

STN	Elektromagnetická kompatibilita multimediálnych zariadení Požiadavky na odolnosť	STN EN 55035 33 4233
------------	---	--

Electromagnetic compatibility of multimedia equipment - Immunity requirements

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 12/17

Obsahuje: CISPR 35:2016, EN 55035:2017

125823

Úrad pre normalizáciu, metrológiu a skúšobníctvo Slovenskej republiky, 2018
Podľa zákona č. 264/1999 Z. z. o technických požiadavkách na výrobky a o posudzovaní zhody a o zmene a doplnení niektorých zákonov v znení neskorších predpisov sa slovenská technická norma a časti slovenskej technickej normy môžu rozmnožovať alebo rozširovať len so súhlasom slovenského národného normalizačného orgánu.

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 55035

July 2017

ICS 33.100.20

English Version

**Electromagnetic compatibility of multimedia equipment -
Immunity requirements
(CISPR 35:2016 , modified)**

Compatibilité électromagnétique des équipements
multimédia - Exigences d'immunité
(CISPR 35:2016 , modifiée)

Elektromagnetische Verträglichkeit von Multimediageräten -
Anforderungen zur Störfestigkeit
(CISPR 35:2016 , modifiziert)

This European Standard was approved by CENELEC on 2016-09-26. 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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre 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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.



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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Page

European foreword.....	3
Endorsement notice	4
1 Modification to Clause 1 "Scope"	4
2 Modification to Clause A.4 "Modified test levels and performance criteria"	4
3 Modification to Annexes	4
Annex ZA (normative) Normative references to international publications with their corresponding European publications	5
Annex ZZA (informative) Relationship between this European Standard and the essential requirements of Directive 2014/30/EU [2014 OJ L96] aimed to be covered	7
Annex ZZB (informative) Relationship between this European Standard and the essential requirements of Directive 2014/53/EU [2014 OJ L153] aimed to be covered	8
4 Modifications to Bibliography.....	9

European foreword

The text of document CISPR/I/522/FDIS, future edition 1 of CISPR 35:2016, prepared by CISPR SC I "Electromagnetic compatibility of information technology equipment, multimedia equipment and receivers" of CISPR "International special committee on radio interference" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 55035:2017.

A draft amendment, which covers common modifications to CISPR 35:2016 (CISPR/I/522/FDIS), was prepared by CLC/TC 210 "Electromagnetic Compatibility (EMC)" and approved by CENELEC.

The following dates are fixed:

- latest date by which the document has to be implemented at (dop) 2018-01-28
national level by publication of an identical national
standard or by endorsement
- latest date by which the national standards conflicting with (dow) 2022-07-28
the document have to be withdrawn

Clauses, subclauses, notes, tables, figures and annexes which are additional to those in CISPR 35:2016 are prefixed "Z".

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

This document has been prepared under mandate(s) given to CENELEC by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For the relationship with EU Directive(s) and the standardization request(s), see informative Annexes ZZA and ZZB, which are integral parts of this document.

Endorsement notice

The text of the International Standard CISPR 35:2016 was approved by CENELEC as a European Standard with agreed common modifications.

COMMON MODIFICATIONS

1 Modification to Clause 1 "Scope"

Add the following new paragraph after the sentence "MME within the scope of CISPR 20 or CISPR 24 is within the scope of this document.":

For MME that falls within the scope of EN 300 386 or any part(s) of EN 301 489 series, the requirements within these product specific/product family standards take precedence over the requirements within this document.

2 Modification to Clause A.4 "Modified test levels and performance criteria"

In Table A.2 "Modified test levels for performance criterion A for the broadcast reception function", **replace** the following:

The tuned channel $\pm 0,5$ MHz (lower edge frequency - 0,5 MHz up to the upper edge frequency + 0,5 MHz of the tuned channel) is excluded from testing.

by the following:

Except for DVB-C, the tuned channel $\pm 0,5$ MHz (lower edge frequency - 0,5 MHz up to the upper edge frequency + 0,5 MHz of the tuned channel) is excluded from testing. For DVB-C, the disturbance levels are 3 V/m or 3 V, except in the tuned channel $\pm 0,5$ MHz (lower edge frequency - 0,5 MHz up to the upper edge frequency + 0,5 MHz of the tuned channel), where the disturbance level is 1 V/m.

