TSG RAN Meeting #13 **RP-010627**
Beijing, China, 18-21 September 2001

Title: **CRs (Rel-4) to TS 25.105**

Source **TSG RAN WG4**

Agenda item: **8.4.4**

RAN4 Tdoc	Spec	CR	Title	Cat	Phase	Curr Ver	New Ver
R4-010872	25.105	81	BS Performance Requirements (1.28Mcps TDD)	F	Rel-4	4.1.0	4.2.0
R4-010916	25.105	82	Power definition correction for 1.28 Mcps TDD option.	F	Rel-4	4.1.0	4.2.0
R4-010947	25.105	83	Receiver spurious emissions for co-located base stations for 1.28 Mcps TDD option	F	Rel-4	4.1.0	4.2.0
R4-011269	25.105	84	Correction of frequency range for receiver spurious emissions (1.28 Mcps TDD option)	F	Rel-4	4.1.0	4.2.0
R4-011302	25.105	85	Clarification in Spectrum emission mask section (1.28 Mcps section)	F	Rel-4	4.1.0	4.2.0

3GPP TSG RAN WG4 Meeting #19 **R4-010872**
Edinburgh, Great Britain, 3rd - 7th September 2001

CR-Form-v4

CHANGE REQUEST

⌘ **25.105** **CR** 81 ⌘ ev **-** ⌘ Current version: **4.1.0** ⌘

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

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

Title:	⌘	BS Performance Requirements (1.28Mcps TDD)
Source:	⌘	RAN WG4
Work item code:	⌘	LCRTDD-RF
Date:	⌘	9-13 July 2001
Category:	⌘	**F**
Release:	⌘	Rel-4

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

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

Reason for change:	⌘	To refine the values of performance requirements, the values based on average of simulation results provided by Panasonic and Siemens are proposed.
Summary of change:	⌘	BS Performance Requirements for 1.28Mcps TDD option in Section 8 are changed.
Consequences if not approved:	⌘	The values of BS performance requirements for 1.28Mcps TDD option may not be reliable.

Clauses affected:	⌘	8.2.1.1.2, 8.3.1.1.2, 8.3.2.1.2, 8.3.3.1.2
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

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

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

8.2 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 Rate (BLER) allowed when the receiver input signal is at a specified $\hat{I}_{or}/I_{oc}$ limit. The BLER is calculated for each of the measurement channels supported by the base station.

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: Parameters in static propagation conditions

Parameters	Unit	Test 1	Test 2	Test 3	Test 4
Number of $DPCH_o$		6	4	0	0
$\frac{DPCH_o\_E_c}{I_{or}}$	dB	-9	-9.5	0	0
I_{oc}	dBm/3.84 MHz	-89			
Cell Parameter*		0,1			
DPCH Channelization Codes*	C(k,Q)	C(1,8)	C(1,4) C(5,16)	C(1,2) C(9,16)	C(1,2)
$DPCH_o$ Channelization Codes*	C(k,Q)	C(i,16) 3≤ i ≤8	C(i,16) 6≤ i ≤9	-	-
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 Required E_b/N_0
1	-1.8	10^{-2}
2	-0.35	10^{-1}
	-0.05	10^{-2}
3	-0.2	10^{-1}
	0.1	10^{-2}
4	-0.7	10^{-1}
	-0.5	10^{-2}

8.2.1.1.2 1,28 Mcps TDD Option

For the parameters specified in Table8.2A the BLER should not exceed the piece-wise linear BLER curve specified in Table8.3A. These requirements are applicable for TFCS size 16.

Table 8.2A: Parameters in static propagation conditions

Parameters	Unit	Test 1	Test 2	Test 3	Test 4
Number of $DPCH_o$		4	1	1	0
Spread factor of $DPCH_o$		8	8	8	-
$\frac{DPCH_o - E_c}{I_{or}}$	dB	-7	-7	-7	0
I_{oc}	dBm/1.28MHz	-91			
Information Data Rate	Kbps	12.2	64	144	384

Table 8.3A: Performance requirements in AWGN channel.

Test Number	$\frac{\hat{I}_{or}}{I_{oc}}$ [dB]	BLER Required E_b/N_0
1	0.5~~0.6~~	10^{-2}
2	-1.1~~-0.9~~	10^{-1}
	-0.7~~-0.4~~	10^{-2}
3	-0.5~~-0.3~~	10^{-1}
	-0.3~~-0.1~~	10^{-2}
4	0.1~~0.5~~	10^{-1}
	0.4~~0.6~~	10^{-2}

8.3 Demodulation of DCH in multipath fading conditions

8.3.1 Multipath fading Case 1

The performance requirement of DCH in multipath fading Case 1 is determined by the maximum Block Error Rate (BLER) allowed when the receiver input signal is at a specified $\hat{I}_{or}/I_{oc}$ limit. The BLER is calculated for each of the measurement channels supported by the base station.

