

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

RP-010616

Title: CRs (R'99 and Rel-4 Category A) to TS 25.104

Source TSG RAN WG4

Agenda item: 8.4.3

RAN4 Tdoc	Spec	CR	Title	Cat	Phase	Curr Ver	New Ver
R4-010821	25.104	76	Correction to PCDE requirement.	F	Rel99	3.7.0	3.8.0
R4-011054	25.104	77	Correction to PCDE requirement.	A	Rel-4	4.1.0	4.2.0
R4-011207	25.104	78	Correction of frequency range for receiver spurious emission requirements	F	Rel99	3.7.0	3.8.0
R4-011244	25.104	79	Correction of frequency range for receiver spurious emission requirements	A	Rel-4	4.1.0	4.2.0
R4-011250	25.104	80	Clarification in Spectrum emission mask section	F	Rel99	3.7.0	3.8.0
R4-011342	25.104	81	Clarification in Spectrum emission mask section	A	Rel-4	4.1.0	4.2.0
R4-011277	25.104	82	Blocking requirement for co-location of FDD and TDD base stations	F	Rel99	3.7.0	3.8.0
R4-011343	25.104	83	Blocking requirement for co-location of FDD and TDD base stations	A	Rel-4	4.1.0	4.2.0
R4-011289	25.104	84	Definition of "classical Doppler spectrum"	F	Rel99	3.7.0	3.8.0
R4-011293	25.104	85	Definition of "classical Doppler spectrum"	A	Rel-4	4.1.0	4.2.0

CHANGE REQUEST

⌘ **25.104 CR 76** ⌘ ev **-** ⌘ Current version: **3.7.0** ⌘

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 to PCDE requirement		
Source:	⌘ RAN WG4		
Work item code:	⌘	Date:	⌘ 3rd Jul 2001
Category:	⌘ F	Release:	⌘ Rel99
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	F (correction)	R96 (Release 1996)	2 (GSM Phase 2)
	A (corresponds to a correction in an earlier release)	R97 (Release 1997)	R96 (Release 1996)
	B (addition of feature),	R98 (Release 1998)	R97 (Release 1997)
	C (functional modification of feature)	R99 (Release 1999)	R98 (Release 1998)
	D (editorial modification)	REL-4 (Release 4)	R99 (Release 1999)
	Detailed explanations of the above categories can be found in 3GPP IR 21.900 .		REL-5 (Release 5)

Reason for change:	⌘ Incorrect definition in PCDE requirement
Summary of change:	⌘ Clarify that PCDE requirement is not valid over the total power dynamic range.
Consequences if not approved:	⌘ Current text defines unrealistic and unnecessary test requirements.

Clauses affected:	⌘ 6.8.3
Other specs affected:	⌘ <input type="checkbox"/> Other core specifications ⌘ TS25.141
	<input checked="" type="checkbox"/> Test specifications
	<input type="checkbox"/> 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.

$$RC_0(t) = \frac{\sin\left(\pi \frac{t}{T_c}(1-\alpha)\right) + 4\alpha \frac{t}{T_c} \cos\left(\pi \frac{t}{T_c}(1+\alpha)\right)}{\pi \frac{t}{T_c} \left(1 - \left(4\alpha \frac{t}{T_c}\right)^2\right)}$$

Where the roll-off factor $\alpha = 0.22$ and the chip duration:

$$T_c = \frac{1}{\text{chiprate}} \approx 0.26042 \mu\text{s}$$

6.8.2 Error Vector Magnitude

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 as defined by the C-PICH (when present) otherwise the measurement interval is one timeslot starting with the beginning of the SCH. The requirement is valid over the total power dynamic range as specified in subclause 6.4.3.

6.8.2.1 Minimum requirement

The Error Vector Magnitude shall not be worse than 17.5 %.

6.8.3 Peak code Domain error

The Peak Code Domain Error is computed by projecting the power of the error vector (as defined in 6.8.2) onto the code domain at a specified spreading factor. The Code Domain Error for every code in the domain is defined as the ratio of the mean power of the projection onto that code, to the mean power of the composite reference waveform. This ratio is expressed in dB. The Peak Code Domain Error is defined as the maximum value for the Code Domain Error for all codes. The measurement interval is one timeslot as defined by the C-PICH (when present) otherwise the measurement interval is one timeslot starting with the beginning of the SCH. ~~The requirement is valid over the total power dynamic range as specified in subclause 6.4.3.~~

6.8.3.1 Minimum requirement

The peak code domain error shall not exceed -33 dB at spreading factor 256.

7 Receiver characteristics

7.1 General

The requirements in Section 7 assume that the receiver is not equipped with diversity. For receivers with diversity, the requirements apply to each antenna connector separately, with the other one(s) terminated or disabled. The requirements are otherwise unchanged.

Unless otherwise stated, the receiver characteristics are specified at the BS antenna connector (test port A) with a full complement of transceivers for the configuration in normal operating conditions. If any external apparatus such as a RX amplifier, a diplexer, a filter or the combination of such devices is used, requirements apply at the far end antenna connector (port B).

