

TEST REPORT

Product Name : LED table lamp
Model Number : See below model list

Prepared for : Power beauty (Dong guan) Industrial Co., Ltd.
Address : N o.1, Eastern Industry Park, Shujiu Village, Changping Town, Dongguan City, China

Prepared by : EMTEK(DONGGUAN) CO., LTD.
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Report Number : ED210111036L
Date(s) of Tests : January 05, 2021 to January 18, 2021
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TEST REPORT

EN 60598-2-4

Part 2: Particular requirements:

Section Four – Portable general purpose luminaires

Report reference No.: ED210111036L

Tested by: Coral Chen

Approved by: Eddie Yang

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Contents: 58 pages



Testing laboratory

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Testing location: Same as above

Client

Applicant name: Power beauty (Dong guan) Industrial Co., Ltd.

Address: No.1, Eastern Industry Park, Shujiu Village, Changping Town, Dongguan City, China

Manufacturer name: Power beauty (Dong guan) Industrial Co., Ltd.

Address: No.1, Eastern Industry Park, Shujiu Village, Changping Town, Dongguan City, China

Factory name: Power beauty (Dong guan) Industrial Co., Ltd.

Address: No.1, Eastern Industry Park, Shujiu Village, Changping Town, Dongguan City, China

Test specification

Standard: EN 60598-1:2015+A1:2018; EN 60598-2-4:2018

Test procedure: Safety

Procedure deviation: N/A

Non-standard test method: N/A

Test item

Product name: LED table lamp

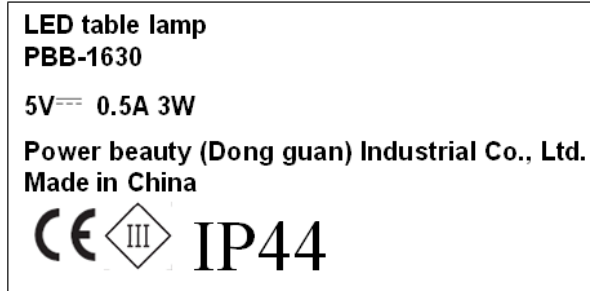
Trademark: N/A

Model and/or type reference: See below model list

Rating(s): 5VDC, 0.5A, 3W, Class III, IP44

Test item particulars : See "General product information" Classification of installation and use : Class III; portable use Supply Connection : Appliance inlets :
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)
Testing Date of receipt of test item : January 05, 2021 Date (s) of performance of tests : January 05, 2021 to January 18, 2021
General remarks: The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory. "(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 ☐ comma / ☒ point is used as the decimal separator. Clause numbers between brackets refer to clauses in IEC 60598-1.
Summary of testing: 1. Unless otherwise specified, full tests was performed on the model PBB-1630, and the tests results complied with the requirements of the standards mentioned above. 2. Constructions checked have been done. 3. Attachment No. 1: National differences. 4. Attachment No. 2: EN 62031:2008+A1:2013+A2:2015 was considered. 5. Attachment No. 3: IEC TR 62778:2014 was considered, ☒ RG0 ☐ RG1 ☐ RG2. 6. Only the most unfavorable results are recorded in this report.

Copy of marking plate:



Sticking on the luminaire enclosure

Remark:

The marking label for the other models are identical as above, expect the model name.

Note:

1. The height of graphical symbols shall not be less than 5 mm.
2. The height of letters and numerals either shown separately or with or as part of symbols shall not be less than 2 mm.
3. The height of WEEE symbols shall not be less than 7 mm.
4. According to the EU directives which have been aligned with EU NLF (new legislative framework), both of manufacturer and importer's name and address shall be affixed on the product or, where that is not possible, on its packaging or in a document accompanying the product before the product is placed on the EU market.

General product information:

1. LED portable luminaires, class III, supplied via appliance inlets, ta: 25°C, IP44; suitable for direct mounting on normally flammable surface.
2. They are same, only difference is appearance.

Model list

Product Name	Model name	Description
LED table lamp	PBB-1630, PBB-1420, PBB-1220, PBB-1220-1, PBB-1220-2, PBB-1826, PBB-1626-1, PBB-1626-2, PBB-150, PBB-1115-1, PBB-1115-2, PBB-1115-3, PBB-1421, PBB-1626, PBB-1526, PBB-3141, PBB-2223, PBB-2036, PBB-3430, PBB-2080, PBB-2050, PBB-1620, PBB-1626, PBB-1427, PBB-150, PBB-200, PBB-250, PBB-300, PBB-400, PBB-500, PBB-600, PBB-1809, PBB-5040, PBG-1824, PBS-2024, PBG-1615, PBG-1615S, PBS-4050, PBS-4080, PBS-40120, PBS-40150, PBS-3050, PBS-3480, PBS-34120, PBS-34150, PBS-3430, PBS-130, PBS-150, PBS-200, PBS-250, PBS-300, PBS-350, PBS-400, PBS-2062, PBB-1625, PBB-1825, PBS-2031, PBS-2045, PBS-2030FLAT, PBS-2030BALL, PBG-1626, PBG-1026, PBG-1022, PBG-1023, PBG-1024, PBG-1034, PBG-1005, PBG-1002, PBG-3455, PBG-1006, PBG-1007, PBG-4536, PBG-3390, PBG-4328, PBG-9000, PBG-3782, PBG-5054, PBG-6268, PBG-3432, PBG-3560, PBG-2645, PBG-5811, PBG-8517	They are same, only difference is appearance

EN 60598-2-4			
Clause	Requirement + Test	Result - Remark	Verdict
4.4 (0)	GENERAL TEST REQUIREMENTS		P
4.4 (0.3)	More sections applicable : Section/s:	Yes ☐ No ☒	—
4.4 (0.7)	Information for luminaire design in light sources standards		—
4.4 (0.7.2)	Light source safety standard : Luminaire design in the light source safety standard	EN 62031; IEC TR 62778	— P
4.5 (2)	CLASSIFICATION OF LUMINAIRES		P
4.5 (2.2)	Type of protection :	Class III	P
4.5 (2.3)	Degree of protection :	IP20	P
4.5 (2.5)	Luminaire for normal use :	Yes ☒ No ☐	—
	Luminaire for rough service :	Yes ☐ No ☒	—
4.5.1 (-)	Ordinary luminaire..... :	Yes ☒ No ☐	—
4.5.2 (-)	Portable luminaire for outdoor use..... :	Yes ☐ No ☒	—
	Classified IPX4 or higher		N/A
4.5.3 (2.4)	Luminaire suitable for direct mounting on normally flammable surfaces..... :	Yes ☒ No ☐	—
4.6 (3)	MARKING		P
4.6 (3.2)	Mandatory markings		P
	Position of the marking	Enclosure	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		N/A
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		N/A
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

