

**INFOTEHNOLOOGIASEADMED. HÄIRINGUTALUVUSE  
TUNNUSSUURUSED, PIIRVÄÄRTUSED JA  
MÕÕTEMEETODID**

**Information technology equipment - Immunity  
characteristics - Limits and methods of measurement**

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

See Eesti standard EVS-EN 55024:2010 sisaldab Euroopa standardi EN 55024:2010 ingliskeelset teksti.	This Estonian standard EVS-EN 55024:2010 consists of the English text of the European standard EN 55024:2010.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 26.11.2010.	Date of Availability of the European standard is 26.11.2010.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile [standardiosakond@evs.ee](mailto:standardiosakond@evs.ee).

ICS 33.100.20

**Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardikeskusele**

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardikeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autorikaitse kohta, võtke palun ühendust Eesti Standardikeskusega:

Aru 10, 10317 Tallinn, Eesti; koduleht [www.evs.ee](http://www.evs.ee); telefon 605 5050; e-post [info@evs.ee](mailto:info@evs.ee)

**The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation**

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation.

If you have any questions about copyright, please contact Estonian Centre for Standardisation:

Aru 10, 10317 Tallinn, Estonia; homepage [www.evs.ee](http://www.evs.ee); phone +372 605 5050; e-mail [info@evs.ee](mailto:info@evs.ee)

**Information technology equipment -  
Immunity characteristics -  
Limits and methods of measurement  
(CISPR 24:2010)**

Appareils de traitement de l'information -  
Caractéristiques d'immunité -  
Limites et méthodes de mesure  
(CISPR 24:2010)

Einrichtungen der Informationstechnik -  
Störfestigkeitseigenschaften -  
Grenzwerte und Prüfverfahren  
(CISPR 24:2010)

This European Standard was approved by CENELEC on 2010-11-16. 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, Croatia, 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

**Management Centre: Avenue Marnix 17, B - 1000 Brussels**

## Foreword

The text of document CIS/I/331/FDIS, future edition 2 of CISPR 24, 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 55024 on 2010-11-16.

This European Standard supersedes EN 55024:1998, EN 55024:1998/IS1:2007 + A1:2001 + A2:2003.

This EN 55024:2010 includes the following significant technical changes with respect to the previous edition:

- dated references updated;
- option of using a 4 % step size for continuous conducted immunity test deleted;
- revision of Annex A for telephony equipment including methodology for measuring the demodulation from a speaker / hands free device;
- inclusion of new annex related to DSL equipment.

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

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) | 2011-09-01 |
| – latest date by which the national standards conflicting with the EN have to be withdrawn   | (dow) | 2013-12-01 |

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 EU Directives 1999/5/EC and 2004/108/EC. See Annex ZZ.

Annexes ZA and ZZ have been added by CENELEC.

---

## Endorsement notice

The text of the International Standard CISPR 24:2010 was approved by CENELEC as a European Standard without any modification.

---

## 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>
IEC 60050-161	1990	International Electrotechnical Vocabulary (IEV) - Chapter 161: Electromagnetic compatibility	-	-
IEC 60318-1	2009	Electroacoustics - Simulators of human head and ear - Part 1: Ear simulator for the measurement of supra-aural and circumaural earphones	EN 60318-1	2009
IEC 61000-4-2	2008	Electromagnetic compatibility (EMC) - Part 4-2: Testing and measurement techniques - Electrostatic discharge immunity test	EN 61000-4-2	2009
IEC 61000-4-3 + A1 + A2	2006 2007 2010	Electromagnetic compatibility (EMC) - Part 4-3: Testing and measurement techniques - Radiated, radio-frequency, electromagnetic field immunity test	EN 61000-4-3 + A1 + A2	2006 2008 2010
IEC 61000-4-4	2004	Electromagnetic compatibility (EMC) - Part 4-4: Testing and measurement techniques - Electrical fast transient/burst immunity test	EN 61000-4-4	2004
IEC 61000-4-5	2005	Electromagnetic compatibility (EMC) - Part 4-5: Testing and measurement techniques - Surge immunity test	EN 61000-4-5	2006
IEC 61000-4-6	2008	Electromagnetic compatibility (EMC) - Part 4-6: Testing and measurement techniques - Immunity to conducted disturbances, induced by radio-frequency fields	EN 61000-4-6	2009
IEC 61000-4-8	2009	Electromagnetic compatibility (EMC) - Part 4-8: Testing and measurement techniques - Power frequency magnetic field immunity test	EN 61000-4-8	2010
IEC 61000-4-11	2004	Electromagnetic compatibility (EMC) - Part 4-11: Testing and measurement techniques - Voltage dips, short interruptions and voltage variations immunity tests	EN 61000-4-11	2004

