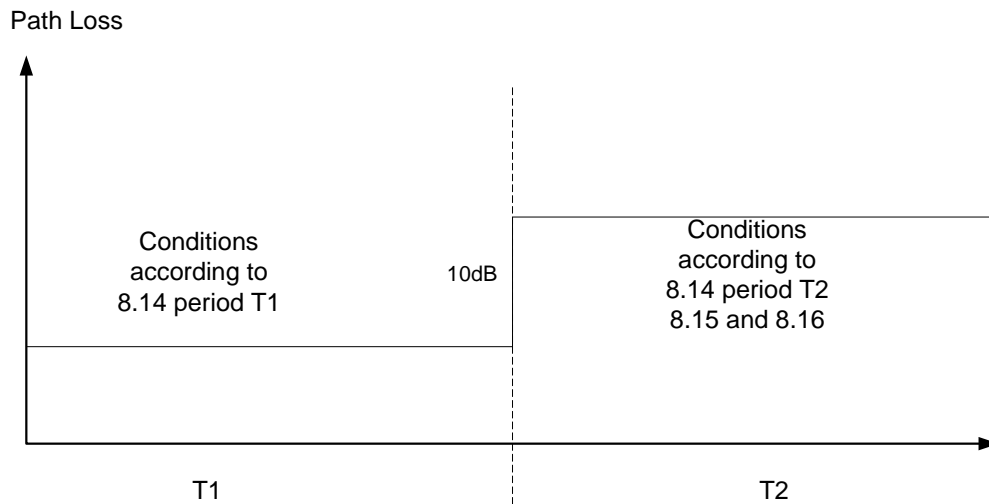
The values of table 8.14, period T1 shall be selected. Then, with the received PCCPCH and Beacon power set at -60 dBm, the value of DPCH constant value shall be adjusted so that the mean UE output power is 5 dBm. These conditions are held steady during period T1.

Periods T1 and T2 are each 5 seconds long.

Table 8.14

UL Power Control Test Conditions

		Period T1	Period T2
I_{BTS} all slots	dBm	-60	
PCCPCH Power -Broadcast	dBm	18	
PCCPCH power - Received	dBm	-60	-70
Mean UE transmit power	dBm	5	According to tables 8.15 and 8.16
SIR_{TARGET}	dB	6	
I_{oc} in PCCPCH and Beacon Slots	dBm	-60	
IE (information element) Alpha	As defined in 25.331	1.0	
PCCPCH slot position	Integer 0-14	0	
Beacon slot position	Integer 0-14	8	



8.6.2 Performance

At the end of period T1, the PCCPCH and Beacon Received power shall be simultaneously decreased by 10 dB. These conditions are summarized in table 8.14, period T2.

For the first frame including the change in received power the UE output power shall satisfy the values in table 8.15.

For the 20th frame after the change in received power the UE output power shall satisfy the values in table 8.16.

Table 8.15

Required UE Output Power, Frame Containing Power Level Change

<u>Parameter</u>	<u>Units</u>	<u>Value</u>	
<u>UL transmission slot position</u>		<u>1,9</u>	<u>7,14</u>
<u>UE output power</u>	<u>dBm</u>	<u>15 ±4.0</u>	<u>5 ±0.5</u>

Table 8.16

Required UE Output Power, 20 Frames after Power Level Change

<u>Parameter</u>	<u>Units</u>	<u>Value</u>	
<u>UL transmission slot position</u>		<u>1,9</u>	<u>7,14</u>
<u>UE output power</u>	<u>dBm</u>	<u>15 ±4.0</u>	<u>15 ±4.0</u>

Gothenburg, Sweden 21st - 25th May 2001

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CHANGE REQUEST⌘ **25.102 CR 58** ⌘ ev **-** ⌘ Current version: **3.6.0** ⌘For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.Proposed change affects: ⌘ (U)SIM ME/UE Radio Access Network Core Network

Title:	⌘ Corrections and note status changes from informative to normative		
Source:	⌘ RAN WG4		
Work item code:	⌘ TEI	Date:	⌘ 21.05.2001
Category:	⌘ F	Release:	⌘ R99
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	F (correction)	2 (GSM Phase 2)	
	A (corresponds to a correction in an earlier release)	R96 (Release 1996)	
	B (addition of feature),	R97 (Release 1997)	
	C (functional modification of feature)	R98 (Release 1998)	
	D (editorial modification)	R99 (Release 1999)	
	Detailed explanations of the above categories can be found in 3GPP IR 21.900 .		REL-4 (Release 4)
			REL-5 (Release 5)

Reason for change:	⌘ Clarification and correction of the specification
Summary of change:	⌘ Informative note should be normative text. Correction of emission mask measurement filter bandwidth.
Consequences if not approved:	⌘ Requirements cannot be met if clarification is not included.