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 requirements are applicable for TFCS size 16.

Table 8.4: Parameters in multipath Case 1 channel

Parameters	Unit	Test 1	Test 2	Test 3	Test 4
Number of $DPCH_o$		6	4	0	0
$\frac{DPCH_o - E_c}{I_{or}}$	dB	-9	-9.5	0	0
I_{oc}	dBm/3.84 MHz	-89			
Cell Parameter*		0,1			
DPCH Channelization Codes*	C(k,Q)	C(1,8)	C(1,4) C(5,16)	C(1,2) C(9,16)	C(1,2)
$DPCH_o$ Channelization Codes*	C(k,Q)	C(i,16) 3≤ i ≤8	C(i,16) 6≤ i ≤9	-	-
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	6.7	10^{-2}
2	5.3	10^{-1}
	9.7	10^{-2}
3	5.5	10^{-1}
	9.8	10^{-2}
4	4.8	10^{-1}
	9.2	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 .These requirements are applicable for TFCS size 16.

Table 8.4A: Parameters in multipath Case 1 channel

Parameters	Unit	Test 1	Test 2	Test 3	Test 4
Number of $DPCH_o$		4	1	1	0
Spread factor of $DPCH_o$		8	8	8	-
$\frac{DPCH_o - E_c}{I_{or}}$	DB	-7	-7	-7	0
I_{oc}	dBm/1.28 MHz	-91			
Information Data Rate	Kbps	12.2	64	144	384

Table 8.5A: Performance requirements in multipath Case 1 channel.

Test Number	$\frac{\hat{I}_{or}}{I_{oc}}$ [dB]	BLER
1	10.7~~10.4~~	10^{-2}
2	5.3	10^{-1}
	9.6~~9.4~~	10^{-2}
3	5.7	10^{-1}
	10.3~~10.1~~	10^{-2}
4	6.0	10^{-1}
	10.3~~10.0~~	10^{-2}

8.3.2 Multipath fading Case 2

The performance requirement of DCH in multipath fading Case 2 is determined by the maximum Block Error Rate (BLER) allowed when the receiver input signal is at a specified $\hat{I}_{or}/I_{oc}$ limit. The BLER is calculated for each of the measurement channels supported by the base station.

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: Parameters in multipath Case 2 channel

Parameters	Unit	Test 1	Test 2	Test 3	Test 4
Number of $DPCH_o$		2	0	0	0
$\frac{DPCH_o\_E_c}{I_{or}}$	dB	-6	0	0	0
I_{oc}	dBm/3.84 MHz	-89			
Cell Parameter*		0,1			
DPCH Channelization Codes*	C(k,Q)	C(1,8)	C(1,4) C(5,16)	C(1,2) C(9,16)	C(1,2)
$DPCH_o$ Channelization Codes*	C(k,Q)	C(i,16) 3≤ i ≤4	-	-	-
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	-0.2	10^{-2}
2	0.1	10^{-1}
	2.5	10^{-2}
3	3.5	10^{-1}
	5.8	10^{-2}
4	2.8	10^{-1}
	5.1	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. These requirements are applicable for TFCS size 16.

Table 8.6A: Parameters in multipath Case 2 channel

Parameters	Unit	Test 1	Test 2	Test 3	Test 4
Number of $DPCH_o$		4	1	1	0
Spread factor of $DPCH_o$		8	8	8	-
$\frac{DPCH_o\_E_c}{I_{or}}$	DB	-7	-7	-7	0
I_{oc}	dBm/1.28 MHz	-91			
Information Data Rate	Kbps	12.2	64	144	384

Table 8.7A: Performance requirements in multipath Case 2 channel.

Test Number	$\frac{\hat{I}_{or}}{I_{oc}}$ [dB]	BLER
1	6.7	10^{-2}
2	3.5~~3.6~~	10^{-1}
	5.9	10^{-2}
3	4.0~~4.2~~	10^{-1}
	6.4~~6.3~~	10^{-2}
4	4.4~~4.6~~	10^{-1}
	6.3~~6.0~~	10^{-2}

8.3.3 Multipath fading Case 3

The performance requirement of DCH in multipath fading Case 3 is determined by the maximum Block Error Rate (BLER) allowed when the receiver input signal is at a specified $\hat{I}_{or}/I_{oc}$ limit. The BLER is calculated for each of the measurement channels supported by the base station.

