

TSG RAN Meeting #15**RP-020027****Cheju, Korea, 5 - 8 March 2002****Title: CRs (Rel-4) to TS 25.105****Source: TSG RAN WG4****Agenda Item: 7.4.4**

RAN4 Tdoc	Spec	CR	Rev	Phase	Title	Cat	Curr Ver	New Ver
R4-020393	25.105	97	1	Rel-4	Amendment for BS ACLR2 of 1.28 Mcps TDD option	F	4.3.0	4.4.0
R4-020394	25.105	98	1	Rel-4	Amendment for BS Spectrum Emission Mask of 1.28Mcps TDD option	F	4.3.0	4.4.0
R4-020411	25.105	101	1	Rel-4	Consideration of multi-carrier operation in ACLR requirements for 1.28 Mcps TDD option	F	4.3.0	4.4.0
R4-020251	25.105	104		Rel-4	Single and multi carrier in spurious emissions requirements for 1.28 Mcps TDD option	F	4.3.0	4.4.0
R4-020349	25.105	106		Rel-4	Addition of channelization code, scrambling code and midamble code parameter for BS performance requirements (1.28Mcps TDD)	F	4.3.0	4.4.0

CHANGE REQUEST

⌘ **25.105 CR 101** ⌘ ev **1** ⌘ Current version: **4.3.0** ⌘

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

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

Title:	⌘ Consideration of multi-carrier operation in ACLR requirements for 1.28 Mcps TDD option		
Source:	⌘ RAN WG4		
Work item code:	⌘ LCRTDD-RF Date: ⌘ 1/2/2002		
Category:	⌘ F Release: ⌘ Rel-4		
	<table border="0"> <tr> <td style="vertical-align: top;"> <p>Use <u>one</u> of the following categories:</p> <p>F (correction)</p> <p>A (corresponds to a correction in an earlier release)</p> <p>B (addition of feature),</p> <p>C (functional modification of feature)</p> <p>D (editorial modification)</p> <p>Detailed explanations of the above categories can be found in 3GPP TR 21.900.</p> </td> <td style="vertical-align: top;"> <p>Use <u>one</u> of the following releases:</p> <p>2 (GSM Phase 2)</p> <p>R96 (Release 1996)</p> <p>R97 (Release 1997)</p> <p>R98 (Release 1998)</p> <p>R99 (Release 1999)</p> <p>REL-4 (Release 4)</p> <p>REL-5 (Release 5)</p> </td> </tr> </table>	<p>Use <u>one</u> of the following categories:</p> <p>F (correction)</p> <p>A (corresponds to a correction in an earlier release)</p> <p>B (addition of feature),</p> <p>C (functional modification of feature)</p> <p>D (editorial modification)</p> <p>Detailed explanations of the above categories can be found in 3GPP TR 21.900.</p>	<p>Use <u>one</u> of the following releases:</p> <p>2 (GSM Phase 2)</p> <p>R96 (Release 1996)</p> <p>R97 (Release 1997)</p> <p>R98 (Release 1998)</p> <p>R99 (Release 1999)</p> <p>REL-4 (Release 4)</p> <p>REL-5 (Release 5)</p>
<p>Use <u>one</u> of the following categories:</p> <p>F (correction)</p> <p>A (corresponds to a correction in an earlier release)</p> <p>B (addition of feature),</p> <p>C (functional modification of feature)</p> <p>D (editorial modification)</p> <p>Detailed explanations of the above categories can be found in 3GPP TR 21.900.</p>	<p>Use <u>one</u> of the following releases:</p> <p>2 (GSM Phase 2)</p> <p>R96 (Release 1996)</p> <p>R97 (Release 1997)</p> <p>R98 (Release 1998)</p> <p>R99 (Release 1999)</p> <p>REL-4 (Release 4)</p> <p>REL-5 (Release 5)</p>		

Reason for change:	⌘ The interpretation of the current ACLR requirement in case of a multi-carrier Node-B is ambiguous.
Summary of change:	⌘ BS adjacent channel offsets clarified to cover single and multi-carrier Node-B.
Consequences if not approved:	⌘ The ACLR requirement can be misinterpreted. <u>Isolated Impact Analysis:</u> Correction of a requirement where the specification was ambiguous or not sufficiently explicit. Would not affect implementations behaving like indicated in the CR, would affect implementations that do not behave like indicated in the CR.

Clauses affected:	⌘ 6.6.2.2.1.2
Other specs affected:	⌘ <input type="checkbox"/> Other core specifications ⌘ 25.142 <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.

6.6.2.2 Adjacent Channel Leakage power Ratio (ACLR)

Adjacent Channel Leakage power Ratio (ACLR) is the ratio of the average power centered on the assigned channel frequency to the average power centered on an adjacent channel frequency. In both cases the power is measured with filter that has a Root Raised Cosine (RRC) filter response with roll-off $\alpha=0.22$ and a bandwidth equal to the chip rate. The requirements shall apply for all configurations of BS (single carrier or multi-carrier), and for all operating modes foreseen by the manufacturer's specification.

The requirement depends on the deployment scenario. Three different deployment scenarios have been defined as given below.

6.6.2.2.1 Minimum Requirement

6.6.2.2.1.1 3,84 Mcps TDD Option

The ACLR shall be higher than the value specified in Table 6.7.