Clauses affected:	⌘ 6.6.2.1.1, 6.6.3.1, 7.6.1	
Other specs affected:	⌘ <input type="checkbox"/> Other core specifications	⌘ TS 34.122
	<input checked="" type="checkbox"/> Test specifications	
	<input type="checkbox"/> O&M Specifications	
Other comments:	⌘	

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

6.6.2.1 Spectrum emission mask

The spectrum emission mask of the UE applies to frequencies, which are between 2.5 and 12.5MHz from a carrier frequency. The out of channel emission is specified relative to the UE output power in measured in a 3.84 MHz bandwidth.

6.6.2.1.1 Minimum Requirement

The power of any UE emission shall not exceed the levels specified in table 6.5.

Table 6.5 : Spectrum Emission Mask Requirement

Frequency offset from carrier Δf	Minimum requirement	Measurement bandwidth
2.5 - 3.5 MHz	-35 -15*($\Delta f - 2.5$) dBc	30 kHz *
3.5 - 7.5 MHz	-35- 1*($\Delta f-3.5$) dBc	1 MHz **
7.5 - 8.5 MHz	-39 - 10*($\Delta f - 7.5$) dBc	1 MHz **
8.5 - 12.5 MHz	-49 dBc	1 MHz **
* The first and last measurement position with a 30 kHz filter is 2.515 MHz and 3.485 MHz.		
** The first and last measurement position with a 1 MHz filter is 4 MHz and 12 MHz. As a general rule, the resolution bandwidth of the measuring equipment should be equal to the measurement bandwidth. To improve measurement accuracy, sensitivity and efficiency, the resolution bandwidth can be different from the measurement bandwidth. When the resolution bandwidth is smaller than the measurement bandwidth, the result should be integrated over the measurement bandwidth.		
The lower limit shall be -50dBm/3.84 MHz or the minimum requirement presented in this table which ever is the higher.		

Note

1. The first and last measurement position with a 30 kHz filter is 2.515 MHz and 3.485 MHz
2. The first and last measurement position with a 1 MHz filter is 4 MHz and 12 MHz
3. The lower limit shall be -50dBm/3.84 MHz or which ever is the higher

----Next changed section----

6.6.3 Spurious emissions

Spurious emissions are emissions which are caused by unwanted transmitter effects such as harmonics emission, parasitic emission, intermodulation products and frequency conversion products, but exclude out of band emissions. The frequency boundary and the detailed transitions of the limits between the requirement for out band emissions and spectrum emissions are based on ITU-R Recommendations SM.329-8.

6.6.3.1 Minimum Requirement

These requirements are only applicable for frequencies which are greater than 12.5 MHz away from the UE center carrier frequency.

Table 6.7A : General Spurious emissions requirements

Frequency Bandwidth	<u>Resolution Measurement Bandwidth</u>	Minimum requirement
$9 \text{ kHz} \leq f < 150 \text{ kHz}$	1 kHz	-36 dBm
$150 \text{ kHz} \leq f < 30 \text{ MHz}$	10 kHz	-36 dBm
$30 \text{ MHz} \leq f < 1000 \text{ MHz}$	100 kHz	-36 dBm
$1 \text{ GHz} \leq f < 12.75 \text{ GHz}$	1 MHz	-30 dBm

Table 6.7B : Additional Spurious emissions requirements

Frequency Bandwidth	<u>Resolution Measurement Bandwidth</u>	Minimum requirement
$925 \text{ MHz} \leq f \leq 935 \text{ MHz}$	100 KHz	-67 dBm*
$935 \text{ MHz} < f \leq 960 \text{ MHz}$	100 KHz	-79 dBm*
$1805 \text{ MHz} \leq f \leq 1880 \text{ MHz}$	100 KHz	-71 dBm*
* <u>The measurements are made on frequencies which are integer multiples of 200 kHz. As exceptions, up to five measurements with a level up to the applicable requirements defined in Table 6.7A are permitted for each UARFCN used in the measurement.</u>		