CHANGE REQUEST

⌘ **25.104 CR 77** ⌘ 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 to PCDE requirement		
Source:	⌘ RAN WG4		
Work item code:	⌘	Date:	⌘ 20th Aug 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:	⌘ Incorrect definition in PCDE requirement
Summary of change:	⌘ Clarify that PCDE requirement is not valid over the total power dynamic range.
Consequences if not approved:	⌘ Current text defines unrealistic and unnecessary test requirements.

Clauses affected:	⌘ 6.8.3
Other specs affected:	⌘ <input type="checkbox"/> Other core specifications ⌘ TS25.141
	<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.

$$RC_0(t) = \frac{\sin\left(\pi \frac{t}{T_c}(1-\alpha)\right) + 4\alpha \frac{t}{T_c} \cos\left(\pi \frac{t}{T_c}(1+\alpha)\right)}{\pi \frac{t}{T_c} \left(1 - \left(4\alpha \frac{t}{T_c}\right)^2\right)}$$

Where the roll-off factor $\alpha = 0.22$ and the chip duration:

$$T_c = \frac{1}{\text{chiprate}} \approx 0.26042 \mu\text{s}$$

6.8.2 Error Vector Magnitude

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 as defined by the C-PICH (when present) otherwise the measurement interval is one timeslot starting with the beginning of the SCH. The requirement is valid over the total power dynamic range as specified in subclause 6.4.3.

6.8.2.1 Minimum requirement

The Error Vector Magnitude shall not be worse than 17.5 %.

6.8.3 Peak code Domain error

The Peak Code Domain Error is computed by projecting the power of the error vector (as defined in 6.8.2) onto the code domain at a specified spreading factor. The Code Domain Error for every code in the domain is defined as the ratio of the mean power of the projection onto that code, to the mean power of the composite reference waveform. This ratio is expressed in dB. The Peak Code Domain Error is defined as the maximum value for the Code Domain Error for all codes. The measurement interval is one timeslot as defined by the C-PICH (when present) otherwise the measurement interval is one timeslot starting with the beginning of the SCH. ~~The requirement is valid over the total power dynamic range as specified in subclause 6.4.3.~~

6.8.3.1 Minimum requirement

The peak code domain error shall not exceed -33 dB at spreading factor 256.

7 Receiver characteristics

7.1 General

The requirements in Section 7 assume that the receiver is not equipped with diversity. For receivers with diversity, the requirements apply to each antenna connector separately, with the other one(s) terminated or disabled. The requirements are otherwise unchanged.

Unless otherwise stated, the receiver characteristics are specified at the BS antenna connector (test port A) with a full complement of transceivers for the configuration in normal operating conditions. If any external apparatus such as a RX amplifier, a diplexer, a filter or the combination of such devices is used, requirements apply at the far end antenna connector (port B).

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

CR-Form-v4

CHANGE REQUEST

⌘ **25.104 CR 78** ⌘ ev **-** ⌘ Current version: **3.7.0** ⌘

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 emission requirements
Source:	⌘ RAN WG4
Work item code:	⌘ <input type="text"/> Date: ⌘ 2001-09-03
Category:	⌘ F Release: ⌘ Rel99
<p>Use <u>one</u> of the following categories:</p> <p>F (correction) A (corresponds to a correction in an earlier release) B (addition of feature), C (functional modification of feature) 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) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)</p>	

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

Clauses affected:	⌘ 7.7.1
Other specs Affected:	⌘ <input type="checkbox"/> Other core specifications ⌘ <input checked="" type="checkbox"/> Test specifications ⌘ 25.141 <input type="checkbox"/> O&M Specifications
Other comments:	⌘ <input type="text"/>

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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.

7.7 Spurious emissions

The spurious emissions power is the power of emissions generated or amplified in a receiver that appear at the BS receiver 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

The power of any spurious emission shall not exceed:

Table 7.7: Spurious emission minimum requirement

Band	Maximum level	Measurement Bandwidth	Note
1900 - 1980 MHz and 2010 - 2025 MHz	-78 dBm	3.84 MHz	
30MHz - 1 GHz	-57 dBm	100 kHz	
1 GHz - 12.75 GHz	-47 dBm	1 MHz	With the exception of frequencies between 12.5 MHz below the first carrier frequency and 12.5 MHz above the last carrier frequency used by the BS.

In addition to the requirements in table 7.7, the co-existence requirements for co-located base stations specified in subclause 6.6.3.3.2, 6.6.3.4.2 and 6.6.3.7.2 may also be applied.

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

CR-Form-v4

CHANGE REQUEST

⌘ **25.104 CR 79** ⌘ 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 emission requirements
Source:	⌘ RAN WG4
Work item code:	⌘ <input type="text"/> Date: ⌘ 2001-09-03
Category:	⌘ A
	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 <u>TR 21.900</u> .
	Release: ⌘ Rel-4 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 current frequency range for receiver spurious emission requirements is inconsistent with what is proposed in ITU-R M.[UNWANT-BS].
Summary of change:	⌘ The starting frequency for receiver spurious emission requirements is changed from 9kHz to 30MHz as proposed in ITU-R M.[UNWANT-BS].
Consequences if not approved:	⌘ There will be inconsistency with ITU-R recommendation M.[UNWANT]. It will cause further inconsistency with each regulations those follow the recommendation.

