TSG RAN Meeting #16 **RP-020299**
Marco Island, FL, USA, 4 - 7 June 2002

Title **CRs (Rel-5) for WI "Base Station Classification for 1.28 Mcps TDD"**
Source **TSG RAN WG4**
Agenda Item **8.2.2.3**

RAN4 Tdoc	Spec	Curr Ver	New Ver	CR	R	Cat	Ph	Title	Acronym
R4-020718	25.105	5.0.0	5.1.0	116		B	Rel-5	Introduction of BS classification for 1.28 Mcps TDD option (excluding ACLR and spurious emission requirements)	RInImp-BSClass-LCRTDD
R4-020719	25.123	5.0.0	5.1.0	209		B	Rel-5	Introduction of BS classification for 1.28 Mcps TDD option	RInImp-BSClass-LCRTDD
R4-020720	25.142	5.0.0	5.1.0	125		B	Rel-5	Introduction of BS classification for 1,28 Mcps TDD option (excluding ACLR and spurious emission requirements)	RInImp-BSClass-LCRTDD

3GPP TSG RAN WG4 Meeting #23 **R4-020718**

Gyeongju, Korea 13th -17th May, 2002

CR-Form-v4

CHANGE REQUEST

⌘ **25.105** **CR** **116** ⌘ ev **-** ⌘ Current version: **5.0.0** ⌘

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

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

Title:	⌘	Introduction of BS classification for 1.28 Mcps TDD option (excluding ACLR and spurious emission requirements)
Source:	⌘	RAN WG4
Work item code:	⌘	RInImp-BSClass-LCRTDD
Date:	⌘	17/5/2002
Category:	⌘	**B**
Release:	⌘	Rel-5

Use one of the following categories:
- ***F*** *(correction)*
- ***A*** *(corresponds to a correction in an earlier release)*
- ***B*** *(addition of feature),*
- ***C*** *(functional modification of feature)*
- ***D*** *(editorial modification)*

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

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
REL-4	*(Release 4)*
REL-5	*(Release 5)*

Reason for change:	⌘	Completion of the Work Item “Base Station classification for 1.28 Mcps TDD option”, including the definition of the Local Area BS class.
Summary of change:	⌘	Incorporation of specific requirements for the Local Area BS with respect to frequency stability, reference sensitivity, receiver dynamic range, ACS, blocking, intermodulation, and demodulation performance.
Consequences if not approved:	⌘	Deployment of UTRA-TDD in small cells would be compromised.

Clauses affected:	⌘	4.2, 6.3.1.2, 7.2.1.2, 7.3.1.2, 7.4.1.2, 7.5.0, 7.5.0.2, 7.5.1, 7.6.1.2, 8.2.1.1.2, 8.3.1.1.2, 8.3.2, 8.3.3		
Other specs affected:	⌘	☐ Other core specifications ☒ Test specifications ☐ O&M Specifications	⌘	25.142
Other comments:	⌘			

How to create CRs using this form:

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

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

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

4.2 Base station classes

The requirements in this specification apply to both Wide Area Base Stations and Local Area Base Stations ~~base station intended for general purpose applications~~ in co-ordinated network operation, unless otherwise stated.

Wide Area Base Stations are charcterised by requirements based on BS to UE coupling losses equal to or higher than 53dB.

Local Area Base Stations are characterised by requirements based on BS to UE coupling losses less than 53dB.

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

--- next changed section ---

6.3 Frequency stability

Frequency stability is ability of the BS to transmit at the assigned carrier frequency. The BS shall use the same frequency source for both RF frequency generation and the chip clock.

6.3.1 Minimum Requirement

6.3.1.1 3,84 Mcps TDD Option

The modulated carrier frequency of the BS shall be accurate to within ± 0.05 PPM observed over a period of one timeslot for RF frequency generation.

6.3.1.2 1,28 Mcps TDD Option

The modulated carrier frequency ~~of the BS shall be accurate to within ± 0.05 PPM~~ is observed over a period of one timeslot for RF frequency generation. The frequency error shall be within the accuracy range given in Table 6.x.

Table 6.x: Frequency error minimum requirement

BS class	accuracy
Wide Area BS	±0.05 ppm
Local Area BS	±0.1 ppm

--- next changed section ---

7.2 Reference sensitivity level

The reference sensitivity is the minimum receiver input power measured at the antenna connector at which the FER/BER does not exceed the specific value indicated in section 7.2.1.

7.2.1 Minimum Requirement

7.2.1.1 3,84 Mcps TDD Option

For the measurement channel specified in Annex A, the reference sensitivity level and performance of the BS shall be as specified in table 7.1 below.

Table 7.1: BS reference sensitivity levels

Data rate	BS reference sensitivity level (dBm)	FER/BER
12.2 kbps	-109 dBm	BER shall not exceed 0.001

7.2.1.2 1,28 Mcps TDD Option

For the measurement channel specified in Annex A, the reference sensitivity level and performance of the BS shall be as specified in table7.1A

Table7.1A: BS reference sensitivity levels

BS Class	Data rate	BS reference sensitivity level (dBm)	FER/BER
Wide Area BS	12.2 kbps	-110 dBm	BER shall not exceed 0.001
Local Area BS	12.2 kbps	-96	BER shall not exceed 0.001

7.3 Dynamic range

Receiver dynamic range is the receiver ability to handle a rise of interference in the reception frequency channel. The receiver shall fulfil a specified BER requirement for a specified sensitivity degradation of the wanted signal in the presence of an interfering AWGN signal in the same reception frequency channel.

7.3.1 Minimum requirement

7.3.1.1 3,84 Mcps TDD Option

The BER shall not exceed 0.001 for the parameters specified in Table 7.2.

Table 7.2: Dynamic Range

Parameter	Level	Unit
Data rate	12.2	kbps
Wanted signal	<REFSENS> + 30 dB	dBm
Interfering AWGN signal	-73	dBm/3.84 MHz

7.3.1.2 1,28 Mcps TDD Option

The BER shall not exceed 0.001 for the parameters specified in Table7.2A

Table 7.2A: Dynamic Range

Parameter		Level	Unit
Data rate		12.2	kbps
Wanted signal		<REFSENS> + 30 dB	dBm
Interfering AWGN signal	Wide Area BS	-76~~dBm~~	dBm/1.28 MHz
	Local Area BS	-62	dBm/1.28 MHz

7.4 Adjacent Channel Selectivity (ACS)

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.ACS is the ratio of the receiver filter attenuation on the assigned channel frequency to the receive filter attenuation on the adjacent channel(s).

7.4.1 Minimum Requirement

7.4.1.1 3,84 Mcps TDD Option

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

Table 7.3: Adjacent channel selectivity

Parameter	Level	Unit
Data rate	12.2	kbps
Wanted signal	Reference sensitivity level + 6dB	dBm
Interfering signal	–52	dBm
Fuw (Modulated)	5	MHz

7.4.1.2 1,28 Mcps TDD Option

The BER shall not exceed 0.001 for the parameters specified in table7.3A

Table 7.3A: Adjacent channel selectivity

Parameter		Level	Unit
Data rate		12.2	kbps
Wanted signal		Reference sensitivity level + 6dB	dBm
Interfering signal	Wide Area BS	–55	dBm
	Local Area BS	–41	dBm
Fuw (Modulated)		1.6	MHz

7.5 Blocking characteristics

The blocking characteristics is a measure of the receiver ability to receive a wanted signal at its assigned channel frequency in the presence of an unwanted interferer on frequencies other than those of the adjacent channels. The blocking performance requirement applies to interfering signals with center frequency within the ranges specified in the tables below, using a 1MHz step size.

7.5.0 Minimum requirement

The static reference performance as specified in clause 7.2.1 shall be met with a wanted and an interfering signal coupled to BS antenna input using the ~~following~~ parameters as specified in table 7.4-1 for the Wide Area BS and as specified in table 7.4-2 for the Local Area BS.

7.5.0.1 3,84 Mcps TDD Option

Table 7.4 (a): Blocking requirements for operating bands defined in 5.2(a)

Centre 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 7.4(b) : Blocking requirements for operating bands defined in 5.2(b)

Centre 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, 2010 – 12750 MHz	-15 dBm	<REFSENS> + 6 dB	—	CW carrier

Table 7.4(c) : Blocking requirements for operating bands defined in 5.2(c)

Centre Frequency of Interfering Signal	Interfering Signal Level	Wanted Signal Level	Minimum Offset of Interfering Signal	Type of Interfering Signal
1910 – 1930 MHz	-40 dBm	<REFSENS> + 6 dB	10 MHz	WCDMA signal with one code
1890 – 1910 MHz, 1930 – 1950 MHz	-40 dBm	<REFSENS> + 6 dB	10 MHz	WCDMA signal with one code
1 – 1890 MHz, 1950 – 12750 MHz	-15 dBm	<REFSENS> + 6 dB	—	CW carrier

7.5.0.2 1,28 Mcps TDD Option

Table 7.4A-1(a): Blocking requirements for Wide Area BS in operating bands defined in 5.2(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	3.2MHz	Narrow band CDMA signal with one code
1880 – 1900 MHz, 1990 – 2010 MHz, 2025 – 2045 MHz	-40dBm	<REFSENS> + 6 dB	3.2MHz	Narrow band CDMA signal with one code
1920 – 1980 MHz	-40dBm	<REFSENS> + 6 dB	3.2MHz	Narrow band CDMA signal with one code
1 – 1880 MHz, 1980 – 1990 MHz, 2045 – 12750 MHz	-15dBm	<REFSENS> + 6 dB	—	CW carrier

Table 7.4A-1(b): Blocking requirements for Wide Area BS in operating bands defined in 5.2(b)

Center Frequency of Interfering Signal	Interfering Signal Level	Wanted Signal Level	Minimum Offset of Interfering Signal	Type of Interfering Signal
1850 – 1990 MHz	-40dBm	<REFSENS> + 6 dB	3.2MHz	Narrow band CDMA signal with one code
1830 – 1850 MHz, 1990 – 2010 MHz	-40 dBm	<REFSENS> + 6 dB	3.2MHz	Narrow band CDMA signal with one code
1 – 1830 MHz, 2010 – 12750 MHz	-15 dBm	<REFSENS> + 6 dB	—	CW carrier

Table 7.4A-1(c): Blocking requirements for Wide Area BS in operating bands defined in 5.2(c)

