



NSAI
Standards

Irish Standard
I.S. EN 55032:2012

Electromagnetic compatibility of multimedia equipment - Emission requirements (CISPR 32:2012 (EQV))

© CENELEC 2012 No copying without NSAI permission except as permitted by copyright law.

I.S. EN 55032:2012

Incorporating amendments/corrigenda issued since publication:

EN 55032:2012/AC:2012
EN 55032:2012/AC:2013

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

I.S. xxx: Irish Standard – national specification based on the consensus of an expert panel and subject to public consultation.

S.R. xxx: Standard Recommendation - recommendation based on the consensus of an expert panel and subject to public consultation.

SWiFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

<i>This document replaces:</i>	<i>This document is based on:</i> EN 55032:2012	<i>Published:</i> 4 May, 2012
This document was published under the authority of the NSAI and comes into effect on: 10 May, 2012		ICS number: 33.100.10
NSAI 1 Swift Square, Northwood, Santry Dublin 9	T +353 1 807 3800 F +353 1 807 3838 E standards@nsai.ie W NSAI.ie	Sales: T +353 1 857 6730 F +353 1 857 6729 W standards.ie
Údarás um Chaighdeáin Náisiúnta na hÉireann		



Corrigendum to EN 55032:2012

English version

Content of corrigendum of December 2012

In the foreword, modify the DOW to read:

- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2017-03-05

Content of corrigendum of September 2013

Add the following text after the dop and dow information:

This document supersedes EN 55013:2013, EN 55022:2010 + AC:2011 and EN 55103-1:2009 + A1:2012.

September 2013

This page is intentionally left BLANK.

**Electromagnetic compatibility of multimedia equipment -
Emission requirements
(CISPR 32:2012)**

Compatibilité électromagnétique des
équipements multimédia -
Exigences d'émission
(CISPR 32:2012)

Elektromagnetische Verträglichkeit von
Multimediageräten und -einrichtungen -
Anforderungen an die Störaussendung
(CISPR 32:2012)

This European Standard was approved by CENELEC on 2012-03-05. 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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey 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 CISPR/I/391/FDIS, future edition 1 of CISPR 32, prepared by CISPR SC 1 "Electromagnetic compatibility of information technology equipment, multimedia equipment and receivers" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 55032:2012.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2012-12-05
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2015-03-05

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

This document has been prepared under a mandate 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 see informative Annex ZZ, which is an integral part of this document.

Endorsement notice

The text of the International Standard CISPR 32:2012 was 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 16 series	NOTE	Harmonized in EN 55016 series.
CISPR 22:2008	NOTE	Harmonized as EN 55022:2010 (modified).

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 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 16-1-1 + corr. October + corr. October + A1	2010 2010 2011 2010	Specification for radio disturbance and immunity measuring apparatus and methods - Part 1-1: Radio disturbance and immunity measuring apparatus - Measuring apparatus	EN 55016-1-1 + A1	2010 2010
CISPR 16-1-2 + corr. January + A1 + A2	2003 2009 2004 2006	Specification for radio disturbance and immunity measuring apparatus and methods - Part 1-2: Radio disturbance and immunity measuring apparatus - Ancillary equipment - Conducted disturbances	EN 55016-1-2 + A1 + A2	2004 2005 2006
CISPR 16-1-4 + corr. December	2010 2010	Specification for radio disturbance and immunity measuring apparatus and methods - Part 1-4: Radio disturbance and immunity measuring apparatus - Antennas and test sites for radiated disturbance measurements	EN 55016-1-4	2010
CISPR 16-2-1 + A1	2008 2010	Specification for radio disturbance and immunity measuring apparatus and methods - Part 2-1: Methods of measurement of disturbances and immunity - Conducted disturbance measurements	EN 55016-2-1 + A1	2009 2011
CISPR 16-2-3 + A1	2010 2010	Specification for radio disturbance and immunity measuring apparatus and methods - Part 2-3: Methods of measurement of disturbances and immunity - Radiated disturbance measurements	EN 55016-2-3 + A1	2010 2010
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	EN 55016-4-2	2011
CISPR 16-4-3 + A1	2004 2006	Specification for radio disturbance and immunity measuring apparatus and methods - Part 4-3: Uncertainties, statistics and limit modeling - Statistical considerations in the determination of EMC compliance of mass-produced products	-	-
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

<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	-	-
ISO/IEC 17025	2005	General requirements for the competence of testing and calibration laboratories	EN ISO/IEC 17025	2005
ANSI C63.5	2006	American National Standard (for) Electromagnetic Compatibility - Radiated Emission Measurements in Electromagnetic Interference (EMI) Control - Calibration of Antennas (9 kHz to 40 GHz)	-	-
IEEE 802.3	-	IEEE Standard for Information technology - Telecommunications and information exchange between systems - Local and metropolitan area networks - Part 3: Carrier Sense Multiple Access with Collision Detection (CSMA/CD) Access Method and Physical Layer Specifications	-	-

Annex ZZ (informative)

Coverage of Essential Requirements of EU 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 of Annex I, Article 1(a) of the EU Directive 2004/108/EC, and essential requirements of Article 3.1(b) (emission only) of the EU Directive 1999/5/EC.

