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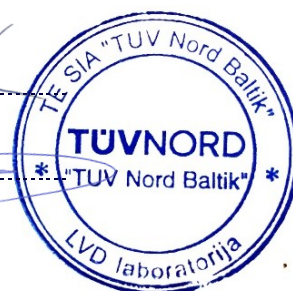


TEST REPORT

LVS EN 60598-2-1 (IEC 60598-2-1)

Luminaires – Part 2-1: Particular requirements – Fixed general purpose luminaires

Report Reference No: 2406604708E/45047/TR/24
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Approved by (Name + signature): Aleksandrs Matvejevs
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Testing Laboratory: TE SIA "TUV NORD Baltik", Bureau of laboratory testing and diagnostics, LVD Testing Laboratory
Address: Saremas iela 3, Riga, LV-1005, Latvia

Applicant's name: SIA Olighttube
Address: Voldemāra Baloža iela 9, Valmiera, LV-4201, Latvija

Test specification:

Standard: LVS EN IEC 60598-2-1:2021 used in conjunction with
LVS EN IEC 60598-1:2021 + A11:2022
Test procedure: According to the standard
Non-standard test methods: None

Test Report Form No: TUV NB 61172-EN60598-2-1-4/24
TRF originator: TE SIA "TUV NORD Baltik"

The present test report form is prepared using IECIEE recommendations of the TRF guide OD-2020.
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Test item description: Ceiling luminaire
Trademark: LIGHTTUBE
Manufacturer: Same as applicant
Model/type reference: Ceiling light, Pendant light.
Ratings: 220-240 V~, 50 Hz, E27 12 Wmax, Class II, IP20



Summary of testing:

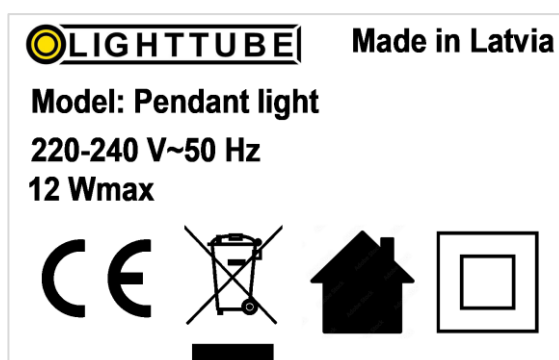
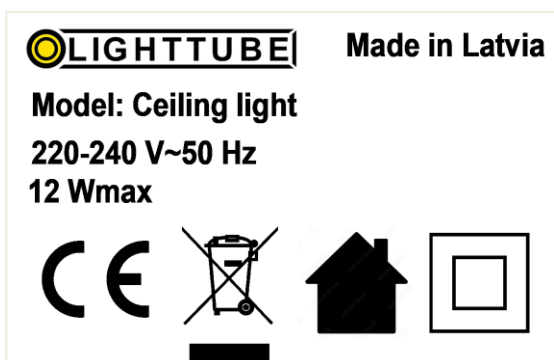
1. The tested luminaires are found to be in conformity with the specified standard.

Testing remarks:

1. [Cl.1.6 (3.3)] The instruction manual shall be given in the official language of a country where the luminaire is intended to be sold.

General product information:

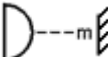
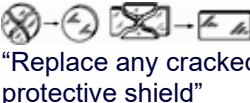
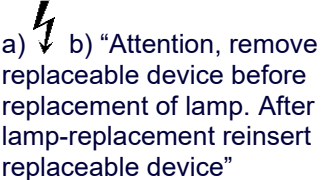
1. The luminaire is designed for ceiling mounting indoors.
2. The luminaires are a Class II appliance. The insulation is adequate.
3. The enclosure is made of wood. The construction is sufficiently rigid.
4. The "Pendant light" model is suspended on its power cable. The "Ceiling light" model is attached directly to the ceiling.
5. A fixed terminal block is used as terminals for connecting to stationary wiring.
6. E27 lampholder is used for light sources (LED lamps only).

Copy of marking plate(s):

Test item particulars:			
Type of the luminaire	LED luminaire ☐ Rough service		
Mode of installation, mobility	☒ Surface mounted ☐ Recessed ☐ Track-mounted ☐ Clip-mounted ☐ Free standing ☐ Hand-held ☐ Semi-luminaire ☐ Other: —		
Connection to mains supply	☒ Terminals ☐ Tails (connecting leads) ☐ Connector/Inlet ☐ Supply cord with a plug ☐ Track adaptor ☐ Supply cord without a plug ☐ Other: —		
Operating conditions	☒ Continuous ☒ Intermittent ☐ Short period ☐ Attended ☐ Unattended		
Protection class of the luminaire	☐ Class I ☒ Class II ☐ Class III		
Degree of protection according to EN 60529	IPX0		
Environmental ratings	indoor use only		
Size of the luminaire and weight	350 × 210 (DIA) mm 1.45 kg Ceiling light, -/- + 900 mm (Suspension 1.60 kg Pendant light. Cord)		
Accessories and detachable parts	—		
Possible test case verdicts: — test object does meet the requirement.....: P (Pass) — test case does not apply to the test object.....: N/A (Not Applicable) — test object does not meet the requirement.....: F (Fail)			
Testing: Date of receipt of test item(s).....: 14 May 2024 Date(s) of performance of tests.....: 17 May 2024 – 28 June 2024 Number of received test items.....: 1 (one) Ceiling light & 1 (one) Pendant light. Testlab ID number(s).....: TNB 24/36 & TNB 24/37			
General remarks: The test results presented in this report relate only to the object tested. This report is not valid as a Test Report unless signed by an approved Testing Laboratory. This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory. Throughout this report a point is used as the decimal separator. "(See Annex #)" refers to an annex appended to the report. "(See Remark #)" refers to a remark appended to the report. "(See appended table)" refers to a table appended to the report.			
Annexes: 1. Photos.....: 6 p. 2. Instruction manual.....: 4 p.			

Test equipment list:			
Used	Type	Equipment No	Comments
X	Hama EWS-380	00104932	Electronic weather station
X	GW Instek GPT-815	EL833248	HV withstand tester (0.2...5 kV AC/DC)
	Bio-Tek 601 PRO	125255	International safety analyzer
	Fluke 6200	RO1714016	Portable appliance tester
	Fluke 1651	8495063	Multifunction tester
X	GW Instek GDM-8246	CL811476	Digital multimeter
X	GW Instek GDM-396	UL131181	Digital multimeter
	itw DT-266	22117997	Clamp meter / multimeter
X	Christ Elektronik CLM 1000 Standard	E783202	Power and energy meter (100...264 V, 47...63 Hz, 0...4224 W, 0...16 A)
X	TDGC2-3000VA	12.2016/01	Variable transformer (0...250 V~, 3000 VA)
	GW Instek PSP-405	EK193100	Programmable power supply (0...40 VDC)
X	Yuanyao YTH-408-70-1P	04.2013/01	Temperature humidity chamber (-70...+180°C, RH 20...98 %)
X	Greisinger GMH 3250	06.2011/01	Digital thermometer (-199.9...+999.9°C), type K thermocouples
X	Standard ST-882	06100682	Infrared thermometer (-50...+550°C)
X	Leakage/touch current measuring circuit	06.2011/02	According to IEC 60990, Fig.4
X	Glow-wire tester	06.2011/05	According to IEC 60695-2-10
X	Ball-pressure test apparatus	06.2011/04	According to IEC 2740/2000
	Needle flame burner	09.2011/16	(Ø0.9 mm)
X	Test hammer	06.2011/03	According to IEC 60068-2-75
X	Impact test-ball	09.2011/15	According to EN 61010-1 (Ø50 mm, 500 g)
X	Lutron FG-5020	H.80568	Force gauge (0...110 N)
X	Wera 7440	A10-09-12541	Torque driver (0.3...1.2 Nm)
	Wera 7441	B10-09-11888	Torque driver (1.2...3.0 Nm)
	Wera 7442	C10-08-7748	Torque driver (3.0...6.0 Nm)
X	Slava SDSpr-1-2	0510802	Chronometer (0...30 min, 0.1 s)
X	Dahongying TCS	11.2014/04	Scales (0...150 kg, 50 g)
X	Stabila BM20	014	Measuring tape (0...5 m, 1 mm)
X	Vernier caliper JOBI	13425	(0...150 mm, 0.1 mm)
X	Thickness meter kit	1973	(0.05...1.00 mm; 20 pcs)
X	Microscope MBS-2	7609679	(× 0.6 / 1 / 2 / 4 / 7)
	Incline stability testing bench	11.2014/05	(10...15° incline angle)
X	Jointed test-finger	06.2011/06	According to EN 61032 Nr.B
X	Rigid test-finger	06.2011/07	According to EN 61032 Nr.11
	Test probe Ø4 mm	06.2011/08	According to EN 61032 Nr.12
	Test pin Ø4 mm	08.2011/12	According to EN 61032 Nr.13
	Test hook	08.2011/11	According to IEC 789/98

LVS EN IEC 60598-2-1:2021 (LVS EN IEC 60598-1:2021 + A11:2022)			
Clause	Requirement – Test	Result – Remark	Verdict
1.4 (0)	GENERAL TEST REQUIREMENTS		
1.4 (0.1)	Information for luminaire design considered	Yes ☒ No ☐	
1.4 (0.3)	More sections applicable	Yes ☐ No ☐	
1.5 (2)	CLASSIFICATION OF LUMINAIRES		
1.5 (2.2)	Type of protection against electric shock	☐ Class I ☒ Class II ☐ Class III	
1.5 (2.3)	Degree of protection against ingress of dust, solid objects and moisture	IP20	
1.5 (2.4)	Classification according to material of supporting surface:		
	– luminaires suitable for direct mounting on normally flammable surfaces	Yes ☒ No ☐	
	– luminaires not suitable for direct mounting on normally flammable surfaces (symbol)	Yes ☐ No ☒	
1.5 (2.5)	Classification according to the circumstances of use:		
	– luminaires for normal use	Yes ☒ No ☐	
	– luminaires for rough use	Yes ☐ No ☒	
1.6 (3)	MARKING		
1.6 (3.2)	Marking on luminaires (if applicable)		
	Information on the marking(s)		P
	Position of the marking(s)		P
	Format of symbols and text		P
1.6 (3.2.1)	Mark of origin	LIGHTTUBE	P
1.6 (3.2.2)	Rated voltage(s)	220-240 V~	P
1.6 (3.2.3)	Rated maximum ambient temperature t_a , if other than 25 °C		N/A
1.6 (3.2.4)	Symbol for class II luminaires		P
1.6 (3.2.5)	Symbol for class III luminaires		N/A
1.6 (3.2.6)	IP numbers	IP20	N/A
1.6 (3.2.7)	Model number or type reference	Ceiling light, Pendant light.	P
1.6 (3.2.8)	Max rated light source power or max input power		
1.6 (3.2.8.1)	Luminaires for tungsten filament lamps – max rated wattage and number of lamps	MAX 12 W, E27 (one lamp)	P
1.6 (3.2.8.2)	Luminaires for non-replaceable or non-user replaceable light sources – input power		N/A

