



**SLOVENSKI STANDARD**  
**SIST EN 302 426 V1.1.1:2006**

**01-december-2006**

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Electromagnetic compatibility and Radio spectrum Matters (ERM); Harmonized EN for CDMA spread spectrum Repeaters operating in the 450 MHz cellular band (CDMA450) and the 410 MHz, 450 MHz and 870 MHz PAMR bands (CDMA-PAMR) covering essential requirements of article 3.2 of the R&TTE Directive

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# ETSI EN 302 426 V1.1.1 (2006-09)

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*Harmonized European Standard (Telecommunications series)*

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Harmonized EN for CDMA spread spectrum Repeaters  
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the 410 MHz, 450 MHz and 870 MHz PAMR bands  
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**ETSI**

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## 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").

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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.

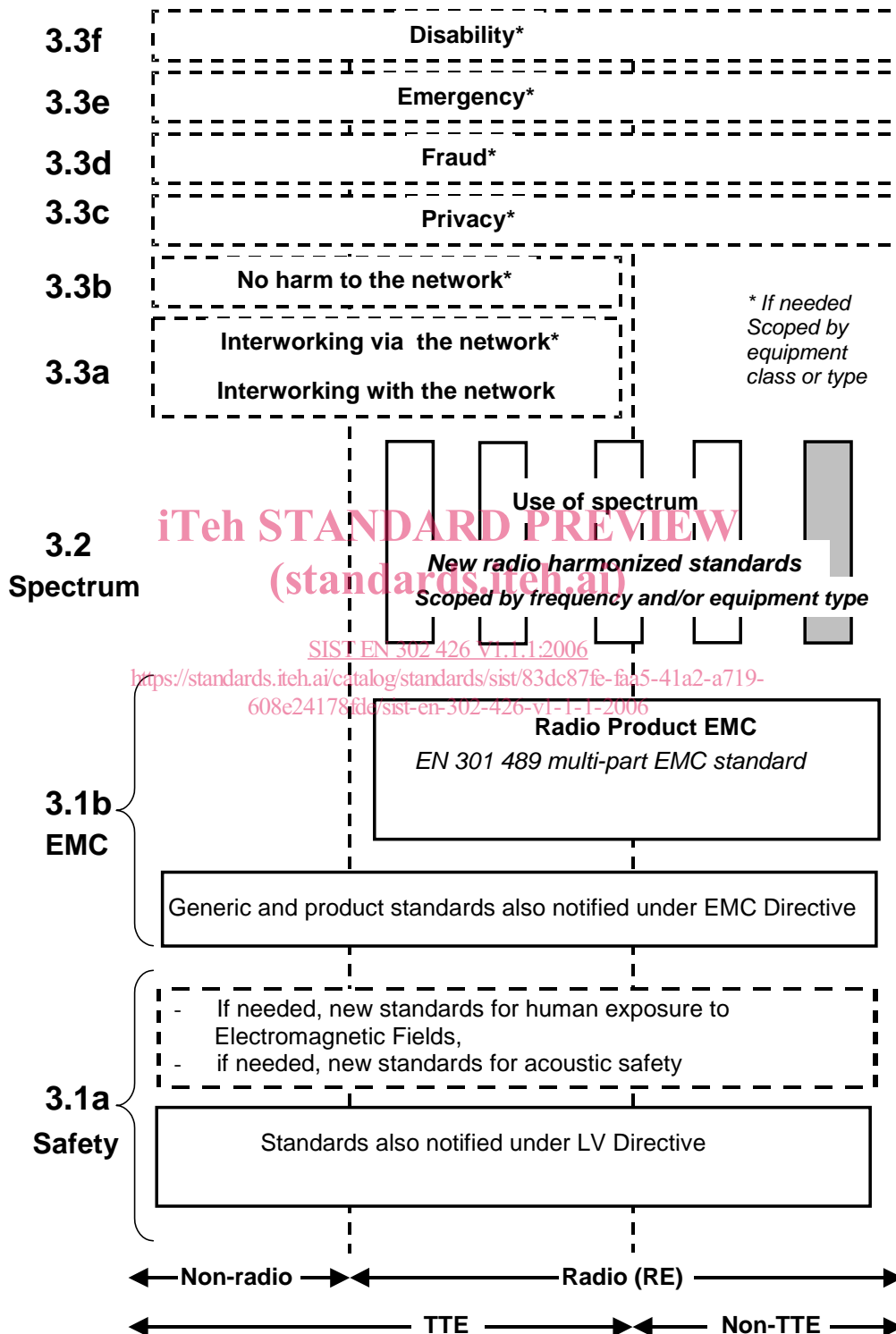


Figure 1: Modular structure for the various standards used under the R&TTE Directive [1]

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 [5], 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. A 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 an 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.

The product specifications upon which this present multi-part deliverable is based differ in presentation, and this is reflected in the present document.

# 1 Scope

The present document applies to cdma450 repeaters using CDMA 1x spread spectrum technology, i.e. band class 5 or band class 11 equipment as defined in TIA-1030 [12] capable of operating in the frequency bands defined in footnote EU34 from the European Common Allocation table, ERC report 25 [8].

- EU34 states "Parts of the bands 450 MHz to 457,5 MHz / 460 MHz 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 repeaters covering, in accordance with ECC decision ECC/DEC/(04)06 [9], the frequency bands:

- Band class 11: Operating within the bands 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: Operating within the band 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 the R&TTE Directive[1] 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/>.