NOTE: ~~The measurements are made on frequencies which are integer multiples of 200 kHz. As exceptions, up to five measurements with a level up to the applicable requirements defined in Table 6.7A are permitted for each UARFCN used in the measurement.~~

----Next changed section----

7.6 Blocking characteristics

The blocking characteristics is a measure of the receiver ability to receive a wanted signal at its assigned channel frequency in the presence of an unwanted interferer on frequencies other than those of the spurious response or the adjacent channels without this unwanted input signal causing a degradation of the performance of the receiver beyond a specified limit. The blocking performance shall apply at all frequencies except those at which a spurious response occur.

7.6.1 Minimum Requirement

The BER shall not exceed 0.001 for the parameters specified in table 7.6 and table 7.7. For table 7.7 up to 24 exceptions are allowed for spurious response frequencies in each assigned frequency channel when measured using a 1MHz step size.

Table 7.6: In-band blocking

Parameter	Offset	Offset	Unit
Wanted Signal Level	<REFSENS> + 3 dB	<REFSENS> + 3 dB	dBm/3.84 MHz
Unwanted Signal Level (modulated)	-56	-44	dBm/3.84 MHz
F_{uw} (offset)	+10 or -10	+15 or -15	MHz

Table 7.7: Out of band blocking

Parameter	Band 1	Band 2	Band 3	Unit
Wanted Signal Level	<REFSENS> + 3 dB	<REFSENS> + 3 dB	<REFSENS> + 3 dB	dBm/3.84 MHz
Unwanted Signal Level (CW)	-44	-30	-15	dBm
F_{uw} For operation in frequency bands as defined in subclause 5.2(a)	1840 <f < 1885 1935 <f < 1995 2040 <f < 2085	1815 <f < 1840 2085 <f < 2110	1 < f < 1815 2110 < f < 12750	MHz
F_{uw} For operation in frequency bands as defined in subclause 5.2(b)	1790 < f < 1835 2005 < f < 2050	1765 < f < 1790 2050 < f < 2075	1 < f < 1765 2075 < f < 12750	MHz
F_{uw} For operation in frequency bands as defined in subclause 5.2(c)	1850 < f < 1895 1945 < f < 1990	1825 < f < 1850 1990 < f < 2015	1 < f < 1825 2015 < f < 12750	MHz
1. For operation referenced in 5.2(a), from 1885 <f < 1900 MHz, 1920 <f < 1935 MHz, 1995 <f < 2010 MHz and 2025 <f < 2040 MHz, the appropriate in-band blocking in table 7.6 or adjacent channel selectivity in section 7.5.1 shall be applied.				
2. For operation referenced in 5.2(b), from 1835 < f < 1850 MHz and 1990 < f < 2005 MHz, the appropriate in-band blocking in table 7.6 or adjacent channel selectivity in section 7.5.1 shall be applied.				
3. For operation referenced in 5.2(c), from 1895 < f < 1910 MHz and 1930 < f < 1945 MHz, the appropriate in-band blocking in table 7.6 or adjacent channel selectivity in section 7.5.1 shall be applied.				

NOTES: 1. For operation referenced in 5.2(a), from 1885 <f < 1900 MHz, 1920 <f < 1935 MHz, 1995 <f < 2010 MHz and 2025 <f < 2040 MHz, the appropriate in-band blocking or adjacent channel selectivity in section 7.5.1 shall be applied.

2. For operation referenced in 5.2(b), from 1835 < f < 1850 MHz and 1990 < f < 2005 MHz, the appropriate in-band blocking or adjacent channel selectivity in section 7.5.1 shall be applied.

For operation referenced in 5.2(c), from 1895 < f < 1910 MHz and 1930 < f < 1945 MHz, the appropriate in-band blocking or adjacent channel selectivity in section 7.5.1 shall be applied.

