TSG-RAN Meeting #12   *RP-010349*
Stockholm, Sweden, 12 - 15 June 2001

Title: **Agreed CRs (Release '99 and Rel-4 category A) to TS 25.104**

Source: **TSG-RAN WG4**

Agenda item: 8.4.3

WG4 doc	Status WG4	Spec	CR	Phase	Title	Cat	V old	V new
R4-010577	agreed	25.104	64	R99	Receiver blocking characteristics	F	3.6.0	3.7.0
R4-010673	agreed	25.104	65	Rel-4	Receiver Blocking characteristics	A	4.0.0	4.1.0
R4-010579	agreed	25.104	66	R99	Receiver spurious emission for co-located base stations	F	3.6.0	3.7.0
R4-010674	agreed	25.104	67	Rel-4	Receiver spurious emission for co-located base stations	A	4.0.0	4.1.0
R4-010679	agreed	25.104	68	R99	Definition of Eb/No used for uplink receiver performance requirements in TS 25.104	F	3.6.0	3.7.0
R4-010736	agreed	25.104	69	Rel-4	Definition of Eb/No used for uplink receiver performance requirements in TS 25.104	A	4.0.0	4.1.0
R4-010759	agreed	25.104	70	R99	ACLR definition	F	3.6.0	3.7.0
R4-010765	agreed	25.104	71	Rel-4	ACLR definition	A	4.0.0	4.1.0
R4-010809	agreed	25.104	73	R99	CR for UMTS1900 operation in Rel 99	F	3.6.0	3.7.0
R4-010810	agreed	25.104	74	Rel-4	CR for UMTS1900 operation in Rel 4	A	4.0.0	4.1.0

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CHANGE REQUEST

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

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

Title: ⌘	Application of blocking requirement	
Source: ⌘	RAN WG4	
Work item code: ⌘	TEI	***Date:*** ⌘ 2001-03-28
Category: ⌘ **F**		***Release:*** ⌘ R99

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

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

Reason for change: ⌘	It is not clear in the spec which part of the blocking requirement that is mandatory and which one is an optional (regional) requirement. The co-location requirement with GSM900 is also corrected to include the R-GSM band.
Summary of change: ⌘	The general part of the blocking requirement is made mandatory ("shall") while the introduction of the section is neutral. GSM900 co-location requirement starts at 921 MHz.
Consequences if not approved: ⌘	The specification may be incorrectly applied and co-location with R-GSM would not be provided for.

Clauses affected: ⌘	7.5

Other specs affected: ⌘	☐ Other core specifications ⌘	
	X Test specifications	TS 25.141, CR attached
	☐ O&M Specifications	

Other comments: ⌘	

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 ~~shall apply at all frequencies~~ 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 ~~should~~ 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
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 - 925 MHz and 960 - 1900 MHz, and 2000 MHz - 12750 MHz	-15 dBm	-115 dBm	—	CW carrier
9215 -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
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 - 1805 MHz and 1880 - 1900 MHz, and 2000 MHz - 12750 MHz	-15 dBm	-115 dBm	—	CW carrier
1805 – 1880 MHz	+16 dBm	-115 dBm		—	CW carrier

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CHANGE REQUEST

| ⌘ | **25.104** CR **65** | ⌘ rev **-** ⌘ | Current version: | **4.0.0** | ⌘ |

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

Title: ⌘	Application of blocking requirement	
Source: ⌘	RAN WG4	
Work item code: ⌘	TEI	***Date:*** ⌘ 2001-05-22
Category: ⌘ **A**		***Release:*** ⌘ REL-4

Use one of the following categories:	*Use one of the following releases:*
F (essential correction)	*2 (GSM Phase 2)*
A (corresponds to a correction in an earlier release)	*R96 (Release 1996)*
B (Addition of feature),	*R97 (Release 1997)*
C (Functional modification of feature)	*R98 (Release 1998)*
D (Editorial modification)	*R99 (Release 1999)*
Detailed explanations of the above categories can	*REL-4 (Release 4)*
be found in 3GPP TR 21.900.	*REL-5 (Release 5)*

Reason for change: ⌘	It is not clear in the spec which part of the blocking requirement that is mandatory and which one is an optional (regional) requirement. The co-location requirement with GSM900 is also corrected to include the R-GSM band.
Summary of change: ⌘	The general part of the blocking requirement is made mandatory ("shall") while the introduction of the section is neutral. GSM900 co-location requirement starts at 921 MHz.
Consequences if not approved: ⌘	The specification may be incorrectly applied and co-location with R-GSM would not be provided for.