Table 6.7: BS ACLR

BS adjacent channel offset	ACLR limit
± 5 MHz	45 dB
± 10 MHz	55 dB

6.6.2.2.1.2 1,28 Mcps TDD Option

For the 1.28Mcps chip rate option, the ACLR of a single carrier BS or a multi-carrier BS with contiguous carrier frequencies shall be better than the value specified in Table 6.7A

Table 6.7A: BS ACLR (1.28Mcps chip rate)

BS adjacent channel offset <u>below the first or above the last carrier frequency used</u>	ACLR limit
± 1.6 MHz	40 dB
± 3.2 MHz	50 dB

NOTE: This requirement is valid for co-existence with frame and switching point synchronised systems, or for non-synchronised systems if the path loss between the BSs is greater than 107dB.

If a BS provides multiple non-contiguous single carriers or multiple non-contiguous groups of contiguous single carriers, the above requirements shall be applied individually to the single carriers or group of single carriers.

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

CR-Form-v4

CHANGE REQUEST

⌘ **25.105 CR 98** ⌘ rev **1** ⌘ Current version: **4.3.0** ⌘

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

Title:	⌘ Amendment for BS Spectrum Emission Mask of 1.28Mcps TDD option		
Source:	⌘ RAN WG4		
Work item code:	⌘ LCRTDD-RF	Date:	⌘ 1/2/2002
Category:	⌘ F	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:	⌘ Align the spectrum emission mask with the ACLR2 change.
Summary of change:	⌘ Spectrum emission mask for 1.28Mcps TDD is changed.
Consequences if not approved:	⌘ Not align the spectrum emission mask with the ACLR2 change. <u>Isolated Impact Analysis:</u> Correction of a requirement where the specification was ambiguous or not sufficiently explicit. Would not affect implementations behaving like indicated in the CR, would affect implementations that do not behave like indicated in the CR.

Clauses affected:	⌘ 6.6.2	
Other specs affected:	⌘ <input type="checkbox"/> Other core specifications	⌘
	<input checked="" type="checkbox"/> Test specifications	TS25.142
	<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 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 $\Delta f = 2.5$ MHz to Δf_{max} from the carrier frequency, where:

- Δf 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 12.5 MHz or the offset to the UMTS Tx band edge as defined in section 5.2, whichever is the greater.
- Δf_{max} is equal to $f_{offset_{max}}$ minus half of the bandwidth of the measurement filter.

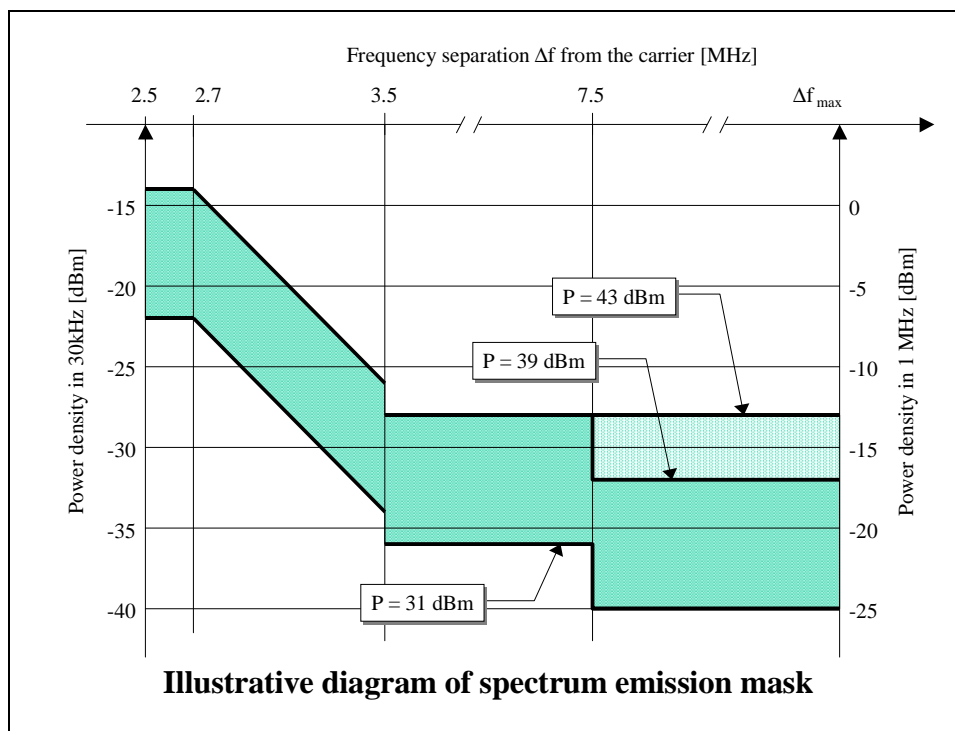


Figure 6.2

Table 6.3: Spectrum emission mask values, BS maximum output power $P \geq 43$ dBm

Frequency offset of measurement filter – 3dB point, Δf	Frequency offset of measurement filter centre frequency, f_{offset}	Maximum level	Measurement bandwidth
$2.5 \leq \Delta f < 2.7$ MHz	$2.515\text{MHz} \leq f_{\text{offset}} < 2.715\text{MHz}$	-14 dBm	30 kHz
$2.7 \leq \Delta f < 3.5$ MHz	$2.715\text{MHz} \leq f_{\text{offset}} < 3.515\text{MHz}$	$-14 - 15 \cdot (f_{\text{offset}} - 2.715)$ dBm	30 kHz
(see note)	$3.515\text{MHz} \leq f_{\text{offset}} < 4.0\text{MHz}$	-26 dBm	30 kHz
$3.5 \leq \Delta f$ MHz	$4.0\text{MHz} \leq f_{\text{offset}} < f_{\text{offset}_{\text{max}}}$	-13 dBm	1 MHz