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: Parameters in multipath Case 3 channel

Parameters	Unit	Test 1	Test 2	Test 3	Test 4
Number of $DPCH_o$		2	0	0	0
$\frac{DPCH\_E_c}{I_{or}}$	dB	-6	0	0	0
I_{oc}	dBm/3.84 MHz	-89			
Cell Parameter*		0,1			
DPCH Channelization Codes*	C(k,Q)	C(1,8)	C(1,4) C(5,16)	C(1,2) C(9,16)	C(1,2)
$DPCH_o$ Channelization Codes*	C(k,Q)	C(i,16) 3≤ i ≤4	-	-	-
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
1	-0.1	10^{-2}
2	0.8	10^{-1}
	2.7	10^{-2}
	4.2	10^{-3}
3	4.5	10^{-1}
	6.4	10^{-2}
	8.0	10^{-3}
4	3.6	10^{-1}
	5.1	10^{-2}
	6.5	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. These requirements are applicable for TFCS size 16.

Table 8.8A: Parameters in multipath Case 3 channel

Parameters	Unit	Test 1	Test 2	Test 3	Test 4
Number of $DPCH_o$		4	1	1	0
Spread factor of $DPCH_o$		8	8	8	-
$\frac{DPCH\_E_c}{I_{or}}$	DB	-7	-7	-7	0
I_{oc}	dBm/1.28 MHz	-91			
Information Data Rate	Kbps	12.2	64	144	384

Table 8.9A: Performance requirements in multipath Case 3 channel.

Test Number	$\frac{\hat{I}_{or}}{I_{oc}}$ [dB]	BLER
1	5.9~~5.6~~	10^{-2}
2	3.2	10^{-1}
	4.8~~4.6~~	10^{-2}
	6.1~~5.9~~	10^{-3}
3	3.7	10^{-1}
	5.0~~4.8~~	10^{-2}
	6.1~~5.9~~	10^{-3}
4	4.1~~4.2~~	10^{-1}
	5.1	10^{-2}
	5.9	10^{-3}

3GPP TSG RAN WG4 Meeting #19 **R4-010916**

Edinburgh, Great Britain, 3rd - 7th September 2001

CR-Form-v4

CHANGE REQUEST

⌘ **25.105** **CR** **82** ⌘ ev **-** ⌘ Current version: **4.1.0** ⌘

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

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

Title:	⌘	Power definition correction for 1.28 Mcps TDD option
Source:	⌘	RAN WG4
Work item code:	⌘	LCRTDD
Date:	⌘	9-13/07/2001
Category:	⌘	**F**
Release:	⌘	Rel-4

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

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

Use one of the following releases:

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

Reason for change:	⌘	Clarification of transmission off power requirement for 1.28 Mcps TDD option.
Summary of change:	⌘	''Better'' replaced by ''less''.
Consequences if not approved:	⌘	Possible misunderstanding of transmission OFF power definition for 1.28 Mcps TDD option

Clauses affected:	⌘	6.5.1.1.2
Other specs affected:	⌘	☐ Other core specifications ☐ Test specifications ☐ O&M Specifications
	⌘	
Other comments:	⌘	

How to create CRs using this form:

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

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

6.5 Transmit ON/OFF power

6.5.1 Transmit OFF power

Transmit OFF power is defined as the average power measured over one chip when the transmitter is off. The transmit OFF power state is when the BS does not transmit.

6.5.1.1 Minimum Requirement

6.5.1.1.1 3,84 Mcps TDD Option

The requirement of transmit OFF power shall be less than –79 dBm measured with a filter that has a Root Raised Cosine (RRC) filter response with a roll off α=0.22 and a bandwidth equal to the chip rate.

6.5.1.1.2 1,28 Mcps TDD Option

The requirement of transmit OFF power shall be ~~better~~ less than –82 dBm measured with a filter that has a Root Raised Cosine (RRC) filter response with a roll off α=0.22 and a bandwidth equal to the chip rate.

3GPP TSG RAN WG4 Meeting #19 **R4-010947**

Edinburgh, Great Britain, 3rd - 7th September 2001

CR-Form-v3

CHANGE REQUEST

⌘ **25.105 CR 83** ⌘ rev **-** ⌘ Current version: **4.1.0** ⌘

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

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

Title:	⌘	Receiver spurious emission for co-located base stations for 1.28 Mcps TDD option
Source:	⌘	RAN WG4
Work item code:	⌘	LCRTDD-RF
Date:	⌘	2001-07-03
Category:	⌘	**F**
Release:	⌘	Rel-4

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

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

Use one of the following releases:

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

Reason for change:	⌘	In case of separate RX and TX antenna port the receiver is currently allowed to have more spurious emission than the transmitter in case of co-located base stations.
Summary of change:	⌘	Adding requirements for receiver spurious emission in case of separate RX and TX antenna port. The requirements are in line with the current transmitter requirements for co-located base stations.
Consequences if not approved:	⌘	Reduced performance of the co-located base station caused by receiver spurious emission.