Clauses affected:	⌘ 7.7.1
Other specs Affected:	⌘ <input type="checkbox"/> Other core specifications ⌘ <input checked="" type="checkbox"/> Test specifications ⌘ <input type="checkbox"/> O&M Specifications
	<input type="text"/> 25.141
Other comments:	⌘ <input type="text"/>

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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.

7.7 Spurious emissions

The spurious emissions power is the power of emissions generated or amplified in a receiver that appear at the BS receiver 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

The power of any spurious emission shall not exceed:

Table 7.7: Spurious emission minimum requirement

Band	Maximum level	Measurement Bandwidth	Note
1900 - 1980 MHz and 2010 - 2025 MHz	-78 dBm	3.84 MHz	
9 kHz - 30 MHz - 1 GHz	-57 dBm	100 kHz	
1 GHz - 12.75 GHz	-47 dBm	1 MHz	With the exception of frequencies between 12.5 MHz below the first carrier frequency and 12.5 MHz above the last carrier frequency used by the BS.

In addition to the requirements in table 7.7, the co-existence requirements for co-located base stations specified in subclause 6.6.3.3.2, 6.6.3.4.2 and 6.6.3.7.2 may also be applied.

CHANGE REQUEST

⌘ **TS25.104** CR 80 ⌘ ev **-** ⌘ Current version: **3.7.0** ⌘

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 spectrum mask emission requirement		
Source:	⌘ RAN WG4		
Work item code:	⌘	Date:	⌘ 4 September 2001
Category:	⌘ F	Release:	⌘ Rel99
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	F (correction)	R96 (Release 1996)	2 (GSM Phase 2)
	A (corresponds to a correction in an earlier release)	R97 (Release 1997)	R96 (Release 1996)
	B (addition of feature),	R98 (Release 1998)	R97 (Release 1997)
	C (functional modification of feature)	R99 (Release 1999)	R98 (Release 1998)
	D (editorial modification)	REL-4 (Release 4)	R99 (Release 1999)
	Detailed explanations of the above categories can be found in 3GPP TR 21.900.		REL-5 (Release 5)

Reason for change:	⌘ The upper boundary of spectrum mask emission requirement is incorrect.
Summary of change:	⌘ Correct the upper boundary of spectrum mask emission requirement.
Consequences if not approved:	⌘ Spectrum mask emission requirement will be misleading.

Clauses affected:	⌘ 6.6.2.1
Other specs affected:	⌘ <input type="checkbox"/> Other core specifications ⌘ <input 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:

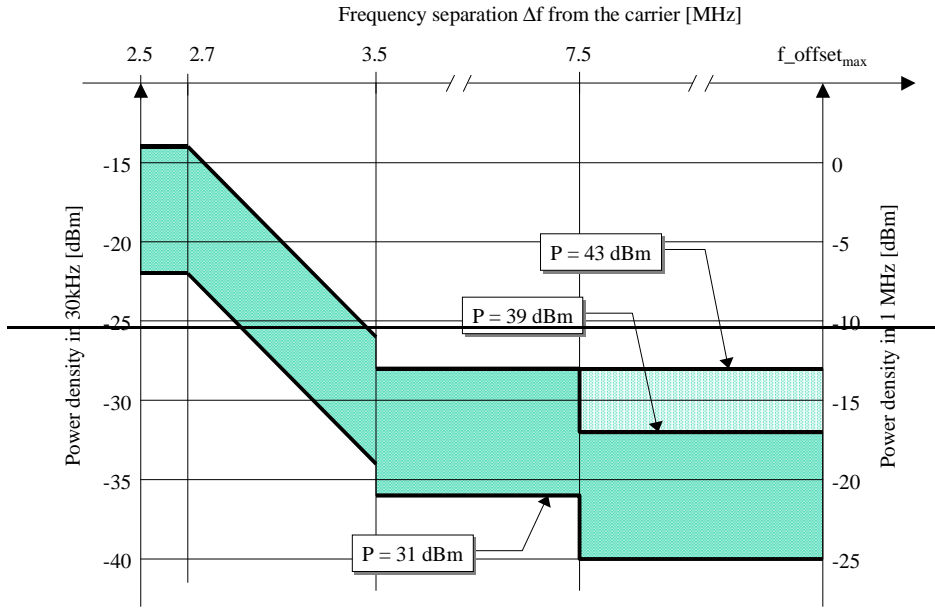
- 1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") 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.