Center Frequency of Interfering Signal	Interfering Signal Level	Wanted Signal Level	Minimum Offset of Interfering Signal	Type of Interfering Signal
1910 – 1930 MHz	-40dBm	<REFSENS> + 6 dB	3.2MHz	Narrow band CDMA signal with one code
1890 – 1910 MHz, 1930 – 1950 MHz	-40dBm	<REFSENS> + 6 dB	3.2 MHz	Narrow band CDMA signal with one code
1 – 1890 MHz, 1950 – 12750 MHz	-15 dBm	<REFSENS> + 6 dB	—	CW carrier

Table 7.4A-2(a): Blocking requirements for Local Area BS in operating bands defined in 5.2(a)

Center Frequency of Interfering Signal	Interfering Signal mean power	Wanted Signal mean power	Minimum Offset of Interfering Signal	Type of Interfering Signal
1900 – 1920 MHz, 2010 – 2025 MHz	-30 dBm	–90 dBm	3.2MHz	Narrow band CDMA signal with one code
1880 – 1900 MHz, 1990 – 2010 MHz, 2025 – 2045 MHz	-30 dBm	–90 dBm	3.2MHz	Narrow band CDMA signal with one code
1920 – 1980 MHz	-30 dBm	–90 dBm	3.2MHz	Narrow band CDMA signal with one code
1 – 1880 MHz, 1980 – 1990 MHz, 2045 – 12750 MHz	-15dBm	–90 dBm	—	CW carrier

Table 7.4A-2(b): Blocking requirements for Local Area BS in operating bands defined in 5.2(b)

Center Frequency of Interfering Signal	Interfering Signal mean power	Wanted Signal mean power	Minimum Offset of Interfering Signal	Type of Interfering Signal
1850 – 1990 MHz	-30 dBm	–90 dBm	3.2MHz	Narrow band CDMA signal with one code
1830 – 1850 MHz, 1990 – 2010 MHz	-30 dBm	–90 dBm	3.2MHz	Narrow band CDMA signal with one code
1 – 1830 MHz, 2010 – 12750 MHz	-15 dBm	–90 dBm	—	CW carrier

Table 7.4A-2(c): Blocking requirements for Local Area BS in operating bands defined in 5.2(c)

Center Frequency of Interfering Signal	Interfering Signal mean power	Wanted Signal mean power	Minimum Offset of Interfering Signal	Type of Interfering Signal
1910 – 1930 MHz	-30 dBm	–90 dBm	3.2MHz	Narrow band CDMA signal with one code
1890 – 1910 MHz, 1930 – 1950 MHz	-30 dBm	–90 dBm	3.2 MHz	Narrow band CDMA signal with one code
1 – 1890 MHz, 1950 – 12750 MHz	-15 dBm	–90 dBm	—	CW carrier

7.5.1 Co-location with GSM900 and/or DCS 1800

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

The blocking performance requirement applies to interfering signals with center frequency within the ranges specified in the tables below, using a 1MHz step size.

In case this additional blocking requirement is applied, the static reference performance as specified in clause 7.2.1 shall be met with a wanted and an interfering signal coupled to BS antenna input using the following parameters.

7.5.1.1 3,84 Mcps TDD Option

Table 7.4 (d): Additional blocking requirements for operating bands defined in 5.2(a) when co-located with GSM900

Centre Frequency of Interfering Signal	Interfering Signal Level	Wanted Signal Level	Minimum Offset of Interfering Signal	Type of Interfering Signal
921 – 960 MHz	+16 dBm	<REFSENS> + 6 dB	—	CW carrier

Table 7.4 (e): Additional blocking requirements for operating bands defined in 5.2(a) when co-located with DCS1800

Center Frequency of Interfering Signal	Interfering Signal Level	Wanted Signal Level	Minimum Offset of Interfering Signal	Type of Interfering Signal
1805 - 1880	+16 dBm	<REFSENS> + 6 dB	—	CW carrier

7.5.1.2 1,28 Mcps TDD Option

Table 7.4A (d): Additional blocking requirements for Wide Area BS in operating bands defined in 5.2(a) when co-located with GSM900

Centre Frequency of Interfering Signal	Interfering Signal Level	Wanted Signal Level	Minimum Offset of Interfering Signal	Type of Interfering Signal
921 – 960 MHz	+16 dBm	<REFSENS> + 6 dB	—	CW carrier

Table 7.4A (e): Additional blocking requirements for Wide Area BS in operating bands defined in 5.2(a) when co-located with DCS1800

Center Frequency of Interfering Signal	Interfering Signal Level	Wanted Signal Level	Minimum Offset of Interfering Signal	Type of Interfering Signal
1805 -– 1880	+16 dBm	<REFSENS> + 6 dB	—	CW carrier

7.6 Intermodulation characteristics

Third and higher order mixing of the two interfering RF signals can produce an interfering signal in the band of the desired channel. Intermodulation response rejection is a measure of the capability of the receiver to receiver a wanted signal on its assigned channel frequency in the presence of two or more interfering signals which have a specific frequency relationship to the wanted signal.

7.6.1 Minimum requirement

The static reference performance as specified in clause 7.2.1 should be met when the following signals are coupled to BS antenna input.

- A wanted signal at the assigned channel frequency, 6 dB above the static reference level.
- Two interfering signals with the following parameters.

7.6.1.1 3,84 Mcps TDD Option

Table 7.5 : Intermodulation requirement

Interfering Signal Level	Offset	Type of Interfering Signal
- 48 dBm	10 MHz	CW signal
- 48 dBm	20 MHz	WCDMA signal with one code

7.6.1.2 1,28 Mcps TDD Option

Table7.5A: Intermodulation requirement

Interfering Signal Level		Offset	Type of Interfering Signal
Wide Area BS	**Local Area BS**		
- 48 dBm	-38 dBm	3.2 MHz	CW signal
- 48 dBm	-38 dBm	6.4 MHz	1,28 Mcps TDD Option signal with one code

--- next changed section ---

8.2 Demodulation in static propagation conditions

8.2.1 Demodulation of DCH

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

8.2.1.1 Minimum requirement

8.2.1.1.1 3,84 Mcps TDD Option

For the parameters specified in Table 8.2 the BLER should not exceed the piece-wise linear BLER curve specified in Table 8.3. These requirements are applicable for TFCS size 16.

Table 8.2: Parameters in static propagation conditions

Parameters	Unit	Test 1	Test 2	Test 3	Test 4
Number of $DPCH_o$		6	4	0	0
$\frac{DPCH_o \_ E_c}{I_{or}}$	dB	-9	-9.5	0	0
I_{oc}	dBm/3.84 MHz	-89			
Cell Parameter*		0,1			
DPCH Channelization Codes*	C(k,Q)	C(1,8)	C(1,4) C(5,16)	C(1,2) C(9,16)	C(1,2)
$DPCH_o$ Channelization Codes*	C(k,Q)	C(i,16) 3≤ i ≤8	C(i,16) 6≤ i ≤9	-	-
Information Data Rate	kbps	12.2	64	144	384
*Note: Refer to TS 25.223 for definition of channelization codes and cell parameter.					

Table 8.3: Performance requirements in AWGN channel.

Test Number	$\frac{\hat{I}_{or}}{I_{oc}}$ [dB]	BLER
1	-2.0	10^{-2}
2	-0.4	10^{-1}
	-0.1	10^{-2}
3	-0.2	10^{-1}
	0.1	10^{-2}
4	-0.8	10^{-1}
	-0.6	10^{-2}

8.2.1.1.2 1,28 Mcps TDD Option

For the parameters specified in Table8.2A the BLER should not exceed the piece-wise linear BLER curve specified in Table8.3A. These requirements are applicable for TFCS size 16.

Table 8.2A: Parameters in static propagation conditions

Parameters		Unit	Test 1	Test 2	Test 3	Test 4
Number of $DPCH_o$			4	1	1	0
Spread factor of $DPCH_o$			8	8	8	-
Scrambling code and basic midamble code number*			0	0	0	0
DPCH Channelization Codes*		C(k,Q)	C(1,8)	C(1,2)	C(1,2)	C(1,2) C(5,8)
$DPCH_o$ Channelization Codes*		C(k,Q)	C(i,8) 2≤ i ≤5	C(5,8)	C(5,8)	-
$\frac{DPCH_o \_ E_c}{I_{or}}$		dB	-7	-7	-7	0
I_{oc}	Wide Area BS	dBm/ 1.28MHz	-91			
	Local Area BS	dBm/1.28 MHz	-77			
Information Data Rate		Kbps	12.2	64	144	384
*Note: Refer to TS 25.223 for definition of channelization codes, scrambling code and basic midamble code.						

Table 8.3A: Performance requirements in AWGN channel.

Test Number	$\frac{\hat{I}_{or}}{I_{oc}}$ [dB]	BLER
1	0.5	10^{-2}
2	-1.1	10^{-1}
	-0.7	10^{-2}
3	-0.5	10^{-1}
	-0.3	10^{-2}
4	0.1	10^{-1}
	0.4	10^{-2}

8.3 Demodulation of DCH in multipath fading conditions

8.3.1 Multipath fading Case 1

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

8.3.1.1 Minimum requirement

8.3.1.1.1 3,84 Mcps TDD Option

For the parameters specified in Table 8.4 the BLER should not exceed the piece-wise linear BLER curve specified in Table 8.5. These requirements are applicable for TFCS size 16.

Table 8.4: Parameters in multipath Case 1 channel

Parameters	Unit	Test 1	Test 2	Test 3	Test 4
Number of $DPCH_o$		6	4	0	0
$\frac{DPCH_o\_E_c}{I_{or}}$	dB	-9	-9.5	0	0
I_{oc}	dBm/3.84 MHz	-89			
Cell Parameter*		0,1			
DPCH Channelization Codes*	C(k,Q)	C(1,8)	C(1,4) C(5,16)	C(1,2) C(9,16)	C(1,2)
$DPCH_o$ Channelization Codes*	C(k,Q)	C(i,16) 3≤ i ≤8	C(i,16) 6≤ i ≤9	-	-
Information Data Rate	kbps	12.2	64	144	384
*Note: Refer to TS 25.223 for definition of channelization codes and cell parameter.					

Table 8.5: Performance requirements in multipath Case 1 channel.

Test Number	$\frac{\hat{I}_{or}}{I_{oc}}$ [dB]	BLER
1	6.5	10^{-2}
2	5.5	10^{-1}
	9.8	10^{-2}
3	5.5	10^{-1}
	9.8	10^{-2}
4	5.1	10^{-1}
	9.5	10^{-2}

8.3.1.1.2 1,28 Mcps TDD Option

For the parameters specified in Table 8.4A the BLER should not exceed the piece-wise linear BLER curve specified in Table 8.5A .These requirements are applicable for TFCS size 16.

