

STN	Zariadenia s krátkym dosahom (SRD) Rádiové zariadenia pre komunikačné systémy Euroloop Harmonizovaná norma pre prístup k rádiovému spektru	STN EN 302 609 V2.2.1 87 2609
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Short Range Devices (SRD); Radio equipment for Euroloop communication systems; Harmonised Standard for access to radio spectrum

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

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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.7] 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.

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Date of withdrawal of any conflicting National Standard (dow):	31 July 2022

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 Euroloop communication system is defined by the specifications [1] and [2] of the UNISIG consortia.

1 Scope

The present document specifies technical characteristics and methods of measurements for radio transmitters and receivers used in the Euroloop communications system. The system is used in railway systems.

The present document applies to the following equipment:

- 1) The On-Board Equipment (OBE) transmitting the tele-powering to wake-up the Trackside Equipment and receiving the Euroloop signal. The OBE comprises a receiver fitted with a dedicated antenna.
- 2) The Trackside Equipment receiving the tele-powering and transmitting the Euroloop signal. The antenna is a leaky feeder cable that is always installed in an inner or outer foot of a rail.

NOTE 1: For the purposes of the present document term "Euroloop" will be used as a descriptive term of the Euroloop communication system as defined by the specifications [1] and [2] of the UNISIG consortia.

The Euroloop transmission system operates in frequency bands listed in table 1 in accordance with the EC Decision 2013/752/EU [i.2], and ERC Recommendation 70-03 [i.3], annex 4.

These radio equipment types are capable of operating at the following frequencies as given below in table 1.

Table 1: Radio communications frequencies

	Radio communications frequencies
OBE receive frequency band	11,1 MHz -16,0 MHz
OBE transmit frequency band	27,09 MHz - 27,10 MHz
OBE transmit modulation	un-modulated RF carrier, continuous wave
Trackside Equipment receiver frequency band	27,09 MHz - 27,10 MHz
Trackside Equipment transmit frequency band	11,1 MHz -16,0 MHz
Trackside Equipment transmit modulation	BPSK, DSSS chip rate 4,516 MHz

NOTE 2: The relationship between the present document and essential requirements of article 3.2 of Directive 2014/53/EU [i.1] is given in annex A.

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.

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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] ERTMS/ETCS: "FFFIS for Euroloop", SUBSET-044, Issue 2.4.0, 29th February 2012.

NOTE: Available at https://www.era.europa.eu/content/set-specifications-2-etcs-b3-mr1-gsm-r-b1_en.

[2] ERTMS/ETCS: "Test Specification for Euroloop", SUBSET-103, Issue 1.1.0, 29th February 2012.

NOTE: Available at https://www.era.europa.eu/content/set-specifications-2-etcs-b3-mr1-gsm-r-b1_en.

[3] CISPR 16-1-4:2019: "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

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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, (OJ L153, 22.5.2014, p.62).
- [i.2] EC Decision 2013/752/EU: "Commission Implementing Decision of 11 December 2013 amending Decision 2006/771/EC on harmonisation of the radio spectrum for use by short-range devices and repealing Decision 2005/928/EC".
- [i.3] CEPT/ERC/Recommendation 70-03: "Relating to the use of Short Range Devices (SRD)".
- [i.4] ETSI TR 100 028-1 (V1.4.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics; Part 1".
- [i.5] ETSI TR 100 028-2 (V1.4.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics; Part 2".
- [i.6] EN 50121-2 (2015-03): "Railway applications - Electromagnetic compatibility - Part 2: Emission of the whole railway system to the outside world" / Applies in conjunction with EN 50121-1 (2000-09)" (produced by CENELEC).
- [i.7] 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.8] 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.9] 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.10] 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.11] ETSI EG 203 336 (V1.1.1): "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".

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