SVENSK STANDARD SS-EN 55015

Fastställd	Utgåva	Sida	Ansvarig kommitté
2013-09-11	6	1 (1+63)	SEK TK EMC

Belysningsmateriel och liknande utrustning – Radiostörningar – Gränsvärden och mätmetoder

Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment

Som svensk standard gäller europastandarden EN 55015:2013. Den svenska standarden innehåller den officiella engelska språkversionen av EN 55015:2013.

Nationellt förord

Europastandarden EN 55015:2013

består av:

– **europastandardens ikraftsättningsdokument,** utarbetat inom CENELEC
– **CISPR 15, Eighth edition, 2013 - Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment**

jämte

interpretation sheet 1 och 2

utarbetad inom International Electrotechnical Commission, IEC.

Tidigare fastställd svensk standard SS-EN 55015, utgåva 5, 2007, SS-EN 55015/A1, utgåva 1, 2007 och SS-EN 55015/A2, utgåva 1, 2009, gäller ej fr o m 2016-06-12.

ICS 33.100.10

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 55015

August 2013

ICS 33.100.10

Supersedes EN 55015:2006 + A1:2007 + A2:2009

English version

Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment
(CISPR 15:2013 + IS1:2013 + IS2:2013)

Limites et méthodes de mesure des perturbations radioélectriques produites par les appareils électriques d'éclairage et les appareils analogues
(CISPR 15:2013 + IS1:2013 + IS2:2013)

Grenzwerte und Messverfahren für Funkstörungen von elektrischen Beleuchtungseinrichtungen und ähnlichen Elektrogeräten
(CISPR 15:2013 + IS1:2013 + IS2:2013)

CENELEC

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

Management Centre: Avenue Marnix 17, B - 1000 Brussels

Ref. No. EN 55015:2013 E

SEK Svensk Elstandard

Foreword

The text of document CISPR/F/598/FDIS, future edition 8 of CISPR 15, prepared by CIS/F, "Interference relating to household appliances tools, lighting equipment and similar apparatus", of IEC CISPR, "International special committee on radio interference" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 55015:2013.

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)	2014-03-12
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2016-06-12

This document supersedes EN 55015:2006 + A1:2007 + A2:2009.

EN 55015:2013 includes the following significant technical changes with respect to EN 55015:2006:

- inclusion of LED light sources and luminaires, clarification of test supply voltage and frequency, and improvements to Clause 5 relating to the application of limits to the various types of lighting equipment covered under the scope of EN 55015;
- notes relating to Japan in Tables 2a and 3a have been removed;
- introduction of requirements for flashing type emergency lighting luminaires utilizing xenon lamps;
- introduction of requirements for neon and other advertising signs;
- clarification of the requirement for radiated disturbances between 30 MHz and 300 MHz in case the operating frequency of the light source is below 100 Hz.

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(s) see informative Annex ZZ, which is an integral part of this document.

Endorsement notice

The text of the International Standard CISPR 15:2013 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:

IEC 60598-1:2008	NOTE	Harmonised as EN 60598-1:2008 (modified).
CISPR 16-2-1:2008	NOTE	Harmonised as EN 55016-2-1:2009 (not 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.

Publication	Year	Title	EN/HD	Year
IEC 60050-161	-	International Electrotechnical Vocabulary (IEV) - Chapter 161: Electromagnetic compatibility	-	-
IEC 60155	-	Glow-starters for fluorescent lamps	EN 60155	-
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
CISPR 11 (mod) + A1	2009 2010	Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics - Limits and methods of measurement	EN 55011 + A1	2009 2010
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 + A1	2010 2010 2012	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 + A1	2010 2012
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 32 + corr. August + corr. March	2012 2012 2012	Electromagnetic compatibility of multimedia equipment - Emission requirements	EN 55032 + AC:2012	2012 2012

CISPR/F/Publication CISPR 15 (2013), eighth edition/I-SH 01

LIMITS AND METHODS OF MEASUREMENT OF RADIO DISTURBANCE CHARACTERISTICS OF ELECTRICAL LIGHTING AND SIMILAR EQUIPMENT

INTERPRETATION SHEET 1

This interpretation sheet has been prepared by subcommittee CISPR F: Interference relating to household appliances, tools, lighting equipment and similar apparatus, of IEC technical committee CISPR: International special committee on radio interference.

The text of this interpretation sheet is based on the following documents:

ISH	Report on voting
CISPR/F/583/ISH	CISPR/F/591/RVD

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

CISPR 15 interpretation sheet on the assessment of retrofit Extra Low Voltage LED lamps

Introduction

During the CISPR meeting in Seoul 2011 the IARU reported that a number of LED lighting products are causing interference with amateur radio reception. See item 15 of the minutes CISPR/1218/RM.

In addition to this verbal report, the IARU submitted in January 2012 a detailed written report which was circulated as CISPR/F/565/INF. Major sources of interference are some types of Extra Low Voltage (e.g. 12 V) LED lamps for which the current CISPR 15 requirements are not clear. Additional clarification of the standard was requested urgently.

In response the CISPR F management committee issued document CISPR/F/568/INF setting out an action plan to resolve the issue at short notice.

Part of the solution is this Interpretation Sheet which details the assessment of retrofit ELV LED lamps.

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Question: **How are the requirements of CISPR 15 applied to retrofit Extra Low Voltage (ELV) LED lamps?**

Interpretation: **When assessing retrofit ELV LED lamps against the requirements of CISPR 15 the following procedure shall be applied.**

ELV LED lamps without active switching electronic components are considered to fulfil the requirements of CISPR 15 without test.

