RP-030605

TSG RAN Meeting #22 Maui, Hawaii, US, 9 - 12 December 2003

Title

Source Agenda Item

CRs (Rel-6) to TS 25.101, TS 25.104, TS 25.141 for Introduction of UMTS 800 requirements TSG RAN WG4 8.1.3

| RAN4 Tdoc | Spec | CR | R | Cat | Rel | Curr Ver | Title | Work Item |
|-----------|--------|-----|---|-----|-------|-------------|---|--------------------|
| R4-031128 | 25.101 | 280 | 1 | В | Rel-6 | 6.2.0 | DS-CDMA Introduction in the 800 MHz Band | RInImp- UMTS800 |
| R4-031131 | 25.101 | 314 | | В | Rel-6 | 6.2.0 | DS CDMA introduction in the 800 MHz band (performance requirement in Band VI) | RInImp- UMTS800 |
| R4-031134 | 25.101 | 315 | | В | Rel-6 | 6.2.0 | DS CDMA introduction in the 800 MHz band (Addition of spurious emissions requirement) | RInImp- UMTS800 |
| R4-031129 | 25.104 | 206 | 1 | В | Rel-6 | 6.3.0 | DS-CDMA Introduction in the 800 MHz Band | RInImp- UMTS800 |
| R4-031132 | 25.104 | 214 | | В | Rel-6 | 6.3.0 | DS CDMA introduction in the 800 MHz band (performance requirement in Band VI) | RInImp- UMTS800 |
| R4-031130 | 25.141 | 327 | 1 | В | Rel-6 | 6.3.0 | DS-CDMA Introduction in the 800 MHz Band | RInImp- UMTS800 |
| R4-031133 | 25.141 | 335 | | В | Rel-6 | 6.3.0 | DS CDMA introduction in the 800 MHz band (performance requirement in Band VI) | RInImp- UMTS800 |

3GPP TSG RAN WG4 (Radio) Meeting #29

San Diego, USA 17 - 21 November 2003

| CHANGE REQUEST | | | | | | |
|---|---|--|-----------------------|--|---|--|
| æ | 25.101 CR 280 | жrev | 1 [#] | Current versior | 6.2.0 * | |
| For <u>HELP</u> on using this form, see bottom of this page or look at the pop-up text over the % symbols. | | | | | | |
| | | | | | | |
| Title: ೫ | DS-CDMA Introduction | n in the 800 MHz E | Band | | | |
| Source: # | RAN WG4 | | | | | |
| Work itom codo: 9 | | | | Date: 9 26 | /11/2002 | |
| WORK Rem code. # | KIIIIIIp-OWI 3000 | | | | /11/2003 | |
| Category: # | В | | F | Release: ೫ Re | el-6 | |
| | Use <u>one</u> of the following c F (correction) A (corresponds to a release) B (addition of feature C (functional modified D (editorial modified Detailed explanations of the be found in 3GPP <u>TR 21.5</u> | ategories: a correction in an ear re), ication of feature) ation) ne above categories 300. | <i>lier</i> can | Use <u>one</u> of the for 2 (GSi R96 (Reli R97 (Reli R98 (Reli R99 (Reli Rel-4 (Reli Rel-5 (Reli Rel-6 (Reli | ollowing releases: M Phase 2) ease 1996) ease 1997) ease 1998) ease 1999) ease 4) ease 5) ease 6) | |
| | | | | | | |
| Reason for change: # Introducing DS-CDMA into 800MHz band in Japan. Summary of change: # Re-strure of relevant chapters: UE maximum output power, Out of band emission, Tx Spurious emissions, Reference sensitivity level, Out of-band blocking and Receiver Spurious emissions. | | | | | | |
| Consequences if % No requirement for DS-CDMA 800MHz band operation in Japan. not approved: | | | | | | |
| Clauses affected: | # 621 662 663 | 73176279 | 1 | | | |
| Other specs Affected: | Y N X Other core X Test specif X O&M Spec | specifications ications ifications | ₩ 25.307 34.121 | 7 I, 34.108 | | |
| Other comments: | ж | | | | | |

6.2.1 UE maximum output power

The following Power Classes define the nominal maximum output power. The nominal power defined is the broadband transmit power of the UE, i.e. the power in a bandwidth of at least $(1+\alpha)$ times the chip rate of the radio access mode. The period of measurement shall be at least one timeslot.

| Operating | Power Class 1 | | Power Class 2 | | Power Class 3 | | Power Class 4 | |
|-----------|----------------|-------------|----------------|-------------|----------------|-------------|----------------|-------------|
| Band | Power (dBm) | Tol (dB) | Power (dBm) | Tol (dB) | Power (dBm) | Tol (dB) | Power (dBm) | Tol (dB) |
| Band I | +33 | +1/-3 | +27 | +1/-3 | +24 | +1/-3 | +21 | +2/-2 |
| Band II | - | - | - | - | +24 | +1/-3 | +21 | +2/-2 |
| Band III | - | - | - | - | +24 | +1/-3 | +21 | +2/-2 |
| Band VI | - | - | - | - | +24 | +1/-3 | +21 | +2/-2 |

| | Table | 6.1: | UE | Power | Classes |
|--|-------|------|----|-------|---------|
|--|-------|------|----|-------|---------|

NOTE: The tolerance allowed for the nominal maximum output power applies even for the multi-code transmission mode.

{Unchanged Sections are snipped here}

6.6.2 Out of band emission

1

Out of band emissions are unwanted emissions immediately outside the nominal channel resulting from the modulation process and non-linearity in the transmitter but excluding spurious emissions. This out of band emission limit is specified in terms of a spectrum emission mask and Adjacent Channel Leakage power Ratio.

6.6.2.1 Spectrum emission mask

The spectrum emission mask of the UE applies to frequencies, which are between 2.5 MHz and 12.5 MHz away from the UE centre carrier frequency. The out of channel emission is specified relative to the RRC filtered mean power of the UE carrier.

6.6.2.1.1 Minimum requirement

The power of any UE emission shall not exceed the levels specified in Table 6.10. The absolute requirement is based on a -50 dBm/3.84 MHz minimum power threshold for the UE. This limit is expressed for the narrower measurement bandwidths as -55.8 dBm/1 MHz and -71.1 dBm/30 kHz.

| Δf | Δf in MHz Minimum requirement (Note 2) Band I, II, III, VI Additional Measurement (Note 1) Formula Measurement Measurement Measurement | | | | | | |
|---|---|--|-------------------------|------------------|--------------------|--|--|
| u L | Note I) | Relative requirement | Absolute requirement | Band II (Note 3) | (Note 6) | | |
| $2.5 - 3.5 \qquad \left\{-35 - 15 \cdot \left(\frac{\Delta f}{MHz} - 2.5\right)\right\}$ | | | -71.1 dBm | -15 dBm | 30 kHz (Note 4) | | |
| 3.5 - 7.5 | | $\left\{-35 - 1 \cdot \left(\frac{\Delta f}{MHz} - 3.5\right)\right\} dBc$ | -55.8 dBm | -13 dBm | 1 MHz (Note 5) | | |
| 7.5 - 8.5 | | $\left\{-39-10\cdot\left(\frac{\Delta f}{MHz}-7.5\right)\right\}dBc$ | -55.8 dBm | -13 dBm | 1 MHz (Note 5) | | |
| 8.5 - | 8.5 - 12.5 MHz -49 dBc -55.8 dBm -13 dBm 1 MHz (Note 5) | | | | | | |
| Note 1: Note 2: Note 3: | Note 1: ∆f is the separation between the carrier frequency and the centre of the measurement bandwidth. Note 2: The minimum requirement for bands I, II <u> & III & VI</u> is calculated from the relative requirement or the absolute requirement, whichever is the higher power. | | | | | | |
| calculated in Note 2 or the additional requirement for band II, whichever is the lower power. Note 4: The first and last measurement position with a 30 kHz filter is at Δf equals to 2.515 MHz and 3.485 MHz. | | | | | | | |
| Note 5: Note 6: | Note 4: The first and last measurement position with a 30 kHz filter is at ∆f equals to 2.515 MHz and 3.485 MHz. Note 5: The first and last measurement position with a 1 MHz filter is at ∆f equals to 4 MHz and 12 MHz. Note 6: As a general rule, the resolution bandwidth of the measuring equipment should be equal to the measurement bandwidth. However, to improve measurement accuracy, sensitivity and efficiency, the resolution bandwidth may be smaller than the measurement bandwidth. When the resolution bandwidth is smaller than the measurement bandwidth, the result should be integrated over the measurement bandwidth in order to obtain | | | | | | |

Table 6.10: Spectrum Emission Mask Requirement

{Unchanged Sections are snipped here}

6.6.3 Spurious emissions

Spurious emissions are emissions which are caused by unwanted transmitter effects such as harmonics emission, parasitic emission, intermodulation products and frequency conversion products, but exclude out of band emissions.

The frequency boundary and the detailed transitions of the limits between the requirement for out band emissions and spectrum emissions are based on ITU-R Recommendations SM.329-9[2].

6.6.3.1 Minimum requirement

These requirements are only applicable for frequencies, which are greater than 12.5 MHz away from the UE centre carrier frequency.

| Frequency Bandwidth | Measurement Bandwidth | Minimum requirement |
|-----------------------|-----------------------|---------------------|
| 9 kHz ≤ f < 150 kHz | 1 kHz | -36 dBm |
| 150 kHz ≤ f < 30 MHz | 10 kHz | -36 dBm |
| 30 MHz ≤ f < 1000 MHz | 100 kHz | -36 dBm |
| 1 GHz ≤ f < 12.75 GHz | 1 MHz | -30 dBm |

Table 6.12: General spurious emissions requirements

| Operating Band | g Band Frequency Bandwidth Measurement Minimum | | | | | | | |
|--|--|---------------------------|----------------------|--|--|--|--|--|
| | | Bandwidth | requirement | | | | | |
| | 921 MHz ≤ f < 925 MHz | 100 kHz | -60 dBm * | | | | | |
| | 925 MHz \leq f \leq 935 MHz | 100 kHz | -67 dBm * | | | | | |
| | 935 MHz < f ≤ 960 MHz | 100 kHz | -79 dBm * | | | | | |
| | 1805 MHz ≤ f ≤ 1880 MHz | 100 kHz | -71 dBm * | | | | | |
| | 1893.5 MHz <f<1919.6 mhz<="" td=""><td>300 kHz</td><td>-41 dBm</td></f<1919.6> | 300 kHz | -41 dBm | | | | | |
| | 2110 MHz \leq f \leq 2170 MHz | 3.84 MHz | -60 dBm | | | | | |
| II | 1930 MHz ≤ f ≤ 1990 MHz | 3.84 MHz | -60 dBm | | | | | |
| III | 921 MHz ≤ f < 925 MHz | 100 kHz | -60 dBm * | | | | | |
| 925 MHz \leq f \leq 935 MHz 100 kHz -67 dBm * | | | | | | | | |
| | 935 MHz < f ≤ 960 MHz 100 kHz -79 dBm * | | | | | | | |
| $1805 \text{ MHz} \le f \le 1880 \text{ MHz}$ 3.84 MHz -60 dBm | | | | | | | | |
| | 2110 MHz \leq f \leq 2170 MHz | 3.84 MHz | -60 dBm * | | | | | |
| <u>VI</u> | <u>1893.5 MHz ≤ f ≤1919.6 MHz</u> | <u>300 kHz</u> | <u>-41 dBm</u> | | | | | |
| | $\underline{2110 \text{ MHz}} \leq f \leq 2170 \text{ MHz}$ | <u>3.84 MHz</u> | <u>-60 dBm</u> | | | | | |
| Note * The measurements are made on frequencies which are integer multiples of 200 kHz. As | | | | | | | | |
| exception | ns, up to five measurements with a l | evel up to the applicable | e requirements | | | | | |
| defined ir | n Table 6.12 are permitted for each | UARFCN used in the m | easurement | | | | | |

Table 6.13: Additional spurious emissions requirements

{Unchanged Sections are snipped here}

7.3 Reference sensitivity level

The reference sensitivity level <REFSENS> is the minimum mean power received at the UEantenna port at which the Bit Error Ratio (BER) shall not exceed a specific value.

