SLOVENSKI STANDARD
SIST EN 301 908-12 V3.1.1:2008

01-oktober-2008

Elektromagnetna združljivost in zadeve v zvezi z radijskim spektrom (ERM) - Bazne postaje (BS), ponavljalniki (repetitorji) in uporabniška oprema (UE) za celični na omrežja tretje generacije IMT-2000 - 12. del: Harmonizirani EN za IMT-2000, CDMA Multi-Carrier (CDMA2000) (ponavljalniki (repetitorji)), ki zajema bistvene zahteve člena 3.2 direktive R&TTE

Electromagnetic compatibility and Radio spectrum Matters (ERM) - Base Stations (BS), Repeaters and User Equipment (UE) for IMT-2000 Third-Generation cellular networks - Part 12: Harmonized EN for IMT-2000, CDMA Multi-Carrier (cdma2000) (Repeaters) covering essential requirements of article 3.2 of the R&TTE Directive

Ta slovenski standard je istoveten z: **EN 301 908-12 Version 3.1.1**

ICS:

33.060.99	Druga oprema za radijske komunikacije	Other equipment for radiocommunications
33.100.01	Elektromagnetna združljivost na splošno	Electromagnetic compatibility in general

SIST EN 301 908-12 V3.1.1:2008 **en**

ETSI EN 301 908-12 V3.1.1 (2008-04)

Harmonized European Standard (Telecommunications series)

Electromagnetic compatibility and Radio spectrum Matters (ERM); Base Stations (BS), Repeaters and User Equipment (UE) for IMT-2000 Third-Generation cellular networks; Part 12: Harmonized EN for IMT-2000, CDMA Multi-Carrier (cdma2000) (Repeaters) covering essential requirements of article 3.2 of the R&TTE Directive

Reference
DEN/ERM-TFES-002-12

Keywords
3G, 3GPP, digital, IMT-2000, regulation,
repeater, testing, UMTS

ETSI

650 Route des Lucioles
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C
Association à but non lucratif enregistrée à la
Sous-Préfecture de Grasse (06) N° 7803/88

Important notice

Individual copies of the present document can be downloaded from:
http://www.etsi.org

The present document may be made available in more than one electronic version or in print. In any case of existing or perceived difference in contents between such versions, the reference version is the Portable Document Format (PDF). In case of dispute, the reference shall be the printing on ETSI printers of the PDF version kept on a specific network drive within ETSI Secretariat.

Users of the present document should be aware that the document may be subject to revision or change of status. Information on the current status of this and other ETSI documents is available at
http://portal.etsi.org/tb/status/status.asp

If you find errors in the present document, please send your comment to one of the following services:
http://portal.etsi.org/chaircor/ETSI_support.asp

Copyright Notification

Contents

Intellectual Property Rights

IPRs essential or potentially essential to the present document may have been declared to ETSI. The information pertaining to these essential IPRs, if any, is publicly available for **ETSI members and non-members**, and can be found in ETSI SR 000 314: *"Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards"*, which is available from the ETSI Secretariat. Latest updates are available on the ETSI Web server (http://webapp.etsi.org/IPR/home.asp).

Pursuant to the ETSI IPR Policy, no investigation, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in ETSI SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

Foreword

This Harmonized European Standard (Telecommunications series) has been produced by ETSI Technical Committee Electromagnetic compatibility and Radio spectrum Matters (ERM).

The present document has been produced by ETSI in response to a mandate from the European Commission issued under Council Directive 98/34/EC (as amended) laying down a procedure for the provision of information in the field of technical standards and regulations.

The present document is intended to become a Harmonized Standard, the reference of which will be published in the Official Journal of the European Communities referencing the Directive 1999/5/EC [1] of the European Parliament and of the Council of 9 March 1999 on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity ("the R&TTE Directive").

