SLOVENSKI STANDARD
SIST EN 301 997-2 V1.1.1:2004

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Prenos in multipleksiranje (TM) ï Veļ toļ kovna oprema ï Radijska oprema za uporabo v brezģiļ nih veļ predstavnih (multimedijskih) sistemih (MWS), ki deluje v radiofrekvenļ nem obmoļ ju od 40,5 GHz do 43,5 GHz ï 2. del: Harmonizirani EN, ki zajema bistvene zahteve ļ lena 3.2 direktive R&TTE

Transmission and Multiplexing (TM); Multipoint equipment; Radio equipment for use in Multimedia Wireless Systems (MWS) in the frequency band 40,5 GHz to 43,5 GHz; Part 2: Harmonized EN covering essential requirements under article 3.2 of the R&TTE Directive

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Candidate Harmonized European Standard (Telecommunications series)

**Transmission and Multiplexing (TM);
Multipoint equipment;
Radio equipment for use
in Multimedia Wireless Systems (MWS)
in the frequency band 40,5 GHz to 43,5 GHz;
Part 2: Harmonized EN covering essential requirements
under article 3.2 of the R&TTE Directive**

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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 (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 2 of a multi-part deliverable covering Transmission and Multiplexing (TM); Multipoint equipment; Radio equipment for use in Multimedia Wireless Systems (MWS) in the frequency band 40,5 GHz to 43,5 GHz, as identified below:

Part 1: "General requirements";

Part 2: "Harmonized EN covering essential requirements under article 3.2 of the R&TTE Directive".

Multimedia Wireless Systems (MWS) in the band 40,5 GHz to 43,5 GHz are described in EN 301 997-1 [13]. Antenna systems suitable for use in MWS are described in EN 301 215-3 [3].

National transposition dates	
Date of adoption of this EN:	19 September 2003
Date of latest announcement of this EN (doa):	31 December 2003
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	30 June 2004
Date of withdrawal of any conflicting National Standard (dow):	30 June 2005

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.

