

**VALGUSTUSSEADMETE HINDAMINE INIMESELE  
TOIMIVA ELEKTROMAGNETVÄLJA JÄRGI**

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

**EESTI STANDARDI EESSÕNA****NATIONAL FOREWORD**

See Eesti standard EVS-EN 62493:2015 sisaldab Euroopa standardi EN 62493:2015 ingliskeelset teksti.	This Estonian standard EVS-EN 62493:2015 consists of the English text of the European standard EN 62493:2015.
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English Version

## Assessment of lighting equipment related to human exposure to electromagnetic Field (IEC 62493:2015)

Évaluation d'un équipement d'éclairage relativement à  
l'exposition humaine aux champs électromagnétiques  
(IEC 62493:2015)

Beurteilung von Beleuchtungseinrichtungen bezüglich der  
Exposition von Personen gegenüber elektromagnetischen  
Feldern  
(IEC 62493:2015)

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Comité Européen de Normalisation Electrotechnique  
Europäisches Komitee für Elektrotechnische Normung

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

## Foreword

The text of document 34/222/FDIS, future edition 2 of IEC 62493, prepared by IEC/TC 34 "Lamps and related equipment" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62493:2015.

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- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2018-04-14

This document supersedes EN 62493:2010.

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.

## Endorsement notice

The text of the International Standard IEC 62493:2015 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 15:2013	NOTE	Harmonized as EN 55015:2013 (not modified).
CISPR 16-1-2	NOTE	Harmonized as EN 55016-1-2.
CISPR 16-4-2:2003	NOTE	Harmonized as EN 55016-4-2:2004 <sup>1)</sup> (not modified).
IEC 62226-2-1:2004	NOTE	Harmonized as EN 62226-2-1:2005 (not modified).

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<sup>1)</sup> Superseded by EN 55016-4-2:2011 (CISPR 16-4-2:2011).

## 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](http://www.cenelec.eu)

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 62209-2	2010	Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Human models, instrumentation, and procedures - Part 2: Procedure to determine the specific absorption rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)	EN 62209-2	2010
IEC 62232	2011	Determination of RF field strength and SAR in the vicinity of radiocommunication base stations for the purpose of evaluating human exposure	-	-
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
IEC 62479 (mod)	2010	Assessment of the compliance of low power electronic and electrical equipment with the basic restrictions related to human exposure to electromagnetic fields (10 MHz to 300 GHz)	EN 62479	2010
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	-

## CONTENTS

FOREWORD.....	6
INTRODUCTION.....	8
1 Scope.....	9
2 Normative references .....	9
3 Terms, definitions, physical quantities, units and abbreviations .....	10
3.1 Terms and definitions.....	10
3.2 Physical quantities and units.....	12
3.3 Abbreviations .....	13
4 Limits .....	13
4.1 General.....	13
4.2 Unintentional radiating part of lighting equipment.....	14
4.2.1 General .....	14
4.2.2 Lighting equipment deemed to comply with the Van der Hoofden test without testing .....	14
4.2.3 Application of limits.....	14
4.3 Intentional radiating part of lighting equipment.....	14
5 General requirements Van der Hoofden test .....	15
5.1 Measurand.....	15
5.2 Supply voltage and frequency .....	15
5.3 Measurement frequency range.....	16
5.4 Ambient temperature.....	16
5.5 Measurement equipment requirements.....	16
5.6 Measurement instrumentation uncertainty.....	17
5.7 Test report.....	17
5.8 Evaluation of results .....	18
6 Measurement procedure for the Van der Hoofden test.....	18
6.1 General.....	18
6.2 Operating conditions .....	18
6.2.1 Operating conditions for lighting equipment .....	18
6.2.2 Operating conditions for specific lighting equipment .....	18
6.2.3 Operating conditions for lighting equipment with intentional radiators .....	19
6.3 Measurement distance .....	19
6.4 Measurement set-up .....	19
6.4.1 General .....	19
6.4.2 Measurement set-up for specific lighting equipment.....	20
6.5 Location of measurement test head .....	20
6.6 Calculation of the results .....	20
7 Assessment procedure intentional radiators.....	20
7.1 General.....	20
7.2 Low-power exclusion method .....	20
7.2.1 General .....	20
7.2.2 Determination of the total radiated power .....	21
7.2.3 Determination of the low-power exclusion level.....	21
7.2.4 Summation of multiple transmitters .....	21
7.3 Application of the EMF product standard for body worn-equipment .....	21
7.4 Application of the EMF product standard for base stations .....	21

