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Candidate Harmonized European Standard (Telecommunications series)

**Electromagnetic compatibility
and Radio spectrum Matters (ERM);
Wireless Video Links (WVL) operating
in the 1,3 GHz to 50 GHz frequency band;
Part 2: Harmonized EN under article 3.2
of the R&TTE Directive**



Reference

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Keywords

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Foreword

This Candidate Harmonized European Standard (Telecommunications series) has been produced by ETSI Technical Committee Electromagnetic compatibility and Radio spectrum Matters (ERM), and is now submitted for the Public Enquiry phase of the ETSI standards Two-step Approval Procedure.

The present document has been produced by ETSI in response to a mandate from the European Commission issued under Council Directive 98/34/EC [3] (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") [1].

The present document is part 2 of a multipart deliverable covering the technical characteristics and test methods for Wireless Video Links (WVL) operating in the 1,3 GHz to 50 GHz frequency band, as identified below:

Part 1: " Technical characteristics and methods of measurement";

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

Proposed national transposition dates	
Date of latest announcement of this EN (doa):	3 months after ETSI publication
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	6 months after doa
Date of withdrawal of any conflicting National Standard (dow):	18 months after doa

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.

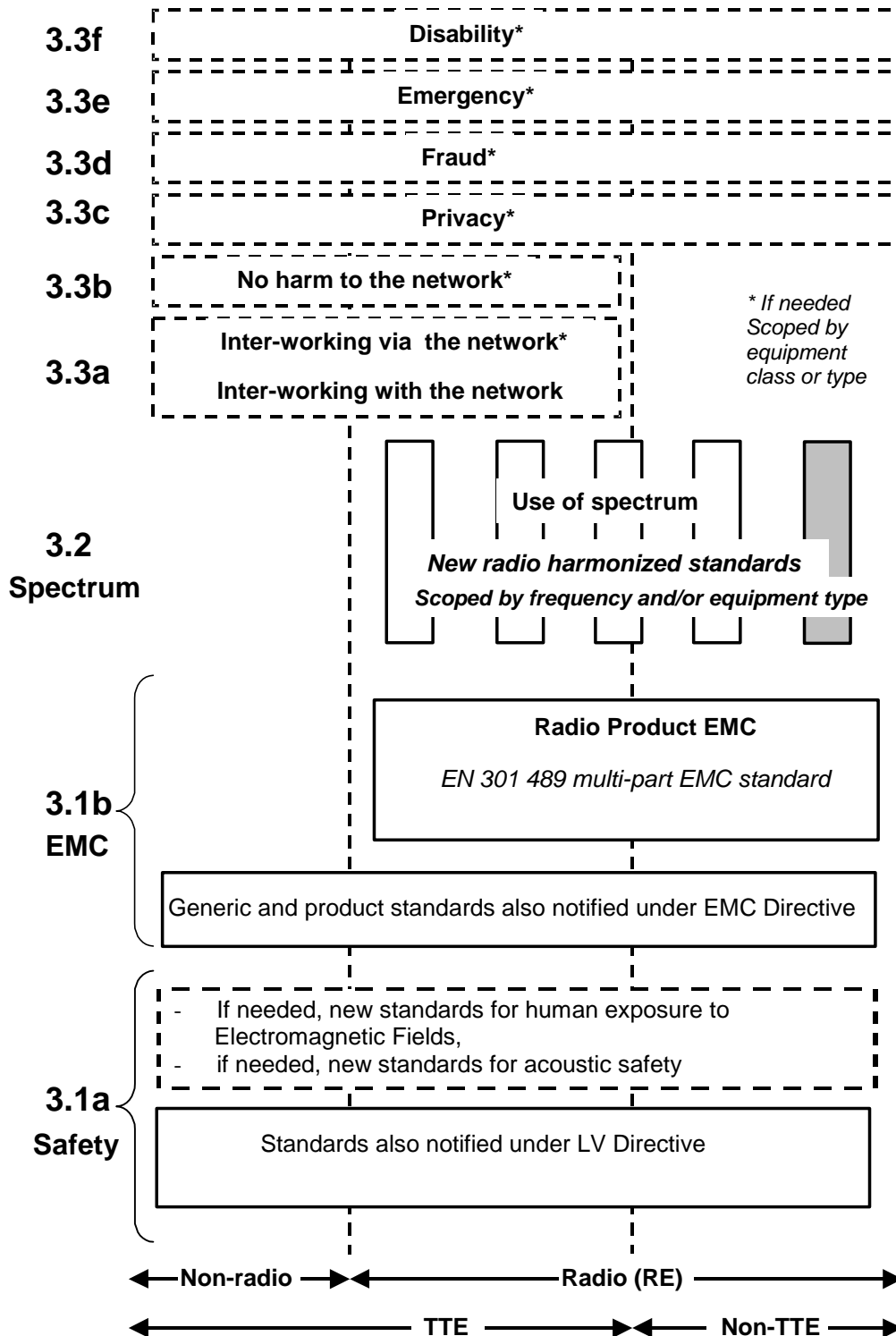


Figure 1: Modular structure for the various standards used under the R&TTE Directive

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. 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 covers the minimum characteristics considered necessary in order to make the best use of the available frequencies. It does not necessarily include all the characteristics that may be required by a user, nor does it necessarily represent the optimum performance achievable.

