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STN	**Zariadenia s krátkym dosahom (SRD) Rádiové zariadenia vo frekvenčnom rozsahu od 9 kHz do 25 MHz a systémy s indukčnou slučkou vo frekvenčnom rozsahu od 9 kHz do 30 MHz Harmonizovaná norma vzťahujúca sa na základné požiadavky podľa článku 3.2 smernice 2014/53/EÚ**	**STN EN 300 330 V2.1.1** 87 0330

Short Range Devices (SRD); Radio equipment in the frequency range 9 kHz to 25 MHz and inductive loop systems in the frequency range 9 kHz to 30 MHz; Harmonised Standard covering the essential requirements of article 3.2 of Directive 2014/53/EU

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 01/18

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Foreword

This Harmonised European Standard (EN) has been produced by ETSI Technical Committee Electromagnetic compatibility and Radio spectrum Matters (ERM).

The present document has been prepared under the Commission's standardisation request C(2015) 5376 final [i.11] 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.4].

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.

National transposition dates	
Date of adoption of this EN:	23 January 2017
Date of latest announcement of this EN (doa):	30 April 2017
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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).

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Introduction

The present document has been prepared to conform to the requirements of the new Radio Equipment Directive (RED) [i.4].

The present document is structured as follows:

- Clause 2 provides references.
- Clause 3 provides definitions, symbols and abbreviations.
- Clause 4 provides technical requirements specifications.
- Clause 5 provides the testing procedures for compliance with technical requirements.
- Clause 6 provides conformance methods of measurement for transmitters and receivers.
- Annex A (informative): Relationship between the present document and the essential requirements of Directive 2014/53/EU.
- Annex B (normative): Transmitter definitions.
- Annex C (normative): Radiated measurement.
- Annex D (normative): H-field limit correction factor for generated E-fields.
- Annex E (normative): Customized loop antennas.
- Annex F (informative): Artificial antenna for measuring inductive transmitter carrier and harmonic currents (Product Class 3 only).
- Annex G (informative): E-fields in the near field at low frequencies.
- Annex H (normative): H-field measurements and limits at 3 m and 30 m.
- Annex I (normative): Transmitter emission levels and spectrum mask measurements.
- Annex J (normative): Generic inductive loop limits in the frequency range 148,5 kHz to 30 MHz.
- Annex K (informative): Determination and use of the measurement bandwidth.
- Annex L (informative): Bibliography.
- Annex M (informative): Change History.

1 Scope

The present document specifies technical characteristics and methods of measurements for the following Short Range Device major equipment types:

1) Generic Short range Devices including transmitters and receivers operating in the range from 9 kHz to 25 MHz; and

2) inductive loop transmitters and receivers operating from 9 kHz to 30 MHz including Radio Frequency Identification (RFID), Near Field Communication (NFC) and Electronic Article Surveillance (EAS) operating in LF and HF ranges.

Also the present document covers fixed, mobile and portable stations.

NOTE: If a system includes transponders, these are measured together with the transmitter.

These radio equipment types are capable of operating in the permitted frequency bands within the 9 kHz to 30 MHz range as specified in table 1.

Table 1: Short Range Devices within the 9 kHz to 30 MHz permitted frequency bands