Gothenburg, Sweden 21st - 25th May 2001

CR-Form-v4

CHANGE REQUEST⌘ **25.102 CR 59** ⌘ ev **-** ⌘ Current version: **4.0.0** ⌘For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.Proposed change affects: ⌘ (U)SIM ME/UE Radio Access Network Core Network

Title:	⌘ Corrections and note status changes from informative to normative		
Source:	⌘ RAN WG4		
Work item code:	⌘ TEI	Date:	⌘ 22.05.2001
Category:	⌘ A	Release:	⌘ REL-4
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	F (correction)	2 (GSM Phase 2)	
	A (corresponds to a correction in an earlier release)	R96 (Release 1996)	
	B (addition of feature),	R97 (Release 1997)	
	C (functional modification of feature)	R98 (Release 1998)	
	D (editorial modification)	R99 (Release 1999)	
	Detailed explanations of the above categories can be found in 3GPP IR 21.900 .		REL-4 (Release 4)
			REL-5 (Release 5)

Reason for change:	⌘ Clarification and correction of the specification
Summary of change:	⌘ Informative note should be normative text. Correction of emission mask measurement filter bandwidth.
Consequences if not approved:	⌘ Requirements cannot be met if clarification is not included.

Clauses affected:	⌘ 6.6.2.1, 6.6.3.1, 7.6.1	
Other specs affected:	⌘ <input type="checkbox"/> Other core specifications	⌘ TS 34.122
	<input checked="" type="checkbox"/> Test specifications	
	<input type="checkbox"/> O&M Specifications	
Other comments:	⌘	

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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.

6.6.2.1 Spectrum emission mask

6.6.2.1.1 3.84 Mcps TDD Option

The spectrum emission mask of the UE applies to frequencies, which are between 2.5 and 12.5MHz from a carrier frequency. The out of channel emission is specified relative to the UE output power in measured in a 3.84 MHz bandwidth.

6.6.2.1.1.1 Minimum Requirement

The power of any UE emission shall not exceed the levels specified in table 6.5.

Table 6.5: Spectrum Emission Mask Requirement (3.84 Mcps TDD Option)

Frequency offset from carrier Δf	Minimum requirement	Measurement bandwidth
2.5 - 3.5 MHz	-35 -15*($\Delta f - 2.5$) dBc	30 kHz *
3.5 - 7.5 MHz	-35- 1*($\Delta f-3.5$) dBc	1 MHz **
7.5 - 8.5 MHz	-39 - 10*($\Delta f - 7.5$) dBc	1 MHz **
8.5 - 12.5 MHz	-49 dBc	1 MHz **
* The first and last measurement position with a 30 kHz filter is 2.515 MHz and 3.485 MHz.		
** The first and last measurement position with a 1 MHz filter is 4 MHz and 12 MHz. As a general rule, the resolution bandwidth of the measuring equipment should be equal to the measurement bandwidth. To improve measurement accuracy, sensitivity and efficiency, the resolution bandwidth can be different from the measurement bandwidth. When the resolution bandwidth is smaller than the measurement bandwidth, the result should be integrated over the measurement bandwidth.		
The lower limit shall be -50dBm/3.84 MHz or the minimum requirement presented in this table which ever is the higher.		

NOTE:—

- 1) ~~The first and last measurement position with a 30 kHz filter is 2.515 MHz and 3.485 MHz~~
- 2) ~~The first and last measurement position with a 1 MHz filter is 4 MHz and 12 MHz~~
- 3) ~~The lower limit shall be -50dBm/3.84 MHz or which ever is the higher~~

6.6.2.1.2 1.28 Mcps TDD Option

The spectrum emission mask of the UE applies to frequencies, which are between 0.8 and 4.0MHz from a carrier frequency. The out of channel emission is specified relative to the UE output power in measured in a 1.28 MHz bandwidth.

6.6.2.1.2.1 Minimum Requirement

The power of any UE emission shall not exceed the levels specified in table 6.5A

Table 6.5A: Spectrum Emission Mask Requirement (1.28 Mcps TDD Option)

Frequency offset from carrier Δf	Minimum requirement	Measurement bandwidth
0.8 MHz	-35 dBc	30 kHz *
0.8-1.8 MHz	-35 - 14*($\Delta f-0.8$) dBc	30 kHz*
1.8-2.4 MHz	-49 - 25*($\Delta f-1.8$)dBc	30 kHz*
2.4 - 4.0MHz	-49 dBc	1MHz **
* The first and last measurement position with a 30 kHz filter is 0.815 MHz and 2.385 MHz.		
** The first and last measurement position with a 1 MHz filter is 2.9MHz and 3.5MHz .As a general rule, the resolution bandwidth of the measuring equipment should be equal to the measurement bandwidth. To improve measurement accuracy, sensitivity and efficiency, the resolution bandwidth can be different from the measurement bandwidth. When the resolution bandwidth is smaller than the measurement bandwidth, the result should be integrated over the measurement bandwidth.		
The lower limit shall be -55dBm/1.28 MHz or the minimum requirement presented in this table which ever is the higher.		