3 Modification to Annexes

Add the following new annexes.

Annex ZA

(normative)

Normative references to international publications with their corresponding European publications

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
CISPR 16-1-2	2014	Specification for radio disturbance and immunity measuring apparatus and methods - Part 1-2: Radio disturbance and immunity measuring apparatus - Coupling devices for conducted disturbance measurements	EN 55016-1-2	2014
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	2006	Electromagnetic compatibility (EMC) - Part 4-3: Testing and measurement techniques - Radiated, radio-frequency, electromagnetic field immunity test	EN 61000-4-3	2006
+ A1	2007		+ A1	2008
+ A2	2010		+ A2	2010
IEC 61000-4-4	2012	Electromagnetic compatibility (EMC) - Part 4-4: Testing and measurement techniques - Electrical fast transient/burst immunity test	EN 61000-4-4	2012
IEC 61000-4-5	2005	Electromagnetic compatibility (EMC) - Part 4-5: Testing and measurement techniques - Surge immunity test	EN 61000-4-5	2006 ¹⁾
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 ²⁾

1) EN 61000-4-5:2006 is replaced by EN 61000-4-5:2014, *Electromagnetic compatibility (EMC) - Part 4-5: Testing and measurement techniques - Surge immunity test* (IEC 61000-4-5:2014).

2) EN 61000-4-6:2009 is replaced by EN 61000-4-6:2014, *Electromagnetic compatibility (EMC) - Part 4-6: Testing and measurement techniques - Immunity to conducted disturbances, induced by radio-frequency fields* (IEC 61000-4-6:2013).

EN 55035:2017 (E)

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
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
IEC 61000-4-20	2010	Electromagnetic compatibility (EMC) - Part 4-20: Testing and measurement techniques - Emission and immunity testing in transverse electromagnetic (TEM) waveguides	EN 61000-4-20	2010
IEC 61000-4-21	2011	Electromagnetic compatibility (EMC) - Part 4-21: Testing and measurement techniques - Reverberation chamber test methods	EN 61000-4-21	2011
ISO 9241-3	1992	Ergonomic requirements for office work with visual display terminals (VDTs) - Part 3: Visual display requirements	EN 29241-3	1993 ³⁾
IEEE Standard 802.3	-	IEEE Standard for Ethernet, Section Three	-	-

3) EN 29241-3:1992 is withdrawn and replaced by EN ISO 9241-302:2008, *Ergonomics of human-system interaction - Part 302: Terminology for electronic visual displays* (ISO 9241-302:2008).

Annex ZZA

(informative)

Relationship between this European Standard and the essential requirements of Directive 2014/30/EU [2014 OJ L96] aimed to be covered

This European Standard has been prepared under the European Commission standardization request C(2016) 7641 final of 30.11.2016 ⁴⁾, ('M/552'), as regards harmonized standards in support of Directive 2014/30/EU relating to electromagnetic compatibility, to provide one voluntary means of conforming to essential requirements of Directive 2014/30/EU of the European Parliament and of the Council of 26 February 2014 on the harmonization of the laws of the Member States relating to electromagnetic compatibility [2014 OJ L96].

Once this standard is cited in the Official Journal of the European Union under that Directive, compliance with the normative clauses of this standard given in Table ZZA.1 confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding essential requirements of that Directive, and associated EFTA regulations.

Table ZZA.1 – Correspondence between this European Standard and the Essential Requirements set out in Directive 2014/30/EU [2014 OJ L96]

Essential requirements of Directive 2014/30/EU	Clause(s) / sub-clause(s) of this EN	Remarks / Notes
Annex I. 1(b) (electromagnetic immunity)	Clause 5 Immunity requirements Table 1 – Immunity requirements for enclosure ports	Not applicable for broadcast receivers (Annex A) under 2014/30/EU
	Clause 5 Immunity requirements Table 2 – Immunity requirements for analogue/digital data ports	Not applicable for broadcast receivers (Annex A) under 2014/30/EU
	Clause 5 Immunity requirements Table 3 – Immunity requirements for DC network power ports	Not applicable for broadcast receivers (Annex A) under 2014/30/EU
	Clause 5 Immunity requirements Table 4 – Immunity requirements for AC mains power ports	Not applicable for broadcast receivers (Annex A) under 2014/30/EU

WARNING 1 — Presumption of conformity stays valid only as long as a reference to this European Standard is maintained in the list published in the Official Journal of the European Union. Users of this standard should consult frequently the latest list published in the Official Journal of the European Union.