Clauses affected:	⌘	7.7.1.2		
Other specs affected:	⌘	☐ Other core specifications ☒ Test specifications ☐ O&M Specifications	⌘	3GPP TS 25.142
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.

7.7.1.2 1,28 Mcps TDD Option

The power of any spurious emission shall not exceed:

Table 7.6A: Receiver spurious emission requirements

Band	Maximum level	Measurement Bandwidth	Note
9 kHz – 1 GHz	-57 dBm	100 kHz	
1 GHz – 1.9 GHz and 1.98 GHz – 2.01 GHz	-47 dBm	1 MHz	With the exception of frequencies between 4MHz below the first carrier frequency and 4MHz above the last carrier frequency used by the BS.
1.9 GHz – 1.98 GHz and 2.01 GHz – 2.025 GHz	-83 dBm	1.28 MHz	With the exception of frequencies between 4MHz below the first carrier frequency and 4MHz above the last carrier frequency used by the BS.
2.025 GHz – 12.75 GHz	-47 dBm	1 MHz	With the exception of frequencies between 4MHz below the first carrier frequency and 4MHz above the last carrier frequency used by the BS.

In addition to the requirements in table 7.6A, the co-existence requirements for co-located base stations specified in subclause 6.6.3.2.2, 6.6.3.3.2 and 6.6.3.4.2 may also be applied.

3GPP TSG RAN WG4 Meeting #19 **R4-011269**

Edinburgh, Great Britain, 3rd - 7th September 2001

CR-Form-v4

CHANGE REQUEST

⌘ **TS 25.105 CR 84** ⌘ ev **-** ⌘ Current version: **4.1.0** ⌘

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

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

Title:	⌘	Correction of frequency range for receiver spurious emissions (1.28 Mcps TDD Option)
Source:	⌘	RAN WG4
Work item code:	⌘	LCRTDD-RF
Date:	⌘	03/09/2001
Category:	⌘	**F**
Release:	⌘	Rel-4

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

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

Use one of the following releases:

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

Reason for change:	⌘	The current frequency range for receiver spurious emission requirements is inconsistence with is proposed in ITU-R M.[UNWANT-MS].
Summary of change:	⌘	The starting frequency for receiver spurious emission requirements is changed from 9kHz to 30MHz as proposed in ITU-R M.[UNWANT-MS].
Consequences if not approved:	⌘	There will be inconsistency with ITU-R recommendation M.[UNWANT]. It will casue further inconsistency with each regulations those follow the recommendation.

Clauses affected:	⌘	7.7.1.2		
Other specs affected:	⌘	☐ Other core specifications ☒ Test specifications ☐ O&M Specifications	⌘	25.142
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.

7.7 Spurious emissions

The spurious emissions power is the power of emissions generated or amplified in a receiver that appear at the BS antenna connector. The requirements apply to all BS with separate RX and TX antenna port. The test shall be performed when both TX and RX are on with the TX port terminated.

For all BS with common RX and TX antenna port the transmitter spurious emission as specified in section 6.6.3 is valid.

7.7.1 Minimum Requirement

7.7.1.1 3,84 Mcps TDD Option:

The power of any spurious emission shall not exceed:

Table 7.6: Receiver spurious emission requirements

Band	Maximum level	Measurement Bandwidth	Note
9 kHz – 1 GHz	-57 dBm	100 kHz	
1 GHz – 1.9 GHz and 1.98 GHz – 2.01 GHz	-47 dBm	1 MHz	With the exception of frequencies between 12.5MHz below the first carrier frequency and 12.5MHz above the last carrier frequency used by the BS.
1.9 GHz – 1.98 GHz and 2.01 GHz – 2.025 GHz	-78 dBm	3.84 MHz	With the exception of frequencies between 12.5MHz below the first carrier frequency and 12.5MHz above the last carrier frequency used by the BS.
2.025 GHz – 12.75 GHz	-47 dBm	1 MHz	With the exception of frequencies between 12.5MHz below the first carrier frequency and 12.5MHz above the last carrier frequency used by the BS.

