BUREAU OF INDIAN STANDARDS DRAFT FOR COMMENTS ONLY

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Draft Indian Standard

Luminaires – Part 1: General Requirements and Tests

(Second Revision)

(ICS 29.140.40)

Illumination Engineering and Luminiaries	Last date for comments- 25 December 2024
Sectional Committee, ETD 49	

NATIONAL FOREWORD

This draft Indian Standard (Part 1) (Second Revision) which is identical with IEC 60598-1: 2024 'Luminaires – Part 1: General requirements and tests' issued by the International Electrotechnical Commission (IEC) will be adopted by the Bureau of Indian Standards on the recommendation of the Illumination Engineering and Luminiaries Sectional Committee and approval of the Electrotechnical Division Council.

This standard was originally published in year 1982 and subsequently revised in year 2014 to align it with the IEC 60598-1: 2003. The second revision has been undertaken to align it with the latest version of IEC 60598-1: 2024.

India specific changes have been made to the adopted IEC 60598-1 as outlined in National Annexure A.

The text of the IEC Standard has been approved as suitable for publication as an Indian Standard without deviations. Certain conventions are, however, not identical to those used in Indian Standards. Attention is particularly drawn to the following:

- a) Wherever the words 'International Standard' appears referring to this standard, they should be read as 'Indian Standard'.
- b) Comma (,) has been used as a decimal marker, while in Indian Standards the current practice is to use a point (.) as the decimal marker.

In this adopted standard, reference appears to International Standards for which Indian Standards also exists. The corresponding Indian Standards, which are to be substituted, are listed below along with their degree of equivalence for the editions indicated:

International Standard	Corresponding Indian Standard	Degree of Equivalence

IEC 60068-2-6, Environmental testing – Part 2-6: Tests – Test F: Vibration (sinusoidal) Ist. IEC 60068-2-14 : 2023 Environmental Testing Part 2 Tests Section 14 Test N: Change of temperature (memperature first revision) Identical IEC 60068-2-14: 2023, Environmental testing – Part 2- temperature (memperature first revision) Identical IEC 60068-2-13: 2008, Environmental testing – Part 2- 60068-2-31: 2008 Environmental 31: Tests – Test E: Rough testing: Part 7 tests : Sec 3 test Ec: rough handling shocks, primarily for equipment-type specimens Identical IEC 60068-2-75: S000 (Part 7/Sec 3): 2019/ IEC Environmental testing – Part 2- 60068-2-75: S000 (Part 7/Sec 7): 2020/ IEC Environmental testing – Part 2- 60068-2-75: S000 (Part 7/Sec 7): 2020/ IEC Environmental testing – Part 2- 60068-2-75: S19000 (Part 7/Sec 7): 2020/ IEC Environmental testing – Part 2- 60068-2-75: S171: 2012/ IEC 60085: 2007 Identical IEC 60085, Electrical Insulation – Thermal evaluation and designation evaluation and designation (second revision) Identical IEC 60112: 2020, Method for IEC 60155, Glow-starters for fluorescent lamps (third revision) Is 2215 : 2006 Starters for fluorescent lamps (third revision) Identical IEC 60335-1:2020, Household and similar electrical appliances IEC 60335-1:2020, Mousehold IS 302 (Part 1) : 2024/ IEC 60335- Identical Identical IEC 60360 Standard method of IES 60360 Standard method of IES 60360 standard method of measurement of lamp cap temperature rise Identical IEC 60432-1:1999, IEC 60529. Degrees of Is/IEC 60529. 2001 Degrees of Identical <th></th> <th></th> <th></th>			
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specifications – Part 1: lamps: Part 1 tungsten filament Tungsten filament lamps for lamps for domestic and similar domestic and similar general lighting purposes lighting purposes IEC 60529, Degrees of IS/IEC 60529 : 2001 Degrees of Identical	Incandescent lamps – Safety	requirements for incandescent	Equivalent
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lighting purposesIEC 60529, Degrees of IS/IEC 60529 : 2001 Degrees of Identical	domestic and similar general	general lighting purposes	
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	IEC 60529. Degrees of	IS/IEC 60529 : 2001 Degrees of	Identical
protection provided by protection provided by enclosures	protection provided by	protection provided by enclosures	