7.3.1 Minimum requirement

l

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

| Operating Band | Unit | DPCH_Ec <refsens></refsens> | <refî<sub>or></refî<sub> | | | |
|---|--------------|-----------------------------|-----------------------------|--|--|--|
| I <u>, VI</u> | dBm/3.84 MHz | -117 | -106.7 | | | |
| II dBm/3.84 MHz -115 -104.7 | | | | | | |
| III dBm/3.84 MHz -114 -103.7 | | | | | | |
| NOTE 1. For Power class 3 this shall be at the maximum output power | | | | | | |
| NOTE 2. For Power class 4 this shall be at the maximum output power | | | | | | |

|--|

{Unchanged Sections are snipped here}

7.6.2 Minimum requirement (Out of-band blocking)

The BER shall not exceed 0.001 for the parameters specified in Table 7.7. For Table 7.7 up to 24 exceptions are allowed for spurious response frequencies in each assigned frequency channel when measured using a 1 MHz step size. For these exceptions the requirements of clause 7.7 Spurious response are applicable.

| Parameter | Unit Frequency range 1 Frequency range 2 Frequency range 3 | | | | | | |
|---|---|--|--|--|--|--|--|
| DPCH_Ec | dBm/3.84 MHz | <refsens>+3 dB</refsens> | <refsens>+3 dB</refsens> | <refsens>+3 dB</refsens> | | | |
| Î _{or} | dBm/3.84 MHz | <refî<sub>or> + 3 dB</refî<sub> | <refî<sub>or> + 3 dB</refî<sub> | <refî<sub>or> + 3 dB</refî<sub> | | | |
| Iblocking (CW) | dBm | -44 | -30 | -15 | | | |
| F _{uw} (Band I operation) | MHz 2050 <f <2095<="" th=""> 2025<f <2050<="" th=""> 1 f <2025 2185<f <2230<="" td=""> 2230 cf <2255</f></f></f> | | | | | | |
| F _{uw} (Band II operation) | MHz 1870 <f 1845="" 1<="" <1845<br="" <1870="" <1915="" <f="" f="">2005<f 2050="" 2075<f<12750<="" <2050="" <2075="" <f="" td=""></f></f> | | | | | | |
| F _{uw} (Band III operation) | MHz 1745 <f <1790<br="">1895 <f <1940<="" th=""> 1720 <f 1745<br="" <="">1940 <f 1965<="" <="" th=""> 1 < f <1720 1965 <f <12750<="" th=""></f></f></f></f></f> | | | | | | |
| <u>F_{uw} (Band VI operation)</u> | $ \frac{\text{MHz}}{\text{MHz}} \qquad \frac{815 < f < 860}{900 < f < 945} \qquad \frac{790 < f < 815}{945 < f < 970} \qquad \frac{1 < f < 790}{970 < f < 12750} $ | | | | | | |
| UE transmitted mean power | dBm 20 (for Power class 3) 18 (for Power class 4) | | | | | | |
| Band I operation | For 2095 <f<2110 2170<f<2185="" 7.5.1="" 7.6.1="" adjacent="" and="" applied.<="" appropriate="" be="" blocking="" channel="" in="" in-band="" mhz="" mhz,="" or="" selectivity="" shall="" subclause="" td="" the=""></f<2110> | | | | | | |
| Band II operation | For 1915 <f<1930 1990<f<2005="" 7.5.1="" 7.6.2="" adjacent="" and="" applied<="" appropriate="" be="" blocking="" channel="" in="" in-band="" mhz="" mhz,="" or="" selectivity="" shall="" subclause="" td="" the=""></f<1930> | | | | | | |
| Band III operation | For 1790 <f<18 adjacent chann</f<18 | 805 MHz and 1880 <f<18 el selectivity in subclau</f<18 | 895 MHz, the appropriat se 7.5.1 and subclause | e in-band blocking or 7.6.2 shall be applied. | | | |
| Band VI | For 860 <f<875< td=""><td>MHz and 885<f<900 mh<="" td=""><td>Iz, the appropriate in-ba</td><td>ind blocking or</td></f<900></td></f<875<> | MHz and 885 <f<900 mh<="" td=""><td>Iz, the appropriate in-ba</td><td>ind blocking or</td></f<900> | Iz, the appropriate in-ba | ind blocking or | | | |
| operation | adjacent channe | adjacent channel selectivity in subclause 7.5.1 and subclause 7.6.1 shall be applied. | | | | | |

Table 7.7: Out of band blocking

{Unchanged Sections are snipped here}

7.9 Spurious emissions

The spurious emissions power is the power of emissions generated or amplified in a receiver that appear at the UE antenna connector.

7.9.1 Minimum requirement

The power of any narrow band CW spurious emission shall not exceed the maximum level specified in Table 7.10 and Table 7.11

| Frequency Band | Measurement Bandwidth | Maximum level | Note |
|----------------------------|--------------------------|------------------|------|
| 30MHz≤ f< 1GHz | 100 kHz | -57 dBm | |
| $1GHz \le f \le 12.75 GHz$ | 1 MHz | -47 dBm | |

Table 7.10: General receiver spurious emission requirements

| Band | Frequency Band | Measurement | Maximum | Note | | |
|-----------|---|---------------------|--------------------|---|--|--|
| | 004 MUL 26 005 MUL | | | | | |
| I | 921 MHZ ≤ t < 925 MHZ | 100 KHZ | -60 dBm | | | |
| | 925 MHz \leq f \leq 935 MHz | 100 kHz | -67 dBm * | | | |
| | 935 MHz < f ≤ 960 MHz | 100 kHz | -79 dBm * | | | |
| | 1805 MHz ≤ f ≤ 1880 MHz | 100 kHz | -71 dBm * | | | |
| | 1920 MHz ≤ f ≤ 1980 MHz | 3.84 MHz | -60 dBm | UE transmit band in URA_PCH, Cell_PCH and idle state | | |
| | 2110 MHz ≤ f ≤ 2170 MHz | 3.84 MHz | -60 dBm | UE receive band | | |
| II | 1850 MHz ≤ f ≤ 1910 MHz | 3.84 MHz | -60 dBm | UE transmit band in URA_PCH, Cell_PCH and idle state | | |
| | 1930 MHz ≤ f ≤ 1990 MHz | 3.84 MHz | -60 dBm | UE receive band | | |
| | 921 MHz ≤ f < 925 MHz | 100 kHz | -60 dBm* | | | |
| | 925 MHz ≤ f ≤ 935 MHz | 100 kHz | -67 dBm* | | | |
| | 935 MHz < f ≤ 960 MHz | 100 kHz | -79 dBm* | | | |
| | $\begin{array}{ c c c c c } \hline 1710 \mbox{ MHz} \leq f \leq 1785 \mbox{ MHz} & 3.84 \mbox{ MHz} & -60 \mbox{ dBm} & UE \mbox{ transmit band in URA_PCH,} \\ \hline Cell_PCH \mbox{ and idle state} & \end{array}$ | | | | | |
| | 1805 MHz ≤ f ≤ 1880 MHz | 3.84 MHz | -60 dBm | UE receive band | | |
| | 2110 MHz ≤ f ≤ 2170 MHz | 3.84 MHz | -60 dBm | | | |
| <u>VI</u> | $\underline{830 \text{ MHz}} \leq f \leq 840 \text{ MHz}$ | <u>3.84 MHz</u> | <u>-60 dBm</u> | UE transmit band in URA_PCH, Cell_PCH and idle state | | |
| | <u>875 MHz ≤ f ≤ 885 MHz</u> | <u>3.84 MHz</u> | <u>-60 dBm</u> | UE receive band | | |
| Note * | The measurements are made | on frequencies w | hich are integer n | nultiples of 200 kHz. As exceptions, | | |
| | up to five measurements with | a level up to the a | pplicable require | ments defined in Table 7.10 are | | |
| | permitted for each UARFCN u | used in the measu | rement | | | |

Table 7.11: Additional receiver spurious emission requirements

3GPP TSG RAN WG4 (Radio) Meeting #29

San Diego, USA 17 - 21 November 2003

| | CHANGE REQUEST | | | | | | | | | | |
|---|----------------|---|--|--|---|-------------------------------|-------|---|--|---|---------|
| ж | | 25.101 | CR | 314 | ж re \ | / | ж | Current vers | ion: | 6.2.0 | ж |
| For <u>HELP</u> of | n us | sing this for | m, see | e bottom of thi | s page (| or look | at th | e pop-up text | over t | the % syr | nbols. |
| Proposed change affects: UICC apps # ME X Radio Access Network Core Network | | | | | | | | | | | |
| Title: | Ж | DS-CDM | A Intro | duction in the | 800 MH | Iz Bano | d (Pe | rformance rec | quirem | nents in B | and VI) |
| Source: | ж | RAN WG | 4 | | | | | | | | |
| Work item code. | : X | RInImp-U | MTS8 | 00 | | | | Date: ೫ | 26/1 | 1/2003 | |
| Category: | # | B Use <u>one</u> of F (cor A (cor B (add C (fun D (edi Detailed exp be found in | the follo rection) respon- lition of ctional torial m blanatic 3GPP | owing categorie ds to a correctio feature), modification of odification) ons of the above <u>TR 21.900</u> . | s: on in an e feature) e categoi | ea <i>rlier n</i> ries can | eleas | Release: % Use <u>one</u> of 2 e) R96 R97 R98 R99 Rel-4 Rel-5 Rel-6 | Rel- the foll (GSM (Relea (Relea (Relea (Relea (Relea (Relea | -6 lowing rele Phase 2) ase 1996) ase 1997) ase 1998) ase 1999) ase 4) ase 5) ase 5) ase 6) | pases: |

| Reason for change: ೫ | Introducing DS-CDMA into 800MHz band in Japan. | | | | |
|----------------------------|---|--|--|--|--|
| | | | | | |
| Summary of change: ₩ | Re-structure of multi-path fading propagation conditions. In multipath propagation conditions, which are used for verifying demodulation performance and RRM test case "Correct reporting of neighbours in fading propagation conditions", all the UE speeds of Band VI are scaled to the speeds, which correspond to the same Doppler frequencies as used in Band I. | | | | |
| | | | | | |
| Consequences if % | No performance requirements for UMTS 800 band specified. | | | | |
| not approved: | | | | | |
| | | | | | |
| Clauses affected: # | B.2.2 | | | | |
| Other specs % affected: | YNXOther core specifications# TS 25.307XTest specificationsTS 34.121XO&M Specifications | | | | |

Other comments:

How to create CRs using this form:

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

- 1) Fill out the above form. The symbols above marked **#** contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be

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

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

Annex B (normative): Propagation conditions

B.1 General

Void

B.2 Propagation Conditions

B.2.1 Static propagation condition

The propagation for the static performance measurement is an Additive White Gaussian Noise (AWGN) environment. No fading and multi-paths exist for this propagation model.

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B.2.2 Multi-path fading propagation conditions

Table B1 shows propagation conditions that are used for the performance measurements in multi-path fading environment. All taps have classical Doppler spectrum.

| Cas speed | e 1 , Case 2 , Case 3 , 3km/h speed 3 km/h speed 120 km | | se 3 , 20 km/h | Case 4 , speed 3 km/h | | * Case 5 , speed 50 km/h | | Case 6 , speed 250 km/h | | | |
|---------------------------|--|---------------------------|---|--|--|---|--------------------------------------|---|-----------------------------------|-----------------------------|-----------------------------------|
| Speed fo | or Band I, 3 km/h | Speed fo | o <u>r Band I,</u> 3 km/h | Speed fo | Speed for Band I,Speed for Band I,II, III 120 km/hII, III 3 km/h | | Speed for Band I, II, III 50 km/h | | Speed for II, III 25 | or Band I, 50 km/h | |
| Speed f VI 7 | <u>or Band</u> <u>km/h</u> | Speed f <u>VI 7</u> | or Band km/h | <u>** Spe</u> Band kn | eed for VI 282 n/h | <u>Speed for Band</u> <u>VI 7 km/h</u> | | <u>Speed for Band</u> <u>VI 118 km/h</u> | | <u>** Spe</u> Band kn | eed for VI 583 n/h |
| Relative Delay [ns] | Relative mean Power [dB] | Relative Delay [ns] | Relative mean Power [dB] | Relative Delay [ns] | Relative mean Power [dB] | Relative Delay [ns] | Relative mean Power [dB] | Relative Delay [ns] | Relative mean Power [dB] | Relative Delay [ns] | Relative mean Power [dB] |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 976 | -10 | 976 | 0 | 260 | -3 | 976 | 0 | 976 | -10 | 260 | -3 |
| | | 20000 | 0 | 521 | -6 | | | | | 521 | -6 |
| | | | | 781 | -9 | | | | | 781 | -9 |

Table B.1: Propagation Conditions for Multi path Fading Environments (Cases 1 to 6)

NOTE1: * Case 5 is only used in TS25.133.

NOTE2: ** Speed above 250km/h is applicable to demodulation performance requirements only.

Table B.1A shows propagation conditions that are used for the performance measurements in multi-path environment when UE is informed by higher layer signalling that only DPCCH exists for channel estimation. All taps have classical Doppler spectrum. Taps are normalized to the strongest tap in the beam/sector. The actual power relation between the sector and the beam is determined by the test case.

| Case 7 , speed 50 km/h | | | | | | | |
|-----------------------------------|-----------------------------------|-----------|--|--|--|--|--|
| Speed for | Speed for Band I, II, III 50 km/h | | | | | | |
| Speed for Band VI 118 km/h | | | | | | | |
| Relative Delay [ns] | Average P | ower [dB] | | | | | |
| | Sector | Beam | | | | | |
| 0 | 0.0 | - | | | | | |
| 260 | -4.3 | - | | | | | |
| 1040 | -6.6 | - | | | | | |
| 4690 | -2.0 | 0.0 | | | | | |
| 7290 | -7.0 | -0.3 | | | | | |
| 14580 | -7.5 | -0.9 | | | | | |

Table B.1A: Propagation Conditions for Multi path Fading Environments (Case 7)

Table B.1B shows propagation conditions that are used for HSDPA performance measurements in multi-path fading environment.