NOTE:

- 1) ~~The first and last measurement position with a 30 kHz filter is 0.815 MHz and 2.385 MHz~~
- 2) ~~The first and last measurement position with a 1 MHz filter is 2.9MHz and 3.5MHz~~
- 3) ~~The lower limit shall be -55dBm/1.28 MHz or which ever is the higher.~~

----Next changed section----

6.6.3 Spurious emissions

Spurious emissions are emissions which are caused by unwanted transmitter effects such as harmonics emission, parasitic emission, intermodulation products and frequency conversion products, but exclude out of band emissions. The frequency boundary and the detailed transitions of the limits between the requirement for out band emissions and spectrum emissions are based on ITU-R Recommendations SM.329-8.

6.6.3.1 Minimum Requirement

6.6.3.1.1 3.84 Mcps TDD Option

These requirements are only applicable for frequencies which are greater than 12.5 MHz away from the UE center carrier frequency.

Table 6.7A : General Spurious emissions requirements (3.84 Mcps TDD Option)

Frequency Bandwidth	<u>Resolution Measurement Bandwidth</u>	Minimum requirement
$9 \text{ kHz} \leq f < 150 \text{ kHz}$	1 kHz	-36 dBm
$150 \text{ kHz} \leq f < 30 \text{ MHz}$	10 kHz	-36 dBm
$30 \text{ MHz} \leq f < 1000 \text{ MHz}$	100 kHz	-36 dBm
$1 \text{ GHz} \leq f < 12.75 \text{ GHz}$	1 MHz	-30 dBm

Table 6.7B : Additional Spurious emissions requirements (3.84 Mcps TDD Option)

Frequency Bandwidth	<u>Resolution Measurement Bandwidth</u>	Minimum requirement
$925 \text{ MHz} \leq f \leq 935 \text{ MHz}$	100 KHz	-67 dBm*
$935 \text{ MHz} < f \leq 960 \text{ MHz}$	100 KHz	-79 dBm*
$1805 \text{ MHz} \leq f \leq 1880 \text{ MHz}$	100 KHz	-71 dBm*
* <u>The measurements are made on frequencies which are integer multiples of 200 kHz. As exceptions, up to five measurements with a level up to the applicable requirements defined in Table 6.7A are permitted for each UARFCN used in the measurement.</u>		

~~NOTE: The measurements are made on frequencies which are integer multiples of 200 kHz. As exceptions, up to five measurements with a level up to the applicable requirements defined in Table 6.7A are permitted for each UARFCN used in the measurement.~~

6.6.3.1.2 1.28 Mcps TDD Option

These requirements are only applicable for frequencies which are greater than 4 MHz away from the UE center carrier frequency.

Table 6.7C: General Spurious emissions requirements (1.28 Mcps TDD Option)

Frequency Bandwidth	<u>Resolution Measurement Bandwidth</u>	Minimum requirement
$9 \text{ kHz} \leq f < 150 \text{ kHz}$	1 kHz	-36 dBm
$150 \text{ kHz} \leq f < 30 \text{ MHz}$	10 kHz	-36 dBm
$30 \text{ MHz} \leq f < 1000 \text{ MHz}$	100 kHz	-36 dBm
$1 \text{ GHz} \leq f < 12.75 \text{ GHz}$	1 MHz	-30 dBm

Table 6.7D : Additional Spurious emissions requirements (1.28 Mcps TDD Option)

Frequency Bandwidth	Resolution Measurement Bandwidth	Minimum requirement
$925 \text{ MHz} \leq f \leq 935 \text{ MHz}$	100 KHz	-67 dBm*
$935 \text{ MHz} < f \leq 960 \text{ MHz}$	100 KHz	-79 dBm*
$1805 \text{ MHz} \leq f \leq 1880 \text{ MHz}$	100 KHz	-71 dBm*
* <u>The measurements are made on frequencies which are integer multiples of 200 kHz. As exceptions, up to five measurements with a level up to the applicable requirements defined in Table 6.7C are permitted for each UARFCN used in the measurement.</u>		