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Clause	Requirement + Test	Result - Remark	Verdict
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		N/A
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		P
	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		N/A
	Required symbol		N/A
	Information in the instructions		N/A
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		N/A
4.7 (4.3)	Wireways smooth and free from sharp edges		P
4.7 (4.4)	Lampholders		N/A
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

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Clause	Requirement + Test	Result - Remark	Verdict
4.7 (4.4.4)	Positioning		N/A
	- pressure test (N)		—
	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		N/A
	- bending test (N)		—
	After test the lampholder have not moved from its position and show no permanent deformation		N/A
4.7 (4.4.5)	Peak pulse voltage		N/A
4.7 (4.4.6)	Centre contact		N/A
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		N/A
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		P
4.7 (4.7.1)	Contact to metal parts		P
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		P
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

EN 60598-2-4			
Clause	Requirement + Test	Result - Remark	Verdict
4.7 (4.7.4)	Terminals other than supply connection		P
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		N/A
	- compliance with IEC 61058-1 for electronic switches		N/A
4.7 (4.9)	Insulating lining and sleeves		N/A
4.7 (4.9.1)	Retainment		N/A
	Method of fixing.....:		N/A
4.7 (4.9.2)	Insulated linings and sleeves:		N/A
	Resistant to a temperature > 20 °C to the wire temperature or		N/A
	a) & c) Insulation resistance and electric strength		N/A
	b) Ageing test. Temperature (°C).....:		N/A
4.7 (4.10)	Double or reinforced insulation		N/A
4.7 (4.10.1)	No contact, mounting surface – accessible metal parts – wiring of basic insulation		N/A
	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:		N/A
	- fixed		N/A
	- unable to be replaced; luminaire inoperative		N/A
	- sleeves retained in position		N/A
	- lining in lampholder		N/A
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

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Clause	Requirement + Test	Result - Remark	Verdict
	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:		N/A
	- self-tapping screws		N/A
	- 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	Screw for fixing LED PCB: 2,4mm, 0,4Nm	P
	Torque test: torque (Nm); part	Screw for fixing LED cover: 2,61mm, 0,4Nm	P
	Torque test: torque (Nm); part	Screw for fixing supply PCB: 2,33mm, 0,4Nm	P
4.7 (4.12.2)	Screws with diameter < 3 mm screwed into metal		N/A
4.7 (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
4.7 (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)	All external parts, 0.5Nm	P
	1) live parts		P
	2) linings		N/A
	3) protection		P
	4) covers		P

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Clause	Requirement + Test	Result - Remark	Verdict
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)		—
	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 4.15 (13.3.2)	P
	- spacing ≥30 mm		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- 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)		N/A
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		N/A
4.7 (4.18.1)	- rust-resistance		N/A
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

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Clause	Requirement + Test	Result - Remark	Verdict
	Glow-wire test on lamp compartment	See Test Table 4.15 (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		P
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		P
	Class of risk group assessed according to IEC/TR 62778	RG0	—
	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

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Clause	Requirement + Test	Result - Remark	Verdict
	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 (°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		P
	Not possible to replace light source		P
	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		P
	Circuits insulated from LV supply fulfil requirements according 4.31.1 – 4.31.3		P
	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		P
	Used SELV source		P
	Voltage ≤ ELV		P
	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		P
	SELV circuits insulated from accessible parts according Table X.1		P
	Plugs not able to enter socket-outlets of other voltage systems		P
	Socket outlets does not admit plugs of other voltage systems		N/A

EN 60598-2-4			
Clause	Requirement + Test	Result - Remark	Verdict
	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		N/A
4.7.3 (-)	Luminaire not overturn at angle 6°		P
	Outdoor use luminaire not overturn at an angle 15°		P

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Clause	Requirement + Test	Result - Remark	Verdict
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 DC 12V input, no value is required		N/A
	Impulse withstand category (Normal category II) (Category III Annex U, Table U.1)	Category II ☒ Category III ☐	—
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	N/A
	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) II	N/A
4.7 (11.2.3)	Clearances for frequency up to 30 kHz	See Test Table 4.7 (11.2) I	N/A
	Clearances distances for frequency over 30 kHz:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

	- 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 $< 0,5 \Omega$		N/A
	Self-tapping screws used		N/A
	Thread-forming screws		N/A
	Thread-forming screw used in a groove		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

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Clause	Requirement + Test	Result - Remark	Verdict
	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.....:	Appliance inlets	P
	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	(see Annex 1)	N/A
	Nominal cross-sectional area (mm ²).....:	(see Annex 1)	N/A
	Cables equal to IEC 60227 or IEC 60245		N/A
4.11 (5.2.3)	Type of attachment, X, Y or Z.....:		N/A
4.11 (5.2.5)	Type Z not connected to screws		N/A
4.11 (5.2.6)	Cable entries:		N/A
	- suitable for introduction		N/A
	- adequate degree of protection		N/A
4.11 (5.2.7)	Cable entries through rigid material have rounded edges		N/A
4.11 (5.2.8)	Insulating bushings:		N/A
	- suitably fixed		N/A
	- material in bushings		N/A
	- material not likely to deteriorate		N/A
	- tubes or guards made of insulating material		N/A
4.11 (5.2.9)	Locking of screwed bushings		N/A
4.11 (5.2.10)	Cord anchorage:		N/A
	- covering protected from abrasion		N/A
	- clear how to be effective		N/A
	- no mechanical or thermal stress		N/A
	- no tying of cables into knots etc.		N/A
	- insulating material or lining		N/A
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

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Clause	Requirement + Test	Result - Remark	Verdict
	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		N/A
4.11 (5.2.10.3)	Tests:		N/A
	- impossible to push cable; unsafe		N/A
	- pull test: 25 times; pull (N)		N/A
	- torque test: torque (Nm)		N/A
	- displacement ≤ 2 mm		N/A
	- no movement of conductors		N/A
	- no damage of cable or cord		N/A
	- function independent of electrical connection		N/A
4.11 (5.2.11)	External wiring passing into luminaire		N/A
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		N/A
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		N/A
	- IEC 60083		N/A
	- 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		N/A
	- not delivered/ mounting instruction		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- factory assembled		N/A
	- socket outlet loaded (A)		N/A
	- temperatures.....	(see Annex 2)	N/A
	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		P
	Cross-sectional area (mm ²)	(see Annex 1)	P
4.11 (5.3.1.3)	Double or reinforced insulation for class II		N/A
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		N/A
	Telescopic tubes etc.		N/A
	No twisting over 360°		P
4.11 (5.3.3)	Insulating bushings:		N/A
	- suitable fixed		N/A
	- material in bushings		N/A
	- material not likely to deteriorate		N/A
	- cables with protective sheath		N/A
4.11 (5.3.4)	Joints and junctions effectively insulated		N/A
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