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

Frequency offset of measurement filter – 3dB point, Δf	Frequency offset of measurement filter centre frequency, f_{offset}	Maximum level	Measurement bandwidth
$2.5 \leq \Delta f < 2.7$ MHz	$2.515\text{MHz} \leq f_{\text{offset}} < 2.715\text{MHz}$	-14 dBm	30 kHz
$2.7 \leq \Delta f < 3.5$ MHz	$2.715\text{MHz} \leq f_{\text{offset}} < 3.515\text{MHz}$	$-14 - 15 \cdot (f_{\text{offset}} - 2.715)$ dBm	30 kHz
(see note)	$3.515\text{MHz} \leq f_{\text{offset}} < 4.0\text{MHz}$	-26 dBm	30 kHz
$3.5 \leq \Delta f < 7.5$ MHz	$4.0\text{MHz} \leq f_{\text{offset}} < 8.0\text{MHz}$	-13 dBm	1 MHz
$7.5 \leq \Delta f$ MHz	$8.0\text{MHz} \leq f_{\text{offset}} < f_{\text{offset}_{\text{max}}}$	$P - 56$ dBm	1 MHz

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

Frequency offset of measurement filter – 3dB point, Δf	Frequency offset of measurement filter centre frequency, f_{offset}	Maximum level	Measurement bandwidth
$2.5 \leq \Delta f < 2.7$ MHz	$2.515\text{MHz} \leq f_{\text{offset}} < 2.715\text{MHz}$	$P - 53$ dBm	30 kHz
$2.7 \leq \Delta f < 3.5$ MHz	$2.715\text{MHz} \leq f_{\text{offset}} < 3.515\text{MHz}$	$P - 53 - 15 \cdot (f_{\text{offset}} - 2.715)$ dBm	30 kHz
(see note)	$3.515\text{MHz} \leq f_{\text{offset}} < 4.0\text{MHz}$	$P - 65$ dBm	30 kHz
$3.5 \leq \Delta f < 7.5$ MHz	$4.0\text{MHz} \leq f_{\text{offset}} < 8.0\text{MHz}$	$P - 52$ dBm	1 MHz
$7.5 \leq \Delta f$ MHz	$8.0\text{MHz} \leq f_{\text{offset}} < f_{\text{offset}_{\text{max}}}$	$P - 56$ 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
$2.5 \leq \Delta f < 2.7$ MHz	$2.515\text{MHz} \leq f_{\text{offset}} < 2.715\text{MHz}$	-22 dBm	30 kHz
$2.7 \leq \Delta f < 3.5$ MHz	$2.715\text{MHz} \leq f_{\text{offset}} < 3.515\text{MHz}$	$-22 - 15 \cdot (f_{\text{offset}} - 2.715)$ dBm	30 kHz
(see note)	$3.515\text{MHz} \leq f_{\text{offset}} < 4.0\text{MHz}$	-34 dBm	30 kHz
$3.5 \leq \Delta f < 7.5$ MHz	$4.0\text{MHz} \leq f_{\text{offset}} < 8.0\text{MHz}$	-21 dBm	1 MHz
$7.5 \leq \Delta f$ MHz	$8.0\text{MHz} \leq f_{\text{offset}} < f_{\text{offset}_{\text{max}}}$	-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 $\Delta f = 0.8$ MHz to Δf_{max} from the carrier frequency, where:

- Δf 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.-
 $f_{\text{offset}_{\text{max}}}$ is either 4 MHz or the offset to the UMTS Tx band edge as defined in section 5.2, whichever is the greater.
- Δf_{max} is equal to $f_{\text{offset}_{\text{max}}}$ minus half of the bandwidth of the measurement filter.