~~NOTE: The measurements are made on frequencies which are integer multiples of 200 kHz. As exceptions, up to five measurements with a level up to the applicable requirements defined in Table 6.7C are permitted for each UARFCN used in the measurement.~~

----Next changed section----

7.6 Blocking characteristics

The blocking characteristics is a measure of the receiver ability to receive a wanted signal at its assigned channel frequency in the presence of an unwanted interferer on frequencies other than those of the spurious response or the adjacent channels without this unwanted input signal causing a degradation of the performance of the receiver beyond a specified limit. The blocking performance shall apply at all frequencies except those at which a spurious response occur.

7.6.1 Minimum Requirement

7.6.1.1 3.84 Mcps TDD Option

The BER shall not exceed 0.001 for the parameters specified in table 7.6 and table 7.7. For table 7.7 up to 24 exceptions are allowed for spurious response frequencies in each assigned frequency channel when measured using a 1MHz step size.

Table 7.6: In-band blocking (3.84 Mcps TDD Option)

Parameter	Offset	Offset	Unit
Wanted Signal Level	<REFSENS> + 3 dB	<REFSENS> + 3 dB	dBm/3.84 MHz
Unwanted Signal Level (modulated)	-56	-44	dBm/3.84 MHz
F_{uw} (offset)	+10 or -10	+15 or -15	MHz

Table 7.7: Out of band blocking (3.84 Mcps TDD Option)

Parameter	Band 1	Band 2	Band 3	Unit
Wanted Signal Level	<REFSENS> + 3 dB	<REFSENS> + 3 dB	<REFSENS> + 3 dB	dBm/3.84 MHz
Unwanted Signal Level (CW)	-44	-30	-15	dBm
F_{uw} For operation in frequency bands as defined in subclause 5.2(a)	1840 <f < 1885 1935 <f < 1995 2040 <f < 2085	1815 <f < 1840 2085 <f < 2110	1 < f < 1815 2110 < f < 12750	MHz
F_{uw} For operation in frequency bands as defined in subclause 5.2(b)	1790 < f < 1835 2005 < f < 2050	1765 < f < 1790 2050 < f < 2075	1 < f < 1765 2075 < f < 12750	MHz
F_{uw} For operation in frequency bands as defined in subclause 5.2(c)	1850 < f < 1895 1945 < f < 1990	1825 < f < 1850 1990 < f < 2015	1 < f < 1825 2015 < f < 12750	MHz
1. For operation referenced in 5.2(a), from 1885 <f < 1900 MHz, 1920 <f < 1935 MHz, 1995 <f < 2010 MHz and 2025 <f < 2040 MHz, the appropriate in-band blocking in table 7.6 or adjacent channel selectivity in section 7.5.1 shall be applied.				
2. For operation referenced in 5.2(b), from 1835 < f < 1850 MHz and 1990 < f < 2005 MHz, the appropriate in-band blocking in table 7.6 or adjacent channel selectivity in section 7.5.1 shall be applied.				
3. For operation referenced in 5.2(c), from 1895 < f < 1910 MHz and 1930 < f < 1945 MHz, the appropriate in-band blocking in table 7.6 or adjacent channel selectivity in section 7.5.1 shall be applied.				

NOTES:

- 1) For operation referenced in 5.2(a), from 1885 <f < 1900 MHz, 1920 <f < 1935 MHz, 1995 <f < 2010 MHz and 2025 <f < 2040 MHz, the appropriate in-band blocking or adjacent channel selectivity in section 7.5.1 shall be applied.
- 2) For operation referenced in 5.2(b), from 1835 < f < 1850 MHz and 1990 < f < 2005 MHz, the appropriate in-band blocking or adjacent channel selectivity in section 7.5.1 shall be applied.

- 3) For operation referenced in 5.2(c), from 1895 <f < 1910 MHz and 1930 <f < 1945 MHz, the appropriate in-band blocking or adjacent channel selectivity in section 7.5.1 shall be applied.

7.6.1.2 1.28 Mcps TDD Option

The BER shall not exceed 0.001 for the parameters specified in table 7.6A and table 7.7A.

