Draft ETSI EN 300 220-2 V2.2.1 (2008-04)

Harmonized European Standard (Telecommunications series)

Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD); Radio equipment to be used in the 25 MHz to 1 000 MHz frequency range with power levels ranging up to 500 mW; Part 2: Harmonized EN covering essential requirements under article 3.2 of the R&TTE Directive

Reference

REN/ERM-TG28-0420-2

Keywords

radio, SRD, testing

ETSI

650 Route des Lucioles
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C
Association à but non lucratif enregistrée à la
Sous-Préfecture de Grasse (06) N° 7803/88

Important notice

Individual copies of the present document can be downloaded from:
http://www.etsi.org

The present document may be made available in more than one electronic version or in print. In any case of existing or perceived difference in contents between such versions, the reference version is the Portable Document Format (PDF). In case of dispute, the reference shall be the printing on ETSI printers of the PDF version kept on a specific network drive within ETSI Secretariat.

Users of the present document should be aware that the document may be subject to revision or change of status. Information on the current status of this and other ETSI documents is available at
http://portal.etsi.org/tb/status/status.asp

If you find errors in the present document, please send your comment to one of the following services:
http://portal.etsi.org/chaircor/ETSI_support.asp

Contents

Intellectual Property Rights

IPRs essential or potentially essential to the present document may have been declared to ETSI. The information pertaining to these essential IPRs, if any, is publicly available for **ETSI members and non-members**, and can be found in ETSI SR 000 314: *"Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards"*, which is available from the ETSI Secretariat. Latest updates are available on the ETSI Web server (http://webapp.etsi.org/IPR/home.asp).

Pursuant to the ETSI IPR Policy, no investigation, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in ETSI SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

Foreword

This 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 includes improvements to the previous version of the standard that take advantage of technical developments within the SRD industry.

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 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].

Technical specifications relevant to Directive 1999/5/EC [1] are given in annex A.

The present document is part 2 of a multi-part deliverable covering the Short Range Devices (SRD); Radio equipment to be used in the 25 MHz to 1 000 MHz frequency range with power levels ranging up to 500 mW, as identified below:

Part 1: "Technical characteristics and test methods";

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

NOTE: Version 2 of this multi-part deliverable consists of two parts. In contrast with earlier versions which consisted of three parts.

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 developed by ETSI and is designed to fit in a modular structure to cover all radio and telecommunications terminal equipment within the scope of the R&TTE Directive [1]. The modular structure is shown in EG 201 399 [4].

1 Scope

The present document applies to the following Short Range Device major equipment types:

1) Generic Short Range Devices, including alarms, identification systems, radio-determination, telecommand, telemetry etc.;

2) Radio Frequency IDentification (RFID);

3) Detection, movement and alert applications.

These radio equipment types are capable of operating in the permitted frequency bands within the 1 GHz to 40 GHz range as specified in table 1:

- either with a Radio Frequency (RF) output connection and dedicated antenna or with an integral antenna;
- for all types of modulation;
- with or without speech.

Table 1 shows a list of the frequency bands as designated by the European Commission Decision on Short Range Devices and the CEPT/ERC/REC 70-03 [5] as known at the date of publication of the present document.

Table 1: Short Range Devices within the 25 MHz to 1 000 MHz permitted frequency bands

	Frequency Bands/Frequencies	Applications
Transmit and Receive	26,995 MHz, 27,045 MHz, 27,095 MHz, 27,145 MHz, 27,195 MHz, 34,995 MHz to 35,225 MHz, 40,665 MHz, 40,675 MHz, 40,685 MHz, 40,695 MHz	Model control
Transmit and Receive	26,957 MHz to 27,283 MHz	Generic use
Transmit and Receive	40,660 MHz to 40,700 MHz	Generic use
Transmit and Receive	138,200 MHz to 138,450 MHz	Generic use
Transmit and Receive	169,400 MHz to 169,475 MHz	Tracking, tracing and data acquisition and meter reading
Transmit and Receive	169,475 MHz to 169,4875 MHz	Social alarms
Transmit and Receive	169,5875 MHz to 169,6000 MHz	Social alarms
Transmit and Receive	433,050 MHz to 434,790 MHz	Generic use
Transmit and Receive	863,000 MHz to 870,000 MHz	Generic use
Transmit and Receive	864,800 MHz to 865,000 MHz	Wireless audio applications
Transmit and Receive	868,000 MHz to 868,600 MHz	Generic use
Transmit and Receive	868,600 MHz to 868,700 MHz	Alarms
Transmit and Receive	868,700 MHz to 869,200 MHz	Generic use
Transmit and Receive	869,200 MHz to 869,250 MHz	Social alarms
Transmit and Receive	869,250 MHz to 869,300 MHz	Alarms (0,1 % duty cycle)
Transmit and Receive	869,300 MHz to 869,400 MHz	Alarms (1 % duty cycle)
Transmit and Receive	869,400 MHz to 869,650 MHz	Generic use
Transmit and Receive	869,650 MHz to 869,700 MHz	Alarms

NOTE 1: It should be noted that table 1 represents the most widely implemented position within the European Union and the CEPT countries, but it should not be assumed that all designated bands are available in all countries.

NOTE 2: In addition, it should be noted that other frequency bands may be available in a country within the frequency range 25 MHz to 1 000 MHz covered by the present document.

NOTE 3: On non-harmonized parameters, national administrations may impose certain conditions such as the type of modulation, frequency, channel/frequency separations, maximum transmitter radiated power, duty cycle, and the inclusion of an automatic transmitter shut-off facility, as a condition for the issue of an Individual Rights for use of spectrum or General Authorization, or as a condition for use under "licence exemption" as it is in most cases for Short Range Devices.