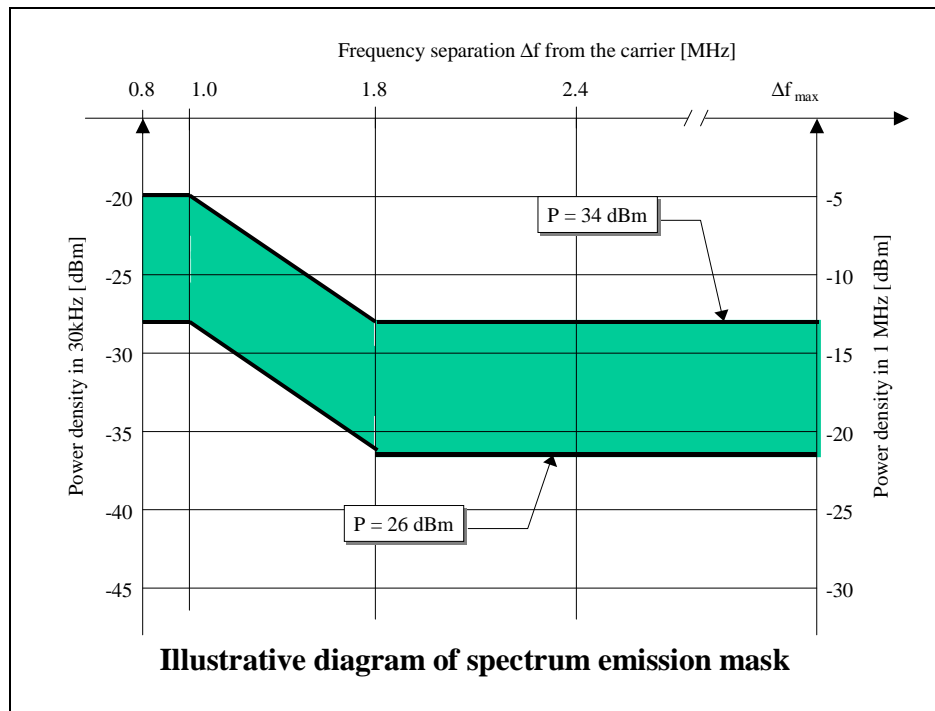
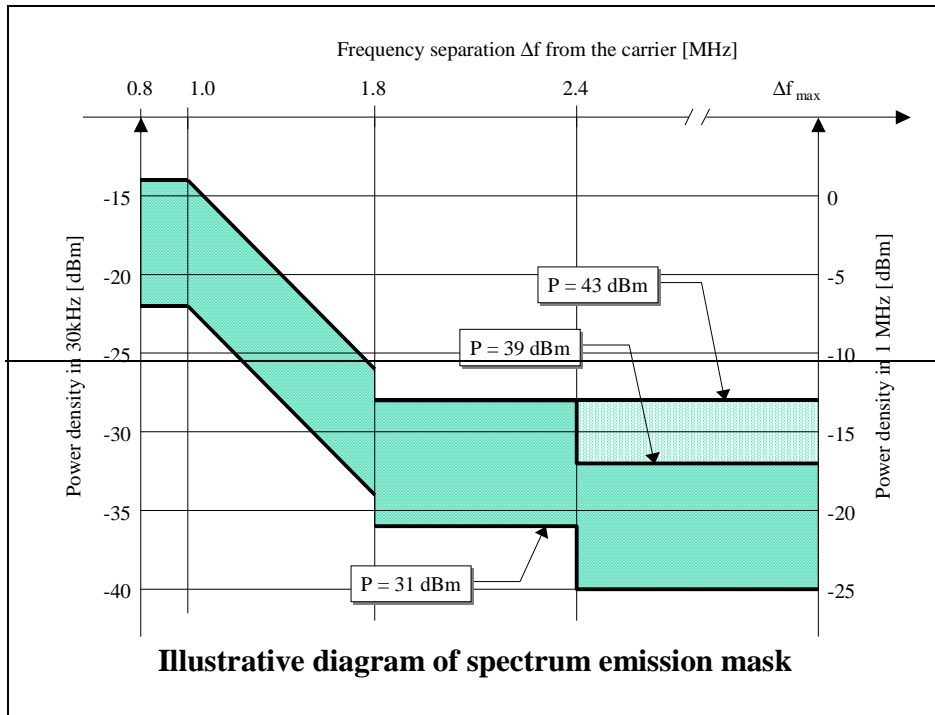


Figure 6.2A

Table 6.3A: Spectrum emission mask values, BS maximum output power $P \geq 43-34$ dBm

Frequency offset of measurement filter – 3dB point, Δf	Frequency offset of measurement filter centre frequency, f_{offset}	Maximum level	Measurement bandwidth
$0.8 \text{ MHz} \leq \Delta f < 1.0 \text{ MHz}$	$0.815 \text{ MHz} \leq f_{offset} < 1.015 \text{ MHz}$	-44-20 dBm	30 kHz
$1.0 \text{ MHz} \leq \Delta f < 1.8 \text{ MHz}$	$1.015 \text{ MHz} \leq f_{offset} < 1.815 \text{ MHz}$	$-44-15 \cdot \left(\frac{f_{offset} - 1.015}{\text{MHz}} - 1,015 \right) \text{ dBm}$ $-20 \text{ dBm} - 10 \cdot \left(\frac{f_{offset}}{\text{MHz}} - 1,015 \right) \text{ dB}$	30 kHz
See note	$1.815 \text{ MHz} \leq f_{offset} < 2.3 \text{ MHz}$	-28 dBm	30 kHz
$1.8 \text{ MHz} \leq \Delta f$ $\text{MHz} \leq \Delta f_{max}$	$2.3 \text{ MHz} \leq f_{offset} < f_{offset_{max}}$	-13 dBm	1 MHz

Table 6.4A: Spectrum emission mask values, BS maximum output power $39-26 \leq P < 43-34$ dBm

Frequency offset of measurement filter – 3dB point, Δf	Frequency offset of measurement filter centre frequency, f_{offset}	Maximum level	Measurement bandwidth
$0.8 \text{ MHz} \leq \Delta f < 1.0 \text{ MHz}$	$0.815 \text{ MHz} \leq f_{offset} < 1.015 \text{ MHz}$	-44P-54 dBm	30 kHz
$1.0 \text{ MHz} \leq \Delta f < 1.8 \text{ MHz}$	$1.015 \text{ MHz} \leq f_{offset} < 1.815 \text{ MHz}$	$-44-15 \cdot \left(\frac{f_{offset} - 1.015}{\text{MHz}} - 1,015 \right) \text{ dBm}$ $P - 54 \text{ dB} - 10 \cdot \left(\frac{f_{offset}}{\text{MHz}} - 1,015 \right) \text{ dB}$	30 kHz
$1.8 \leq \Delta f < 2.4 \text{ MHz}$	$1.815 \text{ MHz} \leq f_{offset} < 2.415 \text{ MHz}$	-28 dBm	30 kHz
See note	$2.415 \text{ MHz} \leq f_{offset} < 2.923 \text{ MHz}$	P-74-62 dBm	30 kHz
$2.4-1.8 \text{ MHz} \leq \Delta f$ $\text{MHz} \leq \Delta f_{max}$	$2.923 \text{ MHz} \leq f_{offset} < f_{offset_{max}}$	P-56P-47 dBm	1 MHz

