RP-010779

TSG RAN Meeting #14

Kyoto, Japan, 11 - 14 December 2001

Title: CRs (R'99 and Rel-4/Rel-5 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
R4-011518	25.104	88	Multi and single carrier for spurious emissions	F	Rel99	3.8.0	3.9.0
R4-011585	25.104	89	Multi and single carrier for spurious emissions	А	Rel-4	4.2.0	4.3.0
R4-011586	25.104	90	Multi and single carrier for spurious emissions	Α	Rel-5	5.0.0	5.1.0
R4-011556	25.104	91	Correction to units in Spectrum emission mask	F	Rel99	3.8.0	3.9.0
R4-011557	25.104	92	Correction to units in Spectrum emission mask	Α	Rel-4	4.2.0	4.3.0
R4-011558	25.104	93	Correction to units in Spectrum emission mask	Α	Rel-5	5.0.0	5.1.0
R4-011594	25.104	94	Co location with UTRA TDD	F	Rel99	3.8.0	3.9.0
R4-011621	25.104	95	Co location with UTRA TDD	Α	Rel-5	5.0.0	5.1.0
R4-011620	25.104	96	Co location with UTRA TDD	Α	Rel-4	4.2.0	4.3.0
R4-011595	25.104	97	Correction for FCC emission mask and frequency raster for Band B (UMTS1900)	F	Rel99	3.8.0	3.9.0
R4-011649	25.104	98	Correction for FCC emission mask and frequency raster for Band B (UMTS1900)	А	Rel-4	4.2.0	4.3.0

R4-011518

East Brunswick, NJ, USA 12th - 16th November 2001

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CHANGE REQUEST														
ж	25.	<mark>104</mark>	CR	88		ж e	-	ж	Curren	t vers	ion:	<mark>3.8</mark>	.0	ж
For <u>HELP</u> on u	ısing t	his for	m, see	e bottom	of this	page	or lool	k at the	e pop-u	p text	over	the ¥	syn	nbols.
Proposed change	affect	ts: #	(U)	SIM	ME/	UE	Ra	dio Ac	cess Ne	etwor	k X	Core	e Ne	twork
Title: ೫	Sin	gle an	d Multi	i carrier in	n Spur	ious E	missic	ons Re	equireme	ents				
Source: ೫	RA	N WG	4											
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Category: अ	Detai	F (con A (cor B (add C (fun D (edi led exp	rection) respond lition of ctional torial m planatio	ds to a con f feature), modification odification ons of the TR 21.900	rrection on of fe 1) above (in an e ature)			2 e) R9 R9 R9 R9 R9 R9	<u>one</u> of 96 97 98	Rels the fol (GSM (Relea (Relea (Relea (Relea (Relea	lowing Phase ase 19 ase 19 ase 19 ase 19 ase 4)	e 2) 996) 997) 998) 999)	ases:
Reason for change	Reason for change: * The current spurious emissions requirement 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 requirement as stated in TS 25.141, EN 301 908-3 (European Harmonised Standard) and ITU-R M.[IMT.UNWANT-BS], where all spurious emission requirements are for both single and multicarrier.							tion 41,						
Summary of chang	уе: Ж		-	on for sir h is the g								6.6.3.	1 to	section
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Clauses affected:	Ħ	6.6.3	, <u>6.6.</u> 3	3.1										

Other specs affected:	Image: Second system Image: Second system Image: Second
Other comments:	He test specification TS 25.141 is already drafted in the way of the CR.

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 multiple-carrier). It applies for all transmission modes foreseen by the manufacturer's specification.

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.<u>whatever the type of transmitter</u> considered (single carrier or multiple carrier). It applies for all transmission modes foreseen by the manufacturer's specification.

Either requirement applies at frequencies within the specified frequency ranges that are more than 12.5MHz below the first carrier frequency used or more than 12.5MHz above the last carrier frequency used.

R4-011585

East Brunswick, NJ, USA 12th - 16th November 2001

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CHANGE REQUEST															
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For <mark>HELP</mark> on us	sing t	this for	m, see	e bottom	of this	s pag	ie or	look	at th	e pop-	up tex	t over	the ¥	syn	nbols.
Proposed change a	affec	ts: #	(U)	SIM	ME	UE		Rad	lio Ac	ccess N	Vetwo	rk <mark>X</mark>	Cor	e Ne	twork
Title: ೫	Sin	<mark>gle an</mark>	d Mult	i carrier	<mark>in S</mark> pu	irious	Em	issio	ns Re	equiren	nents				
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Summary of chang	Immary of change: # The provision for single and multicarrier is moved from section 6.6.3.1 to section 6.6.3, which is the general section for spurious emissions.						section								
Consequences if not approved:	¥	core the E <u>Isola</u> imple	specif Europe ted Im ementa	ld be a c ication a can harm pact An ations be behave	and the ionised alvsis: ahaving	e one d star Corr g like	in th ndar ectic indi	ne tes d and on of icated	st spe d in I a req d in th	ecificat TU-R M Juireme	ion, as 4.[IMT ent. W	s well UNW	as wit /ANT- not aff	th the BS]. ect	e ones in
						alout			U						
Clauses affected:	ж	6.6.3	, <mark>6.6.</mark> 3	3.1											
Other specs	ж	O	ther co	ore spec	ificatio	ns	Ħ	3							

Other comments: # The test specification TS 25.141 is already drafted in the way of the CR.

Test specifications O&M Specifications

affected:

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 multiple-carrier). It applies for all transmission modes foreseen by the manufacturer's specification.

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 multiple carrier). It applies for all transmission modes foreseen by the manufacturer's specification.

Either requirement applies at frequencies within the specified frequency ranges that are more than 12.5MHz below the first carrier frequency used or more than 12.5MHz above the last carrier frequency used.

