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Belysningsmateriel – Mätning av elektromagnetiska fält och bedömning avseende exponering

*Assessment of lighting equipment related to human exposure
to electromagnetic fields*

Som svensk standard gäller europastandarden EN 62493:2010. Den svenska standarden innehåller den officiella engelska språkversionen av EN 62493:2010.

Nationellt förord

Europastandarden EN 62493:2010

består av:

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- **IEC 62493, First edition, 2009 - Assessment of lighting equipment related to human exposure to electromagnetic fields**

utarbetad inom International Electrotechnical Commission, IEC.

ICS 29.020; 29.140

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**Assessment of lighting equipment related to human exposure
to electromagnetic fields
(IEC 62493:2009)**

Evaluation d'un équipement d'éclairage
relativement à l'exposition humaine
aux champs électromagnétiques
(CEI 62493:2009)

Beurteilung
von Beleuchtungseinrichtungen
bezüglich der Exposition von Personen
gegenüber elektromagnetischen Feldern
(IEC 62493:2009)

This European Standard was approved by CENELEC on 2010-02-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

CENELEC

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

Central Secretariat: Avenue Marnix 17, B - 1000 Brussels

Foreword

The text of document 34/133/FDIS, future edition 1 of IEC 62493, prepared by IEC TC 34, Lamps and related equipment, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 62493 on 2010-02-01.

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

The following dates were fixed:

- latest date by which the EN has to be implemented
at national level by publication of an identical
national standard or by endorsement (dop) 2010-11-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2013-02-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 62493:2009 was approved by CENELEC as a European Standard without any modification.

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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

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

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 62311 (mod)	2007	Assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (0 Hz - 300 GHz)	EN 62311	2008
CISPR 15	2005	Limits and methods of measurement of radio	EN 55015	2006
+ A1	2006	disturbance characteristics of electrical	+ A1	2007
+ A2	2008	lighting and similar equipment	+ A2	2009
CISPR 16-1-1	-	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	-
CISPR 16-1-2	-	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	-
CISPR 16-4-2	2003	Specification for radio disturbance and immunity measuring apparatus and methods - Part 4-2: Uncertainties, statistics and limit modelling - Uncertainty in EMC measurements	EN 55016-4-2	2004
IEEE C95.1-2005	-	Safety levels with respect to human exposure to radio frequency electromagnetic fields, 3 kHz to 300 GHz	-	-

CONTENTS

INTRODUCTION.....	6
1 Scope.....	7
2 Normative references	7
3 Terms, definitions, physical quantities and units	8
3.1 Terms and definitions	8
3.2 Physical quantities and units	9
4 Limits	10
4.1 General.....	10
4.2 Application of limits	10
4.3 Lighting equipment deemed to comply without testing	10
5 General requirements.....	10
5.1 Supply voltage.....	10
5.2 Measurement frequency range	11
5.3 Ambient temperature	11
5.4 Measurement equipment requirements	11
5.5 Measurement instrumentation uncertainty	12
5.6 Test report	12
5.7 Evaluation of results.....	13
6 Measurement procedure.....	13
6.1 General.....	13
6.2 Operating conditions	13
6.3 Measurement distance	14
6.4 Measurement set-up.....	14
6.5 Location of measurement test-head.....	15
6.6 Calculation of the results.....	15
Annex A (normative) Measurement distances	16
Annex B (informative) Location of measurement test-head.....	17
Annex C (informative) Exposure limits	21
Annex D (informative) Rational measurement and assessment method.....	23
Annex E (normative) Practical measurement and assessment method	33
Annex F (normative) Protection network	35
Annex G (informative) Measurement instrumentation uncertainty	38
Bibliography.....	40
Figure 1 – The “Van der Hoofden” test-head	11
Figure 2 – Example of a protection circuit	12
Figure 3 – Measurement set-up	14
Figure B.1 – Typical measurement arrangement	17
Figure B.2a – Location of measurement point for lighting equipment with double capped fluorescent lamp(s) (recessed, surface or pole mounted).....	17
Figure B.2b – Location of measurement point for lighting equipment with single capped lamp(s) (recessed, surface or pole mounted).....	18

