



SLOVENSKI STANDARD

SIST EN 301 526 V1.1.1:2006

01-oktober-2006

9`Y_lfca U_l bYfbUnXfi y`lj cgh]b`nUXYj Y`j`nj Yn]`n`fUX]`g_`ja`gdY_lfca`f0FAŁĚ
<Ufa cb]n]fUb]9B`nUa cV]bY`dcghU`Y`ZXYi`c`Y`dc`ghU`bXUfXi`78A5`bUfU`ndfY`YbYa
gdY_lfi`j`a`cV]bYa`dUgi`(`)\$`A<n`f78A5`(`)\$`L`Hf`dUgcj`J`D5AF`(`%`Z`(`)\$`b`,+\$
A<n`f78A5!D5AFł`Z`_`j`nU`Ya`UV]ghj`YbY`nU`Hj`Y``YbU`"&X]fY`_Hj`YF/`HH9

Electromagnetic compatibility and Radio spectrum Matters (ERM); Harmonized EN for CDMA spread spectrum mobile stations operating in the 450 MHz/ cellular band (CDMA 450) and 410, 450 and 870 MHz PAMR bands (CDMA-PAMR) covering essential requirements of article 3.2 of the R&TTE Directive

[SIST EN 301 526 V1.1.1:2006](https://standards.iteh.ai/catalog/standards/sist/74c0ac1e-4159-4e01-92e9-2b428a7ee6af/sist-en-301-526-v1-1-1-2006)

<https://standards.iteh.ai/catalog/standards/sist/74c0ac1e-4159-4e01-92e9-2b428a7ee6af/sist-en-301-526-v1-1-1-2006>

Ta slovenski standard je istoveten z: EN 301 526 Version 1.1.1

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 301 526 V1.1.1:2006 en

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 301 526 V1.1.1:2006

<https://standards.iteh.ai/catalog/standards/sist/74c0ac1e-4159-4e01-92e9-2b428a7ee6af/sist-en-301-526-v1-1-1-2006>

ETSI EN 301 526 V1.1.1 (2006-07)

Harmonized European Standard (Telecommunications series)

**Electromagnetic compatibility
and Radio spectrum Matters (ERM);
Harmonized EN for CDMA spread spectrum mobile stations
operating in the 450 MHz cellular band (CDMA 450)
and 410, 450 and 870 MHz PAMR bands (CDMA-PAMR)
covering essential requirements
of article 3.2 of the R&TTE Directive**

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 301 526 V1.1.1:2006](https://standards.iteh.ai/catalog/standards/sist/74c0ac1e-4159-4e01-92e9-2b428a7ee6af/sist-en-301-526-v1-1-1-2006)

<https://standards.iteh.ai/catalog/standards/sist/74c0ac1e-4159-4e01-92e9-2b428a7ee6af/sist-en-301-526-v1-1-1-2006>



Reference

DEN/ERM-TG39-002

Keywordscellular, digital, CDMA, mobile, radio, regulation,
terminal**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

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 301 526 V1.1.1:2006<https://standards.iteh.ai/catalog/standards/sist/74c0ac1e-4159-4e01-92e9-2b428a7ec078/sist-301-526-v1-1-2006>**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/chaicor/ETSI_support.asp

Copyright Notification

No part may be reproduced except as authorized by written permission.
The copyright and the foregoing restriction extend to reproduction in all media.

© European Telecommunications Standards Institute 2006.
All rights reserved.

DECT™, **PLUGTESTS™** and **UMTS™** are Trade Marks of ETSI registered for the benefit of its Members.
TIPHON™ and the **TIPHON logo** are Trade Marks currently being registered by ETSI for the benefit of its Members.
3GPP™ is a Trade Mark of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners.