The present document covers fixed stations, mobile stations and portable stations.

Applications using Ultra Wide Band (UWB) technology are not covered by the present document.

The present document does not require measurements for radiated emissions below 25 MHz.

2 References

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.
- Non-specific reference may be made only to a complete document or a part thereof and only in the following cases:
  - if it is accepted that it will be possible to use all future changes of the referenced document for the purposes of the referring document;
  - for informative references.

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

For online referenced documents, information sufficient to identify and locate the source shall be provided. Preferably, the primary source of the referenced document should be cited, in order to ensure traceability. Furthermore, the reference should, as far as possible, remain valid for the expected life of the document. The reference shall include the method of access to the referenced document and the full network address, with the same punctuation and use of upper case and lower case letters.

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

2.1 Normative references

The following referenced documents are indispensable for the application of the present document. For dated references, only the edition cited applies. For non-specific references, the latest edition of the referenced document (including any amendments) applies.

[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 300 220-1 (V2.2.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD); Radio equipment to be used in the 25 MHz to 1 000 MHz frequency range with power levels ranging up to 500 mW; 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.

2.2 Informative references

The following referenced documents are not essential to the use of the present document but they assist the user with regard to a particular subject area. For non-specific references, the latest version of the referenced document (including any amendments) applies.

[4] ETSI EG 201 399: "Electromagnetic compatibility and Radio spectrum Matters (ERM); A guide to the production of candidate Harmonized Standards for application under the R&TTE Directive".

[5] CEPT/ERC/REC 70-03: "Relating to the use of Short Range Devices (SRD)".

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 EN 300 220-1 [2] apply.

3.2 Symbols

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

3.3 Abbreviations

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

4 Technical requirements specifications

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.

4.2 Conformance requirements

4.2.1 Transmitter requirements

4.2.1.1 Frequency error and frequency drift

One of the following shall be met:

1) if the equipment can produce an unmodulated carrier then the frequency error or frequency drift, as defined in EN 300 220-1 [2], clause 7.1.1, shall not exceed the limits in EN 300 220-1 [2], clause 7.1.3, table 4a for bandwidth less or equal to 25 kHz or table 4b for bandwidth above 25 kHz; or

2) if the equipment is not able to produce an unmodulated carrier then either:

   a) where channel spacing is given by EN 300 220-1 [2], clause 7.2.3, table 5 then the power at the sub-band edge frequency, as defined in EN 300 220-1 [2], clause 7.6.1, shall not exceed the limits in EN 300 220-1 [2], clause 7.6.3 under extreme conditions; or

   b) where no channel spacing is given by EN 300 220-1 [2], clause 7.2.3, table 5 then the adjacent channel power, as defined in EN 300 220-1 [2], clause 7.7.1, shall not exceed the limits in EN 300 220-1 [2], clause 7.7.3 under extreme conditions.

This requirement applies to all transmitters.

4.2.1.2 Carrier power (conducted)

The carrier power, as defined in EN 300 220-1 [2], clause 7.2.1, shall not exceed the limits in EN 300 220-1 [2], clause 7.2.3, table 5.

4.2.1.3 Effective radiated power

The effective radiated power, as defined in EN 300 220-1 [2], clause 7.3.1, shall not exceed the limits in EN 300 220-1 [2], clause 7.2.3, table 5.

This requirement applies to transmitters with an integral or dedicated antenna.

4.2.1.4 Types of spread spectrum modulation

4.2.1.4.1 Frequency Hopping Spread Spectrum devices (FHSS)

Frequency hopping spread spectrum devices, as defined in EN 300 220-1 [2], clause 7.4.1.1, shall not exceed the limits in EN 300 220-1 [2], clause 7.4.1.3 indent a) to g) and table 6.

The frequency hopping performance specified in EN 300 220-1 [2], clause 7.4.1.2 shall be declared by the provider.

This applies to all transmitters which employ FHSS.

4.2.1.4.2 Direct sequence or other spread spectrum than FHSS

Direct sequence or other spread spectrum than FHSS devices, as defined in EN 300 220-1 [2], clause 7.4.2.1, shall not exceed the limits in EN 300 220-1 [2], clause 7.4.2.2 table 7.

Direct sequence or other spread spectrum than FHSS specified in EN 300 220-1 [2], clause 7.4.2.2 shall be declared by the provider.

This applies to all transmitters which employ DSSS and other spread spectrum than FHSS.

4.2.1.5 Void

4.2.1.6 Adjacent channel power for channelized equipment

The adjacent channel power for channelized equipment, as defined in EN 300 220-1 [2], clause 7.6.1, shall not exceed the limits in EN 300 220-1 [2], clause 7.6.3.

This requirement applies to transmitters with channel spacing defined by regulation.

4.2.1.7 Bandwidth for non-channelized equipment

The Bandwidth for non-channelized equipment, as defined in EN 300 220-1 [2], clause 7.7.1, shall not exceed the limits in EN 300 220-1 [2], clause 7.7.3.

This requirement applies to transmitters operation where no channel spacing is given by regulation as defined in EN 300 220-1 [2], clause 3.1.

4.2.1.8 Unwanted emissions in the spurious domain

The spurious emissions, as defined in EN 300 220-1 [2], clause 7.8.1, shall not exceed the limits in EN 300 220-1 [2], clause 7.8.5, table 10.

This requirement applies to all transmitters.

4.2.1.9 Frequency stability under low-voltage conditions

The frequency stability under low-voltage conditions, as defined in EN 300 220-1 [2], clause 7.9.1, shall not exceed the limits in EN 300 220-1 [2], clause 7.9.3.

This requirement applies to all battery-operated transmitters.