



SLOVENSKI STANDARD

SIST EN 55015:1995

01-april-1995

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

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

Grenzwerte und Meßverfahren für Funkstörungen von elektrischen Beleuchtungseinrichtungen und ähnlichen Elektrogeräten

Limites et méthodes de mesure des perturbations radioélectriques produites par les appareils électriques d'éclairage et les appareils analogues

[https://standards.iteh.ai/catalog/standards/sist/787ce5d7-b358-4292-8b84-](https://standards.iteh.ai/catalog/standards/sist/787ce5d7-b358-4292-8b84-811357cb262e/sist-en-55015-1995)

Ta slovenski standard je istoveten z: EN 55015:1993

ICS:

33.100.01 Elektromagnetna združljivost Electromagnetic compatibility
na splošno in general

SIST EN 55015:1995

en

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 55015:1995

<https://standards.iteh.ai/catalog/standards/sist/787ce5d7-b358-4292-8b84-811357cb262e/sist-en-55015-1995>

EUROPEAN STANDARD

EN 55015

NORME EUROPEENNE

EUROPÄISCHE NORM

February 1993

UDC 621.326:621.391.82

Descriptors: Radio disturbance, method of measurement, lighting equipment, luminaire, limit, evaluation, statistics

ENGLISH VERSION

Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment
(CISPR 15:1992)

Limites et méthodes de mesure des perturbations radioélectriques produites par les appareils électriques d'éclairage et les appareils analogues
(CISPR 15:1992)

Grenzwerte und Meßverfahren für Funkstörungen von elektrischen Beleuchtungseinrichtungen und ähnlichen Elektrogeräten
(CISPR 15:1992)

STANDARD PREVIEW
(standards.iteh.ai)

This European Standard was approved by CENELEC on 1992-12-09. 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, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and 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

At the request of the CENELEC Technical Committee SC 110A, EMC Products, the International Standard CISPR 15:1992 was submitted to the CENELEC Unique Acceptance Procedure (UAP) in March 1992 for acceptance as a European Standard.

The text of the International Standard was approved by CENELEC as EN 55015 on 9 December 1992.

The following dates were fixed:

- | | | |
|---|-------|------------|
| latest date of publication of an identical national standard | (dop) | 1993-09-01 |
| - latest date of withdrawal of conflicting national standards | (dow) | 1995-03-01 |

For products which have complied with EN 55015:1987 + A1:1990 before 1995-03-01, as shown by the manufacturer or by a certification body, this previous standard may continue to apply for production until 2000-03-01.

Endorsement notice

The text of the International Standard CISPR 15:1992 was approved by CENELEC as a European Standard without any modification.

NOTE: The following editorial modifications apply to the English version of CISPR 15.

In clause 2, Normative references, the year of issue of CISPR 14 is to be changed into "1993".

In table 4 (page 19), column 3, "electrical" is to be replaced by "electric" (9 times).

ANNEX ZA (normative)

OTHER INTERNATIONAL PUBLICATIONS QUOTED IN THIS STANDARD
WITH THE REFERENCES OF THE RELEVANT EUROPEAN PUBLICATIONS

When the international publication has been modified by CENELEC common modifications, indicated by (mod), the relevant EN/HD applies.

IEC Publication	Date	Title	EN/HD	Date
-----	----	-----	-----	-----
50(161)	1990	International Electrotechnical Vocabulary (IEV) - Chapter 161: Electromagnetic compatibility	-	-
50(845)	1987	Chapter 845: Lighting	-	-
CISPR 14	1993	Limits and methods of measurement of radio disturbance characteristics of electrotechnical motor-operated and thermal appliances for household and similar purposes, electric tools and similar electric apparatus	EN 55014	1993
CISPR 16	1987	CISPR specification for radio interference - measuring apparatus and measuring methods Amendment n° 1 (1990) and amendment n° 2 (1983)	-	-

SIST EN 55015:1995

<https://standards.iteh.ai/catalog/standards/sist/787ce5d7-b358-4292-8b84-811357cb262e/sist-en-55015-1995>

