TSG-RAN Meeting #7 *TSGRP#6(00)0023*
Madrid, Spain, 13 – 15 March 2000

Title: **Agreed CRs to TS 25.142**

Source: **TSG-RAN WG4**

Agenda item: **6.2.3**

Spec	CR	Rev	Phas	Subject	Cat	Current	New	WG4 doc
25.142	001		R99	Conformance test descriptions for spectrum emission mask and ACLR	C	3.0.0	3.1.0	R4-000004
25.142	002		R99	Conformance test description for Adjacent Channel Selectivity (ACS)	F	3.0.0	3.1.0	R4-000006
25.142	003		R99	Conformance test description for blocking characteristics	F	3.0.0	3.1.0	R4-000007
25.142	004	1	R99	Conformance test description for performance requirements	F	3.0.0	3.1.0	R4-000118
25.142	005		R99	Protection outside a licensee's frequency block	F	3.0.0	3.1.0	R4-000112
25.142	006		R99	ACLR	F	3.0.0	3.1.0	R4-000259
25.142	007		R99	Corrected reference sensitivity value	F	3.0.0	3.1.0	R4-000223
25.142	008		R99	Conformance test description for Tx spurious emissions	F	3.0.0	3.1.0	R4-000102
25.142	009		R99	Clause 5: General test conditions and declarations	F	3.0.0	3.1.0	R4-000224
25.142	010		R99	Conformance test description for Primary CCPCH power	F	3.0.0	3.1.0	R4-000225
25.142	011		R99	Conformance test description for transmit OFF power	F	3.0.0	3.1.0	R4-000226
25.142	012		R99	Conformance test description for Rx spurious emissions	F	3.0.0	3.1.0	R4-000227

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25.142	CR	001	Current Version:	3.0.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to:	RAN #7	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: *(at least one should be marked with an X)* (U)SIM [ ] ME [ ] UTRAN / Radio [X] Core Network [ ]

Source: RAN WG4 **Date:** 14.1.2000

Subject: Conformance test descriptions for spectrum emission mask and ACLR

Work item: TS 25.142

Category: *(only one category shall be marked with an X)*

F	Correction		**Release:**	Phase 2	
A	Corresponds to a correction in an earlier release			Release 96	
B	Addition of feature			Release 97	
C	Functional modification of feature	X		Release 98	
D	Editorial modification			Release 99	X
				Release 00	

Reason for change: Alignment of the conformance test descriptions for spectrum emission mask and ACLR with new requirements incorporated into TS 25.105 via CR 017

Clauses affected: All subclauses of 6.6.2.1; all subclauses of 6.6.2.2.2; 6.6.2.2.4.1; 6.6.2.2.4.2; 6.6.2.2.5

Other specs affected:

Other 3G core specifications	[ ]	→ List of CRs:
Other GSM core specifications	[ ]	→ List of CRs:
MS test specifications	[ ]	→ List of CRs:
BSS test specifications	[ ]	→ List of CRs:
O&M specifications	[ ]	→ List of CRs:

Other comments:

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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 limit can be specified in terms of a spectrum emission mask and adjacent channel power ratio for the transmitter.

6.6.2.1 Spectrum emission mask

~~< Editor's note: The emission mask of the base station is an item for further study. >~~

~~6.6.2.1.1 Test purpose~~

~~6.6.2.1.2 Test case~~

~~6.6.2.1.3 Conformance requirements~~

6.6.2.1.1 Definition and applicability

The spectrum emission mask specifies the limit of the transmitter out of band emissions at frequency offsets from the assigned channel frequency of the wanted signal between 2,5 MHz and 12,5 MHz.

The mask defined in subclause 6.6.2.1.2 below may be mandatory in certain regions. In other regions this mask may not be applied.

6.6.2.1.2 Conformance requirements

For regions where this subclause applies, the BS spectrum emissions shall be within the mask defined in tables 6.6.2.1.2.1 to 6.6.2.1.2.4. A graphical representation of these tables is given in figure 6.6.2.1.2.1.This mask 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 by the mask in the frequency range with offset Δf from 2.5 MHz to Δf_{max} from the carrier frequency. The maximum offset Δf_{max} is 12.5 MHz.

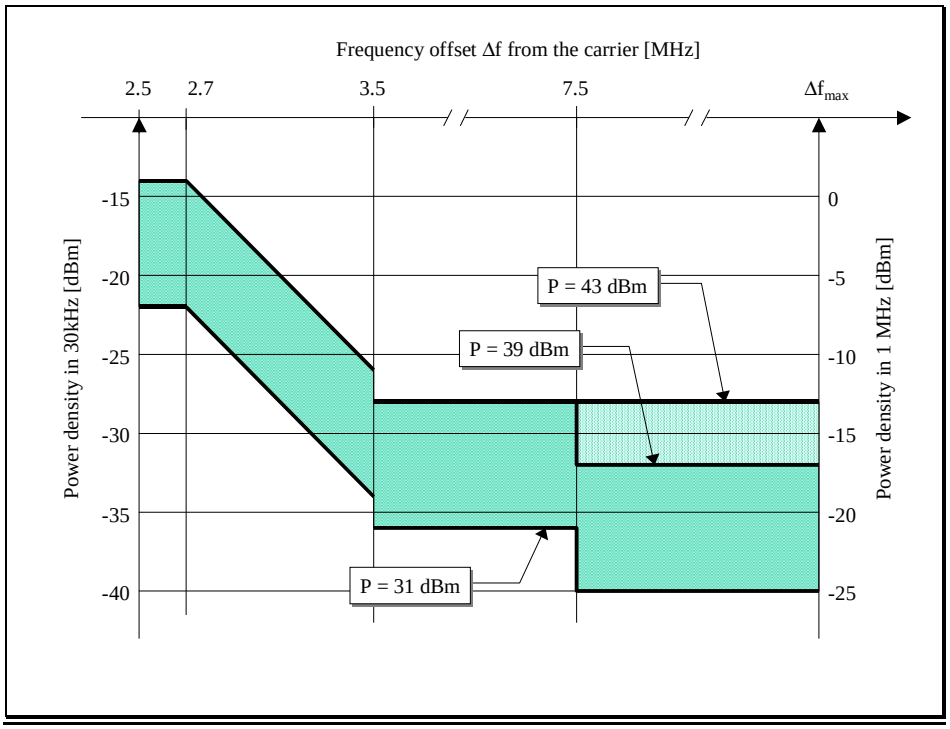

Figure 6.6.2.1.2.1: Spectrum emission mask

Table 6.6.2.1.2.1: Spectrum emission mask values, BS maximum output power P ≥ 43 dBm

Frequency offset Δf	Maximum level	Measurement bandwidth
2,5 ≤ Δf < 2,7 MHz	-14 dBm	30 kHz [1]
2,7 ≤ Δf < 3,5 MHz	- 14 - 15·(Δf – 2,7) dBm	30 kHz [1]
3,5 ≤ Δf ≤ Δf_{max} MHz	-13 dBm	1 MHz [2]

Table 6.6.2.1.2.2: Spectrum emission mask values, BS maximum output power 39 ≤ P < 43 dBm

Frequency offset Δf	Maximum level	Measurement bandwidth
2,5 ≤ Δf < 2,7 MHz	-14 dBm	30 kHz [1]
2,7 ≤ Δf < 3,5 MHz	-14 - 15·(Δf – 2,7) dBm	30 kHz [1]
3,5 ≤ Δf < 7,5 MHz	-13 dBm	1 MHz [2]
7.5 ≤ Δf ≤ Δf_{max} MHz	P - 56 dBm	1 MHz [2]

Table 6.6.2.1.2.3: Spectrum emission mask values, BS maximum output power 31 ≤ P < 39 dBm

Frequency offset Δf	Maximum level	Measurement bandwidth
2,5 ≤ Δf < 2,7 MHz	P - 53 dBm	30 kHz [1]
2,7 ≤ Δf < 3,5 MHz	P – 53 - 15·(Δf – 2,7) dBm	30 kHz [1]
3,5 ≤ Δf < 7,5 MHz	P - 52 dBm	1 MHz [2]
7,5 ≤ Δf ≤ Δf_{max} MHz	P - 56 dBm	1 MHz [2]

Table 6.6.2.1.2.4: Spectrum emission mask values, BS maximum output power P < 31 dBm

Frequency offset Δf	Maximum level	Measurement bandwidth
2,5 ≤ Δf < 2,7 MHz	-22 dBm	30 kHz [1]
2,7 ≤ Δf < 3,5 MHz	-22 – 15·(Δf – 2,7) dBm	30 kHz [1]
3,5 ≤ Δf < 7,5 MHz	-21 dBm	1 MHz [2]
7,5 ≤ Δf ≤ Δf_{max} MHz	-25 dBm	1 MHz [2]

Notes:

1. The first and last measurement positions with a 30 kHz filter are 2,515 MHz and 3,485 MHz.

2. The first and last measurement positions with a 1 MHz filter are 4 MHz and (Δf_{max} – 500 kHz).

6.6.2.1.3 Test purpose

The test purpose is to verify that the BS out of band emissions do not result in undue interference to any other system (wideband, narrowband) operating at frequencies close to the assigned channel bandwidth of the wanted signal.

This test is independent of the characteristics of possible victim systems and, therefore, complements the tests on occupied bandwidth in 6.6.1 (verifying the spectral concentration of the BS Tx emissions) and on ACLR in 6.6.2.2 (simulating the perception of other UTRA receivers).

6.6.2.1.4 Method of test

6.6.2.1.4.1 Initial conditions

(1) Connect the measuring equipment to the antenna connector of the BS under test.

(2) Set the parameters of the BS transmitted signal according to table 6.6.2.1.4.1.1.

Table 6.6.2.1.4.1.1: Parameters of the BS transmitted signal for spectrum emission mask testing

Parameter	Value/description
TDD Duty Cycle	TS i; i = 0, 1, 2, ..., 14: transmit, if i is even; receive, if i is odd.
Base Station output power	maximum, according to Manufacturer's declaration
Number of DPCH in each active TS	9
Power of each DPCH	1/9 of Base Station output power
Data content of DPCH	real life (sufficient irregular)

6.6.2.1.4.2 Procedure

Measure the power of the BS spectrum emissions by applying measurement filters with bandwidths as specified in the relevant table in subclause 6.6.2.1.2. The characteristic of the filters shall be approximately Gaussian (typical spectrum analyzer filters). The center frequency of the filter shall be stepped in contiguous steps over the frequency bands as given in the tables. The step width shall be equal to the respective measurement bandwidth. The time duration of each step shall be sufficiently long to capture one active time slot.

6.6.2.1.5 Test requirements

The spectrum emissions measured according to subclause 6.6.2.1.4.2 shall be within the mask defined in the relevant table of subclause 6.6.2.1.2.

6.6.2.2 Adjacent Channel Leakage power Ratio (ACLR)

6.6.2.2.1 Definition and applicability

Adjacent Channel Leakage power Ratio (ACLR) is the ratio of the transmitted power to the power measured after a receive filter in the adjacent channel(s). Both the transmitted and the received power are measured through a matched filter (root raised cosine and roll-off 0,22) with a noise power bandwidth equal to the chip rate.

The requirements in this subclause shall apply to base stations intended for general-purpose applications.

6.6.2.2.2 Conformance requirements

6.6.2.2.2.1 Minimum requirement

The ACLR shall be equal to or greater than the limits given in Table 6.6.2.2.2.1.1.

Table 6.6.2.2.2.1.1: BS ACLR limits

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

The reference for this requirement is TS 25.105 subclause 6.6.2.2.1.

6.6.2.2.2.2 Requirement in case of operation in proximity to TDD BS or FDD BS operating on an adjacent frequency

In case the equipment is operated in proximity to another TDD BS or FDD BS on an adjacent frequency, the ACLR shall be equal to or greater than the value specified in Table 6.6.2.2.2.2.1.

Table 6.6.2.2.2.2.1: BS ACLR limits in case of operation in proximity

BS adjacent channel offset	ACLR limit
± 5 MHz	70 dB
± 10 MHz	70 dB

The requirement is based on the assumption that the coupling loss between the base stations is at least 84dB.

The reference for this requirement is TS 25.105 subclause 6.6.2.2.2.

NOTE: The necessary dynamic range to very the conformance requirements specified in table 6.6.2.2.2.2.1 is at the limits of the capability of state-of-art measuring equipment.

6.6.2.2.2.3 Requirement in case of co-siting with TDD BS or FDD BS operating on an adjacent frequency

In case the equipment is co-sited to another TDD BS or FDD BS operating on an adjacent frequency, the ACLR is specified in terms of the absolute transmit power level of the BS measured in the adjacent channel. The maximum power level shall not exceed the limit in Table 6.6.2.2.2.3.1.

Table 6.6.2.2.2.3.1: BS ACLR limits in case of co-siting

BS adjacent channel offset	Maximum Level	Measurement Bandwidth
± 5 MHz	-80 dBm	3.84 MHz
± 10 MHz	-80 dBm	3.84 MHz

The reference for this requirement is TS 25.105 subclause 6.6.2.2.3.

NOTE: The necessary dynamic range of the measuring equipment to verify the conformance requirements specified in table 6.6.2.2.2.3.1 is dependent on the BS output power. If the BS output power is larger than –10 dBm, the necessary dynamic range is beyond the capability of state-of-the-art measuring equipment; direct verification of the conformance requirements is not feasible. Alternatively, indirect measurement methods need to be defined.

