

Report No.: 18240SC20024401

# Test Report

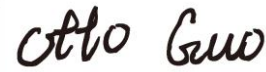
**Client Name** : DUALRAYS LIGHTING Co., LTD.**Address** : 3rd Floor, Building A3 | Tianrui Industrial Park  
#35, Fuyuan 1st Road, Fuyong Town, Bao'an District, Shenzhen**Product Name** : D6 LED Triproof Light**Date** : Sept. 23, 2022**Shenzhen Anbotek Compliance Laboratory Limited****Shenzhen Anbotek Compliance Laboratory Limited**Address: 1/F., Building D, Sogood Science and Technology Park, Sanwei Community,  
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**TEST REPORT**  
**IEC 60598-2-1**  
**Luminaires**

**Part 2: Particular requirements:**  
**Section One – Fixed general purpose luminaires**

**Report Number** ..... : 18240SC20024401  
**Date of issue** ..... : Sept. 23, 2022  
**Total number of pages** ..... : 56 pages report

**Tested by (name + signature)**..... : Otto Guo



**Approved by (+ signature)** ..... : Jeff Zhu



**Applicant's name** ..... : DUALRAYS LIGHTING Co., LTD.

**Address** ..... : 3rd Floor, Building A3 | Tianrui Industrial Park #35, Fuyuan 1st Road, Fuyong Town, Bao'an District, Shenzhen

**Test specification:**

**Standard** ..... : IEC 60598-2-1:2020 used in conjunction with IEC 60598-1:2020  
**Test procedure**..... : Type testing  
**Non-standard test method**..... : N/A

**Test Report Form No.**..... : IEC60598\_2\_1H

**Test Report Form(s) Originator**.... : Intertek Semko AB

**Master TRF**..... : Dated 2021-05-21

**Test item description**..... : D6 LED TRIPROOF LIGHT

**Trade Mark**..... :



**Manufacturer** ..... : DUALRAYS LIGHTING Co., LTD.

3rd Floor, Building A3 | Tianrui Industrial Park #35, Fuyuan 1st Road, Fuyong Town, Bao'an District, Shenzhen

**Factory** ..... : DUALRAYS LIGHTING Co., LTD.

3rd Floor, Building A3 | Tianrui Industrial Park #35, Fuyuan 1st Road, Fuyong Town, Bao'an District, Shenzhen

**Model/Type reference**..... : See the model list

**Ratings**..... : See the model list



**Summary of testing:**

Summary of testing

Tests performed

- EN 60598-1:2015+A1:2018
- EN 60598-2-1:1989
- EN IEC 62031:2020

The submitted samples were found to comply with the above specification.

The submitted samples were found to comply with the requirement of IEC 62493:2015 without testing because they are LED-light-source technology.

**Tests performed (name of test and test clause):**

**this report includes following parts:**

- Attachment 1: Test report of IEC 62031:2018
- Attachment 2: test report of EN 62493:2015
- Attachment 3: test report of IEC TR 62778
- Attachment 4: Photo document

**Testing location:**

**Shenzhen Anbotek Compliance Laboratory Limited**

Location 1: 1/F, Building D, Sogood Science and Technology Park, Sanwei community, Hangcheng Street, Bao'an District, Shenzhen, Guangdong, China. 518102

Location 2: Zone B, 1/F., Building 2, Hengchangrong High-Tech Industrial Park, Huangtian, Hangcheng Street, Bao'an District, Shenzhen, Guangdong, China. 518128

**Model list**

Model No.	Input voltage and frequency	Rated power
DR-TPL050- FG5XPM	200-240VAC, 50/60Hz	50W
DR-TPL060- FG5XPM	200-240VAC, 50/60Hz	60W
DR-TPL040- FG5XPM	200-240VAC, 50/60Hz	40W
DR-TPL040- FG4XPM	200-240VAC, 50/60Hz	40W
DR-TPL030- FG4XPM	200-240VAC, 50/60Hz	30W
DR-TPL023- FG4XPM	200-240VAC, 50/60Hz	23W
DR-TPL020- FG2XPM	200-240VAC, 50/60Hz	20W
DR-TPL015- FG2XPM	200-240VAC, 50/60Hz	15W
DR-TPL012- FG2XPM	200-240VAC, 50/60Hz	12W

**Note:**

Refer to the above "X" in the model No. means color temperature, W means warm white, N means natural white, D means day white, and C means cool white, the character "2", "3", "4", "5" means length, "2" means 2ft, "5" means 5ft ect.

Refer to "M" in the model No. means high efficiency, model No. without "M" means standard efficiency.



**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.

D6 LED TRIPROOF LIGHT

Model No.: DR-TPL050- FG5XPM

Rating: 200-240VAC, 50/60Hz, 50W



Manufacturer: DUALRAYS LIGHTING Co., LTD.

Address: 3rd Floor, Building A3 | Tianrui Industrial Park #35, Fuyuan 1st Road,  
Fuyong Town, Bao'an District, Shenzhen

Importer: xxxxxx

Address: xxxxxx

(stick on lens cover)

Rating label is stuck on the enclosure of DR-TPL050- FG5XPM (Size: height of WEEE mark at least 7mm, height of letters and numbers at least 2mm)



<b>Test item particulars</b> .....:	
Classification of installation and use.....:	Fixed luminaires for surface mounted
Supply Connection.....:	Supply cord
Protection Class.....:	I
Degree of Protection.....:	IP66
<b>Possible test case verdicts:</b>	
- 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)
<b>Testing</b> .....	
Date of receipt of test item.....:	Sept. 13, 2022
Date (s) of performance of tests .....	Sept. 13, 2022 to Sept. 23, 2022
<b>General remarks:</b>	
<p>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.</p> <p>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</p> <p>The text of the international standard IEC 60598-1:2020 was approved by CENELEC as a European standard without any modification</p> <p>The text of the international standard IEC 60598-2-1:2020 was approved by CENELEC as a European standard without any modification</p>	
<b>General product information:</b>	
<p>All models have the same mechanical and electrical construction. Product size and LED quantity are different.</p> <p>Unless otherwise specified, model DR-TPL050- FG5XPM was selected as representative models to perform all tests.</p> <p>IEC 60598-2-1 1.7 (4.24.2) were tested at location 2, others were tested at location 1.</p>	



IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
<b>1.4 (0)</b>	<b>GENERAL TEST REQUIREMENTS</b>		P
1.4 (0.3)	More sections applicable..... :	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Section/s:	—
1.4 (0.5)	Components	(see Annex 1)	—
<b>1.4 (0.7)</b>	<b>Information for luminaire design in light sources standards</b>		—
1.4 (0.7.2)	Light source safety standard .....	EN 60598-1	—
	Luminaire design in the light source safety standard		P

<b>1.5 (2)</b>	<b>CLASSIFICATION OF LUMINAIRES</b>		P
1.5 (2.2)	Type of protection .....	Class I	P
1.5 (2.3)	Degree of protection .....	IP66	—
1.5 (2.4)	Luminaire suitable for direct mounting on normally flammable surfaces..... :	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	—
1.5 (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"/>	—

<b>1.6 (3)</b>	<b>MARKING</b>		P
1.6 (3.2)	Mandatory markings		P
	Position of the marking		P
	Format of symbols/text		P
1.6 (3.3)	Additional information		P
	Language of instructions	English	P
1.6 (3.3.1)	Combination luminaires		N/A
1.6 (3.3.2)	Nominal frequency in Hz	50/60Hz	P
1.6 (3.3.3)	Operating temperature		P
1.6 (3.3.5)	Wiring diagram		P
1.6 (3.3.6)	Special conditions		N/A
1.6 (3.3.7)	Metal halide lamp luminaire – warning		N/A
1.6 (3.3.8)	Limitation for semi-luminaires		N/A
1.6 (3.3.9)	Power factor and supply current		P
1.6 (3.3.10)	Suitability for use indoors		P
1.6 (3.3.11)	Luminaires with remote control		N/A



### IEC 60598-2-1

Clause	Requirement + Test	Result - Remark	Verdict
1.6 (3.3.12)	Clip-mounted luminaire – warning		N/A
1.6 (3.3.13)	Specifications of protective shields		N/A
1.6 (3.3.14)	Symbol for nature of supply		P
1.6 (3.3.15)	Rated current of socket outlet		N/A
1.6 (3.3.16)	Rough service luminaire		N/A
1.6 (3.3.17)	Mounting instruction for type Y, type Z and some type X attachments	Type Y	P
1.6 (3.3.18)	Non-ordinary luminaires with PVC cable		N/A
1.6 (3.3.19)	Protective conductor current in instruction if applicable		N/A
1.6 (3.3.20)	Provided with information if not intended to be mounted within arm's reach		N/A
1.6 (3.3.21)	Non replaceable and non-user replaceable light sources information provided	Non-user replaceable light source	P
1.6 (3.3.22)	Controllable luminaires, classification of insulation provided		N/A
1.6 (3.3.23)	Luminaires without control gear provided with necessary information for selection of appropriate component		N/A
1.6 (3.3.24)	If not supplied with terminal block, information on the packaging		N/A
1.6 (3.3.25)	Luminaires employing light sources emitting UV on mains wiring, information provided		N/A
1.6 (3.3.26)	Wall mounted luminaire using external flexible cable or cord longer than 0.3 m, information provided		N/A
1.6 (3.4)	Test with water	15s	P
	Test with hexane	15s	P
	Legible after test		P
	Label attached		P

<b>1.7 (4)</b>	<b>CONSTRUCTION</b>		P
1.7 (4.2)	Components replaceable without difficulty		P
1.7 (4.3)	Wireways smooth and free from sharp edges		P
<b>1.7 (4.4)</b>	<b>Lamp holders</b>		N/A
1.7 (4.4.1)	Integral lamp holder		N/A
1.7 (4.4.2)	Wiring connection		N/A



IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.7 (4.4.3)	Lamp holder for end-to-end mounting		N/A
1.7 (4.4.4)	Positioning		N/A
	- pressure test (N) .....		—
	After test the lamp holder comply with relevant standard sheets and show no damage		N/A
	After test on single-capped lamp holder the lamp holder has not moved from its position and show no permanent deformation		N/A
	- bending test (N) .....		—
	After test the lamp holder has not moved from its position and show no permanent deformation		N/A
1.7 (4.4.5)	Peak pulse voltage		N/A
1.7 (4.4.6)	Centre contact		N/A
1.7 (4.4.7)	Parts in rough service luminaires resistant to tracking		N/A
1.7 (4.4.8)	Lamp connectors		N/A
1.7 (4.4.9)	Caps and bases correctly used		N/A
1.7 (4.4.10)	Light source for lamp holder or connection according IEC 60061 not connected another way		N/A
<b>1.7 (4.5)</b>	<b>Starter holders</b>		N/A
	Starter holder in luminaires other than class II		N/A
	Starter holder class II construction		N/A
<b>1.7 (4.6)</b>	<b>Terminal blocks</b>		P
	Tails		P
	Unsecured blocks		N/A
<b>1.7 (4.7)</b>	<b>Terminals and supply connections</b>		N/A
1.7 (4.7.1)	Contact to metal parts		N/A
1.7 (4.7.2)	Test 8 mm live conductor		P
	Test 8 mm earth conductor		N/A
1.7 (4.7.3)	Terminals for supply conductors		P
1.7 (4.7.3.1)	Welded method and material		P
	- stranded or solid conductor		P
	- spot welding		N/A
	- welding between wires		P
	- Type Z attachment		N/A
	- mechanical test according to 15.6.2		N/A





IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	- electrical test according to 15.6.3		N/A
	- heat test according to 15.6.3.2.3 and 15.6.3.2.4		P
1.7 (4.7.4)	Terminals other than supply connection		N/A
1.7 (4.7.5)	Heat-resistant wiring/sleeves		N/A
1.7 (4.7.6)	Multi-pole plug		N/A
	- test at 30 N		N/A
<b>1.7 (4.8)</b>	<b>Switches</b>		N/A
	- adequate rating	See annex 1	N/A
	- adequate fixing		N/A
	- polarized supply		N/A
	- compliance with IEC 61058-1 for electronic switches		N/A
<b>1.7 (4.9)</b>	<b>Insulating lining and sleeves</b>		N/A
1.7 (4.9.1)	Retainment		N/A
	Method of fixing.....:		N/A
1.7 (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
<b>1.7 (4.10)</b>	<b>Double or reinforced insulation</b>		P
1.7 (4.10.1)	No contact, mounting surface – accessible metal parts – wiring of basic insulation		P
	Safe installation fixed luminaires		P
	Capacitors and switches		N/A
1.7 (4.10.2)	Assembly gaps:		N/A
	- not coincidental		N/A
	- no straight access with test probe		N/A
1.7 (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 lamp holder		N/A
1.7 (4.10.4)	Protective impedance device		N/A



IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Basic and supplementary insulation bridged by resistor(s) or appropriate capacitor		N/A
	Double or reinforced insulation bridged by at least two separate resistors in series or appropriate capacitor(s)		N/A
	Capacitors comply with IEC 60384-14		N/A
	Resistors comply with test (a) in 14.2 of IEC 60065		N/A
<b>1.7 (4.11)</b>	<b>Electrical connections and current-carrying parts</b>		N/A
1.7 (4.11.1)	Contact pressure		N/A
1.7 (4.11.2)	Screws:		N/A
	- self-tapping screws		N/A
	- thread-cutting screws		N/A
1.7 (4.11.3)	Screw locking:		N/A
	- spring washer		N/A
	- rivets		N/A
1.7 (4.11.4)	Material of current-carrying parts		P
1.7 (4.11.5)	No contact to wood or mounting surface		P
1.7 (4.11.6)	Electro-mechanical contact systems		N/A
<b>1.7 (4.12)</b>	<b>Screws and connections (mechanical) and glands</b>		P
1.7 (4.12.1)	Screws not made of soft metal		P
	Screws of insulating material		N/A
	Torque test: torque (Nm); part .....	Fixed enclosure screw, 3.17mm 0.5Nm	P
	Torque test: torque (Nm); part .....	Fixed LED driver screw, 2.82mm, 0.4Nm	P
	Torque test: torque (Nm); part .....		N/A
1.7 (4.12.2)	Screws with diameter < 3 mm screwed into metal		N/A
1.7 (4.12.4)	Locked connections:		N/A
	- fixed arms; torque (Nm) .....		N/A
	- lamp holder; torque (Nm) .....		N/A
	- push-button switches; torque 0,8 Nm .....		N/A
1.7 (4.12.5)	Screwed glands; force (Nm) .....	Plastic gland: 17.35mm, 5Nm	P
<b>1.7 (4.13)</b>	<b>Mechanical strength</b>		P
1.7 (4.13.1)	Impact tests:		P



IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	- fragile parts; energy (Nm) .....	0.2Nm for LED cover	P
	- other parts; energy (Nm) .....	0.35Nm for Enclosure	P
	1) live parts		P
	2) linings		N/A
	3) protection		P
	4) covers		P
1.7 (4.13.2)	Metal parts have adequate mechanical strength		P
1.7 (4.13.3)	Straight test finger		P
1.7 (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
1.7 (4.13.6)	Tumbling barrel		N/A
<b>1.7 (4.14)</b>	<b>Suspensions, fixings and means of adjusting</b>		P
1.7 (4.14.1)	Mechanical load:		P
	A) four times the weight	1.86*4=7.44kg	P
	B) torque 2,5 Nm		P
	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
1.7 (4.14.2)	Load to flexible cables		N/A
	Mass (kg) .....		—
	Stress in conductors (N/mm <sup>2</sup> ) .....		N/A
	Mass (kg) of semi-luminaire .....		N/A
	Bending moment (Nm) of semi-luminaire .....		N/A
1.7 (4.14.3)	Adjusting devices:		N/A
	- flexing test; number of cycles .....		N/A



IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	- strands broken .....		N/A
	- electric strength test afterwards		N/A
1.7 (4.14.4)	Telescopic tubes: cords not fixed to tube; no strain on conductors		N/A
1.7 (4.14.5)	Guide pulleys		N/A
1.7 (4.14.6)	Strain on socket-outlets		N/A
<b>1.7 (4.15)</b>	<b>Flammable materials</b>		N/A
	- glow-wire test 650°C.....	See Test Table 1.15 (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		N/A
	- thermal protection		N/A
	- electronic circuits exempted		N/A
1.7 (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
<b>1.7 (4.16)</b>	<b>Luminaires for mounting on normally flammable surfaces</b>		P
	No lamp control gear.....	(compliance with Section 12)	N/A
	Provided with adaptor for a track meet the requirements for direct mounting on normally flammable surfaces		N/A
1.7 (4.16.1)	Lamp control gear spacing:		P
	- spacing 35 mm		P
	- spacing 10 mm		N/A
1.7 (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
1.7 (4.16.3)	Design to satisfy the test of 12.6	(see clause 12.6)	N/A
<b>1.7 (4.17)</b>	<b>Drain holes</b>		N/A
	Clearance at least 5 mm		N/A



IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
<b>1.7 (4.18)</b>	<b>Resistance to corrosion</b>		N/A
1.7 (4.18.1)	- rust-resistance		N/A
1.7 (4.18.2)	- season cracking in copper		N/A
1.7 (4.18.3)	- corrosion of aluminium		N/A
1.7 (4.19)	Igniters compatible with ballast		N/A
1.7 (4.20)	Rough service vibration		N/A
<b>1.7 (4.21)</b>	<b>Protective shield</b>		N/A
1.7 (4.21.1)	Shield fitted if tungsten halogen lamps or metal halide lamps		N/A
	Shield of glass if tungsten halogen lamps		N/A
1.7 (4.21.2)	Particles from a shattering lamp not impair safety		N/A
1.7 (4.21.3)	No direct path		N/A
1.7 (4.21.4)	Impact test on shield		N/A
	Glow-wire test on lamp compartment .....	See Test Table 1.15 (13.3.2)	N/A
1.7 (4.22)	Attachments to lamps not cause overheating or damage		N/A
1.7 (4.23)	Semi-luminaires comply Class II		N/A
<b>1.7 (4.24)</b>	<b>Photobiological hazards</b>		N/A
1.7 (4.24.1)	No excessive UV radiation if tungsten halogen lamps and metal halide lamps (Annex P)		N/A
1.7 (4.24.2)	Retinal blue light hazard		P
	Class of risk group assessed according to IEC/TR 62778 .....		—
	Luminaires with $E_{thr}$ :		P
	a) Fixed luminaires		P
	- distance x m, borderline between RG1 and RG2....	RG0	P
	- 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
<b>1.7 (4.25)</b>	<b>Mechanical hazard</b>		P
	No sharp point or edges		P



IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
<b>1.7 (4.26)</b>	<b>Short-circuit protection</b>		N/A
1.7 (4.26.1)	Adequate means of uninsulated accessible SELV / PELV parts		N/A
1.7 (4.26.2)	Short-circuit test with test chain according 4.26.3:		N/A
	Supply source ES1 PSE		N/A
	Test chain not melt through		N/A
	Test sample not exceed values of Table 12.1 and 12.2		N/A
<b>1.7 (4.27)</b>	<b>Terminal blocks with integrated screwless protective earthing contacts</b>		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
<b>1.7 (4.28)</b>	<b>Fixing of thermal sensing control</b>		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 (°C) .....		—
	100 cycles between t min and t max		N/A
	Temperature sensing control still in position		N/A
<b>1.7 (4.29)</b>	<b>Luminaires with non-replaceable light source</b>		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
<b>1.7 (4.30)</b>	<b>Luminaires with non-user replaceable light source</b>		P
	If protective cover provide protection against electric shock and marked with “caution, electric shock risk” symbol:		P
	At least one fixing means requiring use of tool		N/A
<b>1.7 (4.31)</b>	<b>Insulation between circuits</b>		P



IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	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
1.7 (4.31.1)	SELV or PELV circuits		P
	Used SELV/PELV source		P
	Voltage ≤ ELV		P
	Insulating of SELV/PELV circuits from LV supply		P
	Insulating of SELV/PELV circuits from other non SELV/PELV circuits		N/A
	Insulating of SELV/PELV circuits from FELV		N/A
	Insulating of SELV/PELV circuits from other SELV/PELV circuits		N/A
	SELV/PELV circuits insulated from accessible parts according Table X.1		P
	Plugs not able to make any electrical contact with 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
1.7 (4.31.2)	FELV circuits		N/A
	Used FELV source		N/A
	Voltage ≤ 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 make any electrical contact with 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
1.7 (4.31.3)	Other circuits		P
	Other circuits insulated from accessible parts according Table X.1		P



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Clause	Requirement + Test	Result - Remark	Verdict
	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
<b>1.7 (4.32)</b>	<b>Overvoltage protective devices</b>		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
<b>1.6 (4.33)</b>	<b>Luminaire powered via information technology communication cabling</b>		N/A
	Requirements for Class III luminaire		N/A
	Rated voltage within the range of ES1 and does not exceed maximum voltage of used connector		N/A
	Luminaire does not create any hazard from overvoltage	(see Annex 2)	N/A
<b>1.6 (4.34)</b>	<b>Electromagnetic fields (EMF)</b>		P
	No harmful electromagnetic fields	The submitted samples were LED-light-source technology, they were found to comply with the requirement of IEC 62493:2015 without test	P
<b>1.6 (4.35)</b>	<b>Protection against moving fan blades</b>		N/A
	Test with a standard test finger		N/A
	Test with test probe acc. to Figure 13 (IEC 61032) for portable luminaire		N/A
	Blades rounded with radius $\geq 0.5$ mm and:		N/A
	-hardness less than D60 Shore		N/A
	-peripheral speed less than 15 m/s		N/A
	-input power of fan $\leq 2$ W at rated voltage		N/A
<b>1.6 (4.36)</b>	<b>Track-mounted luminaires</b>		N/A





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Clause	Requirement + Test	Result - Remark	Verdict
	Test in accordance with Annex A of IEC60570:2003/AMD2:2019		N/A

1.8 (11)	CREEPAGE DISTANCES AND CLEARANCES		P
1.8 (11.2.1)	Impulse withstand category (Normal category II)	Category II <input checked="" type="checkbox"/> Category III <input type="checkbox"/>	—
	Category III according Annex U		N/A
	Protected against pollution, reduced creepage and clearance according Annex P of IEC 61347-1		N/A
1.8 (11.2.2)	Creepage distances for frequency up to 30 kHz	See Test Table 1.7 (11.2) I	P
	Creepage distances for frequency over 30 kHz:		N/A
	- Controlgear marked with $\hat{U}_{OUT}$ and $f_{OUT}$ according IEC 61347-1, clause 7.1, item w	See Test Table 1.7 (11.2) II	N/A
	- Requirements according IEC 60664-4 for controlgear not covered by IEC 61347	See Test Table 1.7 (11.2) II	N/A
1.8 (11.2.3)	Clearances for frequency up to 30 kHz	See Test Table 1.7 (11.2) I	P
	Clearances distances for frequency over 30 kHz:		N/A
	- Controlgear marked with $U_p$	See Test Table 1.7 (11.2) II	N/A
	- Requirements according IEC 60664-4 for controlgear not covered by IEC 61347	See Test Table 1.7 (11.2) II	N/A

1.9 (7)	PROVISION FOR EARTHING		P
1.9 (7.2.1 + 7.2.3)	Accessible metal parts		P
	Metal parts in contact with supporting surface		P
	Resistance < 0,5 $\Omega$ .....	0.021 $\Omega$	P
	Self-tapping screws used		N/A
	Thread-forming screws		P
	Thread-forming screw used in a groove		N/A
	Protective earth makes contact first		P
	Terminal blocks with integrated screwless protective earthing contacts tested according Annex V		N/A
	Protective earthing of the luminaire not via built-in control gear		N/A
1.9 (7.2.2 + 7.2.3)	Protective earth continuity in joints, etc.		P
1.9 (7.2.4)	Locking of clamping means		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
	Compliance with 4.7.3		N/A
1.9 (7.2.5)	Protective earth terminal integral part of connector socket		N/A
1.9 (7.2.6)	Protective earth terminal adjacent to mains terminals		N/A
1.9 (7.2.7)	Electrolytic corrosion of the protective earth terminal		N/A
1.9 (7.2.8)	Material of protective earth terminal		N/A
	Contact surface bare metal		N/A
1.9 (7.2.10)	Class II luminaire for looping-in		N/A
	Double or reinforced insulation to functional earth		N/A
1.9 (7.2.11)	Protective earthing core coloured green-yellow		P
	Length of earth conductor		P
1.9 (7.2.12)	PELV circuit connected to protective earth for functional purpose		N/A

1.10 (14)	SCREW TERMINALS		N/A
	Separately approved; component list	(see Annex 1)	N/A
	Part of the luminaire	(see Annex 3)	N/A

1.10 (15)	SCREWLESS TERMINALS AND ELECTRICAL CONNECTIONS		P
	Separately approved; component list .....	(see Annex 1)	N/A
	Part of the luminaire .....	(see Annex 4)	N/A

