Draft ETSI EN 301 489-3 V2.1.0 (2016-09)

ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 3: Specific conditions for Short-Range Devices (SRD) operating on frequencies between 9 kHz and 246 GHz; Harmonised standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU

Reference

REN/ERM-EMC-332

Keywords

EMC, harmonised standard, SRD

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Foreword

This draft Harmonised European Standard (EN) has been produced by ETSI Technical Committee Electromagnetic compatibility and Radio spectrum Matters (ERM), and is now submitted for the combined Public Enquiry and Vote phase of the ETSI standards EN Approval Procedure.

The present document has been prepared under the Commission's standardisation request C(2015) 5376 final [i.3] to provide one voluntary means of conforming to the essential requirements of Directive 2014/53/EU on the harmonisation of the laws of the Member States relating to the making available on the market of radio equipment and repealing Directive 1999/5/EC [i.1].

Once the present document is cited in the Official Journal of the European Union under that Directive, compliance with the normative clauses of the present document given in table A.1 confers, within the limits of the scope of the present document, a presumption of conformity with the corresponding essential requirements of that Directive and associated EFTA regulations.

The present document is part 3 of a multi-part deliverable. Full details of the entire series can be found in part 1 [1].

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

Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the ETSI Drafting Rules (Verbal forms for the expression of provisions).

"**must**" and "**must not**" are **NOT** allowed in ETSI deliverables except when used in direct citation.

Introduction

The product family of Short Range Devices covers a wide range of equipment types, which may have different sets of performance criteria set out in the relevant radio standards and/or product standards.

The present document is intended for all SRD types and applies a standard set of performance criteria. This includes the requirement that the equipment continues to operate as intended under certain standardised conditions of EMC stress.

The term "Short Range Device" (SRD) is intended to cover the radio equipment which provides either uni-directional or bi-directional communication and which have low capability of causing interference to other radio equipment. SRDs use either integral, dedicated or external antennas and all modes of modulation can be permitted subject to relevant standards. For Short Range Devices individual licenses are normally not required.

1 Scope

The present document, together with ETSI EN 301 489-1 [1], covers the assessment of Short Range Devices (SRD) and ancillary equipment in respect of ElectroMagnetic Compatibility (EMC).

The present document specifies the applicable test conditions, performance assessment, and performance criteria for Short Range Devices (SRD) and the associated ancillary equipment.

In case of differences (for instance concerning special conditions, definitions, abbreviations) between the present document and the ETSI EN 301 489-1 [1], the provisions of the present document take precedence.

The environmental classification and the emission and immunity requirements used in the present document are as stated in the ETSI EN 301 489-1 [1], except for any special conditions included in the present document.

Technical specifications related to the antenna port of radio equipment and radiated emissions from the enclosure port of radio equipment and combinations of radio and associated ancillary equipment are not included in the present document. Such technical specifications are normally found in the relevant product standards for the effective use of the radio spectrum.

The present document, together with ETSI EN 301 489-1 [1], are aimed to cover requirements to demonstrate an adequate level of electromagnetic compatibility.

2 References

2.1 Normative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

Referenced documents which are not found to be publicly available in the expected location might be found at https://docbox.etsi.org/Reference/.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

The following referenced documents are necessary for the application of the present document.

[1] ETSI EN 301 489-1 (V2.1.0) (04-2016): "ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Harmonised Standard covering the essential requirements of article 3.1(b) of the Directive 2014/53/EU and the essential requirements of article 6 of the Directive 2014/30/EU; Part 1: Common technical requirements".

NOTE: Available at http://www.etsi.org/deliver/etsi_en/301400_301499/30148901/02.01.00_20/en_30148901v020100a.pdf.

[2] ETSI EN 300 220-1 (V3.1.0) (05-2016): "Short Range Devices (SRD) operating in the frequency range 25 MHz to 1 000 MHz; Part 1: Technical characteristics and methods of measurement".

2.2 Informative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

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The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

[i.1] Directive 2014/53/EU of the European Parliament and of the Council of 16 April 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of radio equipment and repealing Directive 1999/5/EC.

[i.2] ETSI TR 103 088: "Electromagnetic compatibility and Radio spectrum Matters (ERM); Using the ETSI EN 301 489 series of EMC standards".

[i.3] Commission Implementing Decision C(2015) 5376 final of 4.8.2015 on a standardisation request to the European Committee for Electrotechnical Standardisation and to the European Telecommunications Standards Institute as regards radio equipment in support of Directive 2014/53/EU of the European Parliament and of the Council.

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in ETSI EN 301 489-1 [1], ETSI EN 300 220-1 [2] and in the Directive 2014/53/EU [i.3] apply, unless otherwise specified below:

(relevant) radio standard: harmonised standard that is applied for the purposes of determining compliance of the EUT with Article 3.2 of the Directive 2014/53/EU [i.3]

receiver: stand alone receiver or receiver being part of a transceiver

transmitter: stand alone transmitter or transmitter being part of a transceiver

3.2 Symbols

For the purposes of the present document, the symbols given in ETSI EN 301 489-1 [1] and in ETSI EN 300 220-1 [2] apply.

3.3 Abbreviations

For the purposes of the present document, the abbreviations given in ETSI EN 301 489-1 [1] and in ETSI EN 300 220-1 [2] apply.

4 Test conditions

4.1 General

Clause 4 describes details of the configuration and connections for testing of the EUT.

For the purposes of the present document, the test conditions of ETSI EN 301 489-1 [1], clause 4, shall apply as appropriate, except as varied and/or extended herein.

4.2 Environmental profile

The equipment shall be tested under normal test conditions according to the relevant radio standard.

The technical requirements of the present document apply under the environmental profile for operation of the EUT, which shall be declared by the manufacturer. The EUT 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.

4.3 Test signal connections

4.3.1 General

For the purposes of the present document, the requirements of ETSI EN 301 489-1 [1], clause 4.2, shall apply as appropriate, except as varied and/or extended herein.

The coupling mechanism for wanted RF signals between the EUT and the measuring and/or test equipment may include attenuation to control the level of the signals. The coupling mechanism shall be entirely passive so that the reciprocal path loss is the same.

4.3.2 Equipment with an external antenna connector

This clause applies to EUT with a conventional RF antenna connector. If access to the antenna connector involves modification or dismantling of the EUT then this clause does not apply.

The EUT shall be tested with its antenna removed.

The wanted RF input and output signals shall be delivered between the EUT antenna connector and the measuring and/or test equipment by a shielded transmission line, such as a coaxial cable. Adequate measures shall be taken to minimize the effect of common mode currents on the transmission line at the point of entry to the EUT and at the measuring/test equipment.

4.3.3 Equipment without an external antenna connector (integral antenna)

This clause applies to EUT to which clause 4.3.2 does not apply. Such EUT are generally known as integral antenna or dedicated antenna equipment.

The EUT shall be tested with its antenna fitted in a manner typical of normal intended use.

4.3.4 Equipment with more than one antenna

If the EUT has more than one antenna port, e.g. separate antennas for Tx and Rx or separate antennas for different operating frequencies, then:

- If clause 4.3.2 applies to all the antenna ports, then the EUT shall be tested according to clause 4.3.2.
- Otherwise it shall be tested according to clause 4.3.3.

NOTE: The reason is that replacing one antenna by a transmission line may affect the operation of any other antennas.

4.4 Narrow band responses of receivers

The provisions of ETSI EN 301 489-1 [1], clause 4.4, shall apply.