6.6.2.2.3 Test purpose

The test purpose is to verify the ability of the BS to limit the interference produced by the transmitted signal to other UTRA receivers operating at the first or second adjacent RF channel.

6.6.2.2.4 Method of test

6.6.2.2.4.1 Initial conditions

(1) Connect the measuring equipment to the antenna connector of the BS under test.

(2) Set the parameters of the BS transmitted signal according to table 6.6.2.2.4.1.1.

Table 6.6.2.2.4.1.1: Parameters of the BS transmitted signal for ACLR testing

Parameter	Value/description
TDD Duty Cycle	TS i; i = 0, 1, 2, ..., 14: transmit, if i is even; receive, if i is odd.
Base Station output power	mMaximum, according to Manufacturer's declaration
Number of DPCH in each active TS	9
Power of each DPCH	1/9 of Base Station output power
Data content of DPCH	rReal life (sufficient irregular)

6.6.2.2.4.2 Procedure

(1) Measure transmitted power over the 2464 active chips of the even time slots TS i (this excludes the guard period), and with a measurement filter that has a RRC filter response with a roll off $\alpha = 0,22$ and a bandwidth equal to the chip rate. The power is determined by calculating the RMS value of the signal samples at the measurement filter output taken at the decision points. (The global in-channel Tx test described in Annex C may be applied.)

(2) Average over TBD time slots.

(3) Measure interference power at the first lower adjacent RF channel (center frequency 5 MHz below the assigned channel frequency of the transmitted signal) over the 2464 active chipsuseful part of the burst within of the even time slots TS i (-this excludes the guard period), and with a measurement filter that has a RRC filter response with a roll off $\alpha = 0,22$ and a bandwidth equal to the chip rate. The power is determined by calculating the RMS value of the signal samples at the measurement filter output taken with adherence to the sampling theoremat the decision points.

(4) Average over TBD time slots.

(5) Calculate the ACLR by the ratio

ACLR = transmitted power acc. to (2) / interference power acc. to (4).

(6) Repeat steps (3), (4) and (5) for the second lower adjacent RF channel (center frequency 10 MHz below the assigned channel frequency of the transmitted signal) and also for the first and second upper adjacent RF channel (center frequency 5 MHz and 10 MHz above the assigned channel frequency of the transmitted signal, respectively).

6.6.2.2.5 Test requirements

The ACLR calculated in step (5) of subclause 6.6.2.2.4.2 shall be equal or greater than the limits given in tTable 6.6.2.2.2.1.1 or table 6.6.2.2.2.2.1, respectively. In case the equipment is co-sited to another TDD BS or FDD BS operating on an adjacent frequency, the interference power at the first and second adjacent channel measured according to steps (3) and (4) of subclause 6.6.2.2.4.2 shall not exceed the maximum level specified in table 6.6.2.2.2.3.1.

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25.142	CR	002	Current Version:	3.0.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to:	RAN #7	for approval	X	strategic		(for SMG use only)
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Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: *(at least one should be marked with an X)* (U)SIM [ ] ME [ ] UTRAN / Radio [X] Core Network [ ]

Source: RAN WG4 **Date:** 14.1.2000

Subject: Conformance test description for Adjacent Channel Selectivity (ACS)

Work item: TS 25.142

Category: *(only one category shall be marked with an X)*

F	Correction	X	**Release:**	Phase 2	
A	Corresponds to a correction in an earlier release			Release 96	
B	Addition of feature			Release 97	
C	Functional modification of feature			Release 98	
D	Editorial modification			Release 99	X
				Release 00	

Reason for change: Alignment of the conformance requirements for Adjacent Channel Selectivity (ACS) with new requirements incorporated into TS 25.105 via CR 017

Clauses affected: 7.4.2

Other specs affected:

Other 3G core specifications	[ ]	→ List of CRs:
Other GSM core specifications	[ ]	→ List of CRs:
MS test specifications	[ ]	→ List of CRs:
BSS test specifications	[ ]	→ List of CRs:
O&M specifications	[ ]	→ List of CRs:

Other comments:

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7.4 Adjacent Channel Selectivity (ACS)

7.4.1 Definition and applicability

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

The requirements in this subclause shall apply to base stations intended for general-purpose applications.

7.4.2 Conformance requirements

The BER, measured on the wanted signal in the presence of an interfering signal, shall not exceed 0,001 for the parameters specified in table 7.4.2.2.1.

Table 7.4.2.2.1: Parameters of the wanted signal and the interfering signal for ACS testing

Parameter	Level	Unit
Data rate	12,2	kbit/s
Wanted signal	~~[ ]~~Reference sensitivity level + 6 dB	dBm
Interfering signal	~~[ ]~~-52	dBm
Fuw (modulated)	5	MHz
NOTE: Fuw is the frequency offset of the unwanted interfering signal from the assigned channel frequency of the wanted signal.		

The reference for this requirement is TS 25.105 subclause 7.4.1.

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25.142	CR	003	Current Version:	3.0.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

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Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: *(at least one should be marked with an X)* (U)SIM [ ] ME [ ] UTRAN / Radio [X] Core Network [ ]

Source: RAN WG4 **Date:** 14.1.2000

Subject: Conformance test description for blocking characteristics

Work item: TS 25.142

Category: *(only one category shall be marked with an X)*

F	Correction	X	**Release:**	Phase 2	
A	Corresponds to a correction in an earlier release			Release 96	
B	Addition of feature			Release 97	
C	Functional modification of feature			Release 98	
D	Editorial modification			Release 99	X
				Release 00	

Reason for change: Alignment of the conformance requirements for blocking characteristics with new requirements in TS 25.105

Clauses affected: 7.5.1, 7.5.2, 7.5.4.2

Other specs affected:

Other 3G core specifications		→ List of CRs:
Other GSM core specifications		→ List of CRs:
MS test specifications		→ List of CRs:
BSS test specifications		→ List of CRs:
O&M specifications		→ List of CRs:

Other comments:

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7.5 Blocking characteristics

7.5.1 Definition and applicability

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 shall apply at all frequencies as specified in tables 7.5.2.1 or 7.5.2.2, respectively, using a 1 MHz step size.

The requirements in this subclause shall apply to base stations intended for general-purpose applications.

7.5.2 Conformance requirements

The static reference performance as specified in clause 7.2 should be met with a wanted and an interfering signal coupled to the BS antenna input using the parameters specified in tables 7.5.2.1 or 7.5.2.2, respectively.

Table 7.5.2.1: Blocking requirements for operating bands defined in subclause 4.2 a)

Center frequency of interfering signal	Interfering signal level	Wanted signal level	Minimum offset of interfering signal	Type of interfering signal
1900 – 1920 MHz, 2010 – 2025 MHz	-40 dBm	<REFSENS> + 6 dB	10 MHz	WCDMA signal with one code
1880 – 1900 MHz, 1990 – 2010 MHz, 2025 – 2045 MHz	-40 dBm	<REFSENS> + 6 dB	10 MHz	WCDMA signal with one code
1920 – 1980 MHz	-40 dBm	<REFSENS> + 6 dB	10 MHz	WCDMA signal with one code
1 - 1880 MHz, 1980 – 1990 MHz, 2045 – 12750 MHz	-15 dBm	<REFSENS> + 6 dB	—	CW carrier

Table 7.5.2.2: Blocking requirements for operating bands defined in subclause 4.2 b), c)

Center frequency of interfering signal	Interfering signal level	Wanted signal level	Minimum offset of interfering signal	Type of interfering signal
1850 – 1990 MHz	-40 dBm	<REFSENS> + 6 dB	10 MHz	WCDMA signal with one code
1830 – 1850 MHz, 1990 – 2010 MHz	-40 dBm	<REFSENS> + 6 dB	10 MHz	WCDMA signal with one code
1 – 1830 MHz, 2045 – 12750 MHz	-15 dBm	<REFSENS> + 6 dB	—	CW carrier

The reference for this requirement is TS 25.105 subclause 7.5.

7.5.3 Test purpose

The test stresses the ability of the BS receiver to withstand high-level interference from unwanted signals at frequency offsets of 10 MHz or more, without undue degradation of its sensitivity.

7.5.4 Method of test

7.5.4.1 Initial conditions

(1) Connect an UE simulator operating at the assigned channel frequency of the wanted signal and a signal generator to the antenna connector of one Rx port.

(2) Terminate any other Rx port not under test.

(3) Set up a call between the UE simulator and the BS tester. The characteristics of the call shall be set according to the UL reference measurement channel (12,2 kbit/s) specified in Annex A.2.1. The level of the UE simulator signal measured at the BS antenna connector shall be set to 6 dB above the reference sensitivity level specified in subclause 7.2.2.

7.5.4.2 Procedure

(1) Set the signal generator to produce an interfering signal at a frequency offset Fuw from the assigned channel frequency of the wanted signal which is given by

$$Fuw = \pm (n \times 1\ MHz),$$

where n shall be increased in integer steps from n = 10 up to such a value that the center frequency of the interfering signal covers the range from 1 MHz to 12,75 GHz. The interfering signal level measured at the antenna connector shall be set in dependency of its center frequency, as specified in tables 7.5.2.1 or 7.5.2.2, respectively. The type of the interfering signal is either equivalent to a continuous wideband CDMA signal with one code of chip frequency 3,84 Mchip/s, filtered by an RRC transmit pulse-shaping filter with roll-off $\alpha = 0,22$, or a CW signal; see tables 7.5.2.1 or 7.5.2.2, respectively.

(2) Measure the BER of the wanted signal at the BS receiver.

(3) Interchange the connections of the BS Rx ports and repeat the measurements according to steps (1) and (2).

NOTE: The test procedure as defined in steps (1) and (2) requests to carry out more than 10000 BER measurements. To reduce the time needed for these measurements, it may be appropriate to conduct the test in two phases: During phase 1, BER measurements are made on all center frequencies of the interfering signal as requested but with a reduced confidence level, with the aim to identify those frequencies which require more detailed investigation. In phase 2, detailed measurements are made only at those critical frequencies identified before, applying the required confidence level.

7.5.5 Test requirements

In all measurements made according to subclause 7.5.4.2, the BER shall not exceed 0,001.

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25.142	CR	004r1	Current Version:	3.0.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to:	RAN #7	for approval	X	strategic		(for SMG use only)
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Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: *(at least one should be marked with an X)* (U)SIM [ ] ME [ ] UTRAN / Radio [X] Core Network [ ]

Source: Siemens AG **Date:** 14.1.2000

Subject: Conformance test description for performance requirements

Work item: TS 25.142

Category: *(only one category shall be marked with an X)*

F	Correction	X	**Release:**	Phase 2	
A	Corresponds to a correction in an earlier release			Release 96	
B	Addition of feature			Release 97	
C	Functional modification of feature			Release 98	
D	Editorial modification			Release 99	X
				Release 00	

Reason for change: Addition of text for previously empty subclauses on "Test method" and "Test requirements"

Clauses affected: 8.2, 8.3

Other specs affected:

Other 3G core specifications		→ List of CRs:	
Other GSM core specifications		→ List of CRs:	
MS test specifications		→ List of CRs:	
BSS test specifications		→ List of CRs:	
O&M specifications		→ List of CRs:	

Other comments:

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8 Performance requirements

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 $\hat{I}_{or}/I_{oc}$ shall be applied separately at each antenna port.

Table 8.1.1: Summary of Base Station performance targets

Physical channel	Measurement channel	Static	Multi-path Case 1	Multi-path Case 2	Multi-path Case 3
		Performance metric			
DCH	12,2 kbps	BLER < 10^{-2}	BLER < 10^{-2}	BLER < 10^{-2}	BLER < 10^{-2}
	64 kbps	BLER < 10^{-1}, 10^{-2}	BLER < 10^{-1}, 10^{-2}	BLER < 10^{-1}, 10^{-2}	BLER < 10^{-1}, 10^{-2}, 10^{-3}
	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}
~~RACH~~					

8.2 Demodulation in static propagation conditions

8.2.1 Demodulation of DCH

8.2.1.1 Definition and applicability

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 $\hat{I}_{or}/I_{oc}$ limit. The BLER is calculated for each of the measurement channels supported by the base station.

The requirements in this subclause shall apply to base stations intended for general-purpose applications.

8.2.1.2 Conformance requirements

For the parameters specified in table 8.2.1.2.1, the BLER should not exceed the piece-wise linear BLER curve specified in table 8.2.1.2.2.

Table 8.2.1.2.1: Parameters in static propagation conditions

Parameters	Unit	Test 1	Test 2	Test 3	Test 4
Number of $DPCH_o$		6	4	0	0
$\frac{DPCH_o - E_c}{I_{or}}$	dB	-9	-9,5	~~-0~~	~~-0~~
I_{oc} ~~I~~	dBm/3,84 MHz	-60			
Information Data Rate	kbps	12,2	64	144	384

Table 8.2.1.2.2: Performance requirements in AWGN channel.

Test Number	$\frac{\hat{I}_{or}}{I_{oc}}$ [dB]	BLER
1	-1,9	10^{-2}
2	-0,3	10^{-1}
	0,0	10^{-2}
3	0,0	10^{-1}
	0,2	10^{-2}
4	-0,5	10^{-1}
	-0,3	10^{-2}

The reference for this requirement is TS 25.105 subclause 8.2.1.

