



SLOVENSKI STANDARD

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Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 1: Emission (CISPR 14-1:2000)

Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus -- Part 1: Emission

Elektromagnetische Verträglichkeit - Anforderungen an Haushaltgeräte, Elektrowerkzeuge und ähnliche Elektrogeräte -- Teil 1: Störaussendung

Compatibilité électromagnétique - Exigences pour les appareils électrodomestiques, outillages électriques et appareils analogues -- Partie 1: Emission

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**Electromagnetic compatibility - Requirements for household
appliances, electric tools and similar apparatus**
Part 1: Emission
(CISPR 14-1:2000)

Compatibilité électromagnétique -
Exigences pour les appareils
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This European Standard was approved by CENELEC on 2000-08-01. 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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

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

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

The text of document CISPR/F/300/FDIS, future edition 4 of CISPR 14-1, prepared by CISPR SC F, Interference relating to household appliances, tools, lighting equipment and similar apparatus, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 55014-1 on 2000-08-01.

This European Standard supersedes EN 55014-1:1993 and its amendments A1:1997 and A2:1999.

The following dates were fixed:

- latest date by which the EN has to be implemented
at national level by publication of an identical
national standard or by endorsement (dop) 2001-05-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2003-08-01

Annexes designated "normative" are part of the body of the standard.

Annexes designated "informative" are given for information only.

In this standard, annexes A and ZA are normative and annexes B and C are informative.

Annex ZA has been added by CENELEC.

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The text of the International Standard CISPR 14-1:2000 was approved by CENELEC as a European Standard without any modification.

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Annex ZA (normative)

Normative references to international publications with their corresponding European publications

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60050-161	1990	International Electrotechnical Vocabulary (IEV) - Chapter 161: Electromagnetic compatibility	-	-
IEC 60335-2-76 (mod)	1997	Safety of household and similar electrical appliances Part 2-76: Particular requirements for electric fence energizers	EN 60335-2-76	1999
CISPR 16-1	1993	Specification for radio disturbance and immunity measuring apparatus and methods Part 1: Radio disturbance and immunity measuring apparatus	-	-
A1	1997		-	-
CISPR 16-2	1996	Part 2: Methods of measurement of disturbances and immunity	-	-
A1	1999		-	-

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COMITÉ INTERNATIONAL SPÉCIAL DES PERTURBATIONS RADIOÉLECTRIQUES
INTERNATIONAL SPECIAL COMMITTEE ON RADIO INTERFERENCE

**Compatibilité électromagnétique –
Exigences pour les appareils électrodomestiques,
outillages électriques et appareils analogues –**

**Partie 1:
Emission**

**Electromagnetic compatibility –
Requirements for household appliances,
electric tools and similar apparatus –**

**Part 1:
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International Electrotechnical Commission
Telefax: +41 22 919 0300

3, rue de Varembe Geneva, Switzerland
e-mail: inmail@iec.ch IEC web site <http://www.iec.ch>



Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

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INTERNATIONAL ELECTROTECHNICAL COMMISSION
INTERNATIONAL SPECIAL COMMITTEE ON RADIO INTERFERENCE

**ELECTROMAGNETIC COMPATIBILITY –
REQUIREMENTS FOR HOUSEHOLD APPLIANCES,
ELECTRIC TOOLS AND SIMILAR APPARATUS –**

Part 1: Emission

FOREWORD

- 1) The formal decisions or agreements of the CISPR on technical matters, prepared by subcommittees on which all the National Committees and other Member Organizations of the CISPR having a special interest therein are represented, express, as nearly as possible, an international consensus on the subjects dealt with.
- 2) They have the form of recommendations for international use and they are accepted by the National Committees and other Member Organizations of the CISPR in that sense.
- 3) In order to promote international unification, the CISPR expresses the wish that all National Committees should adopt the text of the CISPR recommendations for their national rules in so far as national conditions will permit. Any divergence between the CISPR recommendations and the corresponding national rules should, as far as possible, be clearly indicated in the latter.

This publication has been prepared by CISPR subcommittee F: Interference relating to household appliances, tools, lighting equipment and similar apparatus.

This fourth edition cancels and replaces the third edition published in 1993, its amendment 1 (1996) and its amendment 2 (1998). This fourth edition constitutes a technical revision.

