



TEST REPORT

Report Number: HA0123NB125913SF
Applicant's name: Ningbo Zhongdi Industry & Trade Co., Ltd
Applicant's address: Jishigang Industry Zone, Haishu District, Ningbo 315171, P. R. China
Name of manufacturer: Ningbo Zhongdi Industry & Trade Co., Ltd
Address of manufacturer: Jishigang Industry Zone, Haishu District, Ningbo 315171, P. R. China
Name of factory (ies): Ningbo Zhongdi Industry & Trade Co., Ltd
Address of factory (ies): Jishigang Industry Zone, Haishu District, Ningbo 315171, P. R. China
Product Name: Magnifying Lamp
Trade Mark(s): Zhongdi
Model No.: ZD-123LED, ZD-122 LED, ZD-121 LED, ZD-137 LED
Ratings: 220-240V~, 50Hz, 10W, IP20
Total number of pages: 32 + 3 pages of ATTACHMENT A + 5 pages of ATTACHMENT B + 11 pages of ATTACHMENT C + 3 pages of PHOTO DOCUMENTATION
Standard: Luminaires, Part 2: Particular requirements Section 4: Portable general purpose luminaires
EN 60598-2-4:2018 used in conjunction with EN IEC 60598-1:2021+A11:2022
IEC 60598-2-4:2017 used in conjunction with IEC 60598-1:2020
Date of Receipt sample: December 29, 2023
Date of Test: December 02, 2023 to January 08, 2023
Date of issue: January 09, 2024
Test Report Form No.: HATEK60598_2_4B
Test Result: Pass*

***Remarks:**

The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and reviewer.

Prepared By:

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Prepared by:

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List of Attachments (including a total number of pages in each attachment):

1. 3 pages of ATTACHMENT A (EN 60598-2-4 + EN 62493)+ 5pages of ATTACHMENT B + 11pages of ATTACHMENT C.
2. 3 pages of PHOTO DOCUMENTATION.

Summary of testing:

From the result of our inspection and tests on the submitted samples, we conclude that they comply with the requirements of the standards.

Determination of the test result includes consideration of measurement uncertainty from the test equipment and methods.

Tests performed (name of test and test clause):

According to the general product information, models ZD-123LED,ZD-122 LED,ZD-121 LED,ZD-137 LED were selected to conduct full tests.

Testing location:

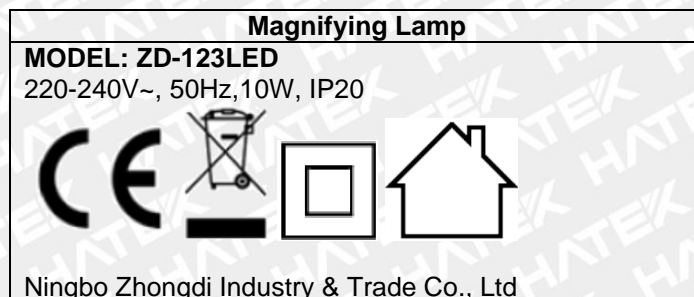
Testing Laboratory name: Ningbo HATEK Co., Ltd.
Address: 6F, No. 65, Mujin Road, National Hi-Tech Zone, Ningbo, Zhejiang 315013, China

Summary of compliance with National Differences (List of countries addressed):

EN 60598-2-4:2018
EN IEC 60598-1:2021+A11:2022
EN 62493:2015+A1:2022

Copy of marking plate:

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.

**Remark:**

1. The marking plates of other models are the same as above only except the model name.
2. Height of CE mark at least 5mm, height of WEEE symbol should not less than 7mm.
3. The serial number of product and the name and address of importer and manufacture will be marked in the use manual or on the inner packing, may also be marked on the outer packing.

- Importer: xxxxx
- Address: xxxxx
- S/N.: xxxxx

Test item particulars..... : Magnifying Lamp		
Classification of installation and use..... : Movable Luminaire, normal use		
Supply Connection : Supply cord with plug		
Possible test case verdicts: - test case does not apply to the test object..... : N/A - test object does meet the requirement..... : P (Pass) - test object does not meet the requirement..... : F (Fail)		
General remarks: "(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report. Throughout this report a <input type="checkbox"/> comma / <input checked="" type="checkbox"/> point is used as the decimal separator. Clause numbers between brackets refer to clauses in IEC 60598-1		
General product information: 1. The products are portable general purpose luminaires for indoor use only. 2. All models are the same only except the appearance of the lamp cover. 3. Model list		
Model No	Model No	Model No
ZD-122 LED	ZD-121 LED	ZD-137 LED

4.4 (0)	GENERAL TEST REQUIREMENTS		P
4.4 (0.3)	More sections applicable..... :	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Section/s:	—
4.4 (0.7)	Information for luminaire design in light sources standards		—
4.4 (0.7.2)	Light source safety standard	IEC 60432-1	—
	Luminaire design in the light source safety standard		—
4.5 (2)	CLASSIFICATION OF LUMINAIRES		P
4.5 (2.2)	Type of protection	Class II	P
4.5 (2.3)	Degree of protection	IP 20	—
4.5 (2.5)	Luminaire for normal use	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	—
	Luminaire for rough service	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
4.5.1 (-)	Ordinary luminaire..... :	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	—
4.5.2 (-)	Portable luminaire for outdoor use..... :	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
	Classified IPX4 or higher	IP20	N/A
4.5.3 (2.4)	Luminaire suitable for direct mounting on normally flammable surfaces..... :	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
4.6 (3)	MARKING		P
4.6 (3.2)	Mandatory markings		P
	Position of the marking		P
	Format of symbols/text		P
4.6 (3.3)	Additional information		P
	Language of instructions	English	P
4.6 (3.3.1)	Combination luminaires		N/A
4.6 (3.3.2)	Nominal frequency in Hz		P
4.6 (3.3.3)	Operating temperature		N/A
4.6 (3.3.5)	Wiring diagram		N/A
4.6 (3.3.6)	Special conditions		N/A
4.6 (3.3.7)	Metal halide lamp luminaire – warning		N/A
4.6 (3.3.8)	Limitation for semi-luminaires		N/A
4.6 (3.3.9)	Power factor and supply current		N/A
4.6 (3.3.10)	Suitability for use indoors		P
4.6 (3.3.11)	Luminaires with remote control		N/A
4.6 (3.3.12)	Clip-mounted luminaire – warning		N/A
4.6 (3.3.13)	Specifications of protective shields		N/A
4.6 (3.3.14)	Symbol for nature of supply	~	P
4.6 (3.3.15)	Rated current of socket outlet		N/A
4.6 (3.3.16)	Rough service luminaire		N/A

4.6 (3.3.17)	Mounting instruction for type Y, type Z and some type X attachments	Type Y	P
4.6 (3.3.18)	Non-ordinary luminaires with PVC cable		N/A
4.6 (3.3.19)	Protective conductor current in instructions, if applicable		N/A
4.6 (3.3.20)	Provided with information if not intended to be mounted within arm's reach		N/A
4.6 (3.3.21)	Non replaceable and non-user replaceable light sources information provided		N/A
	Cautionary symbol		N/A
4.6 (3.3.22)	Controllable luminaires, classification of insulation provided		N/A
4.6 (3.3.23)	Luminaire without controlgear provided with necessary information for selection of appropriate component		N/A
4.6 (3.3.24)	If not supplied with terminal block, information on the packaging		N/A
4.6 (3.4)	Test with water		P
	Test with hexane		P
	Legible after test		P
	Label attached		P
4.6.1 (-)	Luminaire not suitable for outdoor application		P
	Required symbol		P
	Information in the instructions		P
4.6.2 (-)	Outdoor use, socket outlet incorporated in the luminaire		N/A
	Maximum power rating marked		N/A
	Position of the marking		N/A
4.7 (4)	CONSTRUCTION		P
4.7 (4.2)	Components replaceable without difficulty		P
4.7 (4.3)	Wireways smooth and free from sharp edges		P
4.7 (4.4)	Lampholders		P
4.7 (4.4.1)	Integral lampholder		N/A
4.7 (4.4.2)	Wiring connection		N/A
4.7 (4.4.3)	Lampholder for end-to-end mounting		N/A
4.7 (4.4.4)	Positioning		P
	- pressure test (N) :	Values for E14 lampholders is under consideration.	—
	After test the lampholder comply with relevant standard sheets and show no damage		N/A

	After test on single-capped lampholder the lampholder have not moved from its position and show no permanent deformation		P
	- bending test (Nm) :	1.2Nm	—
	After test the lampholder have not moved from its position and show no permanent deformation		P
4.7 (4.4.5)	Peak pulse voltage	2.5kV	P
4.7 (4.4.6)	Centre contact		P
4.7 (4.4.7)	Parts in rough service luminaires resistant to tracking		N/A
4.7 (4.4.8)	Lamp connectors		N/A
4.7 (4.4.9)	Caps and bases correctly used		N/A
4.7 (4.4.10)	Light source for lampholder or connection according IEC 60061 not connected another way		P
4.7 (4.5)	Starter holders		N/A
	Starter holder in luminaires other than class II		N/A
	Starter holder class II construction		N/A
4.7 (4.6)	Terminal blocks		N/A
	Tails		N/A
	Unsecured blocks		N/A
4.7 (4.7)	Terminals and supply connections		N/A
4.7 (4.7.1)	Contact to metal parts		N/A
4.7 (4.7.2)	Test 8 mm live conductor		N/A
	Test 8 mm earth conductor		N/A
4.7 (4.7.3)	Terminals for supply conductors		N/A
4.7 (4.7.3.1)	Welded method and material		N/A
	- stranded or solid conductor		N/A
	- spot welding		N/A
	- welding between wires		N/A
	- Type Z attachment		N/A
	- mechanical test according to 15.6.2		N/A
	- electrical test according to 15.6.3		N/A
	- heat test according to 15.6.3.2.3 and 15.6.3.2.4		N/A
4.7 (4.7.4)	Terminals other than supply connection		N/A
4.7 (4.7.5)	Heat-resistant wiring/sleeves		N/A
4.7 (4.7.6)	Multi-pole plug		N/A
	- test at 30 N		N/A
4.7 (4.8)	Switches		P
	- adequate rating		P
	- adequate fixing		P