Clauses affected: ⌘	7.5

Other specs affected: ⌘	☐ Other core specifications ⌘		
	X Test specifications	TS 25.141, CR attached	
	☐ O&M Specifications		

Other comments: ⌘	The corresponding R99 CR is in Tdoc R4-010577

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 ~~shall apply at all frequencies~~ 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 ~~should~~ 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
~~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 — 925 MHz~~ ~~and~~ ~~960 - 1900 MHz,~~ ~~and~~ ~~2000 MHz - 12750 MHz~~	~~-15 dBm~~	~~-115 dBm~~	~~—~~	~~CW carrier~~
921~~5~~ -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
~~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 — 1805 MHz~~ ~~and~~ ~~1880 - 1900 MHz,~~ ~~and~~ ~~2000 MHz – 12750 MHz~~	~~-15 dBm~~	~~-115 dBm~~	~~—~~	~~CW carrier~~
1805 – 1880 MHz	+16 dBm	-115 dBm	—	CW carrier

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CHANGE REQUEST

| ⌘ | **25.104** CR **66** | ⌘ | rev | **-** | ⌘ | Current version: | **3.6.0** | ⌘ |

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

Title:	⌘	Receiver spurious emission for co-located base stations
Source:	⌘	RAN WG4
Work item code: ⌘		TEI	***Date:*** ⌘ 2001-04-25
Category:	⌘ **F**		***Release:*** ⌘ R99

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

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

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

Clauses affected:	⌘	7.7.1

Other specs affected:	⌘	☐ Other core specifications ⌘	
		X Test specifications	3GPP TS 25.141 v3.5.0 (2001-03)
		☐ O&M Specifications	

Other comments:	⌘	

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2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://www.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2000-09 contains the specifications resulting from the September 2000 TSG meetings.

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

7.7 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 - 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.

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CHANGE REQUEST

| ⌘ | **25.104** CR **67** | ⌘ rev | **-** | ⌘ | Current version: | **4.0.0** | ⌘ |

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

Title: ⌘	Receiver spurious emission for co-located base stations	
Source: ⌘	RAN WG4	
Work item code: ⌘	TEI	***Date:*** ⌘ 2001-04-25
Category: ⌘	**A**	***Release:*** ⌘ REL-4

Use <u>one</u> of the following categories:
F *(essential correction)*
A *(corresponds to a correction in an earlier release)*
B *(Addition of feature),*
C *(Functional modification of feature)*
D *(Editorial modification)*
Detailed explanations of the above categories can
be found in 3GPP TR 21.900.

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

Clauses affected: ⌘	7.7.1	
Other specs affected: ⌘	☐ Other core specifications ⌘ **X** Test specifications ☐ O&M Specifications	 3GPP TS 25.141 V4.0.0 (2001-03)
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.

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 - 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.

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CHANGE REQUEST

| ⌘ | **25.104** CR **68** | ⌘ ev | **-** | ⌘ Current version: | **3.6.0** | ⌘ |

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

Title: ⌘	Include definition of Eb/No in receiver performance requirements	
Source: ⌘	RAN WG4	
Work item code: ⌘	TEI	*Date:* ⌘ 17/05/01
Category: ⌘	**F** F	*Release:* ⌘ R99

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

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

Reason for change: ⌘	There is no clear definition of the Eb/No used in the receiver demodulation performance requirements.
Summary of change: ⌘	The definition which is within the technical contributions to RAN4 and the reports of meetings is explicitly entered into the specifications.
Consequences if not approved: ⌘	Critical performance requirements can be misinterpreted since this particular definition of Eb/No is only used in the FDD BS specifications and it is different to the usage of this term in other radio standards.

