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Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices; Wireless alarms with low duty cycle; Harmonized EN covering the essential requirements of article 3.2 of the R&TTE Directive

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Foreword

This draft Harmonized 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 produced by ETSI in response to mandate M/284 issued from the European Commission under Directive 98/34/EC [i.9] as amended by Directive 98/48/EC [i.6].

The title and reference to the present document are intended to be included in the publication in the Official Journal of the European Union of titles and references of Harmonized Standard under the Directive 1999/5/EC [i.2].

The requirements relevant to Directive 1999/5/EC [i.2] are summarized in annex A.

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**", "**may not**", "**need**", "**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).

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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 [i.2]. The modular structure is shown in ETSI EG 201 399 [i.1].

The present document is intended to be applicable to Short Range equipment used in applications for which a high overall reliability of operation may be required.

It is recognized that the radio communications link alone does not determine the overall operation of a system, but that a functioning radio communications link is an essential foundation upon which a system may be built.

The present document sets out various means and features by which the performance of a radio communications link may be improved. These include:

1) Spectrum Access Rules - with the aim of reducing the probability of collisions between transmissions from different equipment.

2) Receiver Parameters - with the aim of reducing the probability of interference from equipment on other frequencies.

3) Bi-Directional Communications - with the aim of reducing the time and number of transmissions required to achieve a given level of confidence in successful communication.

4) Frequency Agility - with the aim of enabling the equipment to change its operating frequency to avoid certain types of interference.

Clauses 1 and 3 provide a general description on the types of equipment covered by the present document and the definitions and abbreviations used.

Clause 4 specifies technical requirements to be met by all equipment.

Clause 5 specifies technical requirements for receivers in equipment with uni-directional communications.

Clause 6 specifies technical requirements for equipment with bi-directional communications.

Clause 7 specifies technical requirements for equipment with bi-directional communications and frequency agility.

Clause 8 specifies the methods for testing for compliance with the technical requirements.

Annex A summarizes the requirements relevant to Directive 1999/5/EC [i.2].

1 Scope

The present document applies to wireless alarms equipment using low duty cycle, as described in clause 4 and in ETSI TS 103 060 [i.7], as a means of enhancing reliability of radio communications.

The present document also applies to any wireless alarm that meets the usage restrictions for the frequency concerned.

SRD alarms and social alarms are also covered in the scope of alternative standards, e.g. ETSI EN 300 220-2 [i.8].

These equipment types may operate in the frequency bands given in table 1a.

Table 1a: Frequency bands designated to wireless alarms by EU Commission Decision 2013/752/EU [i.3]

	Frequency band	Category of short-range devices	Other usage restrictions
Transmit and Receive	868,600 MHz to 868,700 MHz	Low duty cycle/high reliability devices	This set of usage conditions is only available to alarm systems.
Transmit and Receive	869,200 MHz to 869,250 MHz	Low duty cycle/high reliability devices	This set of usage conditions is only available to social alarm devices.
Transmit and Receive	869,250 MHz to 869,300 MHz	Low duty cycle/high reliability devices	This set of usage conditions is only available to alarm systems.
Transmit and Receive	869,300 MHz to 869,400 MHz	Low duty cycle/high reliability devices	This set of usage conditions is only available to alarm systems.
Transmit and Receive	869,650 MHz to 869,700 MHz	Low duty cycle/high reliability devices	This set of usage conditions is only available to alarm systems.

These equipment types are also capable of operating in all or part of the frequency bands given in table 1b.

Table 1b: Non specific SRD frequency bands also available to wireless alarms within 25 MHz to 1 000 MHz

	Frequency bands
Transmit and Receive	169,400 MHz to 169,8125 MHz
Transmit and Receive	863,000 MHz to 876,000 MHz
Transmit and Receive	915,000 MHz to 921,000 MHz

NOTE 1: The non specific frequency bands in table 1b are primarily intended for all SRD types; therefore the same level of reliability as when operating on frequencies in table 1a may not be achieved.

The present document is intended to cover the provisions of Directive 1999/5/EC (R&TTE Directive) [i.2], 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".

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 2: A list of such ENs is included on the web site http://www.newapproach.org.

2 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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2.1 Normative references

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

[1] Recommendation ITU-T O.153 (1992): "Basic parameters for the measurement of error performance at bit rates below the primary rate".

