VALGUSTID. OSA 1: ÜLDNÕUDED JA KATSETUSED

Luminaires - Part 1: General requirements and tests (IEC 60598-1:2014 + IEC 60598-1:2014/A1:2017, modified)

EESTI STANDARDIKESKUS
ESTONIAN CENTRE FOR STANDARDISATION

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 60598-1:2015+A1:2018 sisaldab Euroopa standardi EN 60598-1:2015 ingliskeelset teksti ja selle muudatuse A1:2018 ingliskeelset teksti.	This Estonian standard EVS-EN 60598-1:2015+A1:2018 consists of the English text of the European standard EN 60598-1:2015 and its amendment A1:2018.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas. Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 23.01.2015, muudatus A1 23.02.2018.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation. Date of Availability of the European standard is 23.01.2015, for A1 23.02.2018.
Sellesse standardisse on muudatus A1 sisse viidud ja tehtud muudatused tähistatud topeltpüst-kriipsuga lehe välisveerisel. Selles standardis on rahvusvahelise standardi ühismuudatused tähistatud püstkriipsuga teksti välimisel veerisel. Standard on kättesaadav Eesti Standardi-keskusest.	The amendment A1 has been incorporated into this standard and changes have been marked by a double vertical line on the outer row of the page. Common modifications has been incorporated into this international standard and changes have been marked by a vertical line on the outer row of the page. The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

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EUROPEAN STANDARD

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EN 60598-1 + A1

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English Version

Luminaires -
Part 1: General requirements and tests
(IEC 60598-1:2014 + IEC 60598-1:2014/A1:2017, modified)

Luminaires -
Partie 1: Exigences générales et essais
(IEC 60598-1:2014 + IEC 60598-1:2014/A1:2017, modifiée)

Leuchten -
Teil 1: Allgemeine Anforderungen und Prüfungen
(IEC 60598-1:2014 + IEC 60598-1:2014/A1:2017, modifiziert)

This European Standard was approved by CENELEC on 2014-10-20. Amendment A1 was approved by CENELEC on 2017-10-20. 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.

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European Committee for Electrotechnical Standardization
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 34D/1110/FDIS, future edition 8 of IEC 60598-1, prepared by SC 34D "Luminaires" of IEC/TC 34 "Lamps and related equipment" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60598-1:2015.

A draft amendment, which covers common modifications to IEC 60598-1 (34D/1110/FDIS), was prepared by CLC/TC 34Z "Luminaires and associated equipment" and approved by CENELEC.

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)	2015-07-23
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2017-10-20

This document supersedes EN 60598-1:2008.

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 standard covers the Principle Elements of the Safety Objectives for Electrical Equipment Designed for Use within Certain Voltage Limits (LVD - 2006/95/EC).

Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 60598-1:2014 are prefixed “Z”.

Endorsement notice

The text of the International Standard IEC 60598-1:2014 was approved by CENELEC as a European Standard with agreed common modifications.

European foreword

The text of document 34D/1292/FDIS, future IEC 60598-1:2014/A1, prepared by SC 34D "Luminaires" of IEC/TC 34 "Lamps and related equipment" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60598-1:2015/A1:2018.

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) 2018-08-23
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2021-02-23

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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 IEC 60598-1:2014/A1:2017 was approved by CENELEC as a European Standard without any modification.

CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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LUMINAIRES –

Part 1: General requirements and tests

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.
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International Standard IEC 60598-1 has been prepared by subcommittee 34D: Luminaires, of IEC technical committee 34: Lamps and related equipment.

This eighth edition cancels and replaces the seventh edition published in 2008. This edition constitutes a technical revision and includes the following significant technical changes with respect to the previous edition:

a) requirements to support the construction methods for new LED luminaires entering the market;

b) photobiological requirements extended;

c) more precise requirements for insulation between different types of electrical circuit;

d) other general updates and improvements.

The major changes which may affect certification are given in Annex R.