The present document is part 12 of a multi-part deliverable covering the Base Stations (BS), Repeaters and User Equipment (UE) for IMT-2000 Third-Generation cellular networks, as identified below:

Part 1: "Harmonized EN for IMT-2000, introduction and common requirements, covering essential requirements of article 3.2 of the R&TTE Directive";

Part 2: "Harmonized EN for IMT-2000, CDMA Direct Spread (UTRA FDD) (UE) covering essential requirements of article 3.2 of the R&TTE Directive";

Part 3: "Harmonized EN for IMT-2000, CDMA Direct Spread (UTRA FDD) (BS) covering essential requirements of article 3.2 of the R&TTE Directive";

Part 4: "Harmonized EN for IMT-2000, CDMA Multi-Carrier (cdma2000) (UE) covering essential requirements of article 3.2 of the R&TTE Directive";

Part 5: "Harmonized EN for IMT-2000, CDMA Multi-Carrier (cdma2000) (BS) covering essential requirements of article 3.2 of the R&TTE Directive";

Part 6: "Harmonized EN for IMT-2000, CDMA TDD (UTRA TDD) (UE) covering essential requirements of article 3.2 of the R&TTE Directive";

Part 7: "Harmonized EN for IMT-2000, CDMA TDD (UTRA TDD) (BS) covering essential requirements of article 3.2 of the R&TTE Directive";

Part 8: "Harmonized EN for IMT-2000, TDMA Single-Carrier (UWC 136) (UE) covering essential requirements of article 3.2 of the R&TTE Directive";

Part 9: "Harmonized EN for IMT-2000, TDMA Single-Carrier (UWC 136) (BS) covering essential requirements of article 3.2 of the R&TTE Directive";

Part 10: "Harmonized EN for IMT-2000 FDMA/TDMA (DECT) covering essential requirements of article 3.2 of the R&TTE Directive";

Part 11: "Harmonized EN for IMT-2000, CDMA Direct Spread (UTRA FDD) (Repeaters) covering essential requirements of article 3.2 of the R&TTE Directive".

Part 12: "Harmonized EN for IMT-2000, CDMA Multi-Carrier (cdma2000) (Repeaters) covering essential requirements of article 3.2 of the R&TTE Directive".

National transposition dates	
Date of adoption of this EN:	24 August 2007
Date of latest announcement of this EN (doa):	31 May 2008
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	30 November 2008
Date of withdrawal of any conflicting National Standard (dow):	30 November 2009

Introduction

The present document is part of a set of standards developed by ETSI and is designed to fit in a modular structure to cover all radio and telecommunications terminal equipment within the scope of the R&TTE Directive. The modular structure is shown in EG 201 399.

1 Scope

The present document applies to the following radio equipment types:

- Repeaters for IMT-2000 CDMA multi-carrier (cdma2000).

These radio equipment types are capable of operating in all or any part of the frequency bands given in table 1.

Table 1: CDMA multi-carrier Repeater service frequency bands

Direction of transmission	CDMA multi-carrier Repeater service frequency bands	Band Class (BC)
Forward link (DL)	2 110 MHz to 2 170 MHz	6
Reverse link (UL)	1 920 MHz to 1 980 MHz	
Forward link (DL)	1 805 MHz to 1 880 MHz	8
Reverse link (UL)	1 710 MHz to 1 785 MHz	
Forward link (DL)	925 MHz to 960 MHz	9
Reverse link (UL)	880 MHz to 915 MHz	
Forward link (DL)	2 620 MHz to 2 690 MHz	13
Reverse link (UL)	2 500 MHz to 2 570 MHz	

Repeaters for IMT-2000 CDMA multi-carrier (cdma2000) may support:

1) operation in cdma2000 spread spectrum systems as defined in TIA-2000.2 [5], referred to herein as operation in Type 1 cdma2000 systems; or

2) operation in cdma2000 High Rate Packet Data Systems as defined in TIA-856 [11], referred to herein in Type 2 cdma2000 systems.

The present document is intended to cover the provisions of Directive 1999/5/EC [1] (R&TTE Directive) article 3.2, which states that "[…] radio equipment shall be so constructed that it effectively uses the spectrum allocated to terrestrial/space radio communications and orbital resources so as to avoid harmful interference".

In addition to the present document, other ENs that specify technical requirements in respect of essential requirements under other parts of article 3 of the R&TTE Directive [1] may apply to equipment within the scope of the present document.