	- polarized supply		P
	- compliance with IEC 61058-1 for electronic switches		P
4.7 (4.9)	Insulating lining and sleeves		P
4.7 (4.9.1)	Retainment		P
	Method of fixing..... : Secured by screw		P
4.7 (4.9.2)	Insulated linings and sleeves:		P
	Resistant to a temperature > 20 °C to the wire temperature or		P
	a) & c) Insulation resistance and electric strength		N/A
	b) Ageing test. Temperature (°C)..... :		N/A
4.7 (4.10)	Double or reinforced insulation		P
4.7 (4.10.1)	No contact, mounting surface – accessible metal parts – wiring of basic insulation		P
	Safe installation fixed luminaires		N/A
	Capacitors and switches		N/A
	Interference suppression capacitors according to IEC 60384-14		N/A
4.7 (4.10.2)	Assembly gaps:		N/A
	- not coincidental		N/A
	- no straight access with test probe		N/A
4.7 (4.10.3)	Retainment of insulation:		P
	- fixed		P
	- unable to be replaced; luminaire inoperative		P
	- sleeves retained in position		P
	- lining in lampholder		P
4.7 (4.10.4)	Protective impedance device		N/A
	Double or reinforced insulation bridged by appropriate and at least two resistors or two Y2 capacitors or one Y1 capacitor		N/A
	Y1 or Y2 capacitors comply with IEC 60384-14		N/A
	Resistors comply with test (a) in 14.1 of IEC 60065		N/A
4.7 (4.11)	Electrical connections and current-carrying parts		P
4.7 (4.11.1)	Contact pressure		P
4.7 (4.11.2)	Screws:		P
	- self-tapping screws		P
	- thread-cutting screws		N/A
4.7 (4.11.3)	Screw locking:		N/A
	- spring washer		N/A
	- rivets		N/A

4.7 (4.11.4)	Material of current-carrying parts		P
4.7 (4.11.5)	No contact to wood or mounting surface		P
4.7 (4.11.6)	Electro-mechanical contact systems		N/A
4.7 (4.12)	Screws and connections (mechanical) and glands		P
4.7 (4.12.1)	Screws not made of soft metal		P
	Screws of insulating material		N/A
	Torque test: torque (Nm); part :	Screws for fixing base, Ø 4.48mm, 1.8Nm	P
	Torque test: torque (Nm); part :		N/A
4.7 (4.12.2)	Screws with diameter < 3 mm screwed into metal		P
4.7 (4.12.4)	Locked connections:		P
	- fixed arms; torque (Nm) :		N/A
	- lampholder; torque (Nm) :	1,2Nm for E14	P
	- push-button switches; torque 0,8 Nm :		N/A
4.7 (4.12.5)	Screwed glands; force (Nm) :		N/A
4.7 (4.13)	Mechanical strength		P
4.7 (4.13.1)	Impact tests:		P
	- fragile parts; energy (Nm) :		N/A
	- other parts; energy (Nm)..... :	0.5Nm	P
	1) live parts		P
	2) linings		P
	3) protection		N/A
	4) covers		N/A
4.7 (4.13.3)	Straight test finger		P
4.7 (4.13.4)	Rough service luminaires		N/A
	- IP54 or higher		N/A
	a) fixed		N/A
	b) hand-held		N/A
	c) delivered with a stand		N/A
	d) for temporary installations and suitable for mounting on a stand		N/A
4.7 (4.13.6)	Tumbling barrel		N/A
4.7 (4.14)	Suspensions, fixings and means of adjusting		N/A
4.7 (4.14.1)	Mechanical load:		N/A
	A) four times the weight		N/A
	B) torque 2,5 Nm		N/A
	C) bracket arm; bending moment (Nm) :		N/A
	D) load track-mounted luminaires		N/A

	E) clip-mounted luminaires, glass-shelve. Thickness (mm)		N/A
	Metal rod. diameter (mm)		N/A
	Fixed luminaire or independent control gear without fixing devices		N/A
4.7 (4.14.2)	Load to flexible cables		N/A
	Mass (kg)		—
	Stress in conductors (N/mm ²)		N/A
	Mass (kg) of semi-luminaire		N/A
	Bending moment (Nm) of semi-luminaire		N/A
4.7 (4.14.3)	Adjusting devices:		N/A
	- flexing test; number of cycles		N/A
	- strands broken		N/A
	- electric strength test afterwards		N/A
4.7 (4.14.4)	Telescopic tubes: cords not fixed to tube; no strain on conductors		N/A
4.7 (4.14.5)	Guide pulleys		N/A
4.7 (4.14.6)	Strain on socket-outlets		N/A
4.7 (4.15)	Flammable materials		P
	- glow-wire test 650°C	See Test Table 13.15 (13.3.2)	P
	- spacing ≥30 mm		N/A
	- screen withstanding test of 13.3.1		N/A
	- screen dimensions		N/A
	- no fiercely burning material		P
	- thermal protection		N/A
	- electronic circuits exempted		N/A
4.7 (4.15.2)	Luminaires made of thermoplastic material with lamp control gear		N/A
	a) construction		N/A
	b) temperature sensing control		N/A
	c) surface temperature		N/A
4.7 (4.16)	Luminaires for mounting on normally flammable surfaces		P
	No lamp control gear.....	(compliance with Section 12)	P
4.7 (4.16.1)	Lamp control gear spacing:		N/A
	- spacing 35 mm		N/A
	- spacing 10 mm		N/A
4.7 (4.16.2)	Thermal protection:		N/A
	- in lamp control gear		N/A
	- external		N/A
	- fixed position		N/A

	- temperature marked lamp control gear		N/A
4.7 (4.16.3)	Design to satisfy the test of 12.6.....:	(see clause 12.6)	N/A
4.7 (4.17)	Drain holes		N/A
	Clearance at least 5 mm		N/A
4.7 (4.18)	Resistance to corrosion		P
4.7 (4.18.1)	- rust-resistance		P
4.7 (4.18.2)	- season cracking in copper		N/A
4.7 (4.18.3)	- corrosion of aluminium		N/A
4.7 (4.19)	Igniters compatible with ballast		N/A
4.7 (4.20)	Rough service vibration		N/A
4.7 (4.21)	Protective shield		N/A
4.7 (4.21.1)	Shield fitted if tungsten halogen lamps or metal halide lamps		N/A
	Shield of glass if tungsten halogen lamps		N/A
4.7 (4.21.2)	Particles from a shattering lamp not impair safety		N/A
4.7 (4.21.3)	No direct path		N/A
4.7 (4.21.4)	Impact test on shield		N/A
	Glow-wire test on lamp compartment :	See Test Table 13.15 (13.3.2)	N/A
4.7 (4.22)	Attachments to lamps not cause overheating or damage		N/A
4.7 (4.23)	Semi-luminaires comply Class II		N/A
4.7 (4.24)	Photobiological hazards		N/A
4.7 (4.24.1)	No excessive UV radiation if tungsten halogen lamps and metal halide lamps (Annex P)		N/A
4.7 (4.24.2)	Retinal blue light hazard		N/A
	Class of risk group assessed according to IEC/TR 62778		—
	Luminaires with E_{thr} :		N/A
	a) Fixed luminaires		N/A
	- distance x m, borderline between RG1 and RG2.. :		N/A
	- marking and instruction according 3.2.23		N/A
	b) Portable and handheld luminaires		N/A
	- marking according 3.2.23 if RG1 exceeded at 200 mm according to IEC/TR 62778		N/A
	Portable luminaires for children IEC 60598-2-10 and Mains socket outlet nightlights IEC 60598-2-12 not exceed RG1 at 200 mm according to IEC/62778		N/A
4.7 (4.25)	Mechanical hazard		P
	No sharp point or edges		P
4.7 (4.26)	Short-circuit protection		N/A

4.7 (4.26.1)	Adequate means of uninsulated accessible SELV parts		N/A
4.7 (4.26.2)	Short-circuit test with test chain according 4.26.3		N/A
	Test chain not melt through		N/A
	Test sample not exceed values of Table 12.1 and 12.2		N/A
4.7 (4.27)	Terminal blocks with integrated screwless earthing contacts		N/A
	Test according Annex V		N/A
	Pull test of terminal fixing (20 N)		N/A
	After test, resistance < 0,05 Ω		N/A
	Pull test of mechanical connection (50 N)		N/A
	After test, resistance < 0,05 Ω		N/A
	Voltage drop test, resistance < 0,05 Ω		N/A
4.7 (4.28)	Fixing of thermal sensing control		N/A
	Not plug-in or easily replaceable type		N/A
	Reliably kept in position		N/A
	No adhesive fixing if UV radiations from a lamp can degrade the fixing		N/A
	Not outside the luminaire enclosure		N/A
	Test of adhesive fixing:		N/A
	Max. temperature on adhesive material ($^{\circ}\text{C}$) :		—
	100 cycles between t min and t max		N/A
	Temperature sensing control still in position		N/A
4.7 (4.29)	Luminaires with non-replaceable light source		N/A
	Not possible to replace light source		N/A
	Live part not accessible after parts have been opened by hand or tools		N/A
4.7 (4.30)	Luminaires with non-user replaceable light source		N/A
	If protective cover provide protection against electric shock and marked with “caution, electric shock risk” symbol:		N/A
	Minimum two fixing means		N/A
4.7 (4.31)	Insulation between circuits		N/A
	Circuits insulated from LV supply fulfil requirements according 4.31.1 – 4.31.3		N/A
	Controllable luminaires requiring same level of insulation for all components, the insulation between control terminals and LV supply fulfil requirements according 4.31.1 – 4.31.3		N/A
4.7 (4.31.1)	SELV circuits		N/A
	Used SELV source		N/A
	Voltage \leq ELV		N/A

	Insulating of SELV circuits from LV supply		N/A
	Insulating of SELV circuits from other non SELV circuits		N/A
	Insulating of SELV circuits from FELV		N/A
	Insulating of SELV circuits from other SELV circuits		N/A
	SELV circuits insulated from accessible parts according Table X.1		N/A
	Plugs not able to enter socket-outlets of other voltage systems		N/A
	Socket outlets does not admit plugs of other voltage systems		N/A
	Plugs and socket-outlets does not have protective conductor contact		N/A
4.7 (4.31.2)	FELV circuits		N/A
	Used FELV source		N/A
	Voltage \leq ELV		N/A
	Insulating of FELV circuits from LV supply		N/A
	FELV circuits insulated from accessible parts according Table X.1		N/A
	Plugs not able to enter socket-outlets of other voltage systems		N/A
	Socket outlets does not admit plugs of other voltage systems		N/A
	Socket-outlets does not have protective conductor contact		N/A
4.7 (4.31.3)	Other circuits		N/A
	Other circuits insulated from accessible parts according Table X.1		N/A
	Class II construction with equipotential bonding for protection against indirect contacts with live parts:		N/A
	- conductive parts are connected together		N/A
	- test according 7.2.3		N/A
	- conductive part not cause an electric shock in case of an insulation fault		N/A
	- equipotential bonding in master/slave applications		N/A
	- master luminaire provided with terminal for accessible conductive parts of slave luminaires		N/A
	- slave luminaire constructed as class I		N/A
4.7 (4.32)	Overvoltage protective devices		N/A
	Comply with IEC 61643-11		N/A
	External to controlgear and connected to earth:		N/A
	- only in fixed luminaires		N/A