Table 8.4A: Parameters in multipath Case 1 channel

Parameters		Unit	Test 1	Test 2	Test 3	Test 4
Number of $DPCH_o$			4	1	1	0
Spread factor of $DPCH_o$			8	8	8	-
Scrambling code and basic midamble code number*			0	0	0	0
DPCH Channelization Codes*		C(k,Q)	C(1,8)	C(1,2)	C(1,2)	C(1,2) C(5,8)
$DPCH_o$ Channelization Codes*		C(k,Q)	C(i,8) 2≤ i ≤5	C(5,8)	C(5,8)	-
$\frac{DPCH_o\_E_c}{I_{or}}$		dB	-7	-7	-7	0
I_{oc}	Wide Area BS	dBm/1.28 MHz	-91			
	Local Area BS	dBm/1.28 MHz	-77			
Information Data Rate		Kbps	12.2	64	144	384
*Note: Refer to TS 25.223 for definition of channelization codes, scrambling code and basic midamble code.						

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

Test Number	$\frac{\hat{I}_{or}}{I_{oc}}$ [dB]	BLER
1	10.7	10^{-2}
2	5.3	10^{-1}
	9.6	10^{-2}
3	5.7	10^{-1}
	10.3	10^{-2}
4	6.0	10^{-1}
	10.3	10^{-2}

8.3.2 Multipath fading Case 2

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

This requirement shall not be applied to the Local Area BS.

8.3.2.1 Minimum requirement

8.3.2.1.1 3,84 Mcps TDD Option

For the parameters specified in Table 8.6 the BLER should not exceed the piece-wise linear BLER curve specified in Table 8.7. These requirements are applicable for TFCS size 16.

Table 8.6: Parameters in multipath Case 2 channel

Parameters	Unit	Test 1	Test 2	Test 3	Test 4
Number of $DPCH_o$		2	0	0	0
$\frac{DPCH_o - E_c}{I_{or}}$	dB	-6	0	0	0
I_{oc}	dBm/3.84 MHz	-89			
Cell Parameter*		0,1			
DPCH Channelization Codes*	C(k,Q)	C(1,8)	C(1,4) C(5,16)	C(1,2) C(9,16)	C(1,2)
$DPCH_o$ Channelization Codes*	C(k,Q)	C(i,16) 3≤ i ≤4	-	-	-
Information Data Rate	kbps	12.2	64	144	384
*Note: Refer to TS 25.223 for definition of channelization codes and cell parameter.					

Table 8.7: Performance requirements in multipath Case 2 channel.

Test Number	$\frac{\hat{I}_{or}}{I_{oc}}$ [dB]	BLER
1	-0.4	10^{-2}
2	0.2	10^{-1}
	2.5	10^{-2}
3	3.6	10^{-1}
	6.0	10^{-2}
4	2.8	10^{-1}
	5.2	10^{-2}

8.3.2.1.2 1,28 Mcps TDD Option

For the parameters specified in Table 8.6A the BLER should not exceed the piece-wise linear BLER curve specified in Table 8.7A. These requirements are applicable for TFCS size 16.

Table 8.6A: Parameters in multipath Case 2 channel

Parameters	Unit	Test 1	Test 2	Test 3	Test 4
Number of $DPCH_o$		4	1	1	0
Spread factor of $DPCH_o$		8	8	8	-
Scrambling code and basic midamble code number*		0	0	0	0
DPCH Channelization Codes*	C(k,Q)	C(1,8)	C(1,2)	C(1,2)	C(1,2) C(5,8)
$DPCH_o$ Channelization Codes*	C(k,Q)	C(i,8) 2≤ i ≤5	C(5,8)	C(5,8)	-
$\frac{DPCH_o \_ E_c}{I_{or}}$	dB	-7	-7	-7	0
I_{oc}	dBm/1.28 MHz	-91			
Information Data Rate	Kbps	12.2	64	144	384
*Note: Refer to TS 25.223 for definition of channelization codes, scrambling code and basic midamble code.					

Table 8.7A: Performance requirements in multipath Case 2 channel.

Test Number	$\frac{\hat{I}_{or}}{I_{oc}}$ [dB]	BLER
1	6.7	10^{-2}
2	3.5	10^{-1}
	5.9	10^{-2}
3	4.0	10^{-1}
	6.4	10^{-2}
4	4.4	10^{-1}
	6.3	10^{-2}

8.3.3 Multipath fading Case 3

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

This requirement shall not be applied to the Local Area BS.

8.3.3.1 Minimum requirement

8.3.3.1.1 3,84 Mcps TDD Option

For the parameters specified in Table 8.8 the BLER should not exceed the piece-wise linear BLER curve specified in Table 8.9. These requirements are applicable for TFCS size 16.

Table 8.8: Parameters in multipath Case 3 channel

Parameters	Unit	Test 1	Test 2	Test 3	Test 4
Number of $DPCH_o$		2	0	0	0
$\frac{DPCH_o\_E_c}{I_{or}}$	dB	-6	0	0	0
I_{oc}	dBm/3.84 MHz	-89			
Cell Parameter*		0,1			
DPCH Channelization Codes*	C(k,Q)	C(1,8)	C(1,4) C(5,16)	C(1,2) C(9,16)	C(1,2)
$DPCH_o$ Channelization Codes*	C(k,Q)	C(i,16) 3≤ i ≤4	-	-	-
Information Data Rate	Kbps	12.2	64	144	384
*Note: Refer to TS 25.223 for definition of channelization codes and cell parameter.					

Table 8.9: Performance requirements in multipath Case 3 channel.

Test Number	$\frac{\hat{I}_{or}}{I_{oc}}$ [dB]	BLER
1	-0.1	10^{-2}
2	0.8	10^{-1}
	2.7	10^{-2}
	4.2	10^{-3}
3	4.5	10^{-1}
	6.3	10^{-2}
	8.0	10^{-3}
4	3.6	10^{-1}
	5.0	10^{-2}
	6.3	10^{-3}

8.3.3.1.2 1,28 Mcps TDD Option

For the parameters specified in Table 8.8A the BLER should not exceed the piece-wise linear BLER curve specified in Table 8.9A. These requirements are applicable for TFCS size 16.

Table 8.8A: Parameters in multipath Case 3 channel

Parameters	Unit	Test 1	Test 2	Test 3	Test 4
Number of $DPCH_o$		4	1	1	0
Spread factor of $DPCH_o$		8	8	8	-
Scrambling code and basic midamble code number*		0	0	0	0
DPCH Channelization Codes*	C(k,Q)	C(1,8)	C(1,2)	C(1,2)	C(1,2) C(5,8)
$DPCH_o$ Channelization Codes*	C(k,Q)	C(i,8) 2≤ i ≤5	C(5,8)	C(5,8)	-
$\frac{DPCH_o\_E_c}{I_{or}}$	dB	-7	-7	-7	0
I_{oc}	dBm/1.28 MHz	-91			
Information Data Rate	Kbps	12.2	64	144	384
*Note: Refer to TS 25.223 for definition of channelization codes, scrambling code and basic midamble code.					

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

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

3GPP TSG RAN WG4 Meeting #23 **R4-020719**

Gyeongju, Korea 13th -17th May, 2002

CR-Form-v5.1

CHANGE REQUEST

⌘ **25.123** **CR** **209** ⌘ **rev** **-** ⌘ Current version: **5.0.0** ⌘

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

Title:	⌘	Introduction of BS classification for 1.28 Mcps TDD option
Source:	⌘	RAN WG4
Work item code:	⌘	RInImp-BSClass-LCRTDD
Date:	⌘	17/5/2002
Category:	⌘	**B**
Release:	⌘	Rel-5

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

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

Reason for change:	⌘	During the Release 5 WI "Base Station Classification for 1,28 Mcps TDD option", the parameters of the Local Area BS have been defined, including the performance for UTRAN measurements in uplink (Rx); see TR 25.882.
Summary of change:	⌘	The conditions for testing the performance of UTRAN measurements in uplink, applicable in case of the Local Area BS (1,28 Mcps TDD option), are copied from TR 25.882 and incorporated into 25.123.
Consequences if not approved:	⌘	The Io range for testing the performance of UTRAN measurements in uplink would not take due account of the desensitisation of the Local Area BS and would therefore not deliver useful results.

Clauses affected:	⌘	9.2.1.1.1, 9.2.1.1.2, 9.2.1.2.1, 9.2.1.3.1
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

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

9.2 Measurements Performance for UTRAN

9.2.1 Performance for UTRAN Measurements in Uplink (RX)

9.2.1.1 RSCP

The measurement period shall be 100 ms.

9.2.1.1.1 Absolute accuracy requirements

9.2.1.1.1.1 3.84 Mcps TDD Option

Table 9.30 RSCP absolute accuracy

Parameter	Unit	Accuracy [dB]		Conditions
		Normal conditions	Extreme conditions	Io [dBm/3.84MHz]
RSCP	dB	± 6	± 9	-105..-74

9.2.1.1.1.2 1.28 Mcps TDD Option

Table 9.30B RSCP absolute accuracy for Wide Area BS

Parameter	Unit	Accuracy [dB]		Conditions
		Normal conditions	Extreme conditions	Io [dBm/1.28MHz]
RSCP	dB	± 6	± 9	-105..-74

Table 9.30C RSCP absolute accuracy for Local Area BS

Parameter	Unit	Accuracy [dB]		Conditions
		Normal conditions	Extreme conditions	Io [dBm/1.28MHz]
RSCP	dB	± 6	± 9	-91..-60

9.2.1.1.2 Relative accuracy requirements

The relative accuracy of RSCP in inter frequency case is defined as the RSCP measured from one UE compared to the RSCP measured from another UE.

9.2.1.1.2.1 3.84 Mcps TDD Option

Table 9.31 RSCP relative accuracy

Parameter	Unit	Accuracy [dB]	Conditions
			Io [dBm/3.84MHz]
RSCP	dB	± 3 for intra-frequency	-105..-74

9.2.1.1.1.2 1.28 Mcps TDD Option

Table 9.31B RSCP relative accuracy for Wide Area BS

Parameter	Unit	Accuracy [dB]	Conditions
			Io [dBm/1.28MHz]
RSCP	dB	± 3 for intra-frequency	-105..-74

Table 9.31C RSCP relative accuracy for Local Area BS

Parameter	Unit	Accuracy [dB]	Conditions
			Io [dBm/1.28MHz]
RSCP	dB	± 3 for intra-frequency	-91..-60

9.2.1.1.3 Range/mapping

The reporting range for *RSCP* is from -120 ...-57 dBm.