7.7.1.2 1,28 Mcps TDD Option

The power of any spurious emission shall not exceed:

Table 7.6A: Receiver spurious emission requirements

Band	Maximum level	Measurement Bandwidth	Note
30 MHz~~9 kHz~~ – 1 GHz	-57 dBm	100 kHz	
1 GHz – 1.9 GHz and 1.98 GHz – 2.01 GHz	-47 dBm	1 MHz	With the exception of frequencies between 4MHz below the first carrier frequency and 4MHz above the last carrier frequency used by the BS.
1.9 GHz – 1.98 GHz and 2.01 GHz – 2.025 GHz	-83 dBm	1.28 MHz	With the exception of frequencies between 4MHz below the first carrier frequency and 4MHz above the last carrier frequency used by the BS.
2.025 GHz – 12.75 GHz	-47 dBm	1 MHz	With the exception of frequencies between 4MHz below the first carrier frequency and 4MHz above the last carrier frequency used by the BS.

3GPP TSG RAN WG4 Meeting #19 **R4-011302**

Edinburgh, Great Britain, 3rd - 7th September 2001

CR-Form-v4

CHANGE REQUEST

⌘ **25.105 CR 85** ⌘ ev **-** ⌘ Current version: **4.1.0** ⌘

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

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

Title:	⌘	Clarification in Spectrum emission mask section (1.28 Mcps TDD option)
Source:	⌘	RAN WG4
Work item code:	⌘	LCRTDD-RF
Date:	⌘	03/09/2001
Category:	⌘	**F**
Release:	⌘	Rel-4

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

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

Use one of the following releases:

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

Reason for change:	⌘	Undefined terms (f_offset and Δf) in section 6.6.2.1.
Summary of change:	⌘	Addition of definition of missing terms. Correction of mask boundary equations.
Consequences if not approved:	⌘	Misunderstanding of spectrum emission mask requirements.

Clauses affected:	⌘	6.6.2.1
Other specs affected:	⌘	☐ Other core specifications ☐ Test specifications ☐ O&M Specifications
	⌘	
Other comments:	⌘	

How to create CRs using this form:

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

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

6.6.2 Out of band emission

Out of band emissions are unwanted emissions immediately outside the channel bandwidth resulting from the modulation process and non-linearity in the transmitter but excluding spurious emissions. This out of band emission requirement is specified both in terms of a spectrum emission mask and adjacent channel power ratio for the transmitter.

6.6.2.1 Spectrum emission mask

6.6.2.1.1 3,84 Mcps TDD Option

The mask defined in Table 6.3 to 6.6 below may be mandatory in certain regions. In other regions this mask may not be applied.

For regions where this clause applies, the requirement shall be met by a base station transmitting on a single RF carrier configured in accordance with the manufacturer's specification. Emissions shall not exceed the maximum level specified in tables 6.3 to 6.6 for the appropriate BS maximum output power, in the frequency range from Δf = 2.5 MHz to f_offset_{max} from the carrier frequency, where:

- f_offset_{max} is either 12.5 MHz or the offset to the UMTS Tx band edge as defined in section 5.2, whichever is the greater.