NOTE: A list of such ENs is included on the web site http://www.newapproach.org/.

2 References

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

- References are either specific (identified by date of publication and/or edition number or version number) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.

Referenced documents which are not found to be publicly available in the expected location might be found at http://docbox.etsi.org/Reference.

NOTE: While any hyperlinks included in this clause were valid at the time of publication ETSI cannot guarantee their long term validity.

[1] Directive 1999/5/EC of the European Parliament and of the Council of 9 March 1999 on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity (R&TTE Directive).

[2] Void.

[3] Void.

[4] ANSI/TIA-97-F-1 (June 2006): "Recommended Minimum Performance Standard for cdma2000 Spread Spectrum Base Stations - Addendum 1".

[5] TIA-2000.2-D-1 (January 2006): "Physical Layer Standard for cdma2000 Spread Spectrum Systems - Addendum 1".

[6] Void.

[7] Void.

[8] Void.

[9] Void.

[10] Void.

[11] TIA-856-A-1[E] (February 2007): "cdma2000 High Rate Packet Data Air Interface Specification - Addendum 1".

[12] TIA-864-A (January 2006): "Recommended Minimum Performance Standards for cdma2000 High Rate Packet Data Access Network Equipment".

[13] Void.

[14] TIA-1037 (2007): "Recommended Minimum Performance Standard for cdma2000 Spread Spectrum Repeaters".

[15] TIA-1030-B (December 2006): "Band Class Specification for cdma2000 Spread Spectrum Systems".

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in the R&TTE Directive [1] and the following apply:

Band Class (BC): set of frequency channels and a numbering scheme for these channels

Base Station (BS): fixed station used for communicating with mobile stations

NOTE 1: Base stations for IMT-2000 CDMA multi-carrier (cdma2000) may support, operation in cdma2000 spread spectrum systems as defined in TIA-2000.2 [5], referred to herein as operation in Type 1 cdma2000 system, or operation in cdma2000 High Rate Packet Data Systems as defined in TIA-856 [11], referred to herein as operation in Type 2 cdma2000 systems.

NOTE 2: Depending upon the context, the term base station may refer to a cell, a sector within a cell, an MSC, and access network or other part of the wireless system. See also MSC.

CDMA channel: set of channels transmitted from the base station and the mobile stations on a given frequency

CDMA channel number: 11-bit number corresponding to the centre of the CDMA frequency assignment

CDMA frequency assignment: 1,23 MHz segment of spectrum

NOTE: For band classes 6, 8, and 9, the channel is centred on one of the 50 kHz channels.

chip rate: rate of "chips" (modulated symbols after spreading) per second

Code Division Multiple Access (CDMA): technique for spread-spectrum multiple-access digital communications that creates channels through the use of unique code sequences

donor coupling loss: coupling loss between the Repeater and the donor base station

Down Link (DL): signal path where base station or Repeater transmits and the mobile receives

NOTE: Also referred to as the forward link.

environmental profile: range of environmental conditions under which equipment within the scope of the present document is required to comply with the provisions of the present document

forward CDMA channel: CDMA channel from a base station or Repeater to mobile stations

NOTE: The forward CDMA channel contains one or more code channels that are transmitted on a CDMA frequency assignment using a particular pilot PN offset.

High Rate Packet Data (HRPD): CDMA technique optimized for data communications in Type 2 cdma2000 systems

maximum output power (Pmax): mean power level per carrier measured at the antenna connector of the Repeater in specified reference condition

mean power: total calorimetric power measured in a specified bandwidth at the antenna connector.

mobile station: station intended to be used while in motion or during halts at unspecified points

NOTE: Mobile stations include portable units (e.g. hand-held personal units) and units installed in vehicles and HRPD access terminals.

pass band: frequency range that the Repeater operates in with operational configuration

NOTE 1: This frequency range can correspond to one or several consecutive nominal 5 MHz channels. If they are not consecutive each subset of channels is considered as an individual pass band.