enclosures (IP Code)	(IP Code)	
IEC 60598-2-4: 2017,	IS 10322 (Part 5/Sec 4) : 1987	Modified/Technically
Luminaires – Part 2-4:	Specification for luminaires: Part 5	Equivalent
Particular requirements –	particular requirements: Sec 4	1
Portable general purpose	portable general purpose luminaires	
luminaires		
IEC 60662 High-pressure	IS 9974 (Part 1) : 1981/ IEC 60662	Identical
sodium vapour lamps –	Specification for high pressure	
Performance specifications	sodium vapour lamps: Part 1 general	
1	requirements and tests	
IEC 60664-4:2005 Insulation	IS 15382 (Part 4) : 2017/ IEC 60664-	Identical
coordination for equipment	4 : 2005 Insulation Coordination for	
within low-voltage systems –	Equipment Within Low-voltage	
Part 4. Consideration of high-	Systems Part 4 Consideration of	
frequency voltage stress	High-frequency Voltage Stress	
fiequency voluge sitess	(First Revision)	
IEC 60669-1 Switches for	IS 3854 2023	Modified/Technically
household and similar fixed-	Switches for Domestic and Similar	Equivalent
electrical installations – Part 1:	Purposes - Specification (third	Equivalent
General requirements	revision)	
IFC 60669-2-1 Switches for	15/15C 60669-2- 1 · 2008	Identical
household and similar fixed	Switches for Household and Similar	Identical
electrical installations – Part 2-	Fixed Electrical Installations Part 2	
1. Particular requirements	Particular Requirements Section 1	
Flectronic control devices	Flactronic Switches	
IEC 60605 2 11 Eiro bozord	$\frac{15}{15} = \frac{11}{15} + 11$	Identical
testing Port 2 11:	Eiro Hozord Tosting Port 2: Clowing	Iucillical
Clowing/hot wire based test	hot wire based test methods Section	
matheds Clow wire	11: Clow wire flammability tost	
flammability tast mathad for	method for and products CWEDT	
and products (CWEDT)	method for end products GwEPT	
End-products (GwEPT)	IS/IEC (0(05.11.5) 2016 Eine	Idantical
IEC 60695-11-5, Fire hazard	IS/IEC 60695-11-5 : 2016 Fife	Identical
testing – Part 11-5: Test flames	Hazard Testing Part 11 Test Flames	
- Needle-flame test method -	Section 5 Needle - Flame test	
Apparatus, confirmatory test	method - Apparatus, confirmatory	
arrangement and guidance	test arrangement and guidance (first	
	revision)	T 1 1
IEC 60990, Methods of	IS/IEC 60990 : 2016	Identical
measurement of touch current	Methods of measurement of touch	
and protective conductor	current and protective conductor	
current	current (first revision)	
IEC 61032:1997, Protection of	15 1401 : 2008	Modified/Technically
persons and equipment by	Protection of persons and equipment	Equivalent
enclosures – Probes for	by enclosures - Probes for	
verification	verification (second revision)	.
IEC 61051-2:2021 Varistors for	IS/QC 420100: 1994 Varistors for	Identical
use in electronic equipment –	use in electronic equipment	
Part 2: Sectional specification	Sectional specification for surge	
for surge suppression varistors	suppression varistors	
IEC 61058-1:2016, Switches	IS/IEC 61058-1 : 2016 Switches for	Identical

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for appliances – Part 1: General	appliances: Part 1 general	
requirements	requirements (first revision)	
IEC 61058-1-1, Switches for	IS/IEC 61058-1-1 : 2016 Switches	Identical
appliances – Part 1-1:	for Appliances Part 1 General	
Requirements for mechanical	Requirements Section 1 Particular	
switches	Requirements for Mechanical	
	Switches	
IEC 61058 1.2 Switches for	$IS/IEC 61058 \pm 2 \pm 2016$ Switches	Identical
appliances Dort 1.2:	for Appliques Dart 1 Conoral	Identical
appliances – Part 1-2:	for Appnances Part 1 General	
Requirements for electronic	Requirements Section 2 Particular	
switches	Requirements for Electronics	
	Switches	
IEC 61167, Metal halide lamps	IS 16148 : 2014/ IEC 61167:2011	Identical
– Performance specification	Metal halide lamps Performance -	
	specification	
IEC 61347-1:2015 Lamp	IS 15885 (Part 1) : 2011 Safety of	Modified/Technically
controlgear – Part 1: General	lamp controlgear: Part 1 general	Equivalent
and safety requirements	requirements	
IEC 61643-11 Low-voltage	IS 16463 (Part 11) · 2016/ IEC	Identical
surge protective devices – Part	$616/3_{-11}$: 2011 Low - Voltage	Identicui
surge protective devices -1 at	surge protective devices: Part 11	
approximate to low voltage power	surge protective devices. That II	
Connected to low-voltage power	to low Voltage power systems	
systems – Requirements and	to low - voltage power systems -	
test methods	Requirements and test methods	T1 / 1
IEC 62133-2, Secondary cells	IS 16046 (Part 2) : 2018/ IEC 62133-	Identical
and batteries containing	2 : 2017 Secondary Cells and	
alkaline or other non-acid	Batteries Containing Alkaline or	
electrolytes – Safety	Other Non-Acid Electrolytes -	
requirements for portable	Safety Requirements for Portable	
sealed secondary cells, and for	Sealed Secondary Cells and for	
batteries made from them, for	Batteries Made from Them for Use	
use in portable applications –	in Portable Applications Part 2	
Part 2: Lithium systems	Lithium Systems (second revision)	
IEC 62368-1:2018.	IS/IEC 62368-1 : 2018 Audio /	Identical
Audio/video, information and	Video. Information and	
communication technology	Communication Technology	
equipment Part 1: Safety	Equipment Part 1 Safety	
requirements	Pequirements (first ravision)	
$\frac{1}{1} = \frac{1}{1} = \frac{1}$	$\frac{16661}{16661} \times \frac{2010}{160} = \frac{16661}{160} \times \frac{2010}{160} = \frac{16661}{160} \times \frac{2010}{160} = \frac{16661}{160} \times \frac{16661}{160}$	Idantical
$\begin{bmatrix} \text{IEC} & \text{IK} & 02778.2014, \\ \text{Application of IEC} & 62471 & \text{for} \end{bmatrix}$	$15 10001 \cdot 2019/1EC/1K 027/8 \cdot 2014 \text{ Application of } 15 16109/1EC$	Identical
Application of IEC 62471 lof	2014 Application of 15 10108/IEC	
the assessment of blue light	624/1 for the assessment of blue	
hazard to light sources and	light nazard to light sources and	
luminaires		
ISO 3864-1, Graphical symbols	IS 16449 (Part 1) : 2018/ ISO 3864-	Identical
– Safety colours and safety	1 : 2011 Graphical Symbols —	
signs – Part 1: Design principles	Satety Colours and Safety Signs Part	
for safety signs and safety	1 Design Principles for Safety Signs	
markings	and Safety Markings	
ISO 7000, Graphical symbols	IS 16450 : 2023/ ISO 7000:2019	Identical
for use on equipment –	Graphical Symbols for Use on	