8.2.1.3 Test purpose

The test purpose is to verify the ability of the BS to receive a prescribed test signal under ~~defined~~ static propagation conditions with a BLER not exceeding a specified limit. Within the wanted channel, intracell interference sources as well as an additional intercell interference source are taken into account. Therefore, this test – as all other tests in clause 8 - mainly checks the ability of the signal processing part of the receiver to extract the wanted signal from the interfered-with input signal, whereas the tests in clause 7 concentrate on the receiver RF part.

8.2.1.4 Method of test

8.2.1.4.1 Initial conditions

Connect the BS tester (UE simulator) generating the wanted signal and a set of interference generators to both BS antenna connectors for diversity reception via a combining network. The set of interference generators comprises a number of CDMA generators, each representing an individual intracell interferer (subsequently called $DPCH_0$ generators), and an additional band-limited white noise source, simulating interference from other cells. Each $DPCH_0$ generator shall produce an interfering signal that is equivalent to a valid UTRA TDD signal with spreading factor 16, using the same time slot(s) than the wanted signal and applying the same cell-specific scrambling code. The number of the $DPCH_0$ generators used in each test is given in table 8.2.1.2.1.

8.2.1.4.2 Procedure

(1) Adjust the power of the band-limited white noise source in such a way that its power spectral density measured at the BS antenna connector takes on the value I_{oc} as specified in table 8.2.1.2.1.

(2) For a given test defined by the information data rate and the BLER objective, set the power of each $DPCH_0$ measured at the BS antenna connector during the active time slots to the value specified in table 8.2.1.4.2.1.

(3) Set up a call between the BS tester generating the wanted signal and the BS. The characteristics of the call shall be configured according to the information data rate to be provided and the corresponding UL reference measurement channel defined in Annex A. Depending on the information data rate, the UL reference measurement channel makes use of one or two Dedicated Physical Channels ($DPCH_1$ and $DPCH_2$) with different spreading factors SF. The power(s) of $DPCH_1$ and $DPCH_2$ (if applicable) measured at the BS antenna connector during the active time slots shall be set to the value(s) given in table 8.2.1.4.2.1.

(4) Measure the BLER of the wanted signal at the BS receiver.

Table 8.2.1.4.2.1: Parameters of $DPCH_0$ and the wanted signal

Test Number	BLER objective	Number of $DPCH_0$	Power of each $DPCH_0$ measured at the BS antenna connector [dBm]	Parameters of the wanted signal		
				DPCH	SF	Power measured at the BS antenna connector [dBm]
1	10^{-2}	6	-70,9	$DPCH_1$	8	-67,9
2	10^{-1}	4	-69,8	$DPCH_1$	16	-69,8
				$DPCH_2$	4	-63,8
	10^{-2}	4	-69,5	$DPCH_1$	16	-69,5
				$DPCH_2$	4	-63,5
3	10^{-1}	0	–	$DPCH_1$	16	-69,5
				$DPCH_2$	2	-60,5
	10^{-2}	0	–	$DPCH_1$	16	-69,3
				$DPCH_2$	2	-60,3
4	10^{-1}	0	–	$DPCH_1$	2	-60,5
	10^{-2}	0	–	$DPCH_1$	2	-60,3

8.2.1.5 Test requirements

The BLER measured according to subclause 8.2.1.4.2 shall not exceed the limits specified in table 8.2.1.2.2.

8.3 Demodulation of DCH in multipath fading conditions

8.3.1 Multipath fading Case 1

8.3.1.1 Definition and applicability

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

The requirements in this subclause shall apply to base stations intended for general-purpose applications.

8.3.1.2 Conformance requirements

For the parameters specified in table 8.3.1.2.1, the BLER should not exceed the piece-wise linear BLER curve specified in table 8.3.1.2.2.

Table 8.3.1.2.1: Parameters in multipath Case 1 channel

Parameters	Unit	Test 1	Test 2	Test 3	Test 4
Number of $DPCH_o$		6	4	0	0
$\frac{DPCH_o \_ E_c}{I_{or}}$	~~DB~~dB	-9	-9,5	~~–0~~	~~–0~~
I_{oc}~~I~~	dBm/3,84 MHz	-60			
Information Data Rate	kbps	12,2	64	144	384

Table 8.3.1.2.2: Performance requirements in multipath Case 1 channel.

Test Number	$\frac{\hat{I}_{or}}{I_{oc}}$ [dB]	BLER
1	6,3	10^{-2}
2	5,5	10^{-1}
	9,4	10^{-2}
3	5,6	10^{-1}
	9,4	10^{-2}
4	5,5	10^{-1}
	8,7	10^{-2}

The reference for this requirement is TS 25.105 subclause 8.3.1.

8.3.1.3 Test purpose

The test purpose is to verify the ability of the BS to receive a prescribed test signal under defined propagation conditions (multipath fading Case 1) with a BLER not exceeding a specified limit. Within the wanted channel, independent intracell interference sources as well as an additional intercell interference source are taken into account. Therefore, this test – as all other tests in clause 8 - mainly checks the ability of the signal processing part of the receiver to extract the wanted signal from the distorted and interfered-with input signal, whereas the tests in clause 7 concentrate on the receiver RF part.

8.3.1.4 Method of test

8.3.1.4.1 Initial conditions

(1) Connect the BS tester (UE simulator) generating the wanted signal and a set of interference generators to both BS antenna connectors for diversity reception via a combining network. The set of interference generators comprises a number of CDMA generators, each representing an individual intracell interferer (subsequently called $DPCH_0$ generators), and an additional band-limited white noise source, simulating interference from other cells. Each $DPCH_0$ generator shall produce an interfering signal that is equivalent to a valid UTRA TDD signal with spreading factor 16, using the same time slot(s) than the wanted signal and applying the same cell-specific scrambling code. The number of the $DPCH_0$ generators used in each test is given in table 8.3.1.2.1.

(2) The wanted signal produced by the BS tester and the interfering signals produced by the $DPCH_0$ generators are individually passed through independent Multipath Fading Simulators (MFS) before entering the combining network. Each MFS shall be configured to simulate multipath fading Case 1.

8.3.1.4.2 Procedure

(1) Adjust the power of the band-limited white noise source in such a way that its power spectral density measured at the BS antenna connector takes on the value I_{oc} as specified in table 8.3.1.2.1.

(2) For a given test defined by the information data rate and the BLER objective, set the power of each $DPCH_0$ measured at the BS antenna connector during the active time slots to the value specified in table 8.3.1.4.2.1.

(3) Set up a call between the BS tester generating the wanted signal and the BS. The characteristics of the call shall be configured according to the information data rate to be provided and the corresponding UL reference measurement channel defined in Annex A. Depending on the information data rate, the UL reference measurement channel

makes use of one or two Dedicated Physical Channels ($DPCH_1$ and $DPCH_2$) with different spreading factors SF. The power(s) of $DPCH_1$ and $DPCH_2$ (if applicable) measured at the BS antenna connector during the active time slots shall be set to the value(s) given in table 8.3.1.4.2.1.

(4) Measure the BLER of the wanted signal at the BS receiver.

Table 8.3.1.4.2.1: Parameters of $DPCH_0$ and the wanted signal

Test Number	BLER objective	Number of $DPCH_0$	Power of each $DPCH_0$ measured at the BS antenna connector [dBm]	Parameters of the wanted signal		
				DPCH	SF	Power measured at the BS antenna connector [dBm]
1	10^{-2}	6	-62,7	$DPCH_1$	8	-59,7
2	10^{-1}	4	-64	$DPCH_1$	16	-64
				$DPCH_2$	4	58
	10^{-2}	4	-60,1	$DPCH_1$	16	-60,1
				$DPCH_2$	4	-54,1
3	10^{-1}	0	–	$DPCH_1$	16	-63,9
				$DPCH_2$	2	-54,9
	10^{-2}	0	–	$DPCH_1$	16	-60,1
				$DPCH_2$	2	-51,1
4	10^{-1}	0	–	$DPCH_1$	2	-54,5
	10^{-2}	0	–	$DPCH_1$	2	-51,3

8.3.1.5 Test requirements

The BLER measured according to subclause 8.3.1.4.2 shall not exceed the limits specified in table 8.3.1.2.2.

8.3.2 Multipath fading Case 2

8.3.2.1 Definition and applicability

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

The requirements in this subclause shall apply to base stations intended for general-purpose applications.

8.3.2.2 Conformance requirements

For the parameters specified in table 8.3.2.2.1, the BLER should not exceed the piece-wise linear BLER curve specified in table 8.3.2.2.2.

Table 8.3.2.2.1: Parameters in multipath Case 2 channel

Parameters	Unit	Test 1	Test 2	Test 3	Test 4
Number of $DPCH_0$		2	0	0	0
$\frac{DPCH_o \_ E_c}{I_{or}}$	dB	-6	~~–0~~	~~–0~~	~~–0~~
I_{oc}~~I~~	dBm/3,84 MHz	-60			
Information Data Rate	kbps	12,2	64	144	384

Table 8.3.2.2.2: Performance requirements in multipath Case 2 channel.

Test Number	$\frac{\hat{I}_{or}}{I_{oc}}$ [dB]	BLER
1	0,1	10^{-2}
2	0,4	10^{-1}
	2,8	10^{-2}
3	3,6	10^{-1}
	6,0	10^{-2}
4	3,0	10^{-1}
	5,4	10^{-2}

The reference for this requirement is TS 25.105 subclause 8.3.2.

8.3.2.3 Test purpose

The test purpose is to verify the ability of the BS to receive a prescribed test signal under defined propagation conditions (multipath fading Case 2) with a BLER not exceeding a specified limit. Within the wanted channel, independent intracell interference sources as well as an additional intercell interference source are taken into account. Therefore, this test – as all other tests in clause 8 - mainly checks the ability of the signal processing part of the receiver to extract the wanted signal from the distorted and interfered-with input signal, whereas the tests in clause 7 concentrate on the receiver RF part.

8.3.2.4 Method of test

8.3.2.4.1 Initial conditions

(1) Connect the BS tester (UE simulator) generating the wanted signal and a set of interference generators to both BS antenna connectors for diversity reception via a combining network. The set of interference generators comprises a number of CDMA generators, each representing an individual intracell interferer (subsequently called $DPCH_0$ generators), and an additional band-limited white noise source, simulating interference from other cells. Each $DPCH_0$ generator shall produce an interfering signal that is equivalent to a valid UTRA TDD signal with spreading factor 16, using the same time slot(s) than the wanted signal and applying the same cell-specific scrambling code. The number of the $DPCH_0$ generators used in each test is given in table 8.3.2.2.1.

(2) The wanted signal produced by the BS tester and the interfering signals produced by the $DPCH_0$ generators are individually passed through independent Multipath Fading Simulators (MFS) before entering the combining network. Each MFS shall be configured to simulate multipath fading Case 2.

8.3.2.4.2 Procedure

(1) Adjust the power of the band-limited white noise source in such a way that its power spectral density measured at the BS antenna connector takes on the value I_{oc} as specified in table 8.3.2.2.1.

(2) For a given test defined by the information data rate and the BLER objective, set the power of each $DPCH_0$ measured at the BS antenna connector during the active time slots to the value specified in table 8.3.2.4.2.1.

(3) Set up a call between the BS tester generating the wanted signal and the BS. The characteristics of the call shall be configured according to the information data rate to be provided and the corresponding UL reference measurement channel defined in Annex A. Depending on the information data rate, the UL reference measurement channel makes use of one or two Dedicated Physical Channels ($DPCH_1$ and $DPCH_2$) with different spreading factors SF. The power(s) of $DPCH_1$ and $DPCH_2$ (if applicable) measured at the BS antenna connector during the active time slots shall be set to the value(s) given in table 8.3.2.4.2.1.

(4) Measure the BLER of the wanted signal at the BS receiver.

Table 8.3.2.4.2.1: Parameters of $DPCH_0$ and the wanted signal

Test Number	BLER objective	Number of $DPCH_0$	Power of each $DPCH_0$ measured at the BS antenna connector [dBm]	Parameters of the wanted signal		
				DPCH	SF	Power measured at the BS antenna connector [dBm]
1	10^{-2}	2	-65,9	$DPCH_1$	8	-62,9
2	10^{-1}	0	–	$DPCH_1$	16	-66,6
				$DPCH_2$	4	-60,6
	10^{-2}	0	–	$DPCH_1$	16	-64,2
				$DPCH_2$	4	-58,2
3	10^{-1}	0	–	$DPCH_1$	16	-65,9
				$DPCH_2$	2	-56,9
	10^{-2}	0	–	$DPCH_1$	16	-63,5
				$DPCH_2$	2	-54,5
4	10^{-1}	0	–	$DPCH_1$	2	-57
	10^{-2}	0	–	$DPCH_1$	2	-54,6

8.3.2.5 Test requirements

The BLER measured according to subclause 8.3.2.4.2 shall not exceed the limits specified in table 8.3.2.2.2.

8.3.3 Multipath fading Case 3

8.3.3.1 Definition and applicability

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

The requirements in this subclause shall apply to base stations intended for general-purpose applications.

8.3.3.2 Conformance requirements

For the parameters specified in table 8.3.3.2.1, the BLER should not exceed the piece-wise linear BLER curve specified in Table 8.3.3.2.2.