1.11 (5)	EXTERNAL AND INTERNAL WIRING		N/A
1.11 (5.2)	Supply connection and external wiring		N/A
1.11 (5.2.1)	Means of connection .....	Terminal block	P
	Outdoor luminaire has not PVC insulated external wiring if not Class III or SELV/PELV circuits ≤ 25 V AC/60 V DC/25 V peak interrupted DC voltage with frequency 10Hz -200 Hz or protected from outdoor environment		N/A
1.11 (5.2.2)	Type of cable.....		P
	Nominal cross-sectional area (mm <sup>2</sup> ).....		P
	Cables equal to IEC 60227 or IEC 60245		P
1.11 (5.2.3)	Type of attachment, X, Y or Z	Type Y	P
1.11 (5.2.5)	Type Z not connected to screws		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
1.11 (5.2.6)	Cable entries:		--
	- suitable for introduction		P
	- adequate degree of protection		P
1.11 (5.2.7)	Cable entries through rigid material have rounded edges		P
1.11 (5.2.8)	Insulating bushings:		--
	- 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
1.11 (5.2.9)	Locking of screwed bushings		N/A
1.11 (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
1.11 (5.2.10.1)	Cord anchorage for type X attachment:		--
	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
1.11 (5.2.10.2)	Adequate cord anchorage for type Y and type Z attachment	Type Y	P
1.11 (5.2.10.3)	Tests:		P
	- impossible to push cable; unsafe	For 3*1.0mm <sup>2</sup> supply cord	P
	- pull test: 25 times; pull (N) .....	60	P

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Clause	Requirement + Test	Result - Remark	Verdict
	- torque test: torque (Nm)..... :	0.25	P
	- displacement ≤ 2 mm	0.83mm	P
	- no movement of conductors		P
	- no damage of cable or cord		P
	- function independent of electrical connection		P
1.11 (5.2.10.4)	Luminaire with/ designed for use with supply cord with maximum current of 2A:		N/A
	- Ordinary Class III luminaire supplied with SELV ≤ 25V RMS/60V DC		N/A
	- Ordinary Class III luminaire supplied with PELV ≤12V RMS/30V DC		N/A
	- Other than ordinary Class III luminaire supplied with voltage ≤12V RMS/30V DC		N/A
	Pull test of 30N		N/A
1.11 (5.2.11)	External wiring passing into luminaire		N/A
1.11 (5.2.12)	Looping-in terminals		N/A
1.11 (5.2.13)	Wire ends not tinned		P
	Wire ends tinned: no cold flow		P
1.11 (5.2.14)	Mains plug same protection		N/A
	Class III luminaire plug		N/A
	No unsafe compatibility		N/A
1.11 (5.2.15)	Connectors for Class III luminaires (IEC 60603 or IEC 62680)		N/A
1.11 (5.2.16)	Appliance inlets (IEC 60320)		N/A
	Installation couplers (IEC 61535)		N/A
	Appliance inlet or connector systems (IEC 61984)		N/A
1.11 (5.2.17)	No standardized interconnecting cables properly assembled		N/A
1.11 (5.2.18)	Used plug in accordance with		N/A
	- IEC 60083		N/A
	- other standard		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
<b>1.11 (5.3)</b>	<b>Internal wiring</b>		P
1.11 (5.3.1)	Internal wiring of suitable size and type		P
	Through wiring		P
	- not delivered/ mounting instruction		N/A
	- factory assembled		N/A
	- socket outlet loaded (A) .....		N/A
	- temperatures.....	(see Annex 2)	P
	Green-yellow for protective earth only		P
1.11 (5.3.1.1)	Internal wiring connected directly to fixed wiring		N/A
	Cross-sectional area (mm <sup>2</sup> ) .....		N/A
	Insulation thickness (mm) .....		N/A
	Extra insulation added where necessary		N/A
1.11 (5.3.1.2)	Internal wiring connected to fixed wiring via internal current-limiting device		P
	Cross-sectional area (mm <sup>2</sup> ) .....	22AWG	P
1.11 (5.3.1.3)	Double or reinforced insulation for class II		N/A
1.11 (5.3.1.4)	Conductors without insulation		N/A
1.11 (5.3.1.5)	SELV/PELV current-carrying parts		N/A
1.11 (5.3.1.6)	Insulation thickness other than PVC or rubber		N/A
1.11 (5.3.2)	Sharp edges etc.		N/A
	No moving parts of switches etc.		N/A
	Joints, raising/lowering devices		N/A
	Telescopic tubes etc.		N/A
	No twisting over 360°		N/A
1.11 (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
1.11 (5.3.4)	Joints and junctions effectively insulated		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
1.11 (5.3.5)	Strain on internal wiring		N/A
1.11 (5.3.6)	Wire carriers		N/A
1.11 (5.3.7)	Wire ends not tinned		N/A
	Wire ends tinned: no cold flow		N/A
<b>1.11 (5.4)</b>	<b>Test to determine suitability of conductors having a reduced cross-sectional area</b>		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

<b>1.12 (8)</b>	<b>PROTECTION AGAINST ELECTRIC SHOCK</b>		P
1.12 (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		N/A
	Basic insulated parts not accessible with Ø 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		N/A
	Double-ended high-pressure discharge lamp		N/A
	Relevant warning according to 3.2.18 fitted to the luminaire		N/A
1.12 (8.2.2)	Portable luminaire adjusted in most unfavourable position		N/A
1.12 (8.2.3.a)	Class II luminaire:		N/A
	- 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



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Clause	Requirement + Test	Result - Remark	Verdict
	- glass protective shields not used as supplementary insulation		N/A
1.12 (8.2.3.b)	BC lamp holder of metal in class I luminaires shall be connected to protective earth		N/A
1.12 (8.2.3.c)	SELV circuits with exposed current carrying parts:		N/A
	Ordinary luminaire:		N/A
	- voltage under load/ no-load AC (V) .....		N/A
	- voltage under load/ no-load DC (V).....		N/A
	- interrupted DC 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
	- voltage under load/ no-load AC (V) .....		N/A
	- voltage under load/ no-load DC (V).....		N/A
	- interrupted DC 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
1.12 (8.2.3.d)	PELV circuits with exposed current carrying parts:		N/A
	Ordinary luminaire:		N/A
	- voltage under load/ no-load AC (V) .....		N/A
	- voltage under load/ no-load DC (V).....		N/A
	Other than ordinary luminaire:		N/A
	- voltage under load/ no-load AC (V) .....		N/A
	- voltage under load/ no-load DC (V).....		N/A
	One pole insulated if required		N/A
1.12 (8.2.4)	Portable luminaire has protection independent of supporting surface		N/A
1.12 (8.2.5)	Compliance with the standard test finger or relevant probe		N/A
1.12 (8.2.6)	Covers reliably secured		N/A
1.12 (8.2.7)	Luminaire other than below with capacitor > 0,5 μF not exceed 50 V 1 min after disconnection		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
	Portable luminaire with capacitor > 0,1 μF (0.25) not exceed 34 V 1 s after disconnection		N/A
	Other luminaires with capacitor > 0,1 μF (0.25) with plug and track adaptors not exceed 60 V 5 s after disconnection		N/A