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Registered symbols, available	Equipment Registered Symbols	
at https://www.graphical-		
symbols.info/equipment		
ISO 8124-1:2022, Safety of	IS 9873 (Part 1) : 2019/ ISO 8124-1	Identical
toys – Part 1: Safety aspects	:2018 Safety of toys: Part 1 safety	
related to mechanical and	aspects related to mechanical and	
physical properties	physical properties (fourth revision)	

The technical committee has reviewed the provision of the following International Standard referred in this adopted standard and has decided that it is acceptable for use in conjunction with this standard:

International Standard	Title
IEC 60061-2	Lamp caps and holders together with gauges for the control of interchangeability and safety – Part 2: Lamp holders
IEC 60061-3	Lamp caps and holders together with gauges for the control of interchangeability and safety – Part 3: Gauges
IEC TR 60083	Plugs and socket-outlets for domestic and similar general use standardized in member countries of IEC
IEC 60227 (all parts)	Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V
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 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 60417	Graphical symbols for use on equipment, available at http://www.graphicalsymbols.info/equipment
IEC 60432-2:1999	Incandescent lamps – Safety specifications – Part 2: Tungsten halogen lamps for domestic and similar general lighting purposes
IEC 60570:2003	Electrical supply track systems for luminaires
IEC 60603 (all parts)	Connectors for frequencies below 3 MHz for use with printed boards
IEC 60684 (all parts)	Flexible insulating sleeving
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 screw less type clamping units
IEC 61058-2-1	Switches for appliances – Part 2-1: Particular requirements for cord switches
IEC 61249 (all parts)	Materials for printed boards and other interconnecting structures
IEC 61347 (all parts)	Lamp controlgear
IEC 61535:2023	Installation couplers intended for permanent connection in fixed installations
IEC 61558 (all parts)	Safety of transformers, reactors, power supply units and combinations thereof
IEC 61643-331:2020	Components for low-voltage surge protection – Part 331:

	Performance requirements and test methods for metal oxide varistors		
	(MOV)		
IEC 61984:2008	Connectors – Safety requirements and tests		
IEC 62391-1	Fixed electric double-layer capacitors for use in electric and		
	electronic equipment – Part 1: Generic specification		
IEC 62391-2	Fixed electric double-layer capacitors for use in electronic equipment		
	– Part 2: Sectional specification – Electric double layer capacitors for		
	power application		
IEC 62471-7:2023	Photobiological safety of lamps and lamp systems – Part 7: Light		
	sources and luminaires primarily emitting visible radiation		
IEC 62493:2015	Assessment of lighting equipment related to human exposure to		
	electromagnetic fields		
IEC 62680 (all parts)	Universal serial bus interfaces for data and power		

Only English language text has been retained while adopting it in this Indian Standard, and as such the page numbers given here are not the same as in the International Standard.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated expressing the result of a test, shall be rounded off in accordance with IS 2: 2022 'Rules for rounding off numerical values (*second revision*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

NOTE — The technical content of their document has not been enclosed as there are identical with the corresponding IEC standards for details, please refer the corresponding IEC 60598-1: 2024 or kindly contact:

Head Electrotechnical Department Bureau of Indian Standards 9, Bahadur Shah Zafar Marg, New Delhi-110002 Email: eetd@bis.gov.in Telephone: 011-23231192 / 8284

NATIONAL ANNEXURE A

(National Foreword)

(Normative)

A-1 As per Indian conditions, the general ambient temperature conditions shall be considered as 25°±10° C.

