ICS 27.020, 33.100.10 SLOVENSKÁ TECHNICKÁ NORMA December 2025

| STN | **Vozidlá, lode a zariadenia s vlastnými spaľovacími motormi alebo trakčnými batériami Charakteristiky rádiového rušenia Medze a metódy merania na ochranu prijímačov mimo paluby** | **STN EN IEC 55012**<br><br>33 4212 |
|---|---|---|

Vehicles, boats and devices with internal combustion engines or traction batteries - Radio disturbance characteristics - Limits and methods of measurement for the protection of off-board receivers

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. 11/25

Obsahuje: CISPR 12:2025, EN IEC 55012:2025

Oznámením tejto normy sa od 30.09.2028 ruší
STN EN 55012 (33 4212) z mája 2008

obsahuje farebné strany

**141431**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

# EN IEC 55012

September 2025

ICS 27.020; 33.100.10

Supersedes EN 55012:2007; EN 55012:2007/A1:2009

English Version

# Vehicles, boats and devices with internal combustion engines or traction batteries - Radio disturbance characteristics - Limits and methods of measurement for the protection of off-board receivers (CISPR 12:2025)

Véhicules, bateaux et engins à moteurs à combustion interne ou batteries de traction - Caractéristiques de perturbation radioélectrique - Limites et méthodes de mesure pour la protection des récepteurs extérieurs (CISPR 12:2025)

Fahrzeuge, Boote und Geräte mit Verbrennungsmotoren oder Antriebsbatterien - Funkstöreigenschaften - Grenzwerte und Messverfahren zum Schutz von außerhalb befindlichen Empfängern (CISPR 12:2025)

This European Standard was approved by CENELEC on 2025-08-22. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**

# European foreword

The text of document CIS/D/507/FDIS, future edition 7 of CISPR 12, prepared by SC CISPR/D "Electromagnetic disturbances related to electric/electronic equipment on vehicles and internal combustion engine powered devices" of IEC/TC CISPR "International special committee on radio interference" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 55012:2025.

The following dates are fixed:

| | | |
|---|---|---|
| • latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement | (dop) | 2026-09-30 |
| • latest date by which the national standards conflicting with the document have to be withdrawn | (dow) | 2028-09-30 |

This document supersedes EN 55012:2007 and all of its amendments and corrigenda (if any).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

This document has been prepared under a standardization request addressed to CENELEC by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

## Endorsement notice

The text of the International Standard CISPR 12:2025 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standard indicated:

| | | |
|---|---|---|
| CISPR 14-1 | NOTE | Approved as EN IEC 55014-1 |
| CISPR 25:2021 | NOTE | Approved as EN IEC 55025:2022 (not modified) |
| IEC 61851-21-1:2017 | NOTE | Approved as EN 61851-21-1:2017 (not modified) |
| IEC 61000-6-3:2020 | NOTE | Approved as EN IEC 61000-6-3:2021 (not modified) |
| IEC 61000-6-4:2018 | NOTE | Approved as EN IEC 61000-6-4:2019 (not modified) |
| IEC 61000-6-8:2020 | NOTE | Approved as EN IEC 61000-6-8:2020 (not modified) |
| IEC 62196-1:2022 | NOTE | Approved as EN IEC 62196-1:2022 (not modified) |
| IEC 61980-1:2020 | NOTE | Approved as EN IEC 61980-1:2021 (not modified) |
| IEC 63281-1:2023 | NOTE | Approved as EN IEC 63281-1:2023 (not modified) |
| CISPR 16-2-3:2016 | NOTE | Approved as EN 55016-2-3:2017 (not modified) |

| | | |
|---|---|---|
| CISPR 11 | NOTE | Approved as EN IEC 55011 |
| CISPR 16-4-2:2011 | NOTE | Approved as EN 55016-4-2:2011 (not modified) |
| CISPR 12:2007 | NOTE | Approved as EN 55012:2007 (not modified) |

# Annex ZA
(normative)

## Normative references to international publications with their corresponding European publications

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cencenelec.eu.