7.5	Application of another EMF standard .....	21
Annex A	(normative) Measurement distances .....	23
Annex B	(informative) Location of measurement test head .....	24
Annex C	(informative) Exposure limits .....	29
C.1	General.....	29
C.2	ICNIRP .....	29
C.2.1	ICNIRP 1998 .....	29
C.2.2	ICNIRP 2010 .....	29
C.3	IEEE .....	29
Annex D	(informative) Rationale measurement and assessment method.....	31
D.1	General.....	31
D.2	Induced internal electric field .....	31
D.2.1	General .....	31
D.2.2	Induced electric field due to the magnetic field; $E_{\text{eddy}}(f_i, d_{\text{loop}})$ .....	33
D.2.3	Induced electric field due to the electric field; $E_{\text{cap}}(f_i, d)$ .....	38
D.3	Thermal effects from 100 kHz to 300 GHz.....	41
D.3.1	General .....	41
D.3.2	The 100 kHz to 30 MHz contribution to the thermal effects .....	42
D.3.3	The 30 MHz to 300 MHz contribution to the thermal effects .....	43
D.3.4	Overall conclusion for the contribution to thermal effects .....	44
Annex E	(normative) Practical internal electric-field measurement and assessment method .....	45
E.1	Measurement of induced internal electric field.....	45
E.2	Calculation program.....	45
E.3	Compliance criterion for the Van der Hoofden head test.....	46
Annex F	(normative) Protection network .....	47
F.1	Calibration of the protection network .....	47
F.2	Calculation of the theoretical characteristic of the protection network.....	48
Annex G	(informative) Measurement instrumentation uncertainty .....	50
Annex H	(informative) Equipment deemed to comply .....	52
Annex I	(informative) Intentional radiators .....	54
I.1	General.....	54
I.2	Intentional radiators in lighting equipment .....	54
I.3	Properties of antennas in lighting applications .....	54
I.4	Exposure assessment approach.....	60
I.4.1	General .....	60
I.4.2	Determination of average total radiated power $P_{\text{int,rad}}$ .....	60
I.4.3	Determination of the low-power exclusion level $P_{\text{max}}$ .....	61
I.5	Multiple transmitters in a luminaire.....	61
I.6	Exposure to multiple luminaires .....	62
I.7	References in Annex I.....	62
Bibliography	.....	64
Figure 1	– Compliance routes and pass/fail criteria for lighting equipment .....	15
Figure 2	– The Van der Hoofden test head.....	16
Figure 3	– Example of a protection circuit .....	17