A-2 Cl 4.18 Resistance to Corrosion

As per Indian conditions, corrosion test temperature conditions shall be considered as $27^{\circ}\pm5^{\circ}$ C.

A-3 Table 11 Substitute the following for the existing:

Sl. No.	Luminaire	Rubber	PVC	HFFR	FS Cable
(1)	(2)	(3)	(4)	Cable	(6)
				(5)	
i)	Ordinary class I luminaires	IS 9968-1 ^b	IS 694 ^b	IS 17048 ^{a b}	IS 17505-1 ^b
ii)	Ordinary class II luminaires	IS 9968-1 ^b	IS 694 ^b	IS 17048 ^{a b}	IS 17505-1 ^b
iii)	Luminaires other than ordinary class I and II	IS 9968-1 ^b	IS 694 ^b	IS 17048 ^{a b}	IS 17505-1 ^b
iv)	Portable rough service luminaires	IS 9968-1 ^b			
v)	Class III or with SELV or PELV circuits luminaires AC: $U \le 50$ V DC: $U \le 120$ V	Unsheatheo	d basic in	sulated condu	ictor
^a For indoor	^a For indoor use only				

Table 11 – Supply cord (*Clause* 8.2.2)

b For supply voltages greater than 250 V, higher voltage grade cables and cords than those given in this table may be necessary.

A-4 Table 12 Substitute the following for the existing:

Table 12– Wiring Dimension(Clause 8.2.2)

Sl No.	Condition	Minimum nominal conductor cross-section ⁱ (mm ²)		
		Ordinary luminaire	Other than ordinary	
			luminaire	
(1)	(2)	(3)	(4)	
i)	General			
ii)	a) Conventional (designed for incandescent and gas discharge light source technologies) Product	0.75	1.0	
iii)	b) LED Light Source Product	0.5 (Rated Power ≤20W) 0.75 (Rated Power >20W)	0.75 (Rated Power ≤ 20W) 1.0 (Rated Power > 20W)	
iv)	Declared to be "For indoor use only", in accordance with 6.4.15.			
v)	a) Conventional (designed for incandescent and gas discharge light source technologies) Product	0.75	0.75	
vi)	b) LED Light Source Product	0.5 (Rated Power ≤ 20W) 0.75 (Rated Power > 20W)	0.75 (Rated Power ≤ 20W) 0.75 (>Rated Power > 20W)	
vii)	When luminaire is provided with a 6/16 A socket outlet.	1.5	1.5	
viii)	Class III luminaires or SELV or PELV circuits connections between parts of other luminaire types, with 2 A maximum rated current	0.4 ^{a c}	0.4 ^{a c}	
ix)	Class III luminaires or SELV c or PELV circuits connections between parts of other luminaire types, with 2 A maximum rated current, consisting of cables with two or more conductors.	0.2 ^{abc}	0.2 ^{abc}	

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x)	Conductors connected to SELV or PELV controlgear that limits output current to maximum 2 A.	< 0.2 (No minimum) ^{d e g h}	< 0.2 (No minimum) ^{d f g h}
^a Pro	vided that current-carrying capacity and mechanic	cal properties are adequate	2.
^b Abl	le to withstand the normal and short circuit current	t provided by the associat	ed controlgear.
^c Cor	mpliance is checked by inspection and by the test i	in 8.2.10.	
^d Sele	ected in relation to the maximum available current.	, compliance is checked b	y the test in 8.4.
^e Controlgear output voltage under load does not exceed 25 V RMS or 60 V ripple free DC and no-load voltage does not exceed 35 V peak or 60 V ripple free DC.			
f Cor	ntrolgear output voltage not exceeding 12 V RMS	or 30 V ripple free DC.	
^g To to the	check mechanical properties, the conductor ass test in 8.2.10.4.	sembly, fixed to the lum	inaire, shall be subjected
^h The T.1.	e minimum insulation thickness shall be selected to	o withstand the voltage str	ess occurring, see Table
ⁱ IEC maxin	C 60228 specifies that the requirement associate num resistance value, not a physical measure of t	ed with the nominal con the area. For nominal siz	ductor cross-section is a es of 0.5 mm^2 and above.

m these values are listed in IEC 60228. For lower cross-sections the resistance value needs to be calculated accordingly.