| Publication | Year | Title | EN/HD | Year |
|---|---|---|---|---|
| IEC 61851-1 | 2017 | Electric vehicle conductive charging system - Part 1: General requirements | EN IEC 61851-1 | 2019 |
| CISPR 16-1-1 | 2019 | Specification for radio disturbance and immunity measuring apparatus and methods - Part 1-1: Radio disturbance and immunity measuring apparatus - Measuring apparatus | EN IEC 55016-1-1 | 2019 |
| CISPR 16-1-2 | 2014 | Specification for radio disturbance and immunity measuring apparatus and methods - Part 1-2: Radio disturbance and immunity measuring apparatus - Coupling devices for conducted disturbance measurements | EN 55016-1-2 | 2014 |
| + A1 | 2017 | | + A1 | 2018 |
| CISPR 16-1-3 | 2004 | Specification for radio disturbance and immunity measuring apparatus and methods - Part 1-3: Radio disturbance and immunity measuring apparatus - Ancillary equipment - Disturbance power | EN 55016-1-3 | 2006 |
| + A1 | 2016 | | + A1 | 2016 |
| + A2 | 2020 | | + A2 | 2020 |
| 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 | EN IEC 55016-1-4 | 2019 |
| + A1 | 2020 | | + A1 | 2020 |
| + A2 | 2023 | | + A2 | 2023 |
| CISPR 16-1-6 | 2014 | Specification for radio disturbance and immunity measuring apparatus and methods - Part 1-6: Radio disturbance and immunity measuring apparatus - EMC antenna calibration | EN 55016-1-6 | 2015 |
| + A1 | 2017 | | + A1 | 2017 |

| Publication | Year | Title | EN/HD | Year |
|---|---|---|---|---|
| + A2 | 2022 | | + A2 | 2022 |
| CISPR 16-2-1 | 2014 | Specification for radio disturbance and immunity measuring apparatus and methods - Part 2-1: Methods of measurement of disturbances and immunity - Conducted disturbance measurements | EN 55016-2-1 | 2014 |
| + A1 | 2017 | | + A1 | 2017 |
| ANSI C63.5 | 2017 | American National Standard for Electromagnetic Compatibility - Radiated Emission Measurements in Electromagnetic Interference (EMI) Control - Calibration and Qualification of Antennas (9 kHz to 40 GHz) | - | - |
| + Corrigendum 1 | 2018 | | - | - |

# CISPR 12

Edition 7.0 2025-07

# INTERNATIONAL STANDARD

INTERNATIONAL SPECIAL COMMITTEE ON RADIO INTERFERENCE

## Vehicles, boats and devices with internal combustion engines or traction batteries – Radio disturbance characteristics – Limits and methods of measurement for the protection of off-board receivers

ICS 27.020; 33.100.10 ISBN 978-2-8327-0553-7

CISPR 12:2025-07(en)

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**About the IEC**
The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

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**Electropedia - www.electropedia.org**
The world's leading online dictionary on electrotechnology, containing more than 22 500 terminological entries in English and French, with equivalent terms in 25 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

# CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

INTERNATIONAL SPECIAL COMMITTEE ON RADIO INTERFERENCE

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# Vehicles, boats and devices with internal combustion engines or traction batteries - Radio disturbance characteristics - Limits and methods of measurement for the protection of off-board receivers

## FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as “IEC Publication(s)”). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
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6) All users should ensure that they have the latest edition of this publication.
7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
9) IEC draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). IEC takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, IEC had not received notice of (a) patent(s), which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at https://patents.iec.ch. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard CISPR 12 has been prepared by CISPR subcommittee D: Electromagnetic disturbances related to electric/electronic equipment on vehicles and internal combustion engine powered devices.

This seventh edition cancels and replaces the sixth edition published in 2007 and its Amendment 1 (2009). This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) test setups and requirements for electric vehicles and hybrid electric vehicles in charging mode were added,
b) antenna positions relative to the vehicle were defined,
c) some statements dealing with series surveillance and type approval were deleted,
d) annexes for measurement instrumentation uncertainty were added,
e) the vehicles, boats and devices subject to this document are separated into three groups with corresponding limits applied accordingly,
f) an annex describing networks to be used for the charging mode was added,
g) an annex describing justification for the limits of an electric vehicle was added, and
h) general improvements were made.

The text of this International Standard is based on the following documents:

| Draft | Report on voting |
|---|---|
| CIS/D/507/FDIS | CIS/D/509/RVD |

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

# INTRODUCTION

There is a specific need for standards to define acceptable radio frequency performances of all electrical and electronic products. CISPR 12 has been developed to serve the vehicles, boats, devices with internal combustion engines and related industries with test methods and limits that provide satisfactory protection for radio reception.

CISPR 12 has been used for many years as a regulatory requirement in numerous countries, to provide protection for radio receivers at a 10 m distance. It has been effective in protecting the radio environment outside the vehicle.

# 1 Scope

The limits in this document are designed to provide protection in the frequency range of 30 MHz to 1 000 MHz for off-board receivers. Compliance with this document does not guarantee adequate protection for receivers nearer than 10 m to the vehicle, boat or device.