Table B.1B: Propagation Conditions for Multi-Path Fading Environments for HSDPA Performance Requirements

| ITU Pedestrian A Speed 3km/h (PA3) | | ITU Pe <mark>Spe</mark> e | edestrian B ed 3km/h (PB3) | ITU ve <mark>Speec</mark> (V | hicular A I 30km/h A30) | ITU vehicular A Speed 120km/h (VA120) | | |
|--|--------------------------------|--|---|--|--|--|--------------------------------|--|
| Speed for Band I, II, III 3 <u>km/h</u> | | Speed for Band I, II, III 3 <u>km/h</u> | | <u>Speed for Band I, II, III 30</u> <u>km/h</u> | | Speed for Band I, II, III 120 <u>km/h</u> | | |
| Speed for Band VI 7 km/h | | Speed for Band VI 7 km/h | | Speed for Band VI 71 km/h | | * Speed for Band VI 282 km/h | | |
| Relative Delay [ns] | Relative Mean Power [dB] | Relative Delay [ns] | Relative Mean Power [dB] | Relative Delay [ns] | Relative Mean Power [dB] | Relative Delay [ns] | Relative Mean Power [dB] | |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 110 | -9.7 | 200 | -0.9 | 310 | -1.0 | 310 | -1.0 | |
| 190 | -19.2 | 800 | -4.9 | 710 | -9.0 | 710 | -9.0 | |
| 410 | -22.8 | 1200 | -8.0 | 1090 | -10.0 | 1090 | -10.0 | |
| | | 2300 | -7.8 | 1730 | -15.0 | 1730 | -15.0 | |
| | | 3700 | -23.9 | 2510 | -20.0 | 2510 | -20.0 | |

Note<u>NOTE1</u>: The propagation conditions used in simulations were based on the TR 25.890. The effect of remapping of channel rays to integer sample locations is FFS.

NOTE2: * Speed above 120km/h is applicable to demodulation performance requirements only.

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| | | | | | | | CR-Form-v7 |
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| Reason for change: | Additional suprious emissions requirements for DS-CDMA 800MHz band | | | | | |
|--------------------|---|--|--|--|--|--|
| | operation in Japan is missing. | | | | | |
| Summer of changes | \mathbf{M} | | | | | |
| Summary of change: | Additional spunous emissions requirements for section 7.9.1 is introduced. | | | | | |
| Consorwonoos if | M Additional suprious omissions requirements for DS CDMA 800MHz hand | | | | | |
| consequences in | Additional suphous emissions requirements for DS-CDWA doolwing band | | | | | |
| not approved: | operation in Japan will be missed. | | | | | |
| | | | | | | |
| Clauses affected: | 光 6.6.3, 7.9.1 | | | | | |
| Other specs | Y N X Other core specifications X 25.307 | | | | | |
| Affected: | X Test specifications 34.121, 34.108 X O&M Specifications | | | | | |
| | | | | | | |
| Other comments: | ¥ | | | | | |

6.6.3 Spurious emissions

Spurious emissions are emissions which are caused by unwanted transmitter effects such as harmonics emission, parasitic emission, intermodulation products and frequency conversion products, but exclude out of band emissions.

The frequency boundary and the detailed transitions of the limits between the requirement for out band emissions and spectrum emissions are based on ITU-R Recommendations SM.329-9[2].

6.6.3.1 Minimum requirement

These requirements are only applicable for frequencies, which are greater than 12.5 MHz away from the UE centre carrier frequency.

| Frequency Bandwidth | Measurement Bandwidth | Minimum requirement |
|-----------------------|-----------------------|---------------------|
| 9 kHz ≤ f < 150 kHz | 1 kHz | -36 dBm |
| 150 kHz ≤ f < 30 MHz | 10 kHz | -36 dBm |
| 30 MHz ≤ f < 1000 MHz | 100 kHz | -36 dBm |
| 1 GHz ≤ f < 12.75 GHz | 1 MHz | -30 dBm |

Table 6.12: General spurious emissions requirements

| Operating Band | Frequency Bandwidth | Measurement | Minimum | | | | |
|--|--|----------------------|----------------------|--|--|--|--|
| | | Bandwidth | requirement | | | | |
| I | 921 MHz ≤ f < 925 MHz | 100 kHz | -60 dBm * | | | | |
| | 925 MHz \leq f \leq 935 MHz | 100 kHz | -67 dBm * | | | | |
| | 935 MHz < f ≤ 960 MHz | 100 kHz | -79 dBm * | | | | |
| | 1805 MHz \leq f \leq 1880 MHz | 100 kHz | -71 dBm * | | | | |
| | 1893.5 MHz <f<1919.6 mhz<="" td=""><td>300 kHz</td><td>-41 dBm</td></f<1919.6> | 300 kHz | -41 dBm | | | | |
| | 2110 MHz \leq f \leq 2170 MHz | 3.84 MHz | -60 dBm | | | | |
| Ш | 1930 MHz ≤ f ≤ 1990 MHz | 3.84 MHz | -60 dBm | | | | |
| III | 921 MHz ≤ f < 925 MHz | 100 kHz | -60 dBm * | | | | |
| | 925 MHz ≤ f ≤ 935 MHz | 100 kHz | -67 dBm * | | | | |
| | 935 MHz < f ≤ 960 MHz | 100 kHz | -79 dBm * | | | | |
| | 1805 MHz \leq f \leq 1880 MHz | 3.84 MHz | -60 dBm | | | | |
| | 2110 MHz \leq f \leq 2170 MHz | 3.84 MHz | -60 dBm * | | | | |
| <u>VI</u> | <u>875 MHz ≤ f ≤ 885 MHz</u> | <u>3.84 MHz</u> | <u>-60dBm</u> | | | | |
| Note * The measurements are made on frequencies which are integer multiples of 200 kHz. As | | | | | | | |
| exceptions, up to five measurements with a level up to the applicable requirements | | | | | | | |
| defined ir | Table 6.12 are permitted for each | UARFCN used in the m | easurement | | | | |

Table 6.13: Additional spurious emissions requirements

{Unchanged Sections are snipped here}

7.6 Blocking characteristics

The blocking characteristic is a measure of the receiver's 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 spurious response or the adjacent channels, without this unwanted input signal causing a degradation of the performance of the receiver beyond a specified limit. The blocking performance shall apply at all frequencies except those at which a spurious response occur.

7.6.1 Minimum requirement (In-band blocking)

The BER shall not exceed 0.001 for the parameters specified in Table 7.6.

Table 7.6: In-band blocking

| Parameter | Unit | Level | | | | | |
|---|--------------|--|---------------------------------------|--|--|--|--|
| DPCH_Ec | dBm/3.84 MHz | <refsen< td=""><td>S>+3 dB</td></refsen<> | S>+3 dB | | | | |
| Î _{or} | dBm/3.84 MHz | <refî<sub>or></refî<sub> | + 3 dB | | | | |
| I _{blocking} mean power (modulated) | dBm | -56 | -44 | | | | |
| F _{uw} offset | | =±10 MHz | ≤-15 MHz & ≥15 MHz | | | | |
| F _{uw} (Band I operation) | MHz | 2102.4≤ f ≤2177.6 (Note 2) | 2095≤ f ≤2185 | | | | |
| F _{uw} (Band II operation) | MHz | 1922.4≤ f ≤1977.6 (Note 2) | 1915≤ f ≤2005 | | | | |
| F _{uw} (Band III operation) | MHz | 1797.4≤ f ≤1887.6 (Note 2) | 1790≤ f ≤1895 | | | | |
| <u>F_{uw} (Band VI operation)</u> | MHz | <u>867.4≤ f ≤892.6</u> (Note 2 and 3) | <u>860≤ f ≤900</u> <u>(Note 3)</u> | | | | |
| UE transmitted mean power | dBm | 20 (for Power class 3) 18 (for Power class 4) | | | | | |

- Note 1: I_{blocking} (modulated) consists of the common channels needed for tests as specified in Table C.7 and 16 dedicated data channels as specified in Table C.6.
- Note 2: For each carrier frequency the requirement are valid for two frequencies, the carrier frequency +/- 10 MHz.
- Note 3: For Band VI, the unwanted interfering signal does not fall inside the UE receive band, but within the first 15 MHz below or above the UE receive band.

{Unchanged Sections are snipped here}

7.9 Spurious emissions

The spurious emissions power is the power of emissions generated or amplified in a receiver that appear at the UE antenna connector.

7.9.1 Minimum requirement

The power of any narrow band CW spurious emission shall not exceed the maximum level specified in Table 7.10 and Table 7.11

Table 7.10: General receiver spurious emission requirements

| Frequency Band | Measurement Bandwidth | Maximum level | Note |
|----------------------------|--------------------------|------------------|------|
| 30MHz≤ f< 1GHz | 100 kHz | -57 dBm | |
| $1GHz \le f \le 12.75 GHz$ | 1 MHz | -47 dBm | |

| Band | Frequency Band | Measurement | Maximum | Note | | | |
|--------|--|---------------------|--------------------|--------------------------------------|--|--|--|
| | | Bandwidth | level | | | | |
| I | 921 MHz ≤ f < 925 MHz | 100 kHz | -60 dBm * | | | | |
| | 925 MHz ≤ f ≤ 935 MHz | 100 kHz | -67 dBm * | | | | |
| | 935 MHz < f ≤ 960 MHz | 100 kHz | -79 dBm * | | | | |
| | 1805 MHz ≤ f ≤ 1880 MHz | 100 kHz | -71 dBm * | | | | |
| | 1920 MHz $\leq f \leq 1980$ | 3.84 MHz | -60 dBm | UE transmit band in URA_PCH, | | | |
| | MHz | | | Cell_PCH and idle state | | | |
| | $2110 \text{ MHz} \le f \le 2170$ | 3.84 MHz | -60 dBm | UE receive band | | | |
| | MHz | | | | | | |
| II | 1850 MHz \leq f \leq 1910 MHz | 3.84 MHz | -60 dBm | UE transmit band in URA_PCH, | | | |
| | | | | Cell_PCH and idle state | | | |
| | 1930 MHz ≤ f ≤ 1990 MHz | 3.84 MHz | -60 dBm | UE receive band | | | |
| | 921 MHz ≤ f < 925 MHz | 100 kHz | -60 dBm* | | | | |
| | 925 MHz ≤ f ≤ 935 MHz | 100 kHz | -67 dBm* | | | | |
| | 935 MHz < f ≤ 960 MHz | 100 kHz | -79 dBm* | | | | |
| | 1710 MHz ≤ f ≤ 1785 MHz | 3.84 MHz | -60 dBm | UE transmit band in URA_PCH, | | | |
| | | | | Cell_PCH and idle state | | | |
| | $1805 \text{ MHz} \le f \le 1880 \text{ MHz}$ | 3.84 MHz | -60 dBm | UE receive band | | | |
| | 2110 MHz ≤ f ≤ 2170 | 3.84 MHz | -60 dBm | | | | |
| | MHz | | | | | | |
| VI | <u>2110 MHz \leq f \leq 2170</u> | <u>3.84 MHz</u> | <u>-60 dBm</u> | | | | |
| | MHz | | | | | | |
| Note * | The measurements are made | on frequencies w | hich are integer m | nultiples of 200 kHz. As exceptions, | | | |
| | up to five measurements with | a level up to the a | pplicable requirer | ments defined in Table 7.10 are | | | |
| | permitted for each UARFCN u | used in the measu | rement | | | | |

 Table 7.11: Additional receiver spurious emission requirements

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Other comments:

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| | | C | HANGE | REQ | UE | ST | | | | CR-Form-v7 |
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| Summary of change | e. شمال ge: ۲۲ Re cha | -strure of aracterist | relevant cha ics, Intermod | pters: Pro ulation cha | tectic aracte | on of the | e BS receive and Recei | /er, Blocl ver Spuri | king ous en | nissions. |
| Consequences if not approved: | % No | requireme | ent for DS-CE | 0008 AMO | IHz b | and op | peration in | Japan. | | |
| Clauses affected: | ₩ <mark>6.6</mark> | 6.3.2, 7.5, | 7.6 and 7.7 | | | | | | | |
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6.6.3.2 Protection of the BS receiver of own or different BS

This requirement shall be applied in order to prevent the receivers of the BSs being desensitised by emissions from a BS transmitter.