Contents

Intellectual Property Rights	6
Foreword.....	6
Introduction	7
1 Scope	9
2 References	9
3 Definitions, symbols and abbreviations	10
3.1 Definitions	10
3.2 Symbols.....	15
3.3 Abbreviations	16
4 Technical requirements specifications	16
4.1 Environmental profile.....	16
4.2 Conformance requirements	17
4.2.1 Introduction.....	17
4.2.2 Transmitter conducted unwanted emissions	17
4.2.2.1 Definition	17
4.2.2.2 Limits	17
4.2.2.2.1 Limits for band class 5 mobile stations	17
4.2.2.2.2 Limits for band classes 11 and 12 mobile stations	18
4.2.2.3 Conformance.....	18
4.2.3 Maximum RF output power.....	18
4.2.3.1 Definition	18
4.2.3.2 Limits	18
4.2.3.2.1 Limits for Band Classes 5 and 11 mobile stations	19
4.2.3.2.2 Limits for Band Class 12 mobile stations	19
4.2.3.3 Conformance.....	19
4.2.4 Radiated spurious unwanted emissions.....	19
4.2.4.1 Definition	19
4.2.4.2 Limits	19
4.2.4.3 Conformance.....	20
4.2.5 Minimum controlled output power	20
4.2.5.1 Definition	20
4.2.5.2 Limits	20
4.2.5.3 Conformance.....	20
4.2.6 Control and monitoring function	20
4.2.6.1 Definition	20
4.2.6.2 Limits	20
4.2.6.3 Conformance.....	20
4.2.7 Supervision of Paging Channel or Forward Common Control Channel.....	21
4.2.7.1 Definition	21
4.2.7.2 Limits	21
4.2.7.3 Conformance.....	21
4.2.8 Supervision of Forward Traffic Channel	21
4.2.8.1 Definition	21
4.2.8.2 Limits	21
4.2.8.3 Conformance.....	22
4.2.9 Supervision of Control Channel.....	22
4.2.9.1 Definition	22
4.2.9.2 Limits	22
4.2.9.3 Conformance.....	22
4.2.10 Supervision procedures in Variable Rate State.....	23
4.2.10.1 Definition	23
4.2.10.2 Limits	23
4.2.10.3 Conformance.....	23

4.2.11	Receiver single tone desensitization	23
4.2.11.1	Definition	23
4.2.11.2	Limits	24
4.2.11.2.1	Mobile station operating in 1x systems	24
4.2.11.2.2	Mobile station operating in HRPD systems.....	24
4.2.11.3	Conformance.....	24
4.2.12	Intermodulation spurious response attenuation.....	24
4.2.12.1	Definition	24
4.2.12.2	Limits	24
4.2.12.2.1	Mobile station operating in 1x systems	24
4.2.12.2.2	Mobile station operating in HRPD systems.....	24
4.2.12.3	Conformance.....	24
4.2.13	Conducted spurious emissions when not transmitting	24
4.2.13.1	Definition	24
4.2.13.2	Limits	25
4.2.13.3	Conformance.....	25
5	Testing for compliance with technical requirements.....	25
5.1	Conditions for testing	25
5.1.1	Introduction.....	25
5.1.2	Standard equipment under test.....	25
5.1.2.1	Basic equipment	25
5.1.2.2	Ancillary equipment.....	25
5.2	Interpretation of the measurement results	26
5.3	Essential radio test suites.....	27
5.3.1	Conducted unwanted emissions when transmitting	27
5.3.1.1	Test procedure for mobile stations supporting operation in 1x systems	27
5.3.1.2	Test procedure for mobile stations supporting operation in HRPD systems.....	27
5.3.2	Maximum RF output power.....	27
5.3.2.1	Test procedure for mobile stations supporting operation in 1x systems.....	27
5.3.2.2	Test procedure for mobile stations supporting operation in HRPD systems	28
5.3.3	Radiated unwanted emissions	28
5.3.3.1	Test method.....	28
5.3.3.2	Test configurations.....	29
5.3.4	Minimum controlled output power	29
5.3.4.1	Test procedure for mobile stations supporting operation in 1x systems.....	29
5.3.4.2	Test procedure for mobile stations supporting operation in HRPD systems	29
5.3.5	Control and monitoring functions.....	30
5.3.5.1	Test method.....	30
5.3.6	Supervision of Paging Channel or Forward Common Control Channel.....	30
5.3.7	Supervision of Forward Traffic Channel	30
5.3.8	Supervision of Control Channel.....	30
5.3.9	Supervision procedures in variable rate state.....	31
5.3.10	Single tone desensitization.....	31
5.3.10.1	Test procedure for mobile stations supporting operation in 1x systems.....	31
5.3.10.2	Test procedure for mobile stations supporting operation in HRPD systems	31
5.3.11	Intermodulation spurious response attenuation.....	31
5.3.11.1	Test procedure for mobile stations supporting operation in 1x systems.....	31
5.3.11.2	Test procedure for mobile stations supporting operation in HRPD systems	31
5.3.12	Conducted spurious emissions when not transmitting	32
5.3.12.1	Test procedure for mobile stations supporting operation in 1x systems.....	32
5.3.12.2	Test procedure for mobile stations supporting operation in HRPD systems	32
Annex A (normative):	The HS Requirements and conformance Test specifications Table (HS-RTT).....	33
Annex B (normative):	Mobile station configurations	36
B.1	Receiver diversity.....	36
Annex C (informative):	Environmental profile specification	37
C.1	Test conditions, power supply and ambient temperatures.....	37

