SLOVENSKI STANDARD
SIST EN 302 217-3 V1.1.3:2005

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Fiksni radijski sistemi ï Karakteristike in zahteve za opremo tipa toļ ka-toļ ka in antene ï 3. del: Harmonizirani EN, ki zajema bistvene zahteve ļ lena 3.2 direktive R&TTE za opremo, ki deluje v frekvenļ nih pasovih, kjer se ne izvaja frekvenļ na koordinacija

Fixed Radio Systems; Characteristics and requirements for point-to-point equipment and antennas; Part 3: Harmonized EN covering essential requirements of Article 3.2 of R&TTE Directive for equipment operating in frequency bands where no frequency co-ordination is applied

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Candidate Harmonized European Standard (Telecommunications series)

Fixed Radio Systems; Characteristics and requirements for point-to-point equipment and antennas; Part 3: Harmonized EN covering essential requirements of Article 3.2 of R&TTE Directive for equipment operating in frequency bands where no frequency co-ordination is applied

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Foreword

This Candidate Harmonized European Standard (Telecommunications series) has been produced by ETSI Technical Committee Transmission and Multiplexing (TM).

The present document has been produced by ETSI in response to a mandate from the European Commission issued under Council Directive 98/34/EC 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 ("R&TTE Directive").

The present document is part 3 of a multipart deliverable covering Fixed Radio Systems Characteristics and requirements for point-to-point equipment and antennas, as identified below:

Part 1: "Overview and system-independent common characteristics";

Part 2-1: "System-dependent requirements for digital systems operating in frequency bands where frequency co-ordination is applied";

Part 2-2 "Harmonized EN covering essential requirements of Article 3.2 of R&TTE Directive for digital systems operating in frequency bands where frequency co-ordination is applied";

Part 3: "Harmonized EN covering essential requirements of Article 3.2 of R&TTE Directive for equipment operating in frequency bands where no frequency co-ordination is applied";

Part 4-1: "System-dependent requirements for antennas";

Part 4-2: "Harmonized EN covering essential requirements of Article 3.2 of R&TTE Directive for antennas".

The present document together with EN 302 217-2-2 (see bibliography) and EN 302 217-4-2 [8] intend to replace and supersede the harmonized EN 301 751 (see bibliography) for all P-P equipment and antennas.

National transposition dates	
Date of adoption of this EN:	25 February 2005
Date of latest announcement of this EN (doa):	31 May 2005
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	30 November 2005
Date of withdrawal of any conflicting National Standard (dow):	31 May 2007

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. Each standard is a module in the structure. The modular structure is shown in figure 1.