	- only connected to protective earth		N/A
4.7.1 (-)	Insulation not damaged when moving, adjusting or placing on support		P
4.7.2 (-)	Wiring fixed, to avoid rubbing		P
	Carrier or clips of insulation material or with insulating lining		P
4.7.3 (-)	Luminaire not overturn at angle 6°		P
	Outdoor use luminaire not overturn at an angle 15°		N/A
4.7.4 (-)	Candlestick luminaires with E5 or E10 lampholders provided with a switch		N/A
	Switch part of the luminaire or within 300 mm of the luminaire if with cord		N/A
4.7.5 (-)	Voltage not exceeding 25 V for E5 lampholders		N/A
	E10 lampholder voltage:		N/A
	- not exceeding 60 V for series connection) or		N/A
	- not exceeding 250 V for parallel connections		N/A
	Maximum rated wattage not exceed 100 W		N/A
4.7.6 (-)	Portable luminaires for outdoor use tails not provided		N/A
4.7.7 (-)	Portable luminaires for outdoor use, cable entries		N/A
4.7.8 (-)	Portable luminaires for outdoor use, socket-outlet degree of protection at least same as the luminaire but not less than IPX4.		N/A
	Degree of protection maintained with or without a plug inserted into the socket-outlet.		N/A
	Class II luminaires, mains socket-outlets comply with the standard and only allow connection to Class II luminaires		N/A
	Class I luminaires, mains socket-outlets comply with the standard and only allow connection to Class I or Class II luminaires		N/A
4.7.9 (-)	Portable luminaires for outdoor use, lampholders and plugs are of material resistant to tracking		N/A
	Compliance to clause 13.4		N/A
4.8 (11)	CREEPAGE DISTANCES AND CLEARANCES		P
	Impulse withstand category (Normal category II) (Category III Annex U, Table U.1)	Category II <input checked="" type="checkbox"/> Category III <input type="checkbox"/>	—

4.8 (11.2.1)	Category III according Annex U		N/A
	Protected against pollution, reduced creepage and clearance according Annex P of IEC 61347-1		N/A
4.7 (11.2.2)	Creepage distances for frequency up to 30 kHz..... :	See Test Table 4.7 (11.2) I	P
	Creepage distances for frequency over 30 kHz:		N/A
	- Controlgear marked with \hat{U}_{OUT} and f_{UOUT} according IEC 61347-1, clause 7.1, item w)..... :	See Test Table 4.7 (11.2) II	N/A
	- Requirements according IEC 60664-4 for controlgear not covered by IEC 61347 :	See Test Table 4.7 (11.2) I	N/A
4.7 (11.2.3)	Clearances for frequency up to 30 kHz :	See Test Table 4.7 (11.2) I	P
	Clearances distances for frequency over 30 kHz:		N/A
	- Controlgear marked with U_P :	See Test Table 4.7 (11.2) II	N/A
	- Requirements according IEC 60664-4 for controlgear not covered by IEC 61347 :	See Test Table 4.7 (11.2) II	N/A
4.9 (7)	PROVISION FOR EARTHING		N/A
4.9 (7.2.1 + 7.2.3)	Accessible metal parts		N/A
	Metal parts in contact with supporting surface		N/A
	Resistance < 0,5 Ω :		N/A
	Self-tapping screws used		N/A
	Thread-forming screws		N/A
	Thread-forming screw used in a grove		N/A
	Earth makes contact first		N/A
	Terminal blocks with integrated screwless earthing contacts tested according Annex V		N/A
	Protective earthing of the luminaire not via built-in control gear		N/A
4.8 (7.2.2 + 7.2.3)	Earth continuity in joints, etc.		N/A
4.9 (7.2.4)	Locking of clamping means		N/A
	Compliance with 4.7.3		N/A
	Terminal blocks with integrated screwless earthing contacts tested according Annex V		N/A
4.9 (7.2.5)	Earth terminal integral part of connector socket		N/A
4.9 (7.2.6)	Earth terminal adjacent to mains terminals		N/A
4.9 (7.2.7)	Electrolytic corrosion of the earth terminal		N/A
4.9 (7.2.8)	Material of earth terminal		N/A
	Contact surface bare metal		N/A
4.9 (7.2.10)	Class II luminaire for looping-in		N/A
	Double or reinforced insulation to functional earth		N/A
4.9 (7.2.11)	Earthing core coloured green-yellow		N/A

	Length of earth conductor		N/A
4.10 (14)	SCREW TERMINALS		N/A
	Separately approved; component list	(see Annex 1)	N/A
	Part of the luminaire	(see Annex 3)	N/A
4.10 (15)	SCREWLESS TERMINALS AND ELECTRICAL CONNECTIONS		N/A
	Separately approved; component list	(see Annex 1)	N/A
	Part of the luminaire	(see Annex 4)	N/A
4.11 (5)	EXTERNAL AND INTERNAL WIRING		P
4.11 (5.2)	Supply connection and external wiring		P
4.11 (5.2.1)	Means of connection	Supply cord with plug	N/A
	Outdoor luminaire has not PVC insulated external wiring if not class III or SELV ≤ 25 V a.c./60 V d.c. or protected from outdoor environment		N/A
4.11 (5.2.2)	Type of cable.....	H03VVH2-F	P
	Nominal cross-sectional area (mm ²)	0.75mm ²	P
	Cables equal to IEC 60227 or IEC 60245		P
4.11 (5.2.3)	Type of attachment, X, Y or Z	Type Y	P
4.11 (5.2.5)	Type Z not connected to screws		N/A
4.11 (5.2.6)	Cable entries:		P
	- suitable for introduction		P
	- adequate degree of protection		P
4.11 (5.2.7)	Cable entries through rigid material have rounded edges		P
4.11 (5.2.8)	Insulating bushings:		P
	- suitably fixed		P
	- material in bushings		P
	- material not likely to deteriorate		P
	- tubes or guards made of insulating material		P
4.11 (5.2.9)	Locking of screwed bushings		P
4.11 (5.2.10)	Cord anchorage:		P
	- covering protected from abrasion		P
	- clear how to be effective		P
	- no mechanical or thermal stress		P
	- no tying of cables into knots etc.		P
	- insulating material or lining		P
4.11 (5.2.10.1)	Cord anchorage for type X attachment:		N/A
	a) at least one part fixed		N/A
	b) types of cable		N/A

	c) no damaging of the cable		N/A
	d) whole cable can be mounted		N/A
	e) no touching of clamping screws		N/A
	f) metal screw not directly on cable		N/A
	g) replacement without special tool		N/A
	Glands not used as anchorage		N/A
	Labyrinth type anchorages		N/A
4.11 (5.2.10.2)	Adequate cord anchorage for type Y and type Z attachment	Type Y	P
4.11 (5.2.10.3)	Tests:		P
	- impossible to push cable; unsafe		P
	- pull test: 25 times; pull (N) :	60N	P
	- torque test: torque (Nm)..... :	0.15Nm	P
	- displacement ≤ 2 mm		P
	- no movement of conductors		P
	- no damage of cable or cord		P
	- function independent of electrical connection		P
4.11 (5.2.11)	External wiring passing into luminaire		P
4.11 (5.2.12)	Looping-in terminals		N/A
4.11 (5.2.13)	Wire ends not tinned		N/A
	Wire ends tinned: no cold flow		P
4.11 (5.2.14)	Mains plug same protection		N/A
	Class III luminaire plug		N/A
	No unsafe compatibility		N/A
4.11 (5.2.16)	Appliance inlets (IEC 60320)		N/A
	Installation couplers (IEC 61535)		N/A
	Other appliance inlet or connector according relevant IEC standard		N/A
4.11 (5.2.17)	No standardized interconnecting cables properly assembled		N/A
4.11 (5.2.18)	Used plug in accordance with		P
	- IEC 60083		P
	- other standard		N/A
4.11 (5.3)	Internal wiring		P

4.11 (5.3.1)	Internal wiring of suitable size and type		P
	Through wiring		P
	- not delivered/ mounting instruction		N/A
	- factory assembled		P
	- socket outlet loaded (A) :		N/A
	- temperatures..... :	(see Annex 2)	P
	Green-yellow for earth only		N/A
4.11 (5.3.1.1)	Internal wiring connected directly to fixed wiring		N/A
	Cross-sectional area (mm ²) :		N/A
	Insulation thickness		N/A
	Extra insulation added where necessary		N/A
4.11 (5.3.1.2)	Internal wiring connected to fixed wiring via internal current-limiting device		N/A
	Cross-sectional area (mm ²) :		N/A
4.11 (5.3.1.3)	Double or reinforced insulation for class II		P
4.11 (5.3.1.4)	Conductors without insulation		N/A
4.11 (5.3.1.5)	SELV current-carrying parts		P
4.11 (5.3.1.6)	Insulation thickness other than PVC or rubber		N/A
4.11 (5.3.2)	Sharp edges etc.		P
	No moving parts of switches etc.		P
	Joints, raising/lowering devices		P
	Telescopic tubes etc.		P
	No twisting over 360°		P
4.11 (5.3.3)	Insulating bushings:		P
	- suitable fixed		P
	- material in bushings		P
	- material not likely to deteriorate		P
	- cables with protective sheath		P
4.11 (5.3.4)	Joints and junctions effectively insulated		P
4.11 (5.3.5)	Strain on internal wiring		P
4.11 (5.3.6)	Wire carriers		N/A
4.11 (5.3.7)	Wire ends not tinned		N/A
	Wire ends tinned: no cold flow		P
4.11 (5.4)	Test to determine suitability of conductors having a reduced cross-sectional area		N/A

	Under test the temperature of the luminaire wiring insulation not exceed the limits stated in Table 12.2	(see Annex 2)	N/A
	No damage to luminaire wiring after test		N/A
4.11.1 (-)	Indoor use luminaire The requirement of one part of cord anchorage to be fixed to the luminaire not applied for table lamps of glass or ceramic		—
4.11.2 (-)	Class I and class II indoor use Luminaire with a mass less than 1 kg the current $\leq 2,5$ A and cable ≤ 2 m and conductor $\geq 0,5$ mm ²		N/A
4.11.3 (-)	Terminals, a cord anchorage and an inlet opening for the proper connection of the flexible cable or cord if for outdoor use and delivered without a flexible cable or cord and a plug.		N/A
4.11.4 (-)	Portable luminaires for outdoor use Insulation class I and class II, non-detachable flexible cables or cords at least type 245 IEC 57.		N/A
4.12 (8)	PROTECTION AGAINST ELECTRIC SHOCK		P
4.12 (8.2.1)	Live parts not accessible		P
	Basic insulated parts not used on the outer surface without appropriate protection		P
	Basic insulated parts not accessible with standard test finger on portable, settable and adjustable luminaires		P
	Basic insulated parts not accessible with $\varnothing 50$ mm probe from outside, other types of luminaires		P
	Lamp and starter holders in portable and adjustable luminaires comply with double or reinforced insulation requirements		P
	Basic insulation only accessible under lamp or starter replacement		P
	Protection in any position		P
	Double-ended tungsten filament lamp		N/A
	Insulation lacquer not reliable		N/A
	Double-ended high pressure discharge lamp		N/A
	Relevant warning according to 3.2.18 fitted to the luminaire		N/A
4.12 (8.2.2)	Portable luminaire adjusted in most unfavourable position		P
4.12 (8.2.3.a)	Class II luminaire:		P
	- basic insulated metal parts not accessible during starter or lamp replacement		P
	- basic insulation not accessible other than during starter or lamp replacement		P