In table 9.32 mapping of the measured quantity is defined. Signalling range may be larger than the guaranteed accuracy range.

Table 9.32

Reported value	Measured quantity value	Unit
RSCP_LEV _00	RSCP <–120,0	dBm
RSCP_LEV _01	-120,0 ≤ RSCP < –119,5	dBm
RSCP_LEV _02	-119,5 ≤ RSCP < –119,0	dBm
…	…	…
RSCP_LEV _125	-58,0 ≤ RSCP < -57,5	dBm
RSCP_LEV _126	-57,5 ≤ RSCP < -57,0	dBm
RSCP_LEV _127	-57,0 ≤ RSCP	dBm

9.2.1.2 Timeslot ISCP

The measurement period shall be 100 ms.

9.2.1.2.1 Absolute accuracy requirements

9.2.1.2.1.1 3.84 Mcps TDD Option

Table 9.33: Timeslot ISCP Intra frequency absolute accuracy

Parameter	Unit	Accuracy [dB]		Conditions
		Normal conditions	Extreme conditions	Io [dBm/3.84MHz]
Timeslot ISCP	dB	± 6	± 9	-105..-74

9.2.1.2.1.2 1.28 Mcps TDD Option

Table 9.33B: Timeslot ISCP Intra frequency absolute accuracy for Wide Area BS

Parameter	Unit	Accuracy [dB]		Conditions
		Normal conditions	Extreme conditions	Io [dBm/1.28MHz]
Timeslot ISCP	dB	± 6	± 9	-105..-74

Table 9.33C: Timeslot ISCP Intra frequency absolute accuracy for Local Area BS

Parameter	Unit	Accuracy [dB]		Conditions
		Normal conditions	Extreme conditions	Io [dBm/1.28MHz]
Timeslot ISCP	dB	± 6	± 9	-91..-60

9.2.1.2.2 Range/mapping

The reporting range for *Timeslot ISCP* is from -120...-57 dBm.

In table 9.34 mapping of the measured quantity is defined. Signalling range may be larger than the guaranteed accuracy range.

Table 9.34

Reported value	Measured quantity value	Unit
UTRAN_TS_ISCP_LEV_00	Timeslot_ISCP < –120,0	dBm
UTRAN_TS_ISCP_LEV_01	-120,0 ≤ Timeslot_ISCP < –119,5	dBm
UTRAN_TS_ISCP_LEV_02	-119,5 ≤ Timeslot_ISCP < –119,0	dBm
…	…	…
UTRAN_TS_ISCP_LEV_125	-58,0 ≤ Timeslot_ISCP < -57,5	dBm
UTRAN_TS_ISCP_LEV_126	-57,5 ≤ Timeslot_ISCP < -57,0	dBm
UTRAN_TS_ISCP_LEV_127	-57,0 ≤ Timeslot_ISCP	dBm

9.2.1.3 Received Total Wide Band Power

The measurement period shall be 100 ms.

9.2.1.3.1 Absolute accuracy requirements

9.2.1.3.1.1 3.84 Mcps TDD Option

Table 9.35: RECEIVED TOTAL WIDE BAND POWER Intra frequency absolute accuracy

Parameter	Unit	Accuracy [dB]	Conditions
			Io [dBm/3.84MHz]
RECEIVED TOTAL WIDE BAND POWER	dBm/3.84 MHz	± 4	-105..-74

9.2.1.3.1.2 1.28 Mcps TDD Option

Table 9.35B: RECEIVED TOTAL WIDE BAND POWER Intra frequency absolute accuracy for Wide Area BS

Parameter	Unit	Accuracy [dB]	Conditions
			Io [dBm/1.28MHz]
RECEIVED TOTAL WIDE BAND POWER	dBm/1.28 MHz	± 4	-105..-74

Table 9.35C: RECEIVED TOTAL WIDE BAND POWER Intra frequency absolute accuracy for Local Area BS

Parameter	Unit	Accuracy [dB]	Conditions
			Io [dBm/1.28MHz]
RECEIVED TOTAL WIDE BAND POWER	dBm/1.28 MHz	± 4	-91..-60

9.2.1.3.2 Range/mapping

The reporting range for *RECEIVED TOTAL WIDE BAND POWER* is from -112 ... -50 dBm.

In table 9.36 mapping of the measured quantity is defined. Signalling range may be larger than the guaranteed accuracy range.

Table 9.36

Reported value	Measured quantity value	Unit
RECEIVED TOTAL WIDE BAND POWER_LEV _000	RECEIVED TOTAL WIDE BAND POWER < –112,0	dBm
RECEIVED TOTAL WIDE BAND POWER_LEV _001	-112,0 ≤ RECEIVED TOTAL WIDE BAND POWER < –111,9	dBm
RECEIVED TOTAL WIDE BAND POWER_LEV _002	-111,9 ≤ RECEIVED TOTAL WIDE BAND POWER < –111,8	dBm
…	…	…
RECEIVED TOTAL WIDE BAND POWER_LEV _619	-50,2 ≤ RECEIVED TOTAL WIDE BAND POWER < -50,1	dBm
RECEIVED TOTAL WIDE BAND POWER_LEV _620	-50,1 ≤ RECEIVED TOTAL WIDE BAND POWER < -50,0	dBm
RECEIVED TOTAL WIDE BAND POWER_LEV _621	-50,0 ≤ RECEIVED TOTAL WIDE BAND POWER	dBm

3GPP TSG RAN WG4 Meeting #23 **R4-020720**

Gyeongju, Korea 13th -17th May, 2002

CR-Form-v5.1

CHANGE REQUEST

⌘ **25.142** **CR** **125** ⌘ **rev** **-** ⌘ Current version: **5.0.0** ⌘

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

Title:	⌘	Introduction of BS classification for 1,28 Mcps TDD option (excluding ACLR and spurious emission requirements)
Source:	⌘	RAN WG4
Work item code:	⌘	RInImp-BSClass-LCRTDD
Date:	⌘	17/5/2002
Category:	⌘	**B**
Release:	⌘	Rel-5

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

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

Reason for change:	⌘	Completion of the Work Item "Base Station classification for 1.28 Mcps TDD option" and introduction of specific requirements for the Local Area BS in the relevant core specification TS 25.105.
Summary of change:	⌘	Introduction of conformance test specifications with specific requirements for the Local Area BS with respect to the parameters frequency stability, reference sensitivity level, receiver dynamic range, ACS, blocking characteristics, intermodulation characteristics and performance requirements.
Consequences if not approved:	⌘	Misalignment between TS 25.142 and the relevant core specification TS 25.105, because conformance testing for the new Local Area BS class would not be covered by TS 25.142.

Clauses affected:	⌘	various subclauses in 6, 7and 8; Annex D
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
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 requirement is specified both in terms of a spectrum emission mask and adjacent channel power ratio for the transmitter.

6.6.2.1 Spectrum emission mask

6.6.2.1.1 Definition and applicability

6.6.2.1.1.1 3,84 Mcps TDD option

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 6.6.2.1.2.1 below may be mandatory in certain regions. In other regions this mask may not be applied.

6.6.2.1.1.2 1,28 Mcps TDD option

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 0,8 MHz and 4 MHz.

The mask defined in subclause 6.6.2.1.2.2 below may be mandatory in certain regions. In other regions this mask may not be applied.

For regions in which the mask is mandatory, the requirements shall apply to both Wide Area BS and Local Area BS.

6.7 Transmit intermodulation

6.7.1 Definition and applicability

The transmit intermodulation performance is a measure of the capability of the transmitter to inhibit the generation of signals in its non linear elements caused by presence of the wanted signal and an interfering signal reaching the transmitter via the antenna.

The transmit intermodulation level is the power of the intermodulation products when a WCDMA modulated interference signal is injected into the antenna connector at a level of 30 dB lower than that of the subject signal.

The requirements are applicable for a single carrier.

6.7.1.1 3,84 Mcps TDD option

The carrier frequency of the interference signal shall be ±5 MHz, ±10 MHz and ±15 MHz offset from the subject signal carrier frequency, but excluding interference carrier frequencies outside of the UTRA frequency bands specified in 4.2a, 4.2b or 4.2c, respectively.

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

6.7.1.2 1,28 Mcps TDD option

The carrier frequency of the interference signal shall be ±1,6 MHz, ±3,2 MHz and ±4,8 MHz offset from the subject signal carrier frequency, but excluding interference carrier frequencies outside of the UTRA frequency bands specified in 4.2a, 4.2b or 4.2c, respectively.

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

7 Receiver characteristics

7.1 General

All tests unless otherwise stated in this subclause shall be conducted on Base Station Systems fitted with a full complement of Transceivers for the configuration. The manufacturer shall provide appropriate logical or physical test access to perform all tests in this subclause. Measurements shall include any RX multicoupler.

The tests in clause 7 assume that the receiver is not equipped with diversity. For receivers with diversity, the tests may be performed by applying the specified signals to one of the receiver inputs, and terminating or disabling the other(s). The tests and requirements are otherwise unchanged.

For receivers with diversity, testing of conformance shall be performed by applying the specified signals to one of the receiver inputs, and terminating or disabling the other(s).

In all the relevant subclauses in this clause all Bit Error Ratio (BER), Residual BER (RBER) and Frame Erasure Ratio (FER) measurements shall be carried out according to the general rules for statistical testing.

Unless detailed the receiver characteristic are specified at each antenna connector of the BS.

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 Minimum Requirements

7.2.2.1 3,84 Mcps TDD option

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 7.1 below.

Table 7.1: BS reference sensitivity level

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

The normative reference for this requirement is TS 25.105 [1] subclause 7.2.1.1.

7.2.2.2 1,28 Mcps option

For the measurement channel specified in Annex A.2.1.2, the reference sensitivity level and performance of the BS shall be as specified in table 7.1A below.

Table 7.1A: Minimum Requirements for BS reference sensitivity levels (1,28 Mcps option)

BS class	Data rate	BS reference sensitivity level (dBm)	BER
Wide Area BS	12,2 kbps	-110 dBm	BER shall not exceed 0,001
Local Area BS	12,2 kbps	-96 dBm	BER shall not exceed 0,001

The normative reference for this requirement is TS 25.105 [1] subclause 7.2.1.2.