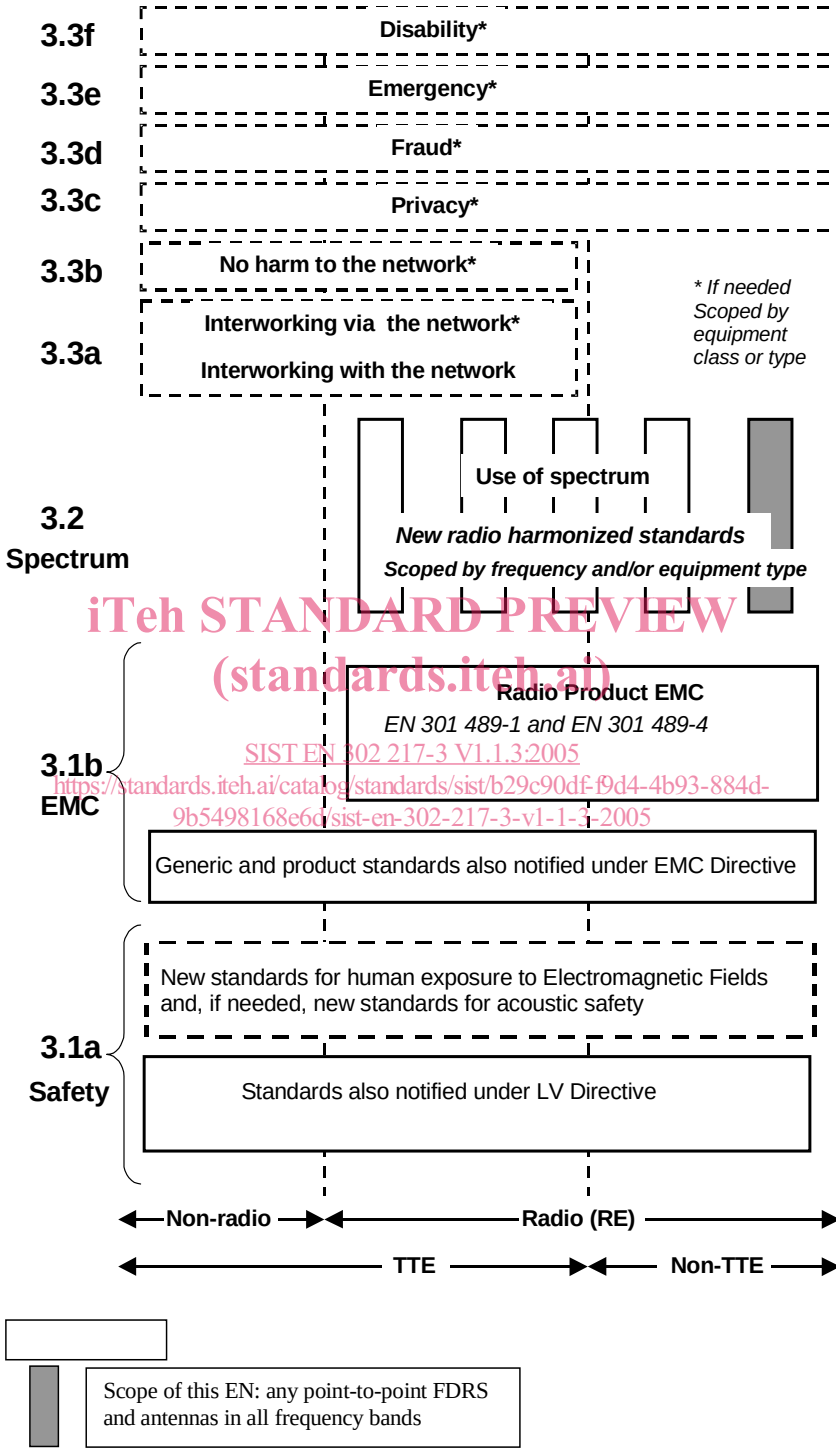

Figure 1: Modular structure for the various standards used under the R&TTE Directive

The left hand edge of 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. Whenever 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 the diagram shows EN 301 489 (see bibliography), the multi-part product EMC standard for radio used under the EMC Directive 89/336/EEC (see bibliography).

NOTE: For Fixed Radio Systems EN, EN 301 489-1 (see bibliography) and EN 301 489-4 (see bibliography) are relevant.

For article 3.1a the diagram shows the existing safety standards currently used under the LV Directive 73/23/EEC (see bibliography) and new standards covering human exposure to electromagnetic fields. New standards covering acoustic safety may also be required.

The bottom of the figure 1 shows the relationship of the standards to radio equipment and telecommunications terminal equipment. 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 specifies the essential requirements for Digital Fixed Radio Systems (DFRS) operating in frequency bands, which do not require co-ordinated frequency planning. It is intended to cover the provisions of Directive 1999/5/EC [1] (R&TTE Directive) regarding 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".

The present document with EN 302 217-2-2 (see bibliography) and EN 302 217-4-2 [8] will replace and supersede, after a suitable transition period, the harmonized EN 301 751 (see bibliography) for all P-P equipment and antennas.

Those parts of this multipart EN introduces, for systems (equipment and antennas) already covered by EN 301 751 (see bibliography), equal, technically equivalent or less stringent requirements. Therefore, from a strictly technical point of view, it is expected that equipment already conforming to the previous EN 301 751 (see bibliography), would not need a new test report for re-assessment of essential requirements according this new multipart EN; however, legal implications with respect to the declaration of conformity and equipment labelling are not in the scope of the present document.

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.

In order to technically cover different market and network requirements, with an appropriate balance of performance to cost and effective and appropriate use of the radio spectrum, the present document, together with EN 302 217-4-2 [8], offers system types and antennas alternatives, for selection by administrations, operators and manufacturers dependent on the desired use of the radio spectrum and network/market requirements, those options include:

- channel separation alternatives (as provided by the relevant CEPT Recommendation);
- implemented procedure for free radio channel selection;
- antenna directivity class alternatives (for different network density requirement).

The present document is mainly intended to cover fixed radio equipment without integral antennas. However, it also applies to fixed radio systems products with integral antennas, for which all the technical requirements included in the present document and in EN 302 217-4-2 [8] apply. For more background information on the equipment and antenna parameters here identified as relevant to article 3.2 of R&TTE Directive see EG 201 399 (see bibliography) and TR 101 506 (see bibliography).

For example, the frequency band 58 GHz is proposed to be used by various technologies for uncoordinated use of the band. Besides the RF-channel selection procedure, specified in clause 4.2 to avoid unacceptable interference situations, this band also benefits from the high and stable atmospheric attenuation which suppresses efficiently distant interferers (about 10 to 15 dB/km at sea level, refer to ITU-R Recommendation P.676 (see bibliography).

For the purposes of the present document two equipment Classes are specified depending on the network requirements:

- Class A: Digital equipment for High Density Fixed Service (HDFS) applications typically connected to public networks, which apply the RF-channel selection procedure (see clause 4.2), error performance and availability requirements (see EN 302 217-1 [7]).

- Class B: Equipment without network requirements for quality of service, typically private connections.