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
CISPR 16-1-2	2003	Specification for radio disturbance and	EN 55016-1-2	2004
+ A1	2004	immunity measuring apparatus and methods -	+ A1	2005
+ A2	2006	Part 1-2: Radio disturbance and immunity	+ A2	2006
		measuring apparatus - Ancillary equipment -		
		Conducted disturbances		
CISPR 20	2006	Sound and television broadcast receivers	EN 55020	2007
		and associated equipment - Immunity		
		characteristics - Limits and methods of		
		measurement		
CISPR 22 (mod)	2008	Information technology equipment - Radio	EN 55022	201X <sup>1)</sup>
		disturbance characteristics - Limits and		
		methods of measurement		

---

<sup>1)</sup> To be published.

**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 protection requirements Annex I, Article 1(b) of the EC Directive 2004/108/EC, and essential requirements of Article 3.1(b) (immunity only) of the EC Directive 1999/5/EC.

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

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

## CONTENTS

FOREWORD.....	4
INTRODUCTION.....	6
1 Scope and object.....	7
2 Normative references.....	7
3 Terms and definitions .....	8
4 Immunity test requirements .....	11
4.1 General.....	11
4.2 Particular requirements.....	11
4.2.1 Electrostatic discharges (ESD).....	11
4.2.2 Electrical fast transients (EFT).....	12
4.2.3 Continuous radio frequency disturbances .....	12
4.2.4 Power-frequency magnetic fields.....	13
4.2.5 Surges.....	13
4.2.6 Voltage dips and interruptions .....	13
5 Applicability .....	13
6 Conditions during testing.....	14
6.1 General conditions.....	14
6.2 Particular conditions (EUT operational modes, etc.) .....	15
7 Performance criteria .....	15
7.1 General performance criteria .....	15
7.2 Performance criterion A .....	15
7.3 Performance criterion B .....	15
7.4 Performance criterion C .....	15
7.5 Particular performance criteria .....	16
8 Product documentation .....	16
9 Measurement uncertainty.....	16
10 Immunity requirements .....	16
Annex A (normative) Telephony terminal equipment .....	19
Annex B (normative) Data processing equipment.....	29
Annex C (normative) Local area networks (LAN).....	33
Annex D (normative) Printers and plotters .....	34
Annex E (normative) Copying machines .....	35
Annex F (normative) Automatic teller machines (ATM).....	36
Annex G (normative) Point of sale terminals (POST) .....	38
Annex H (normative) xDSL Terminal equipment.....	40
Bibliography .....	44
Figure 1 – Description of ports .....	9
Figure A.1 – Example sound coupling set-up between the acoustic output device of a telephone handset and an artificial ear for detecting demodulated sound pressure level.....	21
Figure A.2 – Example test set-up for measuring the sound pressure level from the acoustic output device of a telephone handset.....	23
Figure A.3 – Test setup for measuring the reference sound pressure level from a speaker/hands free phone .....	24
Figure A.4 – Demodulation on analogue lines, set up.....	25



Figure A.5 – Example of typical small key telephone system or PABX .....	27
Figure H.1 – DSL access system configuration .....	40
Table 1 – Immunity, enclosure port .....	16
Table 2 – Immunity, signal ports and telecommunication ports .....	17
Table 3 – Immunity, input d.c. power port (excluding equipment marketed with a a.c./d.c. power converter) .....	17
Table 4 – Immunity, input a.c. power ports (including equipment marketed with a separate a.c./d.c power converter) .....	18
Table A.1 – Criteria applied to TTE functions, used during continuous disturbances testing .....	19
Table A.2 – Maximum acoustic demodulated levels at an ear piece .....	22
Table A.3 – Maximum acoustic demodulated levels relative to reference level .....	23
Table A.4 – Maximum demodulated differential mode signals at analogue ports .....	25
Table A.5 – TTE performance criteria for spot frequency tests .....	26
Table A.6 – TTE performance criteria for non-continuous radio frequency disturbances .....	26
Table A.7 – Test configurations and performance assessment methods applicable to a PABX and associated terminals for continuous RF disturbance tests .....	28
Table H.1 – ITU-T recommendations for xDSL systems .....	41
Table H.2 – Example cable attenuation .....	41