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

7.2.4.1.0 General test requirements

Test environment: normal; see subclause 5.9.1.

RF channels to be tested: B, M and T; see subclause 5.3.

The following additional test shall be performed:

On each of B, M and T, the test shall be performed under extreme power supply as defined in subclause 5.9.4.

NOTE: Tests under extreme power supply also test extreme temperature.

7.2.4.1.1 3,84 Mcps TDD option

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

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

(3) Start transmission from the BS tester to the BS using the UL reference measurement channel (12.2 kbps) defined in Annex A.2.1.

(4) The level of the BS tester output signal measured at the BS antenna connector shall be adjusted to the Test Requirement for the BS reference sensitivity level specified in table 7.2.

7.2.4.1.2 1,28 Mcps TDD option

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

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

(3) Start transmission from the BS tester to the BS using the UL reference measurement channel (12.2 kbps) defined in Annex A.2.1.

(4) The level of BS tester output signal measured at the BS antenna connector shall be adjusted to –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

NOTE: If the Test Requirements below differ from the Minimum Requirements, then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in subclause 5.11 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in Annex D.

7.2.5.1 3,84 Mcps TDD option

For any BS Rx port tested, the measured BER at the Test Requirement of the BS reference sensitivity level specified in table 7.2 shall not exceed 0,001.

Table 7.2: Test Requirement for BS reference sensitivity level

Data rate	BS reference sensitivity level (dBm)	BER
12,2 kbps	-108,3 dBm	BER shall not exceed 0,001

7.2.5.2 1,28 Mcps TDD option

For any BS Rx port tested, the measured BER at the Test Requirement of the BS reference sensitivity level specified in table 7.2A shall not exceed 0,001.

Table 7.2A: Test Requirement for BS reference sensitivity level for 1,28 Mcps option

BS class	Data rate	BS reference sensitivity level (dBm)	BER
Wide Area BS	12,2 kbps	-109,3 dBm	BER shall not exceed 0,001
Local Area BS	12,2 kbps	-95,3 dBm	BER shall not exceed 0,001

7.3 Dynamic range

7.3.1 Definition and applicability

Receiver dynamic range is the receiver ability to handle a rise of interference in the reception frequency channel. The receiver shall fulfil a specified BER requirement for a specified sensitivity degradation of the wanted signal in the presence of an interfering AWGN signal in the same reception frequency channel.

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

7.3.2 Minimum Requirements

7.3.2.1 3,84 Mcps TDD option

The BER shall not exceed 0,001 for the parameters specified in table 7.3.

Table 7.3: Dynamic Range

Parameter	Level	Unit
Data rate	12,2	kbit/s
Wanted signal	<REFSENS> + 30 dB	dBm
Interfering AWGN signal	-73	dBm/3,84 MHz

The normative reference for this requirement is TS 25.105 [1] subclause 7.3.1.1.

7.3.2.2 1,28 Mcps TDD option

The BER shall not exceed 0,001 for the parameters specified in table 7.3A.

Table 7.3A: Minimum Requirements for Dynamic Range for 1,28 Mcps TDD

Parameter		Level	Unit
Data rate		12,2	kbit/s
Wanted signal		<REFSENS> + 30 dB	dBm
Interfering AWGN signal	Wide Area BS	-76	dBm/1,28 MHz
	Local Area BS	-62	dBm/1,28 MHz

The normative reference for this requirement is TS 25.105 [1] subclause 7.3.1.2.

7.3.3 Test purpose

The test purpose is to verify the ability of the BS to receive a prescribed single-code test signal of maximum input power under defined conditions (specified interference, no multipath) with a BER not exceeding a specified limit.

7.3.4 Method of test

7.3.4.1 Initial conditions

7.3.4.1.0 General test conditions

Test environment: normal; see subclause 5.9.1.

RF channels to be tested: B, M and T; see subclause 5.3.

7.3.4.1.1 3,84 Mcps TDD option

(1)Connect the BS tester (UE simulator), generating the wanted signal, and a band-limited white noise source, generating the interfering AWGN signal, to the antenna connector of one BS Rx port.

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

(3) Start transmission from the BS tester to the BS using the UL reference measurement channel (12,2 kbps) defined in Annex A.2.1.

(4) The level of the BS tester output signal measured at the BS antenna connector shall be adjusted as specified in table 7.4.

(5) The power spectral density of the band-limited white noise source measured at the BS antenna connector shall be adjusted as specified in table 7.4. The characteristics of the white noise source shall comply with the AWGN interferer definition in subclause 5.18

7.3.4.1.2 1,28 Mcps TDD option

(1) Connect the BS tester (UE simulator), generating the wanted signal, and a band-limited white noise source, generating the interfering AWGN signal, to the antenna connector of one BS Rx port.

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

(3) Start transmission from the BS tester to the BS using the UL reference measurement channel (12.2 kbps) defined in Annex A.2.1.

(4) The level of the BS tester output signal measured at the BS antenna connector shall be adjusted as specified in table 7.3A.

(5) The power spectral density of the band-limited white noise source measured at the BS antenna connector shall be adjusted as specified in table 7.3A. The characteristics of the white noise source shall compy with the AWGN interferer definition in subclause 5.18.

7.3.4.2 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)

7.3.5 Test Requirements

NOTE: If the Test Requirement below differs from the Minimum Requirement, then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in subclause 5.11 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in Annex D.

7.3.5.1 3,84 Mcps TDD option

For any BS Rx port tested, the measured BER shall not exceed 0,001 for the parameters specified in table 7.4.

Table 7.4: Test Requirements for Dynamic Range

Parameter	Level	Unit
Data rate	12,2	kbit/s
Wanted signal	<REFSENS> + 31,2 dB	dBm
Interfering AWGN signal	-73	dBm/3,84 MHz

7.3.5.2 1,28 Mcps TDD option

For any BS Rx port tested, the measured BER shall not exceed 0,001 for the parameters specified in table 7.4A.

Table 7.4A: Test Requirements for Dynamic Range for 1,28 Mcps TDD option

Parameter		Level	Unit
Data rate		12,2	kbit/s
Wanted signal		<REFSENS> + 31,2 dB	dBm
Interfering AWGN signal	Wide Area BS	-76	dBm/1,28 MHz
	Local Area BS	-62	dBm/1,28 MHz

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 Minimum Requirements

7.4.2.1 3,84 Mcps TDD option

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 7.5.

Table 7.5: 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 normative reference for this requirement is TS 25.105 [1] subclause 7.4.1.1.

7.4.2.2 1,28 Mcps TDD option

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 7.5A.

Table 7.5A: Parameters of the wanted signal and the interfering signal for ACS testing for 1,28 Mcps TDD

Parameter		Level	Unit
Data rate		12,2	kbit/s
Wanted signal		Reference sensitivity level + 6 dB	dBm
Interfering signal	Wide Area BS	-55	dBm
	Local Area BS	-41	dBm
Fuw (modulated)		1,6	MHz
NOTE: Fuw is the frequency offset of the unwanted interfering signal from the assigned channel frequency of the wanted signal.			

The normative reference for this requirement is TS 25.105 [1] subclause 7.4.1.2.

7.5 Blocking characteristics

7.5.1 Definition and applicability

7.5.1.1 3,84 Mcps TDD option

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 requirements applies to interfering signals with center frequency within the ranges specified in tables 7.6, 7.7, 7.8, 7.9 and 7.10 respectively, using a 1 MHz step size.

The requirements in tables 7.6, 7.7 or 7.8 apply to base stations intended for general-purpose applications, depending on which frequency band is used. The additional requirements in Tables 7.9 and 7.10 may be applied for the protection of TDD BS receivers when GSM900 and/or DCS1800 BTS are co-located with UTRA TDD BS.

7.5.1.2 1,28 Mcps TDD option

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 requirements apply~~ies~~ to interfering signals with center frequency within the ranges specified in tables 7.6A-1, 7.7A-1, 7.8A-1, 7.6A-2, 7.7A-2, 7.8A-2, 7.9A and 7.10A respectively, using a 1 MHz step size.

In this subclause, different requirements apply to Wide Area BS and Local Area BS. The requirements in ~~T~~tables 7.6A-1, 7.7A-1 or 7.8A-1~~-~~ apply to Wide Area BS, and the requirements in tables 7.6A-2, 7.7A-2 or 7.8A-2 apply to Local Area BS~~base stations intended for general-purpose applications~~, depending on which frequency band is used. The additional requirements in Tables 7.9A and 7.10A may be applied for the protection of TDD BS receivers when GSM900 and/or DCS1800 BTS are co-located with UTRA TDD Wide Area BS.

7.5.2 Minimum Requirements

7.5.2.1 3,84 Mcps TDD option

7.5.2.1.1 General requirements

The static reference performance as specified in clause 7.2 shall be met with a wanted and an interfering signal coupled to the BS antenna input using the parameters specified in tables 7.6, 7.7 and or 7.8 respectively.

Table 7.6: 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 7.7: Blocking requirements for operating bands defined in subclause 4.2 b)

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, 2010 – 12750 MHz	-15 dBm	<REFSENS> + 6 dB	—	CW carrier

Table 7.8: Blocking requirements for operating bands defined in subclause 4.2 c)

Center frequency of interfering signal	Interfering signal level	Wanted signal level	Minimum offset of interfering signal	Type of interfering signal
1910 – 1930 MHz	-40 dBm	<REFSENS> + 6 dB	10 MHz	WCDMA signal with one code
1890 – 1910 MHz, 1930 – 1950 MHz	-40 dBm	<REFSENS> + 6 dB	10 MHz	WCDMA signal with one code
1 – 1890 MHz, 1950 – 12750 MHz	-15 dBm	<REFSENS> + 6 dB	—	CW carrier

The normative reference for this requirement is TS 25.105 [1] subclause 7.5.0.1.

7.5.2.1.2 Co-location with GSM900 and/or DCS 1800

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

The blocking performance requirement applies to interfering signals with center frequency within the ranges specified in the tables below, using a 1MHz step size.

In case this additional blocking requirement is applied, the static reference performance as specified in clause 7.2.1 shall be met with a wanted and an interfering signal coupled to BS antenna input using the following parameters.