6.6.2.1 Spectrum emission mask

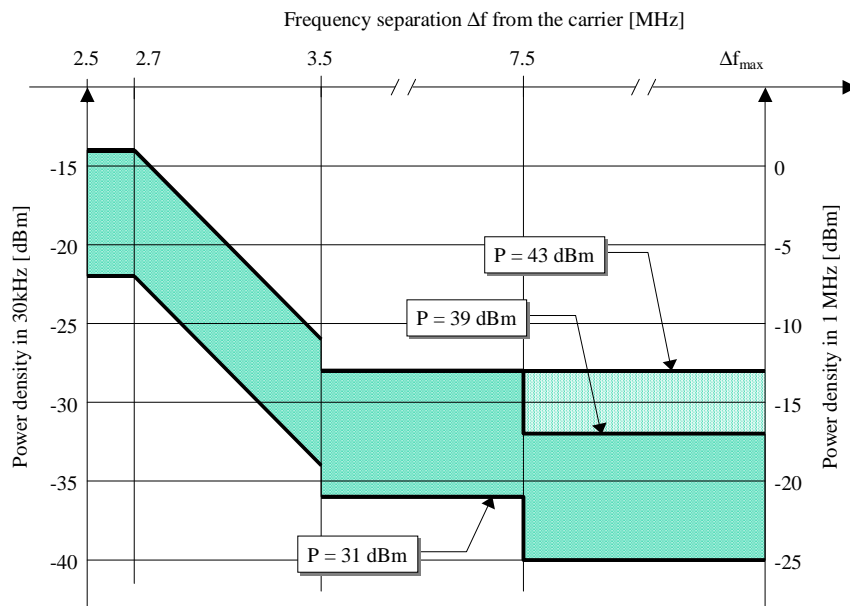
The mask defined in Tables 6.3 to 6.6 below may be mandatory in certain regions. In other regions this mask may not be applied.

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 $\Delta f_{\max} - f_{\text{offset}_{\max}}$ 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 centre of the measuring filter.
- $f_{\text{offset}_{\max}}$ 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 $f_{\text{offset}_{\max}}$ minus half of the bandwidth of the measuring filter.



Illustrative diagram of spectrum emission mask



Illustrative diagram of spectrum emission mask

Figure 6.2: Spectrum emission mask

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 $39 \leq P < 43$ 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.

CHANGE REQUEST

⌘ **TS25.104** 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:	⌘ Clarification in Spectrum emission mask section		
Source:	⌘ RAN WG4		
Work item code:	⌘	Date:	⌘ 4 September 2001
Category:	⌘ A	Release:	⌘ Rel-4
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	F (correction)	R96 (Release 1996)	2 (GSM Phase 2)
	A (corresponds to a correction in an earlier release)	R97 (Release 1997)	R98 (Release 1998)
	B (addition of feature),	R99 (Release 1999)	REL-4 (Release 4)
	C (functional modification of feature)	REL-5 (Release 5)	
	D (editorial modification)		
	Detailed explanations of the above categories can be found in 3GPP TR 21.900.		

Reason for change:	⌘ The upper boundary of spectrum emission mask requirement is incorrect.
Summary of change:	⌘ Correct the upper boundary of spectrum emission mask requirement.
Consequences if not approved:	⌘ Spectrum emission mask requirement will be misleading.

Clauses affected:	⌘ 6.6.2.1
Other specs affected:	⌘ <input type="checkbox"/> Other core specifications ⌘ <input 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:

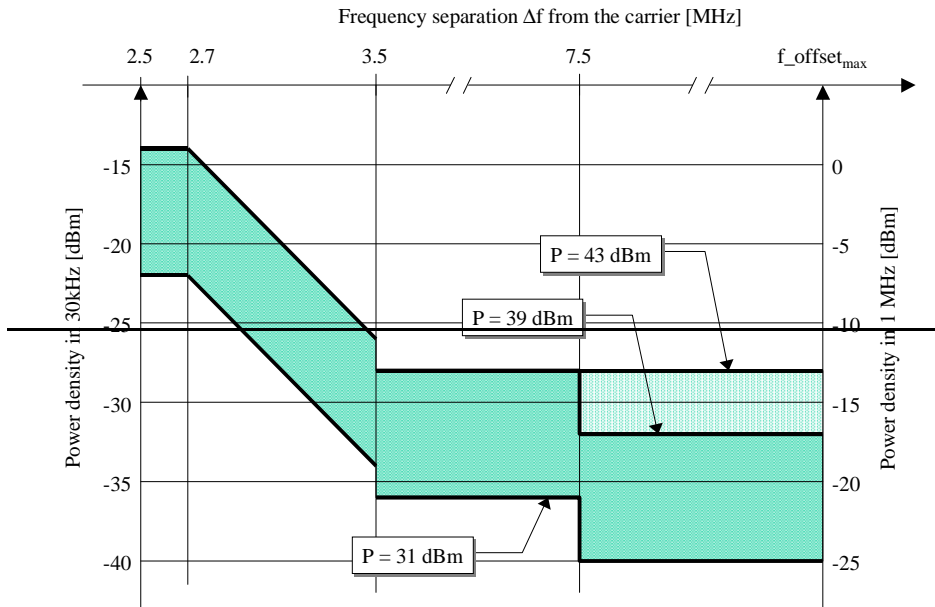
- 1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") 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.