Figure B.2c – Location of measurement point(s) for lighting equipment with single capped lamp (360° illumination)	18
Figure B.2d – Location of measurement points for lighting equipment with a remote gear	19
Figure B.2e – Location of measurement point for an independent electronic converter	19
Figure B.2f – Location of measurement point(s) for an up light (floorstanding/suspended)	20
Figure B.2 – Location of measurement test-head	20
Figure D.1 – Overview measurement and assessment method	23
Figure D.2 – Distances of the head, loop and measurement set-up	24
Figure D.3 – Maximum current in the 2 meter LLA as function of the frequency	26
Figure D.4 – Distances of the head and measurement set-up	28
Figure D.5 – Plot of Equations (D.16) and (D.17)	29
Figure F.1 – Test set-up for normalization of the network analyzer	35
Figure F.2 – Test set-up for measurement of the voltage division factor using a network analyzer	36
Figure F.3 – Calculated theoretical characteristic for the calibration of the protection network	37
Table 1 – Physical quantities and units	10
Table 2 – Receiver or spectrum analyser settings	11
Table A.1 – Lighting equipment and measurement distances	16
Table C.1 – Basic restrictions (BR) for general public exposure to time varying electric and magnetic fields for frequencies up to 10 GHz	21
Table C.2 – IEEE Basic Restrictions (BR) for the general public	22
Table C.3 – IEEE Basic Restrictions (BR) between 100 kHz and 3 GHz for the general public	22
Table D.1 – Induced current density calculations	25
Table D.2 – Calculation main contributions	29
Table D.3 – Frequency steps for the amplitude addition that equals 1,11 times B_6	30
Table D.4 – Frequency steps for the power addition that equals 0,833 times B_6	31
Table D.5 – Field strength limits according to CISPR 15:2005 (as amended by its Amendment 1 (2006))	32
Table G.1 – Uncertainty calculation for the measurement method described in Clause 6.4 in the frequency range from 20 kHz to 10 MHz	38
Table G.2 – Comments and information to Table G.1	39

INTRODUCTION

This International Standard establishes a suitable evaluation method for determining the electromagnetic fields in the space around the equipment mentioned in the scope, and defines standardized operating conditions and measurement distances.

This standard is designed to assess, by measurements and/or calculations, electromagnetic (EM) fields and their potential effect on the human body by reference to exposure levels of the general public given by ICNIRP:1998 [1]¹⁾, IEEE C95.1:2005 and IEEE C95.6:2002[2]. The exposure levels with which to comply are basic restrictions (both ICNIRP- and IEEE-based).

NOTE 1 Maximum permissible exposure levels (IEEE-based) or reference levels (ICNIRP-based) are not used.

Based on the lighting equipment operating properties, the frequency range of the applicable basic restrictions can be limited as follows:

- induced current density between 20 kHz to 10 MHz;
- specific absorption rate (SAR) between 100 kHz to 300 MHz;
- power density is outside the scope.

NOTE 2 Operating frequencies of lighting equipment are higher than 20 kHz to avoid audible noise and infrared interference. Frequency contributions above 300 MHz can be neglected.

This standard is not meant to supplant definitions and procedures specified in exposure standards, but it is aimed at supplementing the procedure already specified for compliance with exposure.

The exposure limits given in Annex C (informative) are for information only, do not comprise an exhaustive list and are valid only in certain regions of the world. It is the responsibility of users of this standard to ensure that they use the current version of the limit values specified by the applicable national authorities.

1) Figures in square brackets refer to the Bibliography.

ASSESSMENT OF LIGHTING EQUIPMENT RELATED TO HUMAN EXPOSURE TO ELECTROMAGNETIC FIELDS

1 Scope

This International Standard applies to the assessment of lighting equipment related to human exposure to electromagnetic fields. The assessment consists of the induced current density for frequencies from 20 kHz to 10 MHz and the specific absorption rate (SAR) for frequencies from 100 kHz to 300 MHz around lighting equipment.

Included in the scope of this standard are:

- all lighting equipment for general lighting 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; used indoor and/or outdoor. General lighting equipment means all industrial, residential and public and street lighting;
- lighting part for general lighting of multi-function equipment where one of the primary functions of this is illumination;
- independent auxiliaries exclusively for the use with lighting equipment.

Excluded from the scope of this standard are:

- lighting equipment for aircraft and airfields;
- lighting equipment for road vehicles; (except lighting used for the illumination of passenger compartments in public transport)
- lighting equipment for agriculture;
- lighting equipment for boats/vessels;
- photocopiers, slide projectors;
- apparatus for which the requirements of electromagnetic fields are explicitly formulated in other IEC standards;

NOTE The methods described in this standard are not suitable for comparing the fields from different lighting equipment.

This standard does not apply to built-in components for luminaires such as electronic control gear.

2 Normative references

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

CISPR 15:2005²⁾, *Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment*
Amendment 1 (2006)
Amendment 2 (2008)

²⁾ There exists of a consolidated edition 7.2 (2009), including CISPR 15:2005 and its Amendment 1 and Amendment 2.

IEEE Std C95.1-2005, *IEEE standard for safety levels with respect to human exposure to radio frequency electromagnetic fields, 3 kHz to 300 GHz*

[illegible]