

STN	Zariadenia krátkeho dosahu (SRD) Harmonizovaná norma pre prístup k rádiovému spektru Systémy indukčných smyčiek pre robotické sekačky pracujúce vo frekvenčnom rozsahu 100 Hz až 148,5 kHz	STN EN 303 447 V1.3.1 87 3447
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Short Range Devices (SRD); Harmonised Standard for access to radio spectrum; Inductive loop systems for robotic mowers operating within the frequency range 100 Hz to 148,5 kHz

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

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**Short Range Devices (SRD);
Harmonised Standard for access to radio spectrum;
Inductive loop systems for robotic mowers operating
within the frequency range 100 Hz to 148,5 kHz**

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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.6] 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.3].

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:	27 June 2022
Date of latest announcement of this EN (doa):	30 September 2022
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	31 March 2023
Date of withdrawal of any conflicting National Standard (dow):	31 March 2024

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Introduction

The present document covers Robotic Mowers with Inductive loop systems (RMI) using the frequency range below 148,5 kHz. An RMI system includes:

- RMI docking station: charging stations for the robotic mower and the signal generator/antenna connecting point for the signals on the integral antenna and boundary wire.
- Robotic Mower: receiving part inside the RMI.
- Boundary Wire: user installed antenna.

The present document is structured as follows:

- Clauses 1, 2 and 3 provide a general description on the types of equipment covered by the present document and the definition of terms, symbols and abbreviations used.
- Clause 4 provides the technical requirements specifications, limits and conformance relative to transmitter and receiver.
- Clause 5 specifies the conditions and information for testing of the equipment and interpretation of the measurement results.
- Clause 6 specifies the required measurement methods.
- Annex A (informative) provides the relationship between the present document and the essential requirements of Directive 2014/53/EU [i.3].
- Annex B (normative) provides necessary information on used test sites and procedures.
- Annex C (informative) provides the justification for missing RX-requirements from ETSI EG 203 336 [i.5].
- Annex D (informative) provides information on TX spurious emission limit assessment below 9 kHz.
- Annex E (informative) provides information on Change history.

1 Scope

The present document specifies technical characteristics and methods of measurements for Robotic Mowers with Inductive loop systems (RMI) operating within the frequency range 100 Hz to 148,5 kHz.

The present document covers the following RMI systems:

- RMI1 systems: RMI systems without receive only mode
- RMI2 systems: RMI systems with receive only mode

NOTE 1: In RMI1 systems the robotic mower is not able to restart automatically if the boundary signal comes back after the loss of the boundary signal (safe mode, see clause 4.2.2.3), while in RMI2 systems the robotic mower is able to restart automatically after the boundary signal is back. This differentiation has been introduced to cover receiver spurious emissions for RMI2 systems.

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

Table 1: Permitted range of operation

Permitted range of operation	
Transmit	100 Hz to 148,5 kHz
Receive	100 Hz to 148,5 kHz
NOTE:	It should be noted that the frequency range between 9 kHz and 148,5 kHz is EU wide harmonised for inductive Short Range Devices according to EC Decision 2017/1483/EU [i.2].

NOTE 2: The relationship between the present document and essential requirements of article 3.2 of Directive 2014/53/EU [i.3] is given in Annex A.

The present document only covers RMI systems with antenna sizes smaller than 1,67 km, see CEPT/ERC/REC 70-03 [i.1], Annex 9.

NOTE 3: The antenna size is described by the distance between those two points on the antenna that have the largest distance between them (e.g. for a rectangle shaped antenna the largest diagonal; for a circular shaped antenna the diameter).

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] ETSI EN 300 330 (V2.1.1) (02-2017): "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".

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] CEPT/ERC/REC 70-03: "Relating to the use of Short Range Devices (SRD)".
- [i.2] Commission Implementing Decision (EU) 2017/1483 of 8 August 2017 amending Decision 2006/771/EC on harmonisation of the radio spectrum for use by short-range devices and repealing Decision 2006/804/EC.
- [i.3] 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.
- [i.4] CEPT/ERC/REC 74-01: "Unwanted emissions in the spurious domain".
- [i.5] ETSI EG 203 336 (V1.2.1): "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.6] 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.7] EGMF Robotic Mowers Boundary Wire Standard RLM003-1.1/2016.
- [i.8] EN 50636-2-107:2015: "Safety of household and similar appliances - Part 2-107: Particular requirements for robotic battery powered electrical lawnmowers", produced by CENELEC.
- [i.9] Void.
- [i.10] ETSI EN 303 454 (V1.1.1): "Short Range Devices (SRD); Metal and object detection sensors in the frequency range 1 kHz to 148,5 kHz; Harmonised Standard covering the essential requirements of article 3.2 of Directive 2014/53/EU".
- [i.11] Void.
- [i.12] Void.
- [i.13] EN 55016-1-1:2010 + A1:2010 + A2:2014: "Specification for radio disturbance and immunity measuring apparatus and methods -Part 1-1: Radio disturbance and immunity measuring apparatus - Measuring apparatus", produced by CENELEC.
- [i.14] ETSI TS 103 567 (V1.1.1): "Requirements on signal interferer handling".
- [i.15] ETSI TS 103 051 (V1.1.1) (08-2011): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Expanded measurement uncertainty for the measurement of radiated electromagnetic fields".

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