COMMISSION
ÉLECTROTECHNIQUE
INTERNATIONALE

CISPR 15

Quatrième édition
Fourth edition
1992-09

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

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

Limites et méthodes de mesure des
perturbations radioélectriques produites
par les appareils électriques d'éclairage
et les appareils analogues

(standards.iteh.ai)

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



Numéro de référence
Reference number
CISPR 15: 1992

Publication CISPR 15 de la CEI
(Quatrième édition - 1992)

Limites et méthodes de mesure
des perturbations radioélectriques
produites par les appareils
électriques d'éclairage et
les appareils analogues

IEC Publication CISPR 15
(Fourth edition - 1992)

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

CORRIGENDUM

Page 6

Sous «Rapports de vote» au lieu de:

CISPR/F(BC)73 et 75 à 80

CISPR/F(BC)86

lire:

CISPR/F(BC)73 et 75 à 79

CISPR/F(BC)83

Page 7

Under "Reports on Voting" instead of:

CISPR/F(CO)73 and 75 to 80

CISPR/F(CO)86

read:

CISPR/F(CO)73 and 75 to 79

CISPR/F(CO)83

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 55015:1995

<https://standards.iteh.ai/catalog/standards/sist/787ce5d7-b358-4292-8b84-811357cb262e/sist-en-55015-1995>

Révision de la présente publication

Le contenu technique des publications de la CEI et du C.I.S.P.R. est constamment revu par la Commission et par le C.I.S.P.R., afin d'assurer qu'il reflète bien l'état actuel de la technique.

Les renseignements relatifs à ce travail de révision, à l'établissement des éditions révisées et aux mises à jour peuvent être obtenus auprès des Comités nationaux de la CEI et en consultant les documents ci-dessous:

- Bulletin de la CEI
- Annuaire de la CEI
- Catalogue des publications de la CEI
Publié annuellement

Terminologie utilisée dans la présente publication

Seuls sont définis ici les termes spéciaux se rapportant à la présente publication.

En ce qui concerne la terminologie générale, le lecteur se reportera à la Publication 50 de la CEI: Vocabulaire Electrotechnique International (VEI), qui est établie sous forme de chapitres séparés traitant chacun d'un sujet défini, l'Index général étant publié séparément. Des détails complets sur le VEI peuvent être obtenus sur demande.

Pour les termes concernant les perturbations radio-électriques, voir le chapitre 902.

Symboles graphiques et littéraux

Pour les symboles graphiques, symboles littéraux et signes d'usage général approuvés par la CEI, le lecteur consultera:

- la Publication 27 de la CEI: Symboles littéraux à utiliser en électrotechnique;
- la Publication 617 de la CEI: Symboles graphiques pour schémas.

Les symboles et signes contenus dans la présente publication ont été soit repris des Publications 27 ou 617 de la CEI, soit spécifiquement approuvés aux fins de cette publication.

Publications du C.I.S.P.R.

L'attention du lecteur est attirée sur les pages 3 et 4 de la couverture, qui énumère les publications du C.I.S.P.R.

Revision of this publication

The technical content of IEC and C.I.S.P.R. publications is kept under constant review by the IEC and C.I.S.P.R., thus ensuring that the content reflects current technology.

Information on the work of revision, the issue of revised editions and amendment sheets may be obtained from IEC National Committees and from the following IEC sources:

- IEC Bulletin
- IEC Yearbook
- Catalogue of IEC Publications
Published yearly

Terminology used in this publication

Only special terms required for the purpose of this publication are defined herein.

For general terminology, readers are referred to IEC Publication 50: International Electrotechnical Vocabulary (IEV), which is issued in the form of separate chapters each dealing with a specific field, the General Index being published as a separate booklet. Full details of the IEV will be supplied on request.

For terms on radio interference, see Chapter 902.

Graphical and letter symbols

For graphical symbols, and letter symbols and signs approved by the IEC for general use, readers are referred to:

- IEC Publication 27: Letter symbols to be used in electrical technology;
- IEC Publication 617: Graphical symbols for diagrams.

The symbols and signs contained in the present publication have either been taken from IEC Publications 27 or 617, or have been specifically approved for the purpose of this publication.