LVS EN IEC 60598-2-1:2021 (LVS EN IEC 60598-1:2021 + A11:2022)			
Clause	Requirement – Test	Result – Remark	Verdict
1.6 (3.2.8.3)	All other luminaires – type, rated wattage and number of lamps, if applicable		N/A
1.6 (3.2.9)	Symbol for luminaires not suitable for direct mounting on normally flammable surfaces		N/A
1.6 (3.2.10)	Information concerning special lamps		N/A
1.6 (3.2.11)	Symbol for luminaires for lamps of similar shape to “cool beam light” lamps but where the use of a dichroic reflectorized lamp might impair safety		N/A
1.6 (3.2.12)	Identification of terminations (except type Z), earthing termination symbol		N/A
1.6 (3.2.13)	Symbol for minimum distance from lighted objects		N/A
1.6 (3.2.14)	Symbol for rough service luminaires		N/A
1.6 (3.2.15)	Symbol for luminaires for use with bowl mirror lamps		N/A
1.6 (3.2.16)	Symbol or statement for luminaires incorporating a protective shield		N/A
1.6 (3.2.17)	Maximum number of luminaires that may be interconnected or maximum total current for couplers		N/A
1.6 (3.2.18)	Warning symbol or notice for luminaires with ignitors intended for use with double-ended high pressure discharge lamps		N/A
1.6 (3.2.19)	Symbol for luminaires which are designed to be used only with self-shielded tungsten halogen or metal halide lamps		N/A
1.6 (3.2.20)	Identification of means of adjustment, if not obvious		N/A
1.6 (3.2.21)	Symbol for luminaires not suitable for covering with thermally insulated material		N/A
1.6 (3.2.22)	Symbol for luminaires with internal replaceable fuses		N/A
1.6 (3.2.23)	Warning symbol “Do not stare at the operating light source”		N/A
1.6 (3.2.24)	Symbol “Caution, risk of electric shock” for covers fixed over non-user replaceable light sources; height min 15 mm		N/A

LVS EN IEC 60598-2-1:2021 (LVS EN IEC 60598-1:2021 + A11:2022)			
Clause	Requirement – Test	Result – Remark	Verdict
1.6 (3.2.25)	Rated constant input voltage, if operated from a constant voltage controlgear not provided with the luminaire		N/A
1.6 (3.2.26)	Rated constant input current and value of U_{out} , if operated from a constant current controlgear not provided with the luminaire		N/A
1.6 (3.2.27)	Maximum rated output characteristics from the controlgear, for luminaires operating a LED light source and containing a built-in controlgear		N/A
1.6 (3.3)	Additional information (if applicable)	(See Remark 1)	
1.6 (3.3.1)	For combination luminaires, t_a , the class of protection, IP-code of an alternative part if not at least equal to that of the basic luminaire		N/A
1.6 (3.3.2)	Nominal frequency, Hz	50 Hz	P
1.6 (3.3.3)	Operating temperatures of parts		N/A
1.6 (3.3.4)	Not used		
1.6 (3.3.5)	Wiring diagram, except for direct connection to the mains supply		N/A
1.6 (3.3.6)	Special conditions for which the luminaire is suitable		N/A
1.6 (3.3.7)	Warning notice for luminaires with metal halide lamps	"The luminaire shall only be used complete with its protective shield"	N/A
1.6 (3.3.8)	Information on limitations of use of semi-luminaires		N/A
1.6 (3.3.9)	Information on the power factor and the supply current		N/A
1.6 (3.3.10)	Suitability for use "indoors", related ambient temperature	Only for indoor use (25 °C)	N/A
1.6 (3.3.11)	For luminaires using remote control gear, the range of lamps it is designed for		N/A
1.6 (3.3.12)	For clip-mounted luminaires, a warning if not suitable for mounting on tubular material		N/A
1.6 (3.3.13)	Specifications of all protective shields		N/A
1.6 (3.3.14)	Symbol for nature of supply	☒ 	P
1.6 (3.3.15)	Rated current at rated voltage declared for any socket outlet		N/A
1.6 (3.3.16)	Information about rough service luminaires		N/A
1.6 (3.3.17)	Substance in the mounting instructions about a replacement of the damaged external flexible cable or cord	☐ Type X attachment ☐ Type Y attachment ☐ Type Z attachment	N/A

LVS EN IEC 60598-2-1:2021 (LVS EN IEC 60598-1:2021 + A11:2022)			
Clause	Requirement – Test	Result – Remark	Verdict
1.6 (3.3.18)	Non-ordinary luminaires with a PVC supply cord, information about the intended use	“For indoor use only”	N/A
1.6 (3.3.19)	Luminaires for permanent connection with a protective conductor current ≥ 10 mA, protective current stated in the manufacturers’ instructions		N/A
1.6 (3.3.20)	Wall mounted and adjustable luminaires not intended to be mounted within arms reach, provided with information for correct installation	“Only to be installed outside arms reach”	N/A
1.6 (3.3.21)	Substances for non-replaceable and non-user replaceable light sources		N/A
1.6 (3.3.22)	Classification of insulation for controllable luminaires		N/A
1.6 (3.3.23)	For luminaires delivered without controlgear, the necessary information for the selection of the appropriate component shall be provided		N/A
1.6 (3.3.24)	Substance, if the terminal block is not supplied with the luminaire	“Terminal block not included. Installation may require advice from a qualified person.”	N/A
1.6 (3.3.25)	Information about the protection for on-site mains wiring for luminaires that emit UV	“For installation, the use of additional UV resistant sleeves is required...”	N/A
1.6 (3.3.26)	Substance, for fixed wall mounted and portable luminaires with external flexible cord ≤ 30 cm	“To reduce the risk of strangulation the flexible wiring...”	N/A
1.6 (3.4)	Marking shall be legible and durable; test	water, 15 s; petroleum, 15 s	P

1.7 (4)	CONSTRUCTION		
1.7 (4.2)	Replaceable components shall be replaceable without difficulties and without impairing safety	Light bulb, E27	P
1.7 (4.3)	Wireways shall be smooth and free from sharp edges		P
1.7 (4.4)	Lampholders		
1.7 (4.4.1)	The requirements for electrical safety of integral lampholder shall be of those applicable to the whole luminaire		P
1.7 (4.4.2)	Method of connection of wiring to integral lampholder shall give reliable electrical contact		P
1.7 (4.4.3)	Design of luminaires for tubular fluorescent lamps, lamp can be easily changed in a row		N/A
1.7 (4.4.4)	Positioning of lampholders which are put into position by the user is easy and correct		N/A
	– Pressure test, compliance	XX N, 1 min	N/A
	– Bending test, compliance	XX Nm, 1 min	N/A

LVS EN IEC 60598-2-1:2021 (LVS EN IEC 60598-1:2021 + A11:2022)			
Clause	Requirement – Test	Result – Remark	Verdict
1.7 (4.4.5)	Luminaires with ignitors, peak pulse voltage across contacts in lampholders	No ignitors	N/A
1.7 (4.4.6)	Luminaires with ignitors and Edison screw lampholder, centre contact shall be connected to a lead which supplies the pulse voltage		N/A
1.7 (4.4.7)	Insulating parts of lampholders and plugs of rough service luminaires shall be of a material resistant to tracking		N/A
1.7 (4.4.8)	Lamp connectors shall comply with all the requirements for lampholders		N/A
1.7 (4.4.9)	Caps or bases for single-capped ELV lamps shall not be used for tungsten halogen lamps with voltages > 50 V		N/A
1.7 (4.4.10)	The use of a light source(s), designed to be connected by a lampholder or connector, but used without them, is not allowed		N/A
1.7 (4.5)	Starterholders	No starterholders	
	Starterholders in luminaires other than class II shall accept starters which comply with EN 60155		N/A
	Class II luminaires may require class II starters		N/A
1.7 (4.6)	Terminal blocks		
	Luminaires provided with connecting leads (tails), adequate space within the luminaire for a terminal block shall be provided		N/A
	Unsecured terminal blocks, the design and insulation requirements	Secured terminal block used	N/A
1.7 (4.7)	Terminals and supply connections		
1.7 (4.7.1)	In portable luminaires of class I and II and in fixed luminaires of class I and II that are frequently adjusted precautions shall be taken to prevent metal parts from becoming live	No frequently adjusted	N/A
1.7 (4.7.2)	Supply terminals shall be located or shielded to prevent contact between metal parts and live parts		P
	Test with 8 mm live conductor		P
	Test with 8 mm earth conductor		N/A
1.7 (4.7.3)	Terminals for supply cords, connections shall be made by means of screws, nuts etc.	Screw terminals	P
1.7 (4.7.3.1)	Welding method and material:	No welding	
	– stranded or solid copper wire conductor		N/A
	– spot welding only		N/A
	– welding of wires not allowed		N/A
	– welded connections only in Type Z attachments		N/A

LVS EN IEC 60598-2-1:2021 (LVS EN IEC 60598-1:2021 + A11:2022)			
Clause	Requirement – Test	Result – Remark	Verdict
	a) Mechanical test (Cl. 15.8.2)		N/A
	b) Electrical test (Cl. 15.9)		N/A
	c) Heat test (Cl. 15.9.2.3, 15.9.2.4)		N/A
1.7 (4.7.4)	Terminals, other than for supply connection, comply with the requirements of Cl. 14 and 15		N/A
1.7 (4.7.5)	If high temperatures for the external wiring or supply cord are present inside the luminaire, the connection shall be made outside the luminaire or heat-resistant parts shall be supplied		N/A
1.7 (4.7.6)	Multi-pole plug and socket, unsafe connections shall be prevented		N/A
	– Unsafe connections test at 30 N		N/A
1.7 (4.8)	Switches:	No switches	
	– adequately rated and securely fixed		N/A
	– in non-ordinary luminaires not used in flexible cable or cords		N/A
	– use of polarized supply and single-pole on/off switch, wired into the live side		N/A
1.7 (4.9)	Insulating linings and sleeves		
1.7 (4.9.1)	Shall be reliably retained in position		P
1.7 (4.9.2)	Shall have adequate mechanical, electrical and thermal strength		P
	a) Humidity test; insulation resistance and electric strength tests		N/A
	b) Ageing test, T + 20 °C, 240 h		N/A
	c) Humidity test; insulation resistance and electric strength tests		P
1.7 (4.10)	Double and reinforced insulation		
1.7 (4.10.1)	Metal encased class II luminaires, contact shall be prevented between:	Wood	
	– mounting surface and parts with basic insulation only		N/A
	– accessible metal parts and basic insulation		N/A
	Class II fixed luminaires, the degree of protection against electric shock shall not be impaired as a result of the installation		P
	Capacitors shall not be connected between live parts and the body of metal encased class II luminaires	No capacitors	N/A
	Interference suppression capacitors shall comply with EN 60384-14 and be connected in accordance with 8.6 of EN 60065		N/A

LVS EN IEC 60598-2-1:2021 (LVS EN IEC 60598-1:2021 + A11:2022)			
Clause	Requirement – Test	Result – Remark	Verdict
1.7 (4.10.2)	Assembly gap with a width > 0.3 mm in SI shall not be coincidental with any such gap in BI		P
	Openings > 0.3 mm in DI or RI, live parts cannot be touched with the conical pin		P
1.7 (4.10.3)	Parts of class II luminaires which serve as SI or RI shall be:		
	– fixed so that they cannot be removed without damage, or		P
	– unable to be replaced in an incorrect position		P
	Sleevings and linings shall be retained in position by positive means		P
1.7 (4.10.4)	Protective impedance device	Not used	
	Accessible conductive parts separated by DI or RI may be bridged by resistors or Y2 capacitors if consist of at least two components		N/A
	Y1 or Y2 capacitors shall comply with requirements of EN 60384-14; resistors shall comply with the requirement of test (a) in 14.1 of EN 60065 A1		N/A
1.7 (4.11)	Electrical connections and current-carrying parts		
1.7 (4.11.1)	Contact pressure of electrical connections shall not be transmitted through insulating material		P
1.7 (4.11.2)	Self-tapping screws shall not be used for the connection of current-carrying parts, unless they clamp them directly and have means of locking		P
	Thread-cutting screws and self-tapping screws shall not be used for interconnection of soft metal current-carrying parts	Not used	N/A
	Self-tapping screws may be used to provide earth continuity, if not necessary to disturb the connection in normal use		N/A
1.7 (4.11.3)	Screws and rivets shall be locked against loosening		N/A
1.7 (4.11.4)	Current-carrying parts shall be of copper or an alloy with ≥ 50 % of copper		P
	Current-carrying parts shall be resistant to, or protected against, corrosion		P
1.7 (4.11.5)	Current-carrying parts shall not be in direct contact with the mounting surface of wood		P
1.7 (4.11.6)	Electro-mechanical contact systems shall withstand the electrical stresses occurring in normal use		N/A
	– Test, compliance	1.0·U _n , 1.25·I _n , 100 op.	N/A
1.7 (4.12)	Screws, connections and glands		