R4-011586

East Brunswick, NJ, USA 12th - 16th November 2001

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For <u>HELP</u> or	For HELP on using this form, see bottom of this page or look at the pop-up text over the # symbols.														
Proposed chang	Proposed change affects: # (U)SIM ME/UE Radio Access Network X Core Network							work							
Title:	ж	Single	an	d Multi carrier in	n Spu	irious	s Em	issio	ns Re	equire	ements				
Source:	ж	RAN V	/G	ļ											
Work item code:	ж										Date: #	200	01-11-1	4	
Category:	ж	Α								Rol	ease: #	Re	1-5		
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				ition of feature),						,	R97	(Rele	ease 199)7́)	
		C (fun	ctional modificati	on of t	featui	re)				R98	(Rele	ease 199	98)	
		D (edit	orial modificatior	1)						R99	(Rele	ease 199	99)	
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be found in 3GPP TR 21.900. REL-5 (Release 5)															
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Reason for chan	ge:	: ¥ TI	ne (current spuriou	s emi	ssior	ns re	auire	ment	t cove	ers sinal	e and	multica	arrie	r BS for
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				rements. This i											
			-	01 908-3 (Euro					-						-
	BS], where all spurious emission requirements are for both single and multicarrier.														

Summary of change: ೫	The provision for single and multicarrier is moved from section 6.6.3.1 to section 6.6.3, which is the general section for spurious emissions.

Consequences if [#]	There would be a conflict between the spurious emission requirements in the
not approved:	core specification and the one in the test specification, as well as with the ones in
	the European harmonised standard and in ITU-R M.[IMT.UNWANT-BS].

Clauses affected:	℃ 6.6.3, 6.6.3.1
Other specs affected:	# Other core specifications # Test specifications O&M Specifications
Other comments:	# The test specification TS 25.141 is already drafted in the way of the CR.

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 multiple-carrier). It applies for all transmission modes foreseen by the manufacturer's specification.

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 multiple carrier). It applies for all transmission modes foreseen by the manufacturer's specification.

Either requirement applies at frequencies within the specified frequency ranges that are more than 12.5MHz below the first carrier frequency used or more than 12.5MHz above the last carrier frequency used.

R4-011556

East Brunswick, NJ, USA 12th - 16th November 2001

ж	25.104 CR 91 [#] ev - [#] (Current version: 3.8.0 [#]					
For <u>HELP</u> on using this form, see bottom of this page or look at the pop-up text over the # symbols.							
Proposed change	e affects: # (U)SIM ME/UE Radio Acc	ess Network X Core Network					
Title:	Correction to units in Spectrum emission mask						
Source:	RAN WG4						
Work item code:	f	<i>Date:</i>					
Category:	 F 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: # Rel99 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 chan	re: 第 The formula for calculating the power results i	n a negative answer					
Summary of cha	ge: # The correct units are used						

Consequences if not approved:	ж	The requirement is incorrectly specified leading to potential problems with Spectrum Emission Mask performance and subsequent harm to the network.
		Isolated impact statement: Correction to a function where the specification was containing some contradictions. Would not affect implementations behaving like indicated in the CR.
Clauses affected:	ж	6.6.2

Other specs affected:	ж	Other core specifications Test specifications O&M Specifications	Ħ	25.141
Other comments:	Ħ			

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at: <u>http://www.3gpp.org/3G_Specs/CRs.htm</u>. 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 <u>ftp://ftp.3gpp.org/specs/</u>. For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

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

6.6.2 Out of band emission

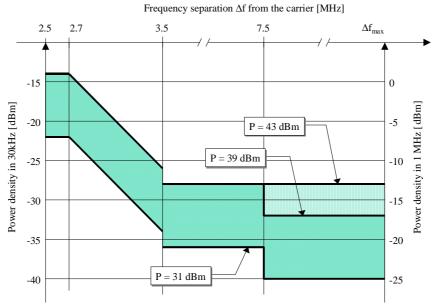
Out of band emissions are unwanted emissions immediately outside the channel bandwidth resulting from the modulation process and non-linearity in the transmitter but excluding spurious emissions. This out of band emission requirement is specified both in terms of a spectrum emission mask and adjacent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

6.6.2.1 Spectrum emission mask

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 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 centre 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 measuring filter.



Illustrative diagram of spectrum emission mask

Figure 6.2: Spectrum emission mask

Table 6.3: Spectrum emission mask values, E	BS maximum output power P ≥ 43 dBm
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Frequency offset of measurement filter -3dB point, ∆f	Frequency offset of measurement filter centre frequency, f_offset	Maximum level	Measurement bandwidth
2.5 ≤ ∆f < 2.7 MHz	2.515MHz ≤ f_offset < 2.715MHz	-14 dBm	30 kHz
2.7 ≤ ∆f < 3.5 MHz	2.715MHz ≤ f_offset < 3.515MHz	-14 dBm - 15 (f_offset-	30 kHz
		2.715) dB m	
(see note)	$3.515MHz \leq f_offset < 4.0MHz$	-26 dBm	30 kHz
$3.5 \le \Delta f MHz$	$4.0MHz \le f_offset < f_offset_{max}$	-13 dBm	1 MHz

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

Frequency offset of measurement filter -3dB point, ∆f	Frequency offset of measurement filter centre frequency, f_offset	Maximum level	Measurement bandwidth
2.5 ≤ ∆f < 2.7 MHz	2.515MHz ≤ f_offset < 2.715MHz	-14 dBm	30 kHz
2.7 ≤ ∆f < 3.5 MHz	$2.715MHz \le f_{offset} < 3.515MHz$	-14 <u>dBm</u> - 15 (f_offset - 2.715) dB m	30 kHz
V (see note)	$3.515MHz \le f_{offset} < 4.0MHz$	-26 dBm	30 kHz
3.5 ≤ ∆f < 7.5 MHz	4.0MHz ≤ f_offset < 8.0MHz	-13 dBm	1 MHz
7.5 ≤ ∆f MHz	$8.0MHz \leq f_offset < f_offset_max$	P - 56 dB m	1 MHz