Annex R shows where a new text has been included which contains more serious/critical requirements requiring products to be re-tested.

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

FDIS	Report on voting
34D/1110/FDIS	34D/1121/RVD

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

NOTE In this standard, the following print types are used:

– requirements: in roman type;

– *test specifications: in italic type;*

– notes: in small roman type.

A list of all parts of the IEC 60598 series, under the general title: *Luminaires*, can be found on the IEC website.

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 1 (October 2015), 2 (December 2015) and 3 (May 2017), and the interpretation sheet 1 (May 2016) 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.

LUMINAIRES –

Part 1: General requirements and tests

SECTION 0: GENERAL INTRODUCTION

0.1 Scope

This Part 1 of IEC 60598 specifies general requirements for luminaires, incorporating electric light sources for operation from supply voltages up to 1 000 V. The requirements and related tests of this standard cover: classification, marking, mechanical construction, electrical construction and photobiological safety.

Each section of this Part 1 is read in conjunction with this Section 0 and with other relevant sections to which reference is made.

Each part of IEC 60598-2 details requirements for a particular type of luminaire or group of luminaires on supply voltages not exceeding 1 000 V. These parts are published separately for ease of revision and additional sections will be added as and when a need for them is recognized.

The presentation of photometric data for luminaires is under consideration by the International Commission on Illumination (CIE) and is not, therefore, included in this Part 1.

Requirements are included in this Part 1 for luminaires incorporating ignitors with nominal peak values of the voltage pulse not exceeding those of Table 11.2. The requirements apply to luminaires with ignitors built into ballasts and to luminaires with ignitors separate from ballasts. For luminaires with ignitors built into lamps, the requirements are under consideration.

Requirements for semi-luminaires are included in this Part 1.

In general, this Part 1 covers safety requirements for luminaires. The object of this Part 1 is to provide a set of requirements and tests which are considered to be generally applicable to most types of luminaires and which can be called up as required by the detail specifications of IEC 60598-2. This Part 1 is thus not regarded as a specification in itself for any type of luminaire, and its provisions apply only to particular types of luminaires to the extent determined by the appropriate part of IEC 60598-2.

The parts of IEC 60598-2, in making reference to any of the sections of Part 1, specify the extent to which that section is applicable and the order in which the tests are to be performed; they also include additional requirements as necessary.

The order in which the sections of Part 1 are numbered has no particular significance as the order in which their provisions apply is determined for each type of luminaire or group of luminaires by the appropriate part of IEC 60598-2. All parts of IEC 60598-2 are self-contained and therefore do not contain references to other parts of IEC 60598-2.

Where the requirements of any of the sections of Part 1 are referred to in the parts of IEC 60598-2 by the phrase "The requirements of section… of IEC 60598-1 apply", this phrase is to be interpreted as meaning that all the requirements of that section of Part 1 apply except those which are clearly inapplicable to the particular type of luminaire covered by that part of IEC 60598-2.

For explosion proof luminaires, as covered by IEC 60079, the requirements of IEC 60598 (selecting the appropriate parts 2) are applied in addition to the requirements of IEC 60079. In the event of any conflict between IEC 60598 and IEC 60079, the requirements of IEC 60079 take priority.

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Improvements in safety to take into account the state of the art technology are incorporated in the standards with revisions and amendments on an ongoing basis. Regional standardisation bodies may include statements in their derived standards to cover products which have complied with the previous document as shown by the manufacturer or standardization body. The statements may require that for such products, the previous standard may continue to apply to production until a defined date after which the new standard shall apply.