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

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

This page is intentionally left BLANK.

CONTENTS

FOREWORD.....	5
1 Scope.....	7
2 Normative references	7
3 Terms, definitions and abbreviations	8
3.1 Terms and definitions	8
3.2 Abbreviations	12
4 Classification of equipment.....	14
5 Requirements	14
6 Measurements.....	14
6.1 General.....	14
6.2 Host systems and modular EUT	15
6.3 Measurement procedure.....	16
7 Equipment documentation	16
8 Applicability.....	16
9 Test report.....	17
10 Compliance with this publication.....	18
11 Measurement uncertainty	18
Annex A (normative) Requirements.....	19
Annex B (normative) Exercising the EUT during measurement and test signal specifications.....	27
Annex C (normative) Measurement procedures, instrumentation and supporting information.....	32
Annex D (normative) Arrangement of EUT, local AE and associated cabling	46
Annex E (informative) Prescan measurements.....	61
Annex F (informative) Test report contents summary	62
Annex G (informative) Support information for the measurement procedures defined in C.4.1.1.....	63
Bibliography.....	79
Figure 1 – Examples of ports	11
Figure 2 – Example of a host system with different types of modules	15
Figure A.1 – Graphical representation of the limits for the AC mains power port defined in Table A.9	19
Figure C.1 – Measurement distance.....	33
Figure C.2 – Boundary of EUT, Local AE and associated cabling.....	34
Figure C.3 – Decision tree for using different detectors with quasi peak and average limits.....	35
Figure C.4 – Decision tree for using different detectors with peak and average limits.....	36
Figure C.5 – Decision tree for using different detectors with a quasi-peak limit	36
Figure C.6 – Calibration fixture	43
Figure C.7 – Circuit arrangement for measurement of emission voltages at TV/FM broadcast receiver tuner ports	44
Figure C.8 – Circuit arrangement for the measurement of the wanted signal and emission voltage at the RF modulator output port of an EUT.....	45

Figure D.1 – Example measurement arrangement for table-top EUT (Conducted and radiated emission) (Top view)	52
Figure D.2 – Example measurement arrangement for table-top EUT (Conducted emission measurement – alternative 1)	53
Figure D.3 – Example measurement arrangement for table-top EUT (Conducted emission measurement – alternative 2)	54
Figure D.4 – Example measurement arrangement for table-top EUT measuring in accordance with C.4.1.6.4	55
Figure D.5 – Example measurement arrangement for table-top EUT (Conducted emission measurement – alternative 2, showing AAN position)	56
Figure D.6 – Example measurement arrangement for floor standing EUT (Conducted emission measurement)	57
Figure D.7 – Example measurement arrangement for combinations of EUT (Conducted emission measurement)	58
Figure D.8 – Example measurement arrangement for table-top EUT (Radiated emission measurement)	58
Figure D.9 – Example measurement arrangement for floor standing EUT (Radiated emission measurement)	59
Figure D.10 – Example measurement arrangement for combinations of EUT (Radiated emission measurement)	60
Figure G.1 – Example AAN for use with unscreened single balanced pairs	63
Figure G.2 – Example AAN with high LCL for use with either one or two unscreened balanced pairs	64
Figure G.3 – Example AAN with high LCL for use with one, two, three, or four unscreened balanced pairs	65
Figure G.4 – Example AAN, including a 50 Ω source matching network at the voltage measuring port, for use with two unscreened balanced pairs	66
Figure G.5 – Example AAN for use with two unscreened balanced pairs	67
Figure G.6 – Example AAN, including a 50 Ω source matching network at the voltage measuring port, for use with four unscreened balanced pairs	68
Figure G.7 – Example AAN for use with four unscreened balanced pairs	69
Figure G.8 – Example AAN for use with coaxial cables, employing an internal common mode choke created by bifilar winding an insulated centre-conductor wire and an insulated screen-conductor wire on a common magnetic core (for example, a ferrite toroid)	70
Figure G.9 – Example AAN for use with coaxial cables, employing an internal common mode choke created by miniature coaxial cable (miniature semi-rigid solid copper screen or miniature double-braided screen coaxial cable) wound on ferrite toroids	70
Figure G.10 – Example AAN for use with multi-conductor screened cables, employing an internal common mode choke created by bifilar winding multiple insulated signal wires and an insulated screen-conductor wire on a common magnetic core (for example, a ferrite toroid)	71
Figure G.11 – Example AAN for use with multi-conductor screened cables, employing an internal common mode choke created by winding a multi-conductor screened cable on ferrite toroids	72
Figure G.12 – Basic circuit for considering the limits with defined common mode impedance of 150 Ω	75
Figure G.13 – Basic circuit for the measurement with unknown common mode impedance	75
Figure G.14 – Impedance layout of the components in the method described in C.4.1.6.3	76