Clauses affected: ⌘	8.1 General
Other specs affected: ⌘	☐ Other core specifications ⌘
	☐ Test specifications
	☐ O&M Specifications
Other comments: ⌘	

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

8 Performance requirement

8.1 General

Performance requirements for the BS are specified for the measurement channels defined in Annex A and the propagation conditions in Annex B. The requirements only apply to those measurement channels that are supported by the base station.

The requirements only apply to a base station with dual receiver antenna diversity. The required E_b/N_0 shall be applied separately at each antenna port.

The Eb/No used in this section is defined as:

$$E_b / N_o = \frac{E_c}{N_o} \cdot \frac{L_{chip}}{L_{inf}}$$

Where:

E_c is the received total energy of DPDCH and DPCCH per PN chip per antenna from all paths.

N_o is the total one-sided noise power spectral density due to all noise sources

L_{chip} is the number of chips per frame

L_{inf} is the number of information bits in DTCH excluding CRC bits per frame

Table 8.1: Summary of Base Station performance targets

Physical channel	Measurement channel	Static	Multi-path Case 1	Multi-path Case 2	Multi-path Case 3	Moving	Birth / Death
		Performance metric					
DCH	12.2 kbps	BLER<10^{-2}	BLER<10^{-2}	BLER<10^{-2}	BLER<10^{-2}	BLER<	BLER<
	64 kbps	BLER< $10^{-1},10^{-2}$	BLER< $10^{-1}, 10^{-2}$	BLER< $10^{-1},10^{-2}$	BLER< $10^{-1}, 10^{-2},10^{-3}$	BLER<	BLER<
	144 kbps	BLER< $10^{-1},10^{-2}$	BLER< $10^{-1},10^{-2}$	BLER< $10^{-1},10^{-2}$	BLER< $10^{-1}, 10^{-2},10^{-3}$	-	-
	384 kbps	BLER< $10^{-1},10^{-2}$	BLER< $10^{-1},10^{-2}$	BLER< $10^{-1},10^{-2}$	BLER< $10^{-1}, 10^{-2},10^{-3}$	-	-

8.2 Demodulation in static propagation conditions

8.2.1 Demodulation of DCH

The performance requirement of DCH in static propagation conditions is determined by the maximum Block Error Ratio (BLER) allowed when the receiver input signal is at a specified E_b/N_0 limit. The BLER is calculated for each of the measurement channels supported by the base station.

CR-Form-v4

CHANGE REQUEST

| ⌘ | **25.104** CR **69** | ⌘ | ev | **-** | ⌘ | Current version: | **4.0.0** | ⌘ |

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

Title:	⌘	Include definition of Eb/No in receiver performance requirements
Source:	⌘	RAN WG4

Work item code: ⌘	TEI		**Date:** ⌘	24/05/01

Category:	⌘	**A** A	**Release:** ⌘	REL-4

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

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

Reason for change:	⌘	There is no clear definition of the Eb/No used in the receiver demodulation performance requirements.
Summary of change:	⌘	The definition which is within the technical contributions to RAN4 and the reports of meetings is explicitly entered into the specifications.
Consequences if not approved:	⌘	Critical performance requirements can be misinterpreted since this particular definition of Eb/No is only used in the FDD BS specifications and it is different to the usage of this term in other radio standards.

Clauses affected:	⌘	8.1 General

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

Other comments:	⌘	

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

8 Performance requirement

8.1 General

Performance requirements for the BS are specified for the measurement channels defined in Annex A and the propagation conditions in Annex B. The requirements only apply to those measurement channels that are supported by the base station.

The requirements only apply to a base station with dual receiver antenna diversity. The required E_b/N_0 shall be applied separately at each antenna port.

The Eb/No used in this section is defined as:

$$E_b / N_o = \frac{E_c}{N_o} \cdot \frac{L_{chip}}{L_{inf}}$$

Where:

E_c is the received total energy of DPDCH and DPCCH per PN chip per antenna from all paths.