6.6.2.1 Spectrum emission mask

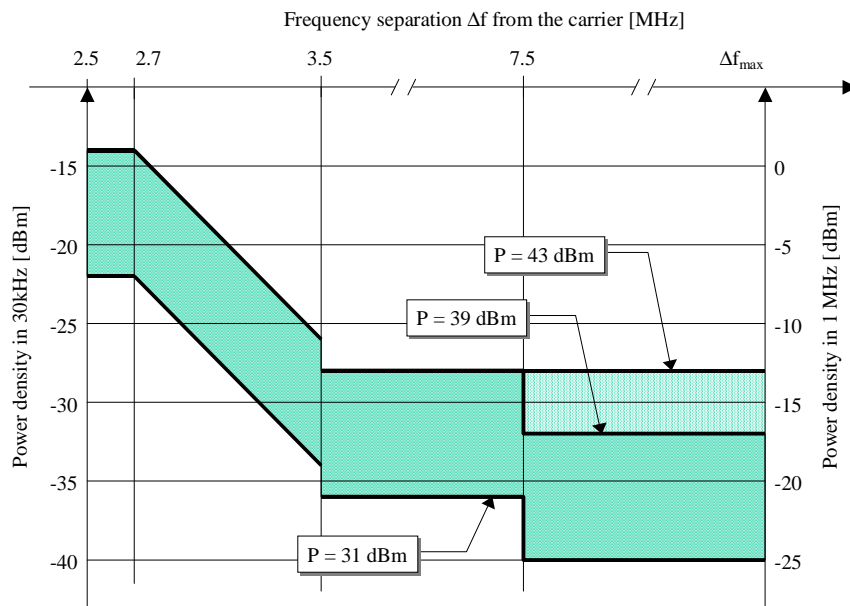
The mask defined in Tables 6.3 to 6.6 below may be mandatory in certain regions. In other regions this mask may not be applied.

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 $\Delta f_{\max} - f_{\text{offset}_{\max}}$ 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 centre of the measuring filter.
- $f_{\text{offset}_{\max}}$ 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 $f_{\text{offset}_{\max}}$ minus half of the bandwidth of the measuring filter.



Illustrative diagram of spectrum emission mask



Illustrative diagram of spectrum emission mask

Figure 6.2: Spectrum emission mask

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	$4.0\text{MHz} \leq f_{\text{offset}} < f_{\text{offset_max}}$	-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.

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

CR-Form-v4

CHANGE REQUEST
 ⌘ **25.104 CR 82** ⌘ ev **-** ⌘ Current version: **3.7.0** ⌘

 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:	⌘ Blocking requirement for co-location of TDD with FDD		
Source:	⌘ RAN WG4		
Work item code:	⌘	Date:	⌘ 03 Sept. 2001
Category:	⌘ F	Release:	⌘ Rel99
	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:	⌘ Blocking requirement for co-location with TDD missing.
Summary of change:	⌘ Statement added saying that the state-of-the-art technology does not allow a generic solution. However, certain site engineering solutions, which can be used, are to be addressed in a Technical Report.
Consequences if not approved:	⌘ Situation when co-location TDD with FDD is not stated clearly.

Clauses affected:	⌘ 4.3, new chapter 7.5.3	
Other specs affected:	⌘ <input type="checkbox"/> Other core specifications	⌘
	<input 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.

4.3 Regional requirements

Some requirements in TS 25.104 may only apply in certain regions. Table 4.1 lists all requirements that may be applied differently in different regions.

Table 4.1: List of regional requirements.

Clause number	Requirement	Comments
5.2	Frequency bands	Some bands may be applied regionally.
5.3	Tx-Rx Frequency Separation	The requirement is applied according to what frequency bands in Clause 5.2 that are supported by the BS.
6.2.1	Base station maximum output power	In certain regions, the minimum requirement for normal conditions may apply also for some conditions outside the range of conditions defined as normal.
6.6.2.1	Spectrum emission mask	The mask specified may be mandatory in certain regions. In other regions this mask may not be applied.
6.6.2.3	Protection outside a licensee's frequency block	This requirement is applicable if protection is required outside a licensee's frequency block.
6.6.3.1.1	Spurious emissions (Category A)	These 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.
6.6.3.1.2	Spurious emissions (Category B)	These 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.
6.6.3.3.1	Co-existence with GSM900 -Operation in the same geographic area	This requirement may be applied for the protection of GSM 900 MS in geographic areas in which both GSM 900 and UTRA are deployed.
6.6.3.3.2	Co-existence with GSM900 - Co-located base stations	This requirement may be applied for the protection of GSM 900 BTS receivers when GSM 900 BTS and UTRA BS are co-located.
6.6.3.4.1	Co-existence with DCS1800 -Operation in the same geographic area	This requirement may be applied for the protection of DCS 1800 MS in geographic areas in which both DCS 1800 and UTRA are deployed.
6.6.3.4.2	Co-existence with DCS1800 - Co-located base stations	This requirement may be applied for the protection of DCS 1800 BTS receivers when DCS 1800 BTS and UTRA BS are co-located.
6.6.3.5	Co-existence with PHS	This requirement may be applied for the protection of PHS in geographic areas in which both PHS and UTRA are deployed.
6.6.3.6	Co-existence with services in adjacent frequency bands	This requirement may be applied for the protection in bands adjacent to 2110-2170 MHz, as defined in sub-clause 5.2(a) and 1930-1990 MHz, as defined in sub-clause 5.2(b) in geographic areas in which both an adjacent band service and UTRA are deployed.
6.6.3.7.1	Co-existence with UTRA TDD - Operation in the same geographic area	This requirement may be applied to geographic areas in which both UTRA-TDD and UTRA-FDD are deployed.
6.6.3.7.2	Co-existence with UTRA TDD - Co-located base stations	This requirement may be applied for the protection of UTRA-TDD BS receivers when UTRA-TDD BS and UTRA FDD BS are co-located.
7.5	Blocking characteristic	The requirement is applied according to what frequency bands in Clause 5.2 that are supported by the BS.
7.5.2	Blocking characteristics Co-location with GSM900 and/or DCS 1800	This requirement may be applied for the protection of UTRA FDD BS receivers when UTRA FDD BS and GSM 900/DCS1800 BS are co-located.
<u>7.5.3</u>	<u>Blocking characteristics Co-location with UTRA TDD</u>	<u>This requirement may be applied for the protection of UTRA FDD BS receivers when UTRA FDD BS and UTRA TDD BS are co-located.</u>