This document applies to the emission of electromagnetic energy that can cause interference to radio reception and which is emitted from:

1) vehicles propelled by an internal combustion engine (ICE), electrical means or both (see 3.1.34);
2) boats propelled by an ICE, electrical means or both (see 3.1.4). Boats are tested in the same manner as vehicles except where they have unique characteristics as explicitly stated in this document;
3) devices equipped with ICE (see 3.1.9). In the case of hybrid devices (e.g. equipped with both ICE and traction batteries), only the ICE mode is included in this document;
4) inboard and outboard boat engines and motors [i.e. equipped with ICE, electric motor (EM), or both], when marketed independently.

See Annex D for a flow chart and a list of examples to help determine the applicability of CISPR 12.

This document does not apply to aircraft, household appliances, medical devices, traction systems (railway engine or locomotive, streetcar or tram and electric trolley bus), vehicle, boat and device off-board chargers or to incomplete vehicles, boats and devices. In the case of a dual-mode trolley bus (e.g. propelled by power from either AC/DC mains or an ICE), the ICE propulsion system is included, but the EM propulsion portion of the vehicle is excluded from this document. In addition, domestic helper robots, such as household cleaning robots, hotel service robots and personal safety robots are also excluded from the scope of this document.

NOTE 1 Other than inboard or outboard boat engines and motors that are marketed independently, this document does not apply to components or incomplete products, such as an ICE, an incomplete vehicle or boat that has not yet been fitted with an ICE or EM, or spare parts. This document only applies to the final product, which is equipped with all applicable parts and components to be able to function as intended.

NOTE 2 Appliances without ICE for typical housekeeping and service functions in the household and similar environment are covered by the requirements of CISPR 14-1[1].

NOTE 3 Protection of receivers used on board the same vehicle as the disturbance source(s) are covered by CISPR 25[2].

This document does not prescribe measurement methods or limits for conducted disturbances, for the charging mode of operation, where the (electric or hybrid) vehicle or boat is connected to power mains, either directly (i.e. plug-in vehicle or boat) or indirectly (i.e. wireless power charging). The user is referred to appropriate IEC and CISPR standards, which define measurement techniques and limits for this condition.

NOTE 4 See IEC 61851-21-1[3] for road vehicles and IEC 61000-6-3[4], IEC 61000-6-4[5] and IEC 61000-6-8[6] for other types of vehicles or boats.

The emission requirements in this document are not applicable to the intentional transmissions from a radio transmitter, as defined by the ITU-R, including its spurious emissions.

Equipment that is covered by other CISPR product and product family emission standards are excluded from the scope of this document, except where they include ICE(s). In the latter case, the equipment complies with this document in all modes of operation where the ICE(s) is(are) active.

NOTE 5 The other CISPR product or product family emission standard can also apply to the equipment for those modes of operation where the ICE(s) is (are) not active. In case the ICE(s) is (are) always in operation, the other CISPR product or product family emission standard can still apply, for verifying the emissions from the other components and circuitry of the equipment.

Annex B and Annex C contain methods to evaluate the disturbance characteristics of high voltage ignition systems.

Annex H contains a justification for the limits for an electric vehicle.

Annex I lists work being considered for future revisions.

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 61851-1:2017, *Electric vehicle conductive charging system - Part 1: General requirements*

CISPR 16-1-1:2019, *Specification for radio disturbance and immunity measuring apparatus and methods - Part 1-1: Radio disturbance and immunity measuring apparatus - Measuring apparatus*

CISPR 16-1-2:2014, *Specification for radio disturbance and immunity measuring apparatus and methods - Part 1-2: Radio disturbance and immunity measurement apparatus - Coupling devices for conducted disturbance measurements*
CISPR 16-1-2:2014/AMD1:2017

CISPR 16-1-3:2004, *Specification for radio disturbance and immunity measuring apparatus and methods - Part 1-3: Radio disturbance and immunity measuring apparatus - Ancillary equipment - Disturbance power*
CISPR 16-1-3:2004/AMD1:2016
CISPR 16-1-3:2004/AMD2:2020

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*
CISPR 16-1-4:2019/AMD1:2020
CISPR 16-1-4:2019/AMD2:2023

CISPR 16-1-6:2014, *Specification for radio disturbance and immunity measuring apparatus and methods - Part 1-6: Radio disturbance and immunity measuring apparatus - EMC antenna calibration*
CISPR 16-1-6:2014/AMD1:2017
CISPR 16-1-6:2014/AMD2:2022

CISPR 16-2-1:2014, *Specification for radio disturbance and immunity measuring apparatus and methods - Part 2-1: Methods of measurement of disturbances and immunity - Conducted disturbance measurements*
CISPR 16-2-1:2014/AMD1:2017

ANSI C63.5:2017, *American National Standard for Electromagnetic Compatibility - Radiated Emission Measurements in Electromagnetic Interference (EMI) Control - Calibration and Qualification of Antennas (9 kHz to 40 GHz)*
Corrigendum 1:2018