N_o is the total one-sided noise power spectral density due to all noise sources

L_{chip} is the number of chips per frame

L_{inf} is the number of information bits in DTCH excluding CRC bits per frame

Table 8.1: Summary of Base Station performance targets

Physical channel	Measurement channel	Static	Multi-path Case 1	Multi-path Case 2	Multi-path Case 3	Moving	Birth / Death
		Performance metric					
DCH	12.2 kbps	BLER<10^{-2}	BLER<10^{-2}	BLER<10^{-2}	BLER<10^{-2}	BLER<	BLER<
	64 kbps	BLER< 10^{-1},10^{-2}	BLER< 10^{-1}, 10^{-2}	BLER< 10^{-1},10^{-2}	BLER< 10^{-1}, 10^{-2},10^{-3}	BLER<	BLER<
	144 kbps	BLER< 10^{-1},10^{-2}	BLER< 10^{-1},10^{-2}	BLER< 10^{-1},10^{-2}	BLER< 10^{-1}, 10^{-2},10^{-3}	-	-
	384 kbps	BLER< 10^{-1},10^{-2}	BLER< 10^{-1},10^{-2}	BLER< 10^{-1},10^{-2}	BLER< 10^{-1}, 10^{-2},10^{-3}	-	-

8.2 Demodulation in static propagation conditions

8.2.1 Demodulation of DCH

The performance requirement of DCH in static propagation conditions is determined by the maximum Block Error Ratio (BLER) allowed when the receiver input signal is at a specified E_b/N_0 limit. The BLER is calculated for each of the measurement channels supported by the base station.

3GPP TSG RAN WG4 Meeting #17

Gothenburg, Sweden 21st - 25th May 2001

R4-010759

CHANGE REQUEST

| ⌘ | **25.104** CR **70** | ⌘ | ev | **-** | ⌘ | Current version: | **3.6.0** | ⌘ |

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

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

Title: ⌘	Correction of ACLR definition	
Source: ⌘	RAN WG4	
Work item code: ⌘	TEI	***Date:*** ⌘ 2001-05-22
Category: ⌘ **F**		***Release:*** ⌘ R99

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

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

Reason for change: ⌘	The definition of ACLR is ambiguous.
Summary of change: ⌘	Modified definition of ACLR.
Consequences if not approved: ⌘	The ACLR requirement may be incorrectly applied.

Clauses affected: ⌘	6.6.2.2

Other specs affected: ⌘	☐ Other core specifications ⌘	
	X Test specifications	CR for TS 25.141 attached
	☐ O&M Specifications	

Other comments: ⌘	

6.6.2.2 Adjacent Channel Leakage power Ratio (ACLR)

Adjacent Channel Leakage power Ratio (ACLR) is the ratio of the ~~transmitted~~ average power centered on the assigned channel frequency to the average power centered on ~~measured in~~ an adjacent channel frequency. In ~~B~~both cases the ~~transmitted power and the adjacent channel~~average power ~~are~~ is measured ~~through a matched~~with a filter that has ~~(~~Root Raised Cosine (RRC) filter response with ~~and~~ roll-off $\alpha = 0.22$~~) with a noise power~~and a bandwidth equal to the chip rate.

The requirements shall apply for all configurations of BS (single carrier or multiple carrier), and for all operating modes foreseen by the manufacturer's specification.

6.6.2.2.1 Minimum requirement

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

CR-Form-v4

CHANGE REQUEST

⌘   **25.104 CR 71**   ⌘ ev **-** ⌘   Current version: **4.0.0** ⌘

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

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

Title: ⌘	Correction of ACLR definition	
Source: ⌘	RAN WG4	
Work item code: ⌘	TEI	***Date:*** ⌘ 2001-05-24

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		*REL-4*	*(Release 4)*
be found in 3GPP TR 21.900.		*REL-5*	*(Release 5)*

Reason for change: ⌘	The definition of ACLR is ambiguous.	
Summary of change: ⌘	Modified definition of ACLR.	
Consequences if not approved: ⌘	The ACLR requirement may be incorrectly applied.	

Clauses affected: ⌘	6.6.2.2	

Other specs ⌘	☐ Other core specifications	⌘
affected:	**X** Test specifications	CR for TS 25.141 attached
	☐ O&M Specifications	

Other comments: ⌘	Corresponds to the R99 CR in R4-010759.	