C.I.S.P.R. publications

The attention of readers is drawn to pages 3 and 4 of the cover, which list C.I.S.P.R. publications

COMMISSION
ÉLECTROTECHNIQUE
INTERNATIONALE

CISPR 15

Quatrième édition
Fourth edition
1992-09

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

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

Limites et méthodes de mesure des
perturbations radioélectriques produites
par les appareils électriques d'éclairage
et les appareils analogues

iTeh STANDARD PREVIEW

(standards.iteh.ai)

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

<https://standards.iteh.ai/en/standards/787ce5d7-b359-4297-8b84-811357cb262e/sist-en-55015-1995>

© CEI 1992 Droits de reproduction réservés — Copyright — all rights reserved

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'éditeur.

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 the publisher.

Bureau Central de la Commission Electrotechnique Internationale 3, rue de Varembe Genève, Suisse



Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

CODE PRIX
PRICE CODE

W

Pour prix, voir catalogue en vigueur
For price, see current catalogue

CONTENTS

	Page
FOREWORD	7
INTRODUCTION	9
 Clause	
1 Scope	11
2 Normative references	13
3 Definitions	13
4 Limits	13
4.1 Insertion loss of luminaires with or without starters for fluorescent lamps	13
4.2 Disturbance voltages of lighting devices	15
4.3 Disturbance voltages for self-ballasted fluorescent lamps	15
4.4 Radiated electromagnetic disturbances	17
4.5 Limits at designated frequencies	17
4.6 Incandescent lamps and their luminaires	19
4.7 Other lighting devices and auxiliaries	19
5 Method of measurement of the insertion loss of luminaires	21
5.1 Circuits for the measurement of the insertion loss	21
5.2 Measuring set	21
5.3 Luminaire	23
5.4 Measurement procedure	25
6 Method of measurement of disturbance voltages	25
6.1 Lighting equipment other than self-ballasted lamps	25
6.2 Self-ballasted lamps	29
7 Method of measurement of radiated electromagnetic disturbances	29
7.1 General	29
7.2 Measuring arrangement and procedure	29
7.3 Measurements in three directions	31
7.4 Lamps	31
7.5 Operating conditions	31
7.6 Application of CISPR 16	31

Clause	Page
8 Interpretation of CISPR radio disturbance limits	31
8.1 Significance of a CISPR limit	31
8.2 Tests	31
8.3 Statistical method of evaluation	33
8.4 The banning of sales	35
Figures	37
Annexes	
A (normative) Electrical and constructional requirements for the low-capacitance balance-to-unbalance transformer	61
B (normative) Magnetic field induced current method	67
C (informative) Relative sensitivities and conversion factors for large-loop-antennas (LLAs)	77

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 55015:1995](#)

<https://standards.iteh.ai/catalog/standards/sist/787ce5d7-b358-4292-8b84-811357cb262e/sist-en-55015-1995>

INTERNATIONAL ELECTROTECHNICAL COMMISSION
INTERNATIONAL SPECIAL COMMITTEE ON RADIO INTERFERENCE

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

FOREWORD

- 1) The formal decisions or agreements of the CISPR on technical matters, prepared by Sub-committees on which all the National Committees and other Member Organizations of the CISPR having a special interest therein are represented, express, as nearly as possible, an international consensus of opinion on the subjects dealt with.
- 2) They have the form of recommendations for international use and they are accepted by the National Committees and other Member Organizations of the CISPR in that sense.
- 3) In order to promote international unification, the CISPR expresses the wish that all National Committees should adopt the text of the CISPR recommendations for their national rules in so far as national conditions will permit. Any divergence between the CISPR recommendations and the corresponding national rules should, as far as possible, be clearly indicated in the latter.

This standard was prepared by IEC-CISPR, Sub-Committee F: Interference from motors, household appliances, lighting apparatus and the like

The fourth edition replaces the third edition published in 1985 and Amendment No. 1 published in 1989.