Table 8.3.3.2.1: Parameters in multipath Case 3 channel

Parameters	Unit	Test 1	Test 2	Test 3	Test 4
Number of $DPCH_0$		2	0	0	0
$\frac{DPCH_o \_ E_c}{I_{or}}$	dB	-6	~~–0~~	~~–0~~	~~–0~~
I_{oc}~~I~~	dBm/3,84 MHz	-60			
Information Data Rate	kbps	12,2	64	144	384

Table 8.8: Performance requirements in multipath Case 3 channel.

Test Number	$\frac{\hat{I}_{or}}{I_{oc}}$ [dB]	BLER
1	-0,6	10^{-2}
2	0,7	10^{-1}
	2,4	10^{-2}
	3,8	10^{-3}
3	3,9	10^{-1}
	5,9	10^{-2}
	7,3	10^{-3}
4	2,8	10^{-1}
	4,2	10^{-2}
	4,8	10^{-3}

The reference for this requirement is TS 25.105 subclause 8.3.3.

8.3.3.3 Test purpose

The test purpose is to verify the ability of the BS to receive a prescribed test signal under defined propagation conditions (multipath fading Case 3) with a BLER not exceeding a specified limit. Within the wanted channel, independent intracell interference sources as well as an additional intercell interference source are taken into account. Therefore, this test – as all other tests in clause 8 - mainly checks the ability of the signal processing part of the receiver to extract the wanted signal from the distorted and interfered-with input signal, whereas the tests in clause 7 concentrate on the receiver RF part.

8.3.3.4 Method of test

8.3.3.4.1 Initial conditions

(1) Connect the BS tester (UE simulator) generating the wanted signal and a set of interference generators to both BS antenna connectors for diversity reception via a combining network. The set of interference generators comprises a number of CDMA generators, each representing an individual intracell interferer (subsequently called $DPCH_0$ generators), and an additional band-limited white noise source, simulating interference from other cells. Each $DPCH_0$ generator shall produce an interfering signal that is equivalent to a valid UTRA TDD signal with spreading factor 16, using the same time slot(s) than the wanted signal and applying the same cell-specific scrambling code. The number of the $DPCH_0$ generators used in each test is given in table 8.3.3.2.1.

(2) The wanted signal produced by the BS tester and the interfering signals produced by the $DPCH_0$ generators are individually passed through independent Multipath Fading Simulators (MFS) before entering the combining network. Each MFS shall be configured to simulate multipath fading Case 3.

8.3.3.4.2 Procedure

(1) Adjust the power of the band-limited white noise source in such a way that its power spectral density measured at the BS antenna connector takes on the value I_{oc} as specified in table 8.3.3.2.1.

(2) For a given test defined by the information data rate and the BLER objective, set the power of each $DPCH_0$ measured at the BS antenna connector during the active time slots to the value specified in table 8.3.3.4.2.1.

(3) Set up a call between the BS tester generating the wanted signal and the BS. The characteristics of the call shall be configured according to the information data rate to be provided and the corresponding UL reference measurement channel defined in Annex A. Depending on the information data rate, the UL reference measurement channel makes use of one or two Dedicated Physical Channels ($DPCH_1$ and $DPCH_2$) with different spreading factors SF. The power(s) of $DPCH_1$ and $DPCH_2$ (if applicable) measured at the BS antenna connector during the active time slots shall be set to the value(s) given in table 8.3.3.4.2.1.

(4) Measure the BLER of the wanted signal at the BS receiver.

Table 8.3.3.4.2.1: Parameters of $DPCH_0$ and the wanted signal

Test Number	BLER objective	Number of $DPCH_0$	Power of each $DPCH_0$ measured at the BS antenna connector [dBm]	Parameters of the wanted signal		
				DPCH	SF	Power measured at the BS antenna connector [dBm]
1	10^{-2}	2	-66,6	$DPCH_1$	8	-63,6
2	10^{-1}	0	–	$DPCH_1$	16	-66,3
				$DPCH_2$	4	-60,3
	10^{-2}	0	–	$DPCH_1$	16	-64,6
				$DPCH_2$	4	-58,6
	10^{-3}	0	–	$DPCH_1$	16	-63,2
				$DPCH_2$	4	-57,2
3	10^{-1}	0	–	$DPCH_1$	16	-65,6
				$DPCH_2$	2	-56,6
	10^{-2}	0	–	$DPCH_1$	16	-63,6
				$DPCH_2$	2	-54,6
	10^{-3}	0	–	$DPCH_1$	16	-62,2
				$DPCH_2$	2	-53,2
4	10^{-1}	0	–	$DPCH_1$	2	-57,2
	10^{-2}	0	–	$DPCH_1$	2	-55,8
	10^{-3}	0	–	$DPCH_1$	2	-55,2

8.3.3.5 Test requirements

The BLER measured according to subclause 8.3.3.4.2 shall not exceed the limits specified in table 8.3.3.2.2.

CHANGE REQUEST

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25.142	CR	005	Current Version:	3.0.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to: RAN #7 *list expected approval meeting # here ↑*	for approval	X	strategic		*(for SMG use only)*
	for information		non-strategic		

Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: *(at least one should be marked with an X)* (U)SIM [ ] ME [ ] UTRAN / Radio [X] Core Network [ ]

Source: RAN WG4 **Date:** 14.2.2000

Subject: Removal of subclause 6.6.2.3 Protection outside a licensee's frequency block

Work item: TS 25.142

Category: *(only one category shall be marked with an X)*

F	Correction	X
A	Corresponds to a correction in an earlier release	
B	Addition of feature	
C	Functional modification of feature	
D	Editorial modification	

Release:

Phase 2	
Release 96	
Release 97	
Release 98	
Release 99	X
Release 00	

Reason for change: Alignment with a change in the corresponding core specification TS 25.105

Clauses affected: 6.6.2.3, 6.6.2.3.1, 6.6.2.3.2, 6.6.2.3.3

Other specs affected:

Other 3G core specifications		→ List of CRs:
Other GSM core specifications		→ List of CRs:
MS test specifications		→ List of CRs:
BSS test specifications		→ List of CRs:
O&M specifications		→ List of CRs:

Other comments:

help.doc

<--------- double-click here for help and instructions on how to create a CR.

6.6.2.2.4.2 Procedure

(1) Measure transmitted power over the 2464 active chips of the even time slots TS i (this excludes the guard period), and with a measurement filter that has a RRC filter response with a roll off $\alpha = 0,22$ and a bandwidth equal to the chip rate. The power is determined by calculating the RMS value of the signal samples at the measurement filter output taken at the decision points.

(2) Average over TBD time slots.

(3) Measure interference power at the first lower adjacent RF channel (center frequency 5 MHz below the assigned channel frequency of the transmitted signal) over the 2464 active chips of the even time slots TS i (-this excludes the guard period), and with a measurement filter that has a RRC filter response with a roll off $\alpha = 0,22$ and a bandwidth equal to the chip rate. The power is determined by calculating the RMS value of the signal samples at the measurement filter output taken at the decision points.

(4) Average over TBD time slots.

(5) Calculate the ACLR by the ratio

ACLR = transmitted power acc. to (2) / interference power acc. to (4).

(6) Repeat steps (3), (4) and (5) for the second lower adjacent RF channel (center frequency 10 MHz below the assigned channel frequency of the transmitted signal) and also for the first and second upper adjacent RF channel (center frequency 5 MHz and 10 MHz above the assigned channel frequency of the transmitted signal, respectively).

6.6.2.2.5 Test requirements

The ACLR calculated in step (5) of subclause 6.6.2.2.4.2 shall be equal or greater than the limits given in Table 6.6.2.2.2.1.

~~6.6.2.3 Protection outside a licensee's frequency block~~

~~6.6.2.3.1 Test purpose~~

~~This requirement is applicable if protection is required outside a licensee's defined frequency block.~~

~~6.6.2.3.2 Test case~~

~~This requirement applies for frequencies outside the licensee's frequency block, up to an offset of [12.5MHz] from a carrier frequency.~~

~~Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the fundamental emission of the transmitter may be employed. The emission bandwidth is defined as the width of the signal between two points, one below the carrier centre frequency and one above the carrier centre frequency, outside of which all emissions are attenuated at least 26dB below the transmitter power.~~

~~When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the licensee's frequency block edges, both upper and lower, as the design permits.~~

~~The measurements of emission power shall be mean power.~~

~~6.6.2.3.3 Conformance requirements~~

~~The power of any emission shall be attenuated below the transmit power (P) by at least 43 + 10 log (P) dB.~~

CHANGE REQUEST

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25.142	CR	006	Current Version:	3.0.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to: RAN #7 *list expected approval meeting # here ↑*	for approval	X	strategic		*(for SMG use only)*
	for information		non-strategic		

Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: *(at least one should be marked with an X)* (U)SIM [ ] ME [ ] UTRAN / Radio [X] Core Network [ ]

Source: RAN WG4 **Date:** 00-02-27

Subject: Clarification of ACLR

Work item:

Category: *(only one category shall be marked with an X)*

F	Correction	X	**Release:**	Phase 2	
A	Corresponds to a correction in an earlier release			Release 96	
B	Addition of feature			Release 97	
C	Functional modification of feature			Release 98	
D	Editorial modification			Release 99	X
				Release 00	

Reason for change: This CR clarifies the definition of ACLR.
A definition of operating modes for which this requirement applies has been added (this is identical to the one in TS 25.104).

Clauses affected: 6.6.2.2.1

Other specs affected:

Other 3G core specifications		→ List of CRs:	
Other GSM core specifications		→ List of CRs:	
MS test specifications		→ List of CRs:	
BSS test specifications		→ List of CRs:	
O&M specifications		→ List of CRs:	

Other comments:

6.6.2.2 Adjacent Channel Leakage power Ratio (ACLR)

6.6.2.2.1 Definition and applicability

Adjacent Channel Leakage power Ratio (ACLR) is the ratio of the transmitted power to the power measured ~~after a receive filter~~ in an~~the~~ adjacent channel~~(s)~~. Both the transmitted and the ~~received~~ adjacent channel power are measured through a matched filter (root raised cosine and roll-off 0,22) with a noise power bandwidth equal to the chip rate. The requirements shall apply for all configurations of BS (single carrier or multi-carrier), and for all operating modes foreseen by the manufacturer's specification.

The requirements in this subclause shall apply to base stations intended for general-purpose applications.

6.6.2.2.2 Conformance requirements

The ACLR shall be equal to or greater than the limits given in Table 6.6.2.2.2.1.

Table 6.6.2.2.2.1: BS ACLR limits

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

The reference for this requirement is TS 25.105 subclause 6.6.2.2.1.

6.6.2.2.3 Test purpose

The test purpose is to verify the ability of the BS to limit the interference produced by the transmitted signal to other UTRA receivers operating at the first or second adjacent RF channel.

6.6.2.2.4 Method of test

6.6.2.2.4.1 Initial conditions

(1) Connect the measuring equipment to the antenna connector of the BS under test.

(2) Set the parameters of the BS transmitted signal according to table 6.6.2.2.4.1.1.

Table 6.6.2.2.4.1.1: Parameters of the BS transmitted signal for ACLR testing

Parameter	Value/description
TDD Duty Cycle	TS i; i = 0, 1, 2, ..., 14: transmit, if i is even; receive, if i is odd.
Base Station output power	Maximum, according to Manufacturer's declaration
Number of DPCH in each active TS	9
Power of each DPCH	1/9 of Base Station output power
Data content of DPCH	Real life (sufficient irregular)

6.6.2.2.4.2 Procedure

(1) Measure transmitted power over the 2464 active chips of the even time slots TS i (this excludes the guard period), and with a measurement filter that has a RRC filter response with a roll off $\alpha = 0,22$ and a bandwidth equal to the chip rate. The power is determined by calculating the RMS value of the signal samples at the measurement filter output taken at the decision points.

(2) Average over TBD time slots.

(3) Measure interference power at the first lower adjacent RF channel (center frequency 5 MHz below the assigned channel frequency of the transmitted signal) over the 2464 active chips of the even time slots TS i (-this excludes the guard period), and with a measurement filter that has a RRC filter response with a roll off $\alpha = 0,22$ and a bandwidth equal to the chip rate. The power is determined by calculating the RMS value of the signal samples at the measurement filter output taken at the decision points.

(4) Average over TBD time slots.

(5) Calculate the ACLR by the ratio

ACLR = transmitted power acc. to (2) / interference power acc. to (4).

(6) Repeat steps (3), (4) and (5) for the second lower adjacent RF channel (center frequency 10 MHz below the assigned channel frequency of the transmitted signal) and also for the first and second upper adjacent RF channel (center frequency 5 MHz and 10 MHz above the assigned channel frequency of the transmitted signal, respectively).

6.6.2.2.5 Test requirements

The ACLR calculated in step (5) of subclause 6.6.2.2.4.2 shall be equal or greater than the limits given in Table 6.6.2.2.2.1.

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25.142	CR	007	Current Version:	3.0.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to:	RAN#7	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: *(at least one should be marked with an X)* (U)SIM [ ] ME [ ] UTRAN / Radio [X] Core Network [ ]

Source: RAN WG4 **Date:** 14.02.00

Subject: Correction of conformance requirements for reference sensitivity level

Work item: TS 25.142

Category: *(only one category shall be marked with an X)*

F	Correction	X	**Release:**	Phase 2	
A	Corresponds to a correction in an earlier release			Release 96	
B	Addition of feature			Release 97	
C	Functional modification of feature			Release 98	
D	Editorial modification			Release 99	X
				Release 00	

Reason for change: Alignment with a change in the corresponding core specification TS 25.105

Clauses affected: 7.2.2, 7.2.4

Other specs affected:

Other 3G core specifications		→ List of CRs:
Other GSM core specifications		→ List of CRs:
MS test specifications		→ List of CRs:
BSS test specifications		→ List of CRs:
O&M specifications		→ List of CRs:

Other comments:

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7.2 Reference sensitivity level

7.2.1 Definition and applicability

The reference sensitivity is the minimum receiver input power measured at the antenna connector at which the BER does not exceed the specific value.