WARNING 2 — Other Union legislation may be applicable to the product(s) falling within the scope of this standard.

4) COMMISSION IMPLEMENTING DECISION C(2016) 7641 final of 30.11.2016 on a standardisation request to the European Committee for Standardisation, to the European Committee for Electrotechnical Standardisation and to the European Telecommunications Standards Institute as regards harmonised standards in support of Directive 2014/30/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to electromagnetic compatibility.

Annex ZZB (informative)

Relationship between this European Standard and the essential requirements of Directive 2014/53/EU [2014 OJ L153] aimed to be covered

This European Standard has been prepared under the European Commission standardization request C(2015) 5376 final of 4.8.2015 ⁵⁾ ('M/536'), as regards harmonized standards in support of Directive 2014/53/EU relating to radio equipment, to provide one voluntary means of conforming to essential requirements of Directive 2014/53/EU of the European Parliament and of the Council of 16 April 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of radio equipment and repealing Directive 1999/5/EC [2014 OJ L153].

Once this standard is cited in the Official Journal of the European Union under that Directive, compliance with the normative clauses of this standard given in Table ZZB.1 confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding essential requirements of that Directive, and associated EFTA regulations.

**Table ZZB.1 – Correspondence between this European Standard
and Article 3 of Directive 2014/53/EU [2014 OJ L153]**

Essential requirements of Directive 2014/53/EU	Clause(s) / sub-clause(s) of this EN	Remarks / Notes
Article 3 1.(b) (electromagnetic compatibility), immunity	Clause 5 Immunity requirements Table 1 – Immunity requirements for enclosure ports	Only applicable for broadcast receivers (Annex A) under 2014/53/EU
	Clause 5 Immunity requirements Table 2 – Immunity requirements for analogue/digital data ports	Only applicable for broadcast receivers (Annex A) under 2014/53/EU
	Clause 5 Immunity requirements Table 3 – Immunity requirements for DC network power ports	Only applicable for broadcast receivers (Annex A) under 2014/53/EU
	Clause 5 Immunity requirements Table 4 – Immunity requirements for AC mains power ports	Only applicable for broadcast receivers (Annex A) under 2014/53/EU

WARNING 1 — Presumption of conformity stays valid only as long as a reference to this European Standard is maintained in the list published in the Official Journal of the European Union. Users of this standard should consult frequently the latest list published in the Official Journal of the European Union.

WARNING 2 — Other Union legislation may be applicable to the product(s) falling within the scope of this standard.

5) COMMISSION IMPLEMENTING DECISION C(2015) 5376 final of 4.8.2015 on a standardisation request to the European Committee for Electrotechnical Standardisation and to the European Telecommunications Standards Institute as regards radio equipment in support of Directive 2014/53/EU of the European Parliament and of the Council of 16 April 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of radio equipment. [2014 OJ L153].

4 Modifications to Bibliography

Add the following before EN 300 421:

EN 300 386, *Electromagnetic compatibility and Radio spectrum Matters (ERM); Telecommunication network equipment; ElectroMagnetic Compatibility (EMC) requirements*

Add the following after EN 300 744:

EN 301 489 series, *Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services*

Add the following after EN 302 878:

EN 303 340 *Digital Terrestrial TV Broadcast Receivers; Harmonised Standard covering the essential requirements of article 3.2 of Directive 2014/53/EU*

Add the following notes for the standards indicated:

CISPR 16-2-1:2014	NOTE	Harmonized as EN 55016-2-1:2014 (not modified).
CISPR 20:2006 & CISPR 20:2006/A1:2013	NOTE	Harmonized as EN 55020:2007 (not modified) ⁶⁾ and as EN 55020:2007/A1:201X (not modified) ⁷⁾ .
CISPR 24:2010	NOTE	Harmonized as EN 55024:2010 (not modified).
CISPR 32:2015	NOTE	Harmonized as EN 55032:2015 (not modified).
IEC 60942:2003	NOTE	Harmonized as EN 60942:2003 (not modified).
IEC 61672-1:2013	NOTE	Harmonized as EN 61672-1:2013 (not modified).
ISO/IEC 17025:2005	NOTE	Harmonized as EN ISO/IEC 17025:2005 (not modified).

