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Ljusarmatur – Säkerhet – Del 1: Allmänna fordringar och provning

*Luminaires –
Part 1: General requirements and tests*

Som svensk standard gäller europastandarden EN 60598-1:2015. Den svenska standarden innehåller den officiella engelska språkversionen av EN 60598-1:2015.

Nationellt förord

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- **IEC 60598-1, Eight edition, 2014 - Luminaires - Part 1: General requirements and tests**

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English Version

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

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

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

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

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

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- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2017-10-20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

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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.

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

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60061	Series	Lamp caps and holders together with gauges for the control of interchangeability and safety	EN 60061	Series
IEC 60061-2 (mod)	1969	Lamp caps and holders together with gauges for the control of interchangeability and safety - Part 2: Lampholders	EN 60061-2 + A1 to A37	1993
IEC 60061-3	1969	Lamp caps and holders together with gauges for the control of interchangeability and safety - Part 3: Gauges	EN 60061-3 + A1 to A38	1993
IEC 60065 (mod)	2001	Audio, video and similar electronic apparatus - Safety requirements	EN 60065 + corr. March + corr. August + A11 + A12	2002 2006 2007 2008 2011
IEC 60068-2-75	1997	Environmental testing - Part 2-75: Tests - Test Eh: Hammer tests	EN 60068-2-75	1997
IEC 60079	Series	Explosive atmospheres	EN 60079	Series
IEC/TR 60083	–	Plugs and socket-outlets for domestic and similar general use standardized in member countries of IEC	–	–
IEC 60085	2007	Electrical insulation - Thermal evaluation and designation	EN 60085	2008
IEC 60112	2003	Method for the determination of the proof and the comparative tracking indices of solid insulating materials	EN 60112	2003
IEC 60155	1993	Glow-starters for fluorescent lamps	EN 60155	1995
IEC 60227	Series	Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V	EN 50525 ¹⁾	Series

¹⁾ EN 50525 Series, which is related to, but not directly equivalent with IEC 60227 Series, applies instead.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60238	2004	Edison screw lampholders	EN 60238 + corr. January	2004 2005
IEC 60245	Series	Rubber insulated cables - Rated voltages up to and including 450/750 V	EN 50525 ²⁾	Series
IEC 60269	Series	Low-voltage fuses	EN/HD 60269	Series
IEC 60320	Series	Appliance couplers for household and similar general purposes	EN 60320	Series
IEC 60357	2002	Tungsten halogen lamps (non-vehicle) - Performance specifications	EN 60357 + corr. July	2003 2003
IEC 60360	1998	Standard method of measurement of lamp cap temperature rise	EN 60360	1998
IEC 60364-4-41 (mod)	2005	Low-voltage electrical installations - Part 4-41: Protection for safety - Protection against electric shock	HD 60364-4-41 + corr. July	2007 2007
IEC 60384-14	2005	Fixed capacitors for use in electronic equipment - Part 14: Sectional specification - Fixed capacitors for electromagnetic interference suppression and connection to the supply mains	EN 60384-14	2005 ³⁾
IEC 60400	2008	Lampholders for tubular fluorescent lamps and starterholders	EN 60400	2008
IEC 60417	data-base	Graphical symbols for use on equipment	–	–
IEC 60432-1 (mod) A1	1999 2005	Incandescent lamps - Safety specifications - Part 1: Tungsten filament lamps for domestic and similar general lighting purposes	EN 60432-1 A1	2000 2005
IEC 60432-2 (mod) A1 (mod)	1999 2005	Incandescent lamps - Safety specifications - Part 2: Tungsten halogen lamps for domestic and similar general lighting purposes	EN 60432-2 A1	2000 2005
IEC 60432-3	2002	Incandescent lamps - Safety specifications - Part 3: Tungsten-halogen lamps (non-vehicle)	EN 60432-3	2003 ⁴⁾
IEC 60449 + A1	1973 1979	Voltage bands for electrical installations of buildings	HD 193 S2	1982
IEC 60529	1989	Degrees of protection provided by enclosures (IP Code)	EN 60529 + corr. May	1991 1993

2) EN 50525 Series, which is related to, but not directly equivalent with IEC 60245 Series, applies instead.

3) Superseded by EN 60384-14:2013 (DOW = 2016-07-10).

4) Superseded by EN 60432-3:2013 (DOW = 2015-08-08).