Typical applications for Class A equipment are interconnection between cellular networks where, in some cases, there is a need for short length connections (up to about 500 m). The RF channel selection procedure shall be used to protect existing systems from a new system being commissioned. However, the channel selection procedure may not guarantee interference free installation or operation in all cases, due to limitations in the procedure with respect to the variety of systems.

Typical applications for Class B equipment are in private connections, such as video surveillance systems.

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: With regard to ETSI ENs, the third digit of the version number is not considered essential for dated reference purposes because the ETSI Technical Working Procedures reserve this digit for editorially changed versions, thereby not affecting the technical parameters within versions with the same two initial digits. Here is reported the third digit of the latest version available at the time of publication of the present document.

[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] CEPT/ERC/Recommendation 74-01 (2002): "Spurious emissions".

[3] CEPT/ERC/Recommendation 12-09 (2004): "Radio frequency channel arrangement for Fixed Service systems operating in the band 57,0 - 59,0 GHz which do not require frequency planning".

[4] ETSI EN 301 126-1 (V1.1.2): "Fixed Radio Systems; Conformance testing; Part 1: Point-to-Point equipment - Definitions, general requirements and test procedures".

[5] ETSI EN 301 126-3-1 (V1.1.1): "Fixed Radio Systems; Conformance testing; Part 3-1: Point-to-Point antennas; Definitions, general requirements and test procedures".

[6] ETSI EN 301 390 (V1.2.1): "Fixed Radio Systems; Point-to-point and Multipoint Systems; Spurious emissions and receiver immunity limits at equipment/antenna port of Digital Fixed Radio Systems".

[7] ETSI EN 302 217-1 (V1.1.1): "Fixed Radio Systems; Characteristics and requirements for point-to-point equipment and antennas; Part 1: Overview and system-independent common characteristics".

[8] ETSI EN 302 217-4-2 (V1.1.3): "Fixed Radio Systems; Characteristics and requirements for point-to-point equipment and antennas; Part 4-2:"Harmonized EN covering essential requirements of Article 3.2 of R&TTE Directive for antennas".

[9] IEEE 1802.3 (2001): "IEEE Conformance Test Methodology for IEEE Standards for Local and Metropolitan Area Networks-Specific Requirements-Part 3: Carrier Sense Multiple Access with Collision Detection (CSMA/CD) Access Method and Physical Layer Specifications".

[10] IEEE 802.3 (2002): "Information technology - Telecommunications and information exchange between systems - Local and metropolitan area networks - Specific requirements - Part 3: Carrier Sense Multiple Access with Collision Detection (CSMA/CD) access method and physical layer specifications".

[11] ITU-T Recommendation G.703 (2001): "Physical/electrical characteristics of hierarchical digital interfaces".

[12] ITU-T Recommendation O.151 and Corrigendum 1 (2002): "Error performance measuring equipment operating at the primary rate and above".

[13] ITU-T Recommendation O.181 (2002): "Equipment to assess error performance on STM-N interfaces".

[14] ITU-T Recommendation O.191 (2000): "Equipment to measure the cell transfer performance of ATM connections".

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in EN 302 217-1 [7] apply.

3.2 Symbols

For the purposes of the present document, the symbols given in EN 302 217-1 [7] apply.

3.3 Abbreviations

For the purposes of the present document, the abbreviations given in EN 302 217-1 [7] apply.

4 Technical requirements specifications

Guidance and description of the phenomena relevant to "essential requirements" under article 3.2 is given in EG 201 399 (see bibliography); specific applications and descriptions for DFRS is given in TR 101 506 (see bibliography).

In the following clauses, limits are required to be met at specific reference points of the system block diagram. Reference points and the system block diagram are those set out in figure 1 of EN 302 217-1 [7].

In the case of wide radio-frequency bands covering units and multirate/multiformat equipment, these specifications shall be met at any frequency and at any rate/format. However the tests, required for generating a test report and/or declaration of conformity, in order to fulfil any conformity assessment procedure with respect to the R&TTE Directive [1], shall be carried-out in accordance with the principles set out in annex UC.

Testing methods and conditions for assessing all requirements are specified in clause 5, where each clause directly refer to corresponding clause in this clause.

4.1 Environmental profile

The technical requirements of the present document apply under the environmental profile for operation of the equipment, which shall be declared by the supplier. The equipment shall comply with all the technical requirements of the present document at all times when operating within the boundary limits of the declared operational environmental profile. For testing the compliance with technical requirements see also EN 301 126-1 [4] and clause 5 of the present document.

NOTE: With the generic term of environmental profile, it is here intended any variation of the "external" conditions (e.g. climatic and external primary/secondary power supply sources feeding the equipment to be assessed) that might affect the system parameter relevant to the "essential requirements" of article 3.2 of the R&TTE Directive [1].

4.2 RF-channel Selection

RF-channel selection procedure is mandatory for Class A equipment only.