	- glass protective shields not used as supplementary insulation		N/A
4.12 (8.2.3.b)	BC lampholder of metal in class I luminaires is earthed		N/A
4.12 (8.2.3.c)	SELV circuits with exposed current carrying parts:		N/A
	Ordinary luminaire:		N/A
	- voltage under load (V)		N/A
	- no-load voltage (V)		N/A
	- touch current if applicable (mA)		N/A
	One conductive part insulated if required		N/A
	Other than ordinary luminaire:		N/A
	- nominal voltage (V)		N/A
	Class III luminaire only for connection to SELV		N/A
	Class III luminaire not provided with means for protective earthing		N/A
4.12 (8.2.4)	Portable luminaire have protection independent of supporting surface		P
4.12 (8.2.5)	Compliance with the standard test finger or relevant probe		P
4.12 (8.2.6)	Covers reliably secured		P
4.12 (8.2.7)	Luminaire other than below with capacitor > 0,5 μ F not exceed 50 V 1 min after disconnection		N/A
	Portable luminaire with capacitor > 0,1 μ F (0.25) not exceed 34 V 1 s after disconnection		N/A
	Other luminaires with capacitor > 0,1 μ F (0.25) with plug and track adaptors not exceed 60 V 5 s after disconnection		N/A
4.12. (-)	Class I luminaire with bayonet lampholder:		N/A
	1) cap not accessible with test finger		N/A
	2) metal lampholder is earthed		N/A

4.13 (12)	ENDURANCE TEST AND THERMAL TEST		P
4.13 (-)	If IP > IP 20 relevant test of (12.4), (12.5), (12.6) and (12.7) after (9.2) before (9.3) specified in 4.13		—
4.13 (12.2)	Selection of lamps and ballasts		—
	Lamp used according Annex B	(Lamp used see Annex 2)	—
	Controlgear if separate and not supplied	(Controlgear used see Annex 2)	—
4.13 (12.3)	Endurance test:		P
	a) mounting-position	As in normal used	—
	b) test temperature (°C)	35	—

	c) total duration (h)	168	—
	d) if not equipped with controlgear, constant voltage/current (V) or (A)	254.4V	—
	e) luminaire ceases to operate		—
4.13 (12.3.2)	After endurance test:		P
	- no part unserviceable		P
	- luminaire not unsafe		P
	- no damage to track system		N/A
	- marking legible		P
	- no cracks, deformation etc.		P
4.13 (12.4)	Thermal test (normal operation)	(see Annex 2)	P
4.13 (12.5)	Thermal test (abnormal operation)	(see Annex 2)	N/A
4.13 (12.6)	Thermal test (failed lamp control gear condition):		N/A
4.13 (12.6.1)	Through wiring or looping-in wiring loaded by a current of (A)		—
	- case of abnormal conditions		—
	- electronic lamp control gear		N/A
	- measured winding temperature (°C): at 1,1 Un		—
	- measured mounting surface temperature (°C) at 1,1 Un		N/A
	- calculated mounting surface temperature (°C)		N/A
	- track-mounted luminaires		N/A
4.13 (12.6.2)	Temperature sensing control		N/A
	- case of abnormal conditions		—
	- thermal link		N/A
	- manual reset cut-out		N/A
	- auto reset cut-out		N/A
	- measured mounting surface temperature (°C)		N/A
	- track-mounted luminaires		N/A
4.13 (12.7)	Thermal test (failed lamp control gear in plastic luminaires):		N/A
4.13 (12.7.1)	Luminaire without temperature sensing control		N/A
4.13 (12.7.1.1)	Luminaire with fluorescent lamp ≤ 70W		N/A
	Test method 12.7.1.1 or Annex W		—
	Test according to 12.7.1.1:		N/A
	- case of abnormal conditions		—
	- Ballast failure at supply voltage (V)		—

	- Components retained in place after the test		N/A
	- Test with standard test finger after the test		N/A
	Test according to Annex W:		N/A
	- case of abnormal conditions		—
	- measured winding temperature (°C): at 1,1 Un		—
	- measured temperature of fixing point/exposed part (°C): at 1,1 Un		—
	- calculated temperature of fixing point/exposed part (°C)		—
	Ball-pressure test	See Test Table 13.15 (13.2.1)	N/A
4.13 (12.7.1.2)	Luminaire with discharge lamp, fluorescent lamp > 70W, transformer > 10 VA		N/A
	- case of abnormal conditions		—
	- measured winding temperature (°C): at 1,1 Un		—
	- measured temperature of fixing point/exposed part (°C): at 1,1 Un		—
	- calculated temperature of fixing point/exposed part (°C)		—
	Ball-pressure test	See Test Table 4.13 (13.2.1)	N/A
4.13 (12.7.1.3)	Luminaire with short circuit proof transformers ≤ 10 VA		N/A
	- case of abnormal conditions		—
	- Components retained in place after the test		N/A
	- Test with standard test finger after the test		N/A
4.13 (12.7.2)	Luminaire with temperature sensing control		N/A
	- thermal link	Yes <input type="checkbox"/> No <input type="checkbox"/>	—
	- manual reset cut-out	Yes <input type="checkbox"/> No <input type="checkbox"/>	—
	- auto reset cut-out	Yes <input type="checkbox"/> No <input type="checkbox"/>	—
	- case of abnormal conditions		—
	- highest measured temperature of fixing point/exposed part (°C):		—
	Ball-pressure test:	See Table 4.15 (13.2.1)	N/A
4.13 (-)	Indoor use luminaire, Test overturned position (overturns < 15°)		N/A
4.14 (9)	RESISTANCE TO DUST AND MOISTURE		P
4.14 (-)	If IP > IP 20 the order of tests as specified in clause 4.12		N/A
4.14 (9.2)	Tests for ingress of dust, solid objects and moisture:		P
	- classification according to IP	IP20	—
	- mounting position during test	In the most unfavourable position of normal use	—

	- fixing screws tightened; torque (Nm)	—
	- tests according to clauses	Cl.9.2.0
	- electric strength test afterwards	P
	a) no deposit in dust-proof luminaire	N/A
	b) no talcum in dust-tight luminaire	N/A
	c) no trace of water on current-carrying parts or on insulation where it could become a hazard	N/A
	c.1) For luminaires without drain holes – no water entry	N/A
	c.2) For luminaires with drain holes – no hazardous water entry	N/A
	d) no water in watertight or pressure watertight luminaire	N/A
	e) no contact with live parts (IP 2X)	P
	e) no entry into enclosure (IP 3X and IP 4X)	N/A
	e) no contact with live parts through drain holes and ventilation slots (IP3X and IP4X)	N/A
	f) no trace of water on part of lamp requiring protection from splashing water	N/A
	g) no damage of protective shield or glass envelope	N/A
4.14 (9.3)	Humidity test 48 h	P
4-14 (-)	Portable luminaire for outdoor use tested in the most unfavourable of the overturned positions likely to occur	P
4.15 (10)	INSULATION RESISTANCE AND ELECTRIC STRENGTH	P
4.15 (10.2.1)	Insulation resistance test	P
	Cable or cord covered by metal foil or replaced by a metal rod of mm Ø	—
	Insulation resistance (MΩ)	>100 MΩ
	SELV	N/A
	- between current-carrying parts of different polarity :	N/A
	- between current-carrying parts and mounting surface	N/A
	- between current-carrying parts and metal parts of the luminaire.....	N/A
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts	N/A
	- Insulation bushings as described in Section 5	N/A
	Other than SELV	P
	- between live parts of different polarity	>100 MΩ
	- between live parts and mounting surface	>100 MΩ

	- between live parts and metal parts	>100 MΩ	P
	- between live parts of different polarity through action of a switch	>100 MΩ	P
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts	>100 MΩ	P
	- Insulation bushings as described in Section 5	>100 MΩ	P
4.15 (10.2.2)	Electric strength test		P
	Dummy lamp		N/A
	Luminaires with ignitors after 24 h test		N/A
	Luminaires with manual ignitors		N/A
	Test voltage (V)		N/A
	SELV		N/A
	- between current-carrying parts of different polarity :		N/A
	- between current-carrying parts and mounting surface		N/A
	- between current-carrying parts and metal parts of the luminaire.....		N/A
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts		N/A
	- Insulation bushings as described in Section 5		N/A
	Other than SELV		P
	- between live parts of different polarity	1480V	P
	- between live parts and mounting surface	2960V	P
	- between live parts and metal parts	2960V	P
	- between live parts of different polarity through action of a switch	1480V	P
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts	2960V	P
	- Insulation bushings as described in Section 5	2960V	P
4.15 (10.3)	Touch current or protective conductor current (mA):	0.01mA <0.7mA	P
4.16 (13)	RESISTANCE TO HEAT, FIRE AND TRACKING		P
4.16 (13.2.1)	Ball-pressure test	See Test Table 4.16 (13.2.1)	P
4.16 (13.3.1)	Needle-flame test (10 s).....	See Test Table 4.16 (13.3.1)	P
4.16 (13.3.2)	Glow-wire test (650°C).....	See Test Table 4.16 (13.3.2)	P
4.16 (13.4)	Proof tracking test (IEC 60112).....	See Test Table 4.16 (13.4)	N/A

4.7 (11.2)	TABLE I: Creepage distances and clearances							P
	Minimum distances (mm) for a.c. up to 30 kHz sinusoidal voltages							P
	Applicable part of IEC 60598-1 Table 11.1A*, 11.1B* and 11.2*							P
	Insulation type **	Measured clearance	Required		Measured creepage	Required		
			clearance	*Table		creepage	*Table	
Distance 1:	B	>3.0	1.5	11.1B	>4.0	2.5	11.1A	
Working voltage (V).....:					250V		—	
PTI.....:					< 600 ☒ ≥ 600 ☐		—	
Pulse voltage if applicable (kV)					N/A		—	
Supplementary information: Between L and N								
Distance 2:	S	>6.0	3.0	11.1B	>8.0	5.0	11.1A	
Working voltage (V).....:							—	
PTI.....:					< 600 ☒ ≥ 600 ☐		—	
Pulse voltage if applicable (kV)					N/A		—	
Supplementary information: Between live part to enclosure								
Distance 3:	-	-	-	-	-	-	-	
Working voltage (V).....:					-		—	
PTI.....:					< 600 ☐ ≥ 600 ☐		—	
Pulse voltage if applicable (kV)					N/A		—	
Supplementary information: Current-carrying parts and mounting surface								
** Insulation type: B – Basic; S – Supplementary; R – Reinforced. See also IEC 60598-1 Annex M.								