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60570 (mod)	2003	Electrical supply track systems for luminaires	EN 60570	2003
IEC 60598-2	Series	Luminaires - Part 2: Particular requirements	EN 60598-2	Series
IEC 60598-2-4	1997	Luminaires - Part 2: Particular requirements - Section 4: Portable general purpose luminaires	EN 60598-2-4	1997
IEC 60634	1993	Heat test source (H.T.S.) lamps for carrying out heating tests on luminaires	EN 60634	1995
IEC 60662 (mod)	1980	High-pressure sodium vapour lamps	EN 60662	1993 ⁵⁾
IEC 60664-1	2007	Insulation coordination for equipment within low-voltage systems - Part 1: Principles, requirements and tests	EN 60664-1	2007
IEC 60682	1980	Standard method of measuring the pinch temperature of quartz-tungsten-halogen lamps	EN 60682	1993
IEC 60684	Series	Flexible insulating sleeving	EN 60684	Series
IEC 60695-2	Series	Fire hazard testing - Part 2: Glowing/hot-wire based test methods	EN 60695-2	Series
IEC 60695-2-10	2000	Fire hazard testing - Part 2-10: Glowing/hot-wire based test methods - Glow-wire apparatus and common test procedure	EN 60695-2-10	2001 ⁶⁾
IEC 60695-11-5	2004	Fire hazard testing - Part 11-5: Test flames - Needle-flame test method - Apparatus, confirmatory test arrangement and guidance	EN 60695-11-5	2005
IEC 60838	Series	Miscellaneous lampholders	EN 60838	Series
IEC 60989	–	Separating transformers, autotransformers, variable transformers and reactors	–	–
IEC 60990	1999	Methods of measurement of touch current and protective conductor current	EN 60990	1999
IEC 61032	1997	Protection of persons and equipment by enclosures - Probes for verification	EN 61032	1998

⁵⁾ Superseded by EN 60662:2012 (DOW = 2015-01-02).

⁶⁾ Superseded by EN 60695-2-10:2013 (DOW = 2016-05-14).

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 61058-1 (mod)	2000	Switches for appliances - Part 1: General requirements	EN 61058-1	2002 ⁷⁾
IEC 61140	2001	Protection against electric shock - Common aspects for installation and equipment	EN 61140	2002
IEC 61167	1992	Metal halide lamps	EN 61167	1994 ⁸⁾
IEC 61184	2008	Bayonet lampholders	EN 61184	2008
IEC 61199	1999	Single-capped fluorescent lamps - Safety specifications	EN 61199	1999 ⁹⁾
IEC 61249	Series	Materials for printed boards and other interconnecting structures	EN 61249	Series
IEC 61347	Series	Lamp controlgear	EN 61347	Series
IEC 61347-2-9	2000	Lamp controlgear - Part 2-9: Particular requirements for ballasts for discharge lamps (excluding fluorescent lamps)	EN 61347-2-9 + corr. July + corr. December	2001 ¹⁰⁾ 2003 2010
IEC 61558-1	2005	Safety of power transformers, power supplies, reactors and similar products - Part 1: General requirements and tests	EN 61558-1 + corr. August	2005 2006
IEC 61558-2 (mod)	Series	Safety of power transformers, power supplies, reactors and similar products - Part 2: Particular requirements and test	EN 61558-2	Series
IEC 61558-2-5	1997	Safety of power transformers, power supply units and similar - Part 2-5: Particular requirements for shaver transformers and shaver supply units	EN 61558-2-5 + A11	1998 ¹¹⁾ 2004 ¹¹⁾
IEC 61558-2-6	1997	Safety of power transformers, power supply units and similar - Part 2-6: Particular requirements for safety isolating transformers for general use	EN 61558-2-6	1997 ¹²⁾
IEC 62031	2008	LED modules for general lighting - Safety specifications	EN 62031	2008

7) EN 61058-1 includes A1:2001 to IEC 61058-1 (mod).

8) Superseded by EN 61167:2011.

9) Superseded by EN 61199:2011.

10) Superseded by EN 61347-2-9:2013 (DOW = 2015-12-04).

11) Superseded by EN 61558-2-5:2010.

12) Superseded by EN 61558-2-6:2009.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 62035 (mod)	1999	Discharge lamps (excluding fluorescent lamps) - Safety specifications	EN 62035	2000 ¹³⁾
IEC 62471 (mod)	2006	Photobiological safety of lamps and lamp systems	EN 62471	2008
IEC 80416-1	2001	Basic principles for graphical symbols for use on equipment - Part 1: Creation of symbol originals	EN 80416-1	2001 ¹⁴⁾
ISO 4046-4	2002	Paper, board, pulps and related terms - Vocabulary - Part 4: Paper and board grades and converted products	–	–

¹³⁾ Superseded by EN 62035:2014 (DOW = 2017-09-15).

¹⁴⁾ Superseded by EN 80416-1:2009.

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

LUMINAIRES –

Part 1: General requirements and tests

FOREWORD

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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.

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.

Attention is drawn to lamp performance standards which contain "information for luminaire design"; this should be followed for proper lamp operation; however, this standard does not require the testing of lamp performance as part of the type test approval for luminaires.

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 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 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 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