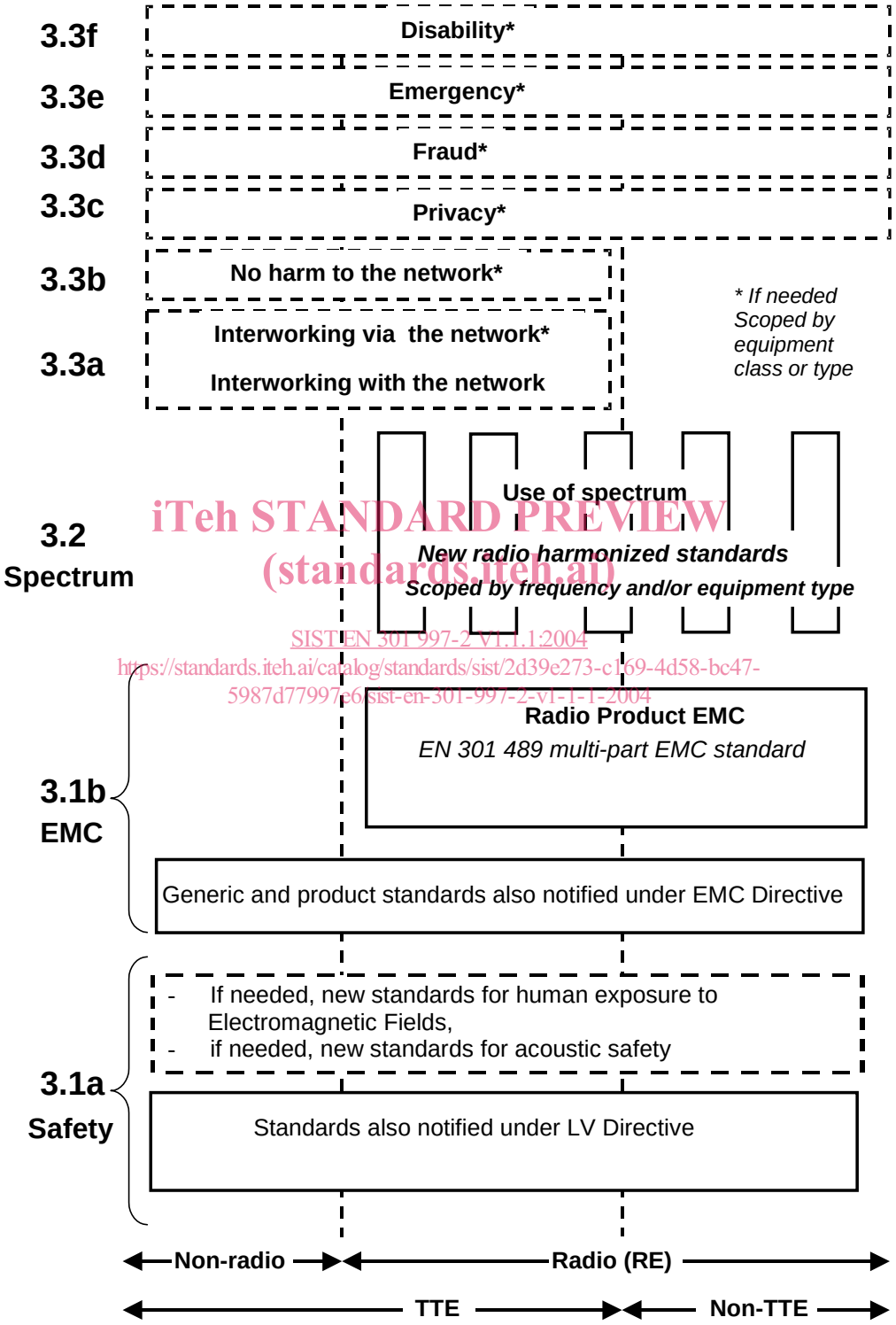

Figure 1: Modular structure for the various standards used under the R&TTE directive

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 the diagram shows EN 301 489, the multi-part product EMC standard for radio used under the EMC Directive.

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

The bottom of the figure 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.

1 Scope

The present document applies to Multimedia Wireless Systems (MWS) in the band 40,5 GHz to 43,5 GHz, which operate in block assignments, according to ECC/REC 01-04 [19]. It includes those parameters considered to be essential under article 3.2 of the Directive 1999/5/EC [1], 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". Where equipment is intended for operation other than as specified in ECC/REC 01-04 [19] there may be additional requirements outside the scope of the present document.

The relevant equipment parameters in EN 301 997-1 [13] are referenced as well as antenna parameters in EN 301 215-3 [3]. These standards also contain other requirements that are not considered essential for the R&TTE Directive [1], but are nevertheless recommended on a voluntary basis to meet relevant network performance objectives as defined by international standardizing bodies.

A wide range of Multimedia Wireless Systems (MWS) is possible. The present document covers a range of alternatives, for which the access methods and corresponding test requirements are specified in available relevant ETSI standards and referred to in EN 301 997-1 [13]. Similarly, antennas other than those specified in available and relevant ETSI standards may also be proposed.

A range of antenna and equipment types and corresponding test methods are covered by the present document. However, it should be noted that, national regulatory bodies, according to article 7.2 of Directive 1999/5/EC [1] may, for the purpose of local licensing, limit the options permitted.

For system variants that do not use the access methods or do not meet the ETSI specified parameters for equipment in EN 301 213-1 [14], EN 301 213-2 [15], EN 301 213-3 [16], EN 301 213-4 [17], EN 301 213-5 [18] or antennas in EN 301 215-1 [2], EN 301 215-3 [3], CE marking may also be possible via one of the alternative routes described in the Directive 1999/5/EC [1].

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] ETSI EN 301 215-1 (V1.2.1): "Fixed Radio Systems; Point to Multipoint Antennas; Antennas for point-to-multipoint fixed radio systems in the 11 GHz to 60 GHz band; Part 1: General aspects".

[3] ETSI EN 301 215-3 (V1.1.1): "Fixed Radio Systems; Point to Multipoint Antennas; Antennas for point-to-multipoint fixed radio systems in the 11 GHz to 60 GHz band; Part 3: Multipoint Multimedia Wireless System in 40,5 GHz to 43,5 GHz".

[4] ETSI EN 301 126-2-1 (V1.1.1): "Fixed Radio Systems; Conformance testing; Part 2-1: Point-to-Multipoint equipment; Definitions and general requirements".

[5] ETSI EN 301 126-2-2 (V1.1.1): "Fixed Radio Systems; Conformance testing; Part 2-2: Point-to-Multipoint equipment; Test procedures for FDMA systems".

[6] ETSI EN 301 126-2-3 (V1.1.1): "Fixed Radio Systems; Conformance testing; Part 2-3: Point-to-Multipoint equipment; Test procedures for TDMA systems".

[7] ETSI EN 301 126-2-4 (V1.1.1): "Fixed Radio Systems; Conformance testing; Part 2-4: Point-to-Multipoint equipment; Test procedures for FH-CDMA systems".

[8] ETSI EN 301 126-2-5 (V1.1.1): "Fixed Radio Systems; Conformance testing; Part 2-5: Point-to-Multipoint equipment; Test procedures for DS-CDMA systems".

[9] ETSI EN 301 126-2-6 (V1.1.1): "Fixed Radio Systems; Conformance testing; Part 2-6: Point-to-Multipoint equipment; Test procedures for Multi Carrier Time Division Multiple Access (MC-TDMA) systems".

[10] ETSI EN 301 126-3-1 (V1.1.2): "Fixed Radio Systems; Conformance testing; Part 3-1: Point-to-Point antennas; Definitions, general requirements and test procedures".

[11] ETSI EN 301 126-3-2 (V1.1.1): "Fixed Radio Systems; Conformance testing; Part 3-2: Point-to-Multipoint antennas - Definitions, general requirements and test procedures".