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

Frequency offset of measurement filter -3dB point,∆f	Frequency offset of measurement filter centre frequency, f_offset	Maximum level	Measurement bandwidth
2.5 ≤ ∆f < 2.7 MHz	2.515MHz ≤ f_offset < 2.715MHz	P - 53 dB m	30 kHz
$2.7 \le \Delta f < 3.5 \text{ MHz}$	$2.715MHz \le f_{offset} < 3.515MHz$	P - 53 <u>dB</u> - 15 (f_offset - 2.715) dB m	30 kHz
(see note)	3.515MHz ≤ f_offset < 4.0MHz	P - 65 dB m	30 kHz
3.5 ≤ ∆f < 7.5 MHz	$4.0MHz \le f_offset < 8.0MHz$	P - 52 dB m	1 MHz
7.5 ≤ ∆f MHz	$8.0MHz \leq f_offset < f_offset_max$	P - 56 dB m	1 MHz

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

Frequency offset of measurement filter -3dB point, ∆f	Frequency offset of measurement filter centre frequency, f_offset	Maximum level	Measurement bandwidth
2.5 ≤ ∆f < 2.7 MHz	2.515MHz ≤ f_offset < 2.715MHz	-22 dBm	30 kHz
2.7 ≤ ∆f < 3.5 MHz	$2.715MHz \le f_{offset} < 3.515MHz$	-22 <u>dBm</u> - 15 (f_offset - 2.715) dB m	30 kHz
(see note)	$3.515MHz \leq f_offset < 4.0MHz$	-34 dBm	30 kHz
3.5 ≤ ∆f < 7.5 MHz	$4.0MHz \le f_offset < 8.0MHz$	-21 dBm	1 MHz
7.5 ≤ ∆f MHz	8.0MHz \leq f_offset < f_offset _{max}	-25 dBm	1 MHz

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

6.6.2.2 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 average power is measured with a filter that has Root Raised Cosine (RRC) filter response with roll-off $\alpha = 0.22$ and a bandwidth equal to the chip rate.

6.6.2.2.1 Minimum requirement

1

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

Table 6.7: BS ACLR

BS adjacent channel offset below the first or above the last carrier frequency used	ACLR limit
5 MHz	45 dB
10 MHz	50 dB

R4-011557

East Brunswick, NJ, USA 12th - 16th November 2001

	CHANGE REQUEST				
¥	25.104 CR 92 * ev - * (Current version: 4.2.0 [#]			
For <u>HELP</u> on using this form, see bottom of this page or look at the pop-up text over the <i>x</i> symbols. Proposed change affects: <i>x</i> (U)SIM ME/UE Radio Access Network Core Network					
Title:	Correction to units in Spectrum emission mask				
Source:	RAN WG4				
Work item code:	fi and a state of the state of	Date: ೫ 2001-11-16			
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-4Use one of the following releases:2(GSM Phase 2)R96R97(Release 1996)R97(Release 1997)R98(Release 1998)R99REL-4(Release 4)REL-5(Release 5)			
Reason for change: 業 The formula for calculating the power results in a negative answer Summary of change: # The correct units are used					

Consequences if % not approved:		The requirement is incorrectly specified leading to potential problems with Spectrum Emission Mask performance and subsequent harm to the network.
		Isolated impact statement: Correction to a function where the specification was containing some contradictions. Would not affect implementations behaving like indicated in the CR.
Clauses affected:	ж	6.6.2

Other specs affected:	¥	Other core specifications Test specifications O&M Specifications	Ħ	25.141
Other comments:	ж			

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 <u>ftp://ftp.3gpp.org/specs/</u>. For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

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

6.6.2 Out of band emission

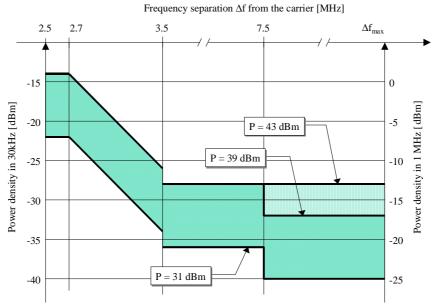
Out of band emissions are unwanted emissions immediately outside the channel bandwidth resulting from the modulation process and non-linearity in the transmitter but excluding spurious emissions. This out of band emission requirement is specified both in terms of a spectrum emission mask and adjacent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

6.6.2.1 Spectrum emission mask

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 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 centre 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 measuring filter.



Illustrative diagram of spectrum emission mask

Figure 6.2: Spectrum emission mask

Table 6.3: Spectrum emission mask values, E	BS maximum output power P ≥ 43 dBm
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Frequency offset of measurement filter -3dB point, ∆f	Frequency offset of measurement filter centre frequency, f_offset	Maximum level	Measurement bandwidth
2.5 ≤ ∆f < 2.7 MHz	2.515MHz ≤ f_offset < 2.715MHz	-14 dBm	30 kHz
2.7 ≤ ∆f < 3.5 MHz	2.715MHz ≤ f_offset < 3.515MHz	-14 dBm - 15 (f_offset-	30 kHz
		2.715) dB m	
(see note)	$3.515MHz \leq f_offset < 4.0MHz$	-26 dBm	30 kHz
$3.5 \le \Delta f MHz$	$4.0MHz \le f_offset < f_offset_{max}$	-13 dBm	1 MHz

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

Frequency offset of measurement filter -3dB point, ∆f	Frequency offset of measurement filter centre frequency, f_offset	Maximum level	Measurement bandwidth
2.5 ≤ ∆f < 2.7 MHz	2.515MHz ≤ f_offset < 2.715MHz	-14 dBm	30 kHz
2.7 ≤ ∆f < 3.5 MHz	$2.715MHz \le f_{offset} < 3.515MHz$	-14 <u>dBm</u> - 15 (f_offset - 2.715) dB m	30 kHz
V (see note)	$3.515MHz \le f_offset < 4.0MHz$	-26 dBm	30 kHz
3.5 ≤ ∆f < 7.5 MHz	4.0MHz ≤ f_offset < 8.0MHz	-13 dBm	1 MHz
7.5 ≤ ∆f MHz	$8.0MHz \leq f_offset < f_offset_max$	P - 56 dB m	1 MHz