Table 7.9: Additional blocking requirements for operating bands defined in subclause 4.2 a) when co-located with GSM900

Center Frequency of Interfering Signal	Interfering Signal Level	Wanted Signal Level	Minimum Offset of Interfering Signal	Type of Interfering Signal
921 – 960 MHz	+16 dBm	<REFSENS> + 6 dB	—	CW carrier

Table 7.10: Additional blocking requirements for operating bands defined in subclause 4.2 a) when co-located with DCS1800

Center Frequency of Interfering Signal	Interfering Signal Level	Wanted Signal Level	Minimum Offset of Interfering Signal	Type of Interfering Signal
1805 - 1880	+16 dBm	<REFSENS> + 6 dB	—	CW carrier

The normative reference for this requirement is TS 25.105 [1] subclause 7.5.1.1.

7.5.2.2 1,28 Mcps TDD option

7.5.2.2.1 General requirements

The static reference performance as specified in clause 7.2 shall be met with a wanted and an interfering signal coupled to the BS antenna input using the parameters specified in tables 7.6A-1, 7.7A-1, ~~or~~ 7.8A-1, 7.6A-2, 7.7A-2 or 7.8A-2, respectively.

Table 7.6A-1: Blocking requirements for Wide Area BS in operating bands defined in subclause 4.2 a) for 1,28 Mcps TDD

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	3,-2 MHz	1,28 Mcps TDD signal with one code
1880 – 1900 MHz, 1990 – 2010 MHz, 2025 – 2045 MHz	-40 dBm	<REFSENS> + 6 dB	3,-2 MHz	1,28 Mcps TDD signal with one code
1920 – 1980 MHz	-40 dBm	<REFSENS> + 6 dB	3,-2 MHz	1,28 Mcps TDD signal with one code
1 - 1880 MHz, 1980 – 1990 MHz, 2045 – 12750 MHz	-15 dBm	<REFSENS> + 6 dB	—	CW carrier

Table 7.7A-1: Blocking requirements for Wide Area BS in operating bands defined in subclause 4.2 b) for 1,28 Mcps TDD

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	3,-2 MHz	1,28 Mcps TDD signal with one code
1830 – 1850 MHz, 1990 – 2010 MHz	-40 dBm	<REFSENS> + 6 dB	3,-2 MHz	1,28 Mcps TDD signal with one code
1 – 1830 MHz, 2010 – 12750 MHz	-15 dBm	<REFSENS> + 6 dB	—	CW carrier

Table 7.8A-1: Blocking requirements for Wide Area BS in operating bands defined in subclause 4.2 c) for 1,28 Mcps TDD

Center frequency of interfering signal	Interfering signal level	Wanted signal level	Minimum offset of interfering signal	Type of interfering signal
1910 – 1930 MHz	-40 dBm	<REFSENS> + 6 dB	3,-2 MHz	1,28 Mcps TDD signal with one code
1890 – 1910 MHz, 1930 – 1950 MHz	-40 dBm	<REFSENS> + 6 dB	3,-2 MHz	1,28 Mcps TDD signal with one code
1 – 1890 MHz, 1950 – 12750 MHz	-15 dBm	<REFSENS> + 6 dB	—	CW carrier

Table 7.6A-2: Blocking requirements for Local Area BS in operating bands defined in subclause 4.2 a) for 1,28 Mcps TDD

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	-30 dBm	<REFSENS> + 6 dB	3,2 MHz	1,28 Mcps TDD signal with one code
1880 – 1900 MHz, 1990 – 2010 MHz, 2025 – 2045 MHz	-30 dBm	<REFSENS> + 6 dB	3,2 MHz	1,28 Mcps TDD signal with one code
1920 – 1980 MHz	-30 dBm	<REFSENS> + 6 dB	3,2 MHz	1,28 Mcps TDD signal with one code
1 - 1880 MHz, 1980 – 1990 MHz, 2045 – 12750 MHz	-15 dBm	<REFSENS> + 6 dB	—	CW carrier

Table 7.7A-2: Blocking requirements for Local Area BS in operating bands defined in subclause 4.2 b) for 1,28 Mcps TDD

Center frequency of interfering signal	Interfering signal level	Wanted signal level	Minimum offset of interfering signal	Type of interfering signal
1850 – 1990 MHz	-30 dBm	<REFSENS> + 6 dB	3,2 MHz	1,28 Mcps TDD signal with one code
1830 – 1850 MHz, 1990 – 2010 MHz	-30 dBm	<REFSENS> + 6 dB	3,2 MHz	1,28 Mcps TDD signal with one code
1 – 1830 MHz, 2010 – 12750 MHz	-15 dBm	<REFSENS> + 6 dB	—	CW carrier

Table 7.8A-2: Blocking requirements for Local Area BS in operating bands defined in subclause 4.2 c) for 1,28 Mcps TDD

Center frequency of interfering signal	Interfering signal level	Wanted signal level	Minimum offset of interfering signal	Type of interfering signal
1910 – 1930 MHz	-30 dBm	<REFSENS> + 6 dB	3,2 MHz	1,28 Mcps TDD signal with one code
1890 – 1910 MHz, 1930 – 1950 MHz	-30 dBm	<REFSENS> + 6 dB	3,2 MHz	1,28 Mcps TDD signal with one code
1 – 1890 MHz, 1950 – 12750 MHz	-15 dBm	<REFSENS> + 6 dB	—	CW carrier

The normative reference for this requirement is TS 25.105 [1] subclause 7.5.0.2.

7.5.2.2.2 Co-location with GSM900 and/or DCS 1800

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

The blocking performance requirement applies to interfering signals with center frequency within the ranges specified in the tables below, using a 1MHz step size.

In case this additional blocking requirement is applied, the static reference performance as specified in subclause 7.2.1 shall be met with a wanted and an interfering signal coupled to BS antenna input using the following parameters.

Table 7.9A: Additional blocking requirements for Wide Area BS in operating bands defined in 4.2(a) when co-located with GSM900

Centre Frequency of Interfering Signal	Interfering Signal Level	Wanted Signal Level	Minimum Offset of Interfering Signal	Type of Interfering Signal
921 – 960 MHz	+16 dBm	<REFSENS> + 6 dB	—	CW carrier

Table 7.10A: Additional blocking requirements for Wide Area BS in operating bands defined in 4.2(a) when co-located with DCS1800

Center Frequency of Interfering Signal	Interfering Signal Level	Wanted Signal Level	Minimum Offset of Interfering Signal	Type of Interfering Signal
1805 – 1880	+16 dBm	<REFSENS> + 6 dB	—	CW carrier

The normative reference for this requirement is TS 25.105 [1] subclause 7.5.1.2.

7.5.3 Test purpose

7.5.3.1 3,84 Mcps TDD option

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.

7.5.3.2 1,28 Mcps TDD option

The test stresses the ability of the BS receiver to withstand high-level interference from unwanted signals at frequency offsets of 3,2 MHz or more, without undue degradation of its sensitivity.

7.5.4 Method of test

7.5.4.1 Initial conditions

Test environment: normal; see subclause 5.9.1.

RF channels to be tested: M; see subclause 5.3. The BS shall be configured to operate as close to the centre of the operating band as possible.

(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 or disable any other Rx port not under test.

(3) Start transmission from the BS tester to the BS using the UL reference measurement channel (12,2 kbps) defined 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

7.5.4.2.1 3,84 Mcps TDD option

(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 7.6, 7.7, or 7.8 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 7.6, 7.7 or 7.8 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.

7.5.4.2.2 1,28 Mcps TDD option

(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 = ± (n x 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 7.6A to 7.10A, ~~7.7A, or 7.8A~~ respectively. The type of the interfering signal is either equivalent to a continuous wideband CDMA signal with one code of chip frequency 1,28 Mchip/s, filtered by an RRC transmit pulse-shaping filter with roll-off α = 0,22, or a CW signal; see tables 7.6A to 7.10A, ~~7.7A, or 7.8A~~ 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

NOTE: If the Test Requirement below differs from the Minimum Requirement, then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in subclause 5.11 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in Annex D.

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

7.6 Intermodulation characteristics

7.6.1 Definition and applicability

Third and higher order mixing of two interfering RF signals can produce an interfering signal in the band of the desired channel. Intermodulation response rejection is a measure of the capability of the receiver to receive a wanted signal on its assigned channel frequency in the presence of two or more interfering signals which have a specific frequency relationship to the wanted signal.

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

7.6.2 Minimum Requirements

7.6.2.1 3,84 Mcps TDD option

The static reference performance as specified in clause 7.2 should be met when the following signals are coupled to the BS antenna input.

- A wanted signal at the assigned channel frequency, 6 dB above the static reference level.
- Two interfering signals with the parameters specified in table 7.11.

Table 7.11: Parameters of the interfering signals for intermodulation characteristics testing

Interfering Signal Level	Offset	Type of Interfering Signal
- 48 dBm	10 MHz	CW signal
- 48 dBm	20 MHz	WCDMA signal with one code

The normative reference for this requirement is TS 25.105 [1] subclause 7.6.1.1.

7.6.2.2 1,28 Mcps TDD option

The static reference performance as specified in clause 7.2 should be met when the following signals are coupled to the BS antenna input.

- A wanted signal at the assigned channel frequency, 6 dB above the static reference level.
- Two interfering signals with the parameters specified in table 7.11A.

Table 7.11A: Parameters of the interfering signals for intermodulation characteristics testing for 1,28 Mcps TDD

Interfering Signal Level		Offset	Type of Interfering Signal
Wide Area BS	Local Area BS		
- 48 dBm	- 38 dBm	3,2 MHz	CW signal
- 48 dBm	- 38 dBm	6,4 MHz	1,28 Mcps TDD signal with one code

The normative reference for this requirement is TS 25.105 [1] subclause 7.6.1.2.

7.6.3 Test purpose

The test purpose is to verify the ability of the BS receiver to inhibit the generation of intermodulation products in its non-linear elements caused by the presence of two high-level interfering signals at frequencies with a specific relationship to the frequency of the wanted signal.

7.6.4 Method of test

7.6.4.1 Initial conditions

7.6.4.1.1 3,84 Mcps TDD option

Test environment: normal; see subclause 5.9.1.

RF channels to be tested: B, M and T; see subclause 5.3.

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

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

(3) Start transmission from the BS tester to the BS using the UL reference measurement channel (12,2 kbps) defined 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.

(4) Set the first signal generator to produce a CW signal with a level measured at the BS antenna connector of -48 dBm.