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

Frequency offset of measurement filter – 3dB point, Δf	Frequency offset of measurement filter centre frequency, f_{offset}	Maximum level	Measurement bandwidth
$0.8 \leq \Delta f < 1.0 \text{ MHz}$	$0.815 \text{ MHz} \leq f_{offset} < 1.015 \text{ MHz}$	P-53 dBm	30 kHz
$1.0 \leq \Delta f < 1.8 \text{ MHz}$	$1.015 \text{ MHz} \leq f_{offset} < 1.815 \text{ MHz}$	$P - 53 - 15 \cdot \left(\frac{f_{offset} - 1.015}{\text{MHz}} - 1,015 \right) \text{ dBm}$	30 kHz
$1.8 \leq \Delta f < 2.4 \text{ MHz}$	$1.815 \text{ MHz} \leq f_{offset} < 2.415 \text{ MHz}$	P-67 dBm	30 kHz
See note	$2.415 \text{ MHz} \leq f_{offset} < 2.9 \text{ MHz}$	P-71 dBm	30 kHz
$2.4 \leq \Delta f \text{ MHz}$	$2.9 \text{ MHz} \leq f_{offset} < f_{offset_{max}}$	P-56 dBm	1 MHz

Table 6.6A5A: Spectrum emission mask values, BS maximum output power $P < 31-26$ dBm

Frequency offset of measurement filter – 3dB point, Δf	Frequency offset of measurement filter centre frequency, f_{offset}	Maximum level	Measurement bandwidth
$0.8 \text{ MHz} \leq \Delta f < 1.0 \text{ MHz}$	$0.815 \text{ MHz} \leq f_{offset} < 1.015 \text{ MHz}$	-22-28 dBm	30 kHz
$1.0 \text{ MHz} \leq \Delta f < 1.8 \text{ MHz}$	$1.015 \text{ MHz} \leq f_{offset} < 1.815 \text{ MHz}$	$-22-15 \cdot \left(\frac{f_{offset} - 1.015}{\text{MHz}} - 1,015 \right) \text{ dBm}$	30 kHz

		$-28dBm - 10 \cdot \left(\frac{f_offset}{MHz} - 1,015 \right) dB$	
$1.8 \leq \Delta f < 2.4$ MHz	$1.815MHz \leq f_offset < 2.415MHz$	-36 dBm	30 kHz
See note	$2.415MHz \leq f_offset < 2.923MHz$	-40-36 dBm	30 kHz
$2.41.8 MHz \leq \Delta f \leq \Delta f_{max}$	$2.92.3MHz \leq f_offset < f_offset_{max}$	-25-21 dBm	1 MHz

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

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

CR-Form-v4

CHANGE REQUEST⌘ **25.105 CR 97** ⌘ rev **1** ⌘ Current version: **4.3.0** ⌘For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.Proposed change affects: ⌘ (U)SIM ME/UE Radio Access Network Core Network

Title:	⌘ Amendment for BS ACLR2 of 1.28 Mcps TDD option		
Source:	⌘ RAN WG4		
Work item code:	⌘ LCRTDD-RF	Date:	⌘ 1/2/2002
Category:	⌘ F	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:	⌘ BS ACLR2 requirement is stringent to 1.28Mcps TDD
Summary of change:	⌘ BS ACLR2 for 1.28 Mcps TDD option is changed from 50dB to 45dB.
Consequences if not approved:	⌘ Unnecessary critical requirement in implementation <u>Isolated Impact Analysis:</u> Correction of a requirement where the specification was ambiguous or not sufficiently explicit. Would not affect implementations behaving like indicated in the CR, would affect implementations that do not behave like indicated in the CR.

Clauses affected:	⌘ 6.6.2.2		
Other specs affected:	⌘ <input type="checkbox"/> Other core specifications	⌘	
	<input checked="" type="checkbox"/> Test specifications		25.142
	<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.

6.6.2.2 Adjacent Channel Leakage power Ratio (ACLR)

Adjacent Channel Leakage power Ratio (ACLR) is the ratio of the transmitted power to the power measured in an adjacent channel. Both the transmitted and the adjacent channel power are measured through a matched filter (Root Raised Cosine and roll-off 0.22) with a noise power bandwidth equal to the chip rate. The requirements shall apply for all configurations of BS (single carrier or multi-carrier), and for all operating modes foreseen by the manufacturer's specification.

The requirement depends on the deployment scenario. Three different deployment scenarios have been defined as given below.

6.6.2.2.1 Minimum Requirement

6.6.2.2.1.1 3,84 Mcps TDD Option

The ACLR shall be higher than the value specified in Table 6.7.

Table 6.7: BS ACLR

BS adjacent channel offset	ACLR limit
± 5 MHz	45 dB
± 10 MHz	55 dB

6.6.2.2.1.2 1,28 Mcps TDD Option

For the 1.28Mcps chip rate option, the ACLR shall be better than the value specified in Table 6.7A

Table 6.7A: BS ACLR (1.28Mcps chip rate)

BS adjacent channel offset	ACLR limit
± 1.6 MHz	40 dB
± 3.2 MHz	45 50 dB

NOTE: This requirement is valid for co-existence with frame and switching point synchronised systems, or for non-synchronised systems if the path loss between the BSs is greater than 107dB.

CHANGE REQUEST

⌘ **25.105 CR 106** ⌘ ev **-** ⌘ Current version: **4.3.0** ⌘

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

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

Title: ⌘ Addition of channelization code, scrambling code and midamble code parameter for BS performance requirements (1.28Mcps TDD)

Source: ⌘ RAN WG4

Work item code: ⌘ LCRTDD-RF

Date: ⌘ 1/2/2002

Category: ⌘ **F**

Release: ⌘ Rel-4

Use one of the following categories:

Use one of the following releases:

F (correction)

2 (GSM Phase 2)

A (corresponds to a correction in an earlier release)

R96 (Release 1996)

B (addition of feature),

R97 (Release 1997)

C (functional modification of feature)

R98 (Release 1998)

D (editorial modification)

R99 (Release 1999)

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

REL-4 (Release 4)

REL-5 (Release 5)

Reason for change: ⌘ The BLER performance depends on channelization code, scrambling code and basic midamble code number used for DPCH and DPCH₀. However, these parameters are specified only for 3.84 Mcps TDD and not specified for 1.28 Mcps TDD in current specification.