LVS EN IEC 60598-2-1:2021 (LVS EN IEC 60598-1:2021 + A11:2022)			
Clause	Requirement – Test	Result – Remark	Verdict
1.7 (4.12.1)	Screws and mechanical connections shall withstand mechanical stresses occurring in normal use		P
	Screws shall not be made of a soft material or liable to creep		P
	Screws operated for maintenance purposes shall not be of insulating material if their replacement by a metal screw impair SI or RI		P
	Screws of insulating material used in cord anchorages are acceptable		P
	– Torque test(s)	XX mm, XX Nm	P
1.7 (4.12.2)	Screws transmitting contact pressure, which are operated when mounting or connecting the luminaire and having nominal diameter < 3 mm shall be screwed into metal		N/A
1.7 (4.12.3)	Not used		
1.7 (4.12.4)	Screwed and other fixed connections shall not work loose during normal use		P
	– Locked connections, torque test	2.5 Nm	P
	– Lampholders, torque test	E27, 2.0 Nm	P
	– Push-button switches, torque test	0.8 Nm	N/A
1.7 (4.12.5)	Screwed glands, torque test with a metal rod		N/A
1.7 (4.13)	Mechanical strength		
1.7 (4.13.1)	Luminaires shall have adequate mechanical strength and be safe after expected handling		P
	– Impact test, fragile parts	0.2 Nm	P
	– Impact test, other parts	0.35 Nm	P
	Compliance after the test:		
	a) live parts shall not be accessible		P
	b) insulating linings and barriers shall be still effective		P
	c) ingress protection shall be in accordance with declared IP-code		P
	d) external covers shall be removable or replaceable without insulating linings breaking		N/A
1.7 (4.13.2)	Metal parts enclosing live parts shall have adequate mechanical strength		P
1.7 (4.13.3)	Pressure test with a straight unjointed test finger, compliance	30 N	P

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Clause	Requirement – Test	Result – Remark	Verdict
1.7 (4.13.4)	Rough service luminaires	Not rough service	
	Shall have protection against ingress of solid objects and moisture at least IP54		N/A
	Shall have adequate mechanical strength		N/A
	Compliance:		
	a) Fixed and portable (not hand-held) rough service luminaires		N/A
	b) Hand-held luminaires		N/A
	c) Luminaires delivered with a stand		N/A
	d) Luminaires for temporary installations and suitable for mounting on a stand		N/A
1.7 (4.13.5)	Not used		
1.7 (4.13.6)	Plug-ballast/transformers and mains socket-outlet-mounted luminaires shall have adequate mechanical strength	No such parts	N/A
	– Tumbling barrel test, compliance	XX falls	N/A
1.7 (4.14)	Suspension and means of adjustment		
1.7 (4.14.1)	Mechanical suspensions, connections and fixings shall have adequate factors of safety	Suspended on a loop on the supply cord (Pendant Light)	P
	– Test A, suspended luminaires	+ 4 × 1.5 kg, 1 h	P
	– Test B, rigid suspension luminaires	2.5 Nm, 1 min	P
	– Test C, rigid suspension heavy-duty brackets	40 N, 1 min	N/A
	– Test C, rigid suspension light-duty brackets	10 N, 1 min	N/A
	– Test D, track-mounted luminaires		N/A
	– Test E, clip-mounted luminaires	20 N, 1 min	N/A
1.7 (4.14.2)	Mass of the luminaire suspended by flexible cords or cables shall be ≤ 5 kg, stress in the conductors ≤ 15 N/mm ²	1.60 kg (Pendant Light)	P
	Semi-luminaires for connection to Edison screw or bayonet lampholders, the mass and effective bending moment shall not exceed given values		N/A
1.7 (4.14.3)	Adjusting devices:	No adjusting devices	
	a) Construction of adjusting devices and means of adjustment, flexing test	XX cycles	N/A
	Conductor strands broken, ≤ 50 %		N/A
	Electric strength test		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
	b) Luminaires within arms reach, handling test		N/A
	c) Luminaires within arms reach, space around means of adjustment, temperature test		N/A
1.7 (4.14.4)	Cords or cables passing through telescopic tubes shall not be fixed to the tube; no strain on conductors and terminals occur		N/A
1.7 (4.14.5)	Guide pulleys shall be dimensioned to prevent damage to the cords by bending		N/A
1.7 (4.14.6)	Plug-ballast/transformers and mains socket-outlet-mounted luminaires shall not impose undue strain on socket-outlets, torque test	XX Nm	N/A
1.7 (4.15)	Flammable materials		
1.7 (4.15.1)	Covers, shades and similar parts not having an insulation function and which do not withstand glow wire test shall be adequately spaced from heated parts and shall have suitable fastenings		P
	– glow wire test 650 °C		P
	– spacing from heated parts ≥ 30 mm	≥ 40 mm	P
	– screen withstands needle-flame test of 13.3.1		N/A
	– screen dimensions		N/A
	– fiercely burning materials not used		P
	– luminaires with thermal protection exempted		N/A
	– electronic circuits exempted		N/A
1.7 (4.15.2)	Luminaires made of thermoplastic materials shall withstand temperature rises due to fault conditions in a lamp control gear. The requirement is met by one of the following measures:	No lamp control gear	N/A
	a) Construction. During fault conditions components are kept in place, luminaire parts cannot excessively overheat.		N/A
	b) The use of a temperature sensing control to limit the temperature of a lamp control gear.		N/A
	c) Thermoplastic materials are suitable for the maximum surface temperatures.		N/A
1.7 (4.16)	Luminaires for mounting on normally flammable surface		
	The requirements are not applicable to a IP20 or higher transformers and luminaires incorporating electronic lamp control gear		N/A
	For luminaires that do not contain lamp control gear, the requirements are met by compliance with Section 12		
1.7 (4.16.1)	The lamp control gear shall be spaced from the mounting surface:		

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Clause	Requirement – Test	Result – Remark	Verdict
	a) 10 mm		N/A
	b) 35 mm		N/A
1.7 (4.16.2)	The luminaire shall incorporate a temperature sensing control to limit the temperature of the mounting surface to a safe value:		
	– in lamp control gear		N/A
	– external to a lamp control gear, fixed		N/A
	– marking		N/A
1.7 (4.16.3)	The luminaire satisfies the test of 12.6		N/A
1.7 (4.17)	Drain holes shall be so designed that water can drain out of the luminaire effectively		N/A
	Clearance ≥ 5.0 mm		N/A
1.7 (4.18)	Resistance to corrosion	No corrosive parts; IPX0	
1.7 (4.18.1)	Ferrous parts of IPX1 and higher luminaires shall be adequately protected against rusting, corrosion test		N/A
1.7 (4.18.2)	Copper parts shall be free from stress corrosion		P
1.7 (4.18.3)	Aluminum parts of IPX1 and higher luminaires shall be adequately protected against corrosion		N/A
1.7 (4.19)	Igniters shall be electrically compatible with the associated ballast in the luminaire		N/A
1.7 (4.20)	Rough service luminaires shall have adequate resistance to vibrations, vibration test	10 Hz / 55 Hz / 10 Hz, 0.35 mm, 30 min	N/A
1.7 (4.21)	Protective shield	No such shields	
1.7 (4.21.1)	Luminaires for tungsten halogen or metal halide lamps shall be fitted with a glass protective shield		N/A
	Luminaires for self-shielded lamps only are exempted, but shall be marked with the symbol		N/A
1.7 (4.21.2)	Lamp compartment shall be so designed that particles from a shattering lamp cannot impair safety		N/A
1.7 (4.21.3)	Opening in the luminaire shall be so designed that no parts of a shattered glass can leave the luminaire by a direct path		N/A
1.7 (4.21.4)	– impact test of 4.13.1 on a protective shield		N/A
	– resistance to a flame and ignition test of 13.3.2 on a parts of lamp compartment of insulating material		N/A
1.7 (4.22)	Luminaires shall have no attachments to lamps which might cause overheating or damage to the lamps, lamp caps or holders, luminaires or attachments		P

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Clause	Requirement – Test	Result – Remark	Verdict
	Attachments to fluorescent lamps are only allowed if supplied or approved by the luminaire manufacturer. The total weight shall not exceed the specified values.		N/A
1.7 (4.23)	Semi-luminaires shall comply with all relevant requirements for class II luminaires		N/A
1.7 (4.24)	Photobiological hazards		
1.7 (4.24.1)	Luminaires for tungsten halogen or metal halide lamps shall not emit excessive UV radiation		N/A
1.7 (4.24.2)	Luminaires with light sources shall be assessed according to IEC 62778	Only LED bulbs may be used	N/A
	For luminaires using light sources having RG0 unlimited or RG1 unlimited rating no requirements for retinal blue hazard apply		N/A
	Portable luminaires for children and mains socket-outlet nightlights shall not exceed RG1 at 200 mm		N/A
1.7 (4.25)	Luminaires shall have no sharp points or edges which could create hazard for the user		P
1.7 (4.26)	Short-circuit protection		
1.7 (4.26.1)	Adequate means shall be provided to prevent short-circuiting of uninsulated accessible SELV parts of opposite polarity	No SELV	N/A
1.7 (4.26.2)	Short-circuit test with a chain		N/A
1.7 (4.26.3)	Test chain design		N/A
1.7 (4.27)	Terminal blocks with integrated screwless earthing contact shall be mounted in accordance with the requirements specified by the manufacturer		N/A
1.7 (4.28)	Any temperature sensing control external to lamp control gear shall not be of the plug-in or easily replaceable type; it shall be kept in its position with regard to the control gear		N/A
	Adhesive fixing of temperature sensing controls shall not be used where UV radiation from a lamp could degrade the reliability of the fixing; such controls shall not be mounted outside of the luminaire enclosure		N/A
	Temperature change test in accordance to EN 60068-2-14, test Na	100 cycles, 30 min	N/A
1.7 (4.29)	It shall not be possible to replace and/or to give access to live parts without breaking the luminaire with non-replaceable light source		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
1.7 (4.30)	Where a protective cover is used over a non-user replaceable light source, and the cover is marked with the specified symbol, the cover shall be held in position by at least two independent fixings requiring the use of a tool		N/A
1.7 (4.31)	Luminaires incorporating transformers or controlgear providing insulation between circuits and luminaire, shall provide suitable insulation between circuits and between circuits and the external accessible conductive parts		N/A
1.7 (4.31.1)	The following sources may be used to supply SELV or PELV circuits:	No SELV & PELV circuits	
	– a safety transformer in accordance with EN 61558-2-6;		N/A
	– a controlgear providing SELV in accordance with EN 61347 series;		N/A
	– an electrochemical or another source independent of a higher voltage circuit		N/A
	– a PSE providing ES1 in accordance with IEC 62368-1		N/A
	PELV circuits shall have one pole connected to earth for functional purposes		N/A
	The voltage in the circuits shall not be higher than the limits defined for ELV		N/A
	SELV or PELV circuits shall be insulated from other circuits or parts by appropriate insulation		N/A
	Plugs and socket-outlets in SELV or PELV shall comply with the stated requirements		N/A
1.7 (4.31.2)	The following sources may be used to supply FELV circuits:	No FELV circuits	
	– a separating transformer in accordance with EN 61558-2-1;		N/A
	– a separating controlgear providing BI between input and output circuits in accordance with EN 61347 series;		N/A
	– an electrochemical or another source in circuit separated by LV supply by BI		N/A
	The voltage in the circuits shall not be higher than the limits defined for ELV		N/A
	FELV circuits shall be insulated from other circuits or parts by appropriate insulation		N/A
	Plugs and socket-outlets in FELV circuits shall comply with the stated requirements		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
1.7 (4.31.3)	The insulation between circuits other than SELV or FELV and accessible conductive parts shall be in accordance with the requirements in Table X.1		N/A
	Requirements for class II constructions where equipotential bonding is used for the protection against indirect contacts with live parts		N/A
1.7 (4.32)	Overvoltage protective devices shall comply with EN 61643-11	No such devices	N/A
	Overvoltage protective devices external to controlgear and connected to earth shall be used only in fixed luminaires and connected only to protective earth		N/A
1.7 (4.33)	A luminaire powered via information technology communication cabling shall fulfill the requirements for Class III	No such type of luminaire	N/A
	The rated voltage of the luminaire shall be within the range of ES1 and shall not exceed the maximum voltage related to the used connector		N/A
	The luminaire shall be designed to be in line with the limits of the electrical parameters of a PSE		N/A
1.7 (4.34)	Luminaires shall not produce harmful electromagnetic fields (EMF)		P
1.7 (4.35)	Motor driven fan blades for active cooling shall not be accessible when the luminaire has been installed and wired as in normal use	No motor	N/A
	Test with test probe B, 30 N force; no contact with fan blades		N/A
1.7 (4.36)	Additionally, track-mounted luminaires shall be tested in accordance with Annex A of IEC 60570	No such type of luminaire	N/A