6.6.3.2.1 Minimum Requirement

The power of any spurious emission shall not exceed:

Table 6.10: Wide Area BS Spurious emissions limits for protection of the BS receiver

| Operating Band | Band | Maximum Level | Measurement Bandwidth | Note |
|-------------------|----------------|------------------|--------------------------|------|
| I | 1920 - 1980MHz | -96 dBm | 100 kHz | |
| | 1850-1910 MHz | -96 dBm | 100 kHz | |
| III | 1710-1785 MHz | -96 dBm | 100 kHz | |
| VI | 830-840 MHz | <u>-96 dBm</u> | <u>100 kHz</u> | |

Table 6.10A: Medium Range BS Spurious emissions limits for protection of the BS receiver

| Operating Band | Band | Maximum Level | Measurement Bandwidth | Note |
|-------------------|--------------------|------------------|--------------------------|------|
| ļ | 1920 - 1980MHz | -86 dBm | 100 kHz | |
| II | 1850-1910 MHz | -86 dBm | 100 kHz | |
| | 1710-1785 MHz | -86 dBm | 100 kHz | |
| <u>VI</u> | <u>830-840 MHz</u> | <u>-86 dBm</u> | <u>100 kHz</u> | |

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Table 6.10B: Local Area BS Spurious emissions limits for protection of the BS receiver

| Operating Band | Band | Maximum Level | Measurement Bandwidth | Note |
|-------------------|----------------|------------------|--------------------------|------|
| I | 1920 - 1980MHz | -82 dBm | 100 kHz | |
| II | 1850-1910 MHz | -82 dBm | 100 kHz | |
| | 1710-1785 MHz | -82 dBm | 100 kHz | |
| VI | 830-840 MHz | -82 dBm | 100 kHz | |

I

{Separate Section}

7.5 Blocking characteristics

The blocking characteristics is a measure of the receiver ability to receive a wanted signal at its assigned channel frequency in the presence of an unwanted interferer on frequencies other than those of the adjacent channels. The blocking performance requirement applies as specified in the tables 7.4 to 7.5B below, using a 1 MHz step size.

7.5.1 Minimum requirement

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

| Operating Band | Center Frequency of Interfering Signal | Interfering Signal mean | Wanted Signal mean power | Minimum Offset of Interfering Signal | Type of Interfering Signal |
|-------------------|---|-------------------------------|-----------------------------|--|-------------------------------|
| | | power | | | |
| | 1920 - 1980 MHz | -40 dBm | -115 dBm | 10 MHz | WCDMA signal * |
| | 1900 - 1920 MHz | -40 dBm | -115 dBm | 10 MHz | WCDMA signal * |
| | 1980 - 2000 MHz | | | | |
| | 1 MHz -1900 MHz | -15 dBm | -115 dBm | _ | CW carrier |
| | 2000 MHz - 12750 MHz | | | | |
| | 1850 - 1910 MHz | -40 dBm | -115 dBm | 10 MHz | WCDMA signal * |
| | 1830 - 1850 MHz | -40 dBm | -115 dBm | 10 MHz | WCDMA signal * |
| | 1910 - 1930 MHz | | | | - |
| | 1 MHz - 1830 MHz | -15 dBm | -115 dBm | — | CW carrier |
| | 1930 MHz - 12750 MHz | | | | |
| | 1710 – 1785 MHz | -40 dBm | -115 dBm | 10 MHz | WCDMA signal * |
| | 1690 - 1710 MHz | -40 dBm | -115 dBm | 10 MHz | WCDMA signal * |
| | 1785 – 1805 MHz | | | | - |
| | 1 MHz - 1690 MHz | -15 dBm | -115 dBm | — | CW carrier |
| | 1805 MHz - 12750 MHz | | | | |
| <u>VI</u> | <u>810 – 830 MHz</u> | <u>-40 dBm</u> | <u>-115 dBm</u> | <u>10 MHz</u> | WCDMA signal * |
| | <u>840 – 860 MHz</u> | | | | |
| | <u>1 MHz – 810 MHz</u> | <u>-15 dBm</u> | <u>-115 dBm</u> | | CW carrier |
| | 860 MHz – 12750 MHz | | | | |
| Note* The | characteristics of the W-C | DMA interferer | nce signal are speci | fied in Annex C | |

Table 7.4: Blocking performance requirement for Wide Area BS

Table 7.4A: Blocking performance requirement for Medium range BS

| Operating Band | Center Frequency of Interfering Signal | Interfering Signal | Wanted Signal | Minimum Offset | Type of Interfering Signal |
|-------------------|---|-----------------------|----------------------|-----------------|-------------------------------|
| Dana | interioring ergnar | mean | moun ponor | Signal | ergna |
| | | power | | Ū | |
| I | 1920 - 1980 MHz | -35 dBm | -105 dBm | 10 MHz | WCDMA signal * |
| | 1900 - 1920 MHz | -35 dBm | -105 dBm | 10 MHz | WCDMA signal * |
| | 1980 - 2000 MHz | | | | |
| | 1 MHz -1900 MHz | -15 dBm | -105 dBm | — | CW carrier |
| | 2000 MHz - 12750 MHz | | | | |
| II | 1850 - 1910 MHz | -35 dBm | -105 dBm | 10 MHz | WCDMA signal * |
| | 1830 - 1850 MHz | -35 dBm | -105 dBm | 10 MHz | WCDMA signal * |
| | 1910 - 1930 MHz | | | | |
| | 1 MHz - 1830 MHz | -15 dBm | -105 dBm | — | CW carrier |
| | 1930 MHz - 12750 MHz | | | | |
| | 1710 – 1785 MHz | -35 dBm | -105 dBm | 10 MHz | WCDMA signal * |
| | 1690 - 1710 MHz | -35 dBm | -105 dBm | 10 MHz | WCDMA signal * |
| | 1785 – 1805 MHz | | | | |
| | 1 MHz - 1690 MHz | -15 dBm | -105 dBm | _ | CW carrier |
| | 1805 MHz - 12750 MHz | | | | |
| VI | <u>810 – 830 MHz</u> | <u>-35 dBm</u> | <u>-105 dBm</u> | <u>10 MHz</u> | WCDMA signal * |
| | <u>840 – 860 MHz</u> | | | | |
| | <u>1 MHz – 810 MHz</u> | <u>-15 dBm</u> | <u>-105 dBm</u> | | <u>CW carrier</u> |
| | <u>860 MHz – 12750 MHz</u> | | | _ | |
| Note*: The | characteristics of the W-C | DMA interferer | nce signal are speci | fied in Annex C | |

| Operating Band | Center Frequency of Interfering Signal | Interfering Signal mean | Wanted Signal mean power | Minimum Offset of Interfering Signal | Type of Interfering Signal |
|-------------------|---|-------------------------------|-----------------------------|--|-------------------------------|
| | | power | | | |
| I | 1920 - 1980 MHz | -30 dBm | -101 dBm | 10 MHz | WCDMA signal * |
| | 1900 - 1920 MHz | -30 dBm | -101 dBm | 10 MHz | WCDMA signal * |
| | 1980 - 2000 MHz | | | | _ |
| | 1 MHz -1900 MHz | -15 dBm | -101 dBm | _ | CW carrier |
| | 2000 MHz - 12750 MHz | | | | |
| | 1850 - 1910 MHz | -30 dBm | -101 dBm | 10 MHz | WCDMA signal * |
| | 1830 - 1850 MHz | -30 dBm | -101 dBm | 10 MHz | WCDMA signal * |
| | 1910 - 1930 MHz | | | | - |
| | 1 MHz - 1830 MHz | -15 dBm | -101 dBm | — | CW carrier |
| | 1930 MHz - 12750 MHz | | | | |
| | 1710 – 1785 MHz | -30 dBm | -101 dBm | 10 MHz | WCDMA signal * |
| | 1690 - 1710 MHz | -30 dBm | -101 dBm | 10 MHz | WCDMA signal * |
| | 1785 – 1805 MHz | | | | |
| | 1 MHz - 1690 MHz | -15 dBm | -101 dBm | _ | CW carrier |
| | 1805 MHz - 12750 MHz | | | | |
| VI | <u>810 – 830 MHz</u> | <u>-30 dBm</u> | <u>-101 dBm</u> | <u>10 MHz</u> | WCDMA signal * |
| | <u>840 – 860 MHz</u> | | | | _ |
| | <u>1 MHz – 810 MHz</u> | <u>-15 dBm</u> | <u>-101 dBm</u> | _ | CW carrier |
| | <u>860 MHz – 12750 MHz</u> | | | | |
| Note*: The | e characteristics of the W-C | DMA interfere | nce signal are speci | fied in Annex C | |

Table 7.4B: Blocking performance requirement for Local Area BS

Table 7.5: Blocking performance requirement (narrowband) for Wide Area BS

| Operating Band | Center Frequency of Interfering Signal | Interfering Signal mean power | Wanted Signal mean power | Minimum Offset of Interfering Signal | Type of Interfering Signal | | |
|-------------------|--|--|-----------------------------|--|-------------------------------|--|--|
| II | 1850 - 1910 MHz | - 47 dBm | -115 dBm | 2.7 MHz | GMSK modulated* | | |
| III | 1710 – 1785 MHz | - 47 dBm | -115 dBm | 2.8 MHz | GMSK modulated* | | |
| * GMSK modu | * GMSK modulation as defined in TS 45.004 [5]. | | | | | | |

Table 7.5A: Blocking performance requirement (narrowband) for Medium Range BS

| Operating Band | Center Frequency of Interfering Signal | Interfering Signal mean power | Wanted Signal mean power | Minimum Offset of Interfering Signal | Type of Interfering Signal |
|-------------------|---|--|-----------------------------|--|-------------------------------|
| | 1850 - 1910 MHz | - 42 dBm | -105 dBm | 2.7 MHz | GMSK modulated* |
| III | 1710 – 1785 MHz | - 42 dBm | -105 dBm | 2.8 MHz | GMSK modulated* |
| * GMSK modu | lation as defined in TS 45.0 | 004 [5]. | | | |

Table 7.5B: Blocking performance requirement (narrowband) for Local Area BS

| Operating Band | Center Frequency of Interfering Signal | Interfering Signal mean power | Wanted Signal mean power | Minimum Offset of Interfering Signal | Type of Interfering Signal |
|-------------------|---|--|-----------------------------|--|-------------------------------|
| II | 1850 - 1910 MHz | - 37 dBm | -101 dBm | 2.7 MHz | GMSK modulated* |
| | 1710 – 1785 MHz | - 37 dBm | -101 dBm | 2.8 MHz | GMSK modulated* |
| * GMSK modu | lation as defined in TS 45.0 | 004 [5]. | | | |



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 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.

7.6.1 Minimum requirement

The static reference performance as specified in clause 7.2.1 shall be met for a Wide Area BS when the following signals are coupled to BS antenna input:

- A wanted signal at the assigned channel frequency with a mean power of -115 dBm.
- Two interfering signals with the following parameters.

Table 7.6: Intermodulation performance requirement (Wide Area BS)

| Operating band Interfering Signal mean | | Offset | Type of Interfering Signal | | | | |
|--|---|----------|----------------------------|----------------|--|--|--|
| ŀ | | | | | | | |
| | I, II, III <u>, VI</u> | - 48 0Bm | 10 MHZ | CW signal | | | |
| | | - 48 dBm | 20 MHz | WCDMA signal * | | | |
| ſ | Note*: The characteristics of the W-CDMA interference signal are specified in Annex C | | | | | | |

Table 7.6A: Narrowband intermodulation performance requirement (Wide Area BS)

| Operating band | Interfering Signal mean | Offset | Type of Interfering Signal | | | | |
|----------------------|-------------------------------|---------|----------------------------|--|--|--|--|
| | power | | | | | | |
| II, III | - 47 dBm | 3.5 MHz | CW signal | | | | |
| | - 47 dBm | 5.9 MHz | GMSK modulated* | | | | |
| * GMSK as defined in | * GMSK as defined in TS45.004 | | | | | | |

The static reference performance as specified in clause 7.2.1 shall be met for a Medium Range BS when the following signals are coupled to BS antenna input:

- A wanted signal at the assigned channel frequency with a mean power of -105 dBm.
- Two interfering signals with the following parameters.

Table 7.6B: Intermodulation performance requirement (Medium Range BS)

| Operating band | Interfering Signal mean power | Offset | Type of Interfering Signal | | | |
|---|-------------------------------|--------|----------------------------|--|--|--|
| I, II, III <u>, VI</u> | - 44 dBm | 10 MHz | CW signal | | | |
| | - 44 dBm | 20 MHz | WCDMA signal * | | | |
| Note*: The characteristics of the W-CDMA interference signal are specified in Annex C | | | | | | |

Table 7.6C: Narrowband intermodulation performance requirement (Medium Range BS)

| Operating band | Interfering Signal mean power | Offset | Type of Interfering Signal |
|----------------------|----------------------------------|---------|----------------------------|
| II, III | - 43 dBm | 3.5 MHz | CW signal |
| | - 43 dBm | 5.9 MHz | GMSK modulated* |
| * GMSK as defined in | TS45.004 | | |

The static reference performance as specified in clause 7.2.1 shall be met for a Local Area BS when the following signals are coupled to BS antenna input:

- A wanted signal at the assigned channel frequency with a mean power of -101 dBm.
- Two interfering signals with the following parameters.

| Operating band | Interfering Signal mean power | Offset | Type of Interfering Signal | | | |
|---|----------------------------------|--------|----------------------------|--|--|--|
| I, II, III <u>, VI</u> | -38 dBm | 10 MHz | CW signal | | | |
| | -38 dBm 20 MHz WCDMA signa | | | | | |
| Note*: The characteristics of the W-CDMA interference signal are specified in Annex C | | | | | | |

Table 7.6D: Intermodulation performance requirement (Local Area BS)

| Table 7.6E: Narrowband intermodulat | tion performance r | requirement (| Local Area BS | 5) |
|-------------------------------------|--------------------|---------------|---------------|----|
| | | cquirement (| | ,, |

| Operating band | Interfering Signal mean power | Offset | Type of Interfering Signal |
|----------------------|----------------------------------|---------|----------------------------|
| II, III | -37 dBm | 3.5 MHz | CW signal |
| | -37 dBm | 5.9 MHz | GMSK modulated* |
| * GMSK as defined in | TS45.004 | | |

7.7 Spurious emissions

The spurious emissions power is the power of emissions generated or amplified in a receiver that appear at the BS receiver antenna connector. The requirements apply to all BS with separate RX and TX antenna port. The test shall be performed when both TX and RX are on with the TX port terminated.