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Clause	Requirement + Test	Result - Remark	Verdict
	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		N/A
	Lamp and starter holders in portable and adjustable luminaires comply with double or reinforced insulation requirements		N/A
	Basic insulation only accessible under lamp or starter replacement		N/A
	Protection in any position		P
	Double-ended tungsten filament lamp		N/A
	Insulation lacquer not reliable		P
	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:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- basic insulated metal parts not accessible during starter or lamp replacement		N/A
	- basic insulation not accessible other than during starter or lamp replacement		N/A
	- 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	<0,1 μ F	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	—

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Clause	Requirement + Test	Result - Remark	Verdict
4.13 (12.2)	Selection of lamps and ballasts		—
	Lamp used according Annex B.....:	See Annex 2 for lamp used	—
	Controlgear if separate and not supplied.....:	See Annex 2 for controlgear used	—
4.13 (12.3)	Endurance test:		P
	a) mounting-position	As normal use	—
	b) test temperature (°C)	35	—
	c) total duration (h)	240	—
	d) supply voltage (V)	--	—
	d) if not equipped with controlgear, constant voltage/current (V) or (A)	5.5VDC	—
	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

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Clause	Requirement + Test	Result - Remark	Verdict
	- 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 Table 4.15 (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 Table 4.15 (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

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Clause	Requirement + Test	Result - Remark	Verdict
4.13 (12.7.2)	Luminaire with temperature sensing control		N/A
	- thermal link	Yes ☐ No ☐	—
	- manual reset cut-out.....	Yes ☐ No ☐	—
	- auto reset cut-out.....	Yes ☐ No ☐	—
	- 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°)	(see Annex 2)	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		P
4.14 (9.2)	Tests for ingress of dust, solid objects and moisture:		P
	- classification according to IP	IP44	—
	- mounting position during test.....	As normal use	—
	- fixing screws tightened; torque (Nm)	--	—
	- tests according to clauses	Clause 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		P
	c.1) For luminaires without drain holes – no water entry		P
	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)		N/A
	e) no entry into enclosure (IP 3X and IP 4X)		P
	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		P
	g) no damage of protective shield or glass envelope		N/A
4.14 (9.3)	Humidity test 48 h	25°C, 93%RH	P

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Clause	Requirement + Test	Result - Remark	Verdict
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)		—
	SELV		P
	- between current-carrying parts of different polarity :		N/A
	- between current-carrying parts and mounting surface	>100MΩ	P
	- between current-carrying parts and metal parts of the luminaire	>100MΩ	P
	- 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		N/A
	- between live parts of different polarity		N/A
	- between live parts and mounting surface		N/A
	- between live parts and metal parts		N/A
	- between live parts of different polarity through action of a switch		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
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)		P
	SELV		P
	- between current-carrying parts of different polarity :		N/A
	- between current-carrying parts and mounting surface	500V	P
	- between current-carrying parts and metal parts of the luminaire	500V	P

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Clause	Requirement + Test	Result - Remark	Verdict
	- 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		N/A
	- between live parts of different polarity		N/A
	- between live parts and mounting surface		N/A
	- between live parts and metal parts		N/A
	- between live parts of different polarity through action of a switch		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
4.15 (10.3)	Touch current or protective conductor current (mA):		N/A
4.16 (13)	RESISTANCE TO HEAT, FIRE AND TRACKING		P
4.16 (13.2.1)	Ball-pressure test	See Test Table 4.15 (13.2.1)	P
4.16 (13.3.1)	Needle-flame test (10 s)	See Test Table 4.15 (13.3.1)	P
4.16 (13.3.2)	Glow-wire test (650°C)	See Test Table 4.15 (13.3.2)	P
4.16 (13.4)	Proof tracking test (IEC 60112)	See Test Table 4.15 (13.4)	N/A

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Clause	Requirement + Test				Result - Remark		Verdict
4.7 (11.2)	TABLE I: Creepage distances and clearances						N/A
	Minimum distances (mm) for a.c. up to 30 kHz sinusoidal voltages						
	Applicable part of IEC 60598-1 Table 11.1A*, 11.1B* and 11.2*						
	Insulation type **	Measured clearance	Required		Measured creepage	Required	
			clearance	*Table		creepage	*Table
Distance 1:	B	--	--	--	--	--	--
Working voltage (V).....:					MAX.5Vdc		—
PTI.....:					< 600 ☒ ≥ 600 ☐		—
Pulse voltage if applicable (kV)					--		—
Supplementary information:							
1) Live parts and accessible parts.							
2) Live parts and mounted surface.							
** Insulation type: B – Basic; S – Supplementary; R – Reinforced. See also IEC 60598-1 Annex M.							

4.7 (11.2)	TABLE II: Creepage distances and clearances						N/A	
Minimum distances (mm) for a.c. higher than 30 kHz sinusoidal voltages								
Applicable part of IEC 61347-1 Table 7 and 8* or IEC 60664-4 Table 1 and 2								
Distances	Insulation type **	Measured clearance	Required		Measured creepage	Required		
			clearance	*Table		creepage	*Table	
Distance 1:								
Working voltage (V).....:							—	
Frequency if applicable (kHz)							—	
PTI.....:					< 600 ☐ ≥ 600 ☐		—	
Peak value of the working voltage $\hat{U}_{out}$ if applicable (kV)							—	
Supplementary information:								
Distance 2:								
Working voltage (V).....:							—	
Frequency if applicable (kHz)							—	
PTI.....:					< 600 ☐ ≥ 600 ☐		—	
Peak value of the working voltage $\hat{U}_{out}$ if applicable (kV)							—	
Supplementary information:								
Distance 3:								
Working voltage (V).....:							—	
Frequency if applicable (kHz)							—	

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Clause	Requirement + Test	Result - Remark	Verdict
PTI.....:		< 600 ☐ ≥ 600 ☐	—
Peak value of the working voltage $\hat{U}_{out}$ if applicable (kV)			—
Supplementary information: ** 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)	2mm			—
Object/ Part No./ Material	Manufacturer/ trademark	Test temperature (°C)	Impression diameter (mm)	
LED cover	See Annex 1	75	1.1	
Enclosure	See Annex 1	75	0.8	
Supply PCB	See Annex 1	125	0.5	
Supplementary information:				

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
DC terminal	See Annex 1	10	No	4	P
Supply PCB	See Annex 1	10	No	0	P
Switch	See Annex 1	10	No	3	P
Supplementary information:					

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
LED cover	See Annex 1	No	0	P
Enclosure	See Annex 1	No	0	P
Supplementary information:				

EN 60598-2-4						
Clause	Requirement + Test				Result - Remark	Verdict
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
Supplementary information:						