4.15a (13.2.1)	TABLE: Ball Pressure Test of Thermoplastics			P
Allowed impression diameter (mm)		<2.0mm		—
Object/ Part No./ Material	Manufacturer/ trademark	Test temperature (°C)	Impression diameter (mm)	
Lampholder fixture	/	75	0.8	
Cord clamp	/	75	0.7	

4.15b (13.3.1)	TABLE: Needle-flame test (IEC 60695-11-5)					P
Object/ Part No./ Material	Manufacturer/ trademark	Duration of application of test flame (ta); (s)	Ignition of specified layer Yes/No	Duration of burning (tb) (s)	Verdict	
Lampholder	See ANNEX 1	10	No	3.2<30	P	
Cord switch	See ANNEX 1	10	No	5.4<30	P	

4.15c (13.3.2)	TABLE: Glow-wire test (IEC 60695-2-11)				P
Glow wire temperature				650°C	—
Object/ Part No./ Material	Manufacturer/ trademark		Ignition of specified layer Yes/No	Duration of burning (tb) (s)	Verdict
Lampholder fixture	/		No	0	P
Cord clamp	/		No	0	P

4.15d (13.4)	TABLE: Proof tracking test (IEC 60112)				N/A
Test voltage PTI				175 V	—
Object/ Part No./ Material	Manufacturer/ trademark	Withstand 50 drops without failure on three places or on three specimens			Verdict
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Supplementary information:					

ANNEX 1		TABLE: Critical components information					P
Object / part No.	Code	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹⁾	
Plug	D	Ningbo Liansheng Wire & Cable Co., Ltd.	LS01	AC250V;2.5A	DIN VDE 0620	VDE 40034285	
	D	Ningbo Liansheng Wire & Cable Co., Ltd.	LS02	AC250V;16A	DIN VDE 0620	VDE 40034270	
	D	Yuyao Senlong Electrical Appliance Co.,Ltd.	SL002	AC250V;16A	DIN VDE 0620-1	VDE 40013342	
	D	Yuyao Senlong Electrical Appliance Co.,Ltd.	SL001	AC250V;2.5A	DIN VDE 0620-1	VDE 40011025	
Power cord	D	Ningbo Liansheng Wire & Cable Co., Ltd.	H03VV-F H03VVH2-F	3G0,5mm ² 3G0,75mm ²	EN 50525-2-21	VDE 40022054	
	D	Yuyao Senlong Electrical Appliance Co.,Ltd	H03VVH2-F H03VV-F	0.75mm ² 0.5mm ²	DIN VDE 0281-5	VDE 40009710	
LED	C	Guangzhou Hongli HL-A-Opto-electronic.,LTD	2835H421W-S1-08-HR3	60Ma	EN 62471	Test with appliance	
PCB	C	Kingboard Laminates Holdings Ltd.	KB-6160	V-0	EN 60335-1 EN 60335-2-45	UL E123995+ Test with	
	C	WENZHOU ZHEN GHAO ELECTRONIC CO.,LTD	KZ	V-0	EN60335-1 EN60335-2-45	UL E309178+ Test with	
	C	GUANGDE YINGFEITE ELECTRONIC CO LTD	YFT2	V-0	EN 60335-1 EN 60335-2-45	UL E466867+test with appliance	
	C	Leuchte Electronics(Zhejiang) Co.,Ltd.	PFR-1	V-0	EN 60335-1 EN 60335-2-45	UL E199273*	
Switch	B	Zhejiang Jialong Electron Co., Ltd.	KCD1	AC250V;10(4)A; 25T105/55;5E4	EN 61058-1	TUV 50533108 0001	
	C	Ningbo Yinxian Lihe Switch Factory	RL3	AC250V;6(2)A; T125;1E4	EN 61058-1	ENEC SE/18031-04	

Internal line	D	Ningbo Haoguang Electric Appliance Co.,Ltd.	H05V-K	1X0,5mm ² 1X0.75mm ²	EN 50525-2-31	VDE 126062
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Supplementary information:

¹⁾ Provided evidence ensures the agreed level of compliance. See OD-CB2039.

The codes above have the following meaning:

- A - The component is replaceable with another one, also certified, with equivalent characteristics
- B - The component is replaceable if authorised by the test house
- C - Integrated component tested together with the appliance
- D - Alternative component

ANNEX 2	TABLE: Temperature measurements, thermal tests of Section 12			P			
	Type reference	:	ZD-123LED	—			
	Lamp used	:	Magnifying Lamp, 10W	—			
	Lamp control gear used	:	No	—			
	Mounting position of luminaire	:	As instruction specified by manufacturer	—			
	Supply Voltage (V)	:	246.0V	—			
	Supply wattage (W)	:	42W	—			
	Temperatures in test 1 - 4 below are corrected for ta (°C)	:	25°C	—			
	- abnormal operating mode	:	N/A	—			
4.12 (12.4)	- test 1: rated voltage	:	N/A	—			
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage	:	42W	—			
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage	:	N/A	—			
	Through wiring or looping-in wiring loaded by a current of A during the test	:	N/A	—			
4.12 (12.5)	Through wiring or looping-in wiring loaded by a current of A during the test	:	N/A	—			
Temperature measurements, (°C)							
Part	Ambient	Clause 12.4 – normal				Clause 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
Supply cord	25	--	52.4	--	75	--	--
Ambient of cord switch	25	--	38.2	--	55	--	--
Lampholder	25	--	92.4	--	210	--	--
Lampholder fixture	25	--	52.6	--	For Ref.	--	--
Cord clamp	25	--	34.5	--	For Ref.	--	--
Mounting surface	25	--	28.8	--	90	--	--

ANNEX 3	Screw terminals (part of the luminaire)		N/A
(14)	SCREW TERMINALS		N/A
(14,2)	Type of terminal		—
	Rated current (A)		—
(14,3,2,1)	One or more conductors		N/A
(14,3,2,2)	Special preparation		N/A
(14,3,2,3)	Terminal size		N/A
	Cross-sectional area (mm ²)		—
(14,3,3)	Conductor space (mm)		N/A
(14,4)	Mechanical tests		N/A
(14,4,1)	Minimum distance		N/A
(14,4,2)	Cannot slip out		N/A
(14,4,3)	Special preparation		N/A
(14,4,4)	Nominal diameter of thread (metric ISO thread)	M	N/A
	External wiring		N/A
	No soft metal		N/A
(14,4,5)	Corrosion		N/A
(14,4,6)	Nominal diameter of thread (mm)		N/A
	Torque (Nm)		N/A
(14,4,7)	Between metal surfaces		N/A
	Lug terminal		N/A
	Mantle terminal		N/A
	Pull test; pull (N)		N/A
(14,4,8)	Without undue damage		N/A

ANNEX 4	Screwless terminals (part of the luminaire)		N/A
(15)	SCREWLESS TERMINALS		N/A
(15,2)	Type of terminal	:	—
	Rated current (A)	:	—
(15,3,1)	Material		N/A
(15,3,2)	Clamping		N/A
(15,3,3)	Stop		N/A
(15,3,4)	Unprepared conductors		N/A
(15,3,5)	Pressure on insulating material		N/A
(15,3,6)	Clear connection method		N/A
(15,3,7)	Clamping independently		N/A
(15,3,8)	Fixed in position		N/A
(15,3,10)	Conductor size		N/A
	Type of conductor		N/A
(15,5)	Terminals and connections for internal wiring		N/A
(15,5,1)	Mechanical tests		N/A
(15,5,1,1,1)	Pull test spring-type terminals (4 N, 4 samples)	:	N/A
(15,5,1,1,2)	Pull test pin or tab terminals (4 N, 4 samples)	:	N/A
	Insertion force not exceeding 50 N		N/A
(15,5,1,2)	Permanent connections: pull-off test (20 N)		N/A
(15,5,2)	Electrical tests		N/A
	Voltage drop (mV) after 1 h (4 samples)	:	N/A
	Voltage drop of two inseparable joints		N/A
	Number of cycles:		—
	Voltage drop (mV) after 10th alt, 25th cycle (4 samples)	:	N/A
	Voltage drop (mV) after 50th alt, 100th cycle (4 samples)	:	N/A
	After ageing, voltage drop (mV) after 10th alt, 25th cycle (4 samples)	:	N/A
	After ageing, voltage drop (mV) after 50th alt, 100th cycle (4 samples)	:	N/A
(15,6)	Terminals and connections for external wiring		N/A
(15,6,1)	Conductors		N/A
	Terminal size and rating		N/A
15,6,2	Mechanical tests		N/A
(15,6,2,1)	Pull test spring-type terminals or welded connections (4 samples); pull (N)	:	N/A

(15,6,2,2)	Pull test pin or tab terminals (4 samples); pull (N)		N/A
(15,6,3)	Electrical tests		N/A
	Tests according 15,6,3,1 + 15,6,3,2 in IEC 60598-1		N/A

(15,6,3,1) (15,6,3,2)	TABLE: Contact resistance test / Heating tests										N/A
	Voltage drop (mV) after 1 h										—
terminal	1	2	3	4	5	6	7	8	9	10	
voltage drop (mV)	--	--	--	--	--	--	--	--	--	--	
	Voltage drop of two inseparable joints										N/A
	Voltage drop after 10th alt, 25th cycle										N/A
	Max, allowed voltage drop (mV)										—
terminal	1	2	3	4	5	6	7	8	9	10	
voltage drop (mV)	--	--	--	--	--	--	--	--	--	--	
	Voltage drop after 50th alt, 100th cycle										N/A
	Max, allowed voltage drop (mV)										—
terminal	1	2	3	4	5	6	7	8	9	10	
voltage drop (mV)	--	--	--	--	--	--	--	--	--	--	
	Continued ageing: voltage drop after 10th alt, 25th cycle										N/A
	Max, allowed voltage drop (mV)										—
terminal	1	2	3	4	5	6	7	8	9	10	
voltage drop (mV)	--	--	--	--	--	--	--	--	--	--	
	Continued ageing: voltage drop after 50th alt, 100th cycle										N/A
	Max, allowed voltage drop (mV)										—
terminal	1	2	3	4	5	6	7	8	9	10	
voltage drop (mV)	--	--	--	--	--	--	--	--	--	--	
	--	--	--	--	--	--	--	--	--	--	
Supplementary information: N/A											

ATTACHMENT A - EN 60598-2-4

Clause	Requirement + Test	Result - Remark	Verdict
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ATTACHMENT TO TEST REPORT

IEC 60598-2-4

EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES

Luminaires

Part 2: Particular requirements

Section 4: Portable general purpose luminaires

Differences according to : EN 60598-2-4:2018 used in conjunction with
EN IEC 60598-1:2021 + A11:2022

CENELEC COMMON MODIFICATIONS (EN)

P

4.6 (3)	MARKING	P
(3.2.12)	Delete the note 4	P

4.7 (4)	CONSTRUCTION	P
4.7 (4.11.6)	Electro-mechanical contact systems: electric strength test at 1 500 V	N/A

4.11 (5)	EXTERNAL AND INTERNAL WIRING	P
4.11 (5.2.2)	Cables equal to EN 50525	P
4.11 (5.2.2)	Delete paragraph 2	P
	Replace table 5.1 – Supply cord	P
4.11.4 (-)	For class I and class II portable luminaires for outdoor use, non-detachable flexible cables or cords not lighter than type H05RN-F	N/A

4.13 (12)	ENDURANCE TESTS AND THERMAL TESTS	P
4.13 (12.4.2c)	Thermal test (normal operation) see footnote c to table 12.2 relating to unsleeved fixed wiring	N/A