<b>1.13 (12)</b>	<b>ENDURANCE TEST AND THERMAL TEST</b>		P
1.13 (-)	If IP > IP 20 relevant test of (12.4), (12.5), (12.6) and (12.7) after (9.2) before (9.3) as specified in 1.14		—
<b>1.13 (12.2)</b>	<b>Selection of lamps and ballasts</b>		—
	Lamp used according Annex B	(Lamp used see Annex 2)	—
	Control gear if separate and not supplied	(Control gear used see Annex 2)	—
<b>1.13 (12.3)</b>	<b>Endurance test</b>		P
	a) mounting-position .....	As stated instruction	—
	b) test temperature (°C) .....	50°C	—
	c) total duration (h) .....	240h	—
	d) supply voltage (V) .....	240V*1.1=264Vac	—
	d) if not equipped with control gear, constant voltage/current (V) or (A) .....		—
1.13 (12.3.1d)	d) Class III luminaires powered via information technology communication cable:		N/A
	- voltage under normal operation (V).....		—
	- voltage under abnormal operation (V).....		—
	e) luminaire ceases to operate		—
	f) luminaire with constant light output function		N/A
1.13 (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
<b>1.13 (12.4)</b>	<b>Thermal test (normal operation)</b>	(see Annex 2)	P
<b>1.13 (12.5)</b>	<b>Thermal test (abnormal operation)</b>	(see Annex 2)	N/A





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Clause	Requirement + Test	Result - Remark	Verdict
<b>1.13 (12.6)</b>	<b>Thermal test (failed lamp control gear condition):</b>		N/A
1.13 (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
1.13 (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
<b>1.13 (12.7)</b>	<b>Thermal test (failed lamp control gear in plastic luminaires):</b>		N/A
1.13 (12.7.1)	Luminaire without temperature sensing control		N/A
1.13 (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 .....		—



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Clause	Requirement + Test	Result - Remark	Verdict
	- calculated temperature of fixing point/exposed part (°C)..... :		—
	Ball-pressure test..... :	See Test Table 1.15 (13.2.1)	N/A
1.13 (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 1.15 (13.2.1)	N/A
1.13 (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
1.13 (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 Test Table 1.15 (13.2.1)	N/A

<b>1.14 (9)</b>	<b>RESISTANCE TO DUST AND MOISTURE</b>		P
1.14 (-)	If IP > IP 20 the order of tests as specified in clause 1.12		P
1.14 (9.2)	Tests for ingress of dust, solid objects and moisture:		P
	- classification according to IP..... :	IP66	—
	- mounting position during test..... :		—
	- fixing screws tightened; torque (Nm)..... :	0.5	—
	- tests according to clauses..... :	Clause 9.2.2 and 9.2.7	—
	- electric strength test afterwards		P

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Clause	Requirement + Test	Result - Remark	Verdict
	a) no deposit in dust-proof luminaire		N/A
	b) no talcum in dust-tight luminaire		P
	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, pressure watertight, high pressure and temperature water jet-proof or high pressure and cold water jet-proof luminaire		P
	e) no contact with live parts (IP 2X)		N/A
	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
1.14 (9.3)	Humidity test 48 h	25°C, RH 93%	P


<b>1.15 (10)</b>	<b>INSULATION RESISTANCE AND ELECTRIC STRENGTH</b>		P
1.15 (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):		P
	SELV/PELV:		P
	- between current-carrying parts of different polarity :	100MΩ	P
	- between current-carrying parts and mounting surface .....	100MΩ	P
	- 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/PELV:		P



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Clause	Requirement + Test	Result - Remark	Verdict
	- between live parts of different polarity .....		N/A
	- between live parts and mounting surface .....	100MΩ	P
	- between live parts and metal parts .....	100MΩ	P
	- between live parts of different polarity through action of a switch .....	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
1.15 (10.2.2)	Electric strength test		P
	Dummy lamp		N/A
	Luminaires with ignitors after 24 h test		P
	Luminaires with manual ignitors		P
	Test voltage (V):		P
	SELV/PELV:		P
	- between current-carrying parts of different polarity :	500V	P
	- between current-carrying parts and mounting surface .....	500V	P
	- 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/PELV:		P
	- between live parts of different polarity .....		N/A
	- between live parts and mounting surface .....	1480V	P
	- between live parts and metal parts .....	1480V	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 .....		N/A
	- Insulation bushings as described in Section 5 .....		N/A
1.15 (10.3)	Touch current (mA).....		N/A
	Protective conductor current (mA).....	0.18mA	P

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**IEC 60598-2-1**

Clause	Requirement + Test	Result - Remark	Verdict
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1.16 (13)	RESISTANCE TO HEAT, FIRE AND TRACKING		P
1.16 (13.2.1)	Ball-pressure test .....	See Test Table 1.16 (13.2.1)	P
1.16 (13.3.1)	Needle-flame test (10 s).....	See Test Table 1.16 (13.3.1)	N/A
1.16 (13.3.2)	Glow-wire test (650°C).....	See Test Table 1.16 (13.3.2)	P
1.16 (13.4)	Proof tracking test (IEC 60112).....	See Test Table 1.16 (13.4)	N/A



IEC 60598-2-1							
Clause	Requirement + Test				Result - Remark		Verdict
<b>1.8 (11.2)</b>	<b>TABLE I: Creepage distances and clearances</b>						<b>P</b>
	<b>Minimum distances (mm) for a.c. up to 30 kHz sinusoidal voltages</b>						--
	<b>Applicable part of IEC 60598-1 Table 11.1.A*, 11.1.B* and 11.2*</b>						--
	Insulation type**	Measured clearance	Required		Measured creepage	Required	
			clearance	*Table		creepage	*Table
Distance 1:	B	2.4	0.6	11.2	2.4	1.2	11.2
Distance 2:	B	3.2	1.5	11.2	3.2	2.5	11.2
Distance 2:	R	4.6	1.5	11.2	4.6	2.5	11.2
Working voltage (V).....:					240VAC		—
PTI.....:					< 600 <input checked="" type="checkbox"/> ≥ 600 <input type="checkbox"/>		—
Pulse voltage or $U_P$ if applicable (Kv) .....					-		—
Supplementary information: Distance 1: LED+ to LED- Distance 2: L to N Distance 3: live part to the Enclosure							

\*\* Insulation type: B – Basic; S – Supplementary; R – Reinforced. See also IEC 60598-1 Annex M.



IEC 60598-2-1							
Clause	Requirement + Test				Result - Remark		Verdict
1.8 (11.2)	<b>TABLE II: Creepage distances and clearances</b>						N/A
<b>Minimum distances (mm) for a.c. higher than 30 kHz sinusoidal voltages</b>							
<b>Applicable part of IEC 61347-1 Table 7 and 8* or IEC 60664-4 Table 1 and 2</b>							
Distances	Insulation type **	Measured clearance	Required		Measured creepage	Required	
			clearance	*Table		creepage	*Table
Distance 1:							
Working voltage (V).....:							—
Frequency if applicable (kHz).....:							—
PTI.....:					< 600 <input type="checkbox"/>	≥ 600 <input type="checkbox"/>	—
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 <input type="checkbox"/>	≥ 600 <input type="checkbox"/>	—
Peak value of the working voltage $\hat{U}_{out}$ if applicable (kV) .....							—
Supplementary information:							
Distance 3:							
Working voltage (V).....:							—
Frequency if applicable (kHz).....:							—
PTI.....:					< 600 <input type="checkbox"/>	≥ 600 <input type="checkbox"/>	—
Peak value of the working voltage $\hat{U}_{out}$ if applicable (kV) .....							—
Supplementary information:							

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



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Clause	Requirement + Test	Result - Remark	Verdict
<b>1.16 (13.2.1)</b>	<b>TABLE: Ball Pressure Test of Thermoplastics</b>		P
<b>Allowed impression diameter (mm) .....</b>		2	—
Object/ Part No./ Material	Manufacturer/ trademark	Test temperature (°C)	Impression diameter (mm)
Terminal	--	125	1.16
--	--	--	--
--	--	--	--
Supplementary information:			

<b>1.16 (13.3.1)</b>	<b>TABLE: Needle-flame test</b>				N/A
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
--	--	--	--	--	--
--	--	--	--	--	--
--	--	--	--	--	--
Supplementary information:					

<b>1.16 (13.3.2)</b>	<b>TABLE: Resistance to heat and fire - Glow wire tests</b>					P	
Object/ Part No./ Material	Manufacturer/ trademark	Glow wire test (°C)					Verdict
		650		750		850	
		te	ti	te	ti		
LED cover	--	0	0	--	--	--	Pass
Plastic enclosure	--	0	0	--	--	--	Pass
Terminal	--	0	0	--	--	--	Pass
Ignition of the specified layer placed underneath the test specimen (Yes/No) .....						No	
Supplementary information:							





IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict

<b>1.16 (13.4)</b>	<b>TABLE: Proof tracking test</b>			N/A
<b>Test voltage PTI .....</b>		175 V		—
<b>Object/ Part No./ Material</b>	<b>Manufacturer/ trademark</b>	<b>Withstand 50 drops without failure on three places or on three specimens</b>		<b>Verdict</b>
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--
Supplementary information:				



## IEC 60598-2-1

Clause	Requirement + Test	Result - Remark	Verdict
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ANNEX 1: components						P
object/part No.	code	manufacturer/ trademark	type/model	technical data	standard	mark(s) of conformity
Terminal block	B	Jiang Men Krealux Electrical Appliances Co. Ltd.	T06	450V, 32A, 110°C	EN 60998-1 EN 60998-2-1	VDE 40018381
Alternative	D	Openwise Industrial Ltd.	250	450V, 6A, 130°C	DIN EN 61984 (VDE 0627) EN 61984	VDE 40000623
Connector	B	Shangyu Emax Lighting Electric Appliance Co., Ltd	SL-05	AC 250V, 2,5A	EN 60320-1	Test with Appliance (200401284 SHA-002)
Connector (appliance inlet)	B	Shangyu Emax Lighting Electric Appliance Co., Ltd.	--	AC 250V, 2,5A	EN 60320-1	Test with Appliance(se e 200401284S HA-001)
LED driver	B	BOKE	BK-BHL050- 1250AM	Input: 200- 240V, 50/60Hz, 0.35A, ta:60°C, tc:90°C; Output: 50VDC, 1000mA, 50W, for LED modules use only	EN 61347-1 EN 61347-2-13	CE
Internal wire	B	Cixi haosheng Wire & Cable Co., Ltd.	2464	105°C,300V, 22AWG	UL 758	UL
Alternative	D	Tongxiang Yisheng Electric Co.,Ltd.	1007	80°C,300V, 22AWG	UL758	UL/ E255495
Output wiring for LED power supply	B	Tongxiang Yisheng Electric Co.,Ltd.	1007	80°C,300V, 24AWG	UL758	UL/ E255495
Alternative	D	Cixi haosheng Wire & Cable Co., Ltd.	H05V-U H05V-K	1*0,5mm <sup>2</sup>	DIN VDE 0281- 3	VDE/400210 89
Heat- shrinkable tube	B	Guangzhou Kaiheng New Material Co., Ltd.	K-102	125°C, VW-1, 600V (UL/E321827)	EN60598-1	Test with appliance

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Clause	Requirement + Test		Result - Remark		Verdict	
Alternative	D	Changyuan Electronics Group Co., Ltd.	CB-HFT	125°C,600V (UL/E180908)	EN60598-1	Test with appliance
LED PCB	B	Dongyang Bida Enterprise Electronics Co.,Ltd	A05	130°C, V-0	UL746+ EN60598-1 EN60598-2-1	UL/E304228
Alternative	D	LEUCHTEK ELECTRONICS(ZHEJIANG) CO LTD	PAL-3A	130°C, V-0	UL746+ EN60598-1 EN60598-2-1	UL/E199273
LED	B	MLS Co., Ltd.	E2835UX26	IF:60mA, VF:3.8V,PD:200mW	IEC TR 62778	Test with appliance
Plastic enclosure	B	Shangyu Emax Lighting Electric Appliance Co.,Ltd.	PC	Thickness>0.5 mm	EN 60598-1 EN 60598-2-1	Test with appliance
Lamp cover	B	Shangyu Emax Lighting Electric Appliance Co.,Ltd.	PC	Thickness>0.5 mm	EN 60598-1 EN 60598-2-1	Test with appliance
PCB	B	LEUCHTEK ELECTRONICS(ZHEJIANG) CO LTD	PFR-1	130°C, V-0	EN 60598-1 EN 60598-2-1	UL/E199273

