



**Short Range Devices (SRD) operating
in the frequency range 25 MHz to 1 000 MHz;
Part 3-1: Harmonised Standard covering the essential
requirements of article 3.2 of the Directive 2014/53/EU;
Low duty cycle high reliability equipment, Social Alarms
Equipment operating on designated frequencies
(869,200 MHz to 869,250 MHz)**

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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.4] 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.2].

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 3-1 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 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 equipment within the scope of the Radio Equipment Directive (RED) [i.2].

The equipment to which the present document applies fall within the low duty cycle high reliability devices category.

NOTE 1: The low duty cycle/high reliability devices category is defined in Commission Decision 2013/752/EU [i.3] as:

"Category of short-range devices" means a group of short-range devices that use spectrum with similar technical spectrum access mechanisms or based on common usage scenarios.

and

The low duty cycle/high reliability device category covers radio devices that rely on low overall spectrum utilisation and low duty cycle spectrum access rules to ensure highly reliable spectrum access and transmissions in shared bands. Typical uses include alarm systems that use radio communication for indicating an alert condition at a distant location and social alarms systems that allow reliable communication for a person in distress.

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.

Application of these features, separately or in combination, does not necessarily ensure successful radio communication. In addition, there are other features that may be considered, such as listen before talk or error correction, that may improve overall performance.

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 the methods for testing for compliance with the technical requirements.

Annex A summarizes the requirements relevant to the RE-Directive [i.2].

1 Scope

The present document applies to social alarm devices operating on designated frequencies.

Designated frequencies are those frequency bands identified in Commission Decision 2013/752/EU [i.3] as having a usage available only to social alarms.

Social alarms are defined in Commission Decision 2013/752/EU [i.3] as:

"Social alarm devices" are radio communications systems that allow reliable communication for a person in distress in a confined area to initiate a call for assistance. Typical uses of social alarm are to assist elderly or disabled people.

These radio equipment types are capable of operating, for transmission or reception, in all or part of the frequency bands given in table 1.

Table 1: Frequency bands

Frequency band
869,200 MHz to 869,250 MHz

The present document contains requirements to demonstrate that radio equipment both effectively uses and supports the efficient use of radio spectrum in order to avoid harmful interference.

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/>.

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

- [1] 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.

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 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 203 336: "Electromagnetic compatibility and Radio spectrum Matters (ERM); Guide for the selection of technical parameters for the production of Harmonised Standards covering article 3.1(b) and article 3.2 of Directive 2014/53/EU".
- [i.2] 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. (RE-Directive).

- [i.3] Commission Decision 2013/752/EU amending Decision 2006/771/EC on harmonisation of the radio spectrum for use by short-range devices and repealing Decision 2005/928.
- [i.4] 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 the RE-Directive [i.2] and ETSI EN 300 220-1 [1] apply, unless otherwise ascribed herein.

low duty cycle/high reliability: category of device used in Commission Decision 2013/752/EU [i.3]

NOTE: Note (15) in the Commission Decision states: "*The low duty cycle/high reliability device category covers radio devices that rely on low overall spectrum utilisation and low duty cycle spectrum access rules to ensure highly reliable spectrum access and transmissions in shared bands. Typical uses include alarm systems that use radio communication for indicating an alert condition at a distant location and social alarms systems that allow reliable communication for a person in distress.*"

3.2 Symbols

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

3.3 Abbreviations

For the purposes of the present document, the abbreviations given in ETSI EN 300 220-1 [1] apply, unless otherwise ascribed herein.

MI	Message Initiator
MR	Message Responder

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.

Normal and extreme test conditions are described in ETSI EN 300 220-1 [1], clauses 4.3.3 and 4.3.4.

4.2 Technical requirements for transmit mode

4.2.1 Applicability

The requirements in clause 4.2 apply to all EUT when operating in transmit mode, except where stated.

Table 2: Technical Requirements

Band no.	Frequency Band	Maximum radiated power, e.r.p.	Operating channel width (OCW)
1	869,200 MHz to 869,250 MHz	10 mW	25 kHz

4.2.2 Operating Frequency and Channel

4.2.2.1 Description

The nominal operating frequency is the centre of a channel of width OCW.

4.2.2.2 Limits

The OCW shall be equal to the operating channel width listed in table 2. The channels shall lie on a raster formed by the operating channel width and the edges of the bands.

4.2.2.3 Conformance

There is no conformance test specified for this requirement.

The provider shall details of the operating frequency.

NOTE 1: More than one operating frequency on one or more channels may be declared.

NOTE 2: If the frequency error measurements in clause 4.2.6 cannot be performed, an alternative is to perform the adjacent channel power measurements in clause 4.2.5 under extreme test conditions.

4.2.3 Effective Radiated Power

4.2.3.1 Description

The effective radiated power (e.r.p.) is the power radiated in the direction of the maximum field strength under specified conditions of measurements for any condition of modulation. For equipment with a permanent or temporary antenna connection it may be taken as the power delivered from that connector.

4.2.3.2 Limits

The effective radiated power shall not be greater than the value shown in table 2.

4.2.3.3 Conformance

The conformance tests for this requirement shall be as defined in ETSI EN 300 220-1 [1], clause 5.2.2.

Compliance shall be established under normal and extreme conditions for conducted measurements and under normal conditions for radiated measurements.

4.2.4 Duty Cycle

4.2.4.1 Description

The present document applies to equipment operating with low duty cycle. Equipment may be triggered manually, by internal timing or by external stimulus. Depending on the method of triggering the timing may be predictable or random.

4.2.4.2 Limits

Table 3: Duty Cycle

Band no.	Duty Cycle		
	Frequency Band	Max Duty cycle DC	Observation Period T_{obs}
1	869,200 MHz to 869,250 MHz	0,1 %	1 hr

The observation bandwidth F_{obs} is the operational frequency band.