0.2 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 60061, *Lamp caps and holders together with gauges for the control of interchangeability and safety*

IEC 60061-2, *Lamp caps and holders together with gauges for the control of interchangeability and safety – Part 2: Lampholders*

IEC 60061-3, *Lamp caps and holders together with gauges for the control of interchangeability and safety – Part 3: Gauges*

IEC 60065:2001, *Audio, video and similar electronic apparatus – Safety requirements*
Amendment 1:2005

IEC 60068-2-6:2007, *Environmental testing – Part 2-6: Tests – Test Fc: Vibration (sinusoidal)*

IEC 60068-2-14:2009, *Environmental testing – Part 2-14: Tests – Test N: Change of temperature*

IEC 60068-2-75, *Environmental testing – Part 2-75: Tests – Test Eh: Hammer tests*

IEC/TR 60083, *Plugs and socket-outlets for domestic and similar general use standardized in member countries of IEC*

IEC 60085, *Electrical insulation – Thermal evaluation and designation*

IEC 60112:2003, *Method for the determination of the proof and the comparative tracking indices of solid insulating materials*

IEC 60155, *Glow-starters for fluorescent lamps*

IEC 60227(all parts), *Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V*

IEC 60228:2004, *Conductors of insulated cables*

IEC 60238, *Edison screw lampholders*

IEC 60245 (all parts), *Rubber insulated cables – Rated voltages up to and including 450/750 V*

IEC 60320 (all parts), *Appliance couplers for household and similar general purposes*

IEC 60357, *Tungsten halogen lamps (non-vehicle) – Performance specifications*

IEC 60360, *Standard method of measurement of lamp cap temperature rise*

IEC 60384-14, *Fixed capacitors for use in electronic equipment – Part 14: Sectional specification: Fixed capacitors for electromagnetic interference suppression and connection to the supply mains*

IEC 60400, *Lampholders for tubular fluorescent lamps and starterholders*

IEC 60417, *Graphical symbols for use on equipment* Available at: http://www.graphical-symbols.info/equipment

IEC 60432-1, *Incandescent lamps – Safety specifications – Part 1: Tungsten filament lamps for domestic and similar general lighting purposes*

IEC 60432-2, *Incandescent lamps – Safety specifications – Part 2: Tungsten halogen lamps for domestic and similar general lighting purposes*

IEC 60432-3, *Incandescent lamps – Safety specifications – Part 3: Tungsten-halogen lamps (non-vehicle)*

IEC 60449:1973, *Voltage bands for electrical installations of buildings*
Amendment 1:1979

IEC 60529, *Degrees of protection provided by enclosures (IP Code)*

IEC 60570:2003, *Electrical supply track systems for luminaires*

IEC 60598-2 (all parts), *Luminaires – Part 2: Particular requirements*

IEC 60598-2-4, *Luminaires – Part 2: Particular requirements – Section 4: Portable general purpose luminaires*

IEC 60662, *High-pressure sodium vapour lamps – Performance specifications*

IEC 60664-4:2005, *Insulation coordination for equipment within low-voltage systems – Part 4: Consideration of high-frequency voltage stress*

IEC 60682, *Standard method of measuring the pinch temperature of quartz-tungsten-halogen lamps*

IEC 60684 (all parts), *Flexible insulating sleeving*

IEC 60695-2-11, *Fire hazard testing – Part 2-11: Glowing/hot-wire based test methods – Glow-wire flammability test method for end-products*

IEC 60695-11-5, *Fire hazard testing – Part 11-5: Test flames – Needle-flame test method – Apparatus, confirmatory test arrangement and guidance*

IEC 60838 (all parts), *Miscellaneous lampholders*

IEC 60989, *Separating transformers, autotransformers, variable transformers and reactors*

IEC 60990:1999, *Methods of measurement of touch current and protective conductor current*

IEC 60998-2-1, *Connecting devices for low-voltage circuits for household and similar purposes – Part 2-1: Particular requirements for connecting devices as separate entities with screw-type clamping units*

IEC 60998-2-2, *Connecting devices for low-voltage circuits for household and similar purposes – Part 2-2: Particular requirements for connecting devices as separate entities with screwless-type clamping units*

IEC 61032:1997, *Protection of persons and equipment by enclosures – Probes for verification*