6.6.2.2 Adjacent Channel Leakage power Ratio (ACLR)

Adjacent Channel Leakage power Ratio (ACLR) is the ratio of the ~~transmitted~~ average power centered on the assigned channel frequency to the average power centered on ~~measured in~~ an adjacent channel frequency. In ~~B~~both cases the ~~transmitted power and the adjacent channel~~average power ~~are~~ is measured ~~through a matched~~with a filter that has (Root Raised Cosine (RRC) filter response with ~~and~~ roll-off $\alpha = 0.22$~~) with a noise power~~and a bandwidth equal to the chip rate.

The requirements shall apply for all configurations of BS (single carrier or multiple carrier), and for all operating modes foreseen by the manufacturer's specification.

6.6.2.2.1 Minimum requirement

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

3GPP TSG RAN WG4 Meeting #17   **R4-010809**

Gothenburg, Sweden 21st - 25th May 2001

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<tr><td colspan="2" align="center">⌘   25.104 CR 73 ⌘ rev - ⌘ Current version: 3.6.0 ⌘</td></tr>
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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 **X**   Core Network ☐

Title:	⌘	Proposed statement for UMTS1900 Operation for R99 Specification
Source:	⌘	RAN WG4
Work item code: ⌘	TEI	*Date:* ⌘ 2001-05-017
Category:	⌘ **F**	*Release:* ⌘ R99

Use <u>one</u> of the following categories:
F (essential correction)
A (corresponds to a correction in an earlier release)
B (Addition of feature),
C (Functional modification of feature)
D (Editorial modification)
Detailed explanations of the above categories can
be found in 3GPP TR 21.900.

Use <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:	⌘	Current version of R99 specs do not take into account of following factors related to UMTS1900 operation: • Coexistence with other technologies, such as GSM1900, IS-95 and IS-136 • Spectrum availability for different operators • Necessary specification changes due to different TX/RX spacing
Summary of change:	⌘	Add a note reflecting this to R99 specification.
Consequences if not approved:	⌘	UMTS1900 will not be properly functioning when coexistence with the interference from NB system

Clauses affected:	⌘	4.5

Other specs affected:	⌘	☐ Other core specifications ⌘	
		X Test specifications	
		☐ O&M Specifications	

Other comments:	⌘	

4.1 Relationship between Minimum Requirements and Test Requirements

The Minimum Requirements given in this specification make no allowance for measurement uncertainty. The test specification 25.141 section 4 defines Test Tolerances. These Test Tolerances are individually calculated for each test. The Test Tolerances are used to relax the Minimum Requirements in this specification to create Test Requirements.

The measurement results returned by the Test System are compared - without any modification - against the Test Requirements as defined by the shared risk principle.

The Shared Risk principle is defined in ETR 273 Part 1 sub-part 2 section 6.5.

4.2 Base station classes

The requirements in this specification apply to base station intended for general-purpose applications. In the future further classes of base stations may be defined; the requirements for these may be different than for general-purpose applications.

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.

umber	Requirement	Comments
	nds	may be applied regionally.
	ncy Separation	ent is applied according to what frequency bands in Clause 5.2 that are supported by the BS.
	maximum output power	ions, the minimum requirement for normal conditions may apply also for some conditions outside the range of conditions defined as normal.
	ission mask	ecified may be mandatory in certain regions. In other regions this mask may not be applied.
	tside a licensee's frequency block	ent is applicable if protection is required outside a licensee's frequency block.
	ssions (Category A)	ments shall be met in cases where Category A limits for spurious emissions, as defined in ITU-R Recommendation SM.329-8 [1], are applied.
	ssions (Category B)	ments shall be met in cases where Category B limits for spurious emissions, as defined in ITU-R Recommendation SM.329-8 [1], are applied.
	with GSM900 -Operation in the same geographic area	ent may be applied for the protection of GSM 900 MS in geographic areas in which both GSM 900 and UTRA are deployed.
	with GSM900 - Co-located base stations	ent may be applied for the protection of GSM 900 BTS receivers when GSM 900 BTS and UTRA BS are co-located.
	with DCS1800 -Operation in the same geographic area	ent may be applied for the protection of DCS 1800 MS in geographic areas in which both DCS 1800 and UTRA are deployed.
	with DCS1800 - Co-located base stations	ent may be applied for the protection of DCS 1800 BTS receivers when DCS 1800 BTS and UTRA BS are co-located.
	with PHS	ent may be applied for the protection of PHS in geographic areas in which both PHS and UTRA are deployed.
	with services in adjacent frequency bands	ent 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.
	with UTRA TDD - Operation in the same geographic area	ent may be applied to geographic areas in which both UTRA-TDD and UTRA-FDD are deployed.
	with UTRA TDD - Co-located base stations	ent may be applied for the protection of UTRA-TDD BS receivers when UTRA-TDD BS and UTRA FDD BS are co-located.
	acteristic	ent is applied according to what frequency bands in Clause 5.2 that are supported by the BS.
	acteristics Co-location with GSM900 and/or DCS 1800	ent may be applied for the protection of UTRA FDD BS receivers when UTRA FDD BS and GSM 900/DCS1800 BS are co-located.