EN 60598-2-4			
Clause	Requirement + Test	Result - Remark	Verdict

ANNEX 1 TABLE: Critical components information						P
Object / part No.	Code	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹⁾
PCB for supply	B	DONGGUAN HUATUO ELECTRONIC CO LTD	YK-04	V-0, 130°C	--	UL E347659
Lead wire for supply	B	DONGGUAN JIALIAN WIRE & CABLE CO LTD	1007	Min.24AWG, 80°C, 300Vac	UL758	UL E500185
DC terminal	C	LIANHE	XH2.54	PA66	EN 60598-1, EN 60598-2-4	Tested with appliance
LED PCB	B	DONGGUAN HUATUO ELECTRONIC CO LTD	YK-03	V-0, 130°C	--	UL E347659
LED(RGB)	C	Shenzhen BYT Opto-electronic Co., Ltd.	5050RGB-S9	Vf=2,0-3,4V; If=20mA	IEC TR 62778	Tested with appliance
LED(warm white)	C	Shenzhen Best LED Opto-electronic co.,Ltd	2835WW-29K30L3W	Vf=2,8-3,4V, If=60mA	IEC TR 62778	Tested with appliance
Lead wire for switch	B	DONGGUAN JIALIAN WIRE & CABLE CO LTD	1007	Min.24AWG, 80°C, 300Vac	UL758	UL E500185
Switch	C	DONGGUAN CITY FENGTONG PLASTICS CO., LTD	SN1	PBT	EN 60598-1, EN 60598-2-4	Tested with appliance
Lead wire for battery	B	DONGGUAN JIALIAN WIRE & CABLE CO LTD	1007	Min.24AWG, 80°C, 300Vac	UL758	UL E500185
Battery	B	Dongguan Zhechang Industry co., Ltd	18650 3.7V 2200MAH	18650 3.7V 2200MAH	IEC 62133-2	TUV SUD 68.282 .18.0453.01
Plastic enclosure	C	FORMOSA CHEMICALS & FIBRE CORP PLAS TICS DIV	AG15A1-H	ABS, HB	EN 60598-1, EN 60598-2-4	Tested with appliance + UL E162823
LED cover	C	CHI MEI CORPORATION	PA-758	ABS, HB	EN 60598-1, EN 60598-2-4	Tested with appliance + UL E56070

EN 60598-2-4			
Clause	Requirement + Test	Result - Remark	Verdict

Lampshade	C	THAI POLYETHYLENE CO LTD	M735(X)	Polyethylene (PE), HB	EN 60598-1, EN 60598-2-4	Tested with appliance + UL E202743
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Supplementary information:

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



EN 60598-2-4			
Clause	Requirement + Test	Result - Remark	Verdict

ANNEX 2	TABLE: Temperature measurements, thermal tests of Section 12		P
	Type reference	PBB-1630	—
	Lamp used	LED	—
	Lamp control gear used	--	—
	Mounting position of luminaire	As normal use	—
	Supply wattage (W).....	3.03	—
	Supply current (A)	0.55	—
	Calculated power factor	--	—
	Temperatures in test 1 - 4 below are corrected for ta (°C)	25.0	—
	- abnormal operating mode.....	--	—
4.12 (12.4)	- test 1: rated voltage	--	—
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage.....	a)5.5VDC for charge; b)Discharge	—
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage	--	—
	Through wiring or looping-in wiring loaded by a current of A during the test	--	—
4.12 (12.5)	Through wiring or looping-in wiring loaded by a current of A during the test	--	—

Temperature measurements, (°C)

Part	Ambient	Clause 12.4 – normal					Clause 12.5 – abnormal	
		test 1	test 2		test 3	limit	test 4	limit
			a)	b)				
Supply PCB	25.0	--	36.8	34.9	--	Ref.	--	--
Lead wire for supply PCB	25.0	--	32.7	31.8	--	80	--	--
DC terminal	25.0	--	40.9	35.1	--	Ref.	--	--
LED PCB	25.0	--	53.6	43.2	--	Ref.	--	--
C5	25.0	--	37.3	35.2	--	105	--	--
C2	25.0	--	36.9	35.0	--	105	--	--
Lead wire for switch	25.0	--	30.6	29.8	--	80	--	--
Switch	25.0	--	29.6	26.2	--	55	--	--
Lead wire for battery	25.0	--	32.2	32.7	--	80	--	--
Battery surface	25.0	--	29.9	32.3	--	55	--	--

EN 60598-2-4								
Clause	Requirement + Test					Result - Remark		Verdict
Enclosure inside	25.0	--	31.2	31.6	--	Ref.	--	--
Cover inside	25.0	--	35.6	36.3	--	Ref.	--	--
Light object 10cm	25.0	--	26.8	26.9	--	90	--	--
Mounting surface	25.0	--	25.3	25.3	--	90	--	--
Supplementary information:								



EN 60598-2-4			
Clause	Requirement + Test	Result - Remark	Verdict

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

EN 60598-2-4			
Clause	Requirement + Test	Result - Remark	Verdict
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

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Clause	Requirement + Test	Result - Remark	Verdict
(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										
	Voltage drop after 10th alt. 25th cycle										
	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										
	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										
	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										
	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										
	Max. allowed voltage drop (mV).....:										—
terminal	1	2	3	4	5	6	7	8	9	10	
voltage drop (mV)											
Supplementary information:											

Attachment No. 1

EUROPEAN GROUP DIFFERENCES			
Clause	Requirement + Test	Result - Remark	Verdict

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 60598-1:2015 + A1:2018			
Annex Form No.: EU_GD_IEC60598_2_4G			
Annex Form Originator: IMQ S.p.A.			
Master Annex Form: 2018-07-10			
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	CENELEC COMMON MODIFICATIONS (EN)	P
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4.5 (3)	MARKING	P
4.5 (3.3.101)	For luminaires not supplied with terminal block: Adequate warning on the package	N/A

4.6 (4)	CONSTRUCTION	P
4.6 (4.11.6)	Electro-mechanical contact systems	N/A

4.10 (5)	EXTERNAL AND INTERNAL WIRING	P
4.10 (5.2.1)	Connecting leads	N/A
	- without a means for connection to the supply	N/A
	- terminal block specified	N/A
	- relevant information provided	N/A
	- compliance with 4.6, 4.7.1, 4.7.2, 4.10.1, 11.2, 12 and 13.2 of Part 1	N/A
4.10 (5.2.2)	Cables equal to EN 50525	N/A
	Replace table 5.1 – Supply cord	N/A

4.12 (12)	ENDURANCE TESTS AND THERMAL TESTS	P
4.12 (12.4.2c)	Thermal test (normal operation) see footnote c to table 12.2 relating to unsleeved fixed wiring	P

Attachment No. 1

EUROPEAN GROUP DIFFERENCES			
Clause	Requirement + Test	Result - Remark	Verdict

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

ZC	ANNEX ZC, NATIONAL DEVIATIONS (EN)		N/A
(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
(13.3)	GB: Requirements according to United Kingdom Building Regulation		N/A

Attachment No. 2

EN 62031			
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 ☐ No ☒	—
	Independent module	Yes ☐ No ☒	—
	Integral module	Yes ☒ No ☐	—
	For Integral module; Note to 1.2.1 in IEC 60598-1 applies.		—
7	MARKING		N/A
7.1	Mandatory markings for built-in or independent modules		N/A
	a) mark of origin		N/A
	b) model number, type reference		N/A
	c1) constant voltage module; rated supply voltage and supply frequency		N/A
	c2) constant current module; rated supply current and supply frequency		N/A
	d) nominal power		N/A
	e) indication of connections, wiring diagram		N/A
	f) value of t_c and place on the module		N/A
	g) E_{thr} if required		N/A
	h) symbol for built-in modules		N/A
	i) heat transfer temperature t_d		N/A
	j) power for heat-conduction P_d		N/A
	k) working voltage for insulation		N/A
7.2	Location of marking		N/A
	- marking of a), b), c) and f) on the modules		N/A

Attachment No. 2

EN 62031			
Clause	Requirement + Test	Result - Remark	Verdict
	- marking of d), e), g), h), i) and j) on the modules or data sheet		N/A
	- marking of k) in manufactures literature		N/A
	- integral modules a) to g) in literature		N/A
7.3	Durable and legibility of marking		N/A
	- marking of a), b), c) and f) legible after test with water		N/A
	- marking of d) to j) inspection of compliance		N/A

8	TERMINALS		N/A
	Screw terminals according section 14 of IEC 60598-1:		N/A
	Separately approved; component list	(see Annex 2)	N/A
	Part of the luminaire	(see Annex 3)	N/A
	Screwless terminals according section 15 of IEC 60598-1:		N/A
	Separately approved; component list	(see Annex 2)	N/A
	Part of the luminaire	(see Annex 4)	N/A
	Connectors according IEC 60838-2-2:		N/A
	Separately approved; component list	(see Annex 2)	N/A

9 (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
	Earthing via means of fixing		N/A
	Earthing terminal only used for the earthing of the control gear		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
- (9.2)	Provision for functional earthing		N/A
	Comply with clause 8 and 9.1		N/A
- (9.3)	Earth contact via the track on the printed board		N/A

Attachment No. 2

EN 62031			
Clause	Requirement + Test	Result - Remark	Verdict
	Test with a current of 25 A between earthing terminal 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		N/A
- (9.5.2)	Earthing of the lamp compartments powered via the independent lamp controlgear		N/A
	Test with a current of 25 A between input and output earth terminals; measured resistance (Ω) between earthing terminal 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

10 (10)	PROTECTION AGAINST ACCIDENTAL CONTACT WITH LIVE PARTS		P
- (10.1)	Controlgear protected against accidental contact with live parts	Input: 5VDC	P
- (A2)	The current flowing between the part concerned and earth is measured and does not exceed 0,7 mA (peak) or 2 mA d.c.		N/A
- (A2)	For frequencies above 1 kHz, the current does not exceed 0,7 mA (peak) multiplied by the value of the frequency in kilohertz or 70 mA (peak)		N/A
- (A3)	The voltage between the part concerned and any accessible part is measured and does not exceed 34 V (peak)		N/A
- (10.1)	Lacquer or enamel not used for protection or insulation		N/A
	Adequate mechanical strength on parts providing protection		N/A
- (10.2)	Capacitors $> 0,5 \mu\text{F}$: voltage after 1 min (V): < 50 V		N/A

Attachment No. 2

EN 62031			
Clause	Requirement + Test	Result - Remark	Verdict
- (10.3)	Controlgear providing SELV		N/A
	Accessible conductive parts are insulated from live parts by double or reinforced insulation in SELV controlgear		N/A
	No connection between output circuit and the body or protective earthing circuit		N/A
	No possibility of connection between output circuit and the body or protective earthing circuit through other conductive parts		N/A
	SELV outputs separated by at least basic insulation		N/A
	ELV conductive parts insulated as live parts		N/A
	Tests according Annex L of IEC 61347-1		N/A
- (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

11 (11)	MOISTURE RESISTANCE AND INSULATION		P
	After storage 48 h at 91-95% relative humidity and 20-30 °C measuring of insulation resistance with d.c. 500 V (M Ω):		P
	For basic insulation ≥ 2 M Ω :	between live parts of different polarity; between live parts of luminares enclosure: > 100 M Ω	P
	For double or reinforced insulation ≥ 4 M Ω :		N/A
	Between primary and secondary circuits in controlgear providing SELV, values in Annex L in IEC 61347-1		N/A

Attachment No. 2

EN 62031			
Clause	Requirement + Test	Result - Remark	Verdict

12 (12)	ELECTRIC STRENGTH		P
	Immediately after clause 11 electric strength test for 1 min		P
	Basic insulation for SELV, test voltage 500 V	between live parts of different polarity; between live parts of luminaires enclosure:500V	P
	Working voltage ≤ 50 V, test voltage 500 V		N/A
	Working voltage > 50 V ≤ 1000 V, test voltage (V):		N/A
	Basic insulation, $2U + 1000$ V		N/A
	Supplementary insulation, $2U + 1000$ V		N/A
	Double or reinforced insulation, $4U + 2000$ V		N/A
	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		N/A

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		N/A
	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 ≥ 1 M Ω	$>100\text{M}\Omega$	P
	No flammable gases		P

Attachment No. 2

EN 62031			
Clause	Requirement + Test	Result - Remark	Verdict

	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		P
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.		P
	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		N/A
- (16)	Creepage and distances and clearances in compliance with IEC 61347-1	(see appended table)	N/A
	Insulating lining of metallic enclosures		N/A
	Basic insulation on printed boards tested according to clause 14		N/A
	Distances subjected to both sinusoidal voltage as non-sinusoidal pulses not less than value in Table 16		N/A
	Creepage distances not less than minimum clearance		N/A
16 (-)	Conductive accessible parts in compliance with applicable parts of IEC 60598-1		N/A

17 (17)	SCREWS, CURRENT-CARRYING PARTS AND CONNECTIONS		P
	Cl. 17 refer to Cl. 17 of IEC 61347-1 which refer to Cl. 4.11 and 4.12 of IEC 60598-1 (clause numbers between parentheses refer to IEC 60598-1)		—
(4.11)	Electrical connections		P
(4.11.1)	Contact pressure		P
(4.11.2)	Screws:		N/A
	- self-tapping screws		N/A
	- thread-cutting screws		N/A
(4.11.3)	Screw locking:		N/A

Attachment No. 2

EN 62031			
Clause	Requirement + Test	Result - Remark	Verdict

	- spring washer		N/A
	- rivets		N/A
(4.11.4)	Material of current-carrying parts		P
(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