C.1.1	Normal and extreme test conditions	37
C.1.2	Power sources.....	37
C.1.2.1	Power sources for stand-alone equipment	37
C.1.3	Normal test conditions.....	37
C.1.3.1	Normal temperature and humidity	37
C.1.3.2	Normal power source.....	38
C.1.3.2.1	Mains voltage	38
C.1.3.2.2	Lead-acid battery power sources used on vehicles.....	38
C.1.3.2.3	Other power sources.....	38
C.1.4	Extreme test conditions	38
C.1.4.1	Extreme temperatures	38
C.1.4.2	Extreme power source voltages	38
C.1.4.2.1	Mains voltage	38
C.1.4.2.2	Power sources using other types of batteries.....	38
C.1.4.2.3	Other power sources.....	39
C.1.4.3	Procedure for tests at extreme temperatures	39
C.2	Declared Environmental Operating conditions of equipment	39
Annex D (informative):	Bibliography.....	40
Annex E (informative):	The EN title in the official languages	41
History		43

iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST EN 301 526 V1.1.1:2006](https://standards.iteh.ai/catalog/standards/sist/74c0ac1e-4159-4e01-92e9-2b428a7ee6af/sist-en-301-526-v1-1-1-2006)

<https://standards.iteh.ai/catalog/standards/sist/74c0ac1e-4159-4e01-92e9-2b428a7ee6af/sist-en-301-526-v1-1-1-2006>

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").

(standards.iteh.ai)

National transposition dates	
Date of adoption of this EN:	14 July 2006
Date of latest announcement of this EN (doa):	31 October 2006
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	30 April 2007
Date of withdrawal of any conflicting National Standard (dow):	30 April 2008

Introduction

The present document is part of a set of standards designed to fit in a modular structure to cover all radio and telecommunications terminal equipment under the R&TTE Directive [1]. Each standard is a module in the structure. The modular structure is shown in figure 1.