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

Frequency offset of measurement filter -3dB point,∆f	Frequency offset of measurement filter centre frequency, f_offset	Maximum level	Measurement bandwidth
2.5 ≤ ∆f < 2.7 MHz	2.515MHz ≤ f_offset < 2.715MHz	P - 53 dB m	30 kHz
$2.7 \le \Delta f < 3.5 \text{ MHz}$	$2.715MHz \le f_{offset} < 3.515MHz$	P - 53 <u>dB</u> - 15 (f_offset - 2.715) dB m	30 kHz
(see note)	3.515MHz ≤ f_offset < 4.0MHz	P - 65 dB m	30 kHz
3.5 ≤ ∆f < 7.5 MHz	$4.0MHz \le f_offset < 8.0MHz$	P - 52 dB m	1 MHz
7.5 ≤ ∆f MHz	$8.0MHz \leq f_offset < f_offset_max$	P - 56 dB m	1 MHz

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

Frequency offset of measurement filter -3dB point, ∆f	Frequency offset of measurement filter centre frequency, f_offset	Maximum level	Measurement bandwidth
2.5 ≤ ∆f < 2.7 MHz	2.515MHz ≤ f_offset < 2.715MHz	-22 dBm	30 kHz
2.7 ≤ ∆f < 3.5 MHz	$2.715MHz \le f_{offset} < 3.515MHz$	-22 <u>dBm</u> - 15 (f_offset - 2.715) dB m	30 kHz
(see note)	$3.515MHz \leq f_offset < 4.0MHz$	-34 dBm	30 kHz
3.5 ≤ ∆f < 7.5 MHz	$4.0MHz \le f_offset < 8.0MHz$	-21 dBm	1 MHz
7.5 ≤ ∆f MHz	8.0MHz \leq f_offset < f_offset _{max}	-25 dBm	1 MHz

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

6.6.2.2 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 average power is measured with a filter that has Root Raised Cosine (RRC) filter response with roll-off $\alpha = 0.22$ and a bandwidth equal to the chip rate.

6.6.2.2.1 Minimum requirement

1

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

Table 6.7: BS ACLR

BS adjacent channel offset below the first or above the last carrier frequency used	ACLR limit
5 MHz	45 dB
10 MHz	50 dB

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East Brunswick, NJ, USA 12th - 16th November 2001

		CR-Form-v4
ж	25.104 CR 93 * ev - * Current version: 5.0.0	ж
For <u>HELI</u>	n using this form, see bottom of this page or look at the pop-up text over the st sym	nbols.
Proposed ch	e affects: 第 (U)SIM ME/UE Radio Access Network X Core Net	twork
Title:	# Correction to units in Spectrum emission mask	
Source:	೫ RAN WG4	
Work item co	ដ ាក្រាស់	
Category:	A Release: % Rel-5 Use one of the following categories: Use one of the following release 2 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 5)	ases:
	ge: 第 The formula for calculating the power results in a negative answer	

Summary of change: #	The correct units are used					
Consequences if # not approved:	The requirement is incorrectly specified leading to potential problems with Spectrum Emission Mask performance and subsequent harm to the network.					
	Isolated impact statement: Correction to a function where the specification was containing some contradictions. Would not affect implementations behaving like indicated in the CR.					
Clauses affected: 🕺	6.6.2					
Other specs ೫	Other core specifications #					
affected:	Test specifications 25.141					

How to create CRs using this form:

Other comments:

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

O&M Specifications

- 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 <u>ftp://ftp.3gpp.org/specs/</u>. For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

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

6.6.2 Out of band emission

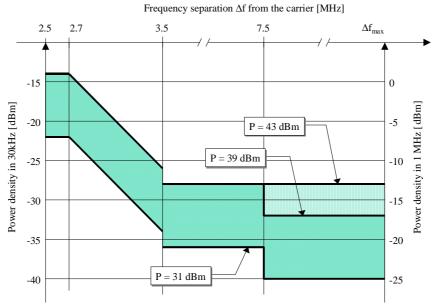
Out of band emissions are unwanted emissions immediately outside the channel bandwidth resulting from the modulation process and non-linearity in the transmitter but excluding spurious emissions. This out of band emission requirement is specified both in terms of a spectrum emission mask and adjacent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

6.6.2.1 Spectrum emission mask

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 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 centre 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 measuring filter.



Illustrative diagram of spectrum emission mask

Figure 6.2: Spectrum emission mask

Table 6.3: Spectrum emission mask values, E	BS maximum output power P ≥ 43 dBm
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Frequency offset of measurement filter -3dB point, ∆f	Frequency offset of measurement filter centre frequency, f_offset	Maximum level	Measurement bandwidth
2.5 ≤ ∆f < 2.7 MHz	2.515MHz ≤ f_offset < 2.715MHz	-14 dBm	30 kHz
2.7 ≤ ∆f < 3.5 MHz	2.715MHz ≤ f_offset < 3.515MHz	-14 dBm - 15 (f_offset-	30 kHz
		2.715) dB m	
(see note)	$3.515MHz \leq f_offset < 4.0MHz$	-26 dBm	30 kHz
$3.5 \le \Delta f MHz$	$4.0MHz \le f_offset < f_offset_{max}$	-13 dBm	1 MHz

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

Frequency offset of measurement filter -3dB point, ∆f	Frequency offset of measurement filter centre frequency, f_offset	Maximum level	Measurement bandwidth
2.5 ≤ ∆f < 2.7 MHz	2.515MHz ≤ f_offset < 2.715MHz	-14 dBm	30 kHz
2.7 ≤ ∆f < 3.5 MHz	$2.715MHz \le f_{offset} < 3.515MHz$	-14 <u>dBm</u> - 15 (f_offset - 2.715) dB m	30 kHz
V (see note)	$3.515MHz \le f_offset < 4.0MHz$	-26 dBm	30 kHz
3.5 ≤ ∆f < 7.5 MHz	4.0MHz ≤ f_offset < 8.0MHz	-13 dBm	1 MHz
7.5 ≤ ∆f MHz	$8.0MHz \leq f_offset < f_offset_max$	P - 56 dB m	1 MHz