It has the status of a product family EMC publication in accordance with IEC Guide 107.

The text of this publication is based on the third edition, amendment 1, amendment 2 and the following documents:

FDIS	Report on voting
CISPR/F/300/FDIS	CISPR/F/306/RVD

This CISPR publication is expected to be amended in the future, as dictated by experience gained from its use.

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Annex A forms an integral part of this CISPR publication.

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Annexes B and C are for information only. <https://standards.iteh.ai/standards/sist/c969d4ee-7681-4bda-aa23-550504e87924/sist-en-55014-1-2001>

INTRODUCTION

The intention of this standard is to establish uniform requirements for the radio disturbance level of the equipment contained in the scope, to fix limits of disturbance, to describe methods of measurement and to standardize operating conditions and interpretation of results.

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ELECTROMAGNETIC COMPATIBILITY – REQUIREMENTS FOR HOUSEHOLD APPLIANCES, ELECTRIC TOOLS AND SIMILAR APPARATUS –

Part 1: Emission

1 Scope

1.1 This standard applies to the conduction and the radiation of radio-frequency disturbances from appliances whose main functions are performed by motors and switching or regulating devices, unless the r.f. energy is intentionally generated or intended for illumination.

It includes such equipment as: household electrical appliances, electric tools, regulating controls using semiconductor devices, motor-driven electro-medical apparatus, electric toys, automatic dispensing machines as well as cine or slide projectors.

Also included in the scope of this standard are:

- separate parts of the above mentioned equipment such as motors, switching devices e.g. (power or protective) relays, however no emission requirements apply unless formulated in this standard.

This standard gives for the time being no requirements for apparatus that cannot be measured on a test site; requirements for *in situ* measurements are under consideration.

Excluded from the scope of this standard are:

- apparatus for which all emission requirements in the radio frequency range are explicitly formulated in other IEC or CISPR standards;

NOTE Examples are:

- Luminaires, discharge lamps and other lighting devices: CISPR 15;
 - Audio and video equipment and electronic music instruments: CISPR 13 and 20 (see also 7.3.5.4.2);
 - Mains communication devices: IEC 61000-3-8;
 - Equipment for generating and use of radio frequency energy for heating and therapeutic purposes: CISPR 11;
 - Microwave ovens: CISPR 11 (but be aware of subclause 1.3 on multifunction equipment);
 - Information technology equipment, e.g. home computers, personal computers: CISPR 22;
 - Electric equipment to be used on motor vehicles: CISPR 12.
- regulating controls and equipment with regulating controls incorporating semiconductor devices with a rated input current of more than 25 A per phase;
 - stand-alone power supplies.

1.2 The frequency range covered is 9 kHz to 400 GHz.

1.3 Multifunction equipment which is subjected simultaneously to different clauses of this standard and/or other standards shall meet the provisions of each clause/standard with the relevant functions in operation; details are given in 7.2.1.

1.4 The limits in this standard have been determined on a probabilistic basis, to keep the suppression of disturbances economically feasible while still achieving an adequate radio protection. In exceptional cases radio frequency interference may occur, in spite of compliance with the limits. In such a case, additional provisions may be required.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of CISPR 14. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of CISPR 14 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of IEC and ISO maintain registers of currently valid International Standards.

The following standards are referred to in this publication:

IEC 60050(161):1990, *International Electrotechnical Vocabulary – Chapter 161: Electromagnetic compatibility*

IEC 60335-2-76:1997, *Safety of household and similar electrical appliances – Part 2: Particular requirements for electric fence energizers*

CISPR 16-1:1993, *Specification for radio disturbance and immunity measuring apparatus and methods – Part 1: Radio disturbance and immunity measuring apparatus*
Amendment 1 (1997)*

CISPR 16-2:1996, *Specification for radio disturbance and immunity measuring apparatus and methods – Part 2: Methods of measurement of disturbances and immunity*
Amendment 1 (1999)**

3 Definitions

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3.1.1 For the purpose of this standard, the definitions contained in IEC 60050(161):1990, *International Electrotechnical Vocabulary (IEV) – Chapter 161: Electromagnetic compatibility*, apply extended with the specific definitions in the field of discontinuous disturbance given in 3.2 to 3.7.