6) EN 55020:2007 is also amended by EN 55020:2007/A11:2011 and by EN 55020:2007/A12:2016.

7) At publication stage.



CISPR 35

Edition 1.0 2016-08

INTERNATIONAL STANDARD

NORME INTERNATIONALE



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

**Electromagnetic compatibility of multimedia equipment – Immunity
requirements**

**Compatibilité électromagnétique des équipements multimédia – Exigences
d'immunité**



THIS PUBLICATION IS COPYRIGHT PROTECTED
Copyright © 2016 IEC, Geneva, Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester. If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

Droits de reproduction réservés. Sauf indication contraire, aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de l'IEC ou du Comité national de l'IEC du pays du demandeur. Si vous avez des questions sur le copyright de l'IEC ou si vous désirez obtenir des droits supplémentaires sur cette publication, utilisez les coordonnées ci-après ou contactez le Comité national de l'IEC de votre pays de résidence.

IEC Central Office
 3, rue de Varembe
 CH-1211 Geneva 20
 Switzerland

Tel.: +41 22 919 02 11
 Fax: +41 22 919 03 00
info@iec.ch
www.iec.ch

About the IEC

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigenda or an amendment might have been published.

IEC Catalogue - webstore.iec.ch/catalogue

The stand-alone application for consulting the entire bibliographical information on IEC International Standards, Technical Specifications, Technical Reports and other documents. Available for PC, Mac OS, Android Tablets and iPad.

IEC publications search - www.iec.ch/searchpub

The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee,...). It also gives information on projects, replaced and withdrawn publications.

IEC Just Published - webstore.iec.ch/justpublished

Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and also once a month by email.

Electropedia - www.electropedia.org

The world's leading online dictionary of electronic and electrical terms containing 20 000 terms and definitions in English and French, with equivalent terms in 15 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

IEC Glossary - std.iec.ch/glossary

65 000 electrotechnical terminology entries in English and French extracted from the Terms and Definitions clause of IEC publications issued since 2002. Some entries have been collected from earlier publications of IEC TC 37, 77, 86 and CISPR.

IEC Customer Service Centre - webstore.iec.ch/csc

If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: csc@iec.ch.

A propos de l'IEC

La Commission Electrotechnique Internationale (IEC) est la première organisation mondiale qui élabore et publie des Normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

A propos des publications IEC

Le contenu technique des publications IEC est constamment revu. Veuillez vous assurer que vous possédez l'édition la plus récente, un corrigendum ou amendement peut avoir été publié.

Catalogue IEC - webstore.iec.ch/catalogue

Application autonome pour consulter tous les renseignements bibliographiques sur les Normes internationales, Spécifications techniques, Rapports techniques et autres documents de l'IEC. Disponible pour PC, Mac OS, tablettes Android et iPad.

Recherche de publications IEC - www.iec.ch/searchpub

La recherche avancée permet de trouver des publications IEC en utilisant différents critères (numéro de référence, texte, comité d'études,...). Elle donne aussi des informations sur les projets et les publications remplacées ou retirées.

IEC Just Published - webstore.iec.ch/justpublished

Restez informé sur les nouvelles publications IEC. Just Published détaille les nouvelles publications parues. Disponible en ligne et aussi une fois par mois par email.

Electropedia - www.electropedia.org

Le premier dictionnaire en ligne de termes électroniques et électriques. Il contient 20 000 termes et définitions en anglais et en français, ainsi que les termes équivalents dans 15 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.

Glossaire IEC - std.iec.ch/glossary

65 000 entrées terminologiques électrotechniques, en anglais et en français, extraites des articles Termes et Définitions des publications IEC parues depuis 2002. Plus certaines entrées antérieures extraites des publications des CE 37, 77, 86 et CISPR de l'IEC.

Service Clients - webstore.iec.ch/csc

Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions contactez-nous: csc@iec.ch.