	Frequency Bands/frequencies	Applications
Transmit and Receive	9 kHz to 90 kHz	Inductive devices, Generic use
Transmit and Receive	90 kHz to 119 kHz	Inductive devices, Generic use
Transmit and Receive	119 kHz to 140 kHz	Inductive devices, Generic use
Transmit and Receive	140 kHz to 148,5 kHz	Inductive devices, Generic use
Transmit and Receive	148,5 kHz to 5 MHz	Inductive devices, Generic use
Transmit and Receive	400 kHz to 600 kHz	RFID only
Transmit and Receive	5 MHz to 30 MHz	Inductive devices, Generic use
Transmit and Receive	3 155 kHz to 3 400 kHz	Inductive devices, Generic use
Transmit and Receive	984 kHz to 7 484 kHz (Note 3, Centre frequency is 4 234 kHz)	Inductive devices, Railway applications
Transmit and Receive	4 516 kHz	Inductive devices, Railway applications
Transmit and Receive	6 765 kHz to 6 795 kHz	Inductive devices, Generic use
Transmit and Receive	7 400 kHz to 8 800 kHz	Inductive devices, Generic use
Transmit and Receive	10 200 kHz to 11,000 MHz	Inductive devices, Generic use
Transmit and Receive	11,810 MHz to 15,310 MHz (Centre frequency is 13,56 MHz)	RFID only
Transmit and Receive	12,5 MHz to 20 MHz	Inductive devices, Wireless healthcare
Transmit and Receive	13,553 MHz to 13,567 MHz	Inductive devices, Generic use
Transmit and Receive	26,957 MHz to 27,283 MHz	Inductive devices, Generic use
Transmit and Receive	27,090 MHz to 27,100 MHz	Inductive devices, Railway applications

NOTE 1: In addition, it should be noted that other frequency bands may be available in a country within the frequency range 9 kHz to 30 MHz.

NOTE 2: On non-harmonised 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.

NOTE 3: Transmitting only on receipt of a Balise/Eurobalise tele-powering signal from a train.

The frequency ranges and limits of the present document are based on the European Commission Decision for SRDs [i.10], CEPT/ERC/REC 70-03 [i.1].

When selecting parameters for new SRDs, which may have inherent safety of human life implications, manufacturers and users should pay particular attention to the potential for interference from other systems operating in the same or adjacent bands.

The radio equipment, covered by the present document is divided into several classes which are dependent on the antenna used (see annex B). Three types of measuring methods are defined in the present document due to the varied nature of the antenna types for equipment used in this band. One method measures the RF carrier current, another measures the radiated H-field and the third conducted power.

The present document covers the essential requirements of article 3.2 of Directive 2014/53/EU [i.4] under the conditions identified in annex A.

2 References

2.1 Normative references

References are specific, identified by date of publication and/or edition number or version number. Only the cited version 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] Void.

[2] CISPR 16-1-4:2010+AMD1:2012: "Specification for radio disturbance and immunity measuring apparatus and methods - Part 1-4: Radio disturbance and immunity measuring apparatus - Antennas and test sites for radiated disturbance measurements".

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

[i.2] Recommendation ITU-T O.153: "Basic parameters for the measurement of error performance at bit rates below the primary rate".

[i.3] ANSI C63.5: "American National Standard for Electromagnetic Compatibility-Radiated Emission Measurements in Electromagnetic Interference (EMI) Control-Calibration of Antennas (9 kHz to 40 GHz)".

[i.4] 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 Text with EEA relevance.

[i.5] ETSI TR 102 273-2: "Electromagnetic compatibility and Radio spectrum Matters (ERM); Improvement on Radiated Methods of Measurement (using test site) and evaluation of the corresponding measurement uncertainties; Part 2: Anechoic chamber".

[i.6] ETSI TR 102 273-3: "Electromagnetic compatibility and Radio spectrum Matters (ERM); Improvement on Radiated Methods of Measurement (using test site) and evaluation of the corresponding measurement uncertainties; Part 3: Anechoic chamber with a ground plane".

[i.7] ETSI TR 102 273-4: "Electromagnetic compatibility and Radio spectrum Matters (ERM); Improvement on Radiated Methods of Measurement (using test site) and evaluation of the corresponding measurement uncertainties; Part 4: Open area test site".

[i.8] Void.

[i.9] ETSI TR 103 059 (V1.2.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Short-Range Devices (SRD) for operation in the 13,56 MHz band; System Reference Document for Radio Frequency Identification (RFID) equipment".

[i.10] Commission Decision 2013/752/EC on harmonisation of the radio spectrum for use by short-range devices as amended by subsequent Commission Decisions.

[i.11] 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.

[i.12] Recommendation ITU-T O.41: "Psophometer for use on telephone-type circuits".

[i.13] ITU Radio Regulations.

[i.14] ETSI TR 100 028 (all parts) (V1.4.1) (12-2001): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics".