Valgustid. Osa 1: Üldnõuded ja katsetused

Luminaires -- Part 1: General requirements and tests



EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 60598-1:2008	This Estonian standard EVS-EN 60598-1:2008
ingliskeelset teksti	standard FN 60598-1-2008
Standard on kinnitatud Eesti Standardikeskuse	This standard is ratified with the order of
05.12.2008 käskkirjaga ja jõustub sellekohase	Estonian Centre for Standardisation dated
teate avaidamiser EVS Teatajas.	published in the official bulletin of the Estonian
<i>D</i> .	national standardisation organisation.
ۍ ۲	
Euroopa standardimisorganisatsioonide poolt	Date of Availability of the European standard text
kättesaadavaks tegemise kuopäev on	29.10.2000.
29.10.2008.	
Standard on kattesaadav Eesti	The standard is available from Estonian
standardiorganisatsioonist.	Standardisation organisation.
	PL.
ICS 29.140.40	C4
Võtmesõnad:	.0
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EUROPEAN STANDARD NORME EUROPÉENNE EUROPÄISCHE NORM

EN 60598-1

October 2008

ICS 29.140.40

Supersedes EN 60598-1:2004 + A1:2006

English version



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Foreword

The text of document 34D/889/FDIS, future edition 7 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.

A draft amendment, prepared by the Technical Committee CENELEC TC 34Z, Luminaires and associated equipment, covering the needed common modifications towards IEC 60598-1:2008 (34D/889/FDIS) was submitted to the formal vote.

The combined texts were approved by CENELEC as EN 60598-1 on 2008-10-21.

This European Standard supersedes EN 60598-1:2004 + A1:2006 + corrigendum August 2007.

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 following dates were fixed:

	~ /		
-	latest date by which the EN has the implemented at national level by publication of an identical national standard or by endorsement	(don)	2009-08-01
		(dop)	2000 00 01
-	latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2012-04-12
NC	TE In this standard, the following print types are used:		
_	requirements: in roman type;		
_	test specifications: in italic type;		
-	notes: in small roman type.		
Ar	inexes ZA, ZB and ZC have been added by CENELEC.		
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Endorsement notice

The text of the International Standard IEC 60598-1:2008 was approved by CENELEC as a European Standard with agreed common modifications as given below.

COMMON MODIFICATIONS

3	Marking		
3.2.12	Delete NOTE 3.		
3.3	Add a new subclause		
	3.3.101 Where the contain the following	terminal block is not supplied with the luminaire, the packaging needs to wording:	
	"Terminal block not in	curved. Installation may require advice from a qualified person."	
4	Construction	ny.	
4.11.6	At the end of the par voltage however bein	agraph commencing "Following completion of these tests", add "[the test g reduced to 1,500 V]".	
5	External and interna	Il wiring	
5.2.1	Replace the indent re	elating to "Fixed luminaires" by:	
	Fixed luminaires	terminals; plugs for engagement with socket-outlets;	
		non-detachable flexible cabes or cords;	
		adapters for engagement with supply tracks;	
		appliance inlets;	
		connecting leads (tails):	
	account shall be taken of national metallation rules/practice wher deciding whether to supply a connection device or not. Where the luminaire is delivered with connecting leads (tails) and without a means of connection to the supply, the manufacturer of the luminaire shall specify which terminal block may be used which shall conform to EN 60998-2-1 or EN 60998-2-2; either the terminal block to be used shall be specified or the following shall be defined:		
		- the type of terminal (screw/screwless);	
		- number of terminals;	
		- rated voltage;	
		 rated connecting capacity; 	

- any necessary preparation of the ends of conductors;
- any fixing method.

The requirements of 4.6, 4.7.1, 4.7.2, 4.10.1, 11.2, 12 and 13.2 shall be applied.

5.2.2 In paragraph 1, replace "IEC 60227 and IEC 60245" by "HD 21 and HD 22".

Delete paragraph 2.

Replace Table 5.1 by:

Table 5.1 - Non detachable f	lexible cables or c	ords

$\boldsymbol{\lambda}$	Rubber	PVC
Ordinary class I luminaires	H03RT-H	H03VVH2-F H03VV-F
Ordinary class uminaires	H05RR-F	H03VVH2-F H03VV-F
Luminaires other than ordinary	H05RN-F	-
Portable rough service lummaires	H07RN-F	_

12 Endurance test and thermal test

12.4.2 c) Line 2, after "90 °C" add "(see footpote ^c to Table 12.2 relating to unsleeved fixed wiring)".

Ĵ

Table 12.2 In footnote ^c add the following:

- after "European installation standards": () 60364 (HD 384))";
- after "European cable standards": "(HD 21)

Bibliography

Add the following notes for the standards indicated:

IEC 60081	NOTE	Harmonized as EN 60081:1998 (not modified).
IEC 60216	NOTE	Harmonized in EN 60216 series (not modified)
IEC 60364	NOTE	Harmonized in HD 384/HD 60364 series (modifed),
IEC 60364-5-51	NOTE	Harmonized as HD 60364-5-51:2006 (modified).
IEC 60598-2-3	NOTE	Harmonized as EN 60598-2-3:2003 (not modified).
IEC 60598-2-5	NOTE	Harmonized as EN 60598-2-5:1998 (not modified).
IEC 60598-2-6	NOTE	Harmonized as EN 60598-2-6:1994 (not modified).
IEC 60664-3	NOTE	Harmonized as EN 60664-3:2003 (not modified).
IEC 60695	NOTE	Harmonized in EN 60695 series (not modified).
IEC 60695-2-11	NOTE	Harmonized as EN 60695-2-11:2001 (not modified).
IEC 60811-3-1	NOTE	Harmonized as EN 60811-3-1:1995 (not modified).
IEC 60901	NOTE	Harmonized as EN 60901:1996 (not modified).
IEC 60921	NOTE	Harmonized as EN 60921:2004 (not modified).

IEC 60923	NOTE	Harmonized as EN 60923:2005 (not modified).
IEC 60925	NOTE	Harmonized as EN 60925:1991 (not modified).
IEC 60929	NOTE	Harmonized as EN 60929:2006 (not modified).
IEC 60950-1	NOTE	Harmonized as EN 60950-1:2006 (modified).
IEC 61195	NOTE	Harmonized as EN 61195:1999 (not modified).
IEC 61210	NOTE	Harmonized as EN 61210:1995 (modified).
IEC 61346-1	NOTE	Harmonized as EN 61346-1:1996 (not modified).
IEC 61995	NOTE	Harmonized in EN 61995 series (modified).
ISO 75-2	NOTE	Harmonized as EN ISO 75-2:1996 (not modified).

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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 internal applies.	tional publi	cation has been modified by common modifications, indic	ated by (mod), the relevan	t EN/HD
Publication	Year	Title	<u>EN/HD</u>	<u>Year</u>
IEC 60061 (mod)	Series	Lamp caps and holders together with gauges for the control of interchangeability and safety	EN 60061	Series
IEC 60061-2 (mod)	_ ¹⁾	Lamp caps and holders together with gauges for the control of interchangeability and satety - Part 2: Lampholders	EN 60061-2 + A1 to A37	1993 ²⁾
IEC 60061-3	data- base	Lamp caps and holders together with gauges for the control of interchangeability and safety - Part 3: Gauges	EN 60061-3 + A1 to A38	1993 ²⁾
IEC 60065 (mod)	2001	Audio, video and sim te electronic apparatus - Safety requirements	EN 60065 + corr. August	2002 2007
IEC 60068-2-75	- ¹⁾	Environmental testing - O Part 2-75: Tests - Test Eh: Hammer tests	EN 60068-2-75	1997 ²⁾
IEC 60079 (mod)	Series	Explosive atmospheres	EN 60079	Series
IEC 60083	_ 1)	Plugs and socket-outlets for domestic and similar general use standardized in pember countries of IEC	-	-
IEC 60085	_ 1)	Thermal evaluation and designation of electrical insulation	EN 60085	2008 ²⁾
IEC 60112	2003	Method for the determination of the proof and the comparative tracking indices of solid insulating materials	EN 60112	2003
IEC 60155	_ ¹⁾	Glow-starters for fluorescent lamps	EN 60155	1995 ²⁾
IEC 60227	Series	Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V	HD 21	Series
IEC 60238	2004	Edison screw lampholders	EN 60238 + corr. January	2004 2005

¹⁾ Undated reference.

²⁾ Valid edition at date of issue.

³⁾ The HD 21 series, Cables of rated voltages up to and including 450/750 V and having thermoplastic insulation, is related to, but not directly equivalent with the IEC 60227 series.

Publication	Year	<u>Title</u>	<u>EN/HD</u>	Year
IEC 60245	Series	Rubber insulated cables - Rated voltages up to and including 450/750 V	HD 22 ⁴⁾	Series
IEC 60269 (mod)	Series	Low-voltage fuses	EN/HD 60269	Series
IEC 60320	Series	Appliance couplers for household and similar general purposes	EN 60320	Series
IEC 60357 (mod)	_ ¹⁾	Tungsten halogen lamps (non-vehicle) - Performance specifications	EN 60357 + corr. July	2003 ²⁾ 2003
IEC 60360	¹⁾	Standard method of measurement of lamp cap temperature rise	EN 60360	1998 ²⁾
IEC 60364-4-41 (mod)	2905	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	_ 1)	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 ²⁾
IEC 60400	_ 1)	Lampholder for tubular fluorescent lamps and starterholders	EN 60400	2008 ²⁾
IEC 60417	data- base	Graphical symbols for use on equipment	_	-
IEC 60432-1 (mod) A1	1999 2005	Incandescent lamps - Safety specifications - Part 1: Tungsten filamen 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 domestic and similar general lighting purposes	EN 60432-2 A1	2000 2005
IEC 60432-3	_ 1)	Incandescent lamps - Safety specification Part 3: Tungsten-halogen lamps (non- vehicle)	EN 60432-3	2003 ²⁾
IEC 60449 + A1	1973 1979	Voltage bands for electrical installations of buildings	90 193 S2	1982
IEC 60529	- ¹⁾	Degrees of protection provided by enclosures (IP Code)	EN 60529 + corr. May	1991 ²⁾ 1993
IEC 60570 (mod)	2003	Electrical supply track systems for luminaires	EN 60570	2003
IEC 60598-2 (mod)	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

⁴⁾ The HD 22 series, Cables of rated voltages up to and including 450/750 V and having cross-linked insulation, is related to, but not directly equivalent with the IEC 60245 series.

Publication	Year	Title	<u>EN/HD</u>	Year
IEC 60634	_ 1)	Heat test source (H.T.S.) lamps for carrying out heating tests on luminaires	EN 60634	1995 ²⁾
IEC 60662 (mod)	_ 1)	High pressure sodium vapour lamps	EN 60662	1993 ²⁾
IEC 60664-1	2007	Insulation coordination for equipment within low-voltage systems - Part 1: Principles, requirements and tests	EN 60664-1	2007
IEC 60682		Method of measuring the pinch temperature of quartz glass lamps	EN 60682	1993 ²⁾
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	_ 1)	Fire hazard testing - Part 2-10: Glowing/hot-wire based test methods - Glow-wire apparatus and common test procedure	EN 60695-2-10	2001 ²⁾
IEC 60695-11-5	_ ¹⁾	Fire hazard testing - Part 11-5 Test flames - Needle-flame test method - Apparatus, confirmatory test arrangement and guidance	EN 60695-11-5	2005 ²⁾
IEC 60838	Series	Miscellaneous	EN 60838	Series
IEC 60989	_ ¹⁾	Separating transformers, autotransformers, variable transformers and reactors	-	-
IEC 60990	1999	Methods of measurement of touch current and protective conductor Orrent	EN 60990	1999
IEC 61032	1997	Protection of persons and equipment by enclosures - Probes for verification	EN 61032	1998
IEC 61058-1 (mod)	2000	Switches for appliances - Part 1: General requirements	EN 61058-1 ⁵⁾	2002
IEC 61140	2001	Protection against electric shock - Cournon aspects for installation and equipment	EN 61140	2002
IEC 61167	_ 1)	Metal halide lamps	EN 61167	1994 ²⁾
IEC 61184	_ 1)	Bayonet lampholders	EN 61184	2008 ²⁾
IEC 61199	1999	Single-capped fluorescent lamps - Safety specifications	EAL61199	1999
IEC 61249	Series	Materials for printed boards and other interconnecting structures	EN 01249	Series
IEC 61347 (mod)	Series	Lamp controlgear	EN 61347	Series
IEC 61347-2-9	_ 1)	Lamp controlgear - Part 2-9: Particular requirements for ballasts for discharge lamps (excluding fluorescent lamps)	EN 61347-2-9 + corr. July	2001 ²⁾ 2003
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

⁵⁾ EN 61058-1 includes A1:2001 to IEC 61058-1 (mod).

Publication	Year	Title	<u>EN/HD</u>	Year
IEC 61558-2 (mod)	Series	Safety of power transformers, power supplies, reactors and similar products - Part 2: Particular requirements	EN 61558-2	Series
IEC 61558-2-5	_ 1)	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 ²⁾ 2004
IEC 61558-2-6		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 ²⁾
IEC 62031	-1)	LED modules for general lighting - Safety specifications	EN 62031	2008 ²⁾
IEC 62035 (mod)	_ 1)	Rischarge lamps (excluding fluorescent lamps) - Safety specifications	EN 62035	2000 ²⁾
IEC 62471 (mod)	_ ¹⁾	Photoeiological safety of lamps and lamp systems	EN 62471	2008 ²⁾
IEC 80416-1	_ 1)	Basic principles for graphical symbols for use on equipment - Part 1: Creation of symbol originals	EN 80416-1	2001 ²⁾
ISO 4046-4	2002	Paper, board, pulps and related terms - Vocabulary - Part 4: Paper and board grades and converted products	OZ TZS	_

Annex ZB

(normative)

Special national conditions

Special national condition: National characteristic or practice that cannot be changed even over a long period, e.g. climatic conditions, electrical earthing conditions.

NOTE If it affects harmonization, it forms part of the European Standard or Harmonization Document.

For the countries in which the relevant special national conditions apply these provisions are normative, for other countries they are informative.

Clause Special national condition

3.3 Denmark

Supply cords of classed luminaires, which are delivered without a plug, shall be provided with a visible tag with the following text:

Vigtigt ! Lederen med grøn/gul isolation må kun tilsluttes en klemme mærket

eller

If essential for the safety of the luminaire the tag shall in addition be provided with a diagram, which shows the connection of the other conductors, or be provided with the following text:

Fir tilslutning af the øvrige ledere, se medfølgende vejledning.

Class I luminaires which, according to the exemption for Denmark in 5.2.1, are delivered with a supply cord with a plug in accordance with Standard theets DKA 2-1a, DKA 2-1b, C 1b, C 2b, C 3b or C 4, shall either be provided with the above tag or the same information shall be given in an enclosed instruction. The text concerning conductor baving green/yellow insulation shall be quoted word-for-word.

NOTE "ø" may be replaced by "oe"; "æ" may be replaced by "ae".

Italy

For luminaires of class 0, the manufacturer's instructions shall include the following warning:

"ATTENZIONE - QUESTO APPARECHIO E' IDONEO SOLO PER AMBIENTI ISOLATI"

<u>Clause</u> <u>Special national condition</u>

4.5.1 Denmark

Socket-outlets intended for providing power to other appliances shall be in compliance with Section 107-2-D1, the Standard Sheets being applied as follows:

Class I Standard Sheet DK 1-3a

For class I luminaires, the earthing contact of the socket-outlet shall be electrically connected to the earthing terminal of the appliance.

Class II luminaires shall not be fitted with socket-outlets for providing power to other appliances.

EXEMPTION: Socket-outlets supplied from isolation transformers (shaver supply units) and socket-outlets on outdoor furninaires may be in accordance with the requirement of Section 107-2-D1 for fixed socket-outlets.

5.2.1 Cyprus



Domestic luminaires intended for connection to a standard United Kingdom 13 A socket must be pre-fitted with an approved plug complying with BS 1363.

Cord sets for domestic luminaires or connection with an appliance inlet must be pre-fitted with an approved plug complying with BS 363.

Plugs must be fitted with the correct fuse

Denmark

Supply cords on single-phase portable luminates having a rated current not exceeding 10 A shall be provided with a plug according to the following table:

		Plug	1				
Class of luminaire		Section 107-2-D1	EN 50075				
		Standard Sheet 🖓	Standard Sheet				
	Protection against indirect	DK 2-1a*					
I	contact required		2				
	Earthing connection not	DK 2-1a, DKA 2-1a,	× ×				
	required	DKA 2-1b, C 1b, C 2b,	0,				
	-	C 3b, C 4					
	II DKA 2-1a, DKA 2-1b,						
	C 1b, C 5, C 6						
* Lur	* Luminaires fitted with a socket-outlet for providing power to other appliances.						

For luminaires which are mainly used in locations where protection against indirect contact is required, see Section 10, Clause 17.

<u>Clause</u> <u>Special national condition</u>

5.2.1 Denmark (continued)

For luminaires having an appliance inlet, the plug on the supply cord shall comply with the above requirements. If other single-phase luminaires having a rated current not exceeding 10 A are provided with a supply cord with a plug, the plug shall comply with the above requirements.

EXEMPTION:

If single-phased fixed class I luminaires, intended for use in homes, and for which projection against indirect contact is required according to Section 10 of the Heavy Current Regulations, are provided with a plug, this plug may, until further notice, be in accordance with Standard Sheet DKA 2-1a, DKA 2-1b, C 1b, C 2b, C 3b or C 4, provided that the cord close to the plug is marked as required in 3.3.

If multi-phase-uminaires and single-phase luminaires having a rated current exceeding 10 A are provided with a supply cord with a plug, the plug shall comply with the following table:

	Plug	
Class of luminaire	Section 107-2-D1	Section 117
	Standard Sheet	Standard Sheet
	DK 6-1a	II
П (о	DK 7-1a*	*
* Earthing contact not connected.		

Finland and Sweden

For luminaires provided with non-detachable flexible cables and cords and a plug, the plug shall comply with the requirements of CEE Publication 7 and EN 50075, the Standard Sheets to be applied being as follows:

- Class I luminaires
- Class II luminaires

CEE 7, sheet IV or VI CEE 7, sheet XVI (alt Conly) or CEE 7, sheet XVII or EN 50075, sheet I

United Kingdom

Domestic luminaires intended for connection to a standard United Kingdom 13 A socket must be pre-fitted with an approved plug complying with BS 1363.

Cord sets for domestic luminaires for connection with an appliance inlet must be pre-fitted with an approved plug complying with BS 1363.

Plugs must be fitted with the correct fuse.

Annex ZC

(informative)

A-deviations

A-deviation: National deviation due to regulations, the alteration of which is for the time being outside the competence of the CEN/CENELEC member.

This European Standard falls under Directive 2006/95/EC.

NOTE (from CEN/CENELEC IR Part 2:2008, 2.17) Where standards fall under EC Directives, it is the view of the Commission of the European Communities (OL No. C59; 1982-03-09) that the effect of the decision of the Court of Justice in case 815/79 Cremonini/Vrankovich (European Court Reports 1980, p. 3583) is that compliance with A-deviations is no longer mandatory and that the free movement of products complying with such a standard should not be restricted except under the safeguard procedure provided for in the relevant Directive.

A-deviations in an EFTA-couptry are **valid instead** of the relevant provisions of the European Standard in that country until they have been removed.

- <u>Clause</u> <u>Deviation</u>
- 4 & 5 France
 - (Arrêté of the 22th September 1969)

Socket-outlets 10/16 A intended for providing power to other appliances except those supplied by an isolating transformer shall be shuttered.

13.3 France

(Regulation on the safety against fire panic hazards in premises open to public. Arrêté of the 19th November 2001)

External parts of fixed or suspended luminaities shall be subjected to a glow-wire test, the glow-wire temperature is:

- 850 °C for general purpose luminaires installer closed horizontal routes and stairs;
- 850 °C for general purpose luminaires installed proremises open to public if the total visible surface of the luminaires is more than 25 % or the premise surface;
- 750 °C for the other general purpose luminaires installed in premises open to public.

(Regulation on the safety against fire in high buildings. Arreteof the 18th October 1977)

External parts of fixed or suspended luminaires shall be subjected to a glow-wire test, the glowwire temperature is:

- 960 °C for general purpose luminaires installed in all emergency exits
- 750 °C for the other general purpose luminaires installed in premises open to the public.

United Kingdom

(Approved Document B of the United Kingdom Building Regulations)

Particular fire protection requirements relating to thermoplastic diffusers are listed in Subclause 6.15 of the above Regulations.

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LUMINAIRES -

Part 1: General requirements and tests

SECTION 0: GENERAL INTRODUCTION

0.1 Scope and object

This Part 1 of International Standard 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 and electrical construction.

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

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.

Attention is drawn to the fact that this Part 1 covers all aspects of safety (electrical, thermal and mechanical).

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 the 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. \mathbf{Y}

In general, this Part 1 covers safety requirements for luminaires. De 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.

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 that after which the new standard shall apply.

0.2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited oplies. 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 groupes for the control of interchangeability and safety – Part 2: Lampholders

IEC 60061-3:2007, 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

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

IEC 60079 (all parts), Electrical apparatus for explosive gas atmospheres

IEC 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 60238:2004, Edison screw lampholders

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

IEC 60269 (all parts), Low-voltage fuses

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 60364-4-41-2005, Low-voltage electrical installations – Part 4-41: Protection for safety – Protection against electric shock

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

IEC 60432-1:1999, Incandescent lamos – Safety specifications – Part 1: Tungsten filament lamps for domestic and similar general opting purposes ¹⁾ Amendment 1 (2005)

IEC 60432-2:1999, Incandescent lamps – Sacy specifications – Part 2: Tungsten halogen lamps for domestic and similar general lighting purposes ²⁾ Amendment 1 (2005)

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 Con

IEC 60570:2003, Electrical supply track systems for luminaires

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

IEC 60598-2-4:1997, Luminaires – Part 2: Particular requirements – Section 4: Portable general purpose luminaires

IEC 60634, Heat test source (H.T.S.) lamps for carrying out heating tests on luminaires

IEC 60662, High pressure sodium vapour lamps

IEC 60664-1:2007, Insulation coordination for equipment within low-voltage systems – Part 1: *Principles, requirements and tests*

¹⁾ There exists a consolidated edition 2.1 (2005) that comprises IEC 60432-1 (1999) and its Amendment 1.

²⁾ There exists a consolidated edition 2.1 (2005) that comprises IEC 60432-2 (1999) and its Amendment 1.

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

IEC 60684 (all parts), Flexible insulating sleeving

IEC 60695-2 (all parts), Fire hazard testing - Part 2: Glowing/hot-wire based test methods

IEC 60695-2-10, Fire hazard testing – Part 2-10: Glowing/hot-wire based test methods – Glowwire apparatus and common test procedure

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

IEC 60838 (all parts) Miscellaneous lampholders

IEC 60989, Separating thereformers, 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 61140:2001, Protection against electric shock – Common aspects for installation and equipment

IEC 61167, Metal halide lamps

IEC 61184, Bayonet lampholders

IEC 61199:1999, Single-capped fluorescent lamps – Safety specifications

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

IEC 61347 (all parts), Lamp controlgear

IEC 61347-2-9, Lamp controlgear – Part 2-9: Particular requirements for ballasts 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

IEC 61558-2-5, Safety of power transformers, power supply units and similar – Part 2-5: Particular requirements for shaver transformers and shaver supply units

IEC 61558-2-6, Safety of power transformers, power supply units and similar – Part 2-6: Particular requirements for safety isolating transformers for general use

IEC 62031, LED modules for general lighting – Safety specifications

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

IEC 62471, Photobiological safety of lamps and lamp systems

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

ISO 4046-4:2002, Paper, board, pulp and related terms – Vocabulary – Part 4: Paper and board grades and converted products

0.3 General requirements

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

NOTE 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 there 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 in an ambient temperature of between 10 °C and 30 °C tuminaires shall be tested as delivered, and installed as in normal use, 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.

In accordance with IEC guidelines, new IEC standards are divided into those covering either safety or performance. In the lamp safety standards, "information for luminaire design" is given for the safe operation of lamps; this shall be regarded as normative when testing luminaires to this standard.

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 additional luminaires or parts of luminaires provided that these are of the same materials and design as the original luminaire and that the results of the test are the same as if carried out on