ZB	ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)	P
(3.3)	DK: power supply cords of class I luminaires with label	N/A
(5.2.18)	DK: socket-outlets	N/A
(5.2.1)	CY, DK, FI, GB: type of plug	N/A

ATTACHMENT A - EN 60598-2-4

Clause	Requirement + Test	Result - Remark	Verdict
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4.4.4 (-)	DK: luminaires for outdoor use classified as class II or class III		N/A
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ZC	ANNEX ZC, NATIONAL DEVIATIONS (EN)		P
(4 & 5)	FR: Shuttered socket-outlets 10/16A		N/A
	FR: Safety requirements for high buildings (Arrêté du 30 décembre 2011 portant règlement de sécurité pour la construction des immeubles de grande hauteur et leur protection contre les risques d'incendie et de panique; Section VIII; Article GH 48, Eclairage) Glow-wire test for outer parts of luminaires:		N/A
	- 850°C for luminaires in stairways and horizontal travel paths		N/A
	- 650°C for indoor luminaires		N/A
	GB: Requirements according to United Kingdom Building Regulation		P

ATTACHMENT A - EN 62493:2015+A1:2022

Clause	Requirement + Test	Result - Remark	Verdict
3	LIMITS		P
3.1	General		P
	Devices must either be inherently compliant in 4.2.2 or comply with Van der Hoofden test limit in 4.2.3 and pass assessment procedure for intentional radiators in 4.3		P
4.2	Unintentional radiating part of lighting equipment		P
4.2.2	Lighting equipment deemed to comply with the Van der Hoofden test without testing		P
	Lighting equipment is deemed to comply with the requirements of this standard without testing if it fulfils one of the following inherent-compliance conditions:		
	1) electronic controlgear	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
	2) incandescent-lamp technology	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
	3) LED-light-source technology	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	—
	4) OLED-light-source technology	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
	5) high-pressure discharge lamp LED-light-source technologies	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
	6) low-pressure discharge lamp technologies with exposure distance ≥ 50 cm	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
	7) independent auxiliary	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
	Not fulfil any of 1-7 above subject to 4.2.3		—
4.2.3	Applications of limits		N/A
	Lighting equipment does not inherently comply with the Van der Hoofden test without testing but the compliance factor $F \leq 1$		N/A

ATTACHMENT B - EN IEC 62031:2020+A11:2021

Clause	Requirement + Test	Result - Remark	Verdict
4	GENERAL REQUIREMENTS		P
4.4	Integral modules tested assembled in the luminaire		P
4.5	Independent modules complies with requirements in IEC 60598-1		N/A
5	GENERAL TEST REQUIREMENTS		P
5.5	SELV-operated LED modules comply with Annex I of IEC 61347-2-13	(see Annex 1)	N/A
	General conditions for tests in Annex A	(see Annex A)	N/A
6	CLASSIFICATION		P
	Built-in module	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
	Independent module	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
	Integral module	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	—
	For Integral module; Note to 1.2.1 in IEC 60598-1 applies.	Tested conjunction with IEC 60598-1 and IEC 60598-2-4	—
7	MARKING	No requirement for integral module	N/A
8	TERMINALS	Approved screwless connecting device used	N/A
9 (9)	PROVISION FOR PROTECTIVE EARTHING		N/A
10 (10)	PROTECTION AGAINST ACCIDENTAL CONTACT WITH LIVE PARTS	See test report of IEC 60598-1 and IEC 60598-2-4	P
11 (11)	MOISTURE RESISTANCE AND INSULATION	See test report of IEC 60598-1 and IEC 60598-2-4	P
12 (12)	ELECTRIC STRENGTH		P
13 (14)	FAULT CONDITIONS		P
- (14)	When operated under fault conditions the controlgear:		P
	- does not emit flames or molten material		P
	- does not produce flammable gases		P
	- protection against accidental contact not impaired		P

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ATTACHMENT B - EN IEC 62031:2020+A11:2021

Clause	Requirement + Test	Result - Remark	Verdict
	Thermally protected controlgear does not exceed the marked temperature value		N/A
	Fault conditions: capacitors, resistors or inductors without proof of compliance with relevant specifications have been short-circuited or disconnected	(see appended table)	P
- (14.1)	Short-circuit of creepage distances and clearances if less than specified in clause 16 in Part 1 (except between live parts and accessible metal parts)	(see appended table)	N/A
	Creepage distances on printed boards less than specified in clause 16 in Part 1 provided with coating according to IEC 60664-3		N/A
- (14.2)	Short-circuit or interruption of semiconductor devices	(see appended table)	P
- (14.3)	Short-circuit across insulation consisting of lacquer, enamel or textile	(see appended table)	N/A
- (14.4)	Short-circuit across electrolytic capacitors	(see appended table)	P
- (14.5)	After the tests has been carried out on three samples:		P
	The insulation resistance $\geq 1 \text{ M}\Omega$	>100 M Ω	P
	No flammable gases		P
	No accessible parts have become live		P
	During the tests, a five-layer tissue paper, where the test specimen is wrapped, does not ignite		P
- (14.6)	Relevant fault condition tests with high-power supply		N/A
13.2	Overpower condition		P
	Module withstands overpower condition >15 min.		P
	Module with automatic protective device or power limiter, test performed 15 min. at limit.		N/A
	No fire, smoke or flammable gas is produced		P
	Molten material does not ignite tissue paper, spread below the module		P

15	CONSTRUCTION		P
	Wood, cotton, silk, paper and similar fibrous material not used as insulation		P

16 (16)	CREEPAGE DISTANCES AND CLEARANCES		P
- (16)	Creepage and distances and clearances in compliance with IEC 61347-1	(see appended table)	P
	Insulating lining of metallic enclosures		N/A

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ATTACHMENT B - EN IEC 62031:2020+A11:2021			
Clause	Requirement + Test	Result - Remark	Verdict
	Basic insulation on printed boards tested according to clause 14		P
	Distances subjected to both sinusoidal voltage as non-sinusoidal pulses not less than value in Table 16		P
	Creepage distances not less than minimum clearance		P
16 (-)	Conductive accessible parts in compliance with applicable parts of IEC 60598-1		N/A
17 (17)	SCREWS, CURRENT-CARRYING PARTS AND CONNECTIONS		N/A
18 (18)	RESISTANCE TO HEAT, FIRE AND TRACKING	See test report of IEC 60598-1 and IEC 60598-2-4	P
19 (19)	RESISTANCE TO CORROSION		N/A
20	INFORMATION FOR LUMINAIRE DESIGN		N/A
	Information in Annex D (informative)		—
21	HEAT MANAGEMENT		N/A
21.1	General		N/A
	Exchangeability is safeguarded by cap or base		N/A
21.2	Heat-conducting foil and paste		N/A
	Heat-conducting foil delivered with the module if necessary		N/A
22	PHOTOBIOLOGICAL SAFETY		P
22.1	UV radiation		N/A
	Luminous radiation not exceed 2mW/klm		N/A
22.2	Blue light hazard		P
	Assessed according to IEC TR 62778		P
22.3	Infrared radiation		N/A
	Requirements for infrared radiation when required		N/A
A	ANNEX A - TESTS		N/A
	All tests performed in accordance with the advice given in Annex H of IEC 61347-1, if applicable		N/A

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ATTACHMENT B - EN IEC 62031:2020+A11:2021

Clause	Requirement + Test	Result - Remark	Verdict
13 (14)	TABLE: tests of fault conditions		P
Part	Simulated fault		Hazard
1 pcs LED	SC, some LEDs went out, recoverable, no hazards.		NO

16 (16)	TABLES: Creepage distances and clearances See test report of IEC 60598-1 and IEC 60598-2-4	P
Table 3	Minimum distances (mm) for a.c. (50/60 Hz) sinusoidal voltages	P

RMS working voltage (V) not exceeding	50	150	250	500	750	1000
Creepage distances						
Required basic insulation, PTI ≥ 600	0,6	0,8	1,5	3	4	5,5
Measured	-	-	-	-	-	-
Required basic insulation, PTI < 600	1,2	1,6	2,5	5	8	10
Measured	-	-	-	-	-	-
Required supplementary insulation PTI ≥ 600	-	0,8	1,5	3	4	5,5
Measured	-	-	-	-	-	-
Required supplementary insulation PTI < 600	-	1,6	2,5	5	8	10
Measured	-	-	-	-	-	-
Required reinforced insulation	-	3,2	5	6	8	11
Measured	-	-	-	-	-	-
Clearances						
Required basic insulation	0,2	0,8	1,5	3	4	5,5
Measured	-	-	-	-	-	-
Required supplementary insulation	-	0,8	1,5	3	4	5,5
Measured	-	-	-	-	-	-
Required reinforced insulation	-	1,6	3	6	8	11
Measured	-	-	-	-	-	-
Table 4	Minimum distances (mm) for non-sinusoidal pulse voltages					N/A

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ATTACHMENT B - EN IEC 62031:2020+A11:2021

Clause	Requirement + Test			Result - Remark			Verdict
Rated pulse voltage (peak kV)	2,0	2,5	3,0	4,0	5,0	6,0	8,0
Required clearances	1,0	1,5	2	3	4	5,5	8
Measured	-	-	-	-	-	-	-
Rated pulse voltage (peak kV)	10	12	15	20	25	30	40
Required clearances	11	14	18	25	33	40	60
Measured	-	-	-	-	-	-	-
Rated pulse voltage (peak kV)	50	60	80	100	-	-	-
Required clearances	75	90	130	170	-	-	-
Measured	-	-	-	-	-	-	-

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EN 61347-2-13:2014+A1:2017			
Clause	Requirement + Test	Result - Remark	Verdict
4 (4)	GENERAL REQUIREMENTS		P
- (4)	Insulation materials for double or reinforced insulation according requirements in Annex N of IEC 61347-1	(see Annex N)	P
- (4)	Compliance of independent controlgear enclosure with IEC 60 598-1		N/A
- (4)	Built-in electronic controlgear with double or reinforced insulation comply with Annex O of IEC 61347-1	(see Annex O)	P
4 (4)	SELV controlgear comply with Annex I of this part 2 and Annex L of IEC 61347-1	(see Annex L)	P
4 (-)	Transformer comply with IEC 61558		P
	Dielectric strength test of insulated winding wires is limited to 3 kV if input voltage ≤ 300 V	Triple insulated winding wire: 3000Vac.	P

6 (6)	CLASSIFICATION		P
	Built-in controlgear	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
	Independent controlgear	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
	Integral controlgear	Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/>	—
6 (-)	Auto-wound controlgear	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	—
	Separating controlgear	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
	Isolating controlgear	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
	SELV controlgear	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—

7 (7)	MARKING		N/A
7.1 (7.1)	Mandatory markings		N/A
	a) mark of origin	Integral controlgear, no marking	N/A
	b) model number or type reference		N/A
	c) symbol for independent controlgear, if applicable		N/A
	d) correlation between interchangeable parts and controlgear marked		N/A
	e) rated supply voltage (V)		N/A
	supply frequency (Hz)		N/A
	supply current (A)		N/A
	f) earthing symbol		N/A
	k) wiring diagram		N/A

EN 61347-2-13:2014+A1:2017			
Clause	Requirement + Test	Result - Remark	Verdict
	l) value of t_c		N/A
	m) symbol for declared temperature		N/A
	t) LUM earthing symbol		N/A
	u) if not SELV maximum working voltage U_{out} between:		N/A
	- output terminals (V)		N/A
	- output terminals and earth (V)		N/A
7.1 (-)	Constant voltage type:	Yes <input type="checkbox"/> No <input type="checkbox"/>	—
	- rated output power P_{rated} (W)		N/A
	- rated output voltage U_{rated} (V)		N/A
	Constant current type:	Yes <input type="checkbox"/> No <input type="checkbox"/>	—
	- rated output power P_{rated} (W)		N/A
	- rated output current I_{rated} (A)		N/A
	Indication if for LED modules only		N/A
7.1 (7.2)	Marking durable and legible		N/A
	Rubbing 15 s water, 15 s petroleum; marking legible		N/A
7.2 (7.1)	Information to be provided, if applicable		N/A
	h) declaration of protection against accidental contact		N/A
	i) cross-section of conductors (mm ²)		N/A
	j) number, type and wattage of lamp(s)		N/A
	s) SELV symbol		N/A
7.2 (-)	- declaration of mains connected windings		N/A

8 (10)	PROTECTION AGAINST ACCIDENTAL CONTACT WITH LIVE PARTS		P
- (10.1)	Controlgear protected against accidental contact with live parts		P
- (A2)	Voltage measured with 50 k Ω	(see Annex A)	P
- (A3)	Voltage > 35 V peak or > 60 V d.c. or protective impedance device	(see Annex A)	P
- (10.1)	Lacquer or enamel not used for protection or insulation		P
	Adequate mechanical strength on parts providing protection		P
- (10.2)	Capacitors > 0,5 μ F: voltage after 1 min (V): < 50 V	Measured <2V	P
- (10.3)	Controlgear providing SELV		P

EN 61347-2-13:2014+A1:2017			
Clause	Requirement + Test	Result - Remark	Verdict
	Accessible conductive parts are insulated from live parts by double or reinforced insulation in SELV controlgear		P
	No connection between output circuit and the body or protective earthing circuit		P
	No possibility of connection between output circuit and the body or protective earthing circuit through other conductive parts		P
	SELV outputs separated by at least basic insulation		P
	ELV conductive parts insulated as live parts		N/A
	Tests according Annex L of IEC 61347-1	(see Annex L)	P
- (10.4)	Accessible conductive parts in SELV circuits		N/A
	Output voltage under load ≤ 25 V r.m.s. or ≤ 60 V d.c.		N/A
	If output voltage > 25 V r.m.s. or > 60 V d.c.; No load output ≤ 35 V peak or ≤ 60 V d.c and touch current does not exceed 0,7 mA (peak) or 2 mA d.c. :		N/A
	One conductive part is insulated if output voltage or current exceeding the values above and withstand test voltage 500 V		N/A
	Double or reinforced insulation bridged by appropriate and at least two resistors or two Y2 capacitors or one Y1 capacitor		N/A
	Y1 or Y2 capacitors comply with IEC 60384-14		N/A
	Resistors comply with test (a) in 14.1 of IEC 60065		N/A

9 (8)	TERMINALS		N/A
- (8.1)	Integral terminals		N/A
	Screw terminals according section 14 of IEC 60598-1:		N/A
	Separately approved; component list	(see Annex 1)	N/A
	Part of the controlgear	(see Annex 2)	N/A
	Screwless terminals according section 15 of IEC 60598-1:		N/A
	Separately approved; component list	(see Annex 1)	N/A
	Part of the controlgear	(see Annex 3)	N/A
- (8.2)	Terminals other than integral terminals		N/A
	Comply with relevant IEC standard	(see Annex 1)	N/A
	Suit the conditions		N/A

EN 61347-2-13:2014+A1:2017			
Clause	Requirement + Test	Result - Remark	Verdict
	Satisfy additional relevant requirements of this standard		N/A
10 (9)	PROVISION FOR PROTECTIVE EARTHING		N/A
- (9.1)	Provisions for protective earthing		N/A
	Terminal complying with clause 8		N/A
	Locked against loosening and not possible to loosen by hand		N/A
	Not possible to loosen clamping means unintentionally on screwless terminals		N/A
	All parts of material minimizing the danger of electrolytic corrosion		N/A
	Made of brass or equivalent material		N/A
	Contact surface bare metal		N/A
	Test according 7.2.3 of IEC 60598-1		N/A
- (9.2)	Provision for functional earthing		N/A
	Comply with clause 8 and 9.1		N/A
	Functional earth insulated from live parts by double or reinforced insulation		N/A
- (9.3)	Lamp controlgear with conductors for protective earthing by tracks on printed circuit board		N/A
	Test with a current of 25 A between earthing terminal or earthing contact and each of the accessible metal parts; measured resistance (Ω) at ≥ 10 A according 7.2.3 of IEC 60598-1: $< 0,5 \Omega$		N/A
- (9.4)	Earthing of built-in lamp controlgear		N/A
	Earth by means of fixing to earthed metal of luminaire in compliance of 7.2 of IEC 60598-1		N/A
	Earthing terminal only for earthing the built-in controlgear		N/A
- (9.5)	Earthing via independent controlgear		N/A
- (9.5.1)	Earth connection to other equipment		N/A
	Looping or through connection, conductor min. 1,5 mm ² and of copper or equivalent		N/A
	Protective earthing wires in line with 5.3.1.1 and clause 7 of IEC 60598-1		N/A
- (9.5.2)	Earthing of the lamp compartments powered via the independent lamp controlgear		N/A

EN 61347-2-13:2014+A1:2017

Clause	Requirement + Test	Result - Remark	Verdict
	Test with a current of 25 A between input and output earth terminals; measured resistance (Ω) between earthing terminal or earthing contact and each of the accessible metal parts at ≥ 10 A according 7.2.3 of IEC 60598-1: $< 0,5 \Omega$		N/A
	Output earthing terminal marked as in 7.1 t) of IEC 61347-1		N/A

11 (11)	MOISTURE RESISTANCE AND INSULATION		P
- (11)	After storage 48 h at 91-95% relative humidity and 20-30 °C measuring of insulation resistance:		P
	For basic insulation $\geq 2 \text{ M}\Omega$	$>100 \text{ M}\Omega$: (Between L and N)	P
	For double or reinforced insulation $\geq 4 \text{ M}\Omega$	$>100 \text{ M}\Omega$ (Between output and input)	P
	Between primary and secondary circuits in controlgear providing SELV, values in Annex L in IEC 61347-1		N/A

12 (12)	ELECTRIC STRENGTH		P
- (12)	Immediately after clause 11 electric strength test for 1 min		P
	Basic insulation for SELV, test voltage 500 V		N/A
	Working voltage ≤ 50 V, test voltage 500 V		N/A
	Working voltage $> 50 \text{ V} \leq 1000 \text{ V}$, test voltage (V):		P
	Basic insulation, 2U + 1000 V	1480V (Between L and N)	P
	Supplementary insulation, 2U + 1000 V		N/A
	Double or reinforced insulation, 4U + 2000 V	2960V (Between output and input)	P
	No flashover or breakdown		P
	Solid or thin sheet insulation for double or reinforced insulation fulfil the requirements in Annex N in IEC 61347-1		P

14 (14)	FAULT CONDITIONS		P
- (14.1)	When operated under fault conditions the controlgear:		P
	- does not emit flames or molten material		P
	- does not produce flammable gases		P

EN 61347-2-13:2014+A1:2017			
Clause	Requirement + Test	Result - Remark	Verdict
	- protection against accidental contact not impaired		P
	Thermally protected controlgear does not exceed the marked temperature value		N/A
	Fault conditions: capacitors, resistors or inductors without proof of compliance with relevant specifications have been short-circuited or disconnected	(see appended table)	P
- (14.2)	Short-circuit of creepage distances and clearances if less than specified in clause 16 in Part 1 (after any reduction in 14.2 - 14.5)	(see appended table)	N/A
- (14.3)	Short-circuit or interruption of semiconductor devices	(see appended table)	P
- (14.4)	Short-circuit across insulation consisting of lacquer, enamel or textile	(see appended table)	N/A
- (14.5)	Short-circuit across electrolytic capacitors	(see appended table)	P
	Short-circuit or interruption of SPDs	(see appended table)	N/A
14 (-)	Reversed voltage polarity if d.c. supplied control gear	(see appended table)	N/A
- (14.6)	After the tests has been carried out on three samples:		N/A
	The insulation resistance $\geq 1 \text{ M}\Omega$		N/A
	No flammable gases		N/A
	No accessible parts have become live		N/A
	During the tests, a five-layer tissue paper, where the test specimen is wrapped, does not ignite		N/A
- (14.7)	Relevant fault condition tests with high-power a.c. supply and in turn to a d.c. supply		—
14 (-)	Temperature declared thermally protected lamp controlgear fulfil requirements in Annex C		N/A

15 (-)	TRANSFORMER HEATING		P
15.1	General		P
	Transformer comply with clause L.6 and L.7 of IEC 61347-1		P
	Output voltage of SELV controlgear not exceed limits in 10.4 of IEC 61347-1 during the test of 15.1 and 15.2		P
15.2 (-)	Normal operation		P
	Comply with clause L.6 of IEC 61347-1		P
15.3 (-)	Abnormal operation		P

EN 61347-2-13:2014+A1:2017			
Clause	Requirement + Test	Result - Remark	Verdict
	Comply with clause L.7 of IEC 61347-1		P
	Double LED modules or equivalent load connected in parallel to the output terminals of constant voltage type		N/A
	Double LED modules or equivalent load connected in serial to the output terminals of constant current type		P
15 (-)	During and at the end of the tests no defect impairing safety, nor any smoke or flammable gases produced		P

16 (15)	CONSTRUCTION		P
- (15.1)	Wood, cotton, silk, paper and similar fibrous material		P
	Wood, cotton, silk, paper and similar fibrous material not used as insulation		P
- (15.2)	Printed circuits		P
	Printed circuits used as internal connections complies with clause 14		P
- (15.3)	Plugs and socket-outlets used in SELV or ELV circuits		N/A
	No dangerous compatibility between output socket-outlet and a plug for socket-outlets for input circuit in relation to installation rules, voltages and frequencies		N/A
	Plugs and socket-outlets for SELV comply with IEC 60906-3 and IEC 60884-2-4		N/A
	Plugs and socket-outlets for SELV $\leq 3 \text{ A}$, $\leq 25 \text{ V r.m.s.}$ or $\leq 60 \text{ V d.c.}$ and $\leq 72 \text{ W}$ comply with IEC 60906-3 and IEC 60884-2-4 or:		N/A
	- plugs not able to enter socket-outlets of other standardised system		N/A
	- socket-outlets not admit plugs of other standardised system		N/A
	- socket-outlets without protective earth		N/A
- (15.4)	Insulation between circuits and accessible parts		P
- (15.4.2)	SELV circuits		N/A
	Source used to supply SELV circuits:		N/A
	- safety isolating transformer in accordance with relevant part 2 of IEC 61558		N/A
	- controlgear providing SELV in accordance with relevant part 2 of IEC 61347		N/A
	- another source		N/A
	Voltage in the circuit not higher than ELV		N/A