18 (18)	RESISTANCE TO HEAT, FIRE AND TRACKING		P
- (18.1)	Ball-pressure test :	See Test Table 18 (18.1)	P
- (18.2)	Test of printed boards :	See Test Table 18 (18.2) UL file	N/A
- (18.3)	Glow-wire test (650°C) :	See Test Table 18 (18.3)	N/A
- (18.4)	Needle-flame test (10 s) :	See Test Table 18 (18.4)	P
- (18.5)	Proof tracking test :	See Test Table 18 (18.5)	N/A

19 (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

20	INFORMATION FOR LUMINAIRE DESIGN		N/A
	Information in Annex D (informative)		—

21	HEAT MANAGEMENT		N/A
21.1	General		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	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		P
	Luminous radiation not exceed 2mW/klm	See EN62471 report	P
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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EN 62031			
Clause	Requirement + Test	Result - Remark	Verdict

13 (14)	TABLE: tests of fault conditions	P
Part	Simulated fault	Hazard
C2	Short circuit, 5Vdc, Unit shut down, recoverable, no damaged.	NO
C5	Short circuit, 5Vdc, Unit shut down, recoverable, no damaged.	NO
Q1(G-S)	Short circuit, 5Vdc, Unit shut down, recoverable, no damaged.	NO
Q1(G-D)	Short circuit, 5Vdc, 0.55A, 2.75W, working normal.	NO

16 (16)		TABLE: clearance and creepage distance measurements (mm)						N/A	
Applicable part of IEC 61347-1 Table 7 – 11*									
Distances	Insulation type **	Measured clearance	Required		Measured creepage	Required			
			clearance	*Table		creepage	*Table		
Distance 1:									
Working voltage (V)					5VDC			—	
Frequency if applicable (kHz)								—	
PTI					< 600 ☐ ≥ 600 ☐			—	
Peak value of the working voltage $\hat{U}_{out}$ if applicable (kV)								—	
Pulse voltage if applicable (kV)								—	
Supplementary information:									
Distance 2:									
Working voltage (V)								—	
Frequency if applicable (kHz)								—	
PTI					< 600 ☐ ≥ 600 ☐			—	
Peak value of the working voltage $\hat{U}_{out}$ if applicable (kV)								—	
Pulse voltage if applicable (kV)								—	
Supplementary information:									
Distance 3:									
Working voltage (V)								—	
Frequency if applicable (kHz)								—	
PTI					< 600 ☐ ≥ 600 ☐			—	
Peak value of the working voltage $\hat{U}_{out}$ if applicable (kV)								—	
Pulse voltage if applicable (kV)								—	
Supplementary information:									

** Insulation type: B – Basic; S – Supplementary; R – Reinforced

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Clause	Requirement + Test	Result - Remark	Verdict

18 (18.1)	TABLE: Ball Pressure Test of Thermoplastics			P
Allowed impression diameter (mm) :				—
Object/ Part No./ Material	Manufacturer/ trademark	Test temperature (°C)	Impression diameter (mm)	
LED PCB	See annex 1	125	0.4	
Supplementary information:				

18 (18.2)	TABLE: Test of printed boards				N/A
Object/ Part No./ Material	Manufacturer/ trademark	Duration of application of test flame (s)	Ignition of specified layer Yes/No	Duration of burning (s)	Verdict
Supplementary information:					

18 (18.3)	TABLE: Glow-wire test				N/A
Glow wire temperature				650°C	—
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
Any flame or glowing of the sample extinguished within 30 s of withdrawing the glow-wire, and any burning or molten drop did not ignite the underlying parts (Yes/No)					
Supplementary information:					

18 (18.4)	TABLE: Needle-flame test				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
LED PCB	See annex 1	10	No	0	P

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Clause	Requirement + Test	Result - Remark	Verdict

Supplementary information:

18 (18.5)	TABLE: Proof tracking test			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
Supplementary information:				

ANNEX 1	SELV-operated LED modules			N/A
	Cl. 5.5 refer to ANNEX I of IEC 61347-2-13 which refer to ANNEX L of IEC 61347-1 (clause numbers between parentheses refer to ANNEX L of IEC 61347-1)			—
(L.3)	Classification			N/A
	Class I	Yes ☐	No ☐	—
	Class II	Yes ☐	No ☐	—
	Class III	Yes ☐	No ☐	—
	non-inherently short circuit proof controlgear	Yes ☐	No ☐	—
	inherently short circuit proof controlgear	Yes ☐	No ☐	—
	fail safe controlgear	Yes ☐	No ☐	—
	non-short-circuit proof controlgear	Yes ☐	No ☐	—
(L.4)	Marking			N/A
	Adequate symbols are used			N/A
(L.5)	Protection against electric shock			N/A
	Comply with 9.2 of IEC 61558-1			N/A
(L.6)	Heating			N/A
	No excessive temperatures in normal use			N/A
	Value if capacitor tc marked			—
	Winding insulation classified as Class			—
	Comply with tests of clause 14 of IEC 61558-1 with adjustments			N/A
(L.7)	Short-circuit and overload protection			N/A
	Comply with tests of clause 15 of IEC 61558-1 with adjustments			N/A
(L.8)	Insulation resistance and electric strength			N/A

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Clause	Requirement + Test	Result - Remark	Verdict
(L.8.1)	Conditioned 48 h between 91 % and 95 %		N/A
(L.8.2)	Insulation resistance		N/A
	Between input- and output circuits not less than 5 MΩ :		N/A
	Between metal parts of class II convertors which are separated from live parts by basic insulation only and the body not less than 5 MΩ :		N/A
	Between metal foil in contact with the inner and outer surfaces of enclosures of insulating material not less than 2 MΩ :		N/A
(L.8.3)	Electric strength		N/A
	1) Between live parts of input circuits and live parts of output circuits :		N/A
	2) Over basic or supplementary insulation between:		N/A
	a) live parts having different polarity :		N/A
	b) live parts and body if intended to be connected to protective earth :		N/A
	c) accessible metal parts and a metal rod of the same diameter as the flexible cable or cord :		N/A
	d) live parts and an intermediate metal part :		N/A
	e) intermediate metal parts and the body :		N/A
	f) each input circuit and all other input circuits :		N/A
	3) Over reinforced insulation between the body and live parts :		N/A
(L.9)	Construction		N/A
(L.9.1)	Transformer comply with 19.12 of IEC 61558-1 and 19 of IEC 61558-2-6		N/A
	HF transformer comply with 19 of IEC 61558-2-16		N/A
(L.10)	Components		N/A
	Protective devices comply with 20.6 – 20.11 of IEC 61558-1		N/A
(L.11)	Creepage distances, clearances and distances through insulation		N/A
	Creepage distances and clearances not less than in Clause 16		N/A
	Distance through insulation according Table L.5 in IEC 61347-1		N/A
	1) Basic distance through insulation		N/A
	Required distance (mm) :		—
	Measured (mm) :		N/A
	Supplementary information		—