Figure 4 – Measurement set-up .....	19
Figure 5 – Compliance demonstration procedure for the intentional-transmitter part of the lighting equipment.....	22
Figure B.1 – Location of measurement point in the transverse direction of lighting equipment – side view .....	24
Figure B.2 – Location of measurement points in the longitude direction of lighting equipment – side view .....	24
Figure B.3 – Location of measurement points in the longitude direction of lighting equipment; in the direction of illumination .....	25
Figure B.4 – Location of measurement point for lighting equipment with rotationally symmetrical dimensions.....	25
Figure B.5 – Location of measurement point for lighting equipment with rotationally symmetrical dimensions; in the direction of illumination .....	26
Figure B.6 – Location of measurement point for lighting equipment with the same dimensions in the x- and y- axis .....	26
Figure B.7 – Location of measurement point(s) for lighting equipment with single capped lamp (360° illumination).....	27
Figure B.8 – Location of measurement points for lighting equipment with a remote controlgear .....	27
Figure B.9 – Location of measurement point for an independent electronic converter .....	28
Figure B.10 – Location of measurement point(s) for an uplighter (floor standing/suspended).....	28
Figure D.1 – Overview measurement and assessment method.....	31
Figure D.2 – Distances of the head, loop and measurement set-up.....	33
Figure D.3 – Maximum current in the 2 m LLA as function of the frequency .....	35
Figure D.4 – Induced internal electric field and associated limit levels .....	37
Figure D.5 – Example of magnetic-field test result using the LLA.....	38
Figure D.6 – Distances of the head and measurement set-up .....	39
Figure D.7 – Plot of Equation (D.20) .....	39
Figure D.8 – Example of the CM-current measured using a conducted emission test .....	43
Figure F.1 – Test set-up for normalization of the network analyser.....	47
Figure F.2 – Test set-up for measurement of the voltage division factor using a network analyser.....	48
Figure F.3 – Calculated theoretical characteristic for the calibration of the protection network.....	49
Figure H.1 – Flow chart to determine applicability deemed to comply without <i>F</i> factor measurement.....	53
Figure I.1 – Luminaire with a transmitting antenna in a room.....	56
Figure I.2 – Impact of a conducting ceiling/plane .....	57
Figure I.3 – Electric field of a small electrical dipole: analytical formula vs far-field approximation .....	58
Figure I.4 – Electric field as a function of distance, antenna gain and input power (far-field approximation) .....	59
Figure I.5 – Impact of pulsed signals on the average exposure .....	60
Table 1 – Physical quantities and units .....	13
Table 2 – Receiver or spectrum analyser settings .....	16
Table A.1 – Lighting equipment and measurement distances .....	23

Table C.1 – Basic restrictions for general public exposure to time varying electric and magnetic fields for frequencies between 100 kHz and 10 GHz .....	29
Table C.2 – Basic restrictions for general public exposure to time varying electric and magnetic fields for frequencies up to 10 MHz .....	29
Table C.3 – IEEE basic restrictions (BR) for the general public .....	30
Table C.4 – IEEE basic restrictions (BR) between 100 kHz and 3 GHz for the general public .....	30
Table D.1 – Induced internal electric field calculations .....	34
Table D.2 – Calculation main contributions .....	40
Table D.3 – Frequency steps for the amplitude addition that equals 1,11 times $B_6$ .....	41
Table D.4 – Frequency steps for the power addition that equals 0,833 times $B_6$ .....	42
Table D.5 – Field strength limits according to CISPR 15 .....	43
Table E.1 – Conductivity as a function of frequency (see Table C.1 of IEC 62311:2007) .....	46
Table G.1 – Uncertainty calculation for the measurement method described in Clauses 5 and 6 in the frequency range from 20 kHz to 10 MHz .....	50
Table G.2 – Comments and information to Table G.1 .....	51
Table I.1 – Overview of wireless radio technologies that might be applied in lighting systems .....	55

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## INTRODUCTION

This International Standard establishes a suitable evaluation method for the influence of 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]<sup>1</sup>, ICNIRP 2010 [2], IEEE C95.1:2005 [3] and IEEE C95.6:2002 [4]. The exposure levels with which to comply are basic restrictions (both ICNIRP- and IEEE-based).

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

- internal electric field between 20 kHz and 10 MHz;
- specific absorption rate (SAR) between 100 kHz and 300 MHz;
- power density is outside the scope.

NOTE 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.

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<sup>1</sup> Numbers 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 internal electric field 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 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;
- lighting part of multi-function equipment where one of the primary functions of this is illumination;
- independent auxiliaries exclusively for the use with lighting equipment;
- lighting equipment including intentional radiators for wireless communication or control.

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 controlgear.

### 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 62209-2:2010, *Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices – Human models, instrumentation, and procedures – Part 2: Procedure to determine the specific absorption rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)*

IEC 62232:2011, *Determination of RF field strength and SAR in the vicinity of radiocommunication base stations for the purpose of evaluating human exposure*

IEC 62311:2007, *Assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (0 Hz – 300 GHz)*