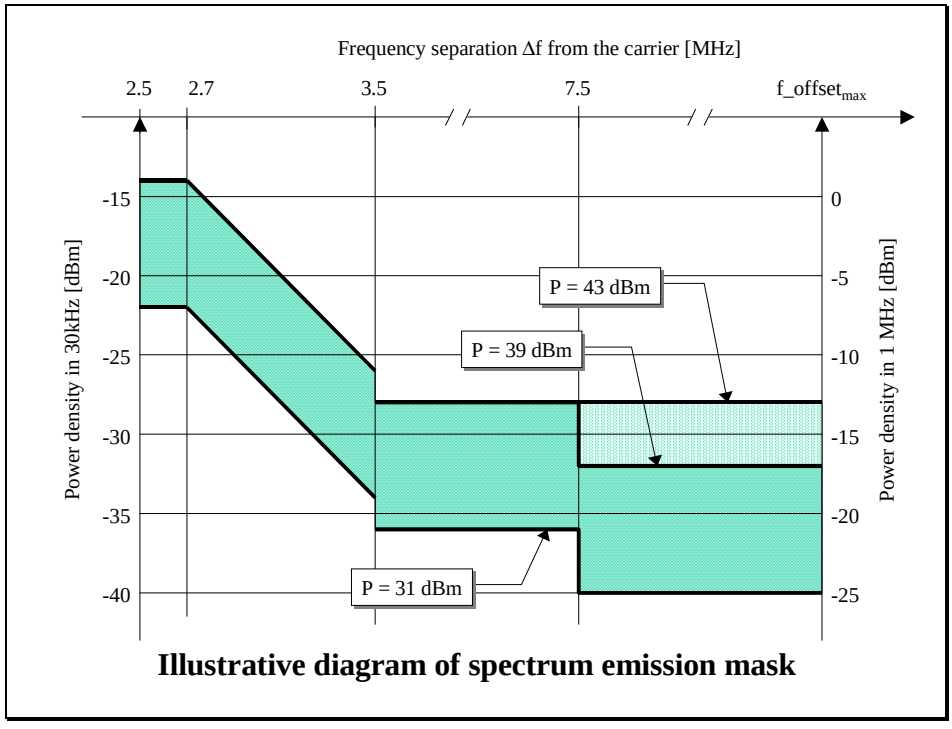


Figure 6.2

Table 6.3: Spectrum emission mask values, BS maximum output power P ≥ 43 dBm

Frequency offset of measurement filter – 3dB point, Δf	Frequency offset of measurement filter centre frequency, f_offset	Maximum level	Measurement bandwidth
2.5 ≤ Δf < 2.7 MHz	2.515MHz ≤ f_offset < 2.715MHz	-14 dBm	30 kHz
2.7 ≤ Δf < 3.5 MHz	2.715MHz ≤ f_offset < 3.515MHz	- 14 - 15·(f_offset - 2.715) dBm	30 kHz
(see note)	3.515MHz ≤ f_offset < 4.0MHz	-26 dBm	30 kHz
3.5 ≤ Δf MHz	4.0MHz ≤ f_offset < f_offset_{max}	-13 dBm	1 MHz

Table 6.4: Spectrum emission mask values, BS maximum output power 39 ≤ P < 43 dBm

Frequency offset of measurement filter – 3dB point, Δf	Frequency offset of measurement filter centre frequency, f_offset	Maximum level	Measurement bandwidth
2.5 ≤ Δf < 2.7 MHz	2.515MHz ≤ f_offset < 2.715MHz	-14 dBm	30 kHz
2.7 ≤ Δf < 3.5 MHz	2.715MHz ≤ f_offset < 3.515MHz	-14 - 15·(f_offset - 2.715) dBm	30 kHz
(see note)	3.515MHz ≤ f_offset < 4.0MHz	-26 dBm	30 kHz
3.5 ≤ Δf < 7.5 MHz	4.0MHz ≤ f_offset < 8.0MHz	-13 dBm	1 MHz
7.5 ≤ Δf MHz	8.0MHz ≤ f_offset < f_offset_{max}	P - 56 dBm	1 MHz

Table 6.5: Spectrum emission mask values, BS maximum output power 31 ≤ P < 39 dBm

Frequency offset of measurement filter – 3dB point,Δf	Frequency offset of measurement filter centre frequency, f_offset	Maximum level	Measurement bandwidth
2.5 ≤ Δf < 2.7 MHz	2.515MHz ≤ f_offset < 2.715MHz	P - 53 dBm	30 kHz
2.7 ≤ Δf < 3.5 MHz	2.715MHz ≤ f_offset < 3.515MHz	P - 53 - 15·(f_offset - 2.715) dBm	30 kHz
(see note)	3.515MHz ≤ f_offset < 4.0MHz	P - 65 dBm	30 kHz
3.5 ≤ Δf < 7.5 MHz	4.0MHz ≤ f_offset < 8.0MHz	P - 52 dBm	1 MHz
7.5 ≤ Δf MHz	8.0MHz ≤ f_offset < f_offset_{max}	P - 56 dBm	1 MHz

Table 6.6: Spectrum emission mask values, BS maximum output power P < 31 dBm

Frequency offset of measurement filter – 3dB point, Δf	Frequency offset of measurement filter centre frequency, f_offset	Maximum level	Measurement bandwidth
2.5 ≤ Δf < 2.7 MHz	2.515MHz ≤ f_offset < 2.715MHz	-22 dBm	30 kHz
2.7 ≤ Δf < 3.5 MHz	2.715MHz ≤ f_offset < 3.515MHz	-22 - 15·(f_offset - 2.715) dBm	30 kHz
(see note)	3.515MHz ≤ f_offset < 4.0MHz	-34 dBm	30 kHz
3.5 ≤ Δf < 7.5 MHz	4.0MHz ≤ f_offset < 8.0MHz	-21 dBm	1 MHz
7.5 ≤ Δf MHz	8.0MHz ≤ f_offset < f_offset_{max}	-25 dBm	1 MHz

NOTE: This frequency range ensures that the range of values of f_offset is continuous.

6.6.2.1.2 1,28 Mcps TDD Option

The mask defined in Table 6.3A to 6.6A may be mandatory in certain regions. In other regions this mask may not be applied.