(5) Set the second signal generator to produce an interfering signal equivalent to a wideband CDMA signal with one code of chip frequency 3,84 MHz, filtered by an RRC transmit pulse-shaping filter with roll-off $\alpha = 0,22$. The level of the signal measured at the BS antenna connector shall be set to - 48 dBm.

7.6.4.1.2 1,28 Mcps TDD option

Test environment: normal; see subclause 5.9.1.

RF channels to be tested: B, M and T; see subclause 5.3.

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

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

(3) Start transmission from the BS tester to the BS using the UL reference measurement channel (12,2 kbps) defined 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.

(4) Set the first signal generator to produce a CW signal with a level measured at the BS antenna connector as specified in table 7.11A.

(5) Set the second signal generator to produce an interfering signal equivalent to a wideband CDMA signal with one code of chip frequency 1,28 MHz, filtered by an RRC transmit pulse-shaping filter with roll-off $\alpha = 0,22$. The level of the signal measured at the BS antenna connector shall be set as specified in table 7.11A.

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 characteristics of the white noise source, simulating interference from other cells (I_{oc}), shall comply with the AWGN interferer definition in subclause 5.18.

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: 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}

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 Minimum Requirements

8.2.1.2.1 3,84 Mcps TDD option

For the parameters specified in table 8.2, the BLER should not exceed the piece-wise linear BLER curve specified in table 8.3. These requirements are applicable for TFCS size 16.

Table 8.2: Parameters in static propagation conditions

Parameters	Unit	Test 1	Test 2	Test 3	Test 4
Number of $DPCH_o$		6	4	0	0
$\frac{DPCH_o \_ E_c}{I_{or}}$	DB	-9	-9,5	–	–
I_{oc}	dBm/3,84 MHz	-89			
Cell Parameter*		0,1			
DPCH Channelization Codes*	C(k,Q)	C(1,8)	C(1,4) C(5,16)	C(1,2) C(9,16)	C(1,2)
$DPCH_o$ Channelization Codes*	C(k,Q)	C(i,16) 3≤ i ≤8	C(i,16) 6≤ i ≤9	-	-
Information Data Rate	Kbps	12,2	64	144	384
*Note: Refer to TS 25.223 for definition of channelization codes and cell parameter.					

Table 8.3: Performance requirements in AWGN channel.

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

The normative reference for this requirement is TS 25.105 [1] subclause 8.2.1.1.1.

8.2.1.2.2 1,28 Mcps TDD option

For the parameters specified in table 8.2A, the BLER should not exceed the piece-wise linear BLER curve specified in table 8.3A. These requirements are applicable for TFCS size 16.

Table 8.2A: Parameters in static propagation conditions for 1,28 Mcps TDD

Parameters		Unit	Test 1	Test 2	Test 3	Test 4
Number of $DPCH_o$			4	1	1	0
Spread factor of $DPCH_o$			8	8	8	
$\frac{DPCH_o \_ E_c}{I_{or}}$		dB	-7	-7	-7	–
I_{oc}	Wide Area BS	dBm/1,28 MHz	-91			
	Local Area BS	dBm/1,28 MHz	-77			
Information Data Rate		kbps	12,2	64	144	384

Table 8.3A: Performance requirements in AWGN channel for 1,28 Mcps TDD

Test Number	$\frac{\hat{I}_{or}}{I_{oc}}$ [dB]	BLER
1	0.6	10^{-2}
2	-0.9	10^{-1}
	-0.4	10^{-2}
3	-0.3	10^{-1}
	-0.1	10^{-2}
4	0.5	10^{-1}
	0.6	10^{-2}

The normative reference for this requirement is TS 25.105 [1] subclause 8.2.1.1.2.

8.2.1.3 Test purpose

The test purpose is to verify the ability of the BS to receive a prescribed test signal under 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

8.2.1.4.1.0 General test conditions

Test environment: normal; see subclause 5.9.1.

RF channels to be tested: B, M and T; see subclause 5.3.

8.2.1.4.1.1 3,84 Mcps TDD option

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.

8.2.1.4.1.2 1,28 Mcps TDD option

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 8, 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 8.2A.

8.2.1.4.2 Procedure

8.2.1.4.2.1 3,84 Mcps TDD option

(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.

(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 8.4.

(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 8.4.

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

Table 8.4: 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	-100.0	$DPCH_1$	8	-97,0
2	10^{-1}	4	-98,9	$DPCH_1$	16	-98,9
				$DPCH_2$	4	-92,9
	10^{-2}	4	-98,6	$DPCH_1$	16	-98,6
				$DPCH_2$	4	-92,6
3	10^{-1}	0	–	$DPCH_1$	16	-98,7
				$DPCH_2$	2	-89,7
	10^{-2}	0	–	$DPCH_1$	16	-98,4
				$DPCH_2$	2	-89,4
4	10^{-1}	0	–	$DPCH_1$	2	-89,8
	10^{-2}	0	–	$DPCH_1$	2	-89,6

8.2.1.4.2.2 1,28 Mcps TDD option

(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 8.2A.

(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 8.4A.

(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 8.4A.

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

Table 8.4A: Parameters of $DPCH_0$ and the wanted signal for 1,28 Mcps TDD

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]	
			Wide Area BS	Local Area BS			Wide Area BS	Local Area BS
1	10^{-2}	4	-97.4	-83,4	$DPCH_1$	8	-97.4	-83,4
2	10^{-1}	1	-98.9	-84,9	$DPCH_1$	2	-92.9	-78,9
	10^{-2}	1	-98.4	-84,4	$DPCH_1$	2	-92.5	-78,5
3	10^{-1}	1	-98.3	-84,3	$DPCH_1$	2	-92.3	-78,3
	10^{-2}	1	-98.1	-84,1	$DPCH_1$	2	-92.1	-78,1
4	10^{-1}	0	–	–	$DPCH_1$	8	-97.5	-83,5
					$DPCH_2$	2	-91.5	-77,5
	10^{-2}	0	–	–	$DPCH_1$	8	-97.4	-83,4
					$DPCH_2$	2	-91.4	-77,4

8.2.1.5 Test Requirements

NOTE: If the Test Requirement below differs from the Minimum Requirement, then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in subclause 5.11 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in Annex D.

8.2.1.5.1 3,84 Mcps TDD option

The BLER measured according to subclause 8.2.1.4.2 shall not exceed the limits specified in table 8.3.

8.2.1.5.2 1,28 Mcps TDD option

The BLER measured according to subclause 8.2.1.4.2. shall not exceed the limits specified in table 8.3A.

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 Minimum Requirements

8.3.1.2.1 3,84 Mcps TDD option

For the parameters specified in table 8.5, the BLER should not exceed the piece-wise linear BLER curve specified in table 8.6. These requirements are applicable for TFCS size 16.

Table 8.5: Parameters in multipath Case 1 channel

Parameters	Unit	Test 1	Test 2	Test 3	Test 4
Number of $DPCH_o$		6	4	0	0
$\frac{DPCH_o - E_c}{I_{or}}$	dB	-9	-9,5	–	–
I_{oc}	dBm/3,84 MHz	-89			
Cell Parameter*		0,1			
DPCH Channelization Codes*	C(k,Q)	C(1,8)	C(1,4) C(5,16)	C(1,2) C(9,16)	C(1,2)
$DPCH_o$ Channelization Codes*	C(k,Q)	C(i,16) 3≤ i ≤8	C(i,16) 6≤ i ≤9	-	-
Information Data Rate	Kbps	12,2	64	144	384

*Note: Refer to TS 25.223 for definition of channelization codes and cell parameter.

Table 8.6: Performance requirements in multipath Case 1 channel.

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

The normative reference for this requirement is TS 25.105 [1] subclause 8.3.1.1.1.

8.3.1.2.2 1,28 Mcps TDD option

For the parameters specified in table 8.5A, the BLER should not exceed the piece-wise linear BLER curve specified in table 8.6A. These requirements are applicable for TFCS size 16.

Table 8.5A: Parameters in multipath Case 1 channel for 1,28 Mcps TDD

Parameters		Unit	Test 1	Test 2	Test 3	Test 4
Number of $DPCH_o$			4	1	1	0
Spread factor of $DPCH_o$			8	8	8	
$\frac{DPCH_o\_E_c}{I_{or}}$		dB	-7	-7	-7	–
I_{oc}	Wide Area BS	dBm/1,28 MHz	-91			
	Local Area BS	dBm/1,28 MHz	-77			
Information Data Rate		kbps	12,2	64	144	384

Table 8.6A: Performance requirements multipath Case 1 channel for 1,28 Mcps TDD

Test Number	$\frac{\hat{I}_{or}}{I_{oc}}$ [dB]	BLER
1	10.4	10^{-2}
2	5.3	10^{-1}
	9.4	10^{-2}
3	5.7	10^{-1}
	10.1	10^{-2}
4	6.0	10^{-1}
	10.0	10^{-2}

The normative reference for this requirement is TS 25.105 [1] subclause 8.3.1.1.2.

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

8.3.1.4.1.0 General test conditions

Test environment: normal; see subclause 5.9.1.

RF channels to be tested: B, M and T; see subclause 5.3.

8.3.1.4.1.1 3,84 Mcps TDD option

(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 8.5.

(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.

8.3.1.4.1.2 1,28 Mcps TDD option

(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 8, 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 8.5A.

(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

8.3.1.4.2.1 3,84 Mcps TDD option

(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 8.5.

(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 8.7.

(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 8.7.

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

Table 8.7: 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	-91,5	$DPCH_1$	8	-88,5
2	10^{-1}	4	-93,0	$DPCH_1$	16	-93,0
				$DPCH_2$	4	-87,0
	10^{-2}	4	-88,7	$DPCH_1$	16	-88,7
				$DPCH_2$	4	-82,7
3	10^{-1}	0	–	$DPCH_1$	16	-93,0
				$DPCH_2$	2	-84,0
	10^{-2}	0	–	$DPCH_1$	16	-88,7
				$DPCH_2$	2	-79,7
4	10^{-1}	0	–	$DPCH_1$	2	-83,9
	10^{-2}	0	–	$DPCH_1$	2	-79,5

8.3.1.4.2.2 1,28 Mcps TDD option

(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 8.5A.

(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 8.7A.

(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 8.7A.