Table 7.6A: In-band blocking (1.28 Mcps TDD Option)

Parameter	Offset	Offset	Unit
Wanted Signal Level	<REFSENS> + 3 dB	<REFSENS> + 3 dB	dBm/1.28 MHz
Unwanted Signal Level (modulated)	-61	-49	dBm/1.28 MHz
F _{uw} (offset)	+3.2 or -3.2	+4.8 or -4.8	MHz

Table 7.7A: Out of band blocking (1.28 Mcps TDD Option)

Parameter	Band 1	Band 2	Band 3	Unit
Wanted Signal Level	<REFSENS> + 3 dB	<REFSENS> + 3 dB	<REFSENS> + 3 dB	dBm/1.28 MHz
Unwanted Signal Level (CW)	-44	-30	-15	dBm
F _{uw} For operation in frequency bands as defined in subclause 5.2(a)	1840 <f < 1895.2 1924.8 <f < 2005.2 2029.8 <f < 2085	1815 <f < 1840 2085 <f < 2110	1 <f < 1815 2110 <f < 12750	MHz
F _{uw} For operation in frequency bands as defined in subclause 5.2(b)	1790 <f < 1845.2 1994.8 <f < 2050	1765 <f < 1790 2050 <f < 2075	1 <f < 1765 2075 <f < 12750	MHz
F _{uw} For operation in frequency bands as defined in subclause 5.2(c)	1850 <f < 1905.2 1934.8 <f < 1990	1825 <f < 1850 1990 <f < 2015	1 <f < 1825 2015 <f < 12750	MHz
1. For operation referenced in 5.2(a), from 1895.2 <f < 1900 MHz, 1920 <f < 1924.8 MHz, 2005.2 <f < 2010 MHz and 2025 <f < 2029.8 MHz, the appropriate in-band blocking in table 7.6A or adjacent channel selectivity in section 7.5.1.2 shall be applied.				
2. For operation referenced in 5.2(b), from 1845.2 <f < 1850 MHz and 1990 <f < 1994.8 MHz, the appropriate in-band blocking in table 7.6A or adjacent channel selectivity in section 7.5.1.2 shall be applied.				
3. For operation referenced in 5.2(c), from 1905.2 <f < 1910 MHz and 1930 <f < 1934.8 MHz, the appropriate in-band blocking in table 7.6A or adjacent channel selectivity in section 7.5.1.2 shall be applied.				

NOTES:

- 1) For operation referenced in 5.2(a), from 1895.2 <f < 1900 MHz, 1920 <f < 1924.8 MHz, 2005.2 <f < 2010 MHz and 2025 <f < 2029.8 MHz, the appropriate in-band blocking or adjacent channel selectivity in section 7.5.1.2 shall be applied.
- 2) For operation referenced in 5.2(b), from 1845.2 <f < 1850 MHz and 1990 <f < 1994.8 MHz, the appropriate in-band blocking or adjacent channel selectivity in section 7.5.1.2 shall be applied.
- 3) For operation referenced in 5.2(c), from 1905.2 <f < 1910 MHz and 1930 <f < 1934.8 MHz, the appropriate in-band blocking or adjacent channel selectivity in section 7.5.1.2 shall be applied.

CHANGE REQUEST

⌘ **25.102 CR 64** ⌘ rev **-** ⌘ Current version: **3.6.0** ⌘

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

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

Title:	⌘ BCH performance requirement		
Source:	⌘ RAN WG4		
Work item code:	⌘ TEI	Date:	⌘ 2001-05-21
Category:	⌘ F	Release:	⌘ R99
Use <u>one</u> of the following categories: F (correction) A (corresponds to a correction in an earlier release) B (Addition of feature), C (Functional modification of feature) D (Editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900.		Use <u>one</u> of the following releases: 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)	

Reason for change:	⌘ The requirements for demodulation of BCH in Block STTD mode can not be tested with current R99 specifications.
Summary of change:	⌘ A sentence is added at the minimum requirement stating that it doesn't need to be tested.
Consequences if not approved:	⌘ Although there would be a performance requirement, no conformance test can be defined.