The requirements in this subclause shall apply to base stations intended for general-purpose applications.

7.2.2 Conformance requirements

For the measurement channel specified in Annex A.2.1, the reference sensitivity level and performance of the BS shall be as specified in table 7.2.2.1 below.

Table 7.2.2.1: BS reference sensitivity levels

Data rate	BS reference sensitivity level (dBm)	BER
12,2 kbps	-109~~-110~~ dBm	BER shall not exceed 0,001

The reference for this requirement is TS 25.105 subclause 7.2.1.

7.2.3 Test purpose

The test purpose is to verify the ability of the BS to receive a prescribed single-code test signal of minimum input power under defined conditions (no interference, no multipath propagation) with a BER not exceeding a specified limit. This test is also used as a reference case for other tests to allow the assessment of degradations due to various sources of interference.

7.2.4 Method of test

7.2.4.1 Initial conditions

(1) Connect the BS tester (UE simulator) to the antenna connector of one BS Rx port.

(2) Terminate any other BS Rx port not under test.

(3) Set up a call between the BS tester and the BS. The characteristics of the call shall be according to the 12,2 kbit/s UL reference measurement channel specified in Annex A.2.1.

(4) The level of BS tester output signal measured at the BS antenna connector shall be adjusted to -109~~-110~~ dBm.

7.2.4.2 Procedure

(1) Measure the BER by comparing the bit sequence of the information data transmitted by the BS tester with the bit sequence obtained from the BS receiver.

(2) Interchange the connections of the BS Rx ports and repeat the measurement according to (1).

7.2.5 Test requirements

For any BS Rx port tested, the measured BER shall not exceed 0,001.

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25.142	CR	008	Current Version:	3.0.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to:	RAN #7	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: *(at least one should be marked with an X)* (U)SIM [ ] ME [ ] UTRAN / Radio [X] Core Network [ ]

Source: RAN WG4 **Date:** 14.1.2000

Subject: Conformance test description for Tx spurious emissions

Work item: TS 25.142

Category: *(only one category shall be marked with an X)*			**Release:**	
F	Correction	X	Phase 2	
A	Corresponds to a correction in an earlier release		Release 96	
B	Addition of feature		Release 97	
C	Functional modification of feature		Release 98	
D	Editorial modification		Release 99	X
			Release 00	

Reason for change: Alignment of the conformance test description for Tx spurious emissions with new requirements incorporated into TS 25.105

Clauses affected: 6.6.3.2.1.1; 6.6.3.2.1.2; 6.6.3.2.2.2; 6.6.3.2.3.2; 6.6.3.2.4 (new); 6.6.3.2.4.1 (new); 6.6.3.2.4.2 (new)

Other specs affected:

Other 3G core specifications	[ ]	→ List of CRs:
Other GSM core specifications	[ ]	→ List of CRs:
MS test specifications	[ ]	→ List of CRs:
BSS test specifications	[ ]	→ List of CRs:
O&M specifications	[ ]	→ List of CRs:

Other comments:

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6.6.3 Spurious emissions

6.6.3.1 Definition and applicability

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 in this subclause shall apply to base stations intended for general-purpose applications.

6.6.3.2 Conformance requirements

6.6.3.2.1 Mandatory requirements

The requirements of either subclause 6.6.3.2.1.1 or subclause 6.6.3.2.1.2 shall apply whatever the type of transmitter considered (single carrier or multi-carrier). It applies for all transmission modes foreseen by the manufacturer.

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

6.6.3.2.1.1 Spurious emissions (Category A)

The following requirements shall be met in cases where Category A limits for spurious emissions, as defined in ITU-R Recommendation SM.329-7 [6], are applied.

The power of any spurious emission shall not exceed the maximum level given in Table 6.6.3.2.1.1.1.

Table 6.6.3.2.1.1.1: BS Mandatory spurious emissions limits, Category A

Band	Maximum level	Measurement bandwidth	Note
9 kHz – 150 kHz	-13 dBm	1 kHz	Bandwidth as in ITU SM.329-7, s4.1
150 kHz – 30 MHz		10 kHz	Bandwidth as in ITU SM.329-7, s4.1
30 MHz – 1 GHz		100 kHz	Bandwidth as in ITU SM.329-7, s4.1
1 GHz – 12,75 GHz		1 MHz	Upper frequency as in ITU SM.329-7, s2.6

The reference for this requirement is TS 25.105 subclause 6.6.3.1.1.1.

6.6.3.2.1.2 Spurious emissions (Category B)

The following requirements shall be met in cases where Category B limits for spurious emissions, as defined in ITU-R Recommendation SM.329-7 [6], are applied.

The power of any spurious emission shall not exceed the maximum levels given in Table 6.6.3.2.1.2.1.

Table 6.6.3.2.1.2.1: BS Mandatory spurious emissions limits, Category B

Band	Maximum level	Measurement bandwidth	Note
9 kHz – 150 kHz	-36 dBm	1 kHz	Bandwidth as in ITU SM.329-7, s4.1
150 kHz – 30 MHz	-36 dBm	10 kHz	Bandwidth as in ITU SM.329-7, s4.1
30 MHz – 1 GHz	-36 dBm	100 kHz	Bandwidth as in ITU SM.329-7, s4.1
1 GHz ~~12,75 GHz~~ Fc1 - 60 MHz or Fl - 10 MHz *whichever is the higher*	-30 dBm	1 MHz	~~Upper frequency~~Bandwidth as in ITU SM.329-7, s4.1~~2.6~~
Fc1 - 60 MHz or Fl - 10 MHz *whichever is the higher* – Fc1 - 50 MHz or Fl -10 MHz *whichever is the higher*	-25 dBm	1 MHz	Specification in accordance with ITU-R SM.329-7, s4.1
Fc1 - 50 MHz or Fl -10 MHz *whichever is the higher* – Fc2 + 50 MHz or Fu +10 MHz *whichever is the lower*	-15 dBm	1 MHz	Specification in accordance with ITU-R SM.329-7, s4.1
Fc2 + 50 MHz or Fu + 10 MHz *whichever is the lower* – Fc2 + 60 MHz or Fu + 10 MHz *whichever is the lower*	-25 dBm	1 MHz	Specification in accordance with ITU-R SM.329-7, s4.1
Fc2 + 60 MHz or Fu + 10 MHz *whichever is the lower* – 12,5 GHz	-30 dBm	1 MHz	Bandwidth as in ITU-R SM.329-7, s4.1. Upper frequency as in ITU-R SM.329-7, s2.6

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

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

Fl : Lower frequency of the band in which TDD operates

Fu : Upper frequency of the band in which TDD operates

The reference for this requirement is TS 25.105 subclause 6.6.3.1.2.1.

6.6.3.2.2 Co-existence with GSM

6.6.3.2.2.1 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.

~~[This requirement assumes the scenario described in 25.942.] For different scenarios, the manufacturer may declare a different requirement.~~

The power of any spurious emission shall not exceed the maximum level given in Table 6.6.3.2.2.1.1.

Table 6.6.3.2.2.1.1: BS Spurious emissions limits for BS in geographic coverage area of GSM 900 MS receiver

Band	Maximum level	Measurement bandwidth	Note
921 MHz – 960 MHz	-~~4~~57 dBm	100 kHz	

The reference for this requirement is TS 25.105 subclause 6.6.3.2.1.1.

6.6.3.2.2.2 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.

~~[This requirement assumes the scenario described in 25.942.] For different scenarios, the manufacturer may declare a different requirement.~~

The power of any spurious emission shall not exceed the maximum level given in Table 6.6.3.2.2.2.1.

Table 6.6.3.2.2.2.1: BS Spurious emissions limits for protection of the GSM 900 BTS receiver

Band	Maximum level	Measurement bandwidth	Note
876 MHz – 915 MHz	–98 dBm	100 kHz	

The reference for this requirement is TS 25.105 subclause 6.6.3.2.2.1.

6.6.3.2.3 Co-existence with DCS 1800

6.6.3.2.3.1 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.

~~[This requirement assumes the scenario described in 25.942.] For different scenarios, the manufacturer may declare a different requirement.~~

The power of any spurious emission shall not exceed the maximum level given in Table 6.6.3.2.3.1.1.

Table 6.6.3.2.3.1.1: BS Spurious emissions limits for BS in geographic coverage area of DCS 1800 MS receiver

Band	Maximum level	Measurement bandwidth	Note
1805 MHz – 1880 MHz	~~-5~~47 dBm	100 kHz	

The reference for this requirement is TS 25.105 subclause 6.6.3.3.1.1.

6.6.3.2.3.2 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.

~~[This requirement assumes the scenario described in 25.942.] For different scenarios, the manufacturer may declare a different requirement.~~

The power of any spurious emission shall not exceed the maximum level given in Table 6.6.3.2.3.2.1.

Table 6.6.3.2.3.2.1: BS Spurious emissions limits for BS co-located with DCS 1800 BTS

Band	Maximum level	Measurement bandwidth	Note
1710 MHz – 1785 MHz	-98 dBm	100 kHz	

The reference for this requirement is TS 25.105 subclause 6.6.3.3.3.1.

6.6.3.2.4 Co-existence with UTRA FDD

6.6.3.2.4.1 Operation in the same geographic area

This requirement may be applied to geographic areas in which both UTRA TDD and UTRA FDD are deployed.

The power of any spurious emission shall not exceed the maximum level given in Table 6.6.3.2.4.1.1.

Table 6.6.3.2.4.1.1: BS Spurious emissions limits for BS in geographic coverage area of UTRA FDD

Band	Maximum Level	Measurement Bandwidth	Note
1920 – 1980 MHz	-32 dBm	1 MHz	
2110 – 2170 MHz	-52 dBm	1 MHz	

The reference for this requirement is TS 25.105 subclause 6.6.3.4.1.1.

6.6.3.2.4.2 Co-located base stations

This requirement may be applied for the protection of UTRA FDD BS receivers when UTRA TDD BS and UTRA FDD BS are co-located.

The power of any spurious emission shall not exceed the maximum level given in Table 6.6.3.2.4.2.1.

Table 6.17: BS Spurious emissions limits for BS co-located with UTRA FDD

Band	Maximum Level	Measurement Bandwidth	Note
1920 – 1980 MHz	-86 dBm	1 MHz	
2110 – 2170 MHz	-52 dBm	1 MHz	

The reference for this requirement is TS 25.105 subclause 6.6.3.4.2.1.

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25.142	CR	009	Current Version:	3.0.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to:	RAN #7	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: *(at least one should be marked with an X)* (U)SIM [ ] ME [ ] UTRAN / Radio [X] Core Network [ ]

Source: RAN WG4 **Date:** 29.2.2000

Subject: Clause 5: General test conditions and declarations

Work item: TS 25.142

Category: *(only one category shall be marked with an X)*

F	Correction	X	**Release:**	Phase 2	
A	Corresponds to a correction in an earlier release			Release 96	
B	Addition of feature			Release 97	
C	Functional modification of feature			Release 98	
D	Editorial modification			Release 99	X
				Release 00	

Reason for change: Introduction of additional manufacturer's declarations to avoid ambiguities during conformance testing. Additionally, some editorial improvements and corrections are introduced.

Clauses affected:

Other specs affected:

Other 3G core specifications		→ List of CRs:
Other GSM core specifications		→ List of CRs:
MS test specifications		→ List of CRs:
BSS test specifications		→ List of CRs:
O&M specifications		→ List of CRs:

Other comments:

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5 General test conditions and declarations

The requirements of this clause apply to all tests in this TS, when applicable.

The general conditions during the tests should be according to the relevant parts of ETR 027 [2] (methods of measurement for mobile radio equipment) with the exceptions and additions defined in the individual tests.

Many of the tests in this TS measure a parameter relative to a value which is not fully specified in the UTRA specifications. For these tests, the conformance requirement is determined relative to a nominal value specified by the manufacturer.

Certain functions of a BS are optional in the UTRA specifications.

When specified in a test, the manufacturer shall declare the nominal value of a parameter, or whether an option is supported.

5.1 Base station classes

The requirements in this specification apply to base stations intended for general-purpose applications in co-ordinated network operation.

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

5.2 Output power and determination of power class

The manufacturer shall declare the maximum output power of the base station which is defined as the mean power level per carrier at the antenna connector; see subclause 6.2.

5.3 Specified frequency range

The manufacturer shall declare:

- which of the frequency bands defined in sub-clause 4.2 is supported by the BS.
- the frequency range within the above frequency band(s) supported by the BS. As TDD is employed, the same frequency range is used for transmit and receive operation.

Many tests in this TS are performed with appropriate frequencies in the bottom, middle and top of the operating frequency band of the BS. These are denoted as RF channels B (bottom), M (middle) and T (top).

When a test is performed by a test laboratory, the UARFCNs to be used for RF channels B, M and T shall be specified by the laboratory. The laboratory may consult with operators, the manufacturer or other bodies.

When a test is performed by a manufacturer, the UARFCNs to be used for RF channels B, M and T may be specified by an operator.