This present document applies to terrestrial wireless digital video link equipment operating on radio frequencies above 1,3 GHz. It does not preclude any digital modulation technique, provided that the modulated signal lies within the prescribed limits. Instructions for the presentation of equipment for testing purposes are included.

The user categories covered, are as follows:

- Category 1: typically used by broadcasters and programme-makers (for use in licensed spectrum). Users require the highest video contribution quality and or minimum processing delay times to allow both real time inserts into programmes and easy accurate editing.
- Category 2: typically used by professional and businesses. Users have quality requirements similar to above but are maybe not concerned with delay issues that plague the broadcaster and can therefore operate within a smaller spectrum mask.
- Category 3: typically used by industrial users. Examples include civil and industrial users, emergency services, Automobile Associations, the utility industries, etc, who need the good quality available from digital-based systems and who operate on licensed allocations.
- Category 4: typically used by industrial users including industrial security. Most of these systems could operate either in ISM bands or frequencies specifically allocated for the purpose.
- Category 5: typically used by consumers caters for consumers, hobbyists and amateur users. The proposed 5 MHz mask can be subdivided into $2 \times 2,5$ for two way visual communication and is primarily intended for indoor use.

The preferred channel bandwidths for the equipment covered by the present document are shown in table 1.

Table 1: Maximum allowable channel bandwidth

Equipment	Maximum allowable channel bandwidth
Category 1	20 MHz
Category 2	10 MHz
Category 3	10 MHz
Category 4	10 MHz
Category 5	5 MHz

Equipment with controls that if maladjusted might increase its interfering potentialities, shall only be within the scope of the present document if those controls are only accessible by partial or complete disassembly of the device and requiring the use of tools.

The present document is intended to cover the provisions of article 3.2 of Directive 1999/5/EC [1] (R&TTE Directive), 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 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>.

- [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 302 064-1: "Electromagnetic compatibility and Radio spectrum Matters (ERM); Technical characteristics and test methods for Wireless Digital Video Links operating above 1,3 GHz; Part 1: Technical characteristics and test methods".
- [3] Directive 98/34/EC of the European Parliament and of the Council of 22 June 1998 laying down a procedure for the provision of information in the field of technical standards and regulations.
- [4] 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".

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 in EN 302 064-1 [2] apply.

3.2 Symbols

For the purposes of the present document, the symbols given in EN 302 064-1 [2] apply.

3.3 Abbreviations

For the purposes of the present document, the abbreviations given in EN 302 064-1 [2] apply.

4 Technical requirements specifications

4.1 Environmental profile

The technical requirements of the present document apply under the environmental profile of the equipment, which shall be determined by the environmental class of the equipment. The equipment shall comply with all the technical requirements of the present document at all times when operating within the boundary limits of the required operational environmental profile.

4.2 Transmitter requirements

4.2.1 Rated output power

4.2.1.1 Definition

This shall be as defined in EN 302 064-1 [2], clause 7.2.1.

4.2.1.2 Limit

The rated output power shall be as stated in EN 302 064-1 [2], clause 7.2.4

4.2.1.3 Conformance

Conformance tests as defined in clause 5.3.1.1 shall be carried out.

4.2.2 Channel bandwidth

4.2.2.1 Definition

This shall be as defined in EN 302 064-1 [2], clause 7.3.1.

4.2.2.2 Limit

The channel bandwidth limit shall be as stated in EN 302 064-1 [2], clause 7.3.4.

4.2.2.3 Conformance

Conformance tests as defined in clause 5.3.1.2 shall be carried out.

4.2.3 Spurious emissions

4.2.3.1 Definition

This shall be as defined in EN 302 064-1 [2], clause 7.4.1.

4.2.3.2 Limit

The spurious emissions limit shall be as stated in EN 302 064-1 [2], clause 7.4.6.

4.2.3.3 Conformance

Conformance tests as defined in clause 5.3.1,3 shall be carried out.

4.3 Receiver requirements

4.3.1 Spurious emissions

4.3.1.1 Definition

This shall be as defined in EN 302 064-1 [2], clause 8.1.1.

4.3.1.2 Limit

The spurious emissions limit shall be as stated in EN 302 064-1 [2], clause 8.1.5.

4.3.1.3 Conformance

Conformance tests as defined in clause 5.3.2.1 shall be carried out.

5 Testing for compliance with technical requirements

5.1 Environmental conditions for testing

The test conditions and procedures shall be as specified in EN 302 064-1 [2], clauses 6.2 to 6.4. The test power source shall meet the requirements of EN 302 064-1 [2] clause 6.2.