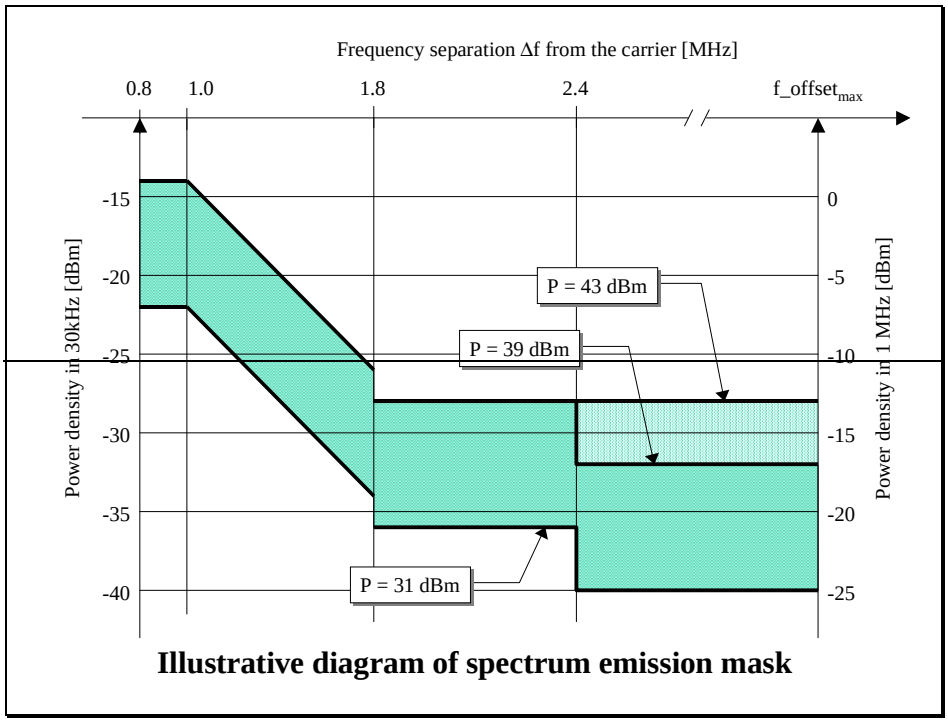
For regions where this clause applies, the requirement shall be met by a base station transmitting on a single RF carrier configured in accordance with the manufacturer's specification. Emissions shall not exceed the maximum level specified in table 6.3A to 6.6A for the appropriate BS maximum output power, in the frequency range from Δf = 0.8 MHz to $\underline{\Delta f_{max}}$ ~~f_offset_{max}~~ from the carrier frequency, where:

- $\underline{\Delta f}$ is the separation between the carrier frequency and the nominal -3dB point of the measuring filter closest to the carrier frequency.

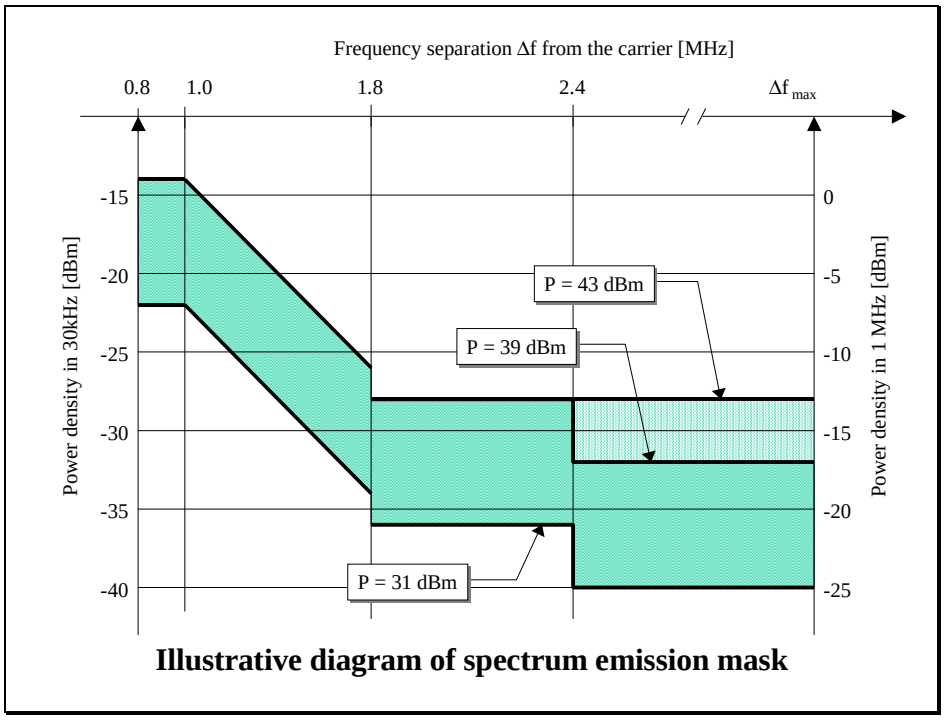
- f_offset is the separation between the carrier frequency and the center frequency of the measuring filter.