Summary of change: ⌘ Channelization code, scrambling code and basic midamble code number used for DPCH and DPCH₀ are added to parameters for performance requirements of 1.28 Mcps TDD. Table 8.2A, Table 8.4A, Table 8.6A and Table 8.8A are changed.

Consequences if not approved: ⌘ Parameters of BLER performance test for 1.28 Mcps TDD are ambiguous.
Isolated Impact Analysis:
Correction to a function where the specification was:
missing parameter in the specification. Would affect implementations that do not follow it. Would not affect implementations that follow it.

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:

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

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
1	-2.0	10^{-2}
2	-0.4	10^{-1}
	-0.1	10^{-2}
3	-0.2	10^{-1}
	0.1	10^{-2}
4	-0.8	10^{-1}
	-0.6	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. 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	-
Scrambling code and basic midamble code number*		0	0	0	0
DPCH Channelization Codes*	C(k,Q)	C(1,8)	C(1,2)	C(1,2)	C(1,2) C(5,8)
DPCH _o Channelization Codes*	C(k,Q)	C(i,8) 2 ≤ i ≤ 5	C(5,8)	C(5,8)	-
$\frac{DPCH_o - E_c}{I_{or}}$	dB	-7	-7	-7	0
I _{oc}	dBm/1.28MHz	-91			
Information Data Rate	Kbps	12.2	64	144	384

*Note: Refer to TS 25.223 for definition of channelization codes, scrambling code and basic midamble code.

Table 8.3A: Performance requirements in AWGN channel.

Test Number	$\frac{\hat{I}_{or}}{I_{oc}}$ [dB]	BLER
1	0.5	10 ⁻²
2	-1.1	10 ⁻¹
	-0.7	10 ⁻²
3	-0.5	10 ⁻¹
	-0.3	10 ⁻²
4	0.1	10 ⁻¹
	0.4	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	6.5	10 ⁻²
2	5.5	10 ⁻¹
	9.8	10 ⁻²
3	5.5	10 ⁻¹
	9.8	10 ⁻²
4	5.1	10 ⁻¹
	9.5	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	-
Scrambling code and basic midamble code number*		0	0	0	0
DPCH Channelization Codes*	C(k,Q)	C(1,8)	C(1,2)	C(1,2)	C(1,2) C(5,8)
DPCH _o Channelization Codes*	C(k,Q)	C(i,8) 2 ≤ i ≤ 5	C(5,8)	C(5,8)	-
$\frac{DPCH_o - E_c}{I_{or}}$	DB	-7	-7	-7	0
I_{oc}	dBm/1.28 MHz	-91			
Information Data Rate	Kbps	12.2	64	144	384

*Note: Refer to TS 25.223 for definition of channelization codes, scrambling code and basic midamble code.

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

Test Number	$\frac{\hat{I}_{or}}{I_{oc}}$ [dB]	BLER
1	10.7	10^{-2}
2	5.3	10^{-1}
	9.6	10^{-2}
3	5.7	10^{-1}
	10.3	10^{-2}
4	6.0	10^{-1}
	10.3	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	-0.4	10^{-2}
2	0.2	10^{-1}
	2.5	10^{-2}
3	3.6	10^{-1}
	6.0	10^{-2}
4	2.8	10^{-1}
	5.2	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	-
Scrambling code and basic midamble code number*		0	0	0	0
DPCH Channelization Codes*	C(k,Q)	C(1,8)	C(1,2)	C(1,2)	C(1,2) C(5,8)
DPCH _o Channelization Codes*	C(k,Q)	C(i,8) 2 ≤ i ≤ 5	C(5,8)	C(5,8)	-
$\frac{DPCH_o - E_c}{I_{or}}$	DB	-7	-7	-7	0
I _{oc}	dBm/1.28 MHz	-91			
Information Data Rate	Kbps	12.2	64	144	384

*Note: Refer to TS 25.223 for definition of channelization codes, scrambling code and basic midamble code.

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	10 ⁻¹
	5.9	10 ⁻²
3	4.0	10 ⁻¹
	6.4	10 ⁻²
4	4.4	10 ⁻¹
	6.3	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
$\frac{DPCH_o - E_c}{I_{or}}$	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 8.9: 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}
	6.3	10^{-2}
	8.0	10^{-3}
4	3.6	10^{-1}
	5.0	10^{-2}
	6.3	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	-
Scrambling code and basic midamble code number*		0	0	0	0
DPCH Channelization Codes*	C(k,Q)	C(1,8)	C(1,2)	C(1,2)	C(1,2) C(5,8)
DPCH _o Channelization Codes*	C(k,Q)	C(i,8) 2 ≤ i ≤ 5	C(5,8)	C(5,8)	-
$\frac{DPCH_o - E_c}{I_{or}}$	DB	-7	-7	-7	0
I _{oc}	dBm/1.28 MHz	-91			
Information Data Rate	Kbps	12.2	64	144	384

*Note: Refer to TS 25.223 for definition of channelization codes, scrambling code and basic midamble code.