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

Frequency offset of measurement filter -3dB point,∆f	Frequency offset of measurement filter centre frequency, f_offset	Maximum level	Measurement bandwidth
2.5 ≤ ∆f < 2.7 MHz	2.515MHz ≤ f_offset < 2.715MHz	P - 53 dB m	30 kHz
$2.7 \le \Delta f < 3.5 \text{ MHz}$	$2.715MHz \le f_{offset} < 3.515MHz$	P - 53 <u>dB</u> - 15 (f_offset - 2.715) dB m	30 kHz
(see note)	3.515MHz ≤ f_offset < 4.0MHz	P - 65 dB m	30 kHz
3.5 ≤ ∆f < 7.5 MHz	$4.0MHz \le f_offset < 8.0MHz$	P - 52 dB m	1 MHz
7.5 ≤ ∆f MHz	$8.0MHz \leq f_offset < f_offset_max$	P - 56 dB m	1 MHz

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

Frequency offset of measurement filter -3dB point, ∆f	Frequency offset of measurement filter centre frequency, f_offset	Maximum level	Measurement bandwidth
2.5 ≤ ∆f < 2.7 MHz	2.515MHz ≤ f_offset < 2.715MHz	-22 dBm	30 kHz
2.7 ≤ ∆f < 3.5 MHz	$2.715MHz \le f_{offset} < 3.515MHz$	-22 <u>dBm</u> - 15 (f_offset - 2.715) dB m	30 kHz
(see note)	$3.515MHz \leq f_offset < 4.0MHz$	-34 dBm	30 kHz
3.5 ≤ ∆f < 7.5 MHz	$4.0MHz \le f_offset < 8.0MHz$	-21 dBm	1 MHz
7.5 ≤ ∆f MHz	8.0MHz \leq f_offset < f_offset _{max}	-25 dBm	1 MHz

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

6.6.2.2 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 average power is measured with a filter that has Root Raised Cosine (RRC) filter response with roll-off $\alpha = 0.22$ and a bandwidth equal to the chip rate.

6.6.2.2.1 Minimum requirement

1

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

Table 6.7: BS ACLR

BS adjacent channel offset below the first or above the last carrier frequency used	ACLR limit
5 MHz	45 dB
10 MHz	50 dB

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East Brunswick, NJ, USA 12th - 16th November 2001

O&M Specifications

Other comments:

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Summary of chang	уе: Ж	Referenc	e added.						
			mpact Ana not change	-			ection of an	n informative	reference
Consequences if not approved:	ж	No inform	nation avail	able where	e site-	enginee	ring solution	is can be for	und.
Clauses affected:	ж	2, 4.3, 7,	4.2, 7.5.3						
Other specs affected:	ж		core specifi pecification		ж				

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

7

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.
- [1] ITU-R Recommendation SM.329-8, "Spurious emissions".
- [2] (void)
- [3] ETSI ETR 273-1-2: "Electromagnetic compatibility and Radio spectrum Matters (ERM); Improvement of radiated methods of measurement (using test sites) and evaluation of the corresponding measurement uncertainties; Part 1: Uncertainties in the measurement of mobile radio equipment characteristics; Sub-part 2: Examples and annexes".
- [4] 3GPP TR 25.942 "RF System Scenarios"

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.

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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	Coexistence 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.
<u>7.4.2</u>	Adjacent Channel Selectivity Co- location with UTRA-TDD	This requirement may be applied for the protection of UTRA-FDD BS receivers when UTRA-FDD BS and UTRA-TDD 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.

Table 4.1: List of regional requirements.

7.5.3 Blocking cha location with	racteristics Co- UTRA TDD	This requirement may be applied for the protection of UTRA FDD BS receivers when UTRA FDD BS and UTRA TDD BS are co-located.
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7.4 Adjacent Channel Selectivity (ACS)

Adjacent channel selectivity (ACS) is a measure of the receiver ability to receive a wanted signal at is assigned channel frequency in the presence of an adjacent channel signal at a given frequency offset from the center frequency of the assigned channel. ACS is the ratio of the receiver filter attenuation on the assigned channel frequency to the receive filter attenuation on the adjacent channel(s).

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7.4.1 Minimum requirement

The BER shall not exceed 0.001 for the parameters specified in Table 7.3.

Table 7.3 : Adjacent channel selectivity

Parameter	Level	Unit
Data rate	12.2	kbps
Wanted signal	-115	dBm
Interfering signal	-52	dBm
Fuw (Modulated)	5	MHz

7.4.2 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 30dB BS-BS minimum coupling loss.

Further information and analysis for this scenario can be found in TR 25.942 [4].

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.

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However, there are certain site-engineering solutions that can be used. These techniques are addressed in TR [TBD]25.942 [4].

R4-011621

East Brunswick, NJ, USA 12th - 16th November 2001

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CHANGE REQUEST						
ж	25.104 CR 95 * ev - * Current version: 5.0.0 *					
For <u>HELP</u> on L	sing this form, see bottom of this page or look at the pop-up text over the $#$ symbol	ols.				
Proposed change	affects: 第 (U)SIM ME/UE Radio Access Network X Core Netwo	ork				
Title: #	Co-location with UTRA-TDD					
Source: #	RAN WG4					
Work item code: भ	Date: 第 <mark>2001-11-1</mark> 5					
Category: ¥	A Release: % Rel-5 Use one of the following categories: Use one of the following release 2 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-5 (Release 5)	»S:				
Reason for change	Certain site-engineering solutions are adressed in TR 25.942. The reference 25.104 to 25.942 is missing.	e in				
Summary of chang	Reference added.					
Consequences if not approved:	No information available where site-engineering solutions can be found.					
Clauses affected:	¥ 2, 4.3, 7,4.2, 7.5.3					
Other specs affected:	 % 2, 4.3, 7, 4.2, 7.3.3 % Other core specifications % Test specifications > 0&M Specifications 					

Other comments: %

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

7

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.
- [1] ITU-R Recommendation SM.329-8, "Spurious emissions".
- [2] (void)
- [3] ETSI ETR 273-1-2: "Electromagnetic compatibility and Radio spectrum Matters (ERM); Improvement of radiated methods of measurement (using test sites) and evaluation of the corresponding measurement uncertainties; Part 1: Uncertainties in the measurement of mobile radio equipment characteristics; Sub-part 2: Examples and annexes".
- [4] 3GPP TR 25.942 "RF System Scenarios"

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.