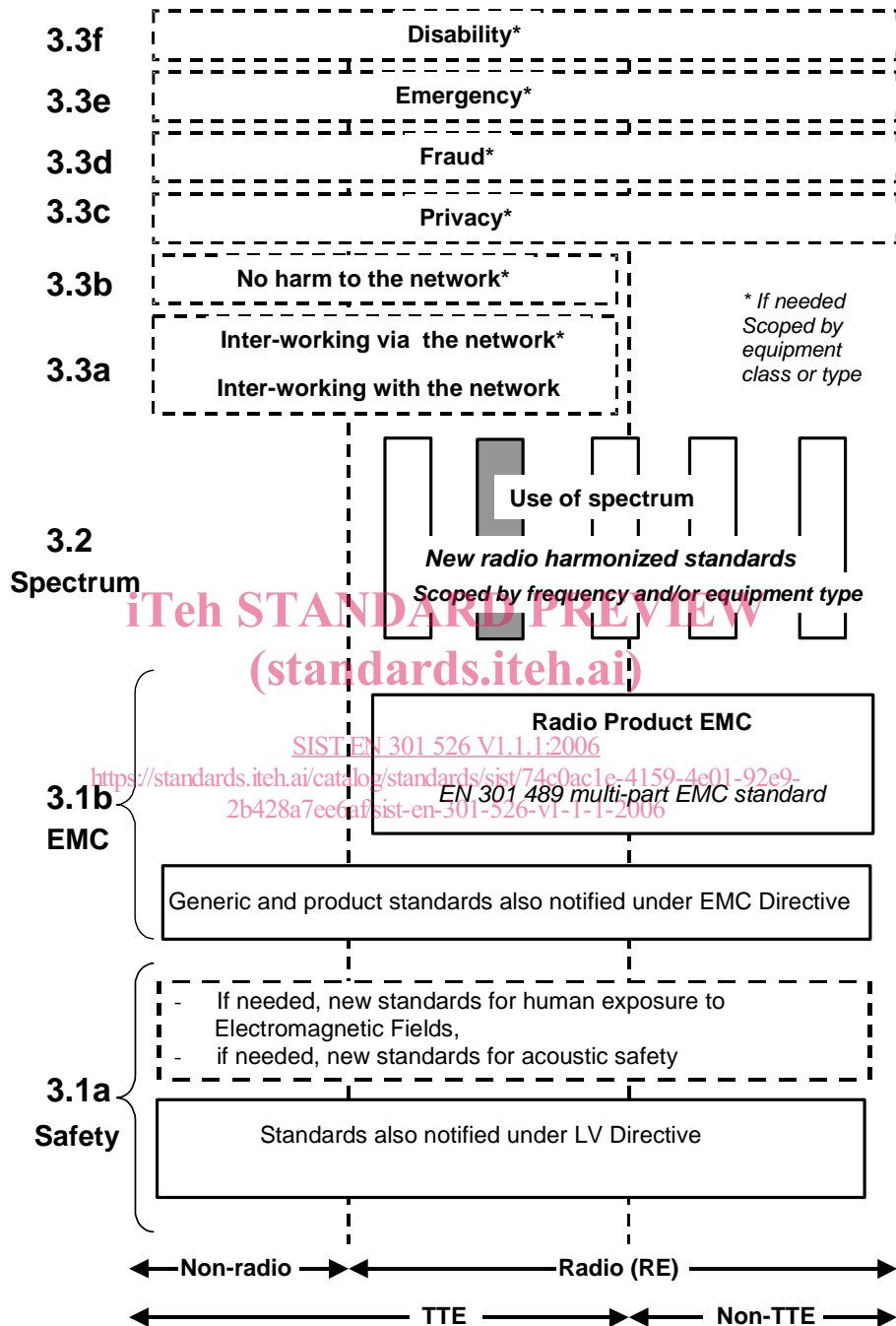


Figure 1: Modular structure for the various standards used under the R&TTE Directive [1]

The left hand edge of the figure 1 shows the different clauses of article 3 of the R&TTE Directive [1].

For article 3.3 various horizontal boxes are shown. Dotted lines indicate that at the time of publication of the present document essential requirements in these areas have to be adopted by the Commission. If such essential requirements are adopted and as far and as long as they are applicable, they will justify individual standards whose scope is likely to be specified by function or interface type.

The vertical boxes show the standards under article 3.2 for the use of the radio spectrum by radio equipment. The scopes of these standards are specified either by frequency (normally in the case where frequency bands are harmonized) or by radio equipment type.

For article 3.1b, figure 1 shows EN 301 489 [6], the multi-part product EMC standard for radio used under the EMC Directive [2].

For article 3.1a, figure 1 shows the existing safety standards currently used under the LV Directive [3] and new standards covering human exposure to electromagnetic fields. New standards covering acoustic safety may also be required.

The bottom of figure 1 shows the relationship of the standards to radio equipment and telecommunications terminal equipment. Particular equipment may be radio equipment, telecommunications terminal equipment or both. A radio spectrum standard will apply if it is radio equipment. An article 3.3 standard will apply as well only if the relevant essential requirement under the R&TTE Directive [1] is adopted by the Commission and if the equipment in question is covered by the scope of the corresponding standard. Thus, depending on the nature of the equipment, the essential requirements under the R&TTE Directive [1] may be covered in a set of standards.