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

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

CHANGE REQUEST

⌘ **25.105 CR 104** ⌘ ev **-** ⌘ Current version: **4.3.0** ⌘

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

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

Title:	⌘ Single and multi carrier in spurious emissions requirements for 1.28 Mcps TDD option		
Source:	⌘ RAN WG4		
Work item code:	⌘ LCRTDD-RF Date: ⌘ 1/2/2002		
Category:	⌘ F Release: ⌘ Rel-4		
	<table border="0"> <tr> <td style="vertical-align: top;"> <p>Use <u>one</u> of the following categories:</p> <p>F (correction)</p> <p>A (corresponds to a correction in an earlier release)</p> <p>B (addition of feature),</p> <p>C (functional modification of feature)</p> <p>D (editorial modification)</p> <p>Detailed explanations of the above categories can be found in 3GPP <u>TR 21.900</u>.</p> </td> <td style="vertical-align: top;"> <p>Use <u>one</u> of the following releases:</p> <p>2 (GSM Phase 2)</p> <p>R96 (Release 1996)</p> <p>R97 (Release 1997)</p> <p>R98 (Release 1998)</p> <p>R99 (Release 1999)</p> <p>REL-4 (Release 4)</p> <p>REL-5 (Release 5)</p> </td> </tr> </table>	<p>Use <u>one</u> of the following categories:</p> <p>F (correction)</p> <p>A (corresponds to a correction in an earlier release)</p> <p>B (addition of feature),</p> <p>C (functional modification of feature)</p> <p>D (editorial modification)</p> <p>Detailed explanations of the above categories can be found in 3GPP <u>TR 21.900</u>.</p>	<p>Use <u>one</u> of the following releases:</p> <p>2 (GSM Phase 2)</p> <p>R96 (Release 1996)</p> <p>R97 (Release 1997)</p> <p>R98 (Release 1998)</p> <p>R99 (Release 1999)</p> <p>REL-4 (Release 4)</p> <p>REL-5 (Release 5)</p>
<p>Use <u>one</u> of the following categories:</p> <p>F (correction)</p> <p>A (corresponds to a correction in an earlier release)</p> <p>B (addition of feature),</p> <p>C (functional modification of feature)</p> <p>D (editorial modification)</p> <p>Detailed explanations of the above categories can be found in 3GPP <u>TR 21.900</u>.</p>	<p>Use <u>one</u> of the following releases:</p> <p>2 (GSM Phase 2)</p> <p>R96 (Release 1996)</p> <p>R97 (Release 1997)</p> <p>R98 (Release 1998)</p> <p>R99 (Release 1999)</p> <p>REL-4 (Release 4)</p> <p>REL-5 (Release 5)</p>		

Reason for change:	⌘ The current spurious emissions requirement for 1.28 Mcps TDD covers single and multicarrier BS for Category A and B requirements, but not for the co-existence and co-location requirements. This is in conflict with the ITU-R M.[IMT.UNWANT-BS], where all spurious emission requirements are for both single and multicarrier. The application of the limits, as stated in ITU-R SM.329-8 and ITU-R M.[IMT.UNWANT-BS] for the additional requirements is missing.
Summary of change:	⌘ The provisions for single and multicarrier and for application of limits are moved to section 6.6.3, which is the general section for spurious emissions.
Consequences if not approved:	⌘ There would be a conflict between the spurious emission requirements in the core specification and the one in ITU-R M.[IMT.UNWANT-BS]. <u>Isolated Impact Analysis:</u> Correction of a requirement where the specification was ambiguous or not sufficiently explicit. Would not affect implementations behaving like indicated in the CR, would affect implementations that do not behave like indicated in the CR.

Clauses affected:	⌘ 6.6.3, 6.6.3.1, 6.6.3.1.1.1.2, 6.6.3.1.2.1.2
Other specs affected:	⌘ <input type="checkbox"/> Other core specifications ⌘ <input checked="" type="checkbox"/> Test specifications ⌘ 25.142 <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.

6.6.3 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. This is measured at the base station RF output port.

The requirements shall apply whatever the type of transmitter considered (single carrier or multi carrier). It applies for all transmission modes foreseen by the manufacturer's.

For 1.28 Mcps TDD option, either requirement applies at frequencies within the specified frequency ranges which are more than 4 MHz under the first carrier frequency used or more than 4 MHz above the last carrier frequency used.

Unless otherwise stated, all requirements are measured as mean power.

6.6.3.1 Mandatory Requirements

The requirements of either subclause 6.6.3.1.1 or subclause 6.6.3.1.2 shall apply ~~whatever the type of transmitter considered (single carrier or multi carrier). It applies for all transmission modes foreseen by the manufacturer's.~~

6.6.3.1.1 Spurious emissions (Category A)

The following requirements shall be met in cases where Category A limits for spurious emissions, as defined in ITU-R Recommendation SM.329-8 [1], are applied.

6.6.3.1.1.1 Minimum Requirement

6.6.3.1.1.1.1 3,84 Mcps TDD Option

Either requirement applies at frequencies within the specified frequency ranges which are more than 12.5MHz under the first carrier frequency used or more than 12.5 MHz above the last carrier frequency used. The power of any spurious emission shall not exceed:

Table 6.10: BS Mandatory spurious emissions limits, Category A

Band	Minimum requirement	Measurement Bandwidth	Note
9kHz – 150kHz	-13 dBm	1 kHz	Bandwidth as in ITU SM.329-8, s4.1
150kHz – 30MHz		10 kHz	Bandwidth as in ITU SM.329-8, s4.1
30MHz – 1GHz		100 kHz	Bandwidth as in ITU SM.329-8, s4.1
1GHz – 12.75 GHz		1 MHz	Upper frequency as in ITU SM.329-8, s2.5 table 1

6.6.3.1.1.1.2 1,28 Mcps TDD Option

~~Either requirement applies at frequencies within the specified frequency ranges which are more than 4MHz under the first carrier frequency used or more than 4 MHz above the last carrier frequency used. The power of any spurious emission shall not exceed:~~

Table 6.10A: BS Mandatory spurious emissions limits, Category A

Band	Minimum requirement	Measurement Bandwidth	Note
9kHz – 150kHz	-13 dBm	1 kHz	Bandwidth as in ITU SM.329-8, s4.1
150kHz – 30MHz		10 kHz	Bandwidth as in ITU SM.329-8, s4.1
30MHz – 1GHz		100 kHz	Bandwidth as in ITU SM.329-8, s4.1
1GHz – 12.75 GHz		1 MHz	Upper frequency as in ITU SM.329-8, s2.5 table 1

NOTE: only the measurement bands are different according to the occupied bandwidth.