5.4 Spectrum emission mask

The manufacturer shall declare whether the BS under test is intended to operate in regions where conformance to the spectrum emission mask defined in subclause 6.6.2.1.2 is mandatory. If so, the conformance test for spectrum emission mask specified in subclause 6.6.2.1 shall be performed; otherwise, this test is not required.

5.5 Adjacent Channel Leakage power Ratio (ACLR)

The manufacturer shall declare:

- whether the BS under test is intended to operate in proximity to another TDD BS or FDD BS operating on the first or second adjacent frequency. If so, conformance with the ACLR requirement specified in subclause 6.6.2.2.2.2 is mandatory; otherwise, this requirement needs not to be tested.

- whether the BS under test is intended to operate co-sited to another TDD BD or FDD BS operating on the first or second adjacent frequency. If so, conformance with the ACLR requirement specified in subclause 6.6.2.2.2.3 is mandatory; otherwise, this requirement needs not to be tested.

5.6 Tx spurious emissions

5.6.1 Category of spurious emissions limit

The manufacturer shall declare one of the following:

a) the BS shall be tested against Category A limits for spurious emissions, as defined in ITU-R Recommendation SM.329-7 [6].

or

b) the BS shall be tested against Category B limits for spurious emissions, as defined in ITU-R Recommendation SM.329-7 [6].

If the manufacturer declares Category A limits to be applicable, conformance with the spurious emissions requirements specified in subclause 6.6.3.2.1.1 is mandatory, and the requirements specified in subclause 6.6.3.2.1.2 need not to be tested. If the manufacturer declares Category B limits to be applicable, conformance with the spurious emissions requirements specified in subclause 6.6.3.2.1.2 is mandatory, and the requirements specified in subclause 6.6.3.2.1.1 need not to be tested.

5.6.2 Co-existence with GSM

The manufacturer shall declare:

- whether the BS under test is intended to operate in geographic areas in which also GSM 900 is deployed. If so, compliance with the conformance requirement specified in subclause 6.6.3.2.2.1 is mandatory; otherwise, this requirement needs not to be tested.

- whether the BS under test is intended to operate co-located with a GSM 900 BTS. If so, compliance with the conformance requirement specified in subclause 6.6.3.2.2.2 is mandatory; otherwise, this requirement needs not to be tested.

5.6.3 Co-existence with DCS 1800

The manufacturer shall declare:

- whether the BS under test is intended to operate in geographic areas in which also DCS 1800 is deployed. If so, compliance with the conformance requirement specified in subclause 6.6.3.2.3.1 is mandatory; otherwise, this requirement needs not to be tested.

- whether the BS under test is intended to operate co-located with a DCS 1800 BTS. If so, compliance with the conformance requirement specified in subclause 6.6.3.2.3.2 is mandatory; otherwise, this requirement needs not to be tested.

5.6.4 Co-existence with UTRA FDD

The manufacturer shall declare:

- whether the BS under test is intended to operate in geographic areas in which also UTRA FDD is deployed. If so, compliance with the conformance requirement specified in subclause 6.6.3.2.4.1 is mandatory; otherwise, this requirement needs not to be tested.

- whether the BS under test is intended to operate co-located with a UTRA FDD BS. If so, compliance with the conformance requirement specified in subclause 6.6.3.2.4.2 is mandatory; otherwise, this requirement needs not to be tested.

5.7 Blocking characteristics

The conformance requirements with respect to the parameter blocking characteristics are dependent on the operating frequency bands of the BS under test; see subclause 7.5.2. However, no additional declaration is required; the need for a manufacturer's declaration of the frequency bands supported by the BS is already covered by subclause 5.3

If the manufacturer has declared that the BS supports the frequency bands defined in subclause 4.2 a), compliance with the conformance requirements specified in table 7.5.2.1 is mandatory. If the manufacturer has declared that the BS supports the frequency bands defined in subclause 4.2 b) or 4.2 c), compliance with the conformance requirements specified in table 7.5.2.2 is mandatory.

5.84 Test environments

For each test in this TS, the environmental conditions under which the BS is to be tested are defined.

5.84.1 Normal test environment

When a normal test environment is specified for a test, the test should be performed under any combination of conditions between the minimum and maximum limits stated in table 5.84.1.1.

Table 5.84.1.1: Limits of conditions for Normal Test Environment

Condition	Minimum	Maximum
Barometric pressure	86 kPa	106 kPa
Temperature	15°C	30°C
Relative Humidity	20 %	85 %
Power supply	Nominal, as declared by the manufacturer	
Vibration	Negligible	

The ranges of barometric pressure, temperature and humidity represent the maximum variation expected in the uncontrolled environment of a test laboratory. If it is not possible to maintain these parameters within the specified limits, the actual values shall be recorded in the test report.

NOTE: This may, for instance, be the case for measurements of radiated emissions performed on an open field test site.

5.84.2 Extreme test environment

The manufacturer shall declare one of the following:

a) The equipment class for the equipment under test, as defined in ETS 300 019-1-3, (Equipment Engineering (EE); Environmental conditions and environmental test for telecommunications equipment, Part 1-3: Classification of environmental conditions, Stationary use at weather protected locations).

b) The equipment class for the equipment under test, as defined in ETS 300 019-1-4, (Equipment Engineering (EE); Environmental conditions and environmental test for telecommunications equipment, Part 1-4: Classification of environmental conditions, Stationary use at non-weather protected locations).

c) For equipment that does not comply to an ETS 300 019-1 [8] class, the relevant classes from IEC 721 [3] documentation for Temperature, Humidity and Vibration shall be declared.

NOTE: Reduced functionality for conditions that fall out side of the standard operational conditions are not tested in this TS. These may be stated and tested separately.

5.84.2.1 Extreme temperature

When an extreme temperature test environment is specified for a test, the test shall be performed at the standard minimum and maximum operating temperatures defined by the manufacturer's declaration for the equipment under test.

Minimum temperature:

The test shall be performed with the environmental test equipment and methods of inducing the required environmental phenomena into the equipment, conforming to the test procedure of IEC 68-2-1 [4], Environmental Testing, Part 2: Tests - Tests A: Cold. The equipment shall be maintained at the stabilized condition for the duration of the test sequence.

Maximum temperature:

The test shall be performed with the environmental test equipment and methods of inducing the required environmental phenomena in to the equipment, conforming to the test procedure of IEC 68-2-2 [4] (Environmental Testing, Part 2: Tests - Tests Bd Dry heat). The equipment shall be maintained at the stabilized condition for the duration of the test sequence.

NOTE: It is recommended that the equipment is made fully operational prior to the equipment being taken to its lower operating temperature.

5.84.3 Vibration

When vibration conditions are specified for a test, the test shall be performed while the equipment is subjected to a vibration sequence as defined by the manufacturers declaration for the equipment under test. This shall use the environmental test equipment and methods of inducing the required environmental phenomena in to the equipment, conforming to the test procedure of IEC 68-2-6 [4], Environmental Testing, Part 2: Tests - Test Fc and guidance: Vibration (Sinusoidal). Other environmental conditions shall be within the ranges specified in subclause 5.4.1, Normal test environment.

NOTE: The higher levels of vibration may induce undue physical stress in to equipment after a prolonged series of tests. The testing body should only vibrate the equipment during the RF measurement process.

5.84.4 Power supply

When extreme power supply conditions are specified for a test, the test shall be performed at the standard upper and lower limits of operating voltage defined by the manufacturer's declaration for the equipment under test.

Upper voltage limit

The equipment shall be supplied with a voltage equal to the upper limit declared by the manufacturer (as measured at the input terminals to the equipment). The tests shall be carried out at a steady state minimum and maximum limit declared by the manufacturer for the equipment, to the methods described in IEC 68-2-1 [4] Test Ab/Ad: Cold and IEC 68-2-2 Test Bb/Bd: Dry Heat.

Lower voltage limit

The equipment shall be supplied with a voltage equal to the lower limit declared by the manufacturer (as measured at the input terminals to the equipment). The tests shall be carried out at a steady state minimum and maximum limit declared by the manufacturer for the equipment, to the methods described in IEC 68-2-1 [4] Test Ab/Ad: Cold and IEC 68-2-2 [4] Test Bb/Bd: Dry Heat.

5.84.5 Acceptable uncertainty of measurement equipment

The maximum acceptable uncertainty of measurement equipment is specified separately for each test, where appropriate. The measurement equipment shall enable the stimulus signals in the test case to be adjusted to within the specified tolerance, and the conformance requirement to be measured with an uncertainty not exceeding the specified values. All tolerances and uncertainties are absolute values, unless otherwise stated.

Subclause 5.84, Test environments:

Pressure	± 5 kPa
Temperature	± 2 degrees
Relative Humidity	± 5 %
DC Voltage	± 1,0 %
AC Voltage	± 1,5 %
Vibration	10 %
Vibration frequency	0,1 Hz

The above values shall apply unless the test environment is controlled and the specification for the control of the test environment specifies the uncertainty for the parameter.

Transmitter

Subclause 6.2, Base station maximum output power:

Conformance requirement:

RF power, for static power step 0 ± 1,0 dB

Subclause 6.3, Frequency stability:

Conformance requirement:

Frequency ± 10 Hz

Subclause 6.4, Output power dynamics

Conformance requirement:

RF power, for static power steps (minimum and maximum Tx power)	± 1,0 dB
Relative RF Power	± 0,7 dB

Subclause 6.5, Transmit OFF power:

Conformance requirement:

RF power difference

Power difference < 50 dB ± 0,7 dB

Power difference ≥ 50 dB ± 1,5 dB

Subclause 6.6, Output RF spectrum emissions

Conformance requirement:

RF power difference

Power difference < 50 dB ± 0,7 dB

Power difference ≥ 50 dB ± 1,5 dB

Relative RF power:

Table 5.84.5.1: Acceptable uncertainty of relative RF power measurements

Offset from carrier, MHz	Power difference, dB	Uncertainty of relative power, dB

Spurious emissions

RF power

- inside the BS transmit band ± 1.5 dB

- outside the BS transmit band:

f ≤ 2 GHz ± 1.5 dB

2 GHz < f ≤ 4 GHz ± 2.0 dB

f > 4 GHz ± 4.0 dB

Subclause 6.7, Transmit intermodulation:

Test case:

Relative RF power (of injected signal) ± 1.5 dB

Conformance requirement (outside RX band):

RF power; absolute limit values ± 1.5 dB

RF power, relative measurements ± 2.0 dB

Conformance requirement (inside RX band):

RF power; absolute limit values +4 dB -3 dB

NOTE: The positive limit for uncertainty is greater than the negative limit because the measurement result can be increased (but not decreased) due to intermodulation products within the measurement apparatus.

Receiver

Where a measurement uncertainty of +5 dB -0 dB is specified for an input signal, the measured value of the input signal should be increased by an amount equal to the uncertainty with which it can be measured. This will ensure that the true value of the input signal is not below the specified nominal.

Subclause 7.2, Reference sensitivity level

Test case:

RF power ± 1.0 dB

Subclause 7.3, Dynamic range:

Test case:

RF power ± 1.5 dB

Relative RF power ± 3.0 dB

Subclause 7.4, Adjacent Channel Selectivity (ACS):

Test case:

RF power ± 1.5 dB

Relative RF power ± 3.0 dB

Subclause 7.5, Blocking characteristics:

Test case:

RF power, wanted signal ± 1.0 dB

RF power, interfering signal;

$f \leq 2$ GHz ± 0.7 dB

2 GHz $< f \leq 4$ GHz ± 1.5 dB

$f > 4$ GHz ± 3.0 dB

Subclause 7.6, Intermodulation characteristics:

Test case:

RF power, wanted signal ± 1.0 dB

RF power, interfering signals ± 0.7 dB

Subclause 7.7, Spurious emissions:

Conformance requirement:

RF power;

f ≤ 2 GHz ± 1.5 dB

2 GHz < f ≤ 4 GHz ± 2.0 dB

f > 4 GHz ± 4.0 dB

5.9~~5~~ Interpretation of measurement results

The requirements given in these specifications are absolute. Compliance with the requirement is determined by comparing the measured value with the specified limit, without making allowance for measurement uncertainty.

The measurement uncertainty for the measurement of each parameter shall be included in the test report.

The recorded value for the measurement uncertainty shall be, for each measurement, equal to or lower than the appropriate figure in subclause 5.8~~4~~ of this TS.

NOTE: This procedure is recommended in ETR 028 [5].

If the measurement apparatus for a test is known to have a measurement uncertainty greater than that specified in subclause 5.8~~4~~, it is still permitted to use this apparatus provided that an adjustment is made to the measured value as follows:

The adjustment is made by subtracting the modulus of the specified measurement uncertainty in subclause 4.7 from the measurement uncertainty of the apparatus. The measured value is then increased or decreased by the result of the subtraction, whichever is most unfavourable in relation to the limit.

5.10~~6~~ Selection of configurations for testing

Most tests in this TS are only performed for a subset of the possible combinations of test conditions. For instance:

- Not all TRXs in the configuration may be specified to be tested.
- Only one RF channel may be specified to be tested.
- Only one timeslot may be specified to be tested.

When a test is performed by a test laboratory, the choice of which combinations are to be tested shall be specified by the laboratory. The laboratory may consult with operators, the manufacturer or other bodies.

When a test is performed by a manufacturer, the choice of which combinations are to be tested may be specified by an operator.