For all BS with common RX and TX antenna port the transmitter spurious emission as specified in section 6.6.3 is valid.

7.7.1 Minimum requirement

The power of any spurious emission shall not exceed:

Table 7.7: General spurious emission minimum requirement

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

| Table 7.7A: Additiona | l s | purious | emission | rec | quirements |
|-----------------------|-----|---------|----------|-----|------------|
|-----------------------|-----|---------|----------|-----|------------|

| Operating Band | Band | Maximum level | Measurement Bandwidth | Note |
|-------------------|--------------------------------|------------------|--------------------------|------|
| I | 1900 – 1980 MHz | -78 dBm | 3.84 MHz | |
| | 2010 – 2025 MHz | | | |
| = | 1850 – 1910 MHz | -78 dBm | 3.84 MHz | |
| = | 1710 – 1785 MHz <mark>z</mark> | -78 dBm | 3.84 MHz | |
| VI | <u>830 – 840 MHz</u> | -78 dBm | 3.84 MHz | |

In addition to the requirements in tables 7.7 and 7.7A, the co-existence requirements for co-located base stations specified in subclause 6.6.3.3.2, 6.6.3.4.2, 6.6.3.7.2, 6.6.3.8.2, 6.6.3.9.2, 6.6.3.10.1 and 6.6.3.11.1 may also be applied.

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| ж | <mark>25.104</mark> | CR 214 | ж rev | ж | Current version | on: 6.3.0 | ж |
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| Other comments: | ж | | | | | | |

How to create CRs using this form:

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

- 1) Fill out the above form. The symbols above marked **#** contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under <u>ftp://ftp.3gpp.org/specs/</u> For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

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

Annex B (normative): Propagation conditions

B.1 Static propagation condition

The propagation for the static performance measurement is an Additive White Gaussian Noise (AWGN) environment. No fading or multi-paths exist for this propagation model.

B.2 Multi-path fading propagation conditions

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

| (CLASS) | $S(f) \propto 1/(1 - (f/f_D)^2)^{0.5}$ | for $f \in -f_d$, f_d . |
|---------|--|----------------------------|
|---------|--|----------------------------|

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

| Case 1 , sp | eed 3km/h | Case 2 , sp | eed 3 km/h | Case 3 , | 120 km/h | Case 4 , 1 | 250 km/h | | |
|------------------------|-------------------------|--------------------------------|--|---------------------|---------------------------|-----------------------|-------------------------|--|------------|
| Speed for I | <u> Band I, II, III</u> | Speed for E | ed for Band I, II, III Speed for Band I, II, III Speed for B | | Speed for Band I, II, III | | <u> 3and I, II, III</u> | | |
| <u>3 k</u> | <u>m/h</u> | <u>3 k</u> | <u>3 km/h</u> | | <u>120 km/h</u> | | <u>km/h</u> | | |
| Speed for | Speed for Band VI | | Speed for Band VI Speed for Band VI | | Speed for Band VI | | Speed for Band VI | | or Band VI |
| <u>7 k</u> | <u>m/h</u> | <u>7 km/h 280 km/h 583 km/</u> | | <u>280 km/h</u> | | <u>km/h</u> | | | |
| Relative | Average | Relative | Average | Relative | Average | Relative | Average | | |
| Delay [ns] | Power [dB] | Delay [ns] | Power [dB] | Delay [ns] | Power [dB] | Delay [ns] | Power [dB] | | |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| 976 | -10 | 976 | 0 | 260 | -3 | 260 | -3 | | |
| | | 20000 | 0 | 521 | -6 | 521 | -6 | | |
| | | | | 781 | -9 | 781 | -9 | | |

NOTE: * Speed above 250km/h is applicable to demodulation performance requirements only.

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| Proposed change | Proposed change affects: UICC apps # ME Radio Access Network X Core Network | | | | | | | | etwork | | |
| Title: | <mark>೫ DS</mark> | -CDM/ | A Intro | duction in the | 800 MHz | Band | | | | | |
| Source: | ₩ <mark>RA</mark> | N WG | 4 | | | | | | | | |
| Work item code: | <mark>೫ Rlr</mark> | <mark>ılmp-U</mark> | MTS8 | 00 | | | | Date: ೫ | 26/ | 11/2003 | |
| Category: | жB | | | | | | I | Release: ೫ | Rel | -6 | |
| | Use Deta be fo | one of F (corr A (corr B (add C (fun D (ediana) iled expro- bund in | the follo rection) respond lition of ctional i torial m blanatio 3GPP] | wing categorie ds to a correcti- feature), modification of odification) ns of the abov <u>FR 21.900</u> . | es: ion in an ear f feature) re categories | lier relea s can | ase) | Use <u>one</u> of 2 R96 R97 R98 R99 Rel-4 Rel-5 Rel-6 | the fo (GSN (Rele (Rele (Rele (Rele (Rele (Rele | llowing rele 1 Phase 2) ase 1996) ase 1997) ase 1998) ase 1999) ase 4) ase 5) ase 6) | eases: |
| Reason for chan | ge: Ж | Intro | ducing | DS-CDMA ir | nto 800MH | z band | <mark>in Ja</mark> | apan. | | | |
| Summary of chai | nge: Ж | Re-s chara | trure o acteris | <mark>f relevant cha</mark> t <mark>ics, Intermoc</mark> | apters: Pro dulation cha | tection aracteri | of th stics | e BS receiv and Receiv | ver, B ver S | locking purious er | nissions. |
| Consequences if not approved: | . R | No ree | quirem | ent for DS-C | DMA 800M | IHz ban | nd op | peration in J | apan | | |
| Clauses affected | . <u>y</u> e | 653 | 436 | 5373 75 | 76 and 7 | 7s | | | | | |
| Siauses arrecteu | | 0.0.0 | .4.5, 0 | .0.0.7.0, 7.0, | 1.0 anu 1. | 13 | | | | | |

Other specs%XOther core specifications%35.104, 25.307.Affected:XOther specifications%35.104, 25.307.XO&M Specifications%35.104, 25.307.

Other comments: %

CR-Form-v7

6.5.3.4.3 Protection of the BS receiver of own or different BS

This requirement shall be applied in order to prevent the receivers of the BSs being desensitised by emissions from a BS transmitter. This is measured at the transmit antenna port for any type of BS which has common or separate Tx/Rx antenna ports.

6.5.3.4.3.1 Minimum Requirement

The power of any spurious emission shall not exceed.

Table 6.26: Wide Area BS Spurious emissions limits for protection of the BS receiver

| Operating Band | Band | Maximum Level | Measurement Bandwidth | Note |
|-------------------|-----------------|------------------|--------------------------|------|
| 1 | 1920 - 1980MHz | -96 dBm | 100 kHz | |
| | 1850 - 1910 MHz | -96 dBm | 100 kHz | |
| III | 1710 - 1785 MHz | -96 dBm | 100 kHz | |
| VI | 830-840 MHz | <u>-96 dBm</u> | <u>100 kHz</u> | |

Table 6.26A: Medium Range BS Spurious emissions limits for protection of the BS receiver

| Operating Band | Band | Maximum Level | Measurement Bandwidth | Note |
|-------------------|--------------------|------------------|--------------------------|------|
| I | 1920 - 1980MHz | -86 dBm | 100 kHz | |
| II | 1850 - 1910 MHz | -86 dBm | 100 kHz | |
| | 1710 - 1785 MHz | -86 dBm | 100 kHz | |
| <u>VI</u> | <u>830-840 MHz</u> | <u>-86 dBm</u> | <u>100 kHz</u> | |

Table 6.26B: Local Area BS Spurious emissions limits for protection of the BS receiver

| Operating Band | Band | Maximum Level | Measurement Bandwidth | Note |
|-------------------|--------------------|------------------|--------------------------|------|
| 1 | 1920 - 1980MHz | -82 dBm | 100 kHz | |
| II | 1850 - 1910 MHz | -82 dBm | 100 kHz | |
| III | 1710 - 1785 MHz | -82 dBm | 100 kHz | |
| <u>VI</u> | <u>830-840 MHz</u> | <u>-82 dBm</u> | <u>100 kHz</u> | |

{Separate Section}

6.5.3.7.3 Protection of the BS receiver of own or different BS

Table 6.37: Wide Area BS BS Spurious emissions limits for protection of the BS receiver

| Operating Band | Band | Maximum Level | Measurement Bandwidth | Note |
|-------------------|-----------------|------------------|--------------------------|------|
| | 1920 - 1980MHz | -96 dBm | 100 kHz | |
| | 1850 - 1910 MHz | -96 dBm | 100 kHz | |
| III | 1710 - 1785 MHz | -96 dBm | 100 kHz | |
| VI | 830-840 MHz | -96 dBm | 100 kHz | |

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| Operating Band | Band | Maximum Level | Measurement Bandwidth | Note |
|-------------------|--------------------|------------------|--------------------------|------|
| 1 | 1920 - 1980MHz | -86 dBm | 100 kHz | |
| II | 1850 - 1910 MHz | -86 dBm | 100 kHz | |
| | 1710 - 1785 MHz | -86 dBm | 100 kHz | |
| <u>VI</u> | <u>830-840 MHz</u> | <u>-86 dBm</u> | <u>100 kHz</u> | |

Table 6.37A: Medium Range BS Spurious emissions limits for protection of the BS receiver

Table 6.37B: Local Area BS Spurious emissions limits for protection of the BS receiver

| Operating Band | Band | Maximum Level | Measurement Bandwidth | Note |
|-------------------|-----------------|------------------|--------------------------|------|
| I | 1920 - 1980MHz | -82 dBm | 100 kHz | |
| II | 1850 - 1910 MHz | -82 dBm | 100 kHz | |
| III | 1710 - 1785 MHz | -82 dBm | 100 kHz | |
| <u>VI</u> | 830-840 MHz | <u>-82 dBm</u> | <u>100 kHz</u> | |

{Separate Section}

7.5 Blocking characteristics

7.5.1 Definition and applicability

The blocking characteristics is a measure of the receiver ability to receive a wanted signal at is assigned channel frequency in the presence of an unwanted interferer on frequencies other than those of the adjacent channels. The blocking performance requirement applies as specified in tables 7.4(a) to 7.4(g).

The requirements in Tables 7.4(a1), 7.4(a2) and 7.4(a3) shall apply to the indicated base station class, depending on which frequency band is used. The requirements in Tables 7.4 (b) to 7.4 (g) may be applied when the FDD BS is colocated with GSM900, GSM850, PCS1900 and/or BS operation in DCS1800 band (UTRA FDD or GSM).