7.5 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 adjacent channels. The blocking performance requirement applies as specified in the tables 7.4 to 7.5B below, using a 1 MHz step size.

7.5.1 Minimum requirement

The static reference performance as specified in clause 7.2.1 shall be met with a wanted and an interfering signal coupled to BS antenna input using the following parameters.

Table 7.4 : Blocking performance requirement for operation in frequency bands in sub-clause 5.2(a)

Center Frequency of Interfering Signal	Interfering Signal Level	Wanted Signal Level	Minimum Offset of Interfering Signal	Type of Interfering Signal
1920 - 1980 MHz	-40 dBm	-115 dBm	10 MHz	WCDMA signal with one code
1900 - 1920 MHz 1980 - 2000 MHz	-40 dBm	-115 dBm	10 MHz	WCDMA signal with one code
1 MHz -1900 MHz, and 2000 MHz - 12750 MHz	-15 dBm	-115 dBm	—	CW carrier

Table 7.5: Blocking performance requirement for operation in frequency bands in sub-clause 5.2(b)

Center Frequency of Interfering Signal	Interfering Signal Level	Wanted Signal Level	Minimum Offset of Interfering Signal	Type of Interfering Signal
1850 - 1910 MHz	- 40 dBm	-115 dBm	10 MHz	WCDMA signal with one code
1830 - 1850 MHz 1910 - 1930 MHz	-40 dBm	-115 dBm	10 MHz	WCDMA signal with one code
1 MHz - 1830 MHz 1930 MHz - 12750 MHz	-15 dBm	-115 dBm	—	CW carrier

7.5.2 Minimum Requirement – Co-location with GSM900 and/or DCS 1800

This additional blocking requirement may be applied for the protection of FDD BS receivers when GSM900 and/or DCS1800 BTS are co-located with UTRA BS.

The static reference performance as specified in clause 7.2.1 shall be met with a wanted and an interfering signal coupled to BS antenna input using the following parameters.

Table 7.5A : Blocking performance requirement for operation in frequency bands in sub-clause 5.2(a) when co-located with GSM900

Center Frequency of Interfering Signal	Interfering Signal Level	Wanted Signal Level	Minimum Offset of Interfering Signal	Type of Interfering Signal
921 -960 MHz	+16 dBm	-115 dBm	—	CW carrier

Table 7.5B : Blocking performance requirement for operation in frequency bands in sub-clause 5.2(a) when co-located with DCS1800

Center Frequency of Interfering Signal	Interfering Signal Level	Wanted Signal Level	Minimum Offset of Interfering Signal	Type of Interfering Signal
1805 – 1880 MHz	+16 dBm	-115 dBm	—	CW carrier

7.5.3 Minimum Requirement - Co-location with UTRA-TDD

The current state-of-the-art technology does not allow a single generic solution for co-location with UTRA-TDD on adjacent frequencies for the same 30dB BS-BS minimum coupling loss used to calculate the requirements in 7.5.1 and 7.5.2.

However, there are certain site-engineering solutions that can be used. These techniques are addressed in TR [TBD].

CR-Form-v4

CHANGE REQUEST

⌘ **25.104 CR 83** ⌘ 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:	⌘ Blocking requirement for co-location of TDD with FDD		
Source:	⌘ RAN WG4		
Work item code:	⌘	Date:	⌘ 06 Sept. 2001
Category:	⌘ A	Release:	⌘ Rel-4
	<i>Use one of the following categories:</i> 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 .		<i>Use one 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:	⌘ Blocking requirement for co-location with TDD missing.
Summary of change:	⌘ Statement added saying that the state-of-the-art technology does not allow a generic solution. However, certain site engineering solutions, which can be used, are to be addressed in a Technical Report.
Consequences if not approved:	⌘ Situation when co-location TDD with FDD is not stated clearly.