5.11~~7~~ BS Configurations

This TS has been written to specify tests for the standard configurations of BS which have been assumed in UTRA requirements specifications, in particular TS 25.105 " UTRA (BS) TDD; Radio transmission and Reception " [1]. However, there are other configurations of BS which comply with these specifications, but for which the application

of these specifications is not fully defined. For some such configurations there may be alternate ways to apply the requirements of this specification to testing of the configuration, or some variation in the test method may be necessary. It may therefore be necessary for the parties to the testing to reach agreement over the method of testing in advance.

If the BS is supplied in a number of different environmental enclosures or configurations, it may not be necessary to test RF parameters for each environmental configuration, provided that it can be demonstrated that the equipment has been tested at the worst internal environmental conditions.

Where alternative interpretations of this specification are possible for a BS configuration under test, the interpretation which has been adopted in performing the test shall be recorded with the test results.

Where variation in the test method within this TS has been necessary to enable a BS configuration to be tested, the variation in the test method which has been made in performing the test shall be recorded with the test results. Where possible, agreement should be reached in advance about the nature of such a variation with any party who will later receive the test results.

Possible interpretations of this TS for some common configurations are given in the following subclauses.

5.11~~7~~.1 Receiver diversity

~~i)~~ For the tests in clause 7 of this TS, the specified test signals ~~may~~shall be applied to one receiver antenna connector, with the remaining receiver antenna connectors being terminated with 50 ohms.

~~or~~

~~ii) For the tests in clause 7 of this TS, the specified test signals may be simultaneously applied to each of the receiver antenna connectors.~~

5.11~~7~~.2 Duplexers

Due to TDD operation, there is no need to use a duplexer in the BS.

5.11~~7~~.3 Power supply options

If the BS is supplied with a number of different power supply configurations, it may not be necessary to test RF parameters for each of the power supply options, provided that it can be demonstrated that the range of conditions over which the equipment is tested is at least as great as the range of conditions due to any of the power supply configurations.

This applies particularly if a BS contains a DC rail which can be supplied either externally or from an internal mains power supply. In this case, the conditions of extreme power supply for the mains power supply options can be tested by testing only the external DC supply option. The range of DC input voltages for the test should be sufficient to verify the performance with any of the power supplies, over its range of operating conditions within the BS, including variation of mains input voltage, temperature and output current.

5.11~~7~~.4 Ancillary RF amplifiers

Ancillary RF amplifier: a piece of equipment, which when connected by RF coaxial cables to the BS, has the primary function to provide amplification between the transmit and/or receive antenna connector of a BS and an antenna without requiring any control signal to fulfil its amplifying function.

The requirements of this TS shall be met with the ancillary RF amplifier fitted. At tests according to clause 6 and 7 for TX and RX respectively, the ancillary amplifier is connected to the BS by a connecting network (including any cable(s), attenuator(s), etc.) with applicable loss to make sure the appropriate operating conditions of the ancillary amplifier and the BS. The applicable connecting network loss range is declared by the manufacturer. Other characteristics and the temperature dependence of the attenuation of the connecting network are neglected. The actual attenuation value of the connecting network is chosen for each test as one of the applicable extreme values. The lowest value is used unless otherwise stated.

Sufficient tests should be repeated with the ancillary amplifier fitted and, if it is optional, without the ancillary RF amplifier to verify that the BS meets the requirements of this TS in both cases.

5.11~~7~~.5 BS using antenna arrays

A BS may be configured with a multiple antenna port connection for some or all of its TRXs or with an antenna array related to one cell (not one array per TRX). This subclause applies to a BS which meets at least one of the following conditions:

- The transmitter output signals from one or more TRX appear at more than one antenna port, or
- there is more than one receiver antenna port for a TRX or per cell and an input signal is required at more than one port for the correct operation of the receiver (NOTE: diversity reception does not meet this requirement) thus the outputs from the transmitters as well as the inputs to the receivers are directly connected to several antennas (known as "aircombining"), or
- transmitters and receivers are connected via duplexers to more than one antenna

If a BS is used, in normal operation, in conjunction with an antenna system which contains filters or active elements which are necessary to meet the UTRA requirements, the tests of conformance may be performed on a system comprising the BS together with these elements, supplied separately for the purposes of testing. In this case, it must be demonstrated that the performance of the configuration under test is representative of the system in normal operation, and the conformance assessment is only applicable when the BS is used with the antenna system.

For testing of conformance of such a BS, the following procedure may be used:

Receiver tests

For each test, the test signals applied to the receiver antenna connectors shall be such that the sum of the powers of the signals applied equals the power of the test signal(s) specified in the test.

An example of a suitable test configuration is shown in figure 5.11~~7~~.5.1.

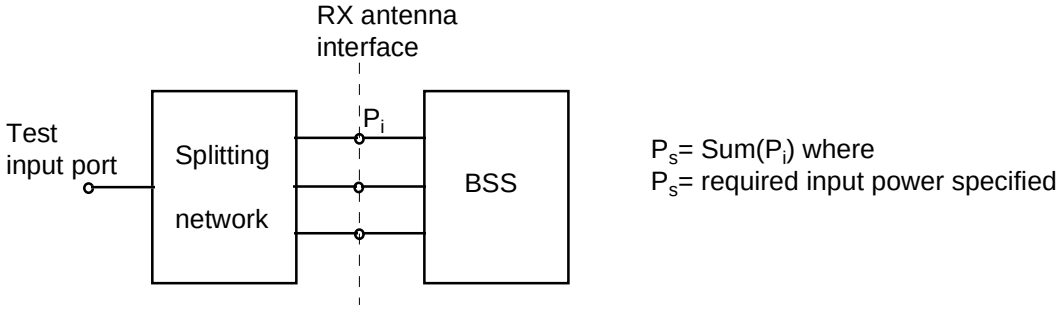

Figure 5.11~~7~~.5.1: Receiver test setup

For spurious emissions from the receiver antenna connector, the test may be performed separately for each receiver antenna connector.

Transmitter tests

For each test, the conformance requirement shall be met by the sum of the signals emitted by each transmitter antenna connector. This may be assessed by separately measuring the signals emitted by each antenna connector and summing the results, or by combining the signals and performing a single measurement. The characteristics (e.g. amplitude and phase) of the combining network should be such that the power of the combined signal is maximised.

An example of a suitable test configuration is shown in figure 5.11~~7~~.5.2.

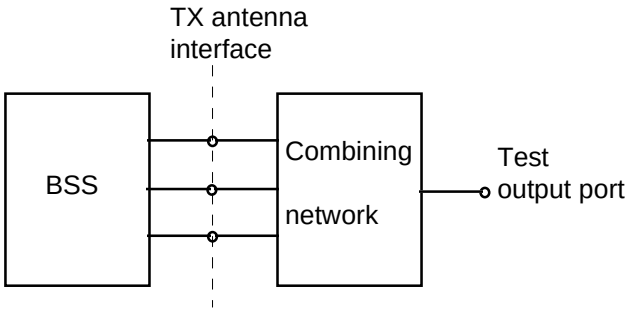

Figure 5.11~~7~~.5.2: Transmitter test setup

For Intermodulation attenuation, the test may be performed separately for each transmitter antenna connector.

5.12~~8~~ Overview of the conformance test requirements

Tables 5.12~~8~~.1, 5.12~~8~~.2 and 5.12~~8~~.3 give an overview of the conformance test requirements for the transmitter, the receiver and system performance, respectively.

Table 5.12~~8~~.1: Overview of the conformance tests requirements for the transmitter

~~Requirement specified in reference TS [1]~~		~~Sub-clause of Conformance Test TS~~
~~Name~~	~~Sub-clause of [1]~~	
~~Base station output power~~	~~6.2~~	
~~Frequency stability~~	~~6.3~~	
~~Output power dynamics~~	~~6.4~~	
~~Inner loop power control~~	~~6.4.1~~	
~~Power control steps~~	~~6.4.2~~	
~~Power control dynamic range~~	~~6.4.3~~	
~~Minimum transmit power~~	~~6.4.4~~	
~~Primary CCPCH power~~	~~6.4.5.~~	
~~Transmit OFF power~~	~~6.5~~	
~~Output RF spectrum emissions~~	~~6.6~~	
~~Occupied bandwidth~~	~~6.6.1~~	
~~Out-of-band emission~~	~~6.6.2~~	
~~Spectrum emission mask~~	~~6.6.2.1~~	
~~Adjacent Channel Leakage power Ratio (ACLR)~~	~~6.6.2.2~~	
~~Protection outside a licensee's frequency block~~	~~6.6.2.3~~	
~~Spurious emissions~~	~~6.6.3~~	
~~Mandatory requirements~~	~~6.6.3.1~~	
~~Co-existence with GSM 900~~	~~6.6.3.2~~	
~~Co-existence with DCS 1800~~	~~6.6.3.3~~	
~~Transmit intermodulation~~	~~6.7~~	
~~Modulation accuracy~~	~~6.8~~	

Parameter	Subclause	Note
Maximum output power	6.2	manufacturer's declaration required
Frequency stability	6.3	
Output power dynamics	6.4	
Inner loop power control	6.4.1	
Power control steps	6.4.2	
Power control dynamic range	6.4.3	
Minimum transmit power	6.4.4	
Primary CCPCH power	6.4.5.	
Transmit OFF power	6.5	
Output RF spectrum emissions	6.6	
Occupied bandwidth	6.6.1	
Out-of-band emission	6.6.2	
Spectrum emission mask	6.6.2.1	manufacturer's declaration required
Adjacent Channel Leakage power Ratio (ACLR)	6.6.2.2	manufacturer's declaration required
Spurious emissions	6.6.3	
Mandatory requirements	6.6.3.2.1	manufacturer's declaration required
Co-existence with GSM 900	6.6.3.2.2	manufacturer's declaration required
Co-existence with DCS 1800	6.6.3.2.3	manufacturer's declaration required
Co-existence with UTRA FDD	6.6.3.2.4	manufacturer's declaration required
Transmit intermodulation	6.7	
Transmit modulation	6.8	
Modulation accuracy	6.8.1	
Peak code domain error	6.8.2	

Table 5.128.2: Overview of the conformance tests requirements for the receiver

~~Requirement specified in reference TS [1]~~		~~Sub-clause of Conformance Test TS~~
~~Name~~	~~Sub-clause of [1]~~	
~~Reference sensitivity level~~	~~7.2~~	
~~Dynamic range~~	~~7.3~~	
~~Adjacent Channel Selectivity (ACS)~~	~~7.4~~	
~~Blocking characteristics~~	~~7.5~~	
~~Intermodulation characteristics~~	~~7.6~~	
~~Spurious emissions~~	~~7.7~~	

Parameter	Subclause	Note
Reference sensitivity level	7.2	
Dynamic range	7.3	
Adjacent Channel Selectivity (ACS)	7.4	
Blocking characteristics	7.5	manufacturer's declaration required
Intermodulation characteristics	7.6	
Spurious emissions	7.7	

Table 5.128.3: Overview of the conformance test requirements for system performance

~~Requirement specified in reference TS [1]~~		~~Sub-clause of Conformance Test TS~~
~~Name~~	~~Sub-clause of [1]~~	
~~Demodulation in static propagation conditions~~	~~8.2~~	
~~Demodulation of DCH~~	~~8.2.1~~	
~~Demodulation of DCH in multipath fading conditions~~	~~8.3~~	
~~Multipath fading Case 1~~	~~8.3.1~~	
~~Multipath fading Case 2~~	~~8.3.2~~	
~~Multipath fading Case 3~~	~~8.3.3~~	

Parameter	Subclause	Note
Demodulation in static propagation conditions	8.2	
Demodulation of DCH	8.2.1	
Demodulation of DCH in multipath fading conditions	8.3	
Multipath fading Case 1	8.3.1	
Multipath fading Case 2	8.3.2	
Multipath fading Case 3	8.3.3	

5.139 Format and interpretation of tests

Each test in the following clauses has a standard format:

X Title

The title gives the name of the parameter to be tested.

X.1 ~~Test purpose~~Definition and applicability

This subclause gives the general definition of the parameter under consideration and specifies whether the test is applicable to all equipment or to a certain subset only.

~~This subclause defines the purpose of the test.~~

X.2 ~~Test case~~Conformance requirements

This subclause describes the requirements the equipment under test has to fulfil to ensure compliance with the relevant specification.

In addition, this subclause contains the reference to the subclause to the 3GPP reference (or core) specification from which the conformance requirements are derived.

~~This subclause describes the steps necessary to perform the test. The general test conditions described in clause 5 also apply.~~

X.3 ~~Conformance requirements~~Test purpose

This subclause defines the purpose of the test.

X.4 Method of test

X.4.1 Initial conditions

This subclause defines the initial conditions for each test, including the basic measurement setup.

X.4.2 Procedure

This subclause describes the steps necessary to perform the test and provides further details of the test definition like point of access (e.g. antenna port), domain (e.g. frequency-span), range, weighting (e.g. bandwidth), and algorithms (e.g. averaging).

X.5 Test requirements

This subclause defines the pass/fail criteria for the equipment under test.

~~This subclause describes the conformance requirements necessary to ensure compatibility and to verify the important aspects of the transmission quality of the system. This subclause is divided into two parts:~~

~~**Test environment**~~

~~This subclause describes the test environment or environments under which the test shall be performed. Where more than one test environment is specified, the extent of testing is specified for each environment.~~

~~**Conformance requirement**~~

~~This subclause describes the requirement which shall be met for the specified tests.~~

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25.142	CR	010	Current Version:	3.0.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to:	RAN #7	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: *(at least one should be marked with an X)* (U)SIM [ ] ME [ ] UTRAN / Radio [X] Core Network [ ]

Source: RAN WG4 **Date:** 29.2.2000

Subject: Conformance test description for Primary CCPCH power

Work item: TS 25.142

Category: *(only one category shall be marked with an X)*

F	Correction	X	**Release:**	Phase 2	
A	Corresponds to a correction in an earlier release			Release 96	
B	Addition of feature			Release 97	
C	Functional modification of feature			Release 98	
D	Editorial modification			Release 99	X
				Release 00	

Reason for change: Alignment of the conformance test description for Primary PCCPCH with new requirements incorporated into TS 25.105 via CR 002r2

Clauses affected: 6.4.5

Other specs affected:

Other 3G core specifications		→ List of CRs:
Other GSM core specifications		→ List of CRs:
MS test specifications		→ List of CRs:
BSS test specifications		→ List of CRs:
O&M specifications		→ List of CRs:

Other comments:

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6.4.4.5 Test requirements

For all measurements, the minimum transmit power derived in step (4) of 6.4.4.4.2 shall be at least 30 dB below the maximum output power as declared by the manufacturer; see 6.2.

6.4.5 Primary CCPCH power

6.4.5.1 Definition and applicability

Primary CCPCH power is the transmission power of the Primary Common Control Physical Channel averaged over the transmit timeslot. Primary CCPCH power is signaled on the BCH.

The requirements in this subclause shall apply to base stations intended for general-purpose applications.

6.4.5.2 Conformance requirements

~~In normal conditions, the Primary CCPCH power shall remain within ± 2 dB of the value indicated by the signaling message on the BCH.~~

~~In extreme conditions, the Primary CCPCH power shall remain within ±2,5 dB of the value indicated by the signaling message on the BCH.~~

The error between the BCH-broadcast value of the Primary CCPCH power and the Primary CCPCH power shall not exceed the values in table 6.4.5.2.1.

Table 6.4.5.2.1: Errors between Primary CCPCH power and the broadcast value

Total power in slot, dB	PCCPCH power tolerance
Pmax - 3 < P ≤ Pmax	+/- 2,5 dB
Pmax - 6 < P ≤ Pmax - 3	+/- 3,5 dB
Pmax - 13 < P ≤ Pmax - 6	+/- 5 dB

The reference for this requirement is TS 25.105 subclause 6.4.5.

6.4.5.3 Test purpose

The power of the Primary CCPCH received by the UE, together with the information on the Primary CCPCH nominal transmit power signaled on the BCH, are used by the UE for path loss estimation and adjustment of its own transmit power. Therefore, deviations of the Primary CCPCH power from its nominal value are transposed by the UE into deviations from the wanted transmit power of the UE.

The test purpose is to verify that the Primary CCPCH power remains within its specified tolerances under normal and extreme conditions.

6.4.5.4 Method of test

6.4.5.4.1 Initial conditions

(1) Connect the BS tester to the antenna connector of the BS under test. The BS~~s~~ tester must have the ability to analyze the output signal of the BS under test with respect to code domain power, by applying the global in-channel Tx test method described in Annex C.

(2) Set the parameters of the BS transmitted signal according to table 6.4.5.4.1.1.

~~(3)Set the environmental conditions to normal.~~

Table 6.4.5.4.1.1: Parameters of the BS transmitted signal for Primary CCPCH power testing

Parameter	Value/description
TDD Duty Cycle	TS i; i = 0, 1, 2, ..., 14: transmit, if i is even; receive, if i is odd.
Time slots carrying PCCPCH	TS 0 and TS 8
Number of additional DPCH in TS 0 and TS 8	3
Base station output power	mMaximum, according to manufacturer's declaration
Relative pPower of PCCPCH	¼ of BS output power
Relative pPower of each DPCH in TS 0 and TS 8	¼ of BS output power
Data content of DPCH	rReal life (sufficient irregular)

6.4.5.4.2 Procedure

(1) Measure the PCCPCH power in TS 0 and TS 8 by applying the global in-channel Tx test method described in Annex C.

(2) Reduce the base station output power by 2 dB, 5 dB and 13 dB, without changing the relative powers of the PCCPCH and the DPCHs, and repeat step (1) for each output power setting.

~~(2)Average over TBD time slots.~~

~~(3)Set the environmental conditions to extreme and repeat steps (1) and (2).~~

6.4.5.5 Test requirements

The Primary CCPCH power, measured according to subclause 6.4.5.4.2, shall be within the limits defined in subclause 6.4.5.2.

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25.142	CR	011	Current Version:	3.0.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

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Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: *(at least one should be marked with an X)* (U)SIM [ ] ME [ ] UTRAN / Radio [X] Core Network [ ]

Source: RAN WG4 **Date:** 29.2.2000

Subject: Conformance test description for transmit OFF power

Work item: TS 25.142

Category: *(only one category shall be marked with an X)*

F	Correction	X	**Release:**	Phase 2	
A	Corresponds to a correction in an earlier release			Release 96	
B	Addition of feature			Release 97	
C	Functional modification of feature			Release 98	
D	Editorial modification			Release 99	X
				Release 00	

Reason for change: Correction of the sampling timing and the averaging period of the transmit OFF power measurements

Clauses affected: 6. 5.4.2

Other specs affected:

Other 3G core specifications		→ List of CRs:
Other GSM core specifications		→ List of CRs:
MS test specifications		→ List of CRs:
BSS test specifications		→ List of CRs:
O&M specifications		→ List of CRs:

Other comments:

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6.5 Transmit OFF power

6.5.1 Definition and applicability

The transmit OFF power is the maximum residual output power within the channel bandwidth when the BS does not transmit.

6.5.2 Conformance requirements

The transmit OFF power shall be less than ~~-33~~ -79 dBm measured with a filter that has a Root-Raised Cosine (RRC) filter response with a roll-off $\alpha = 0,22$ and a bandwidth equal to the chip rate.

The reference for this requirement is TS 25.105 subclause 6.5.1.

6.5.3 Test purpose

This test verifies the ability of the BS to reduce its transmit OFF power to a value below the specified limit. This ability is needed to minimize the interference for other users receiving on the same frequency.

6.5.4 Method of test

6.5.4.1 Initial conditions

(1) Connect the power measuring equipment to the BS antenna connector.

(2) Set the parameters of the transmitted signal according to table 6.5.4.1.1.

Table 6.5.4.1.1 Parameters of the transmitted signal for transmit OFF power test

Parameter	Value/description
TDD Duty Cycle	TS i; i = 0, 1, 2, ..., 14: transmit, if i is even; receive, if i is odd.
Base Station output power	Maximum, according to manufacturer's declaration
Number of DPCH in each active TS	9
Power of each DPCH	1/9 of Base Station output power
Data content of DPCH	Real life (sufficient irregular)

6.5.4.2 Procedure

(1) Measure the power of the BS output signal chipwise (i.e. averaged over time intervals of one chip duration) over the transmit off power period starting 20 chips before the start of the odd time slots TS i (receive time slots of the BS), and ending 16 chips before the next even time slot (transmit time slot of the BS) starts, and with a measurement filter that has a RRC filter response with a roll off $\alpha = 0,22$ and a bandwidth equal to the chip rate. If the power measuring equipment is based on signal sampling, the sampling theorem shall be met. In this case, ~~T~~the power is determined by calculating the RMS value of the signal samples taken at the measurement filter output over one chip duration~~taken at the decision points~~.

~~(2) Average over TBD time slots.~~

(2~~3~~) Run steps (1) and (2) for RF channels Low / Mid / High.

6.5.5 Test requirements

The value of the transmit OFF power derived according to subclause 6.5.4.2, shall be below the limit defined in subclause 6.5.2.

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25.142	CR	012	Current Version:	3.0.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

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Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: *(at least one should be marked with an X)* (U)SIM [ ] ME [ ] UTRAN / Radio [X] Core Network [ ]

Source: RAN WG4 **Date:** 29.2.2000

Subject: Conformance test description for Rx spurious emissions

Work item: TS 25.142

Category: *(only one category shall be marked with an X)*

F	Correction	X	**Release:**	Phase 2	
A	Corresponds to a correction in an earlier release			Release 96	
B	Addition of feature			Release 97	
C	Functional modification of feature			Release 98	
D	Editorial modification			Release 99	X
				Release 00	

Reason for change: Alignment of the conformance test description for Rx spurious emissions with corrected requirements incorporated into TS 25.105

Clauses affected: 7.7.1, 7.7.2, 7.7.4.1, 7.7.4.2

Other specs affected:

Other 3G core specifications	[ ]	→ List of CRs:
Other GSM core specifications	[ ]	→ List of CRs:
MS test specifications	[ ]	→ List of CRs:
BSS test specifications	[ ]	→ List of CRs:
O&M specifications	[ ]	→ List of CRs:

Other comments:

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7.7 Spurious emissions

7.7.1 Definition and applicability

The spurious emissions power is the power of emissions generated or amplified in a receiver that appear at the BS antenna connector. The requirements apply to all BS with separate Rx and Tx antenna connectors. For BS equipped with only a single antenna connector for both transmitter and receiver, the requirements of subclause 6.6.3 shall apply to this port, and this test need not be performed.

The requirements in this subclause shall apply to base stations intended for general-purpose applications.

~~For base stations equipped with only a single antenna connector for both transmitter and receiver, the requirements of subclause 6.6.3 shall apply to this port, and this test need not be performed.~~

7.7.2 Conformance requirements

The power of any spurious emission shall not exceed the values given in table 7.7.2.1.~~be:~~

~~(a)Less than -78 dBm/3.84 MHz at the BS antenna connector, for frequencies within the UTRA/TDD band and the UTRA/FDD BS receive band.~~

~~(b)Less than -57 dBm/100 kHz at the BS antenna connector, for frequencies bands from 9 kHz to 1 GHz.~~

~~(c)Less than -47 dBm/100 kHz at the BS antenna connector, for frequencies bands from 1 GHz to 12,75 GHz.~~

Table 7.7.2.1: Receiver spurious emission requirements

Band	Maximum level	Measurement Bandwidth	Note
9 kHz – 1 GHz	-57 dBm	100 kHz	
1 GHz – 1,9 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
1,900 – 1,980 GHz	-78 dBm	3,84 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
1,980 – 2,010 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
2.010 – 2.025 GHz	-78 dBm	3,84 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
2,025 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

The reference for this requirement is TS 25.105 subclause 7.7.1.

7.7.3 Test purpose

The test purpose is to verify the ability of the BS to limit the interference caused by receiver spurious emissions to other systems.

7.7.4 Method of test

7.7.4.1 Initial conditions

(1) Connect the measuring equipment to the antenna connector of one BS Rx port.

(2) Terminate any other BS Rx port not under test.

(3) Set the BS receiver to operational mode.

(4) Set the BS to transmit a signal with parameters according to table 7.7.4.1.1.

(5) Terminate the Tx port(s).

Table 7.7.4.1.1: Parameters of the transmitted signal for Rx spurious emissions test

Parameter	Value/description
TDD Duty Cycle	TS i; i = 0, 1, 2, ..., 14: transmit, if i is even; receive, if i is odd.
Base Station output power	maximum, according to manufacturer's declaration
Number of DPCH in each active TS	9
Power of each DPCH	1/9 of Base Station output power
Data content of DPCH	real life (sufficient irregular)

7.7.4.2 Procedure

(1) Measure the power of the spurious emissions by applying the measuring equipment with the settings as specified in table 7.7.4.2.1. The characteristics of the measurement filter with the bandwidth 3,84 MHz shall be RRC with roll-off α = 0,22. The characteristics of the measurement filters with ~~the~~ bandwidths 100 kHz and 1 MHz shall be approximately Gaussian (typical spectrum analyzer filter). The center frequency of the filters shall be stepped in contiguous steps over the frequency bands as specified in table 7.7.4.2.1. The time duration of each step shall be sufficiently long to capture one ~~radio~~even (transmit) time slot ~~frame~~.

(2) If the BS is equipped with more than one Rx port, ~~I~~interchange the connections of the BS Rx ports and repeat the measurement according to (1).

Table 7.7.4.2.1: Measurement equipment settings

~~Stepped frequency range~~	~~Measurement bandwidth~~	~~Step width~~	~~Detection mode~~
~~UTRA TDD band UTRA FDD BS receive band~~	~~3,84 MHz~~	~~200 kHz~~	~~true RMS~~
~~9 kHz – 1 GHz~~	~~100 kHz~~	~~100 kHz~~	
~~1 GHz – 12,75 GHz~~	~~100 kHz~~	~~100 kHz~~	

Stepped frequency range	**Measurement bandwidth**	**Step width**	**Note**	**Detection mode**
9 kHz – 1 GHz	100 kHz	100 kHz		true RMS
1 GHz – 1,900 GHz	1 MHz	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	
1,900 GHz – 1,980 GHz	3,84 MHz	200 kHz		
1,980 GHz – 2,010 GHz	1 MHz	1 MHz		
2,010 GHz – 2,025 GHz	3,84 MHz	200 kHz		
2,025 GHz – 12,75 GHz	1 MHz	1 MHz		

7.7.5 Test requirements

The spurious emissions measured according to subclause 7.7.4.2 shall not exceed the limits specified in subclause 7.7.2.