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* A consolidated edition has been issued in 1998.

** A consolidated edition has been issued in 1999.

3.1.2 Definitions of the following terms are specified in CISPR 16-1 and CISPR 16-2:

Asymmetric voltage	Reference ground
Electrical charge time constant	RFD current
Electrical discharge time constant	RFD power on conductors
Equipment under test (EUT)	RFD voltage
Level	Type testing
Radio frequency disturbance source	Weighting

3.2

click

a disturbance, the amplitude of which exceeds the quasi-peak limit of continuous disturbance, the duration of which is not longer than 200 ms and which is separated from a subsequent disturbance by at least 200 ms. The durations are determined from the signal which exceeds the i.f. reference level of the measuring receiver

A click may contain a number of impulses; in which case the relevant time is that from the beginning of the first to the end of the last impulse.

NOTE Under certain conditions, some kinds of disturbances are exempted from this definition (see 4.2.3)

3.3

i.f. reference level

the corresponding value on the intermediate frequency output of the measuring receiver of an unmodulated sinusoidal signal which produces a quasi-peak indication equal to the limit for continuous disturbance

3.4

switching operation

one opening or one closing of a switch or contact

NOTE Independent of whether clicks are observed or not.

3.5

minimum observation time T

the minimum time necessary when counting clicks (or where relevant counting switching operations) to provide sufficiently firm evidence for the statistical interpretation of the number of clicks (or switching operations) per time unit (see also 7.4.2.1)

3.6

click rate N

in general the number of clicks or switching operations within one minute; this figure is being used to determine the click limit (see also 7.4.2.3)

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3.7

click limit L_q

the relevant limit L for continuous disturbance, as given in 4.1.1 for the measurement with the quasi-peak detector, increased by a certain value determined from the click rate N (see also 4.2.2.2)

The click limit applies to the disturbance assessed according to the upper quartile method.

3.8**upper quartile method**

a quarter of the number of the clicks registered during the observation time T is allowed to exceed the click limit L_q

In the case of switching operations a quarter of the number of the switching operations registered during the observation time is allowed to produce clicks exceeding the click limit L_q (see also 7.4.2.6).

4 Limits of disturbance

Radio disturbance measurements below 148,5 kHz and above 300 MHz need not to be carried out, unless otherwise specified in this standard for specific appliances.

4.1 Continuous disturbance

Commutator motors, as well as other devices incorporated in household appliances, electric tools and similar electrical apparatus may cause continuous disturbance.

Continuous disturbance may be either broadband, caused by switching devices such as mechanical switches, commutators and semiconductor regulators, or may be narrowband, caused by electronic control devices such as microprocessors.

NOTE Instead of the concept of "broadband" and "narrowband" disturbances, in this standard a distinction is made between two related kinds of disturbance, defined by the type of the applied detector. For this purpose limits have been defined with respect to the measurement with the quasi-peak detector and with the average detector (see 5.1.1 and 6.1.1).

4.1.1 Frequency range 148,5 kHz to 30 MHz (terminal voltages)

NOTE The World Administrative Radiocommunications Conference (WARC) has in 1979 reduced the lower frequency limit in Region 1 to 148,5 kHz; for applications falling in the scope of this standard, tests at 150 kHz are considered adequate, since 148,5 kHz falls within the receiver bandwidth.

The limits of the terminal disturbance voltages are given in table 1. Terminal voltages are measured, in accordance with clause 5, on each terminal with respect to ground.

Terminals are defined as conductive parts, suitable for re-usable electrical connection to external circuits.

4.1.1.1 The limits in columns 2 and 3 shall be met on the phase(s) and the neutral of the mains terminals of all appliances except those of electric tools.

4.1.1.2 On additional terminals of appliances as well as on load and additional terminals of regulating controls incorporating semiconductor devices the relaxed limits given for "additional terminals" in columns 4 and 5 apply. [SIST EN 55014-1:2001](https://standards.iteh.ai/catalog/standards/sist/c969d4ee-7681-4bda-aa23-550504a87924/sist-en-55014-1-2001)

Terminals which may be used as either mains terminals or load/additional terminals are subject to the limits for mains terminals.