7.5.2 Minimum Requirements

The BER shall not exceed 0.001 for the parameters specified in table 7.4.

| Operating Band | Center Frequency of Interfering Signal | Interfering Signal Level | Wanted Signal mean power | Minimum Offset of Interfering Signal | Type of Interfering Signal |
|---|--|--------------------------------|-----------------------------|--|-------------------------------|
| I | 1920 - 1980 MHz | -40 dBm | -115 dBm | 10 MHz | WCDMA signal * |
| | 1900 - 1920 MHz 1980 - 2000 MHz | -40 dBm | -115 dBm | 10 MHz | WCDMA signal * |
| | 1 MHz -1900 MHz 2000 MHz - 12750 MHz | -15 dBm | -115 dBm | — | CW carrier |
| | 1850 - 1910 MHz | -40 dBm | -115 dBm | 10 MHz | WCDMA signal * |
| | 1830 - 1850 MHz 1910 - 1930 MHz | -40 dBm | -115 dBm | 10 MHz | WCDMA signal * |
| | 1 MHz - 1830 MHz 1930 MHz - 12750 MHz | -15 dBm | -115 dBm | — | CW carrier |
| III | 1710 – 1785 MHz | -40 dBm | -115 dBm | 10 MHz | WCDMA signal * |
| | 1690 - 1710 MHz 1785 – 1805 MHz | -40 dBm | -115 dBm | 10 MHz | WCDMA signal * |
| | 1 MHz - 1690 MHz 1805 MHz - 12750 MHz | -15 dBm | -115 dBm | — | CW carrier |
| <u>VI</u> | <u>810 – 830 MHz</u> 840 – 860 MHz | <u>-40 dBm</u> | <u>-115 dBm</u> | <u>10 MHz</u> | WCDMA signal * |
| | <u>1 MHz – 810 MHz</u> <u>860 MHz – 12750 MHz</u> | <u>-15 dBm</u> | <u>-115 dBm</u> | = | <u>CW carrier</u> |
| Note *: The characteristics of the W-CDMA interference signal are specified in Annex I. | | | | | |

Table 7.4(a1): Blocking characteristics for Wide Area BS

Table 7.4(a2): Blocking characteristics for Medium Range BS

| Operating Band | Center Frequency of Interfering Signal | Interfering Signal | Wanted Signal mean power | Minimum Offset of Interfering | Type of Interfering Signal |
|-------------------|---|-----------------------|-----------------------------|----------------------------------|-------------------------------|
| | | Level | | Signal | 0.9.0 |
| I | 1920 - 1980 MHz | -35 dBm | -105 dBm | 10 MHz | WCDMA signal * |
| | 1900 - 1920 MHz 1980 - 2000 MHz | -35 dBm | -105 dBm | 10 MHz | WCDMA signal * |
| | 1 MHz -1900 MHz 2000 MHz - 12750 MHz | -15 dBm | -105 dBm | | CW carrier |
| II | 1850 - 1910 MHz | -35 dBm | -105 dBm | 10 MHz | WCDMA signal * |
| | 1830 - 1850 MHz | -35 dBm | -105 dBm | 10 MHz | WCDMA signal * |
| | 1910 - 1930 MHz | | | | |
| | 1 MHz - 1830 MHz | -15 dBm | -105 dBm | — | CW carrier |
| | 1930 MHz - 12750 MHz | | | | |
| III | 1710 – 1785 MHz | -35 dBm | -105 dBm | 10 MHz | WCDMA signal * |
| | 1690 - 1710 MHz 1785 – 1805 MHz | -35 dBm | -105 dBm | 10 MHz | WCDMA <u>signal</u> * |
| | 1 MHz - 1690 MHz 1805 MHz - 12750 MHz | -15 dBm | -105 dBm | | CW carrier |
| VI | <u>810 – 830 MHz</u> 840 – 860 MHz | <u>-35 dBm</u> | <u>-105 dBm</u> | <u>10 MHz</u> | WCDMA signal * |
| | <u>1 MHz – 810 MHz</u> 860 MHz – 12750 MHz | <u>-15 dBm</u> | <u>-105 dBm</u> | = | <u>CW carrier</u> |
| Note *: The | e characteristics of the W-C | DMA interferer | nce signal are speci | fied in Annex I. | |

| Operating Band | Center Frequency of Interfering Signal | Interfering Signal Level | Wanted Signal mean power | Minimum Offset of Interfering Signal | Type of Interfering Signal |
|-------------------|---|--------------------------------|-----------------------------|--|-------------------------------|
| I | 1920 - 1980 MHz | -30 dBm | -101 dBm | 10 MHz | WCDMA signal * |
| | 1900 - 1920 MHz 1980 - 2000 MHz | -30 dBm | -101 dBm | 10 MHz | WCDMA signal * |
| | 1 MHz -1900 MHz 2000 MHz - 12750 MHz | -15 dBm | -101 dBm | _ | CW carrier |
| II | 1850 - 1910 MHz | -30 dBm | -101 dBm | 10 MHz | WCDMA signal * |
| | 1830 - 1850 MHz 1910 - 1930 MHz | -30 dBm | -101 dBm | 10 MHz | WCDMA signal * |
| | 1 MHz - 1830 MHz 1930 MHz - 12750 MHz | -15 dBm | -101 dBm | — | CW carrier |
| | 1710 – 1785 MHz | -30 dBm | -101 dBm | 10 MHz | WCDMA signal * |
| | 1690 - 1710 MHz 1785 – 1805 MHz | -30 dBm | -101 dBm | 10 MHz | WCDMA signal * |
| | 1 MHz - 1690 MHz 1805 MHz - 12750 MHz | -15 dBm | -101 dBm | — | CW carrier |
| <u>VI</u> | <u>810 – 830 MHz</u> 840 – 860 MHz | <u>-30 dBm</u> | <u>-101 dBm</u> | <u>10 MHz</u> | WCDMA signal * |
| | <u>1 MHz – 810 MHz</u> 860 MHz – 12750 MHz | <u>-15 dBm</u> | <u>-101 dBm</u> | = | CW carrier |
| Note *: The | e characteristics of the W-C | DMA interferer | nce signal are speci | fied in Annex I. | |

Table 7.4(a3): Blocking characteristics for Local Area BS

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Table 7.4(b): Blocking performance requirement when co-located with GSM900

| | Center Frequency of Interfering Signal | Interfering Signal mean power | Wanted Signal mean power | Minimum Offset of Interfering Signal | Type of Interfering Signal |
|---|--|----------------------------------|-----------------------------|---|-------------------------------|
| ſ | 921 -960 MHz | +16 dBm | -115 dBm | _ | CW carrier |

Table 7.4(c): Blocking performance requirement for operation when co-located with BTS operating inDCS1800 band (GSM or UTRA)

| Center Frequency of Interfering Signal | Interfering Signal mean power | Wanted Signal mean power | Minimum Offset of Interfering Signal | Type of Interfering Signal |
|---|-------------------------------------|-----------------------------|---|-------------------------------|
| 1805 – 1880 MHz | +16 dBm | -115 dBm | _ | CW carrier |

Table 7.4(d): Blocking performance requirement for operation when co-located with UTRA BS operating in Frequency band I

| Center Frequency | Interfering Signal | Wanted Signal mean | Minimum Offset of | Type of |
|-----------------------|--------------------|--------------------|--------------------|--------------------|
| of Interfering Signal | mean power | power | Interfering Signal | Interfering Signal |
| 2110 – 2170 MHz | +16 dBm | -115 dBm | — | CW carrier |

Table 7.4(e): Blocking performance requirement for operation when co-located with PCS1900 BTS

| Center Frequency | Interfering Signal | Wanted Signal mean power | Minimum Offset of | Type of Interfering |
|-----------------------|--------------------|--------------------------|--------------------|---------------------|
| of Interfering Signal | mean power | | Interfering Signal | Signal |
| 1930 – 1990 MHz | +16 dBm | -115 dBm | | CW carrier |

| Operating Band | Center Frequency of Interfering Signal | Interfering Signal mean power | Wanted Signal mean power | Minimum Offset of Interfering Signal | Type of Interfering Signal |
|-------------------|---|--|-----------------------------|--|-------------------------------|
| = | 1850 - 1910 MHz | - 47 dBm | -115 dBm | 2.7 MHz | GMSK modulated* |
| III | 1710 – 1785 MHz | - 47 dBm | -115 dBm | 2.8 MHz | GMSK modulated* |
| * GMSK modu | lation as defined in TS 45.0 | 04 [12]. | | | |

Table 7.4(f1): Blocking performance requirement (narrowband) for Wide Area BS

Table 7.4(f2): Blocking performance requirement (narrowband) for Medium range BS

| Operating Band | Center Frequency of Interfering Signal | Interfering Signal mean power | Wanted Signal mean power | Minimum Offset of Interfering Signal | Type of Interfering Signal | | |
|-------------------|---|--|-----------------------------|--|-------------------------------|--|--|
| II | 1850 - 1910 MHz | - 42 dBm | -105 dBm | 2.7 MHz | GMSK modulated* | | |
| III | 1710 – 1785 MHz | - 42 dBm | -105 dBm | 2.8 MHz | GMSK modulated* | | |
| * GMSK modu | * GMSK modulation as defined in TS 45.004 [12]. | | | | | | |

Table 7.4(f3): Blocking performance requirement (narrowband) for Local Area BS

| Operating Band | Center Frequency of Interfering Signal | Interfering Signal mean power | Wanted Signal mean power | Minimum Offset of Interfering Signal | Type of Interfering Signal |
|-------------------|---|--|-----------------------------|--|-------------------------------|
| II | 1850 - 1910 MHz | - 37 dBm | -101 dBm | 2.7 MHz | GMSK modulated* |
| III | 1710 – 1785 MHz | - 37 dBm | -101 dBm | 2.8 MHz | GMSK modulated* |
| * GMSK modu | lation as defined in TS 45.0 | 004 [12]. | | | |

Table 7.4(g): Blocking performance requirement for operation when co-located with GSM850 BTS

| Center Frequency of Interfering Signal | Interfering Signal mean power | Wanted Signal Level | Minimum Offset of Interfering Signal | Type of Interfering Signal |
|---|----------------------------------|---------------------|---|----------------------------------|
| 869 – 894 MHz | +16 dBm | -115 dBm | | CW carrier |

The normative reference for these requirements is in TS 25.104[1] subclause 7.5

7.5.3 Test purpose

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

7.5.4 Method of test

7.5.4.1 Initial conditions

Test environment: normal; see subclause 4.4.1.

RF channels to be tested: M see subclause 4.8. The BS shall be configured to operate as close to the centre of the operating band as possible.

- 1) Connect WCDMA signal generator at the assigned channel frequency of the wanted signal and a signal generator to the antenna connector of one Rx port.
- 2) Terminate any other Rx port not under test.
- 3) Transmit a signal from the WCDMA signal generator to the BS. The characteristics of the signal shall be set according to the UL reference measurement channel (12,2 kbit/s) specified in annex A subclause A.2.1. The

level of the WCDMA signal measured at the BS antenna connector shall be set to the level specified in subclause 7.5.5.

7.5.4.2 Procedure

1) Adjust the signal generators to the type of interfering signals and the frequency offsets as specified in Tables 7.4A(a) to 7.4A(g). Note that the GMSK modulated interfering signal shall have an ACLR of at least 72 dB in order to eliminate the impact of interference signal adjacent channel leakage power on the blocking characteristics measurement. For the tests defined in Table 7.4A(a), the interfering signal shall be at a frequency offset Fuw from the assigned channel frequency of the wanted signal which is given by:

Fuw =
$$\pm$$
 (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.

- 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) to (2).

7.5.5 Test Requirements

The BER shall not exceed 0.001 for the parameters specified in table 7.4A.

