CISPR 13

Edition 5.1 2015-01
CONSOLIDATED VERSION

INTERNATIONAL STANDARD

NORME INTERNATIONALE

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

Sound and television broadcast receivers and associated equipment – Radio disturbance characteristics – Limits and methods of measurement

Récepteurs de radiodiffusion et de télévision et équipements associés – Caractéristiques des perturbations radioélectriques – Limites et méthodes de mesure

CISPR 13:2009-06+AMD1:2015-01 CSV(en-fr)

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

INTERNATIONAL SPECIAL COMMITTEE ON RADIO INTERFERENCE

SOUND AND TELEVISION BROADCAST RECEIVERS AND ASSOCIATED EQUIPMENT – RADIO DISTURBANCE CHARACTERISTICS – LIMITS AND METHODS OF MEASUREMENT

FOREWORD

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CISPR 13 edition 5.1 contains the fifth edition (2009-06) [documents CISPR/I/296/FDIS and CISPR/I/297/RVD] and its amendment 1 (2015-01) [documents CIS/I/491/FDIS and CIS/I/499/RVD].

In this Redline version, a vertical line in the margin shows where the technical content is modified by amendment 1. Additions and deletions are displayed in red, with deletions being struck through. A separate Final version with all changes accepted is available in this publication.

International Standard CISPR 13 has been prepared by CISPR subcommittee I: Electromagnetic compatibility of information technology equipment, multimedia equipment and receivers.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of the base publication and its amendment will remain unchanged until the stability date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

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INTRODUCTION

The CISPR recommends that the limits and methods of measurement of radio disturbance characteristics of sound and television receivers contained in the latest edition of CISPR 13, including amendments, be used, without regional or national addenda or modifications. The requirements are considered sufficient to reach adequate emission levels to protect radio broadcast and telecommunication services and to allow other apparatus to operate as intended at a reasonable distance.

SOUND AND TELEVISION BROADCAST RECEIVERS AND ASSOCIATED EQUIPMENT – RADIO DISTURBANCE CHARACTERISTICS – LIMITS AND METHODS OF MEASUREMENT

1 Scope and object

This International Standard applies to the generation of electromagnetic energy from sound and television receivers for the reception of broadcast and similar transmissions and from associated equipment. The frequency range covered extends from 9 kHz to 400 GHz.

No measurements need be performed at frequencies where no limits are specified.

Receiving systems for collective reception, in particular:

– cable distribution head ends (Community Antenna Television, CATV);
– community reception systems (Master Antenna Television, MATV)

are covered by IEC 60728-2.

Broadcast receivers for digital signals are covered by Annex A and Annex B.

Information technology equipment (ITE) is excluded, even if intended to be connected to a television broadcast receiver.

The telecommunication port of broadcast receivers, intended to be connected to a telecommunication network, is covered by CISPR 22.

In addition, measurements at the telecommunication port are performed with the broadcast reception functions, which are independent from the telecommunication function, disabled during the measurement.

PC tuner cards are measured according to the relevant clauses of this standard.

This standard describes the methods of measurement applicable to sound and television receivers or associated equipment and specifies limits for the control of disturbance from such equipment.

For multifunction equipment which is subjected simultaneously to different clauses of this standard and/or other standards, details are given in 4.1.

2 Normative references

The following referenced documents are indispensable for the application 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.

CISPR 16-1-1:2006, *Specification for radio disturbance and immunity measuring apparatus and methods – Part 1-1: Radio disturbance and immunity measuring apparatus – Measuring apparatus* [1]
Amendment 1 (2006)
Amendment 2 (2007)

CISPR 16-1-2:2003, *Specification for radio disturbance and immunity measuring apparatus and methods – Part 1-2: Radio disturbance and immunity measuring apparatus – Ancillary equipment – Conducted disturbances* [2]
Amendment 1 (2004)
Amendment 2 (2006)

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 16-1-4:2007, *Specification for radio disturbance and immunity measuring apparatus and methods – Part 1-4: Radio disturbance and immunity measuring apparatus – Ancillary equipment – Radiated disturbances* [3]
Amendment 1 (2007)
Amendment 2 (2008)

CISPR 16-2-2:2003, *Specification for radio disturbance and immunity measuring apparatus and methods – Part 2-2: Methods of measurement of disturbances and immunity – Measurement of disturbance power* [4]
Amendment 1 (2004)
Amendment 2 (2005)

CISPR 16-4-2:2011, *Specification for radio disturbance and immunity measuring apparatus and methods – Part 4-2: Uncertainties, statistics and limit modelling – Measurement instrumentation uncertainty*

CISPR 22:2008, *Information technology equipment – Radio disturbance characteristics – Limits and methods of measurement*

IEC 60050-161:1990, *International Electrotechnical Vocabulary (IEV) – Chapter 161: Electromagnetic compatibility*
Amendment 1 (1997)
Amendment 2 (1998)

IEC 60728-2:2002, *Cabled distribution systems for television and sound signals – Part 2: Electromagnetic compatibility for equipment* (only available in English)

ITU-R BT 471-1, *Nomenclature and description of colour bar signals*

3 Terms, definitions and abbreviations

3.1 Terms and definitions

For the purposes of this document, the following terms, definitions and abbreviations apply.