5.2 Interpretation of the measurement results

The interpretation of the results recorded in a test report for the measurements described in the present document shall be as follows:

- the measured value related to the corresponding limit will be used to decide whether an equipment meets the requirements of the present document;
- the value of the measurement uncertainty for the measurement of each parameter shall be included in the test report;
- the recorded value of the measurement uncertainty shall be, for each measurement, equal to or lower than the figures in table 2.

For the test methods, according to the present document, the measurement uncertainty figures shall be calculated in accordance with TR 100 028 [4] and shall correspond to an expansion factor (coverage factor) $k = 1,96$ or $k = 2$ (which provide confidence levels of respectively 95 % and 95,45 % in the case where the distributions characterizing the actual measurement uncertainties are normal (Gaussian)).

Table 2 is based on such expansion factors.

Table 2: Measurement uncertainty

Parameters	Uncertainty
RF frequency	$\pm 1 \times 10^{-7}$
RF power (conducted)	± 4 dB
Radiated emission of transmitter, valid to 80 GHz	± 6 dB
Radiated emission of receiver, valid to 80 GHz	± 6 dB
Temperature	$\pm 1^\circ$ C
Humidity	± 5 %

5.3 Essential radio test suites

5.3.1 Transmitter test suites

5.3.1.1 Rated output power

The test specified in EN 302 064-1 [2], clauses 7.2 shall be carried out. The results obtained shall be compared to the limits in clause 4.2.2.2 in order to prove compliance with the requirement.

5.3.1.2 Channel bandwidth

The test specified in EN 302 064-1 [2], clause 7.3. shall be carried out. The results obtained shall be compared to the limits in clause 4.2.3.2 in order to prove compliance with the requirement.

5.3.1.3 Spurious emissions

The test specified in EN 302 064-1 [2], clause 7.4 shall be carried out. The results obtained shall be compared to the limits in clause 4.2.4.2 in order to prove compliance with the requirement.

5.3.2 Receiver test suites

5.3.2.1 Spurious emissions

The test specified in EN 302 064-1 [2], clauses 8.1 shall be carried out. The results obtained shall be compared to the limits in clause 4.3.1.2 in order to prove compliance with the requirement.

Annex A (normative): The EN Requirements Table (EN-RT)

Notwithstanding the provisions of the copyright clause related to the text of the present document, ETSI grants that users of the present document may freely reproduce the EN-RT proforma in this annex so that it can be used for its intended purposes and may further publish the completed EN-RT.

The EN Requirements Table (EN-RT) serves a number of purposes, as follows:

- it provides a tabular summary of all the requirements;
- it shows the status of each EN-R, whether it is essential to implement in all circumstances (Mandatory), or whether the requirement is dependent on the supplier having chosen to support a particular optional service or functionality (Optional). In particular it enables the EN-Rs associated with a particular optional service or functionality to be grouped and identified;
- when completed in respect of a particular equipment it provides a means to undertake the static assessment of conformity with the EN.

Table A.1: EN Requirements Table (EN-RT)

EN Reference		EN 302 064-2				Comment
No.	Reference	EN-R (see note)	Status			
1	4.2.2	Rated output power	M			
2	4.2.3	Channel bandwidth	M			
3	4.2.4	Spurious emissions (transmitter)	M			
4	4.3.1	Spurious emissions (receiver)	M			
NOTE: These EN-Rs are justified under article 3.2 of the R&TTE Directive [1].						

Key to columns:

No Table entry number;

Reference Clause reference number of conformance requirement within the present document;

EN-R Title of conformance requirement within the present document;

Status Status of the entry as follows:

M: mandatory, shall be implemented under all circumstances;

O: optional, may be provided, but if provided shall be implemented in accordance with the requirements;

O.n: this status is used for mutually exclusive or selectable options among a set. The integer "n" shall refer to a unique group of options within the EN-RT. A footnote to the EN-RT shall explicitly state what the requirement is for each numbered group. For example, "It is mandatory to support at least one of these options", or, "It is mandatory to support exactly one of these options".

Annex B (informative): Bibliography

- 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).
- Council Directive 93/23/EEC of 19 February 1993 on the harmonization of the laws of Member States relating to electrical equipment designed for use within certain voltage limits (LV Directive).

Annex C (informative): The EN title in the official languages

Language	EN title
Danish	
Dutch	
English	Electromagnetic compatibility and Radio spectrum Matters (ERM); Technical characteristics and test methods for Wireless Digital Video Links operating above 1,3 GHz; Part 2: Harmonized EN under article 3.2 of the R&TTE Directive.
Finnish	
French	
German	
Greek	
Italian	
Portuguese	
Spanish	
Swedish	

History

Document history			
V1.1.1	August 2003	Public Enquiry	PE 20031212: 2003-08-13 to 2003-12-12