EN 61347-2-13:2014+A1:2017			
Clause	Requirement + Test	Result - Remark	Verdict
	SELV circuits insulated from LV by double or reinforced insulation		N/A
	SELV circuits insulated from non SELV circuits by double or reinforced insulation		N/A
	SELV circuits insulated from FELV circuits by supplementary insulation		N/A
	SELV circuits insulated from other SELV circuits by basic insulation		N/A
	SELV circuits insulated from accessible conductive parts according Table 6 in 15.4.5		N/A
- (15.4.3)	FELV circuits		N/A
	Source used to supply FELV circuits:		N/A
	- separating transformer in accordance with relevant part 2 of IEC 61558		N/A
	- separating controlgear providing basic insulation between input and output circuits in accordance with relevant part 2 of IEC 61347		N/A
	- another source		N/A
	- source in circuits separated by the LV supply by basic insulation		N/A
	Voltage in the circuit not higher than ELV		N/A
	FELV circuits insulated from LV supply by at least basic insulation		N/A
	FELV circuits insulated from other FELV circuits if functional purpose		N/A
	FELV circuits insulated from accessible conductive parts according Table 6 in 15.4.5		N/A
	Plugs and socket-outlets for FELV system comply with:		N/A
	- plugs not able to enter socket-outlets of other voltage systems		N/A
	- socket-outlets not admit plugs of other voltage systems		N/A
	- socket-outlets have a protective conductor contact		N/A
- (15.4.4)	Other circuits		P
	Insulation between circuits other than SELV or FELV and accessible conductive parts in according Table 6 in 15.4.5.		P
- (15.4.5)	Insulation between circuits and accessible conductive parts		P
	Accessible conductive parts insulated from active parts of electric circuits by insulating according Table 6		P

EN 61347-2-13:2014+A1:2017			
Clause	Requirement + Test	Result - Remark	Verdict
	Requirements for Class II construction with equipotential bonding for protection against indirect contact with live parts:		N/A
	- all conductive parts are connected together		N/A
	- conductive parts are reliably connected together according test of IEC 60598-1 cl. 7.2.3		N/A
	- conductive parts comply with requirements of Annex A in case of insulation fault		N/A
17 (16)	CREEPAGE DISTANCES AND CLEARANCES		P
- (16.1)	General		P
	Creepage distances and clearances according to 16.2 and 16.3		P
	Controlgears providing SELV comply with additional requirements in Annex L		N/A
	Insulating lining of metallic enclosures		N/A
	Controlgear protected against pollution comply with Annex P	(see Annex P)	N/A
- (16.2)	Creepage distances		P
- (16.2.2)	Minimum creepage distances for working voltages		P
	Creepage distances according to Table 7	(see appended table)	P
- (16.2.3)	Creepage distances for working voltages with frequencies above 30 kHz		N/A
	Creepage distances according to Table 8	(see appended table)	N/A
- (16.3)	Clearances		P
- (16.3.2)	Clearances for working voltages		P
	Clearances distances according to Table 9	(see appended table)	P
- (16.3.3)	Clearances for ignition voltages and working voltages with higher frequencies		N/A
	Clearances distances for basic or supplementary insulation according to Table 10	(see appended table)	N/A
	Clearances distances for reinforced insulation according to Table 11	(see appended table)	N/A
18 (17)	SCREWS, CURRENT-CARRYING PARTS AND CONNECTIONS		P
	Screws, current-carrying parts and connections in compliance with IEC 60598-1 (clause numbers between parentheses refer to IEC 60598-1)		P
(4.11)	Electrical connections		P
(4.11.1)	Contact pressure		P
(4.11.2)	Screws:		N/A
	- self-tapping screws		N/A

EN 61347-2-13:2014+A1:2017			
Clause	Requirement + Test	Result - Remark	Verdict
	- thread-cutting screws		N/A
(4.11.3)	Screw locking:		N/A
	- spring washer		N/A
	- rivets		N/A
(4.11.4)	Material of current-carrying parts		N/A
(4.11.5)	No contact to wood or mounting surface		N/A
(4.11.6)	Electro-mechanical contact systems		N/A
(4.12)	Mechanical connections and glands		N/A
(4.12.1)	Screws not made of soft metal		N/A
	Screws of insulating material		N/A
	Torque test: torque (Nm); part		N/A
	Torque test: torque (Nm); part		N/A
	Torque test: torque (Nm); part		N/A
(4.12.2)	Screws with diameter < 3 mm screwed into metal		N/A
(4.12.4)	Locked connections:		N/A
	- fixed arms; torque (Nm)		N/A
	- lampholder; torque (Nm)		N/A
	- push-button switches; torque 0,8 Nm		N/A
(4.12.5)	Screwed glands; force (Nm)		N/A
19 (18)	RESISTANCE TO HEAT, FIRE AND TRACKING		P
- (18.1)	Ball-pressure test	See Test Table 19 (18.1)	P
- (18.2)	Test of printed boards	See Test Table 19 (18.2)	N/A
- (18.3)	Glow-wire test	See Test Table 19 (18.3)	P
- (18.4)	Needle flame test	See Test Table 19 (18.4)	P
- (18.5)	Tracking test	See Test Table 19 (18.5)	N/A
20 (19)	RESISTANCE TO CORROSION		N/A
	- test according 4.18.1 of IEC 60598-1		N/A
	- adequate varnish on the outer surface		N/A
21 (-)	MAXIMUM WORKING VOLTAGE (U_{out}) IN ANY LOAD CONDITION		N/A
	Not exceed declared maximum working voltage U_{out} in any load condition		N/A

EN 61347-2-13:2014+A1:2017

Clause	Requirement + Test	Result - Remark	Verdict
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14	TABLE: tests of fault conditions		P
Part	Simulated fault		Hazard
C1	SC: fuse open, no risk		NO
C2	SC: fuse open, no risk		NO
BD1	SC: fuse open, no risk		NO
D1	SC: normal operation		NO
D2	SC: normal operation		NO
Output terminal	SC: unit shutdown, not work, recoverable		NO

PHOTO DOCUMENTATION

Photo 1

Model: ZD-123LED

Description: Overall view



Photo 2

Model: ZD-123LED

Description: Overall view



PHOTO DOCUMENTATION

Photo 3

Model: ZD-123LED

Description: Overall view



Photo 4

Model: ZD-123LED

Description: Internal view

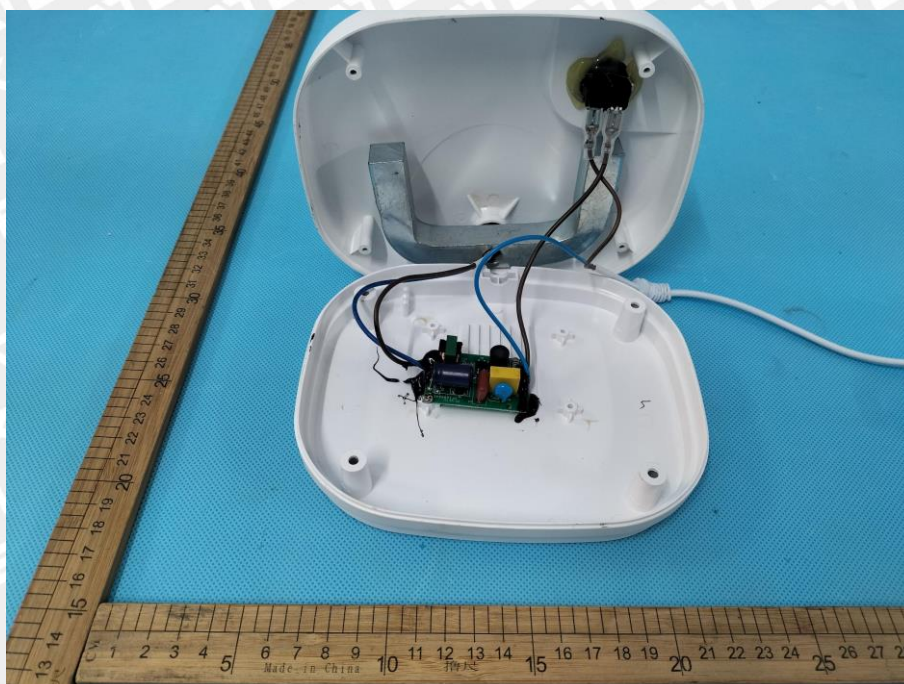


PHOTO DOCUMENTATION

Photo 5

Model: ZD-123LED

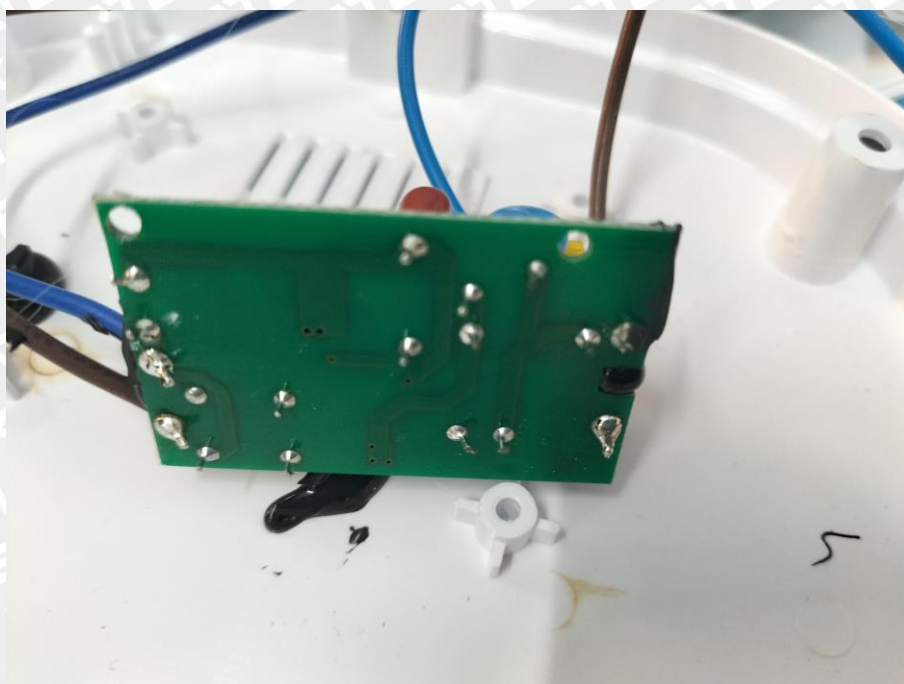
Description: Internal view



Photo 6

Model: ZD-123LED

Description: Internal view



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