[12] ETSI EN 301 390 (V1.1.1): "Fixed Radio Systems; Point-to-point and Point-to-Multipoint Systems; Spurious emissions and receiver immunity at equipment/antenna port of Digital Fixed Radio Systems".

[13] ETSI EN 301 997-1 (V1.1.1): "Transmission and Multiplexing (TM); Multipoint equipment; Radio Equipment for use in Multimedia Wireless Systems (MWS) in the frequency band 40,5 GHz to 43,5 GHz; Part 1: General requirements".

[14] ETSI EN 301 213-1 (V1.1.2): "Fixed Radio Systems; Point-to-multipoint equipment; Point-to-multipoint digital radio systems in frequency bands in the range 24,25 GHz to 29,5 GHz using different access methods; Part 1: Basic parameters".

[15] ETSI EN 301 213-2 (V1.3.1): "Fixed Radio Systems; Point-to-multipoint equipment; Point-to-multipoint digital radio systems in frequency bands in the range 24,25 GHz to 29,5 GHz using different access methods; Part 2: Frequency Division Multiple Access (FDMA) methods".

[16] ETSI EN 301 213-3 (V1.4.1): "Fixed Radio Systems; Point-to-multipoint equipment; Point-to-multipoint digital radio systems in frequency bands in the range 24,25 GHz to 29,5 GHz using different access methods; Part 3: Time Division Multiple Access (TDMA) methods".

[17] ETSI EN 301 213-4 (V1.1.1): "Fixed Radio Systems; Point-to-multipoint equipment; Point-to-multipoint digital radio systems in frequency bands in the range 24,25 GHz to 29,5 GHz using different access methods; Part 4: Direct Sequence Code Division Multiple Access (DS-CDMA) methods".

[18] ETSI EN 301 213-5 (V1.1.1): "Fixed Radio Systems; Point-to-multipoint equipment; Point-to-multipoint digital radio systems in frequency bands in the range 24,25 GHz to 29,5 GHz using different access methods; Part 5: Multi-Carrier Time Division Multiple Access (MC-TDMA) methods".

[19] ECC/REC 01-04: "Recommended guidelines for the accommodation and assignment of Multimedia Wireless Systems (MWS) in the frequency band 40.5 - 43.5 GHz".

[20] ITU-R Recommendation F.746: "Radio-frequency arrangements for fixed service systems".

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of the present document, the following terms and definitions apply:

allocated radio frequency band: entry in the table of frequency allocations of a given frequency band for the purpose of its use by one or more terrestrial or space radiocommunication services or the radio astronomy service under specific conditions

NOTE: This term shall also be applied to the frequency band concerned (ITU Radio Regulations article 1, No. 17).

Automatic Transmit Power Control (ATPC): function to offer a dynamic power control that delivers the maximum power only during deep fading activity; in this way, for most of the time, the interference is reduced and the transmitter operates in a higher linearity mode

NOTE: When this function is used the transmit power is dynamically changed and follows the propagation condition. In principle when ATPC is implemented three different level of power may be identified:

- Maximum available power (delivered only in a condition of deep fading).
- Maximum nominal and maximum available power levels may be coincident or in case of multi-state modulation formats the maximum available power may be used to overdrive the transmitter (losing linearity but gaining fade margin when the fade conditions have already impaired the expected RBER). Performance prediction is usually made with the highest "available power".
- Maximum nominal power (useable on permanent base when ATPC is disabled); it should be noted that this power is "nominal for the equipment" and has not to be confused with the "nominal level set link by link" by the frequency co-ordination body, eventually achieved through passive RF attenuators or RTPC function.
- Minimum power (delivered in unfaded condition).

conformity assessment procedure: See Directive 1999/5/EC [1], annexes II, III, IV and V.

environmental profile: range of environmental conditions under which equipment, within the scope of the present document, is required to comply with the provisions of EN 301 997-2

essential phenomenon: radio frequency phenomenon related to the essential requirements under article 3.2 of the Directive 1999/5/EC that is capable of expression in terms of quantifiable technical parameters

harmonized radio frequency band: commonly referred as a portion of the frequency spectrum that CEPT/ERC allocates to a specific service through a CEPT/ERC Decision (proper definition is currently under study by CEPT/ERC)

NOTE: Presently radio frequency bands allocated to Fixed Service are not harmonized.

maximum available power: See Automatic Transmit Power Control (ATPC).

maximum nominal power: See Automatic Transmit Power Control (ATPC).

national radio frequency channel arrangement: predefined centre frequencies raster for a number of radio frequency channels covered by a national regulation in a not harmonized frequency band used in a country (it may all or in part overlap with other national or recommended radio frequency channel arrangements)

operating frequency range: range(s) of radio frequency channels covered by the Equipment Under Test (EUT) without any change of HW units

radio equipment: product or relevant component thereof capable of communication by means of the emission and/or reception of radio waves utilizing the spectrum allocated to terrestrial/space radio communication

NOTE: See article 2 of Directive 1999/5/EC [1].