Attachment No. 2

EN 62031			
Clause	Requirement + Test	Result - Remark	Verdict
	2) Supplementary distance through insulation		N/A
	Required distance (mm)		—
	Measured (mm)		N/A
	Supplementary information		—
	3) Reinforced distance through insulation		N/A
	Required distance (mm)		—
	Measured (mm)		N/A
	Supplementary information		—



Attachment No. 3

IEC TR 62778					
Clause	Requirement + Test			Result - Remark	Verdict
	TABLE: Spectroradiometric measurement				P
	Measurement performed on:			☐ LED package ☐ LED module ☐ Lamp ☒ Luminaire	
	Model number			PBB-1630	—
	Test voltage (V)			5VDC	—
	Test current (mA)			500mA	—
	Test frequency (Hz)			--	—
	Ambient, t (°C)			25	—
	Measurement distance			☒ 20 cm ☐ ... cm	—
	Source size			☒ Non-small ☐ Small : mm	—
	Field of view			☐ 100 mrad ☒ 11 mrad ☐ 1,7 mrad (for small sources)	—
Item	Symbol	Units	Result		Remark
			White	Blue	
Correlated colour temperature	CCT	K	3057	100000	
x/y colour coordinates			/	/	
Blue light hazard radiance	L _B	W/(m ² •sr ¹)	1<	2	
Blue light hazard irradiance	E _B	W/m ²		/	
Luminance	L	cd/m ²	1.537e+003	2.582e+002	
Illuminance	E	lx	157	5	
Supplementary information: RG0					