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	Coexistence 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.				
<u>7.4.2</u>	Adjacent Channel Selectivity Co- location with UTRA-TDD	This requirement may be applied for the protection of UTRA-FDD BS receivers when UTRA-FDD BS and UTRA-TDD 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.				

Table 4.1: List of regional requirements.

7.5.3	Blocking characteristics Co- location with UTRA TDD	This requirement may be applied for the protection of UTRA FDD BS receivers when UTRA FDD BS and UTRA TDD BS are co-located.
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7.4 Adjacent Channel Selectivity (ACS)

Adjacent channel selectivity (ACS) is a measure of the receiver ability to receive a wanted signal at is assigned channel frequency in the presence of an adjacent channel signal at a given frequency offset from the center frequency of the assigned channel. ACS is the ratio of the receiver filter attenuation on the assigned channel frequency to the receive filter attenuation on the adjacent channel(s).

23

7.4.1 Minimum requirement

The BER shall not exceed 0.001 for the parameters specified in Table 7.3.

Table 7.3 : Adjacent channel selectivity

Parameter	Level	Unit
Data rate	12.2	kbps
Wanted signal	-115	dBm
Interfering signal	-52	dBm
Fuw (Modulated)	5	MHz

7.4.2 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 30dB BS-BS minimum coupling loss.

Further information and analysis for this scenario can be found in TR 25.942 [4].

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]25.942 [4].

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R4-011620

East Brunswick, NJ, USA 12th - 16th November 2001

O&M Specifications

Other comments:

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Title: %	Co-	locatior	n with UTRA-	TDD					
Source: ೫	RA	N WG4							
Work item code: ^{भ्र}							Date: #	2001-11-15 ²	
Category: X A 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 REL-4 (Release 4) be found in 3GPP TR 21.900. REL-5 (Release 5)						?) }) ?)			
Reason for change	e: #		in site-engine 4 to 25.942 is		ons ai	re adress	sed in TR 25	.942. The refe	rence in
Summary of chang	је: Ж	Refere	ence added.						
	Isolated Impact Analysis: Modification is correction of an informative referen and does not change any requirement.						ference		
Consequences if not approved:	Ħ	No inf	ormation avai	ilable where	e site-	enginee	ring solutions	s can be found	
Clauses affected:	ж	2, 4.3	, 7,4.2, 7.5.3						
Other specs affected:	ж		ner core speci st specification		ж				

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

7

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.
- [1] ITU-R Recommendation SM.329-8, "Spurious emissions".
- [2] (void)
- [3] ETSI ETR 273-1-2: "Electromagnetic compatibility and Radio spectrum Matters (ERM); Improvement of radiated methods of measurement (using test sites) and evaluation of the corresponding measurement uncertainties; Part 1: Uncertainties in the measurement of mobile radio equipment characteristics; Sub-part 2: Examples and annexes".
- [4] 3GPP TR 25.942 "RF System Scenarios"

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.

Clause number	Requirement	Comments	
5.2 5.3	Frequency bands Tx-Rx Frequency Separation	Some bands may be applied regionally. The requirement is applied according to what frequency bands in Clause 5.2 that are supported	
6.2.1	Base station maximum output power	by the BS. In certain regions, the minimum requirement for normal conditions may apply also for some conditions outside the range of conditions defined	
6.6.2.1	Spectrum emission mask	as normal. The mask specified may be mandatory in certain regions. In other regions this mask may not be	
6.6.2.3	Protection outside a licensee's frequency block	applied. 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 bot 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	Coexistence 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.	
<u>7.4.2</u>	Adjacent Channel Selectivity Co- location with UTRA-TDD	This requirement may be applied for the protection of UTRA-FDD BS receivers when UTRA-FDD BS and UTRA-TDD 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.	

Table 4.1: List of regional requirements.

		This requirement may be applied for the protection of UTRA FDD BS receivers when UTRA FDD BS and UTRA TDD BS are co-located.
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7.4 Adjacent Channel Selectivity (ACS)

Adjacent channel selectivity (ACS) is a measure of the receiver ability to receive a wanted signal at is assigned channel frequency in the presence of an adjacent channel signal at a given frequency offset from the center frequency of the assigned channel. ACS is the ratio of the receiver filter attenuation on the assigned channel frequency to the receive filter attenuation on the adjacent channel(s).

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7.4.1 Minimum requirement

The BER shall not exceed 0.001 for the parameters specified in Table 7.3.

Table 7.3 : Adjacent channel selectivity

Parameter	Level	Unit
Data rate	12.2	kbps
Wanted signal	-115	dBm
Interfering signal	-52	dBm
Fuw (Modulated)	5	MHz

7.4.2 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 30dB BS-BS minimum coupling loss.

Further information and analysis for this scenario can be found in TR 25.942 [4].

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]25.942 [4].

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3GPP TSG RAN WG4 Meeting #20

R4-011595

East Brunswick, NJ, USA 12th - 16th November 2001

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CHANGE REQUEST					
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Source: 🖁	NWG4				
Work item code: भ		<i>Date:</i> ೫ <mark>2001-11-15</mark>			
Category: ३		lease: #Rel99Ise one of the following releases:2(GSM Phase 2)R96R97(Release 1996)R97R98(Release 1997)R98R99(Release 1999)REL-4(Release 4)REL-5(Release 5)			
Basson for shane	During the LIMTC1000/1000 Will for release 5 it h	as been identified issues that			
Reason for chang	Reason for change: # During the UMTS1900/1800 WI for release 5 it has been identified issues that need to be corrected also in earlier releases to avoid discontinuities between different releases (Between Rel-5 and R99/Rel-4). These topics have been identified: FCC emission mask clarification and channel raster corrections for band b.				
Summary of chan	1. Channel raster				
	12 new carriers have been added to support FCC MHz deployment. Mapping table of UARFCN tabl 2. FCC mask correction				
	Mask includes also an absolute emission limit –13 measurement BW.	3 dBm adjusted with different			
	Isolated Impact Analysis: Correction of a requirem implementations behaving like indicated in the CF that do not behave like indicated in the CR.				
Consequences if not approved:	Channel raster description and Spectrum mask v Release independent UMTS1900 requirements i				
Clauses affected:	5.4.3, 6.6.2.1				
Other specs affected:	Other core specifications # X Test specifications O&M Specifications TS 25.141				
Other comments:					

