
Sound and television broadcast receivers and associated equipment - Immunity characteristics - Limits and methods of measurement - Amendment A1 (CISPR 20:2002/A1:2002)

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EUROPEAN STANDARD

EN 55020/A1

NORME EUROPÉENNE

EUROPÄISCHE NORM

January 2003

ICS 33.100.20

English version

**Sound and television broadcast receivers and associated equipment -
Immunity characteristics -
Limits and methods of measurement
(CISPR 20:2002/A1:2002)**

Récepteurs de radiodiffusion et de
télévision et équipements associés -
Caractéristiques d'immunité -
Limites et méthodes de mesure
(CISPR 20:2002/A1:2002)

Ton- und Fernseh-Rundfunkempfänger
und verwandte Geräte der
Unterhaltungselektronik -
Störfestigkeitseigenschaften -
Grenzwerte und Prüfverfahren
(CISPR 20:2002/A1:2002)

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This amendment A1 modifies the European Standard EN 55020:2002; it was approved by CENELEC on 2002-12-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment 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 amendment 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, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, 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/1/43/FDIS, future amendment 1 to CISPR 20:2002, prepared by CISPR SC I, Electromagnetic compatibility of information technology equipment, multimedia equipment and receivers, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as amendment A1 to EN 55020:2002 on 2002-12-01.

The following dates were fixed:

- latest date by which the amendment has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2003-09-01
- latest date by which the national standards conflicting with the amendment have to be withdrawn (dow) 2005-12-01

Annexes designated "normative" are part of the body of the standard.
Annexes designated "informative" are given for information only.
In this standard, annex I is normative and annex J is informative.

Endorsement notice

The text of amendment 1:2002 to the International Standard CISPR 20:2002 was approved by CENELEC as an amendment to the European Standard without any modification.

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COMMISSION
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CISPR
20

2002

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

AMENDEMENT 1
AMENDMENT 1
2002-10

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

Amendement 1

**Récepteurs de radiodiffusion et de télévision
et équipements associés –
Caractéristiques d'immunité –
Limites et méthodes de mesure**

Amendment 1

**Sound and television broadcast receivers
and associated equipment –
Immunity characteristics –
Limits and methods of measurement**

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FOREWORD

This amendment has been prepared by CISPR subcommittee I: Electromagnetic compatibility of information technology equipment, multimedia equipment and receivers.

The text of this amendment is based on the following documents:

FDIS	Report on voting
CISPR/1/43/FDIS	CISPR/1/61/RVD

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

The committee has decided that the contents of the base publication and its amendments will remain unchanged until 2004. At this date, the publication will be

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

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CONTENTS

Add, after the title of Annex H, the titles of the following two new annexes:

Annex I (normative) Broadcast receivers for digital signals

Annex J (informative) Specification of the wanted signal

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FOREWORD

Modify the sixth and seventh paragraphs as follows:

Annexes A, B, C, D, E, F, G and I form an integral part of this standard.

Annexes H and J are for information only.

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1 Scope and object

Number as note 1 the note following the third paragraph and add, just below it, the following new note:

NOTE 2 Broadcast receivers for digital signals are covered by Annex I and Annex J.

Renumber notes 1 and 2 as notes 3 and 4.

Add, after Annex H, the following two new annexes I and J:

Annex I (normative)

Broadcast receivers for digital signals

I.1 Introduction

This annex gives additional information concerning the methods of measurement and the limits for the immunity of broadcast receivers for digital signals.

Receivers can be equipped with telecom or data connectors and may contain storage and return channel facilities.

For the measurements at ports related to non-broadcast functions, for example the telecom and LAN ports, reference is made to the relevant standards, for example, CISPR 24.

I.2 Normative references

See clause 2.

I.3 Definitions

For the purposes of this annex, the following definitions apply:

I.3.1

digital sound receivers

appliances intended for the reception of sound broadcast, associated data and similar services for digital terrestrial, cable and satellite transmissions

I.3.2

digital television receivers

appliances intended for the reception of television broadcast, data and similar services for digital terrestrial, cable and satellite transmissions

NOTE 1 The receiver can be equipped with a display.

NOTE 2 Receivers without a display are generally referred to as set-top boxes.

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I.3.3

digital sound signal

RF signal modulated with a digital data stream containing sound information

NOTE Data concerning additional services and service provider dependent applications may be included in the data stream.

I.3.4

digital television signal

RF signal modulated with a digital data stream containing video and accompanying sound information

NOTE 1 Information concerning the supplied additional services and service provider dependent applications, such as the electronic programme guide, may be included in the data stream.

NOTE 2 Annex J gives information on signals for terrestrial, cable and satellite systems.

I.4 Immunity requirements

I.4.1 Performance criteria

I.4.1.1 Evaluation of audio quality of broadcast functions

The audio quality is evaluated according to 4.1.1.1.

In addition, for digital sound receivers effects associated with digital transmissions, such as clicks and interruptions, shall be observed.

For digital television receivers it is not required to observe these clicks and interruptions of the accompanying sound, because the immunity level depends on the picture quality exclusively.

I.4.1.2 Evaluation of the picture quality of broadcast functions

In addition to 4.1.1.2, effects associated with digital transmission, such as macro-blocking and picture freeze, shall be observed.

I.4.1.3 Evaluation of non-broadcast functions

For the performance criteria of non-broadcast functions, for example associated with the telecom and LAN ports, reference is made to the relevant standards, for example to CISPR 24.

I.4.2 Applicability

Under consideration.

I.4.3 Limits of immunity

The relevant limits given in this standard apply.

I.5 Immunity measurements

See clause 5.

I.5.1 Wanted signals

I.5.1.1 General

The level of a digital television or sound signal is expressed in dB(μ V) across the nominal impedance of 75 Ω ; it relates to the signal power of the signal, which is defined as the mean power of the selected signal as measured with a thermal power sensor.

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Care should be taken to limit the measurement to the bandwidth of the signal. When using a spectrum analyser or calibrated receiver, it should integrate the signal power within the nominal bandwidth of the signal.

I.5.1.2 Digital sound signal

The level of the wanted digital sound signal is 50 dB(μ V).

The reference level of all sound channels shall be at full range -6 dB at 1 kHz, one channel to be monitored.

I.5.1.3 Digital television signal

The level of the wanted digital television signals during the test are:

- for terrestrial systems: VHF 50 dB(μ V), UHF 54 dB(μ V)
- for cable systems: 60 dB(μ V)
- for satellite systems: 60 dB(μ V)

The standard picture is a test pattern consisting of vertical colour bars in accordance with ITU-R BT471-1, with a small moving element, coded as 6 Mbit/s.

NOTE The small moving element is necessary to detect possible picture freezing during testing.

The reference level of all sound channels shall be at full range -6 dB at 1 kHz, one channel to be monitored.

See further Annex J.

I.6 Measurement of input immunity

I.6.1 Digital television receivers for terrestrial systems

Measurements are carried out with analogue unwanted signals, according to 4.3.2.

Depending on the region digital signals can be broadcast in VHF Band III and/or UHF bands IV/V. Measurements shall be carried out in the bands the receiver is intended for.

Analogue unwanted signals are in channels $N\pm 1$ and $N+9$ (only for UHF) or $N+19$ (only for UHF in Japan). Application of unwanted signal type B is not required.

I.6.2 Digital television receivers for cable systems

No measurements need to be carried out because adverse signal conditions do not occur; digital signals in cable systems are mainly concentrated in clusters and not mixed with analogue signals.

I.6.3 Digital television receivers for satellite systems

No measurements need to be carried out because adverse signal conditions do not occur.