Pictures



Figure 1: Overview for model PBB-1630



Figure 2: Overview for model PBB-1630

Pictures

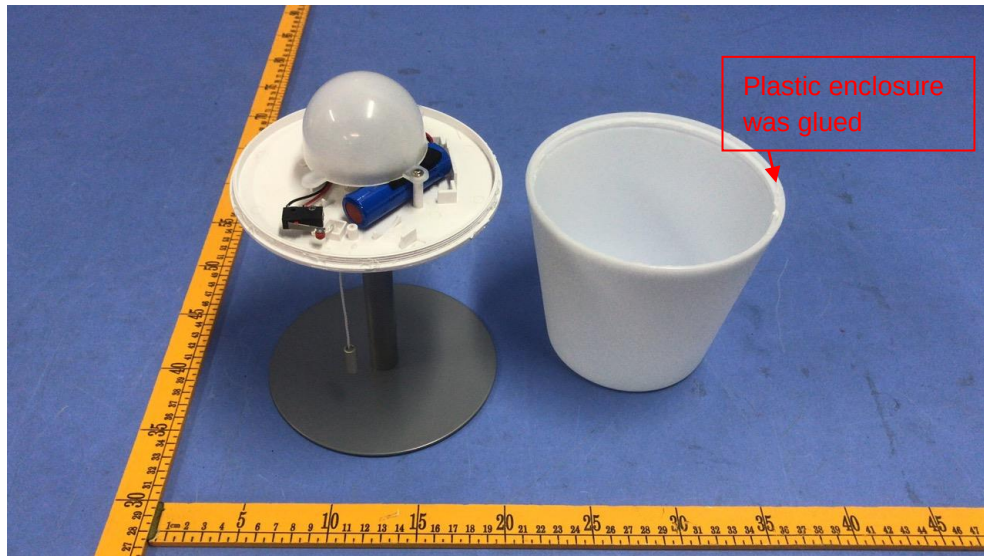


Figure 3: Internal view for model PBB-1630



Figure 4: Internal view for model PBB-1630

Pictures

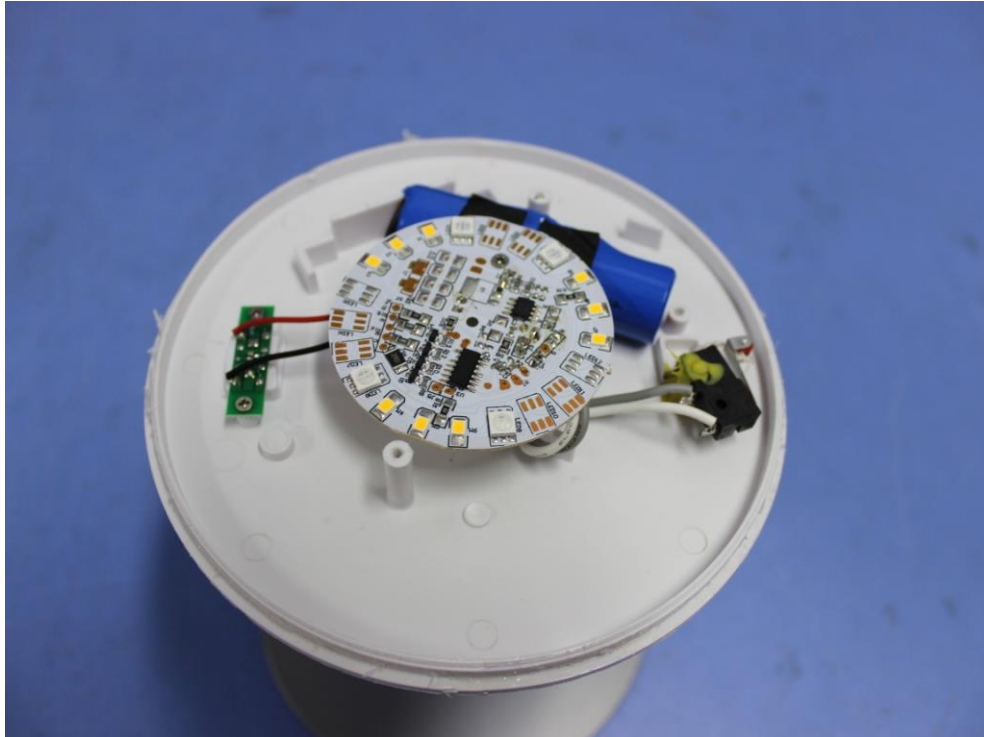


Figure 5: Internal view for model PBB-1630

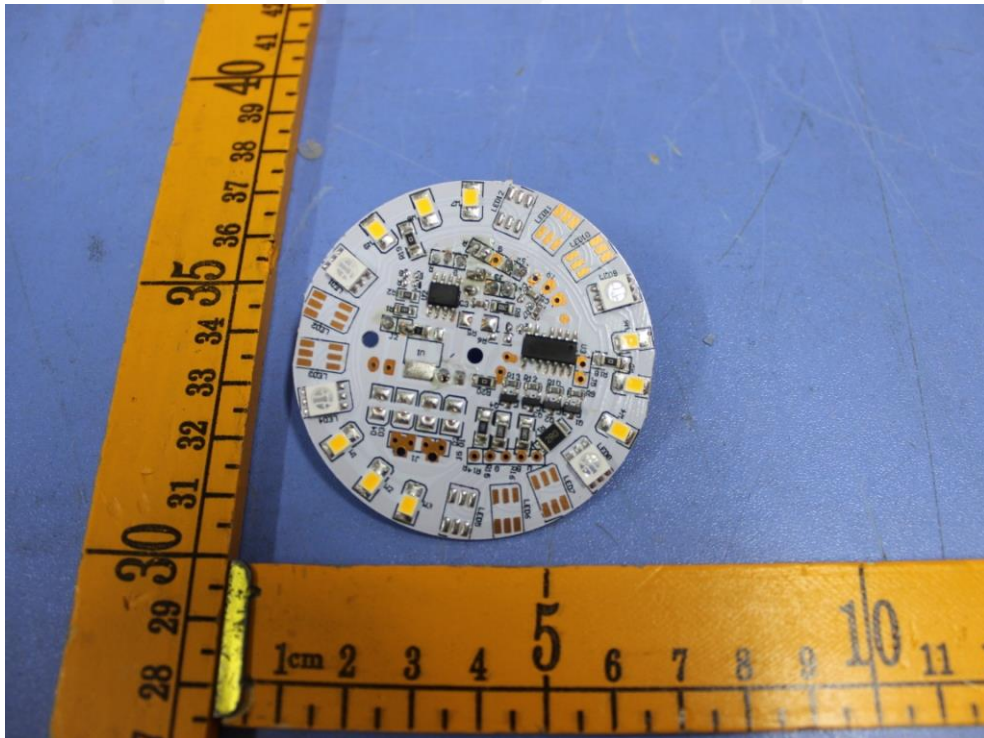


Figure 6: LED PCB front view for model PBB-1630

Pictures

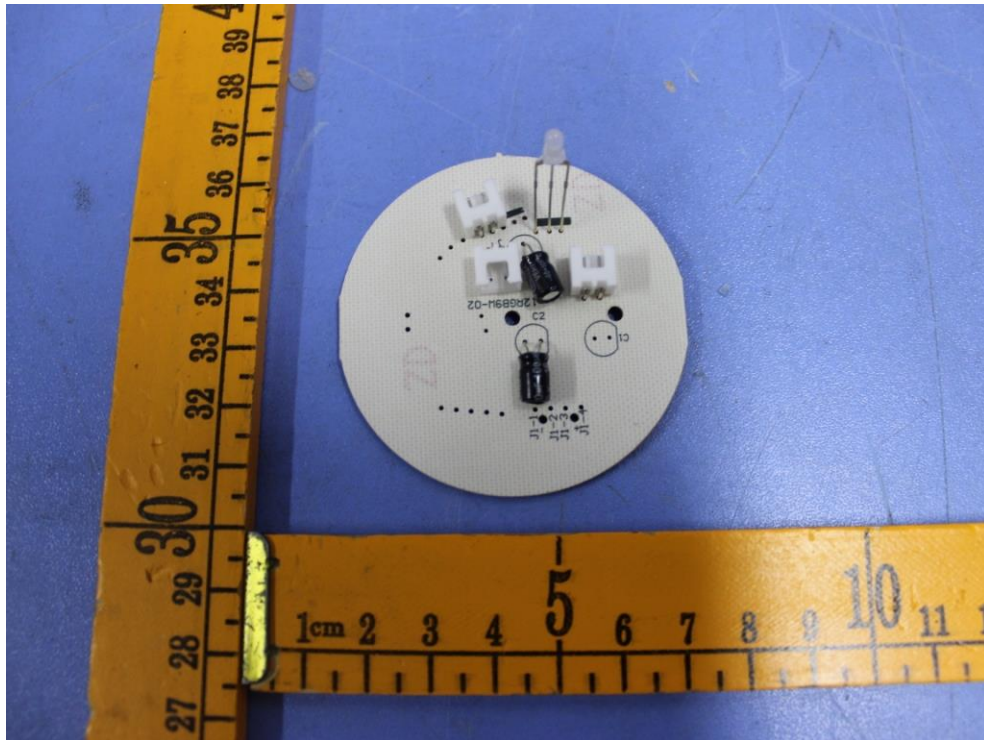


Figure 7: LED PCB rear view for model PBB-1630

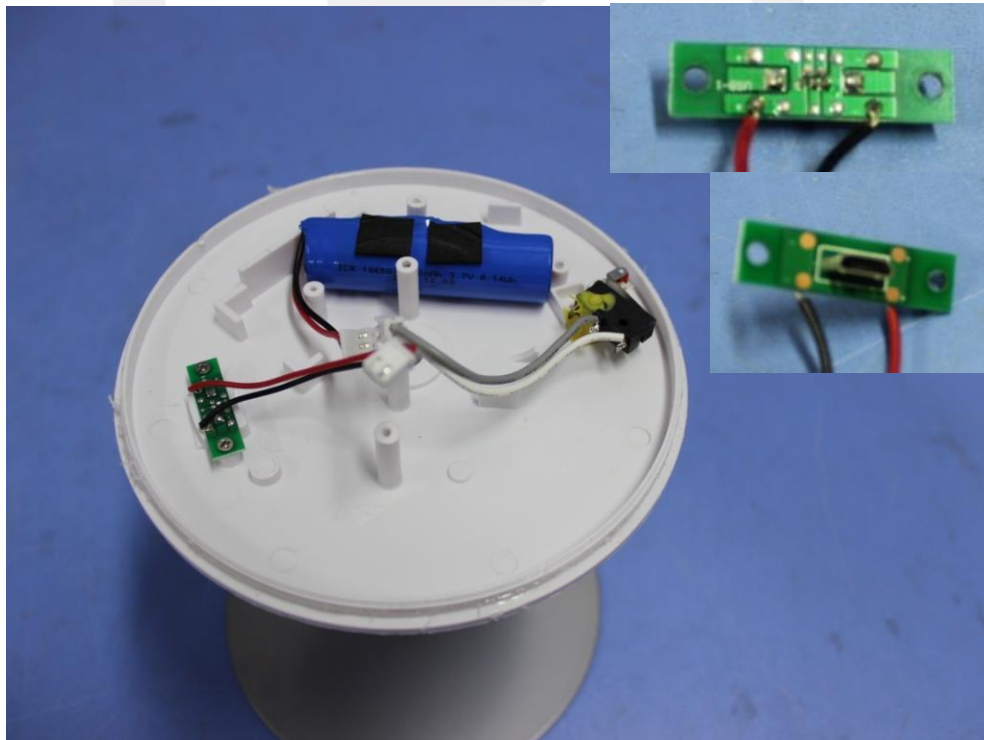


Figure 8: Internal view for model PBB-1630

Pictures



Figure 9: Battery view for model PBB-1630



Figure 10: Switch view for model PBB-1630

*** End of Report ***

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