The changes are based on the following documents:

Six Months' Rule	Reports on Voting
CISPR/F (CO)63 to 68 CISPR/F (CO)74	CISPR/F (CO)73 and 75 to 80 CISPR/F (CO)86

The main technical changes are:

- the extension of the scope to electromagnetic disturbances and immunity of all lighting equipment in the whole radio frequency spectrum (the scope of the former edition was restricted to disturbances from fluorescent lamps and their luminaires in a restricted frequency range);
- the permission of certain lighting devices to operate at frequencies designated for use by ISM equipment and the addition of field strengths limits for lighting devices at these frequencies;
- the introduction of radiation limits between 9 kHz and 30 MHz for certain lighting devices (the corresponding measuring methods and explanatory texts are described in annexes B and C; the new edition of CISPR 16, to be published, will have precedence over these annexes).

INTRODUCTION

The intention of this standard is to establish uniform requirements for the radio disturbance level of the equipment contained in the scope, to fix limits of disturbance, to describe methods of measurement and to standardize operating conditions and interpretation of results.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 55015:1995](https://standards.iteh.ai/catalog/standards/sist/787ce5d7-b358-4292-8b84-811357cb262e/sist-en-55015-1995)

<https://standards.iteh.ai/catalog/standards/sist/787ce5d7-b358-4292-8b84-811357cb262e/sist-en-55015-1995>

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

1 Scope

1.1 This standard applies to the emission (radiated and conducted) of radio frequency disturbances from and to the immunity to radio frequency disturbances of:

- 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 appliances;
- neon advertising signs;
- street/flood lighting intended for outdoor use only;
- transport lighting (installed in buses, trains, etc.).

NOTE - Requirements concerning immunity are under consideration.

[SIST EN 55015:1995](#)

Excluded from the scope of this standard are:

- apparatus for which the electromagnetic compatibility requirements in the radio frequency range are explicitly formulated in other IEC or CISPR standards.

NOTE - Examples are:

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

1.2 The frequency range covered is 9 kHz to 400 GHz.

1.3 *Multi-function equipment*

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.

1.4 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 radio protection and electromagnetic compatibility. In exceptional cases radio frequency disturbance may occur, in spite of compliance with the limits. In such cases additional provisions may be required.

2 Normative references

The following standards are referred to in this publication:

IEC 50(161): 1990, *International Electrotechnical Vocabulary (IEV). Chapter 161: Electromagnetic Compatibility.*

IEC 50(845): 1987, *International Electrotechnical Vocabulary (IEV). Chapter 845: Lighting.*

CISPR 14: 1991, *Limits and methods of measurement of radio disturbance characteristics of electrotechnical motor-operated and thermal appliances for household and similar purposes, electric tools and similar electric apparatus.*

CISPR 16: 1987, *CISPR Specification for Radio Interference Measuring Apparatus and Measuring Methods. Amendment No. 1 (1980) and Amendment No. 2 (1983)*

3 Definitions

For the purpose of this standard, the definitions which apply are contained in the International Electrotechnical Vocabulary (IEV), IEC 50, chapter 161: Electromagnetic compatibility, and chapter 845: Lighting.

Continuous disturbance may be either broadband, for instance caused by switching operations or by unstable gas-discharges in the lamp electrode region, or may be narrowband, for instance caused by electronic control devices operating at dedicated frequencies.

SIST EN 55015:1995

NOTE - Instead of the concept of "broadband" and "narrowband" disturbances, in this standard a distinction is made between two related kinds of disturbance, defined by the type of the applied detector. For this purpose limits have been defined with respect to the measurement with the quasi-peak detector and with the average detector. By using this approach also a combination of broadband and narrowband disturbances can be assessed.

4 Limits

4.1 Insertion loss of luminaires with or without starters for fluorescent lamps

Luminaires, connected to electrical supplies feeding residential load in the voltage range 100 V/250 V between phases or phase and earth, shall have a minimum insertion loss as given in table 1, provided these luminaires are designed for:

- linear fluorescent lamps with a nominal diameter of 15 mm, 25 mm or 38 mm;
- circular fluorescent lamps with a nominal diameter of 28 mm or 32 mm;
- U-type fluorescent lamps with a nominal diameter of 15 mm, 25 mm or 38 mm;
- single-capped fluorescent lamps, without integrated starter and with a nominal diameter of 15 mm;
- single-capped fluorescent lamps, linear shaped, twin and quad tube, with integral starter and having a nominal tube diameter or 12 mm.