# 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-97-F (2005): "Recommended Minimum Performance Standard for cdma2000 Spread Spectrum Base Stations".
- [5] 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".

- [6] TIA-864 (2002): "Recommended Minimum Performance Standards for cdma2000® High Rate Packet Data Access Network Equipment".
- [7] ITU-R Recommendation SM.329-10 (2003): "Unwanted emissions in the spurious domain".
- [8] ERC Report 25, Copenhagen 2004: "The European table of frequency allocations and utilisations covering the frequency range 9 kHz to 275 GHz".
- [9] ECC/DEC/(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".
- [10] ETSI TR 100 028 (V1.4.1) (all parts): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics".
- [11] CEPT/ERC Recommendation 74-01E, Hradec Kralove 2005: "Unwanted emissions in the spurious domain".
- [12] 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 following terms and definitions apply:

**1X:** mode of operation of a base station or access network using spreading rate 1

**band class:** set of frequency channels and a numbering scheme for these channels

NOTE: Band classes are defined in TIA-1030 [12].

**CDMA frequency assignment:** 1,23 MHz segment of spectrum

NOTE: For band classes 11 and 12, the channel is centred on one of the 25 kHz channels.  
For band class 5, the channel is centred on one of the 20 kHz or 25 kHz channels.

**channel gain:** average gain measured in a 1,23 MHz bandwidth around the centre frequency of a channel

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

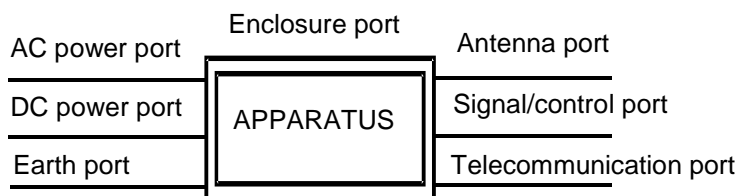
**donor coupling loss:** coupling loss between the repeater and the donor base station

**down-link:** signal path where base station or repeater transmits and the mobile receives

NOTE: Also referred to as the forward link.

**effective radiated power (e.r.p.):** product of the power supplied to the antenna and the antenna gain in a direction relative to a half-wave dipole

**enclosure port:** also known as cabinet radiation



**equivalent isotropically radiated power (e.i.r.p.):** product of the power supplied to the antenna and the antenna gain in a direction relative to an isotropic antenna