Clauses affected:	⌘ 4.3, new chapter 7.5.3	
Other specs affected:	<input type="checkbox"/> Other core specifications <input 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/](http://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.

4.3 Regional requirements

Some requirements in TS 25.104 may only apply in certain regions. Table 4.1 lists all requirements that may be applied differently in different regions.

Table 4.1: List of regional requirements.

Clause number	Requirement	Comments
5.2	Frequency bands	Some bands may be applied regionally.
5.3	Tx-Rx Frequency Separation	The requirement is applied according to what frequency bands in Clause 5.2 that are supported by the BS.
6.2.1	Base station maximum output power	In certain regions, the minimum requirement for normal conditions may apply also for some conditions outside the range of conditions defined as normal.
6.6.2.1	Spectrum emission mask	The mask specified may be mandatory in certain regions. In other regions this mask may not be applied.
6.6.2.3	Protection outside a licensee's frequency block	This requirement is applicable if protection is required outside a licensee's frequency block.
6.6.3.1.1	Spurious emissions (Category A)	These 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.
6.6.3.1.2	Spurious emissions (Category B)	These 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.
6.6.3.3.1	Co-existence with GSM900 -Operation in the same geographic area	This requirement may be applied for the protection of GSM 900 MS in geographic areas in which both GSM 900 and UTRA are deployed.
6.6.3.3.2	Co-existence with GSM900 - Co-located base stations	This requirement may be applied for the protection of GSM 900 BTS receivers when GSM 900 BTS and UTRA BS are co-located.
6.6.3.4.1	Co-existence with DCS1800 -Operation in the same geographic area	This requirement may be applied for the protection of DCS 1800 MS in geographic areas in which both DCS 1800 and UTRA are deployed.
6.6.3.4.2	Co-existence with DCS1800 - Co-located base stations	This requirement may be applied for the protection of DCS 1800 BTS receivers when DCS 1800 BTS and UTRA BS are co-located.
6.6.3.5	Co-existence with PHS	This requirement may be applied for the protection of PHS in geographic areas in which both PHS and UTRA are deployed.
6.6.3.6	Co-existence with services in adjacent frequency bands	This requirement may be applied for the protection in bands adjacent to 2110-2170 MHz, as defined in sub-clause 5.2(a) and 1930-1990 MHz, as defined in sub-clause 5.2(b) in geographic areas in which both an adjacent band service and UTRA are deployed.
6.6.3.7.1	Co-existence with UTRA TDD - Operation in the same geographic area	This requirement may be applied to geographic areas in which both UTRA-TDD and UTRA-FDD are deployed.
6.6.3.7.2	Co-existence with UTRA TDD - Co-located base stations	This requirement may be applied for the protection of UTRA-TDD BS receivers when UTRA-TDD BS and UTRA FDD BS are co-located.
7.5	Blocking characteristic	The requirement is applied according to what frequency bands in Clause 5.2 that are supported by the BS.
7.5.2	Blocking characteristics Co-location with GSM900 and/or DCS 1800	This requirement may be applied for the protection of UTRA FDD BS receivers when UTRA FDD BS and GSM 900/DCS1800 BS are co-located.
<u>7.5.3</u>	<u>Blocking characteristics Co-location with UTRA TDD</u>	<u>This requirement may be applied for the protection of UTRA FDD BS receivers when UTRA FDD BS and UTRA TDD BS are co-located.</u>

7.5 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 adjacent channels. The blocking performance requirement applies as specified in the tables 7.4 to 7.5B below, using a 1 MHz step size.

7.5.1 Minimum requirement

The static reference performance as specified in clause 7.2.1 shall be met with a wanted and an interfering signal coupled to BS antenna input using the following parameters.

Table 7.4 : Blocking performance requirement for operation in frequency bands in sub-clause 5.2(a)

Center Frequency of Interfering Signal	Interfering Signal Level	Wanted Signal Level	Minimum Offset of Interfering Signal	Type of Interfering Signal
1920 - 1980 MHz	-40 dBm	-115 dBm	10 MHz	WCDMA signal with one code
1900 - 1920 MHz 1980 - 2000 MHz	-40 dBm	-115 dBm	10 MHz	WCDMA signal with one code
1 MHz -1900 MHz, and 2000 MHz - 12750 MHz	-15 dBm	-115 dBm	—	CW carrier

Table 7.5: Blocking performance requirement for operation in frequency bands in sub-clause 5.2(b)

Center Frequency of Interfering Signal	Interfering Signal Level	Wanted Signal Level	Minimum Offset of Interfering Signal	Type of Interfering Signal
1850 - 1910 MHz	- 40 dBm	-115 dBm	10 MHz	WCDMA signal with one code
1830 - 1850 MHz 1910 - 1930 MHz	-40 dBm	-115 dBm	10 MHz	WCDMA signal with one code
1 MHz - 1830 MHz 1930 MHz - 12750 MHz	-15 dBm	-115 dBm	—	CW carrier

7.5.2 Minimum Requirement – Co-location with GSM900 and/or DCS 1800

This additional blocking requirement may be applied for the protection of FDD BS receivers when GSM900 and/or DCS1800 BTS are co-located with UTRA BS.