All other types of retrofit ELV LED lamps shall be tested in conjunction with a wire wound 50 or 60 Hz ring-core transformer. The use of such a transformer is considered to be the worst-case condition and shall be used unless it is clearly stated in the manufacturer's instructions that the lamp is unsuitable for use with such a transformer. In this case measurements shall be performed in combination with a typical compliant electronic transformer for halogen lamps.

The combination of transformer and ELV LED lamp shall comply with the mains disturbance voltage limits of Table 2a and the radiated disturbance limits of Tables 3a and 3b.

During the disturbance voltage measurement, the ELV LED lamp is mounted in a conical metal housing as described in Figure 7. The ELV LED lamp is then connected to the transformer by a flexible 3-core cable consisting of two ELV supply conductors and the earth connection to the conical housing. The length of this cable shall be as short as possible. The metal conical housing shall be positioned with its cable entrance close to the transformer.

The combination of transformer and conical metal housing shall be tested as a luminaire in accordance with the requirements of 8.2.

When performing the radiated disturbance measurements in accordance with Clause 9, the conical metal housing shall not be used.

References are to CISPR 15:2013.

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CISPR/F/Publication CISPR 15 (2013), eighth edition/I-SH 02

LIMITS AND METHODS OF MEASUREMENT OF RADIO DISTURBANCE CHARACTERISTICS OF ELECTRICAL LIGHTING AND SIMILAR EQUIPMENT

INTERPRETATION SHEET 2

This interpretation sheet has been prepared by subcommittee CISPR F: Interference relating to household appliances, tools, lighting equipment and similar apparatus, of IEC technical committee CISPR: International special committee on radio interference.

The text of this interpretation sheet is based on the following documents:

ISH	Report on voting
CISPR/F/584/ISH	CISPR/F/592/RVD

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

CISPR 15 interpretation sheet on: Test conditions for wall dimmers

Introduction

More and more incandescent lamps are replaced by energy saving lamps (fluorescent and LED). Some types are dimmable by phase control of the supply voltage. New wall dimmers are developed to improve the dim performance when the dimmer is loaded with energy saving lamps. CISPR 15 is not clear on how to test these types of wall dimmers.

This interpretation sheet has been prepared by the Joint 17B-23B-34A-77A IEC Forum on the dimming of electronic self-ballasted lamps and was finalized during the CISPR/F/WG2 meeting in Bangkok.

Question: How to test a wall dimmer which is suitable for energy saving lamps?

Relevant text CISPR 15:

Clause 8 of CISPR 15 specifies the ‘Method of measurement of disturbance voltages’.

8.3.1 ‘**Directly operating devices’** specifies the test arrangement of independent directly operating light regulating devices such as wall dimmers.

The second paragraph reads:

‘Unless otherwise specified by the manufacturer, the regulating device shall be measured with the maximum allowed load consisting of incandescent lamps as specified by the manufacturer.’

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Answer:

1) Independent directly operating light regulating devices (e.g. wall dimmers) which are suitable for incandescent lamps and other types of lighting equipment (e.g. self-ballasted lamps) shall be tested with incandescent lamps.
2) Independent directly operating light regulating devices which are only suitable for lighting equipment other than incandescent lamps shall be tested with the appropriate lighting equipment as provided by the manufacturer.

The above will be included in the full revision of CISPR 15, following the 8th edition.

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LIMITS AND METHODS OF MEASUREMENT OF RADIO DISTURBANCE CHARACTERISTICS OF ELECTRICAL LIGHTING AND SIMILAR EQUIPMENT

1 Scope

This standard applies to the emission (radiated and conducted) of radiofrequency disturbances from:

– all lighting equipment with a primary function of generating and/or distributing light intended for illumination purposes, and intended either for connection to the low voltage electricity supply or for battery operation;
– the lighting part of multi-function equipment where one of the primary functions of this is illumination;
– independent auxiliaries exclusively for use with lighting equipment;
– UV and IR radiation equipment;
– neon advertising signs;
– street/flood lighting intended for outdoor use;
– transport lighting (installed in buses and trains).

Excluded from the scope of this standard are:

– lighting equipment operating in the ISM frequency bands (as defined in Resolution 63 (1979) of the ITU Radio Regulation);
– lighting equipment for aircraft and airports;
– apparatus for which the electromagnetic compatibility requirements in the radio-frequency range are explicitly formulated in other CISPR standards.

NOTE Examples are:

– built-in lighting devices in other equipment, for example scale illumination or neon devices;
– photocopiers;
– slide projectors;
– lighting equipment for road vehicles.

The frequency range covered is 9 kHz to 400 GHz.

Multi-function equipment which is subjected simultaneously to different clauses of this standard and/or other standards shall meet the provisions of each clause/standard with the relevant functions in operation.

The limits in this standard have been determined on a probabilistic basis to keep the suppression of disturbances within economically reasonable limits while still achieving an adequate level of radio protection and electromagnetic compatibility. In exceptional cases, additional provisions may be required.

2 Normative references

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.

IEC 60050-161, *International Electrotechnical Vocabulary (IEV) – Chapter 161: Electromagnetic compatibility*

IEC 60155, *Glow-starters for fluorescent lamps*

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

CISPR 11, *Industrial, scientific and medical equipment – Radio-frequency disturbance characteristics – Limits and methods of measurement*
Amendment 1:2010

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

CISPR 16-1-4:2010, *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*
Amendment 1:2012

CISPR 16-4-2:2011, *Specification for radio disturbance and immunity measuring apparatus and methods – Part 4-2: Uncertainties, statistics and limit modelling – Uncertainty in EMC measurements*

CISPR 32:2012, *Electromagnetic compatibility of multimedia equipment – Emission requirements*