The modularity principle has been taken because:

- It minimizes the number of standards needed. Because equipment may, in fact, have multiple interfaces and functions it is not practicable to produce a single standard for each possible combination of functions that may occur in equipment.
- It provides scope for standards to be added:
 - under article 3.2 when new frequency bands are agreed; or
 - under article 3.3 should the Commission take the necessary decisions;
 without requiring alteration of standards that are already published.
- It clarifies, simplifies and promotes the usage of Harmonized Standards as the relevant means of conformity assessment.

1 Scope

The present document applies to cdma450 mobile stations using CDMA 1x spread spectrum technology, i.e. Band Class 5 equipment or Band Class 11 equipment as defined in TIA-1030 [19], capable of operating in all or any part of the frequency bands defined in footnote EU34 from the European Common Allocation table ERC Report 25 [14]:

"Parts of the bands 450 to 457,5 / 460 to 467,5 MHz may also be used for existing and evolving public cellular networks on a National basis".

The present document also applies to CDMA-PAMR mobile stations covering, in accordance with ECC Decision ECC DEC(04)06 [12], the frequency bands:

- Band Class 11: 410 MHz to 430 MHz and 450 MHz to 470 MHz with 10 MHz duplex spacing between the transmit frequencies of mobile stations (410 MHz to 420 MHz and 450 MHz to 460 MHz) and the transmit frequencies of base stations (420 MHz to 430 MHz and 460 MHz to 470 MHz).
- Band Class 12: 870 MHz to 876 MHz paired with 915 MHz to 921 MHz with 45 MHz duplex spacing between the transmit frequencies of mobile stations (870 MHz to 876 MHz) and the transmit frequencies of base stations (915 MHz to 921 MHz).

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] will 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>.

SIST EN 301 526 V1.1.1:2006

<https://standards.iteh.ai/catalog/standards/sist/74e0ae1e-4159-4e01-92e9-2b428a7ee6af/sist-en-301-526-v1-1-1-2006>

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>.

- [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] Council Directive 89/336/EEC of 3 May 1989 on the approximation of the laws of the Member States relating to electromagnetic compatibility (EMC directive).
- [3] Council Directive 73/23/EEC of 19 February 1973 on the harmonization of the laws of Member States relating to electrical equipment designed for use within certain voltage limits (LV Directive).
- [4] ANSI/TIA-98-F (2005): "Recommended Minimum Performance Standards for cdma2000@ Spread Spectrum Mobile Stations".

- [5] TIA/EIA/IS-2000.2-C (2002): "Physical Layer Standard for cdma2000 Spread Spectrum Systems - Release C".
- [6] ETSI EN 301 489 (all parts) (V1.3.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services".
- [7] TIA/EIA/IS-2000.5-C (2002): "Upper Layer (Layer 3) Signaling Standard for cdma2000 Spread Spectrum Systems - Release C".
- [8] TIA/EIA/IS-856-1 (2002): "cdma2000 High Rate Packet Data Air Interface Specification - Addendum 1".
- [9] TIA-866 (2002): "Recommended Minimum Performance Standards for cdma2000 High Rate Packet Data Access Terminal".
- [10] TIA/EIA/IS-890 (2001): "Test Application Specification (TAS) for High Rate Packet Data Air Interface".
- [11] ITU-R Recommendation SM.329-10 (2003): "Unwanted emissions in the spurious domain".
- [12] ECC Decision (04)06: "ECC Decision of 19 March 2004 on the availability of frequency bands for the introduction of Wide Band Digital Land Mobile PMR/PAMR in the 400 MHz and 800/900 MHz bands".
- [13] CEPT/ERC/Recommendation 74-01E (Siófok 1998, Nice 1999, Sesimbra 2002): "Unwanted emissions in the spurious domain".
- [14] ERC Report 25 (Lisboa January 2002 - Dublin 2003 - Turkey 2004 - Copenhagen 2004): "The European table of frequency allocations and utilisations covering the frequency range 9 kHz to 275 GHz".
- [15] ECC Report 38, Granada, February 2004: "The technical impact of introducing CDMA/PAMR on the UIC DMO & GSM-R radio systems in the 900 MNZ band".
- [16] ECC Report 39, Granada, February 2004: "Technical impact of introducing CDMA-PAMR on 12.5 / 25 kHz PMR/PAMR technologies in the 410-430 and 450-470 MHz bands".
- [17] ECC Report 41 (2004): "Adjacent band compatibility between GSM and CDMA-PAMR at 915 MHz".
- [18] ETSI TR 100 028 (V1.4.1): "Electromagnetic Compatibility and Radio Spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics".
- [19] TIA 1030 (2004): "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:

1x: mode of operation of a mobile station or access terminal using spreading rate 1

access attempt: sequence of one or more access probe sequences on the access channel or enhanced access channel containing the same message

NOTE: See also access probe, access probe sequence, and enhanced access probe.

access channel: reverse CDMA channel used by mobile stations for communicating to the base station

NOTE: The access channel is used for short signalling message exchanges, such as call originations, responses to pages, and registrations. The access channel is a slotted random access channel.

access channel preamble: preamble of an access probe consisting of a sequence of all-zero frames that is sent at the 4 800 bit/s rate

access network: network equipment providing data connectivity between a packet switched data network (typically the Internet) and the access terminals in HRPD cdma2000 systems

NOTE: Connectivity is typically provided at the link layer (PPP). As used in the present document it is synonymous with base station except that HRPD access network always uses spreading rate 1.

access probe: one access channel transmission consisting of a preamble and a message

NOTE: The transmission is an integer number of frames in length, and transmits one access channel message. See also access probe sequence and access attempt.

access probe sequence: sequence of one or more access probes on the access channel or enhanced access channel

NOTE: The same access channel or enhanced access channel message is transmitted in every access probe of an access attempt. See also access probe, enhanced access probe, and access attempt.

access terminal: device providing data connectivity to a user in HRPD cdma2000 systems

NOTE: An access terminal may be connected to a computing device such as a laptop personal computer or may be self-contained data device such as a personal digital assistant or may be a mobile station. Also referred to as HRPD access terminal using spreading rate 1 or MS operating in a HRPD cdma2000 system.

band class: a set of frequency channels with, a numbering scheme and related specific parameters for these channels

NOTE: Band classes are defined in TIA-1030 [19],

base station: fixed station used for communicating with mobile stations

NOTE 1: For the purpose of tests in clause 5 of the present document the term base station may also apply to a base station simulator having the capabilities defined in ANSI/TIA-98-F [4], clause 6.4.3.

NOTE 2: Base stations may support operation in cdma2000 spread spectrum systems as defined in TIA/EIA/IS-2000.2-C [5], referred to herein as operation in 1x system, or operation in cdma2000 high rate packet data systems as defined in TIA/EIA/IS-856-1 [8], referred to herein as operation in HRPD systems.

base station simulator: piece of test equipment used to replicate the functions of a base station

basic access mode: mode used on the enhanced access channel where a mobile station transmits an enhanced access channel preamble and enhanced access data in a method similar to that used on the access channel

broadcast control channel: code channel in a forward CDMA channel used for transmission of control information from a base station to a mobile station

candidate frequency: frequency for which the base station specifies a search set, when searching on other frequencies while performing mobile-assisted handoffs

code channel: subchannel of a forward CDMA channel or reverse CDMA channel

NOTE: Each subchannel uses an orthogonal Walsh function or quasi-orthogonal function.

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

continuous transmission: mode of operation in which discontinuous transmission is not permitted

discontinuous transmission: mode of operation in which a base station or a mobile station switches its transmitter or a particular code channel on and off autonomously

NOTE: For the case of DTX operation on the forward dedicated control channel, the forward power control subchannel is still transmitted.

effective radiated power: product of the power supplied to the antenna and the antenna gain in a direction relative to a half-wave dipole