5.4.3 Channel number

The carrier frequency is designated by the UTRA Absolute Radio Frequency Channel Number (UARFCN). The value of the UARFCN in the IMT2000 band is defined as follows:

Table 5.1: UTRA Absolute Radio Frequency Channel Number

Uplink	$N_u = 5 * F_{uplink}$	0.0 MHz \leq F _{uplink} \leq 3276.6 MHz where F _{uplink} is the uplink frequency in MHz
Downlink	$N_d = 5 * F_{downlink}$	$0.0~MHz \leq ~F_{downlink}~\leq 3276.6~MHz$ where $F_{downlink}$ is the downlink frequency in MHz

Table 5.1b: UARFCN definition (Band b, region 2, Additional Channels)			
$\frac{\text{Uplink}}{1850} = \frac{N_u = 5 * ((F_{uplink} - 100 \text{ khz}) - 100 \text{ khz})}{1850}$		<u>1852.5, 1857.5, 1862.5, 1867.5, 1872.5, 1877.5,</u> <u>1882.5, 1887.5, 1892.5, 1897.5, 1902.5, 1907.5</u>	
<u>Downlink</u>	<u>N_d = 5 * ((F_{downlink} – 100khz) –</u> 1850)	<u>1932.5, 1937.5, 1942.5, 1947.5, 1952.5, 1957.5,</u> <u>1962.5, 1967.5, 1972.5, 1977.5, 1982.5, 1987.5</u>	

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 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 centre 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 measuring filter.

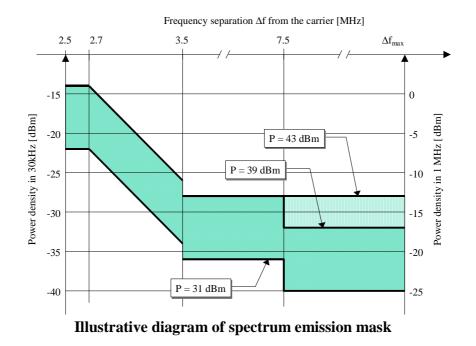


Table 6.3: Spectrum emission mask values, BS maximum output power P \ge 43 dBm
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	Frequency offset of measurement filter -3dB point, ∆f	Frequency offset of measurement filter centre frequency, f_offset	Minimum requirement Maximum level	<u>Additional</u> <u>Minimum</u> <u>Requirement</u> for Band b	Measurement bandwidth
	$2.5 \le \Delta f < 2.7 \text{ MHz}$	2.515MHz ≤ f_offset < 2.715MHz	-14 dBm	<u>-15 dBm</u>	30 kHz
	$2.7 \le \Delta f < 3.5 \text{ MHz}$	2.715MHz ≤ f_offset < 3.515MHz	- 14 - 15 (f_offset- 2.715) dBm	<u>-15 dBm</u>	30 kHz
	(see note)	3.515MHz ≤ f_offset < 4.0MHz	-26 dBm	<u>NA</u>	30 kHz
[$3.5 \le \Delta f MHz$	$4.0MHz \leq f_offset < f_offset_max$	-13 dBm	<u>NA</u>	1 MHz

Frequency offset of measurement filter -3dB point, ∆f	Frequency offset of measurement filter centre frequency, f_offset	Minimum requirement Maximum level	<u>Additional</u> <u>Minimum</u> <u>Requirement</u> <u>for Band b</u>	Measurement bandwidth
2.5 ≤ ∆f < 2.7 MHz	2.515MHz ≤ f_offset < 2.715MHz	-14 dBm	<u>-15 dBm</u>	30 kHz
2.7 ≤ ∆f < 3.5 MHz	2.715MHz ≤ f_offset < 3.515MHz	-14 - 15 (f_offset - 2.715) dBm	<u>-15 dBm</u>	30 kHz
(see note)	3.515MHz ≤ f_offset < 4.0MHz	-26 dBm	<u>NA</u>	30 kHz
3.5 ≤ ∆f < 7.5 MHz	4.0MHz ≤ f_offset < 8.0MHz	-13 dBm	<u>NA</u>	1 MHz
7.5 ≤ ∆f MHz	$8.0MHz \le f_offset < f_offset_max$	P - 56 dBm	<u>NA</u>	1 MHz

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

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

Frequency offset of measurement filter -3dB point,∆f	Frequency offset of measurement filter centre frequency, f_offset	<u>Minimum requirement</u> Maximum level	Additional Minimum Requirement for Band b	Measurement bandwidth
2.5 ≤ ∆f < 2.7 MHz	2.515MHz ≤ f_offset < 2.715MHz	P - 53 dBm	<u>-15 dBm</u>	30 kHz
$2.7 \le \Delta f < 3.5 \text{ MHz}$	2.715MHz ≤ f_offset < 3.515MHz	P - 53 - 15 (f_offset - 2.715) dBm	<u>-15 dBm</u>	30 kHz
(see note)	3.515MHz ≤ f_offset < 4.0MHz	P - 65 dBm	<u>NA</u>	30 kHz
3.5 ≤ ∆f < 7.5 MHz	$4.0MHz \leq f_offset < 8.0MHz$	P - 52 dBm	<u>NA</u>	1 MHz
7.5 ≤ ∆f MHz	$8.0MHz \le f_offset < f_offset_max$	P - 56 dBm	<u>NA</u>	1 MHz

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

ſ	Frequency offset of measurement filter -3dB point, ∆f	Frequency offset of measurement filter centre frequency, f_offset	<u>Minimum requirement</u> Maximum level	Measurement bandwidth
	$2.5 \le \Delta f < 2.7 \text{ MHz}$	2.515MHz ≤ f_offset < 2.715MHz	-22 dBm	30 kHz
	$2.7 \le \Delta f < 3.5 \text{ MHz}$	$2.715MHz \le f_offset < 3.515MHz$	-22 - 15 (f_offset - 2.715)	30 kHz
			dBm	
	(see note)	3.515MHz ≤ f_offset < 4.0MHz	-34 dBm	30 kHz
	$3.5 \le \Delta f < 7.5 \text{ MHz}$	$4.0MHz \leq f_offset < 8.0MHz$	-21 dBm	1 MHz
	7.5 ≤ ∆f MHz	$8.0MHz \le f_offset < f_offset_max$	-25 dBm	1 MHz