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

Table 8.7A: Parameters of $DPCH_0$ and the wanted signal for 1,28 Mcps TDD

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]	
			Wide Area BS	Local Area BS			Wide Area BS	Local Area BS
1	10^{-2}	4	-87.6	-73,6	$DPCH_1$	8	-87.6	-73,6
2	10^{-1}	1	-92.7	-78,7	$DPCH_1$	2	-86.7	-72,7
	10^{-2}	1	-88.6	-74,6	$DPCH_1$	2	-82.6	-68,6
3	10^{-1}	1	-92.3	-78,3	$DPCH_1$	2	-86.3	-72,3
	10^{-2}	1	-87.9	-73,9	$DPCH_1$	2	-81.9	-67,9
4	10^{-1}	0	–		$DPCH_1$	8	-92.0	-78,0
					$DPCH_2$	2	-86.0	-72,0
	10^{-2}	0	–		$DPCH_1$	8	-88.0	-74,0
					$DPCH_2$	2	-82.0	-68,0

8.3.1.5 Test Requirements

NOTE: If the Test Requirements below differ from the Minimum Requirements, then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in subclause 5.11 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in Annex D.

8.3.1.5.1 3,84 Mcps TDD option

The BLER measured according to subclause 8.3.1.4.2 shall not exceed the limits specified in table 8.6.

8.3.1.5.2 1,28 Mcps TDD option

The BLER measured according to subclause 8.3.1.4.2 shall not exceed the limits specified in table 8.6A.

Annex D (informative): Derivation of Test Requirements

The Test Requirements in this specification have been calculated by relaxing the Minimum Requirements of the core specification using the Test Tolerances defined in subclause 5.11. When the Test Tolerance is zero, the Test Requirement will be the same as the Minimum Requirement. When the Test Tolerance is non-zero, the Test Requirements will differ from the Minimum Requirements, and the formula used for this relaxation is given in tables D.1 to D.3

Note that a formula for applying Test Tolerances is provided for all tests, even those with a test tolerance of zero. This is necessary in the case that the Test System uncertainty is greater than that allowed in subclause 5.10. In this event, the excess error shall be subtracted from the defined test tolerance in order to generate the correct tightened Test Requirements as defined in subclause 5.12.

For example, a Test System having 0,9 dB accuracy for test 6.2 Maximum output power (which is 0,2 dB above the limit specified in subclause 5.10.2) would subtract 0,2 dB from the Test Tolerance of 0,7 dB defined in subclause 5.11.1. This new test tolerance of 0,5 dB would then be applied to the Minimum Requirement using the formula defined in Table D.1 to give a new range of ±2,5 dB of the manufacturer's rated output power.

For the case where an excess error of 0.2 dB exists, when applied to a test with a test tolerance of zero, the test tolerance used in the formula would be –0.2 dB.

Table D.1: Derivation of Test Requirements (Transmitter tests)

Test	Minimum Requirement in TS 25.105 (numbering of tables in the column below refers to TS 25.142)	Test Tolerance (TT)	Test Requirement in TS 25.142
6.2 Maximum output power	In normal conditions … within +2 dB and –2 dB of the manufacturer's rated output power In extreme conditions… within +2,5 dB and –2,5 dB of the manufacturer's rated output power	0,7 dB	Formula: Upper limit + TT Lower limit – TT In normal conditions … within +2,7 dB and –2,7 dB of the manufacturer's rated output power In extreme conditions… within +3,2 dB and –3,2 dB of the manufacturer's rated output power
6.3 Frequency stability	Frequency stability: Wide Area BS: ~~=~~ ± 0,05 ppm Local Area BS: ± 0,1 ppm	12 Hz	Formula: ± (frequency stability +TT) Wide Area BS: ± (0,05 ppm + 12 Hz) Local Area BS: ± (0,1 ppm + 12 Hz)
6.4.2 Power control steps	single step: step size tolerance specified in table 6.3 ten steps: minimum and maximum average rate of change in mean power specified in table 6.3	single step: 0,1 dB ten steps: 0,3 dB	Formula: single step: ± (step size tolerance + TT) ten steps: maximum average rate + TT minimum average rate – TT 0,1 dB and 0,3 dB, respectively, applied as above to table 6.3
6.4.3 Power control dynamic range	range ≥ 30 dB	0,3 dB	Formula: Range – TT range ≥ 29,7 dB
6.4.4 Minimum output power	PRAT – 30 dB	0,7 dB	Formula : PRAT – 30 dB +TT PRAT – 29,3 dB
6.4.5 Primary CCPCH power	PCCPCH power tolerance defined in table 6.8	0,8 dB	Formula: ± (power tolerance + TT) 0,8 dB applied as above to table 6.8
6.4.6 Differential accuracy of Primary CCPCH power	Differential accuracy of PCCPCH power: ≤ ± 0,5 dB	0,1 dB	Formula: ± (PCCPCH tolerance + TT) ± 0,6 dB
6.5.1 Transmit OFF power	Tx OFF power limit < -79 dBm	2,0 dB	Formula: < Tx OFF power limit + TT < - 77 dBm

6.5.2 Transmit ON/OFF time mask	Tx power limit < -33 dBm or –79 dBm, resp.	< -33 dBm: 0,7 dB < -79 dBm: 2,0 dB	Formula: < Tx power limit + TT < -32,3 dBm or < - 77 dBm
6.6.1 Occupied bandwidth	occupied bandwidth limit: 3,84 Mcps TDD option: ~~=~~ 5 MHz 1,28 Mcps TDD option: 1,6 MHz	0 kHz	Formula: Occupied bandwidth limit + TT Occupied bandwidth limit: 3,84 Mcps TDD option: ~~=~~ 5 MHz 1,28 Mcps TDD option: 1,6 MHz
6.6.2.1 Spectrum emission mask	Maximum level defined in tables 6.13 to 6.16	1,5 dB	Formula: Maximum level + TT Add 1,5 dB to Maximum level entries in tables 6.13 to 6.16
6.6.2.2 Adjacent Channel Leakage power Ratio (ACLR)	minimum requirement: ACLR limit = 45 dB at 5 MHz ACLR limit = 55 dB at 10 MHz requirement in case of operation in proximity to TDD BS or FDD BS operating on an adjacent frequency: ACLR limit = 70 dB at 5 MHz ACLR limit = 70 dB at 10 MHz requirement in case of co-siting with TDD BS or FDD BS operating on an adjacent frequency ACLR limit = - 80 dBm at 5 MHz ACLR limit = - 80 dBm at 10 MHz	min. req. : 0,8 dB operation in proxim.: 4 dB co-siting: TBD	Formula: ACLR limit – TT min. requirement: ACLR limit = 44,2 dB at 5 MHz ACLR limit = 54,2 dB at 10 MHz operation in proximity: ACLR limit = 66 dB at 5 MHz ACLR limit = 66 dB at 10 MHz co-siting: TBD
6.6.3 Spurious emissions	maximum level defined in tables 6.29 to 6.37	0 dB	Formula: Maximum limit + TT add 0 dB to maximum levels in tables 6.29 to 6.37
6.7 Transmit intermodulation (interferer requirements) This tolerance applies to the stimulus and not the measurements defined in 6.6.2.1, 6.6.2.2 and 6.6.3.	Wanted signal level – interferer level = 30 dB	0 dB	Formula: Ratio + TT Wanted signal level – interferer level = 30 + 0 dB
6.8.1 Modulation accuracy	EVM limit = 12,5 %	0 %	Formula: EVM limit + TT EVM limit = 12,5 %
6.8.2 Peak code domain error	PCDE limit = - 28 dB	1 dB	Formula: PCDE limit + TT PCDE limit = - 27 dB

Table D.2: Derivation of Test Requirements (Receiver tests)

Test	Minimum Requirement in TS 25.105 (numbering of tables in the column below refers to TS 25.142)	Test Tolerance (TT)	Test Requirement in TS 25.142
7.2 Reference sensitivity	Reference sensitivity level 3,84 Mcps TDD option:~~=~~ Wide Area BS: -109 dBm Local Area BS: -95 dBm 1,28 Mcps TDD option: Wide Area BS: -110 dBm Local Area BS: -96 dBm BER limit = 0,001	0,7 dB	Formula: Reference sensitivity level + TT Reference sensitivity level:~~=~~ 3,84 Mcps TDD option: Wide Area BS: -108,3 dBm Local Area BS: -94,3 dBm 1,28 Mcps TDD option: Wide Area BS: -110dBm Local Area BS: -95,3 dBm BER limit is not changed
7.3 Dynamic range	Wanted signal level = <REFSENS> + 30 dB Interfering AWGN level:~~=~~ 3,84 Mcps TDD option: Wide Area BS: -73 dBm/3,84 MHz Local Area BS: -59 dBm/3,84 MHz 1,28 Mcps TDD option: Wide Area BS: -76 dBm/1,28 MHz Local Area BS: -62 dBm/1,28 MHz	1,2 dB	Formula: Wanted signal level + TT AWGN level unchanged Wanted signal level = <REFSENS> + 31,2 dB
7.4 Adjacent Channel Selectivity (ACS)	Wanted signal level = Ref. sensitivity level + 6 dB Interfering signal level:~~=~~ 3,84 Mcps TDD option: Wide Area BS: -52 dBm/3,84 MHz Local Area BS: -38 dBm/3,84 MHz 1,28 Mcps TDD option: Wide Area BS: -55 dBm/1,28 MHz Local Area BS: -41 dBm/1,28 MHz	0 dB	Formula: Wanted signal level + TT Interfering signal level unchanged Wanted signal level = Ref. sensitivity level + 6 dB
7.5 Blocking characteristics	Wanted signal level = <REFSENS> + 6 dB 3,84 Mcps TDD option: Interfering signal level see tables 7.6 to 7.10~~8~~ 1,28 Mcps TDD option: Interfering signal level see tables 7.6A to 7.10A	0 dB	Formula: Wanted signal level + TT Interfering signal level unchanged Wanted signal level = <REFSENS> + 6 dB
7.6 Intermodulation characteristics	Wanted signal level = <REFSENS> + 6 dB Interferer1 level (10 MHz offset CW for 3,84 Mcps TDD option; 3,2 MHz offset CW for 1,28 Mcps TDD option) = -48 dBm Interferer2 level (20 MHz offset W-CDMA Modulated for 3,84 Mcps TDD option; 6,4 Mcps offset W-CDMA Modulated for 1,28 Mcps TDD option) = -48 dBm	0 dB	Formula: Wanted signal level + TT Interferer 1 level: unchanged Interferer 2 level: unchanged Wanted signal level = <REFSENS> + 6 dB

7.7 Spurious emissions	Maximum level defined in table 7.12	0 dB	Formula: Maximum level + TT Add TT to maximum level in table 7.12