1.8 (11)	CREEPAGE DISTANCES AND CLEARANCES		
1.8 (11.2)	Creepage distances and clearances. Parts shall be adequately spaced.		P
1.8 (11.2.1)	Compliance	(See appended table)	P
1.8 (11.2.2)	Creepage distances		P
1.8 (11.2.3)	Clearances		P

1.9 (7)	PROVISION FOR EARTHING		
1.9 (7.2)	Provisions for earthing	Class II luminaire	
1.9 (7.2.1 + 7.2.3)	Accessible metal parts of class I luminaires shall be permanently and reliably earthed		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
	Metal parts which are not accessible but are liable to come into contact with the supporting surface shall be permanently and reliably earthed		N/A
	Earthing connections shall be of low resistance, $\leq 0.5 \Omega$	XXX Ω	N/A
	Two self-tapping screws may be used to provide earthing continuity (4.12.1)		N/A
	Thread-forming screws may be used		N/A
	Thread-forming screws used in a groove of metallic material may be used if all other earthing connection tests are passed		N/A
	Class I luminaires with detachable parts provided with connectors, the earth connection shall be made before the current-carrying contacts, separation shall be made after		N/A
	Earthing of a built-in control gear by means of fixing it to earthed metal is allowed; connection to protective earthing of the luminaire via the built-in control gear is not allowed		N/A
1.9 (7.2.2)	Surfaces in adjustable joints, telescopic tubes, etc., providing earthing continuity, shall ensure good electrical contact		N/A
1.9 (7.2.4)	Earthing terminals shall comply with 4.7.3		N/A
	The connection shall be adequately locked against accidental loosening		N/A
	Terminal blocks with integrated screwless earthing contact, tests of Annex V		N/A
1.9 (7.2.5)	Luminaires provided with a connector socket for a mains supply, the earth contact shall be an integral part of the socket		N/A
1.9 (7.2.6)	Luminaires to be connected to supply cables or cords, the earth terminal shall be adjacent to the mains terminal		N/A
1.9 (7.2.7)	Non-ordinary luminaires, all parts of an earth terminal shall be such as to minimize the danger of electrolytic corrosion		N/A
1.9 (7.2.8)	The screw or the other part of the earth terminal shall be made of brass or other non-rusting metal		N/A
1.9 (7.2.10)	Fixed class II luminaire for looping-in provided with internal terminal(s) for earth conductor, terminal(s) shall be insulated by DI or RI from accessible metal parts		N/A
	Fixed class II luminaire with an earth connection for functional purposes, the functional earth circuit shall be separated from live parts or accessible metal parts by DI or RI		N/A
1.9 (7.2.11)	Class I luminaire supplied with a supply cord, earthing core shall be colored green-yellow		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
	The green-yellow core of a supply cord shall be connected to the earthing terminal of the luminaire and to the earthing contact of the plug		N/A
	All green-yellow conductors shall only be connected to an earthing terminal		N/A
	Luminaires with supply cords, the length of the conductors or arrangement of the terminals shall make the current-carrying conductors taut before the earthing conductor if the cord moves out of the cord anchorage		N/A
1.9 (7.2.12)	Where a PELV circuit is connected to a protective earth for functional purposes, this circuit shall not be used for interconnection with other luminaires		N/A

1.10 (14)	SCREW TERMINALS		
1.10 (14.2)	Terms and definitions	Approved terminal block	
1.10 (14.2.1)	Pillar terminal		N/A
1.10 (14.2.2)	Screw terminal		N/A
1.10 (14.2.3)	Stud terminal		N/A
1.10 (14.2.4)	Saddle terminal		N/A
1.10 (14.2.5)	Lug terminal		N/A
1.10 (14.2.6)	Mantle terminal		N/A
1.10 (14.3)	General requirements and basic principles		
1.10 (14.3.1)	Terminals with screw clamping		N/A
1.10 (14.3.2)	Varied design and different shapes		N/A
1.10 (14.3.2.1)	Range of conductors		N/A
1.10 (14.3.2.2)	Preparation of conductor		N/A
1.10 (14.3.2.3)	Numerical classification		N/A
1.10 (14.3.3)	Cross-sectional area		N/A
1.10 (14.3.4)	Adequate connection		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
1.10 (14.4)	Mechanical tests		
1.10 (14.4.1)	Minimum distance		N/A
1.10 (14.4.2)	Cannot slip out		N/A
1.10 (14.4.3)	No special preparation		N/A
1.10 (14.4.4)	Mechanical strength		N/A
1.10 (14.4.5)	Resistance to corrosion		N/A
1.10 (14.4.6)	Terminals fixed		N/A
	Torque test		N/A
1.10 (14.4.7)	Terminals shall clamp the conductors between metal surfaces		N/A
	Pull test		N/A
1.10 (14.4.8)	Clamp without undue damage		N/A

1.10 (15)	SCREWLESS TERMINALS AND ELECTRICAL CONNECTIONS		
1.10 (15.2)	Terms and definitions	Screw terminal block	
1.10 (15.2.1)	Screwless terminals		N/A
1.10 (15.2.2)	Permanent connections		N/A
1.10 (15.2.3)	Non-permanent connections		N/A
1.10 (15.2.4)	Lead assemblies		N/A
1.10 (15.2.5)	Non-prepared conductors		N/A
1.10 (15.2.6)	Test current		N/A
1.10 (15.3)	General requirements		
1.10 (15.3.1)	Parts for carrying current		N/A
1.10 (15.3.2)	Pressure		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
1.10 (15.3.3)	Terminals design		N/A
1.10 (15.3.4)	Terminals other than for lead assemblies		N/A
1.10 (15.3.5)	Pressure through insulating material		N/A
1.10 (15.3.6)	Connection and disconnection		N/A
1.10 (15.3.7)	Spring clamps		N/A
1.10 (15.3.8)	Fixed terminals		N/A
1.10 (15.3.9)	Mechanical, electrical and thermal strength		N/A
1.10 (15.3.10)	Sizes of conductors		N/A
1.10 (15.4)	General instructions on tests		
1.10 (15.4.1)	Preparation of samples		N/A
1.10 (15.4.2)	Test conductors		N/A
1.10 (15.4.3)	Multi-conductor terminal		N/A
1.10 (15.4.4)	Multi-way terminals		N/A
1.10 (15.4.5)	Test quantities		N/A
1.10 (15.5)	Terminals and connections for internal wiring		
1.10 (15.5.1)	Mechanical tests		N/A
1.10 (15.5.1.1)	Non-permanent connections		N/A
1.10 (15.5.1.1.1)	Spring-type terminals		N/A
1.10 (15.5.1.1.2)	Pin, tab and receptacle type connections		N/A
1.10 (15.5.1.2)	Permanent connections		N/A
1.10 (15.5.2)	Electrical tests		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
1.10 (15.5.2.1)	Contact resistance test		N/A
1.10 (15.5.2.1.1)	Spring-type terminals		N/A
1.10 (15.5.2.1.2)	Pin, tab and receptacle type connections		N/A
1.10 (15.5.2.1.3)	Voltage drop		N/A
1.10 (15.5.2.2)	Heating tests		
1.10 (15.5.2.2.1)	Ageing test		N/A
1.10 (15.5.2.2.2)	Voltage drop		N/A
1.10 (15.5.2.2.3)	Insulating material		N/A
1.10 (15.6)	Terminals and connections for external wiring		
1.10 (15.6.1)	Conductors		N/A
1.10 (15.6.2)	Mechanical tests		N/A
1.10 (15.6.2.1)	Spring-type terminals		N/A
1.10 (15.6.2.2)	Pin, tab and receptacle type connections		N/A
1.10 (15.6.3)	Electrical tests		N/A
1.10 (15.6.3.1)	Contact resistance test		N/A
1.10 (15.6.3.1.1)	Spring-type terminals		N/A
1.10 (15.6.3.1.2)	Pin, tab and receptacle type connections		N/A
1.10 (15.6.3.1.3)	Voltage drop		N/A
1.10 (15.6.3.2)	Heating tests		
1.10 (15.6.3.2.1)	After having cooled		N/A
1.10 (15.6.3.2.2)	Voltage drop		N/A
1.10 (15.6.3.2.3)	Ageing test		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
1.10 (15.6.3.2.4)	Voltage drop		N/A
1.10 (15.6.3.2.5)	Insulating material		N/A

1.11 (5)	EXTERNAL AND INTERNAL WIRING		
1.11 (5.2)	Supply connection and other external wiring		
1.11 (5.2.1)	Means of connection to the supply ☒ Fixed luminaire ☐ Portable luminaire ☐ Track-mounted luminaire ☐ Semi-luminaire	Terminal block	P
	Luminaires declared to be suitable for use outdoors shall not have PVC-insulated external wiring	Not suitable	N/A
1.11 (5.2.2)	Supply cords supplied by the luminaire manufacturer:	Power cords not supplied	
	– type of the cable		N/A
	– cross-sectional area of the conductors		N/A
	– cables equal to EN 50525		N/A
1.11 (5.2.3)	Type of the provided supply cord	☐ Type X attachment ☐ Type Y attachment ☐ Type Z attachment	N/A
1.11 (5.2.5)	Termination of type Z luminaires shall not be made by means of screwed connections		N/A
1.11 (5.2.6)	Cable entries shall be suitable for the introduction of the conduit of the cable and shall provide the degree of protection in accordance with the IP-classification		N/A
1.11 (5.2.7)	Cable entries through rigid materials shall have smoothly rounded edges, $r \geq 0.5$ mm		N/A
1.11 (5.2.8)	In class II luminaires, adjustable or portable luminaires a cable or cord passing through accessible metal parts shall be provided with bushing:		
	– bushing is suitably fixed;		P
	– tough bushing of insulating material;		P
	– material not likely to deteriorate;		P
	– tubes or other guards of insulating material		P
1.11 (5.2.9)	Bushings which screw into the luminaire shall be locked in position		N/A
1.11 (5.2.10)	Luminaires designed for use with a supply cord or other external flexible cable or cord shall have a suitable cord anchorage:	Supply cable is not flexible – connection to the fixed wiring; suspended luminaire	