Table 7.4A(a1): Blocking characteristics for Wide Area BS

| I 1920 - 1980 MHz -40 dBm -115 dBm 10 MHz WCDMA signal * 1900 - 1920 MHz -40 dBm -115 dBm 10 MHz WCDMA signal * 1980 - 2000 MHz -40 dBm -115 dBm 10 MHz WCDMA signal * 1 MHz - 1900 MHz -15 dBm -115 dBm — CW carrier 2000 MHz - 12750 MHz -15 dBm -115 dBm — CW carrier 1 MHz - 1900 MHz -40 dBm -115 dBm 10 MHz WCDMA signal * 1830 - 1850 MHz -40 dBm -115 dBm 10 MHz WCDMA signal * 1910 - 1930 MHz -40 dBm -115 dBm 10 MHz WCDMA signal * 1930 MHz - 12750 MHz -15 dBm -115 dBm — CW carrier 1930 MHz - 12750 MHz -40 dBm -115 dBm 10 MHz WCDMA signal * 1690 - 1710 MHz -40 dBm -115 dBm 10 MHz WCDMA signal * 1785 - 1805 MHz -15 dBm -115 dBm 0 MHz WCDMA signal * 1 MHz - 1690 MHz 12750 MHz -15 dBm -115 dBm | Operating Band | 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 -40 dBm -115 dBm 10 MHz WCDMA signal * 1980 - 2000 MHz -15 dBm -115 dBm — CW carrier 2000 MHz - 12750 MHz -15 dBm -115 dBm — CW carrier 2000 MHz - 12750 MHz -40 dBm -115 dBm 10 MHz WCDMA signal * 1850 - 1910 MHz -40 dBm -115 dBm 10 MHz WCDMA signal * 1910 - 1930 MHz -40 dBm -115 dBm 10 MHz WCDMA signal * 1910 - 1930 MHz -15 dBm -115 dBm 0 MHz WCDMA signal * 1930 MHz - 12750 MHz -15 dBm -115 dBm 0 MHz WCDMA signal * 1930 MHz - 12750 MHz -40 dBm -115 dBm 10 MHz WCDMA signal * 1690 - 1710 MHz -40 dBm -115 dBm 10 MHz WCDMA signal * 1085 MHz - 12750 MHz -15 dBm -115 dBm 0 MHz WCDMA signal * 1085 MHz - 12750 MHz -15 dBm -115 dBm — CW carrier 1805 MHz - 12750 MHz -15 dBm -115 dBm — CW carr | I | 1920 - 1980 MHz | -40 dBm | -115 dBm | 10 MHz | WCDMA signal * |
| 1 MHz - 1900 MHz -15 dBm -115 dBm — CW carrier 2000 MHz - 12750 MHz -40 dBm -115 dBm 10 MHz WCDMA signal * 1830 - 1850 MHz -40 dBm -115 dBm 10 MHz WCDMA signal * 1910 - 1930 MHz -40 dBm -115 dBm 10 MHz WCDMA signal * 1910 - 1930 MHz -15 dBm -115 dBm 0 MHz WCDMA signal * 1910 - 1930 MHz -15 dBm -115 dBm — CW carrier 1930 MHz - 12750 MHz -15 dBm -115 dBm — CW carrier 1930 MHz - 12750 MHz -40 dBm -115 dBm 10 MHz WCDMA signal * 1690 - 1710 MHz -40 dBm -115 dBm 10 MHz WCDMA signal * 1785 - 1805 MHz -15 dBm -115 dBm — CW carrier 1805 MHz - 12750 MHz -15 dBm -115 dBm — CW carrier 1805 MHz - 12750 MHz -15 dBm -115 dBm — CW carrier 1805 MHz - 12750 MHz -40 dBm -115 dBm _ _ | | 1900 - 1920 MHz 1980 - 2000 MHz | -40 dBm | -115 dBm | 10 MHz | WCDMA signal * |
| II 1850 - 1910 MHz -40 dBm -115 dBm 10 MHz WCDMA signal * 1830 - 1850 MHz -40 dBm -115 dBm 10 MHz WCDMA signal * 1910 - 1930 MHz -40 dBm -115 dBm 10 MHz WCDMA signal * 1 MHz - 1830 MHz -15 dBm -115 dBm 0 MHz CW carrier 1930 MHz - 12750 MHz -15 dBm -115 dBm — CW carrier 1930 MHz - 12750 MHz -40 dBm -115 dBm 10 MHz WCDMA signal * 1690 - 1710 MHz -40 dBm -115 dBm 10 MHz WCDMA signal * 1785 - 1805 MHz -40 dBm -115 dBm 10 MHz WCDMA signal * 1 MHz - 1690 MHz -15 dBm -115 dBm — CW carrier 1805 MHz - 12750 MHz -15 dBm -115 dBm — CW carrier 1805 MHz - 12750 MHz -15 dBm -115 dBm _ _ 1 MHz - 1690 MHz -15 dBm -115 dBm _ _ 1 MHz - 12750 MHz -15 dBm _ _ _ WL </td <td></td> <td>1 MHz -1900 MHz 2000 MHz - 12750 MHz</td> <td>-15 dBm</td> <td>-115 dBm</td> <td>—</td> <td>CW carrier</td> | | 1 MHz -1900 MHz 2000 MHz - 12750 MHz | -15 dBm | -115 dBm | — | CW carrier |
| 1830 - 1850 MHz -40 dBm -115 dBm 10 MHz WCDMA signal * 1910 - 1930 MHz 1 MHz - 1830 MHz -15 dBm -115 dBm 0 MHz CW carrier 1930 MHz - 12750 MHz -15 dBm -115 dBm - CW carrier 1930 MHz - 12750 MHz -40 dBm -115 dBm - CW carrier 1930 MHz - 12750 MHz -40 dBm -115 dBm 10 MHz WCDMA signal * 1690 - 1710 MHz -40 dBm -115 dBm 10 MHz WCDMA signal * 1785 - 1805 MHz -40 dBm -115 dBm 0 MHz WCDMA signal * 1 MHz - 1690 MHz -15 dBm -115 dBm - CW carrier 1805 MHz - 12750 MHz -15 dBm -115 dBm - CW carrier 1805 MHz - 12750 MHz -15 dBm -115 dBm - CW carrier 1805 MHz - 12750 MHz -40 dBm -115 dBm _ WCDMA signal * 10 MHz 810 - 830 MHz -40 dBm - 10 MHz WCDMA signal * | II | 1850 - 1910 MHz | -40 dBm | -115 dBm | 10 MHz | WCDMA signal * |
| 1 MHz - 1830 MHz -15 dBm -115 dBm — CW carrier 1930 MHz - 12750 MHz -40 dBm -115 dBm — CW carrier III 1710 - 1785 MHz -40 dBm -115 dBm 10 MHz WCDMA signal * 1690 - 1710 MHz -40 dBm -115 dBm 10 MHz WCDMA signal * 1785 - 1805 MHz -40 dBm -115 dBm — CW carrier 1 MHz - 1690 MHz -15 dBm -115 dBm — CW carrier 1805 MHz - 12750 MHz -15 dBm -115 dBm — CW carrier VI 810 - 830 MHz -40 dBm -115 dBm 10 MHz WCDMA signal * VI 810 - 830 MHz -40 dBm -115 dBm 10 MHz WCDMA signal * | | 1830 - 1850 MHz 1910 - 1930 MHz | -40 dBm | -115 dBm | 10 MHz | WCDMA signal * |
| III 1710 - 1785 MHz -40 dBm -115 dBm 10 MHz WCDMA signal * 1690 - 1710 MHz -40 dBm -115 dBm 10 MHz WCDMA signal * 1785 - 1805 MHz -40 dBm -115 dBm 10 MHz WCDMA signal * 1 MHz - 1690 MHz -15 dBm -115 dBm — CW carrier 1805 MHz - 12750 MHz -15 dBm -115 dBm — CW carrier VI 810 - 830 MHz 840 - 860 MHz -40 dBm -115 dBm 10 MHz WCDMA signal * | | 1 MHz - 1830 MHz 1930 MHz - 12750 MHz | -15 dBm | -115 dBm | — | CW carrier |
| 1690 - 1710 MHz -40 dBm -115 dBm 10 MHz WCDMA signal * 1785 - 1805 MHz 1 MHz - 1690 MHz -15 dBm -115 dBm — CW carrier 1805 MHz - 12750 MHz -15 dBm -115 dBm — CW carrier VI 810 - 830 MHz 840 - 860 MHz -40 dBm -115 dBm 10 MHz WCDMA signal * | | 1710 – 1785 MHz | -40 dBm | -115 dBm | 10 MHz | WCDMA signal * |
| 1 MHz - 1690 MHz -15 dBm -115 dBm — CW carrier 1805 MHz - 12750 MHz -40 dBm -115 dBm — CW carrier VI 810 - 830 MHz -40 dBm -115 dBm 10 MHz WCDMA signal * 840 - 860 MHz -860 MHz -40 dBm -115 dBm 10 MHz WCDMA signal * | | 1690 - 1710 MHz 1785 – 1805 MHz | -40 dBm | -115 dBm | 10 MHz | WCDMA signal * |
| VI 810 - 830 MHz -40 dBm -115 dBm 10 MHz WCDMA signal * 840 - 860 MHz | | 1 MHz - 1690 MHz 1805 MHz - 12750 MHz | -15 dBm | -115 dBm | — | CW carrier |
| | <u>VI</u> | <u>810 – 830 MHz</u> <u>840 – 860 MHz</u> | <u>-40 dBm</u> | <u>-115 dBm</u> | <u>10 MHz</u> | WCDMA signal * |
| 1 MHz - 810 MHz -15 dBm -115 dBm CW carrier 860 MHz - 12750 MHz -15 dBm CW carrier | | <u>1 MHz – 810 MHz</u> <u>860 MHz – 12750 MHz</u> | <u>-15 dBm</u> | <u>-115 dBm</u> | = | <u>CW carrier</u> |

Table 7.4A(a2): Blocking characteristics for Medium Range BS

| Operating Band | Center Frequency of Interfering Signal | Interfering Signal Level | Wanted Signal mean power | Minimum Offset of Interfering Signal | Type of Interfering Signal |
|-------------------|---|--------------------------------|-----------------------------|--|-------------------------------|
| | 1920 - 1980 MHz | -35 dBm | -105 dBm | 10 MHz | WCDMA signal * |
| | 1900 - 1920 MHz 1980 - 2000 MHz | -35 dBm | -105 dBm | 10 MHz | WCDMA signal * |

| | 1 MHz -1900 MHz | -15 dBm | -105 dBm | — | CW carrier |
|-----------|------------------------------|----------------|----------------------|-----------------|----------------|
| | 2000 MHz - 12750 MHz | | | | |
| II | 1850 - 1910 MHz | -35 dBm | -105 dBm | 10 MHz | WCDMA signal * |
| | 1830 - 1850 MHz | -35 dBm | -105 dBm | 10 MHz | WCDMA signal * |
| | 1910 - 1930 MHz | | | | C C |
| | 1 MHz - 1830 MHz | -15 dBm | -105 dBm | _ | CW carrier |
| | 1930 MHz - 12750 MHz | | | | |
| | 1710 – 1785 MHz | -35 dBm | -105 dBm | 10 MHz | WCDMA signal * |
| | 1690 - 1710 MHz | -35 dBm | -105 dBm | 10 MHz | WCDMA signal * |
| | 1785 – 1805 MHz | | | | - |
| | 1 MHz - 1690 MHz | -15 dBm | -105 dBm | _ | CW carrier |
| | 1805 MHz - 12750 MHz | | | | |
| VI | <u>810 – 830 MHz</u> | <u>-35 dBm</u> | <u>-105 dBm</u> | <u>10 MHz</u> | WCDMA signal * |
| | <u>840 – 860 MHz</u> | | | | _ |
| | <u>1 MHz – 810 MHz</u> | -15 dBm | -105 dBm | — | CW carrier |
| | 860 MHz – 12750 MHz | | | _ | |
| Note * Th | e characteristics of the W-C | DMA interferer | nce signal are speci | fied in Annex I | |

Table 7.4A(a3): Blocking characteristics for Local Area BS

| Operating | Center Frequency of | Interfering | Wanted Signal | Minimum Offset | Type of Interfering |
|-------------|----------------------------|-----------------|----------------------|--------------------------|---------------------|
| Band | Interfering Signal | Signal Level | mean power | of Interfering Signal | Signal |
| I | 1920 – 1980 MHz | -30 dBm | -101 dBm | 10 MHz | WCDMA signal * |
| | 1900 – 1920 MHz | -30 dBm | -101 dBm | 10 MHz | WCDMA signal * |
| | 1980 – 2000 MHz | | | | |
| | 1 MHz -1900 MHz | -15 dBm | -101 dBm | — | CW carrier |
| | 2000 MHz – 12750 | | | | |
| | MHz | | | | |
| II | 1850 – 1910 MHz | -30 dBm | -101 dBm | 10 MHz | WCDMA signal * |
| | 1830 – 1850 MHz | -30 dBm | -101 dBm | 10 MHz | WCDMA signal * |
| | 1910 – 1930 MHz | | | | |
| | 1 MHz – 1830 MHz | -15 dBm | -101 dBm | | CW carrier |
| | 1930 MHz – 12750 | | | | |
| | MHz | | | | |
| III | 1710 – 1785 MHz | -30 dBm | -101 dBm | 10 MHz | WCDMA signal * |
| | 1690 – 1710 MHz | -30 dBm | -101 dBm | 10 MHz | WCDMA signal * |
| | 1785 – 1805 MHz | | | | |
| | 1 MHz – 1690 MHz | -15 dBm | -101 dBm | — | CW carrier |
| | 1805 MHz – 12750 | | | | |
| | MHz | | | | |
| <u>VI</u> | <u>810 – 830 MHz</u> | <u>-30 dBm</u> | <u>-101 dBm</u> | <u>10 MHz</u> | WCDMA signal * |
| | <u>840 – 860 MHz</u> | | | | |
| | <u>1 MHz – 810 MHz</u> | <u>-15 dBm</u> | <u>-101 dBm</u> | = | CW carrier |
| | <u>860 MHz – 12750 MHz</u> | | | | |
| Note *: The | characteristics of the W-C | DMA interferer | nce signal are speci | fied in Annex I. | |

Table 7.4A(b): Blocking performance requirement when co-located with GSM900

| Center Frequency of | Interfering Signal | Wanted Signal mean | Minimum Offset of | Type of Interfering |
|---------------------|--------------------|--------------------|--------------------|---------------------|
| Interfering Signal | mean power | power | Interfering Signal | Signal |
| 921 -960 MHz | +16 dBm | -115 dBm | _ | CW carrier |

Table 7.4A(c): Blocking performance requirement when co-located with Base Station operating in DCS1800 band (GSM or UTRA FDD)

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

Table 7.4A(d): Blocking performance requirement for operation when co-located with UTRA BS operating in Frequency band I

| Center Frequency of | Interfering Signal | Wanted Signal mean | Minimum Offset of | Type of |
|---------------------|--------------------|--------------------|--------------------|--------------------|
| Interfering Signal | mean power | power | Interfering Signal | Interfering Signal |
| 2110–2170 MHz | +16 dBm | -115 dBm | | CW carrier |

Table 7.4A(e): Blocking performance requirement for operation when co-located with PCS1900 BTS

| Center Frequency of | Interfering Signal | Wanted Signal mean | Minimum Offset of | Type of |
|---------------------|--------------------|--------------------|--------------------|--------------------|
| Interfering Signal | mean power | power | Interfering Signal | Interfering Signal |
| 1930 – 1990 MHz | +16 dBm | -115 dBm | _ | CW carrier |