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1 There exists a consolidated edition 2.2 (2007) including edition 2.0, its Amendment 1 (2006) and its Amendment 2 (2007).

2 There exists a consolidated edition 1.2 (2006) including edition 1.0, its Amendment 1 (2004) and its Amendment 2 (2006).

3 There exists a consolidated edition 2.1 (2008) including edition 2.0 and its Amendment 1 (2007).

4 There exists a consolidated edition 1.2 (2005) including edition 1.0, its Amendment 1 (2004) and its Amendment 2 (2005).

3.1.1
sound broadcast receivers
appliances intended for the reception of sound broadcast and similar services for terrestrial, cable and satellite transmission, regardless whether the input signals are digital or analog

3.1.2
television receivers
appliances intended for the reception of television broadcast and similar services for terrestrial, cable and satellite transmissions, regardless whether the input signals are digital or analog

3.1.3
associated equipment
equipment either intended to be connected directly to sound or television broadcast receivers, or to generate or reproduce audio or visual information

NOTE 1 Tuners may be provided with a broadcast-satellite-receiving stage and with demodulators, decoders, demultiplexers, D/A converters, encoders (e.g. NTSC, PAL or SECAM encoders), etc.

NOTE 2 Frequency converters may be provided with a broadcast-satellite-receiving stage and with devices which convert the signals to other frequency bands.

NOTE 3 Receivers, tuners, or frequency converters may be tuneable or may only be able to receive a fixed frequency.

3.1.4
PC tuner cards
sound broadcast receiver cards and television broadcast receiver cards, either to be inserted in personal computers or permanently integrated therein

3.1.5
outdoor unit of direct to home satellite receiving systems for individual reception
unit consisting of the antenna, the feeding network and the low-noise amplifier with its associated down-converter. The intermediate frequency amplifier and the demodulator are not included

3.1.6
multifunction equipment
appliances in which two or more functions are provided in the same unit, for instance television reception, radio reception, digital clock, tape-recorder or disc player, etc.

3.1.7
audio/video player integrated within a television receiver
subsystem intended for playback of audio and/or visual information from external, inserted or attached media, which has been combined with a television receiver to form an integrated appliance

3.2 Abbreviations

AM	Amplitude Modulation
CATV	Community Antenna Television
CD	Compact Disc
EUT	Equipment Under Test
FM	Frequency Modulation
ITE	Information Technology Equipment
ITU-R	International Telecommunication Union – Radio
LW, MW and SW	Long-, Medium- and Short-Waves
MATV	Master Antenna Television

PC Personal Computer

RF Radio Frequency

4 Limits of disturbance

4.1 General

For RF disturbances the level shall not exceed the limits specified in 4.2 to 4.7 when measured using the methods given in Clause 5. Where there is frequency duplication at the boundary of two ranges, the lower limit shall apply. For equipment in large-scale production, it is required that, with 80 % confidence, at least 80 % of production complies with the limits (see Clause 6).

Multifunction equipment which is subjected simultaneously to different clauses of this standard and/or other standards shall be tested with each function operated in isolation, if this can be achieved without modifying the equipment internally. The equipment thus tested shall be deemed to have complied with the requirements of all clauses/standards when each function has satisfied the requirements of the relevant clause/standard.

For equipment for which it is not practical to test with each function operated in isolation, or where the isolation of a particular function would result in the equipment being unable to fulfil its primary function, the equipment shall be deemed to have complied if it meets the provisions of the relevant clause/standard with the necessary functions operative.

An integrated audio/video player of a television receiver is deemed to comply with the emission requirements when it meets the provisions of the relevant clauses for television receivers with the audio/video player function in operation.

4.2 Disturbance voltage at the mains terminals

Measurements shall be made in accordance with 5.3.

Table 1 – Limits of disturbance voltage at the mains terminals

Equipment type	Frequency MHz	Limit dB(μV)		
		Quasi-peak	Average	RMS-average [a]
Television and sound receivers and associated equipment	0,15 to 0,5	66 to 56 [b]	56 to 46 [b]	60 to 50 [b]
	0,5 to 5	56	46	50
	5 to 30	60	50	54

[a] The r.m.s average limits can be applied as an alternative to quasi-peak and average limits.

[b] Decreasing linearly with the logarithm of the frequency.

NOTE 1 If the limits for the average detector are met when using the quasi-peak detector, then the limits for the measurements with the average detector are considered to be met.

NOTE 2 The higher value measured with and without the outer conductor screen of the antenna terminal connected to earth is considered.

NOTE 3 Television receivers with teletext facilities should be tested in teletext mode with teletext picture.

4.3 Disturbance voltage at the antenna terminals

Measurements of the antenna terminal voltage shall be made in accordance with 5.4.

The limit values specified correspond to a nominal impedance of 75 Ω.