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Clause	Requirement – Test	Result – Remark	Verdict
	– covering of cables or cords is protected from abrasion;		N/A
	– anchorage is clear how to be effective;		N/A
	– no mechanical or thermal stresses on cables or cords;		N/A
	– no tying of cables or cords into knots etc.;		N/A
	– are of insulating material or provided with a fixed insulating lining		N/A
	Class III luminaires provided with or designed for use with a supply cord or flexible cable or cord may be exempt from the need for a cord anchorage if they have a max current of 2 A and voltage not exceeding the specified values		N/A
1.11 (5.2.10.1)	Cord anchorage for type X attachment:	Fixed appliance, no supply cords	
	a) at least one part fixed, or is integral with the luminaire;		N/A
	b) suitable for the different types of cords;		N/A
	c) no damaging of the supply cord;		N/A
	d) the whole supply cord with its covering can be mounted;		N/A
	e) the supply cord do not touch clamping screws if of metal;		N/A
	f) the supply cord is not clamped by a metal screw directly on cable;		N/A
	g) replacement of the supply cord do not require a special tool;		N/A
	Glands shall not be used as anchorage in portable or adjustable luminaires		N/A
	Labyrinth type anchorages may be used		N/A
1.11 (5.2.10.2)	For type Y and Z attachments, cord anchorage shall be adequate		N/A
1.11 (5.2.10.3)	Compliance tests:		
	– impossible to push the cable or cord into the luminaire as to make it unsafe		N/A
	– pull test, 25 times × 1 s	XX N	N/A
	– torque test, 1 min	XX Nm	N/A
	– displacement, ≤ 2 mm	XX mm	N/A
	– no movement of conductors		N/A
	– no damage of the cable or cord		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
1.11 (5.2.11)	External wiring passing into the luminaire shall comply with the appropriate requirements for the internal wiring		N/A
1.11 (5.2.12)	Fixed luminaires for looping-in shall be provided with terminals for maintaining the electrical continuity of supply cables feeding the luminaire		N/A
1.11 (5.2.13)	The ends of flexible stranded conductors may be tinned		N/A
	If tinned, no cold flow		N/A
1.11 (5.2.14)	If a plug is supplied with the luminaire, the plug shall have the same IP-degree as the luminaire	No plugs	N/A
	A class III luminaire shall not be provided with a plug for connection with a IEC 60083 socket-outlet or with a EN 60320 inlet		N/A
	No unsafe compatibility between couplers for class II and class III with EN 60320 systems		N/A
1.11 (5.2.15)	For Class III luminaires powered via IT communication cabling, connection to the supply shall be made by means of connectors complying with IEC 60603 or IEC 62680		N/A
1.11 (5.2.16)	AC mains appliance inlets incorporated into the luminaire shall comply with EN 60320		N/A
1.11 (5.2.17)	Inter-connecting cables shall consist of a defined assembly made by the luminaire manufacturer		N/A
1.11 (5.2.18)	Portable, fixed and luminaires to be connected via a socket outlet shall be provided with a plug in accordance with IEC 60083 or other standards		N/A
1.11 (5.3)	Internal wiring		
1.11 (5.3.1)	Internal wiring shall be made with conductors of suitable size and type		P
	Cables for through wiring:		
	– not delivered, way of mounting is clear;		N/A
	– factory assembled (special cables are necessary)		N/A
	Wires colored green-yellow shall be used only for making earth connections		N/A
1.11 (5.3.1.1)	Wiring directly connected to the fixed wiring:		
	– nominal cross-sectional area	☐ $\geq 0.5 \text{ mm}^2$ ($I_n \geq 2 \text{ A}$) ☒ $\geq 0.4 \text{ mm}^2$ ($I_n < 2 \text{ A}$) ☐ $\geq 1.5 \text{ mm}^2$ (through wiring of fixed luminaires)	P
	– nominal insulation thickness	☐ $\geq 0.6 \text{ mm}^2$ ($I_n \geq 2 \text{ A}$) ☒ $\geq 0.5 \text{ mm}^2$ ($I_n < 2 \text{ A}$)	P

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Clause	Requirement – Test	Result – Remark	Verdict
	– extra insulation added		P
1.11 (5.3.1.2)	Wiring connected to the fixed wiring via current-limiting device ($I_{\max} = 2 \text{ A}$) shall have adequate cross-sectional area and thickness		N/A
1.11 (5.3.1.3)	Class II luminaires, if internal wiring touches accessible metal parts the insulation shall be DI or RI		N/A
1.11 (5.3.1.4)	Conductors without insulation shall be adequately fixed to ensure adherence to the creepage distances and clearance requirements	No such conductors	N/A
1.11 (5.3.1.5)	SELV current-carrying parts shall be tested as mentioned in Section 10, if insulated		N/A
1.11 (5.3.1.6)	Insulation materials with properties higher than PVC or rubber, thickness shall be selected to give the same degree of protection		N/A
1.11 (5.3.2)	Internal wiring shall be so situated or protected that it cannot be damaged by:		
	– sharp edges, rivets, screws, etc.;		P
	– moving parts of switched joints, raising and lowering devices;		N/A
	– telescopic tubes;		N/A
	– not twisted over 360°		P
1.11 (5.3.3)	Class II luminaires, adjustable or portable luminaires other than for wall mounting, internal wiring passing through accessible metal parts shall be provided with bushings:		
	– bushing is suitably fixed;		N/A
	– tough bushing of insulating material;		N/A
	– material not likely to deteriorate;		N/A
	– if the cable entry has rounded edges and internal wiring is not moved in service, a cable with a protective sheath is sufficient		N/A
1.11 (5.3.4)	Joints and junctions in internal wiring shall be insulated not less effective than the insulation of the wiring		N/A
1.11 (5.3.5)	If internal wiring passes out of the luminaire ($\geq 80 \text{ mm}$) and may be subject to strain, requirements for external wiring apply		P
1.11 (5.3.6)	Wiring of adjustable luminaires shall be fixed by means of wire carriers, clips or similar parts at places where it might rub against metal parts		N/A
1.11 (5.3.7)	The ends of flexible stranded conductors may be tinned		P
	If tinned, no cold flow		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
1.11 (5.4)	Test to determine suitability of conductors having a reduced cross-sectional area		N/A
1.12 (8)	PROTECTION AGAINST ELECTRIC SHOCK		
1.12 (8.2)	Protection against electric shock		
1.12 (8.2.1)	Construction shall be such that live parts are not accessible when the luminaire is installed		P
	Basic insulated parts shall not be used on the outer surface without appropriate protection		P
	No access to basic insulated parts on portable or adjustable luminaires (standard test finger)		N/A
	No access to basic insulated parts on wall-mounted luminaires within arms reach (Ø50 mm probe)		N/A
	Accessible lampholders and starterholders in portable and adjustable luminaires shall comply with the requirements for DI or RI		N/A
	BI may be accessible when the luminaire is opened for lamp or starter replacement		P
	Protection against electric shock shall be maintained for all methods and positions of installation		P
	Class I and II luminaires for tubular tungsten filament lamps with cap/base at each end shall incorporate automatic double-pole disconnection operative when the lamp is being changed		N/A
	Insulation lacquer, enamel, etc. is not reliable		N/A
	Luminaires with ignitors for use with double ended high pressure discharge lamps shall be tested according to Figure 26		N/A
	If $U_{Fig.26} > 34$ V, the ignitor shall only be active when the lamp is fully inserted, or a warning according to 3.2.18 a) or b) shall be fitted to the luminaire	(See Cl. 3.2.18)	N/A
	Luminaires for double-capped Fa8 tubular lamps shall comply with the requirement of 3.2.18	(See Cl. 3.2.18)	N/A
1.12 (8.2.2)	For portable luminaires, protection against electric shock shall be maintained after movable parts have been placed in the most unfavorable position		N/A
1.12 (8.2.3)	Protection against electric shock, the additional requirements:		
	a) Class II luminaires:		
	– metal parts insulated from live parts by BI only are regarded as live parts;	No such parts	N/A
	– glass lamp bulbs are not regarded as having protection against electric shock;		P

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Clause	Requirement – Test	Result – Remark	Verdict
	– glass bowls and protective shields shall not be used as SI if they do not withstand the test of 4.13 or have to be removed during the lamp replacement.		N/A
	b) Class I luminaire metal lampholders for bayonet cap lamps shall be earthed		N/A
	c) SELV circuits may have exposed parts under the following conditions:	No SELV circuits	
	For ordinary luminaires:		
	– voltage under load;	$\leq 25 \text{ V r.m.s.} / \leq 60 \text{ V d.c.}$	N/A
	– touch current (if voltage under load exceeds the specified values);	$\leq 0.7 \text{ mA (a.c.)} / \leq 2.0 \text{ mA (d.c.)}$	N/A
	– no-load voltage	$\leq 35 \text{ V peak} / \leq 60 \text{ V d.c.}$	N/A
	For non-ordinary luminaires:		
	– nominal voltage	$\leq 12 \text{ V r.m.s.} / \leq 30 \text{ V d.c.}$	N/A
	d) PELV circuits may have exposed current carrying parts under the following conditions:		
	– voltage under load, for ordinary luminaires;	$\leq 12 \text{ V r.m.s.} / \leq 30 \text{ V d.c.}$	N/A
	– voltage under load, for other than ordinary luminaires;	$\leq 12 \text{ V r.m.s.} / \leq 30 \text{ V d.c.}$	N/A
	Class III luminaires are accepted only for connection to an SELV source		N/A
1.12 (8.2.4)	Portable luminaires for connection to the supply by means of a supply cord and plug, protection against electric shock shall be independent of the supporting surface		N/A
1.12 (8.2.5)	Compliance test with a standard test finger or other relevant test probe	10 N, no contact with live parts	P
1.12 (8.2.6)	Covers and other parts providing protection against electric shock shall have adequate mechanical strength and shall be reliably secured		P
1.12 (8.2.7)	Luminaires incorporating a $> 0.5 \mu\text{F}$ capacitor shall be provided with a discharge device (voltage across capacitor $\leq 50 \text{ V}$ after 1 min)	No capacitors	N/A
	Portable plug-connected luminaires, track adaptor luminaires incorporating a $> 0.1 \mu\text{F}$ capacitor shall be provided with a discharge device (voltage between pins $\leq 34 \text{ V}$ after 1 s)		N/A
	Other plug-connected luminaires incorporating a $> 0.1 \mu\text{F}$ capacitor and track adaptors mounted in luminaires shall discharge (voltage between pins $\leq 60 \text{ V r.m.s.}$ after 5 s)		N/A
	The discharge device on or within a capacitor		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
	The discharge device mounted separately		N/A
1.13 (12)	ENDURANCE TEST AND THERMAL TEST		
1.13 (12.2)	Selection of lamps and ballasts, lamps shall be selected in accordance with Annex B		P
1.13 (12.3)	Endurance test:		
1.13 (12.3.1)	a) Luminaire mounting in a thermal enclosure and positioning	As for the normal operation	P
	b) Test ambient temperature	($t_a + 10$) °C, $t_a = 25$ °C	P
	c) Total test duration	24 h × 10 cycles	P
	d) Luminaire supply voltage	(1 ± 0.015) · U_n	P
	Lamps used during the test	LED 12 W	P
	e) Luminaire ceased to operate		N/A
	f) Luminaire incorporating a constant light output function	Max output	N/A
1.13 (12.3.2)	Compliance after the test:		
	– No parts of the luminaire shall have become unserviceable		P
	– The luminaire shall not have become unsafe		P
	– The luminaire shall not have caused damage to the track system		P
	– The marking of the luminaire shall be legible		P
	– The luminaire shall not have any cracks, deformation, etc. impairing safety		P
1.13 (12.4)	Thermal test (normal operation):		
1.13 (12.4.1)	a) Luminaire mounting in a draught-proof enclosure and connection	According to the user manual	P
	b) Luminaire operating position	Most onerous position	P
	c) Test ambient temperature	$t_a = (25 \pm 5)$ °C 22 °C	P
	d) Test voltage	1.0 · U_n 240 V~	P
	e) Test voltage deviation	± 1 %	P
	f) Thermal stabilization criteria	± 1 °C/h	P
	g) Defective parts, if any, are replaced, test is continued		N/A
	h) Remote control gear/component mounting and operation		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
	i) The test for filament lamp luminaires in case of doubt is repeated with heat test source lamps		N/A
	j) Light beam from a luminaire covered by 3.2.13 is directed towards a matt black painted vertical wooden surface, distance as marked on a luminaire		N/A
	k) Measurement of double-capped fluorescent lamp lampholders temperatures, location of thermocouples		N/A
	l) Through wiring and looping-in wiring are loaded to the maximum value for the types of use wires		N/A
	m) Luminaires incorporating a constant light output function, operated with the maximum output to the light source		N/A
1.13 (12.4.2)	Compliance after the test:	(See appended table)	
	a) The temperatures shall not exceed permitted values by more than 5 °C		P
	b) The temperatures of parts of the luminaire liable to thermal degradation shall not exceed permitted values		P
	c) The temperatures of PVC-insulated wires shall not exceed permitted values		P
1.13 (12.5)	Thermal test (abnormal operation):		
1.13 (12.5.1)	a) The test is made if the luminaire during service can be in abnormal condition		N/A
	b) Test voltage	1.1·U _n	N/A
	c) Defective parts, if any, are replaced, the test is continued		N/A
	d) Capacitors are short-circuited		N/A
	e) Luminaires for some metal halide and high pressure sodium vapor lamps are tested differently		N/A
	f) Luminaires incorporating a constant light output function, operated with the maximum output to the light source		N/A
1.13 (12.5.2)	Compliance after the test:	(See appended table)	
	– The temperatures shall not exceed permitted values by more than 5 °C		N/A
1.13 (12.6)	Thermal test (failed windings in lamp control gear):	No lamp control gear	