Table 7.4A(f1): Blocking performance requirement (narrowband) for Wide Area BS

| Operating Band | Center Frequency of Interfering Signal | Interfering Signal mean power | Interfering Wanted I Signal Signal mean nean power power | | Type of Interfering Signal | | |
|-------------------|---|-------------------------------------|--|---------|-------------------------------|--|--|
| II | 1850 - 1910 MHz | - 47 dBm | -115 dBm | 2.7 MHz | GMSK modulated* | | |
| | 1710 – 1785 MHz | - 47 dBm | -115 dBm | 2.8 MHz | GMSK modulated* | | |
| * GMSK modu | * GMSK modulation as defined in TS 45.004 [12]. | | | | | | |

Table 7.4A(f2): Blocking performance requirement (narrowband) for Medium range BS

| Operating Band | Center Frequency of Interfering Signal | Interfering Signal mean power | Wanted Signal mean power | Minimum Offset of Interfering Signal | Type of Interfering Signal |
|-------------------|---|--|-----------------------------|--|-------------------------------|
| 11 | 1850 - 1910 MHz | - 42 dBm | -105 dBm | 2.7 MHz | GMSK modulated* |
| III | 1710 – 1785 MHz | - 42 dBm | -105 dBm | 2.8 MHz | GMSK modulated* |
| * GMSK modu | lation as defined in TS 45.0 | 004 [12]. | | | |

Table 7.4A(f3): Blocking performance requirement (narrowband) for Local Area BS

| Operating Band | Center Frequency of Interfering Signal | Interfering Signal mean power | Wanted Signal mean power | Minimum Offset of Interfering Signal | Type of Interfering Signal |
|-------------------|---|--|-----------------------------|--|-------------------------------|
| II | 1850 - 1910 MHz | - 37 dBm | -101 dBm | 2.7 MHz | GMSK modulated* |
| III | 1710 – 1785 MHz | - 37 dBm | -101 dBm | 2.8 MHz | GMSK modulated* |
| * GMSK modu | lation as defined in TS 45.0 | 004 [12]. | | | |

Table 7.4A(g): Blocking performance requirement for operation when co-located with GSM850 BTS

| Center Frequency of | Interfering Signal | Wanted Signal | Minimum Offset of | Type of Interfering |
|---------------------|--------------------|---------------|--------------------|---------------------|
| Interfering Signal | mean power | mean power | Interfering Signal | Signal |
| 869 – 894 MHz | +16 dBm | -115 dBm | _ | CW carrier |

- NOTE: If the above Test Requirement 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 4.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in Annex F.
- NOTE: Annex C describes the procedure for BER tests taking into account the statistical consequence of frequent repetition of BER measurements within the blocking test. The consequence is: a DUT exactly on the limit may fail due to the statistical nature 2.55 times(mean value) in 12750 BER measurements using the predefined wrong decision probability of 0.02%. If the fail cases are ≤12, it is allowed to repeat the fail cases 1 time before the final verdict.

7.6 Intermodulation characteristics

7.6.1 Definition and applicability

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.

7.6.2 Minimum Requirement

The intermodulation performance shall be met when the following signals are applied to the receiver.

Table 7.5(a): Interferer signals for intermodulation performance requirement

| Operating | Type of Signal | Offset | Signal mean power | | |
|---|----------------|--------|-------------------|-----------------|---------------|
| Band | | | Wide Area BS | Medium Range BS | Local Area BS |
| I, II, III <u>, VI</u> | Wanted signal | - | -115 dBm | -105 dBm | -101 dBm |
| | CW signal | 10 MHz | -48 dBm | -44 dBm | -38 dBm |
| | WCDMA signal * | 20 MHz | -48 dBm | -44 dBm | -38 dBm |
| Note *: The characteristics of the W-CDMA interference signal are specified in Annex I. | | | | | |

| Table 7.5(b): | Narrowband | intermodulation | performance re | quirement |
|---------------|------------|-----------------|----------------|-----------|
| · · · · | | | | |

| Operating | Type of Signal | Offset | Signal mean power | | |
|-------------|--------------------------|--------|-------------------|-----------------|---------------|
| band | | | Wide Area BS | Medium Range BS | Local Area BS |
| II, III | Wanted signal | - | -115 dBm | -105 dBm | -101 dBm |
| | CW signal | 3.5 | - 47 dBm | - 43 dBm | -37 dBm |
| | - | MHz | | | |
| | GMSK modulated* | 5.9 | - 47 dBm | - 43 dBm | -37 dBm |
| | | MHz | | | |
| * GMSK as o | lefined in TS 45.004 [12 | 2]. | | | |

The BER for wanted signal shall not exceed 0,001 for the parameters specified in table 7.5.

The normative reference for this requirement is in TS 25.104 [1] subclause 7.6

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

Test environment: normal; see subclause 4.4.1.

RF channels to be tested: B, M and T; see subclause 4.8

1) Set-up the equipment as shown in annex B.

7.6.4.2 Procedures

1) Generate the wanted signal (reference signal) and adjust ATT1 to set the signal level to the BS under test to the level specified in table 7.5A.

- 2) Adjust the signal generators to the type of interfering signals and the frequency offsets as specified in Tables 7.5A(a) and 7.5A(b). Note that the GMSK modulated interfering signal shall have an ACLR of at least 72 dB in order to eliminate the impact of interference signal adjacent channel leakage power on the intermodulation characteristics measurement.
- 3) Adjust the ATT2 and ATT3 to obtain the specified level of interference signal at the BS input.
- 4) Measure the BER
- 5) Repeat the whole test for the port which was terminated.

7.6.5 Test requirements

The intermodulation performance shall be met when the following signals are applied to the receiver.

Table 7.5A(a): Interferer signals for intermodulation performance requirement

| Operating | Type of Signal | Offset | Signal mean | | |
|--|----------------|--------|--------------|-----------------|---------------|
| Band | | | Wide Area BS | Medium Range BS | Local Area BS |
| I, II, III <u>, VI</u> | Wanted signal | - | -115 dBm | -105 dBm | -101 dBm |
| | CW signal | 10 MHz | -48 dBm | -44 dBm | -38 dBm |
| | WCDMA signal * | 20 MHz | -48 dBm | -44 dBm | -38 dBm |
| Note*: The characteristics of the W-CDMA interference signal are specified in Annex I. | | | | | |

| Table 7.5A(| b): | Narrowband | intermodulation | performance | requirement |
|-------------|-----|------------|-----------------|-------------|-------------|
|-------------|-----|------------|-----------------|-------------|-------------|

| Operating | Type of Signal | Offset | Signal mean power | | | | |
|--------------|--------------------------------------|---------|-------------------|-----------------|---------------|--|--|
| band | | | Wide Area BS | Medium Range BS | Local Area BS | | |
| II, III | Wanted signal | - | -115 dBm | -105 dBm | -101 dBm | | |
| | CW signal | 3.5 MHz | - 47 dBm | - 43 dBm | -37 dBm | | |
| | GMSK | 5.9 MHz | - 47 dBm | - 43 dBm | -37 dBm | | |
| | modulated* | | | | | | |
| * GMSK as de | * GMSK as defined in TS 45.004 [12]. | | | | | | |

The BER for wanted signal shall not exceed 0,001 for the parameters specified in table 7.5A.

NOTE: If the above Test Requirement 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 4.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in Annex F.

7.7 Spurious Emissions

7.7.1 Definition and applicability

The spurious emission power is the power of the emissions generated or amplified in a receiver that appears at the BS antenna connector. The requirements apply to all BS with separate RX and TX antenna port. The test shall be performed when both TX and RX are on with the TX port terminated.

For all BS with common RX and TX antenna port the transmitter spurious emission as specified in subclause 6.5.3 is valid.

7.7.2 Minimum Requirements

The power of any spurious emission shall not exceed:

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

Table 7.6(a): General spurious emission minimum requirement

Table 7.6(b): Additional spurious emission requirements

| Operating Band | Band | Maximum level | Measurement Bandwidth | Note |
|-------------------|----------------------|----------------|--------------------------|------|
| I | 1900 – 1980 MHz | -78 dBm | 3.84 MHz | |
| | 2010 – 2025 MHz | | | |
| II | 1850 – 1910 MHz | -78 dBm | 3.84 MHz | |
| 111 | 1710 – 1785 MHz | -78 dBm | 3.84 MHz | |
| <u>VI</u> | <u>830 – 840 MHz</u> | <u>-78 dBm</u> | <u>3.84 MHz</u> | |

In addition to the requirements in tables 7.6, the co-existence requirements for co-located base stations in subclauses 6.5.3.4.4.2, 6.5.3.4.5.2, 6.5.3.4.8.2, 6.5.3.4.9.2, 6.5.3.4.10.2, 6.5.3.4.11 and 6.5.3.4.12 may also be applied. The normative reference for this requirement is in TS 25.104[1] subclause 7.7

7.7.3 Test purpose

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

7.7.4 Method of test

7.7.4.1 Initial conditions

Test environment: normal; see subclause 4.4.1.

RF channels to be tested: M with multi-carrier if supported, see subclause 4.8

- 1) Connect a measurement receiver to the BS antenna connector as shown in annex B.
- 2) Enable the BS receiver.
- 3) Start BS transmission with channel configuration as specified in the table 6.1 and 6.2 (Test model 1) at Pmax.

7.7.4.2 Procedure

- 1) Terminate the BS Tx antenna connector as shown in annex B.
- 2) Set measurement equipment parameters as specified in table 7.7.
- 3) Measure the spurious emissions over each frequency range described in subclause 7.7.2.
- 4) Repeat the test using diversity antenna connector if available.

Table 7.7

| Measurement Band width | 3.84 MHz (Root raised cosine,0.22) / 100 kHz/ 1MHz (note) | | | | |
|----------------------------------|---|--|--|--|--|
| Sweep frequency range | 30 MHz to 12.75GHz | | | | |
| Detection | True RMS | | | | |
| NOTE: As defined in subclause 7. | 7.2. | | | | |

7.7.5 Test requirements

The all measured spurious emissions, derived in step (3) and (4), shall be within requirement limits as specified in Tables 7.7A.

| T I I B B A () | • • | | | • • |
|-------------------------------|------------|-------------|----------|---------------|
| I able / (A(a)) | Sourious | emission | minimiim | requirement |
| 1 4010 1117 (4). | opunouo | 01111001011 | | 10quil onione |

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

Table 7.7A(b): Additional spurious emission requirements

| Operating Band | Band | Maximum level | Measurement Bandwidth | Note |
|-------------------|----------------------|----------------|--------------------------|------|
| I | 1900 – 1980 MHz | -78 dBm | 3.84 MHz | |
| | 2010 – 2025 MHz | | | |
| = | 1850 – 1910 MHz | -78 dBm | 3.84 MHz | |
| | 1710 – 1785 MHz | -78 dBm | 3.84 MHz | |
| <u>VI</u> | <u>830 – 840 MHz</u> | <u>-78 dBm</u> | <u>3.84 MHz</u> | |

NOTE: If the above Test Requirement 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 4.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in Annex F.

In addition to the requirements in tables 7.7A, the co-existence requirements for co-located base stations in subclauses 6.5.3.7.4.2, 6.5.3.7.5.2, 6.5.3.7.8.2, 6.5.3.7.9.2, 6.5.3.7.10.2, 6.5.3.7.11 and 6.5.3.7.12 may also be applied.

3GPP TSG RAN WG4 (Radio) Meeting #29

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| Clauses affected | : # | <mark>Annex C.</mark> | 1.6; Annex D |).2 | | | | |
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Comprehensive information and tips about how to create CRs can be found at <u>http://www.3gpp.org/specs/CR.htm</u>. Below is a brief summary:

- 1) Fill out the above form. The symbols above marked **#** contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under <u>ftp://ftp.3gpp.org/specs/</u> For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

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

Annex D (normative): Propagation conditions

D.1 Static propagation condition

The propagation for the static performance measurement is an Additive White Gaussian Noise (AWGN) environment. No fading or multi-paths exist for this propagation model.

D.2 Multi-path fading propagation conditions

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

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

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

| Case 1 , speed 3km/h | | Case 2 , speed 3 km/h | | Case 3 , 120 km/h | | Case 4 , 250 km/h | |
|---------------------------------|------------|----------------------------------|------------|------------------------------|------------|------------------------------|------------|
| Speed for Band I, II, III | | Speed for Band I, II, III | | Speed for Band I, II, III | | Speed for Band I, II, III | |
| <u>3 k</u> | <u>m/h</u> | <u>3 km/h</u> | | <u>120 km/h</u> | | <u>250 km/h</u> | |
| Speed fo | r Band VI | Speed for Band VI | | Speed for Band VI | | *Speed for Band VI | |
| <u>7 km/h</u> | | <u>7 km/h</u> | | <u>280 km/h</u> | | <u>583 km/h</u> | |
| Relative | Average | Relative | Average | Relative | Average | Relative | Average |
| Delay [ns] | Power [dB] | Delay [ns] | Power [dB] | Delay [ns] | Power [dB] | Delay [ns] | Power [dB] |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 976 | -10 | 976 | 0 | 260 | -3 | 260 | -3 |
| | | 20000 | 0 | 521 | -6 | 521 | -6 |
| | | | | 781 | -9 | 781 | -9 |

NOTE: * Speed above 250km/h is applicable to demodulation performance requirements only.

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