NOTE 2: The Repeater can have one or several pass bands.

radio configuration: set of forward traffic channel and reverse traffic channel transmission formats that are characterized by physical layer parameters such as transmission rates, modulation characteristics, and spreading rate

NOTE: Radio configurations are defined in TIA-2000.2 [5], clauses 2.1.3 and 3.1.3.

Resolution Band Width (RBW): measured in Hz and represents the frequency over which power is integrated in a spectrum analyser to display the amplitude at the centre of the integration frequency range

repeater: device that receives, amplifies and transmits the radiated or conducted RF carrier both in the down-link direction (from the base station to the mobile area) and in the up-link direction (from the mobile to the base station)

NOTE: A repeater can be a device that receives, amplifies and transmits one ore more radiated or conducted CDMA channel(s) both in the down-link direction (from the base station to the mobile area) and in the up-link direction (from the mobile to the base station).

reverse CDMA channel: CDMA channel from the mobile station to the base station

NOTE: From the base station's perspective, the reverse CDMA channel is the sum of all mobile station transmissions on a CDMA frequency assignment.

RF carrier: direct-sequence spread RF channel

NOTE: For the forward CDMA channel, the number of RF carriers is 1 for spreading rate 1 and 3 for spreading rate 3; for the reverse CDMA channel, there is one RF carrier.

spreading rate: PN chip rate of the forward CDMA channel or the reverse CDMA channel, defined as a multiple of 1,2288 Mcps

spreading rate 1: spreading rate 1 is often referred to as "1X"

NOTE 1: A spreading rate 1 forward CDMA channel uses a single direct-sequence spread carrier with a chip rate of 1,2288 Mcps.

NOTE 2: A spreading rate 1 reverse CDMA channel uses a single direct-sequence spread carrier with a chip rate of 1,2288 Mcps.

spreading rate 3: spreading rate 3 is often referred to as "3X"

NOTE 1: A spreading rate 3 forward CDMA channel uses three direct-sequence spread carriers (see multiple-carrier forward channel) each with a chip rate of 1,2288 Mcps.

NOTE 2: A spreading rate 3 reverse CDMA channel uses a single direct-sequence spread carrier with a chip rate of 3,6864 Mcps.

Up Link (UL): signal path where the mobile or Repeater transmits and the base station receives

NOTE: Also referred to as the reverse link.

User Equipment (UE): mobile station supporting operation in cdma2000 spread spectrum systems

NOTE: See TIA-2000.2 [5], referred to herein as operation in Type 1 cdma2000 system; access terminal supporting operation in cdma2000 High Rate Packet Data Systems as defined in TIA-856 [11], referred to herein as operation in Type 2 cdma2000 system; and mobile station supporting operation in Type 1 and Type 2 cdma2000 systems.

3.2 Symbols

For the purposes of the present document, the following symbols apply:

dBc	ratio (in dB) of the sideband power of a signal, measured in a given bandwidth at a given frequency offset from the centre frequency of the same signal, to the total inband power of the signal. For CDMA, the total inband power of the signal is measured in a 1,23 MHz bandwidth around the centre frequency of the CDMA signal for a spreading rate 1 CDMA signal and in 3,69 MHz bandwidth around the centre frequency of the CDMA signal for a spreading rate 3 CDMA signal.
dBm	measure of power expressed in terms of its ratio (in dB) to 1 mW
dBm/Hz	measure of power spectral density. The ratio, dBm/Hz, is the power in 1 Hz of bandwidth, where power is expressed in units of dBm
GHz	GigaHertz (10^9 Hertz)
kHz	kiloHertz (10^3 Hertz)
MHz	MegaHertz (10^6 Hertz)

3.3 Abbreviations

For the purposes of the present document, the following abbreviations apply:

BC	Band Class
BS	Base Station
CDMA	Code Division Multiple Access
CW	Continuous Wave (unmodulated signal)
DCS	Digital Cellular System
DL	Downlink
EMC	ElectroMagnetic Compatibility
GSM	Global System for Mobile Communications
HRPD	High Rate Packet Data
IMT	International Mobile Telecommunications
MSC	Mobile Switching Centre
PN	PseudoNoise
R&TTE	Radio and Telecommunications Terminal Equipment
RBW	Resolution BandWidth