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

3GPP TSG RAN WG4 Meeting #20

R4-011649

East Brunswick, NJ, USA 12th - 16th November 2001

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Table 5.1b: UARFCN definition (Band b, region 2, Additional Channels)					
<u>Uplink</u>	<u>Nu = 5 * ((F_{uplink} – 100khz) –</u> 1850)	<u>1852.5, 1857.5, 1862.5, 1867.5, 1872.5, 1877.5,</u> <u>1882.5, 1887.5, 1892.5, 1897.5, 1902.5, 1907.5</u>			
<u>Downlink</u>	<u>N_d = 5 * ((F_{downlink} – 100khz) –</u> <u>1850)</u>	<u>1932.5, 1937.5, 1942.5, 1947.5, 1952.5, 1957.5,</u> <u>1962.5, 1967.5, 1972.5, 1977.5, 1982.5, 1987.5</u>			

10

6.6.2.1 Spectrum emission mask

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- 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_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 measuring filter.

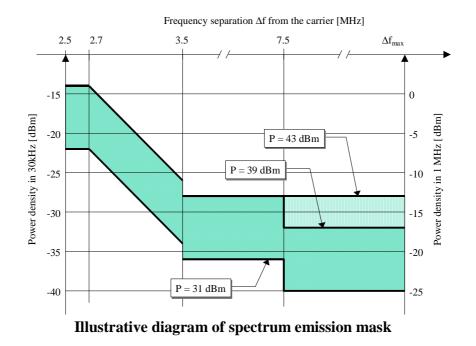


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	Frequency offset of measurement filter -3dB point, ∆f	Frequency offset of measurement filter centre frequency, f_offset	Minimum requirement Maximum level	<u>Additional</u> <u>Minimum</u> <u>Requirement</u> <u>for Band b</u>	Measurement bandwidth
	$2.5 \le \Delta f < 2.7 \text{ MHz}$	2.515MHz ≤ f_offset < 2.715MHz	-14 dBm	<u>-15 dBm</u>	30 kHz
	$2.7 \le \Delta f < 3.5 \text{ MHz}$	2.715MHz ≤ f_offset < 3.515MHz	- 14 - 15 (f_offset- 2.715) dBm	<u>-15 dBm</u>	30 kHz
I	(see note)	3.515MHz ≤ f_offset < 4.0MHz	-26 dBm	<u>NA</u>	30 kHz
I	3.5 ≤ ∆f MHz	$4.0MHz \leq f_offset < f_offset_max$	-13 dBm	<u>NA</u>	1 MHz

Frequency offset of measurement filter -3dB point, ∆f	Frequency offset of measurement filter centre frequency, f_offset	<u>Minimum requirement</u> Maximum level	Additional Minimum Requirement for Band b	Measurement bandwidth
2.5 ≤ ∆f < 2.7 MHz	2.515MHz ≤ f_offset < 2.715MHz	-14 dBm	<u>-15 dBm</u>	30 kHz
2.7 ≤ ∆f < 3.5 MHz	2.715MHz ≤ f_offset < 3.515MHz	-14 - 15 (f_offset - 2.715) dBm	<u>-15 dBm</u>	30 kHz
(see note)	3.515MHz ≤ f_offset < 4.0MHz	-26 dBm	<u>NA</u>	30 kHz
3.5 ≤ ∆f < 7.5 MHz	4.0MHz ≤ f_offset < 8.0MHz	-13 dBm	<u>NA</u>	1 MHz
7.5 ≤ ∆f MHz	$8.0MHz \le f_offset < f_offset_max$	P - 56 dBm	<u>NA</u>	1 MHz

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

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

Frequency offset of measurement filter -3dB point,∆f	Frequency offset of measurement filter centre frequency, f_offset	<u>Minimum requirement</u> Maximum level	<u>Additional</u> <u>Minimum</u> <u>Requirement</u> <u>for Band b</u>	Measurement bandwidth
$2.5 \le \Delta f < 2.7 \text{ MHz}$	2.515MHz ≤ f_offset < 2.715MHz	P - 53 dBm	<u>-15 dBm</u>	30 kHz
$2.7 \le \Delta f < 3.5 \text{ MHz}$	2.715MHz ≤ f_offset < 3.515MHz	P - 53 - 15 (f_offset - 2.715) dBm	<u>-1 5dBm</u>	30 kHz
(see note)	3.515MHz ≤ f_offset < 4.0MHz	P - 65 dBm	<u>NA</u>	30 kHz
3.5 ≤ ∆f < 7.5 MHz	$4.0MHz \leq f_offset < 8.0MHz$	P - 52 dBm	<u>NA</u>	1 MHz
7.5 ≤ ∆f MHz	$8.0MHz \le f_offset < f_offset_max$	P - 56 dBm	<u>NA</u>	1 MHz

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

Frequency offset of measurement filter -3dB point, ∆f	Frequency offset of measurement filter centre frequency, f_offset	<u>Minimum requirement</u> Maximum level	Measurement bandwidth
2.5 ≤ ∆f < 2.7 MHz	2.515MHz ≤ f_offset < 2.715MHz	-22 dBm	30 kHz
2.7 ≤ ∆f < 3.5 MHz	2.715MHz ≤ f_offset < 3.515MHz	-22 - 15 (f_offset - 2.715)	30 kHz
		dBm	
(see note)	3.515MHz ≤ f_offset < 4.0MHz	-34 dBm	30 kHz
3.5 ≤ ∆f < 7.5 MHz	$4.0MHz \le f_offset < 8.0MHz$	-21 dBm	1 MHz
7.5 ≤ ∆f MHz	$8.0MHz \leq f_offset < f_offset_{max}$	-25 dBm	1 MHz

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