INTERNATIONAL STANDARD

NORME INTERNATIONALE



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

**Electromagnetic compatibility of multimedia equipment – Immunity
requirements**

**Compatibilité électromagnétique des équipements multimédia – Exigences
d'immunité**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 33.100.20

ISBN 978-2-8322-3591-1

**Warning! Make sure that you obtained this publication from an authorized distributor.
Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.**

CONTENTS

FOREWORD.....	6
INTRODUCTION.....	8
1 Scope.....	9
2 Normative references.....	9
3 Terms, definitions and abbreviations	10
3.1 Terms and definitions	10
3.2 Abbreviations	15
4 Requirements	18
4.1 General requirements.....	18
4.2 Particular requirements	19
4.2.1 Electrostatic discharges (ESD)	19
4.2.2 Continuous RF disturbances.....	19
4.2.3 Power frequency magnetic field.....	21
4.2.4 Electrical fast transients/burst (EFT/B).....	21
4.2.5 Surges.....	21
4.2.6 Voltage dips and interruptions	21
4.2.7 Broadband impulsive conducted disturbances	21
5 Immunity requirements	23
6 Documentation	28
6.1 Test report	28
6.2 Advice to end-users	28
7 Test configuration	28
8 General performance criteria.....	29
8.1 General.....	29
8.2 Performance criterion A.....	29
8.3 Performance criterion B.....	30
8.4 Performance criterion C.....	30
9 Compliance with this document.....	30
10 Test uncertainty.....	30
Annex A (normative) Broadcast reception function	31
A.1 General.....	31
A.2 Applicability	31
A.3 Mode of operation	31
A.4 Modified test levels and performance criteria	33
Annex B (normative) Print function	35
B.1 Applicability	35
B.2 Mode of operation	35
B.3 Performance criteria.....	35
B.3.1 Performance criterion A.....	35
B.3.2 Performance criterion B.....	36
B.3.3 Performance criterion C	36
Annex C (normative) Scan function	37
C.1 Applicability	37
C.2 Mode of operation	37
C.3 Performance criteria.....	37

C.3.1	Performance criterion A.....	37
C.3.2	Performance criterion B.....	37
C.3.3	Performance criterion C	38
Annex D (normative)	Display and display output functions	39
D.1	Applicability	39
D.2	Mode of operation	39
D.2.1	Test signals and conditions	39
D.2.2	Display evaluation, for continuous disturbances	41
D.2.3	Display evaluation for power frequency magnetic field testing	43
D.3	Performance criteria.....	44
D.3.1	Performance criterion A for continuous radiated and conducted disturbances tests.....	44
D.3.2	Performance criterion A for the power frequency magnetic field tests	44
D.3.3	Performance criterion B.....	44
D.3.4	Performance criterion C	44
Annex E (normative)	Musical tone generating function.....	45
E.1	Applicability	45
E.2	Mode of operation	45
E.3	Performance criteria.....	45
E.3.1	General	45
E.3.2	Performance criterion A.....	45
E.3.3	Performance criterion B.....	46
E.3.4	Performance criterion C	46
Annex F (normative)	Networking functions.....	47
F.1	Applicability	47
F.1.1	General	47
F.1.2	Switching and routing function.....	47
F.1.3	Data transmission function	47
F.1.4	Supervisory function	47
F.2	Specific terminology for use within Annex F	47
F.3	General requirements for network functions	48
F.3.1	General	48
F.3.2	Configuration	48
F.3.3	Performance criteria.....	48
F.4	Requirements for CPE containing xDSL ports	50
F.4.1	Configuration and mode of operation	50
F.4.2	Performance criterion A.....	51
F.4.3	Performance criterion B.....	52
F.4.4	Performance criterion C	53
Annex G (normative)	Audio output function.....	54
G.1	Applicability	54
G.2	Specific terminology for use within this annex	54
G.2.1	acoustic interference ratio	54
G.2.2	acoustic reference level	54
G.2.3	audio output port.....	54
G.2.4	dBm0.....	54
G.2.5	demodulated audio level.....	54
G.2.6	electrical interference ratio	55
G.2.7	electrical reference level	55