Clauses affected:	⌘ 8.4.1.1
Other specs affected:	⌘ <input type="checkbox"/> Other core specifications ⌘ <input checked="" type="checkbox"/> Test specifications ⌘ <input type="checkbox"/> O&M Specifications ⌘
Other comments:	⌘

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

Table 8.8: DCH parameters in multipath Case 3 channel

Parameters	Unit	Test 1	Test 2	Test 3	Test 4
$\frac{\Sigma DPCH - E_c}{I_{or}}$	dB	-3	0	0	0
I_{oc}	dBm/3.84 MHz	-60			
Information Data Rate	kbps	12.2	64	144	384

Table 8.9: Performance requirements in multipath Case 3 channel.

Test Number	$\frac{\hat{I}_{or}}{I_{oc}}$ [dB]	BLER
12.2 kbps	4.7	10^{-2}
64 kbps	5.2	10^{-1}
	8.4	10^{-2}
	12.1	10^{-3}
144 kbps	11.7	10^{-1}
	15.2	10^{-2}
	17.8	10^{-3}
384 kbps	8.2	10^{-1}
	11.3	10^{-2}
	13.0	10^{-3}

8.4 Base station transmit diversity mode

8.4.1 Demodulation of BCH in Block STTD mode

The performance requirement of BCH is determined by the maximum Block Error Rate (BLER). The BLER is specified for the BCH. BCH is mapped into the Primary Common Control Physical Channel (P-CCPCH).

8.4.1.1 Minimum requirement

For the parameters specified in Table 8.10 the BLER should not exceed the BLER specified in Table 8.11.

NOTE: [This requirement doesn't need to be tested.](#)

Table 8.10: P-CCPCH parameters in multipath Case 1 channel

Parameters	Unit	Test 1
$\frac{PCCPCH - E_c}{I_{or}}$	dB	-3
I	dBm/3.84 MHz	-60
Information Data Rate	Kbps	12.3

Table 8.11: Performance requirements in multipath Case 1 channel.

Test Number	$\frac{\hat{I}_{or}}{I_{oc}}$ [dB]	BLER
1	8.4	10^{-2}

Gothenburg, Sweden 21st - 25th May 2001

CR-Form-v4

CHANGE REQUEST
 ⌘ **25.102** **CR 65** ⌘ rev **-** ⌘ Current version: **4.0.0** ⌘

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

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

Title:	⌘ BCH performance requirement		
Source:	⌘ RAN WG4		
Work item code:	⌘ TEI	Date:	⌘ 31.May 2001
Category:	⌘ A	Release:	⌘ REL-4
Use <u>one</u> of the following categories: F (correction) A (corresponds to a correction in an earlier release) B (Addition of feature), C (Functional modification of feature) D (Editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900.		Use <u>one</u> of the following releases: 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)	

Reason for change:	⌘ REL-4 Cat A CR corresponding to R99 CR Tdoc R4-010476
Summary of change:	⌘ A sentence is added at the minimum requirement stating that it doesn't need to be tested.
Consequences if not approved:	⌘ Inconsistencys between releases.

Clauses affected:	⌘ 8.4.1.1
Other specs affected:	⌘ <input type="checkbox"/> Other core specifications ⌘ <input checked="" type="checkbox"/> Test specifications ⌘ <input type="checkbox"/> O&M Specifications ⌘
Other comments:	⌘

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

8.4 Base station transmit diversity mode for 3.84 Mcps TDD Option

8.4.1 Demodulation of BCH in Block STTD mode

The performance requirement of BCH is determined by the maximum Block Error Rate (BLER). The BLER is specified for the BCH. BCH is mapped into the Primary Common Control Physical Channel (P-CCPCH).

8.4.1.1 Minimum requirement

For the parameters specified in Table 8.10 the BLER should not exceed the BLER specified in Table 8.11.

Note: This requirement doesn't need to be tested.

Table 8.10: P-CCPCH parameters in multipath Case 1 channel

Parameters	Unit	Test 1
$\frac{P_{CCPCH} - E_c}{I_{or}}$	dB	-3
I	dBm/3.84 MHz	-60
Information Data Rate	Kbps	12.3

Table 8.11: Performance requirements in multipath Case 1 channel.

Test Number	$\frac{\hat{I}_{or}}{I_{oc}}$ [dB]	BLER
1	8.4	10^{-2}

8.5 Power control in downlink for 3.84 Mcps TDD Option