6.6.3.1.2 Spurious emissions (Category B)

The following requirements shall be met in cases where Category B limits for spurious emissions, as defined in ITU-R Recommendation SM.329-8 [1], are applied.

6.6.3.1.2.1 Minimum Requirement

6.6.3.1.2.1.1 3,84 Mcps TDD Option

Either requirement applies at frequencies within the specified frequency ranges which are more than 12.5MHz under the first carrier frequency used or more than 12.5 MHz above the last carrier frequency used. The power of any spurious emission shall not exceed:

Table 6.11: BS Mandatory spurious emissions limits, Category B

Band	Maximum Level	Measurement Bandwidth	Note
9kHz – 150kHz	-36 dBm	1 kHz	Bandwidth as in ITU SM.329-8, s4.1
150kHz – 30MHz	- 36 dBm	10 kHz	Bandwidth as in ITU SM.329-8, s4.1
30MHz – 1GHz	-36 dBm	100 kHz	Bandwidth as in ITU SM.329-8, s4.1
1GHz ↔ Fc1-60 MHz or FI -10 MHz <i>whichever is the higher</i>	-30 dBm	1 MHz	Bandwidth as in ITU SM.329-8, s4.1
Fc1 - 60 MHz or FI -10 MHz <i>whichever is the higher</i> ↔ Fc1 - 50 MHz or FI -10 MHz <i>whichever is the higher</i>	-25 dBm	1 MHz	Specification in accordance with ITU-R SM.329-8, s4.3 and Annex 7
Fc1 - 50 MHz or FI -10 MHz <i>whichever is the higher</i> ↔ Fc2 + 50 MHz or Fu +10 MHz <i>whichever is the lower</i>	-15 dBm	1 MHz	Specification in accordance with ITU-R SM.329-8, s4.3 and Annex 7
Fc2 + 50 MHz or Fu + 10 MHz <i>whichever is the lower</i> ↔ Fc2 + 60 MHz or Fu + 10 MHz <i>whichever is the lower</i>	-25 dBm	1 MHz	Specification in accordance with ITU-R SM.329-8, s4.3 and Annex 7
Fc2 + 60 MHz or Fu + 10 MHz <i>whichever is the lower</i> ↔ 12,75 GHz	-30 dBm	1 MHz	Bandwidth as in ITU-R SM.329-8, s4.3 and Annex 7. Upper frequency as in ITU-R SM.329-8, s2.5 table 1

Fc1: Center frequency of emission of the first carrier transmitted by the BS

Fc2: Center frequency of emission of the last carrier transmitted by the BS

F_l : Lower frequency of the band in which TDD operates

F_u : Upper frequency of the band in which TDD operates

6.6.3.1.2.1.2 1,28 Mcps TDD Option

~~either requirement applies at frequencies within the specified frequency ranges which are more than 4MHz under the first carrier frequency used or more than 4 MHz above the last carrier frequency used. The power of any spurious emission shall not exceed:~~

Table 6.11A: BS Mandatory spurious emissions limits, Category B

Band	Maximum Level	Measurement Bandwidth	Note
9kHz – 150kHz	-36 dBm	1 kHz	Bandwidth as in ITU SM.329-8, s4.1
150kHz – 30MHz	- 36 dBm	10 kHz	Bandwidth as in ITU SM.329-8, s4.1
30MHz – 1GHz	-36 dBm	100 kHz	Bandwidth as in ITU SM.329-8, s4.1
1GHz ↔ F _{c1} -19.2 MHz or F _l -3.2 MHz <i>whichever is the higher</i>	-30 dBm	1 MHz	Bandwidth as in ITU SM.329-8, s4.1
F _{c1} – 19.2 MHz or F _l -3.2MHz <i>whichever is the higher</i> ↔ F _{c1} - 16 MHz or F _l -3.2 MHz <i>whichever is the higher</i>	-25 dBm	1 MHz	Specification in accordance with ITU-R SM.329-8, s4.1
F _{c1} - 16 MHz or F _l -3.2 MHz <i>whichever is the higher</i> ↔ F _{c2} + 16 MHz or F _u +3.2 MHz <i>whichever is the lower</i>	-15 dBm	1 MHz	Specification in accordance with ITU-R SM.329-8, s4.1
F _{c2} + 16 MHz or F _u + 3.2MHz <i>whichever is the lower</i> ↔ F _{c2} +19.2 MHz or F _u + 3.2MHz <i>whichever is the lower</i>	-25 dBm	1 MHz	Specification in accordance with ITU-R SM.329-8, s4.1
F _{c2} + 19.2 MHz or F _u +3.2 MHz <i>whichever is the lower</i> ↔ 12,5 GHz	-30 dBm	1 MHz	Bandwidth as in ITU-R SM.329-8, s4.1. Upper frequency as in ITU-R SM.329-8, s2.5 table 1

Fc1: Center frequency of emission of the first carrier transmitted by the BS

Fc2: Center frequency of emission of the last carrier transmitted by the BS

F_l : Lower frequency of the band in which TDD operates

F_u : Upper frequency of the band in which TDD operates