IEC 61058-1:2000, *Switches for appliances – Part 1: General requirements*

IEC 61167, *Metal halide lamps – Performance specification*

IEC 61184, *Bayonet lampholders*

IEC 61199, *Single-capped fluorescent lamps – Safety specifications*

IEC 61249 (all parts), *Materials for printed boards and other interconnecting structures*

IEC 61347 (all parts), *Lamp controlgear*

IEC 61347-1, *Lamp controlgear – Part 1: General and safety requirements*

IEC 61347-2-9, *Lamp controlgear – Part 2-9: Particular requirements for electromagnetic controlgear for discharge lamps (excluding fluorescent lamps)*

IEC 61558 (all parts), *Safety of power transformers, power supplies, reactors and similar products*

IEC 61558-1:2005, *Safety of power transformers, power supplies, reactors and similar products – Part 1: General requirements and tests*

IEC 61558-2 (all parts), *Safety of power transformers, power supplies, reactors and similar products – Part 2: Particular requirements and tests*

IEC 61558-2-5, *Safety of transformers, reactors, power supply units and combinations thereof – Part 2-5: Particular requirements and test for transformer for shavers, power supply units for shavers and shaver supply units*

IEC 61558-2-6, *Safety of transformers, reactors, power supply units and similar products for supply voltages up to 1 100 V – Part 2-6: Particular requirements and tests for safety isolating transformers and power supply units incorporating safety isolating transformers*

IEC 61643-11, *Low-voltage surge protective devices – Part 11: Surge protective devices connected to low-voltage power systems – requirements and tests*

IEC 62031, *LED modules for general lighting – Safety specifications*

IEC 62035: *Discharge lamps (excluding fluorescent lamps) – Safety specifications*

IEC/TR 62778, *Application of IEC 62471 for the assessment of blue light hazard to light sources and luminaires*

IEC 80416-1, *Basic principles for graphical symbols for use on equipment – Part 1: Creation of symbol originals*

0.3 General requirements

0.3.1 Luminaires shall be so designed and constructed that in normal use they function safely and cause no danger to persons or surroundings. In general, compliance is checked by carrying out all the tests specified.

0.3.2 A luminaire shall comply with a part of IEC 60598-2. If, however, an appropriate part of IEC 60598-2 does not exist for a particular luminaire or group of luminaires, the nearest applicable part of IEC 60598-2 may be used as a guide to the requirements and tests.

Where the design of a luminaire is such that two or more parts of IEC 60598-2 are applicable, the luminaire shall comply with both or all of the appropriate sections.

0.3.3 Semi-luminaires should be regarded as luminaires for test purposes.

0.4 General test requirements and verification

0.4.1 Tests according to this standard are type tests. For the definition of a "type test", see Section 1 of this Part 1.

The requirements and tolerances permitted by this standard are related to testing of a type test sample submitted for that purpose. Compliance of the type test sample does not ensure compliance of the whole production of a manufacturer. Compliance for production is the responsibility of the manufacturer and may include routine tests and quality assurance in addition to type testing.

0.4.2 Except where otherwise specified in the sections of Part 1 or Part 2, luminaires shall be tested as delivered, and installed as for normal use, in an ambient temperature of between 10 °C and 30 °C, having regard to the manufacturer's installation instructions. The lamp (or lamps) is (are) not included except where essential for the test.

Luminaires cannot be regarded as meeting the requirements of this Part 1 unless all internal wiring is complete.

In general, the tests are made on a single sample luminaire or, where a range of similar luminaires is involved, on a single luminaire of each rated wattage in the range or on a representative selection from the range as agreed with the manufacturer (see Annex S). This selection shall include the luminaire, together with any attachments, which represents the most unfavourable combination from a testing point of view.

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Each sample luminaire shall comply with all the relevant tests. In order to reduce the time of testing and to allow for any tests which may be destructive, the manufacturer may submit