



Institut luxembourgeois de la normalisation
de l'accréditation, de la sécurité et qualité
des produits et services

ILNAS-EN 55020:2007

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

Ton- und Fernseh-Rundfunkempfänger
und verwandte Geräte der
Unterhaltungselektronik -
Störfestigkeitseigenschaften -

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

01/2007



National Foreword

This European Standard EN 55020:2007 was adopted as Luxembourgish Standard ILNAS-EN 55020:2007.

Every interested party, which is member of an organization based in Luxembourg, can participate for FREE in the development of Luxembourgish (ILNAS), European (CEN, CENELEC) and International (ISO, IEC) standards:

- Participate in the design of standards
- Foresee future developments
- Participate in technical committee meetings

<https://portail-qualite.public.lu/fr/normes-normalisation/participer-normalisation.html>

THIS PUBLICATION IS COPYRIGHT PROTECTED

Nothing from this publication may be reproduced or utilized in any form or by any mean - electronic, mechanical, photocopying or any other data carries without prior permission!

ILNAS-EN 55020:2007
EUROPEAN STANDARD
EN 55020
NORME EUROPÉENNE
EUROPÄISCHE NORM
January 2007

ICS 33.100.20

Supersedes EN 55020:2002 + A1:2003 + A2:2005
+ IS1:2007 + IS2:2007

English version

**Sound and television broadcast receivers
and associated equipment -
Immunity characteristics -
Limits and methods of measurement
(CISPR 20:2006)**

Récepteurs de radiodiffusion et de
télévision et équipements associés -
Caractéristiques d'immunité -
Limites et méthodes de mesure
(CISPR 20:2006)

Ton- und Fernseh-Rundfunkempfänger
und verwandte Geräte der
Unterhaltungselektronik -
Störfestigkeitseigenschaften -
Grenzwerte und Prüfverfahren
(CISPR 20:2006)

This European Standard was approved by CENELEC on 2006-12-01. 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, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the 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/I/200/FDIS, future edition 6 of CISPR 20, 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 EN 55020 on 2006-12-01.

This European Standard supersedes EN 55020:2002 (+ corrigendum September 2005) + A1:2003 (+ corrigendum September 2005) + A2:2005 + IS1:2007 + IS2:2007.

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) 2007-09-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2009-12-01

This European Standard has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association and covers essential requirements of EC Directives 89/336/EEC, 2004/108/EC and 1999/5/EC. See Annex ZZ.

Annexes ZA and ZZ have been added by CENELEC.

Endorsement notice

The text of the International Standard CISPR 20:2006 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 standards indicated:

CISPR 22	NOTE Harmonized as EN 55022:2006 (modified).
CISPR 24	NOTE Harmonized as EN 55024:1998 (modified).

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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.

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>
CISPR 16-1-3	- ¹⁾	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 ²⁾
IEC 60050-161	- ¹⁾	International Electrotechnical Vocabulary (IEV) Chapter 161: Electromagnetic compatibility	-	-
IEC 60268-1	1985	Sound system equipment Part 1: General	HD 483.1 S2 ³⁾	1989
IEC 61000-4-2	- ¹⁾	Electromagnetic compatibility (EMC) Part 4-2: Testing and measurement techniques - Electrostatic discharge immunity test	EN 61000-4-2	1995 ²⁾
IEC 61000-4-3	- ¹⁾	Electromagnetic compatibility (EMC) Part 4-3 : Testing and measurement techniques - Radiated, radio-frequency, electromagnetic field immunity test	EN 61000-4-3	2006 ²⁾
IEC 61000-4-4	- ¹⁾	Electromagnetic compatibility (EMC) Part 4-4: Testing and measurement techniques - Electrical fast transient/burst immunity test	EN 61000-4-4	2004 ²⁾
IEC 61672-1	2002	Electroacoustics - Sound level meters Part 1: Specifications	EN 61672-1	2003
ETS 300 158	1992	Satellite Earth Stations and Systems (SES) - Television Receive Only (TVRO-FSS) Satellite Earth Stations operating in the 11/12 GHz FSS bands	-	-
ETS 300 249	1993	Satellite Earth Stations and Systems (SES) - Television Receive-Only (TVRO) equipment used in the Broadcasting Satellite Service (BSS)	-	-

¹⁾ Undated reference.

²⁾ Valid edition at date of issue.

³⁾ HD 483.1 S2 includes A1 to IEC 60268-1.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
ITU-R Recommendation BS 468-4	- ¹⁾	Measurement of audio-frequency noise voltage level in sound broadcasting	-	-
ITU-R Recommendation BT.471-1	1986	Nomenclature and description of colour bar signals	-	-
ITU-R Recommendation BT.500-10	- ¹⁾	Methodology for the subjective assessment of - the quality of television pictures	-	-
ITU-T Recommendation J.61	- ¹⁾	Transmission performance of television circuits designed for use in international connections	-	-

Annex ZZ
(informative)**Coverage of Essential Requirements of EC Directives**

This European Standard has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association and within its scope the standard covers the essential requirements as given in Article 4(b) of the EC Directive 89/336/EEC and Annex I Article 1(b) of the EC Directive 2004/108/EC, and the essential requirements of Article 3.1(b) (immunity only) of the EC Directive 1999/5/EC.

Compliance with this standard provides one means of conformity with the specified essential requirements of the Directives concerned.

WARNING: Other requirements and other EC Directives may be applicable to the products falling within the scope of this standard.

ILNAS-EN 55020:2007
**COMMISSION
ÉLECTROTECHNIQUE
INTERNATIONALE**

**CISPR
20**

**INTERNATIONAL
ELECTROTECHNICAL
COMMISSION**

Sixième édition
Sixth edition
2006-11

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

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

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



Numéro de référence
Reference number
CISPR 20:2006

CONTENTS

FOREWORD.....	11
1 Scope and object.....	15
2 Normative references	17
3 Terms, definitions and abbreviations	17
3.1 Terms and definitions	17
3.2 Abbreviations	23
4 Immunity requirements	23
4.1 Performance criteria	23
4.2 Applicability	27
4.3 Immunity requirements for the antenna input connector	27
4.4 Immunity requirements for audio connectors	43
4.5 Immunity requirements for AC mains power connectors	45
4.6 Requirements for immunity to RF voltages	45
4.7 Immunity requirements for the enclosure port	49
5 Immunity measurements	57
5.1 General conditions during testing	57
5.2 Performance assessment	59
5.3 Measurement of input immunity	63
5.4 Measurement of immunity to RF voltage (common mode) at antenna terminal	65
5.5 Measurement of screening effectiveness	69
5.6 Measurement of electrical transients	71
5.7 Measurement of immunity to induced voltages	71
5.8 Measurement of immunity from radiated fields	77
5.9 Measurement of electrostatic discharge	83
6 Interpretation of CISPR immunity limits	83
6.1 Significance of a CISPR limit	83
6.2 Compliance with limits on a statistical basis	83
Annex A (normative) Specification of the test-TV-set	103
Annex B (normative) Specification of filters and weighting network	105
Annex C (normative) Specification of coupling units and of low-pass filter	109
Annex D (normative) Matching networks and mains stop filter	123
Annex E (normative) Construction information for the open stripline and for the mains and loudspeaker band-stop filter	127
Annex F (normative) Calibration of the open stripline	139
Annex G (normative) Ferrite core sizes and materials	145
Annex H (informative) Frequency bands	147
Annex I (normative) Broadcast receivers for digital signals	149
Annex J (informative) Specification of the wanted signal	157
Annex K (informative) Objective evaluation of picture quality	167
Bibliography.....	175