Figure G.15 – Basic measurement setup to measure combined impedance of the 150 Ω and ferrites	78
Table 1 – Required highest frequency for radiated measurement	17
Table A.1 – Radiated emissions, basic standards and the limitation of the use of particular methods	20
Table A.2 – Requirements for radiated emissions at frequencies up to 1 GHz for Class A equipment	21
Table A.3 – Requirements for radiated emissions at frequencies above 1 GHz for Class A equipment	21
Table A.4 – Requirements for radiated emissions at frequencies up to 1 GHz for Class B equipment	21
Table A.5 – Requirements for radiated emissions at frequencies above 1 GHz for Class B equipment	22
Table A.6 – Requirements for radiated emissions from FM receivers	22
Table A.7 – Conducted emissions, basic standards and the limitation of the use of particular methods	23
Table A.8 – Requirements for conducted emissions from the AC mains power ports of Class A equipment	23
Table A.9 – Requirements for conducted emissions from the AC mains power ports of Class B equipment	24
Table A.10 – Requirements for asymmetric mode conducted emissions from Class A equipment	24
Table A.11 – Requirements for asymmetric mode conducted emissions from Class B equipment	25
Table A.12 – Requirements for conducted differential voltage emissions from Class B equipment	26
Table B.1 – Methods of exercising displays and video ports	28
Table B.2 – Display and video parameters	28
Table B.3 – Methods used to exercise ports	29
Table B.4 – Examples of digital broadcast signal specifications	30
Table C.1 – Analogue/digital data port emission procedure selection	38
Table C.2 – LCL values	39
Table C.3 – 5 m OATS/SAC NSA figures	45
Table D.1 – Arrangement spacing, distances and tolerances	48
Table F.1 – Summary of information to include in a test report	62
Table G.1 – Summary of advantages and disadvantages of the procedures described in C.4.1.6	73

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**ELECTROMAGNETIC COMPATIBILITY
OF MULTIMEDIA EQUIPMENT –****Emission 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 32 has been prepared by CISPR subcommittee I: Electromagnetic compatibility of information technology equipment, multimedia equipment and receivers.

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

FDIS	Report on voting
CIS/II/391/FDIS	CIS/II/398/RVD

Full information on the voting for the approval of this publication 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 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.

The contents of the corrigenda of March 2012 and August 2012 have been included in this copy.

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.

ELECTROMAGNETIC COMPATIBILITY OF MULTIMEDIA EQUIPMENT –

Emission requirements

1 Scope

NOTE Blue coloured text within this document indicates text aligned with CISPR 35.

This International Standard applies to multimedia equipment (MME) as defined in 3.1.23 and having a rated r.m.s. AC or DC supply voltage not exceeding 600 V.

Equipment within the scope of CISPR 13 or CISPR 22 is within the scope of this publication.

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

The radiated emission requirements in this standard are not intended to be applicable to the intentional transmissions from a radio transmitter as defined by the ITU, nor to any spurious emissions related to these intentional transmissions.

Equipment, for which emission requirements in the frequency range covered by this publication are explicitly formulated in other CISPR publications (except CISPR 13 and CISPR 22), are excluded from the scope of this publication.

This document does not contain requirements for in-situ assessment. Such testing is outside the scope of this publication and may not be used to demonstrate compliance with it.

This publication covers two classes of MME (Class A and Class B). The MME classes are specified in Clause 4.

The objectives of this publication are:

- 1) to establish requirements which provide an adequate level of protection of the radio spectrum, allowing radio services to operate as intended in the frequency range 9 kHz to 400 GHz;
- 2) to specify procedures to ensure the reproducibility of measurement and the repeatability of results.

2 Normative references

The following reference documents are indispensable for the application of this publication. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

CISPR 16-1-1:2010, *Specification for radio disturbance and immunity measuring apparatus and methods – Part 1-1: Radio disturbance and immunity measuring apparatus – Measuring apparatus*
Amendment 1 (2010)

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*
Amendment 1 (2004)
Amendment 2 (2006)

This is a free preview. Purchase the entire publication at the link below:

**I.S. EN 55032 : 2012 : INC : COR 1 : 2013 : EN :
COMBINED PDF**

-
- ⤵ Looking for additional Standards? Visit SAI Global Infostore
 - ⤵ Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation
-

Need to speak with a Customer Service Representative - Contact Us