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Clause	Requirement – Test	Result – Remark	Verdict
1.13 (12.6.1)	– The luminaire is tested as specified in items a), c), e), f), h), l) of 12.4.1		N/A
	– 20 % of the lamp circuits in the luminaire but not less than one circuit are subjected to abnormal conditions		N/A
	– The circuits with the most thermal influence on the mounting surface are chosen, other circuits are operated under normal conditions		N/A
	– Test voltages for abnormal conditions	$0.9 \cdot U_n$; $1.0 \cdot U_n$; $1.1 \cdot U_n$	N/A
	– Fluorescent lamp luminaires with an a.c. electronic lamp control gear with a filter coil, test voltages for the coil	$0.9 \cdot U_{in.f}$; $1.0 \cdot U_{in.f}$; $1.1 \cdot U_{in.f}$	N/A
	Compliance after the test:	(See appended table)	
	a) The temperature of the mounting surface shall not exceed $130 \text{ }^{\circ}\text{C}$ ($1.1 \cdot U_n$)		N/A
	b) Calculation of the temperatures based on measured values at $0.9 \cdot U_n$, $1.0 \cdot U_n$, $1.1 \cdot U_n$. The estimated mounting surface temperature shall not exceed $180 \text{ }^{\circ}\text{C}$ if a ballast temperature is $350 \text{ }^{\circ}\text{C}$		N/A
	c) For track-mounted luminaires, no part of the track shall show symptoms of unsafe deterioration		N/A
1.13 (12.6.2)	Test for luminaires with temperature sensing controls:	No such control	
	– The luminaire is set up as described in 12.6.1		N/A
	– The circuits are operated with a slowly increasing current through the windings until the thermal cut-out operates		N/A
	– The highest temperature of any part of the mounting surface is continuously measured		N/A
	– Luminaires with manual-reset thermal cut-outs, the test is repeated three times with 30 min intervals between tests		N/A
	– Luminaires with auto-reset thermal cut-outs, the test is continued until a stable mounting surface temperature is achieved		N/A
	Compliance after the test:	(See appended table)	
	– The temperature of the mounting surface shall not exceed $135 \text{ }^{\circ}\text{C}$		N/A
	– During any cycle of operation of the protector, the surface temperature may be more than $135 \text{ }^{\circ}\text{C}$, provided that the time to attain the maximum temperature are below specified		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
	– The highest temperature of the mounting surface shall not exceed 180 °C at any time during tests for thermal links and manual-reset thermal cut-outs, or 130 °C for auto-reset thermal cut-outs		N/A
	– For track-mounted luminaires, no part of the track shall show symptoms of unsafe deterioration		N/A
1.13 (12.7)	Thermal test in regard to fault conditions in lamp control gear or electronic devices	No lamp control gear	
1.13 (12.7.1)	Test for luminaires without temperature sensing controls:		
1.13 (12.7.1.1)	Test for luminaires incorporating ballast(s) or fluorescent lamps with a lamp load ≤ 70 W:		
	– Three luminaires are tested as specified in items a), b), c), e), h) of 12.4.1		N/A
	– Test voltage for the ballast (conditioning period)	$1.1 \cdot U_n$, 4 h	N/A
	– If several ballasts used, one is checked in fault condition, the others are supplied at $1.1 \cdot U_n$		N/A
	– Following the first initial conditioning period, the supply voltage to the ballast is increased in steps until failure occurs	first step: $0.2 \cdot U_n$, 15 min; following steps: $0.1 \cdot U_n$, 15 min	N/A
	– Voltage of the circuits not subjected to the test does not increase during the fault condition		N/A
	– Protection of the test circuits against high current is provided. Protection devices do not affect the test		N/A
	– Electronic control gears and small wound devices are exempted		N/A
	– Annex W for an alternative method		N/A
	Compliance after the test:	(See appended table)	
	– Components shall be retained in place		N/A
	– Parts of the luminaire providing protection against electric shock shall continue to protect live parts against access with the standard test finger		N/A
1.13 (12.7.1.2)	Test for luminaires incorporating discharge lamps, fluorescent lamps (> 70 W), transformer of power > 10 VA:	No such components	
	– The luminaire is tested as specified in items a), c), e), f), h) of 12.4.1		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
	– 20 % of the lamp circuits in the luminaire but not less than one circuit are subjected to abnormal conditions		N/A
	– The circuits with the most thermal influence on the mounting surface are chosen, other circuits are operated under normal conditions		N/A
	– Test voltages for abnormal conditions	0.9·U _n ; 1.0·U _n ; 1.1·U _n	N/A
	Compliance after the test:	(See appended table)	
	– Calculations of the temperatures of fixing points and other exposed parts in relation to a ballast/transformer winding temperature of 350 °C shall be made based on measured temperature values at 0.9·U _n , 1.0·U _n , 1.1·U _n .		N/A
	– Ball-pressure test for thermoplastic material, immersion ≤ 2 mm	75 °C minimum	N/A
1.13 (12.7.1.3)	Test for luminaires with inherently short-circuit proof transformer of power ≤ 10 VA	No transformers	
	– The fault test is carried out according to 12.7.1.2, after 4 h the secondary winding is short-circuited		N/A
	– The short-circuit current is allowed to continue until transformer failure occurs		N/A
	– Protection of the test circuits against high current is provided. Protection devices do not affect the test		N/A
	Compliance after the test:	(See appended table)	
	– Components shall be retained in place		N/A
	– Parts of the luminaire providing protection against electric shock shall continue to protect live parts against access with the standard test finger		N/A
1.13 (12.7.2)	Test for luminaires without temperature sensing controls internal/external to the ballast or transformer:		
	– The luminaire is set up as described in the first three paragraphs of 12.7.1.2		N/A
	– The circuits are operated with a slowly increasing current through the windings until the temperature sensing control operates		N/A
	– Time intervals and increments are chosen properly		N/A
	– Luminaires with manual-reset thermal cut-out, the test is repeated six times with 30 min intervals between tests		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
	– Luminaires with auto-reset thermal cut-out, the test is continued until a stable temperature is achieved		N/A
	– The temperature sensing controls external to the transformer are checked according to EN 61558-1		N/A
	Compliance after the test:	(See appended table)	
	– The highest temperature of the fixing points shall be recorded		N/A
	– Ball-pressure test for thermoplastic material, immersion ≤ 2 mm	75 °C minimum	N/A

1.14 (9)	RESISTANCE TO DUST, SOLID OBJECTS AND MOISTURE		
1.14 (9.2)	Tests for ingress of dust, solid objects and moisture		
	– classification according to IP;	IPX0	
	– mounting position;	As in normal use	
	– fixing screws tightening, torque;		
	– tests according to clauses;		
	– electric strength test afterwards;		P
	a) no deposit of talcum powder in dust-proof luminaire;		N/A
	b) no deposit of talcum powder in dust-tight luminaire;		N/A
	c) no trace of water on current-carrying parts where it could become a hazard;		N/A
	1) for luminaires without drain holes – no water entry;		N/A
	2) for luminaires with drain holes – no hazardous water entry;		N/A
	d) no trace of water in watertight or pressure watertight luminaire;		N/A
	e) no contact with live parts (IP2X);		P
	no entry into the luminaire enclosure (IP3X and IP4X);		N/A
	no contact with live parts for luminaires with drain holes and ventilation slots (IP3X and IP4X);		N/A
	f) no trace of water on any part requiring protection from splashing water;		N/A
	g) no damage of a protective shield or glass envelope;		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
1.14 (9.2.0)	Solid-object-proof luminaires (IP2X...4X), tests	IP2X	P
1.14 (9.2.1)	Dust-proof luminaires (IP5X), test		N/A
1.14 (9.2.2)	Dust-tight luminaires (IP6X), test		N/A
1.14 (9.2.3)	Drip-proof luminaires		
1.14 (9.2.3.1)	Drip-proof luminaires (IPX1), test		N/A
1.14 (9.2.3.2)	Drip-proof luminaires (IPX2), test		N/A
1.14 (9.2.4)	Rain-proof luminaires (IPX3), test		N/A
1.14 (9.2.5)	Splash-proof luminaires (IPX4), test		N/A
1.14 (9.2.6)	Jet-proof luminaires (IPX5), test		N/A
1.14 (9.2.7)	Powerful jet-proof luminaires (IPX6), test		N/A
1.14 (9.2.8)	Watertight luminaires (IPX7), test		N/A
1.14 (9.2.9)	Pressure watertight luminaires (IPX8), test		N/A
1.14 (9.2.10)	High pressure and temperature water jet-proof luminaires (IPX9 (80 °C)), test		N/A
1.14 (9.2.11)	High pressure and cold water jet-proof luminaires (IPX9 (15 °C)), test		N/A
1.14 (9.3)	Humidity test		
1.14 (9.3.1)	Humidity test, sample shall show no damage affecting compliance	RH 91...95 %, +20...+30 °C, 48 h	P

1.15 (10)	INSULATION RESISTANCE AND ELECTRIC STRENGTH, TOUCH CURRENT AND PROTECTIVE CONDUCTOR CURRENT		
1.15 (10.2)	Insulation resistance and electric strength		
1.15 (10.2.1)	Test – Insulation resistance		
	SELV	(See appended table)	N/A
	Other than SELV	(See appended table)	P
1.15 (10.2.2)	Test – Electric strength		

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Clause	Requirement – Test	Result – Remark	Verdict
	Dummy lamp		P
	Luminaires with ignitors shall be tested after 24 h work at 100 % rated voltage		N/A
	Luminaires with manual ignitors shall be tested after 1 h of “3 s on /10 s off” switching cycles at 100 % rated voltage		N/A
	SELV	(See appended table)	N/A
	Other than SELV	(See appended table)	P
1.15 (10.3)	Touch current, protective conductor current and electric burn	(See appended table)	P