G.2.8	loudspeaker	55
G.2.9	on-ear device	55
G.3	Overview	55
G.3.1	General	55
G.3.2	Ports to be tested	55
G.4	Reference level	56
G.5	Mode of operation	57
G.5.1	General	57
G.5.2	Gain setting	57
G.5.3	Audio frequency-response adjustments	57
G.5.4	Non-linear processing	57
G.6	Method of measurement	57
G.6.1	General	57
G.6.2	Electrical measurements	58
G.6.3	Acoustic measurements	58
G.6.4	Processes (not applicable to direct measurements)	59
G.7	Performance criteria	60
G.7.1	Performance criterion A	60
G.7.2	Performance criterion B	60
G.7.3	Performance criterion C	61
G.8	Test setup examples	61
Annex H (normative)	Telephony function	65
H.1	Applicability	65
H.2	General	65
H.3	Mode of operation	65
H.4	Performance criteria	66
Annex I (informative)	Immunity to specific radio technologies operating at frequencies of 800 MHz and above	67
Annex J (informative)	Examples of how to apply this document	69
J.1	Purpose	69
J.2	Developing the test plan	69
J.3	Specific examples	70
J.3.1	General	70
J.3.2	Example 1: A multifunction printer	70
J.3.3	Example 2: Flat panel television	72
J.3.4	Example 3: Notebook computer	74
J.3.5	Example 4: Small key telephone systems or PABXs	76
Bibliography		79
Figure 1	– Examples of ports	14
Figure 2	– Example schematic of the broadband impulsive conducted disturbances test setup	21
Figure 3	– Graphical representation of the continuous induced RF disturbances levels defined in table clause 2.1	23
Figure D.1	– Example colour bar image	41
Figure D.2	– Example test setup with a video camera system for use with a display	42
Figure D.3	– Example test setup for capturing the image directly from a display port	43
Figure F.1	– xDSL access system configuration	50

Figure G.1 – Example basic test setup for electrical measurements (direct connection to EUT).....	61
Figure G.2 – Example basic test setup for acoustic measurements	61
Figure G.3 – Example test setup for acoustic measurements on loudspeakers	61
Figure G.4 – Example test setup for on-ear acoustic measurements.....	62
Figure G.5 – Example test setup for on-ear acoustic measurements, microphone located away from earpiece transducer	62
Figure G.6 – Example test setup for measuring the sound pressure level from the acoustic output device of a telephone handset.....	63
Figure G.7 – Example test setups for measuring the demodulation on analogue wired network lines	64
Figure J.1 – Examples of different types of functions	70
Figure J.2 – Example of a typical small key telephone system or PABX.....	77
Table 1 – Immunity requirements for enclosure ports	24
Table 2 – Immunity requirements for analogue/digital data ports	25
Table 3 – Immunity requirements for DC network power ports	26
Table 4 – Immunity requirements for AC mains power ports	27
Table 5 – Test arrangements of EUT	29
Table A.1 – Examples of specifications of digital broadcast signals.....	32
Table A.2 – Modified test levels for performance criterion A for the broadcast reception function	34
Table D.1 – Prioritised list of display images	40
Table D.2 – Characteristics of a measurement video camera monitor system	43
Table E.1 – Subgroups and performance criteria A for the musical tone generating function	45
Table E.2 – Performance criteria for different subgroups given in Table E.1	46
Table F.1 – ITU-T recommendations for xDSL systems.....	51
Table F.2 – Attenuation values representing cable lengths.....	51
Table F.3 – Performance criteria against impulse duration	52
Table G.1 – Test requirements for various MME	56
Table G.2 – Measurement method and reference level setting	56
Table G.3 – Performance criterion A – Limits for devices supporting telephony	60
Table H.1 – Telephony functions, performance criteria.....	66
Table I.1 – Guidance on the selection of immunity levels to common wireless communication devices	68
Table J.1 – Test requirements for example 1: a multifunction printer	71
Table J.2 – Test details for example 1: a multifunction printer	72
Table J.3 – Test requirements for example 2: flat panel television.....	73
Table J.4 – Test details for example 2: flat panel television.....	74
Table J.5 – Test requirements for example 3: notebook computer	75
Table J.6 – Test details for example 3: notebook computer	76
Table J.7 – Example test configurations and performance assessment methods applicable to a PABX and associated terminals for continuous induced RF disturbance tests	78

INTERNATIONAL ELECTROTECHNICAL COMMISSION

INTERNATIONAL SPECIAL COMMITTEE ON RADIO INTERFERENCE

**ELECTROMAGNETIC COMPATIBILITY OF MULTIMEDIA EQUIPMENT –
IMMUNITY REQUIREMENTS****FOREWORD**

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard CISPR 35 has been prepared by CISPR subcommittee 1: Electromagnetic compatibility of information technology equipment, multimedia equipment and receivers.