The static reference performance as specified in clause 7.2.1 shall be met with a wanted and an interfering signal coupled to BS antenna input using the following parameters.

Table 7.5A : Blocking performance requirement for operation in frequency bands in sub-clause 5.2(a) when co-located with GSM900

Center Frequency of Interfering Signal	Interfering Signal Level	Wanted Signal Level	Minimum Offset of Interfering Signal	Type of Interfering Signal
921 -960 MHz	+16 dBm	-115 dBm	—	CW carrier

Table 7.5B : Blocking performance requirement for operation in frequency bands in sub-clause 5.2(a) when co-located with DCS1800

Center Frequency of Interfering Signal	Interfering Signal Level	Wanted Signal Level	Minimum Offset of Interfering Signal	Type of Interfering Signal
1805 – 1880 MHz	+16 dBm	-115 dBm	—	CW carrier

7.5.3 Minimum Requirement - Co-location with UTRA-TDD

The current state-of-the-art technology does not allow a single generic solution for co-location with UTRA-TDD on adjacent frequencies for the same 30dB BS-BS minimum coupling loss used to calculate the requirements in 7.5.1 and 7.5.2.

However, there are certain site-engineering solutions that can be used. These techniques are addressed in TR [TBD].

CHANGE REQUEST

⌘ **25.104 CR 84** ⌘ ev **-** ⌘ Current version: **3.7.0** ⌘

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:	⌘ Definition of "classical Doppler spectrum" in TS 25.104		
Source:	⌘ RAN WG4		
Work item code:	⌘	Date:	⌘ 04 September 2001
Category:	⌘ F	Release:	⌘ Rel99
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	F (correction)	R96 (Release 1996)	2 (GSM Phase 2)
	A (corresponds to a correction in an earlier release)	R97 (Release 1997)	R96 (Release 1996)
	B (addition of feature),	R98 (Release 1998)	R97 (Release 1997)
	C (functional modification of feature)	R99 (Release 1999)	R98 (Release 1998)
	D (editorial modification)	REL-4 (Release 4)	R99 (Release 1999)
	Detailed explanations of the above categories can be found in 3GPP TR 21.900 .	REL-5 (Release 5)	

Reason for change:	⌘ Clarification of how the "classical Doppler spectrum" is defined
Summary of change:	⌘ A formula of the classical Doppler spectrum with Rayleigh fading is introduced, as taken by GSM specs
Consequences if not approved:	⌘ There is not a unique definition of "classical Doppler spectrum"

Clauses affected:	⌘ B.2
Other specs affected:	⌘ <input checked="" type="checkbox"/> Other core specifications ⌘ 25.105
	<input checked="" type="checkbox"/> Test specifications ⌘ 25.141, 25.142
	<input type="checkbox"/> 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.

B.2 Multi-path fading propagation conditions

Table B.1 shows propagation conditions that are used for the performance measurements in multi-path fading environment. All taps have classical Doppler spectrum, defined as:

$$S(f) \propto 1/(1 - (f / f_D)^2)^{0.5} \quad \text{for } f \in [-f_d, f_d].$$

Table B.1: Propagation Conditions for Multi path Fading Environments

Case 1, speed 3km/h		Case 2, speed 3 km/h		Case 3, 120 km/h		Case 4, 250 km/h	
Relative Delay [ns]	Average Power [dB]	Relative Delay [ns]	Average Power [dB]	Relative Delay [ns]	Average Power [dB]	Relative Delay [ns]	Average Power [dB]
0	0	0	0	0	0	0	0
976	-10	976	0	260	-3	260	-3
		20000	0	521	-6	521	-6
				781	-9	781	-9

CHANGE REQUEST

⌘ **25.104 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:	⌘ Definition of "classical Doppler spectrum" in TS 25.104		
Source:	⌘ RAN WG4		
Work item code:	⌘	Date:	⌘ 04 September 2001
Category:	⌘ A	Release:	⌘ Rel-4
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	F (correction)	R96	(GSM Phase 2)
	A (corresponds to a correction in an earlier release)	R97	(Release 1996)
	B (addition of feature),	R98	(Release 1997)
	C (functional modification of feature)	R99	(Release 1998)
	D (editorial modification)	REL-4	(Release 1999)
	Detailed explanations of the above categories can be found in 3GPP TR 21.900 .	REL-5	(Release 4)
			(Release 5)

Reason for change:	⌘ Clarification of how the "classical Doppler spectrum" is defined
Summary of change:	⌘ A formula of the classical Doppler spectrum with Rayleigh fading is introduced, as taken by GSM specs
Consequences if not approved:	⌘ There is not a unique definition of "classical Doppler spectrum"

Clauses affected:	⌘ B.2
Other specs affected:	⌘ <input checked="" type="checkbox"/> Other core specifications ⌘ 25.105
	<input checked="" type="checkbox"/> Test specifications ⌘ 25.141, 25.142
	<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/](http://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.

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