- f_offset_{max} is either 4 MHz or the offset to the UMTS Tx band edge as defined in section 5.2, whichever is the greater.

- $\underline{\Delta f_{max}}$ is equal to f_offset_{max} minus half of the bandwidth of the mesurement filter.



Illustrative diagram of spectrum emission mask



Illustrative diagram of spectrum emission mask

Figure 6.2A

Table 6.3A: Spectrum emission mask values, BS maximum output power P ≥ 43 dBm

Frequency offset of measurement filter – 3dB point, Δf	Frequency offset of measurement filter centre frequency, f_offset	Maximum level	Measurement bandwidth
0.8 ≤ Δf < 1.0 MHz	0.815MHz ≤ f_offset < 1.015MHz	-14 dBm	30 kHz
1.0 ≤ Δf < 1.8 MHz	1.015MHz ≤ f_offset < 1.815MHz	- 14 - 15·(f_offset – 1.015) dBm	30 kHz
See note	1.815MHz ≤ f_offset < 2.3MHz	-28 dBm	30 kHz
1.8 ≤ Δf MHz	2.3MHz ≤ f_offset < f_offset_{max}	-13 dBm	1 MHz

Table 6.4A: Spectrum emission mask values, BS maximum output power 39 ≤ P < 43 dBm

Frequency offset of measurement filter – 3dB point, Δf	Frequency offset of measurement filter centre frequency, f_offset	Maximum level	Measurement bandwidth
0.8 ≤ Δf < 1.0 MHz	0.815MHz ≤ f_offset < 1.015MHz	-14 dBm	30 kHz
1.0 ≤ Δf < 1.8 MHz	1.015MHz ≤ f_offset < 1.815MHz	-14 - 15·(f_offset – 1.015) dBm	30 kHz
1.8 ≤ Δf < 2.4 MHz	1.815MHz ≤ f_offset < 2.415MHz	-28 dBm	30 kHz
See note	2.415MHz ≤ f_offset < 2.9MHz	P-71 dBm	30 kHz
2.4 ≤ Δf MHz	2.9MHz ≤ f_offset < f_offset_{max}	P - 56 dBm	1 MHz

Table 6.5A: Spectrum emission mask values, BS maximum output power 31 ≤ P < 39 dBm

Frequency offset of measurement filter – 3dB point,Δf	Frequency offset of measurement filter centre frequency, f_offset	Maximum level	Measurement bandwidth
0.8 ≤ Δf < 1.0 MHz	0.815MHz ≤ f_offset < 1.015MHz	P - 53 dBm	30 kHz
1.0 ≤ Δf < 1.8 MHz	1.015MHz ≤ f_offset < 1.815MHz	P - 53 - 15·(f_offset – 1.015) dBm	30 kHz
1.8 ≤ Δf < 2.4 MHz	1.815MHz ≤ f_offset < 2.415MHz	P - 67 dBm	30 kHz
See note	2.415MHz ≤ f_offset < 2.9MHz	P - 71 dBm	30 kHz
2.4 ≤ Δf MHz	2.9MHz ≤ f_offset < f_offset_{max}	P - 56 dBm	1 MHz

Table 6.6A: Spectrum emission mask values, BS maximum output power P < 31 dBm

Frequency offset of measurement filter – 3dB point, Δf	Frequency offset of measurement filter centre frequency, f_offset	Maximum level	Measurement bandwidth
0.8 ≤ Δf < 1.0 MHz	0.815MHz ≤ f_offset < 1.015MHz	-22 dBm	30 kHz
1.0 ≤ Δf < 1.8 MHz	1.015MHz ≤ f_offset < 1.815MHz	-22 - 15·(f_offset – 1.015) dBm	30 kHz
1.8 ≤ Δf < 2.4 MHz	1.815MHz ≤ f_offset < 2.415MHz	-36 dBm	30 kHz
See note	2.415MHz ≤ f_offset < 2.9MHz	-40 dBm	30 kHz
2.4 ≤ Δf MHz	2.9MHz ≤ f_offset < f_offset_{max}	-25 dBm	1 MHz

NOTE: This frequency range ensures that the range of values of f_offset is continuous.