[2] ETSI TR 100 028 (all parts) (V1.4.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics".

2.2 Informative references

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] 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".

[i.2] 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).

[i.3] Commission Decision 2013/752/EU on harmonization of the radio spectrum for use by short-range devices.

[i.4] CISPR 16 (2006) (parts 1-1, 1-4 and 1-5): "Specification for radio disturbance and immunity measuring apparatus and methods; Part 1: Radio disturbance and immunity measuring apparatus".

[i.5] ETSI TR 102 273 (all parts) (V1.2.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Improvement on Radiated Methods of Measurement (using test site) and evaluation of the corresponding measurement uncertainties".

[i.6] Directive 98/48/EC of the European parliament and of the council of 20 July 1998 amending Directive 98/34/EC laying down a procedure for the provision of information in the field of technical standards and regulations.

[i.7] ETSI TS 103 060: "Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD); Method for a harmonized definition of Duty Cycle Template (DCT) transmission as a passive mitigation technique used by short range devices and related conformance test methods".

[i.8] ETSI EN 300 220-2: "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".

[i.9] Directive 98/34/EC of the European Parliament and the Council of 22 June 1998, laying down a procedure for the provision of information in the field of technical standards and regulations.

3 Definitions, symbols and abbreviations

3.1 Definitions

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

adjacent channel: frequency band, of width channel spacing, on either side of the operating channel

alternate adjacent channels: those two channels offset from the operating channel by double the channel bandwidth

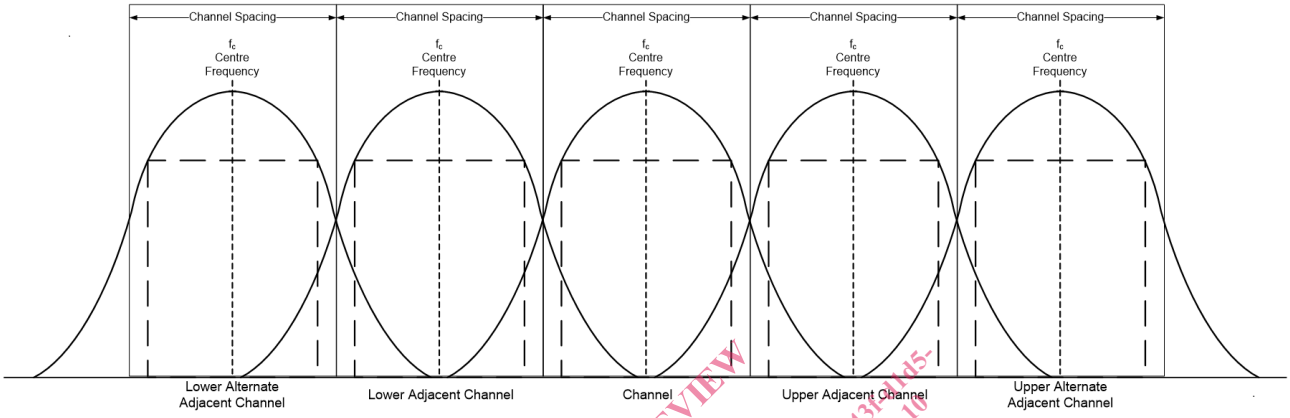

Figure 1: Adjacent and alternate adjacent channel definitions

assigned frequency band: frequency band or sub-band within which the device is authorized to operate and to perform the intended function of the equipment

centre frequency: nominal centre frequency of a transmission

channel: frequency band, of width channel spacing, the centre of which defines the nominal centre frequency for a given transmission

channel spacing: separation, in hertz, between adjacent nominal centre frequencies

channelized equipment: equipment to be used at a frequency where the channel spacing is defined by regulation

conducted measurements: measurements which are made using a direct 50 Ω connection to the equipment under test

continuous transmission: modulated transmission without interruption for the period of the test

dedicated antenna: removable antenna supplied and tested with the radio equipment, designed as an indispensable part of the equipment

disregard time (T_{dis}): See annex F.

duty cycle: See annex F.

extreme (voltage/temperature) test conditions: See clause 8.3.9.

frequency adaptivity: capability of equipment to avoid using permitted operating channels that it has determined are temporarily or permanently unsuitable for its use

frequency agility: capability of equipment to dynamically change operating channel

integral antenna: permanent fixed antenna, which may be built-in, designed as an indispensable part of the equipment