4.4　Environmental requirements for the BS equipment

The BS equipment shall fulfil all the requirements in the full range of environmental conditions for the relevant environmental class from the relevant IEC specifications listed below

60 721-3-3　　　　"Stationary use at weather protected locations"

60 721-3-4　　　　"Stationary use at non weather protected locations"

Normally it should be sufficient for all tests to be conducted using normal test conditions except where otherwise stated. For guidance on the use of test conditions to be used in order to show compliance refer to TS 25.141.

4.5　Frequency Band

Support for operation in the frequency band defined in sub clause 5.2 (b) is not completely specified in this release. It is intended this is part of a later release.

3GPP TSG RAN WG4 Meeting #17   **R4-010810**

Gothenburg, Sweden 21st - 25th May 2001

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⌘	**25.104** CR **74**	⌘ rev	**-**	⌘	Current version:	**4.0.0**	⌘

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

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

Title:	⌘	Proposed statement for UMTS1900 Operation for R4 Specification
Source:	⌘	RAN WG4
Work item code: ⌘	TEI	*Date:* ⌘ 2001-05-017
Category:	⌘ **A**	*Release:* ⌘ REL-4

Use <u>one</u> of the following categories:
   F *(essential correction)*
   A *(corresponds to a correction in an earlier release)*
   B *(Addition of feature),*
   C *(Functional modification of feature)*
   D *(Editorial modification)*
Detailed explanations of the above categories can
be found in 3GPP TR 21.900.

Use <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: ⌘	Current version of R99 specs do not take into account of following factors related to UMTS1900 operation: • Coexistence with other technologies, such as GSM1900, IS-95 and IS-136 • Spectrum availability for different operators • Necessary specification changes due to different TX/RX spacing Rel.4 specification inherits the same problem from R99 specification.
Summary of change: ⌘	Add the same note to Rel.4 specification as added to R99 specification.
Consequences if not approved: ⌘	Rel. 4 specification will not be consistent with R99 specification on UMTS1900 operation.

Clauses affected:	⌘	4.5

Other specs affected:	⌘	☐ Other core specifications	⌘	
		X Test specifications		
		☐ O&M Specifications		

Other comments:	⌘	

4.1 Relationship between Minimum Requirements and Test Requirements

The Minimum Requirements given in this specification make no allowance for measurement uncertainty. The test specification 25.141 section 4 defines Test Tolerances. These Test Tolerances are individually calculated for each test. The Test Tolerances are used to relax the Minimum Requirements in this specification to create Test Requirements.

The measurement results returned by the Test System are compared - without any modification - against the Test Requirements as defined by the shared risk principle.

The Shared Risk principle is defined in ETR 273 Part 1 sub-part 2 section 6.5.

4.2 Base station classes

The requirements in this specification apply to base station intended for general-purpose applications.

In the future further classes of base stations may be defined; the requirements for these may be different than for general-purpose applications.

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 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.

4.4 Environmental requirements for the BS equipment

The BS equipment shall fulfill all the requirements in the full range of environmental conditions for the relevant environmental class from the relevant IEC specifications listed below

60 721-3-3   "Stationary use at weather protected locations"

60 721-3-4   "Stationary use at non weather protected locations"

Normally it should be sufficient for all tests to be conducted using normal test conditions except where otherwise stated. For guidance on the use of test conditions to be used in order to show compliance refer to TS 25.141.

4.5   Frequency Band

Support for operation in the frequency band defined in sub clause 5.2 (b) is not completely specified in this release. It is intended this is part of a later release.