1.16 (13)	RESISTANCE TO HEAT, FIRE AND TRACKING		
1.16 (13.2)	External parts of insulating material providing protection against electric shock and parts retaining current-carrying or SELV parts in position shall be sufficiently resistant to heat		P
1.16 (13.2.1)	Ball-pressure test	(See appended table)	N/A
1.16 (13.3)	Parts of insulating material retaining current-carrying parts in position and external parts providing protection against electric shock shall be resistant to flame and ignition		N/A
1.16 (13.3.1)	Needle-flame test	(See appended table)	N/A
1.16 (13.3.2)	Glow-wire test	(See appended table)	N/A
1.16 (13.4)	Insulating parts of non-ordinary luminaires which retain current-carrying or SELV parts in position shall be of material resistant to tracking unless they are protected against dust and moisture		N/A
1.16 (13.4.1)	Proof tracking test		N/A
1.16 (13.4.2)	Drop test		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
A	ANNEX A (NORMATIVE): TEST TO ESTABLISH WHETHER A CONDUCTIVE PART MAY CAUSE AN ELECTRIC SHOCK		
A.1	Determination whether a conductive part is a live part which may cause an electric shock		P
A.2	Voltage measuring		P
A.3	Touch current measuring		P
B	ANNEX B (NORMATIVE): TEST LAMPS		
B.1	General		
B.2	Filament lamps within the scope of EN 60432-1 and EN 60432-2		
B.2.1	Principal modes of heat transfer and lamps for testing		P
B.2.2	Filament test lamps		N/A
B.3	Halogen lamps within the scope of EN 60432-3		N/A
B.4	Tubular fluorescent and other discharge lamps		N/A
B.5	LED modules within the scope of EN 62031		N/A
C	ANNEX C (NORMATIVE): ABNORMAL CIRCUIT CONDITIONS		
a)	Short-circuit of starter contacts		N/A
b)	Lamp rectification:		
	1) Luminaires for fluorescent lamps (Figures C.1 and C.2)		N/A
	2) Luminaires for some metal halide lamps and some high pressure sodium vapor lamps (Figure C.3)		N/A
c)	Lamps removed and not replaced		N/A
d)	One electrode of lamp open-circuited		N/A
e)	Lamp will not start, but both electrodes are intact		N/A
f)	Blockage of the motor contained in the luminaire		N/A
D	ANNEX D (NORMATIVE): DRAUGHT-PROOF ENCLOSURE		
D.1	Draught-proof enclosure		P
D.2	Mounting surface and test recess		P
D.3	Alternative test procedures for adjustment of measured temperatures for luminaire t_a rating(s)		N/A
E	ANNEX E (NORMATIVE): DETERMINATION OF WINDING TEMPERATURE RISES BY INCREASE-IN-RESISTANCE METHOD		
	Test procedure		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
F	ANNEX F (NORMATIVE): TEST FOR RESISTANCE TO STRESS CORROSION OF COPPER AND COPPER ALLOYS		
F.1	Test cabinet		N/A
F.2	Test solution		N/A
F.3	Test piece		N/A
F.4	Test procedure		N/A
G	ANNEX G (NORMATIVE): MEASUREMENT OF TOUCH CURRENT AND PROTECTIVE CONDUCTOR CURRENT		
G.1	Test according to Figure G.1, $T_{\text{ambient}}: (25 \pm 5) ^\circ\text{C}$		P
G.2	Luminaire operating with the lamp(s)		P
G.3	Measurements of the protective conductor current		N/A
G.4	Measurements of the touch current (Figures G.1, G.2 and G.3)		P
G.5	Test sequence		P
H	ANNEX H		
	Void		
I	ANNEX I		
	Void		
J	ANNEX J (INFORMATIVE): EXPLANATION OF IP NUMBERS FOR DEGREES OF PROTECTION		
	See EN 60529		
K	ANNEX K (INFORMATIVE): TEMPERATURE MEASUREMENTS		
K.1	Temperature measurements of the luminaire:		
	a) mechanical clamping;		P
	b) soldering to a metal surface;		N/A
	c) adhesive;		P
	d) cables;		P
	e) mounting surfaces (see Annex D)		P
K.2	Temperature measurement of the insulation parts of lampholders:		
	a) lampholder rim;		P
	b) point of contact between the lamp cap and the lampholder;		P

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Clause	Requirement – Test	Result – Remark	Verdict
	c) bifurcation of the cable		CHOOSE AN ITEM.

L	ANNEX L (INFORMATIVE):	GUIDE TO GOOD PRACTICE IN LUMINAIRE DESIGN	
L.1	General		
L.2	Plastics in luminaires		
L.3	Rust resistance		
L.4	Corrosion resistance		
L.5	Chemically corrosive atmospheres		
L.6	Reflector design		
L.7	Components in different kinds of luminaires		
L.8	Recommendations for electromagnetic ballast protection for and of life phenomenon of HID lamps		
L.9	Resistance against the effects of vibration		
L.10	Flammability of components		

M	ANNEX M (NORMATIVE):	DETERMINATION OF CREEPAGE DISTANCES AND CLEARANCES	
	See Table M.1		

N	ANNEX N (INFORMATIVE):	EXPLANATION OF MARKING FOR LUMINAIRES THAT ARE NOT SUITABLE FOR MOUNTING ON NORMALLY FLAMMABLE SURFACES AND COVERING WITH INSULATION MATERIALS	
N.0	General		
N.1	Protection against flame		N/A
N.2	Protections against heat		N/A
N.2.1	Spacing:		
	a) 10 mm;		N/A
	b) 35 mm		N/A
N.2.2	Temperature measurements of mounting surface under abnormal or failed ballast conditions		N/A
N.3	Thermal protectors		N/A
N.4	Deletion of the F mark requirements		N/A

O	ANNEX O		
	Void		

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Clause	Requirement – Test	Result – Remark	Verdict
P	ANNEX P (NORMATIVE):	ABSORPTION REQUIREMENTS FOR THE PROTECTIVE SHIELD TO BE FITTED TO LUMINAIRES DESIGNED FOR METAL HALIDE LAMPS WHICH EMIT A HIGH LEVEL OF UV RADIATION	
P.1	General		
P.2	Procedure A		N/A
P.3	Procedure B		N/A
Q	ANNEX Q (INFORMATIVE):	CONFORMITY TESTING DURING MANUFACTURE	
Q.1	General		
Q.2	Testing (Table Q.1)		N/A
R	ANNEX R (NORMATIVE):	SCHEDULE OF AMENDED SUBCLAUSES CONTAINING MORE SERIOUS / CRITICAL REQUIREMENTS WHICH CALL PRODUCTS TO BE RETESTED	
	Requirements of EN 60598-1		N/A
S	ANNEX S (NORMATIVE):	REQUIREMENTS FOR THE IDENTIFICATION OF A FAMILY OR RANGE OF LUMINAIRES FOR TYPE TESTING	
S.1	General		
S.2	Range of family of luminaires		P
T	ANNEX T		
	Void		
U	ANNEX U (INFORMATIVE):	ADDITIONAL REQUIREMENTS FOR LUMINAIRES WHERE A HIGHER DEGREE OF AVAILABILITY (IMPULSE WITHSTAND CATEGORY III) MAY BE REQUESTED	
U.1	General		
U.2	Requirements for impulse withstand category III		N/A
V	ANNEX V (NORMATIVE):	ADDITIONAL TEST REQUIREMENTS FOR TERMINAL BLOCKS WITH INTEGRATED SCREWLESS EARTHING CONTACT FOR DIRECT CONNECTION TO THE LUMINAIRE HOUSING OR TO PARTS OF THE BODY	
V.1	Additional requirements to 7.2.1		N/A
V.2	Additional requirements to 7.2.3		N/A
W	ANNEX W (NORMATIVE):	ALTERNATIVE THERMAL TEST FOR THERMOPLASTIC LUMINAIRES	
W.0	General		

LVS EN IEC 60598-2-1:2021 (LVS EN IEC 60598-1:2021 + A11:2022)			
Clause	Requirement – Test	Result – Remark	Verdict
W.1	Thermal test in regard to fault conditions in lamp control gear or electronic devices without temperature sensing controls in thermoplastic luminaires for fluorescent lamps ≤ 70 W		N/A
X	ANNEX X (NORMATIVE): REQUIREMENTS FOR INSULATION BETWEEN ACTIVE PARTS OF CIRCUITS AND ACCESSIBLE CONDUCTIVE PARTS		
	(Table X.1)		
Y	ANNEX Y (INFORMATIVE): INFORMATION REGARDING POWER SOURCING EQUIPMENT POWERING CLASS III LUMINAIRES VIA INFORMATION TECHNOLOGY COMMUNICATION CABLING		
Y.0	General		N/A
Y.1	Insulation of the mains supply		N/A
Y.2	Electrical limits of a PSE		N/A

(10.2.1)	TABLE: INSULATION RESISTANCE		P
Insulation resistance between:		Measured (MΩ)	Required (MΩ)
Live parts of different polarity		–	–
Live parts and the mounting surface covered with foil		> 299	4
Live parts and metal parts of the luminaire		> 299	4
Live parts which can become of different polarity through action of a switch		–	–
SELV parts of different polarity		–	–
SELV parts and the mounting surface covered with foil		-	1
SELV parts and metal parts of the luminaire		-	1
General comments: Class X luminaire			

(10.2.2)	TABLE: ELECTRIC STRENGTH		P
Insulation between:		Test voltage (V)	Breakdown (Yes/No)
Live parts of different polarity		–	–
Live parts and the mounting surface covered with foil		2960	No
Live parts and metal parts of the luminaire		2960	No
Live parts which can become of different polarity through action of a switch		–	–
SELV parts of different polarity		–	–
SELV parts and the mounting surface covered with foil		-	-
SELV parts and metal parts of the luminaire		-	-
General comments: Class X luminaire			

(10.3)	TABLE: TOUCH CURRENT, PROTECTIVE CONDUCTOR CURRENT		P
Touch current:		Measured I (mA)	Max allowed I (mA)
Normal polarity		< 0.01	0.7
Reversed polarity		< 0.01	0.7
General comments: Class II luminaire			

(11)	TABLE: CLEARANCES AND CREEPAGE DISTANCES						P
Minimum distances for a.c. (50/60 Hz) sinusoidal voltages							
RMS working voltage (V)		50	150	250	500	750	1000
Distances (mm)							
Creepage distances:		PTI					
• Basic insulation	≥ 600	0.6	0.8	1.5	3	4	5.5
	< 600	1.2	1.6	<u>2.5</u>	5	8	10
• Supplementary insulation	≥ 600	–	0.8	1.5	3	4	5.5
	< 600	–	1.6	<u>2.5</u>	5	8	10
• Reinforced insulation		–	3.2	5	6	8	11
Clearances:							
• Basic insulation		0.2	0.8	<u>1.5</u>	3	4	5.5
• Supplementary insulation		–	0.8	<u>1.5</u>	3	4	5.5
• Reinforced insulation		–	1.6	3	6	8	11
General comments: Measured values are not less than the required values							

(12)	TABLE: TEMPERATURE MEASUREMENTS, THERMAL TESTS						P
Test conditions:	Lamp(s) used:	1x LED 12 W					
	Test voltage:	240	V	Test frequency:	50	Hz	
	Test current:	-	A	Test wattage:	12	W	
	Ambient temperature:	22	°C	Test duration:	8	h	
	Luminaire type:	suspended on the supple cable (fixed luminaire)					
	Mounting position:	ceiling-mounting					
Part(s) measured:		Cl. 12.4 – Normal operation		Cl. 12.5 – Abnormal operation			
		Measured (°C)	Limits (°C)	Measured (°C)	Limits (°C)		
Lamp cap(s)		54	165	-	-		
Lampholder(s)		47	T210	-	-		
Case of electronic ballast		-	t _c (75)	-	-		
Switch(es)		-	55	-	-		
Insulation of internal wiring		41	90	-	-		
Insulation of external wiring		-	90	-	-		
Enclosure (wood)		29	90	-	-		
Means of adjustment:		—	—	—	—		
metal parts		-	60	-	-		
non-metal parts		-	75	-	-		
Mounting surface (normally flammable)		28	90	-	-		
Terminal block		40	T110	-	-		
General comments: The data of the “Pendant light” model are indicated. The values for the “Ceiling light” model are smaller, the designs are the same.							

(13)	TABLE: RESISTANCE TO HEAT, FIRE AND TRACKING			P	
Cl. 13.2.1 – Ball-pressure test					
Part tested:		Test temperature (°C)	Measured Ø of immersion (mm)	Immersion Ø limit (mm)	
-		-	-	2.0	
-		-	-	2.0	
Cl. 13.3.1 – Needle-flame test					
Part tested:		Burning time (s)	Burning drops (Yes/No)	Tissue paper ignition (Yes/No)	
-		-	-	-	
-		-	-	-	
Cl. 13.3.2 – Glow-wire test					
Part tested:		Glow-wire temperature (°C)	Burning time (s)	Burning drops (Yes/No)	Tissue paper ignition (Yes/No)
Wooden case		650	No ignition	No	No
Foil (internal reflector)		650	No ignition	No	No
General comments: –					

—	TABLE: LIST OF CRITICAL COMPONENTS					P
Component / object	Manufacturer / trademark	Type / model	Technical data	Standard	Mark(s) of conformity	
Lampholder	FY	FY-F4	4 A /250 V, E27, T210	-	CE mark, VDE	
Terminal block	-	-	250 V, 1.5 mm ² , T110	-	VDE	
Suspension cord (Pendant light)	-	-	2 x 0,75 mm ²	60227 IEC 52	KEMA-KEUR, VDE	
-	-	-	-	-	-	
General comments: —						

Annex 1
PHOTOS

PHOTOS OF THE TESTED OBJECT



General views of the PENDANT LIGHT model

PHOTOS OF THE TESTED OBJECT



Disassembled view of the PENDANT LIGHT model

PHOTOS OF THE TESTED OBJECT



Terminal block and suspension cord fastening

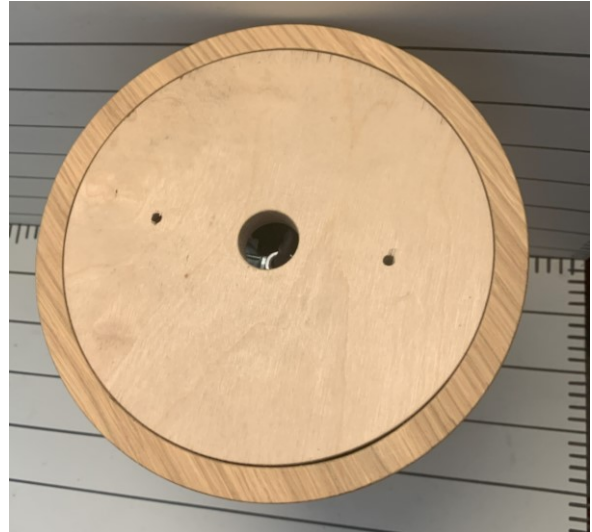


Foil



Lampholder

PHOTOS OF THE TESTED OBJECT



General views of the CEILING LIGHT model

PHOTOS OF THE TESTED OBJECT



Disassembled view of the CEILING LIGHT model



Terminals block and internal wiring

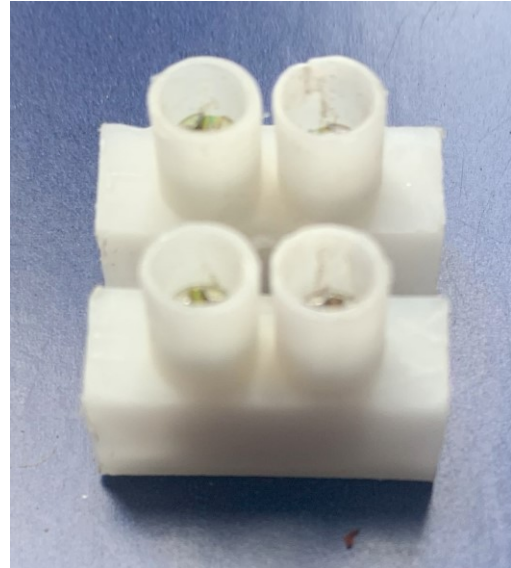


Place of marking

PHOTOS OF THE TESTED OBJECT



Disassembled view of the lampholder, power supply connection



Terminals block

Annex 2
Instruction manual

MONTĀŽAS INSTRUKCIJA

A

B

C

D

E

 x 2

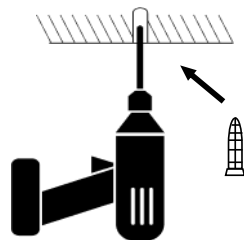
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A

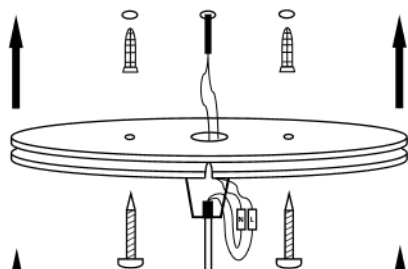


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B



B



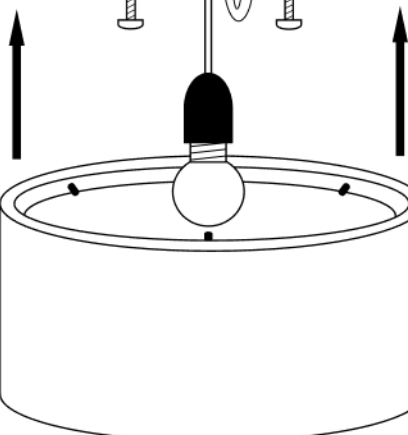
230V

E27

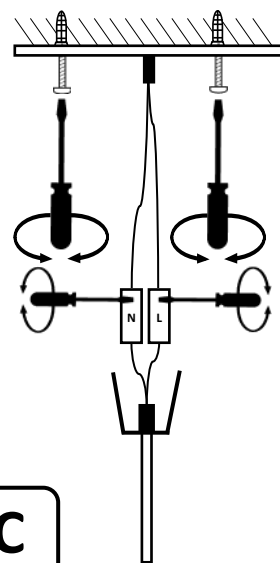
LED
MAX
12W



C



C



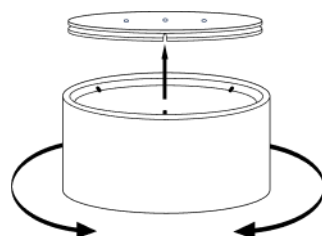
D

E



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MONTĀŽAS INSTRUKCIJA

A

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C

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E

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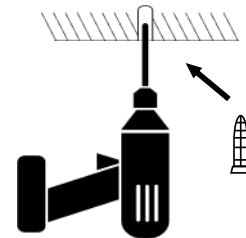
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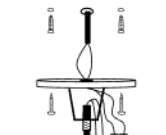


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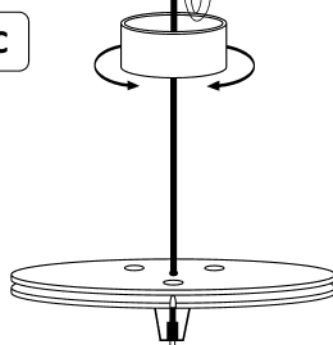
230V

E27

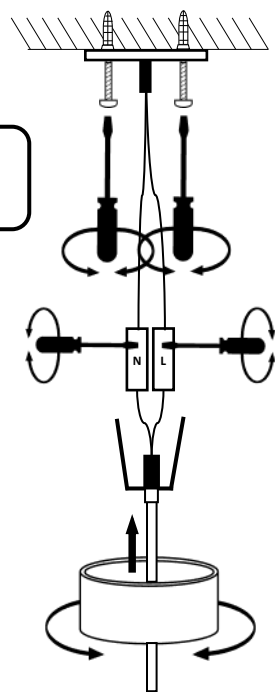
LED
MAX
12W



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C



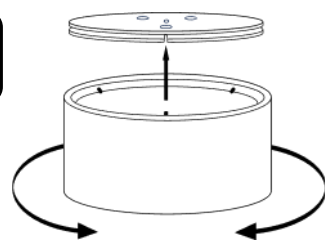
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MONTĀŽAS INSTRUKCIJA

A

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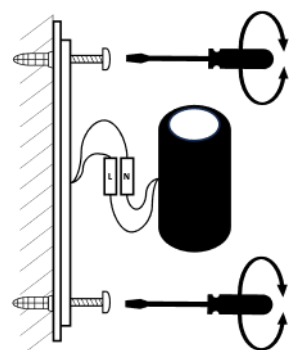
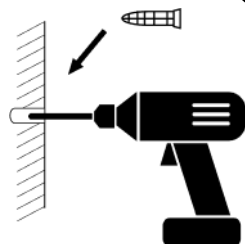
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A

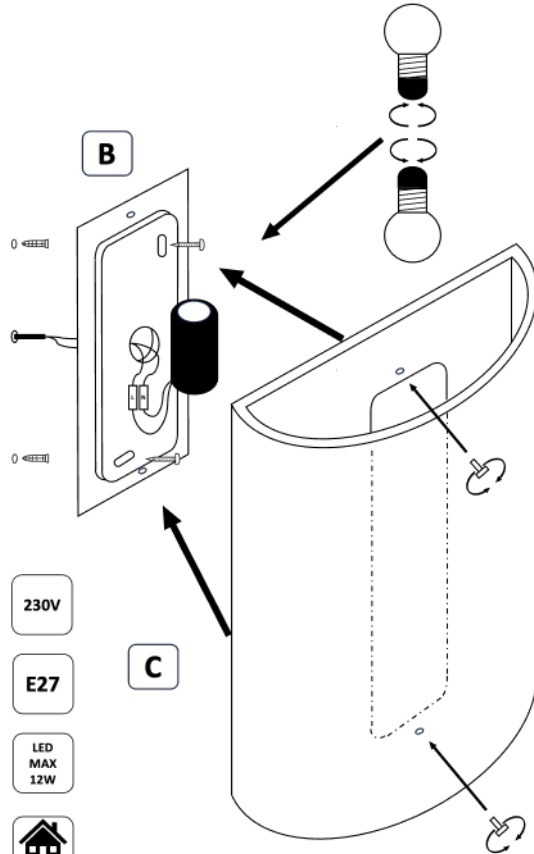


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B



B



230V

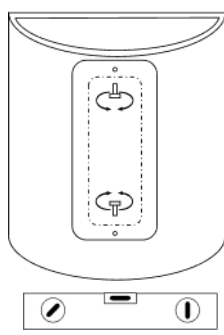
E27

LED
MAX
12W



C

C

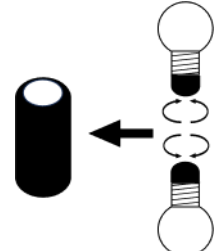


E



ON
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D





SVARĪGI!

Pirms montāžas darbu sākšanas vienmēr atvienojiet galveno strāvas padevi. Elektroinstalācijas darbus dažās valstīs drīkst veikt vienīgi sertificēti elektriķi. Ja rodas neskaidrības, sazinieties ar vietējo energoapgādes uzņēmumu. Stiprinājumus vienmēr izvēlieties atbilstoši materiālam, un izvēlieties dībeļus, atkarībā no konkrētā materiāla.

Spuldzes ievietošana un maiņa: Lietojiet vienīgi E27 LED spuldzes. Nelietojiet E27 halogēnās spuldzes



Nosvītrotais atkritumu konteiners norāda, ka šī prece ir jālikvidē atsevišķi no sadzīves atkritumiem un jānodod pārstrādei, lai ievērotu vides aizsardzības noteikumus. Ja jūs nošķirāt šo preci no citiem atkritumiem, palīdzēsiet samazināt atkritumu daudzumu, kas nonāk dedzināšanas iekārtās vai poligonos, tādējādi mazinot potenciālo negatīvo ietekmi uz vidi un veselību.