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

FDIS	Report on voting
CISPR/II/522/FDIS	CISPR/II/527/RVD

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

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

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website 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.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

This CISPR document establishes uniform requirements for the electromagnetic immunity of multimedia equipment. The test methods are given within this document or in referenced basic EMC immunity standards. This document specifies applicable tests, test levels, product operating conditions and assessment criteria.

ELECTROMAGNETIC COMPATIBILITY OF MULTIMEDIA EQUIPMENT – IMMUNITY REQUIREMENTS

1 Scope

NOTE Blue coloured text within this document indicates text aligned with CISPR 32. CISPR 32 contains the appropriate emission requirements above 150 kHz for the equipment within the scope of this document.

This document applies to multimedia equipment (MME) as defined in 3.1.24 and having a rated AC or DC supply voltage not exceeding 600 V.

MME within the scope of CISPR 20 or CISPR 24 is within the scope of this document.

MME with a broadcast reception function is within the scope of this document, see Annex A. MME with non-broadcast wireless interfaces is also within the scope of this document, however, compliance with this document does not require the assessment of the performance of these interfaces.

MME intended primarily for professional use is within the scope of this document.

MME for which immunity requirements in the frequency range covered by this document are explicitly formulated in other CISPR documents (except CISPR 20 and CISPR 24) are excluded from the scope of this document.

The objectives of this document are:

- to establish requirements which provide an adequate level of intrinsic immunity so that the MME will operate as intended in its environment in the frequency range 0 kHz to 400 GHz;
- to specify procedures to ensure the reproducibility of tests and the repeatability of results.

Due to technology convergence of the functions of MME, the performance criteria have been determined on a function-orientated basis rather than on an equipment-orientated basis.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 16-1-2:2014, *Specification for radio disturbance and immunity measuring apparatus and methods – Part 1-2: Radio disturbance and immunity measuring apparatus – Coupling devices for conducted disturbance measurements*

IEC 61000-4-2:2008, *Electromagnetic compatibility (EMC) – Part 4-2: Testing and measurement techniques – Electrostatic discharge immunity test*

IEC 61000-4-3:2006, *Electromagnetic compatibility (EMC) – Part 4-3: Testing and measurement techniques – Radiated, radio-frequency, electromagnetic field immunity test*

IEC 61000-4-3:2006/AMD 1:2007

IEC 61000-4-3:2006/AMD 2:2010

IEC 61000-4-4:2012, *Electromagnetic compatibility (EMC) – Part 4-4: Testing and measurement techniques – Electrical fast transient/burst immunity test*

IEC 61000-4-5:2005, *Electromagnetic compatibility (EMC) – Part 4-5: Testing and measurement techniques – Surge immunity test*¹

IEC 61000-4-6:2008, *Electromagnetic compatibility (EMC) – Part 4-6: Testing and measurement techniques – Immunity to conducted disturbances, induced by radio-frequency fields*²

IEC 61000-4-8:2009, *Electromagnetic compatibility (EMC) – Part 4-8: Testing and measurement techniques – Power frequency magnetic field immunity test*

IEC 61000-4-11:2004, *Electromagnetic compatibility (EMC) – Part 4-11: Testing and measurement techniques – Voltage dips, short interruptions and voltage variations immunity tests*

IEC 61000-4-20: 2010, *Electromagnetic compatibility (EMC) – Part 4-20: Testing and measurement techniques – Emission and immunity testing in transverse electromagnetic (TEM) waveguides*

IEC 61000-4-21:2011, *Electromagnetic compatibility (EMC) – Part 4-21: Testing and measurement techniques – Reverberation chamber test methods*

ISO 9241-3:1992, *Ergonomic requirements for office work with visual display terminals (VDTs) – Part 3: Visual display requirements*

IEEE Standard 802.3, *IEEE Standard for Ethernet, Section Three*

koniec náhľadu – text ďalej pokračuje v platenej verzii STN