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



### IEC 60598-2-1

Clause	Requirement + Test	Result - Remark	Verdict
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ANNEX 2	TABLE: Thermal tests of Section 12		P
	Type reference.....	DR-TPL050- FG5XPM	—
	Lamp used .....	LED	—
	Lamp control gear used .....	LED driver	—
	Mounting position of luminaire .....	Normal mounting	—
	Supply wattage (W) .....	50.37W	—
	Supply current (A) .....	0.211A	—
	Calculated power factor .....	0.972	—
	Temperatures in test 1 - 4 below are corrected for ta (°C) .....	40°C	—
	- abnormal operating mode.....	--	—
1.13 (12.4)	- test 1: rated voltage .....	--	—
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current .....	1.06×240=254.4V	—
	- 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 .....	--	—
1.13 (12.5)	- test 4: 1,1 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current or 130/150% of rated input voltage .....	--	—

### Temperature measurements (°C)

Part	Ambient	Cl. 12.4 – normal				Cl. 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
Terminal block	40	--	46.8	--	125	--	--
Internal wire	40	--	63.2	--	105	--	--
Tc for LED driver	40	--	67.4	--	90	--	--
Connector for LED driver	40	--	51.6	--	Ref.	--	--
Output wire for LED driver	40	--	55.3	--	105	--	--
Plastic enclosure	40	--	48.9	--	Ref.	--	--
Metal enclosure	40	--	47.3	--	Ref.	--	--
Input wire for LED	40	--	58.1	--	105	--	--
LED	40	--	84.6	--	Ref.	--	--



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Clause	Requirement + Test			Result - Remark			Verdict
LED cover	40	--	48.2	--	90	--	--
Mounting surface	40	--	44.5	--	90	--	--
Supplementary information:							



**IEC 60598-2-1**

Clause	Requirement + Test	Result - Remark	Verdict
<b>ANNEX 3</b>	<b>Screw terminals (part of the luminaire)</b>		--
<b>(14)</b>	<b>SCREW TERMINALS</b>		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 <sup>2</sup> ) .....		—
(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)..... :		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



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Clause	Requirement + Test	Result - Remark	Verdict
<b>ANNEX 4</b>	<b>Screwless terminals (part of the luminaire)</b>		N/A
<b>(15)</b>	<b>SCREWLESS TERMINALS</b>		N/A
(15.2)	Type of terminal .....		—
	Rated current (A) .....	32A	—
(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



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Clause	Requirement + Test	Result - Remark	Verdict
	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

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IEC 60598-2-1												
Clause	Requirement + Test									Result - Remark	Verdict	
(15.6.3.1) (15.6.3.2)	<b>TABLE: Contact resistance test / Heating tests</b>										N/A	
	Voltage drop (mV) after 1 h										—	
terminal	1	2	3	4	5	6	7	8	9	10		
voltage drop (mV)	1.4	1.3	1.5	1.2	1.4	1.3	1.2	1.4	1.3	1.3		
	Voltage drop of two inseparable joints											
	Voltage drop after 10th alt. 25th cycle											
	Max. allowed voltage drop (mV) .....					22.5						—
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:												



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Clause	Requirement + Test	Result - Remark	Verdict
<b>4</b>	<b>GENERAL REQUIREMENTS</b>		---
4.4	Integral modules tested assembled in the luminaire		P
4.5	Independent modules complies with requirements in IEC 60598-1		N
<b>5</b>	<b>GENERAL TEST REQUIREMENTS</b>		--
5.5	SELV-operated LED modules comply with Annex I of IEC 61347-2-13	(see Annex 1)	N
	General conditions for tests in Annex A	(see Annex A)	P
<b>6</b>	<b>CLASSIFICATION</b>		---
	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.		---
<b>7</b>	<b>MARKING</b>		N
	Requirements not applicable to the evaluated product.		---
<b>8</b>	<b>TERMINALS</b>		---
	Screw terminals according section 14 of IEC 60598-1:		N
	Separately approved; component list	(see Annex 2)	N
	Part of the luminaire	(see Annex 3)	N
	Screwless terminals according section 15 of IEC 60598-1:		N
	Separately approved; component list	(see Annex 2)	N
	Part of the luminaire	(see Annex 4)	N
	Connectors according IEC 60838-2-2:		N
	Separately approved; component list	(see Annex 2)	N



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Clause	Requirement + Test	Result - Remark	Verdict
<b>9 (9)</b>	<b>PROVISION FOR PROTECTIVE EARTHING</b>		<b>N</b>
	Requirements not applicable to the evaluated product.		---
<b>10 (10)</b>	<b>PROTECTION AGAINST ACCIDENTAL CONTACT WITH LIVE PARTS</b>		<b>N</b>
	Requirements not applicable to the evaluated product.		--
<b>11 (11)</b>	<b>MOISTURE RESISTANCE AND INSULATION</b>		---
	After storage 48 h at 91-95% relative humidity and 20-30 °C measuring of insulation resistance with d.c. 500 V (MΩ):		P
	For basic insulation ≥ 2 MΩ .....	100MΩ	P
	For double or reinforced insulation ≥ 4 MΩ .....		N
	Between primary and secondary circuits in controlgear providing SELV, values in Annex L in IEC 61347-1		N
<b>12 (12)</b>	<b>ELECTRIC STRENGTH</b>		---
	Immediately after clause 11 electric strength test for 1 min		P
	Basic insulation for SELV, test voltage 500 V		P
	Working voltage ≤ 50 V, test voltage 500 V		N
	Working voltage > 50 V ≤ 1000 V, test voltage (V):		P
	Basic insulation, 2U + 1000 V		N
	Supplementary insulation, 2U + 1000 V		P
	Double or reinforced insulation, 4U + 2000 V		N
	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
<b>13 (14)</b>	<b>FAULT CONDITIONS</b>		---
- (14)	When operated under fault conditions the controlgear:		N
	- does not emit flames or molten material		N
	- does not produce flammable gases		N



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



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Clause	Requirement + Test	Result - Remark	Verdict
<b>15</b>	<b>CONSTRUCTION</b>		---
	Wood, cotton, silk, paper and similar fibrous material not used as insulation		P
<b>16 (16)</b>	<b>CREEPAGE DISTANCES AND CLEARANCES</b>		---
- (16)	Creepage and distances and clearances in compliance with IEC 61347-1		P
	Insulating lining of metallic enclosures		P
	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
<b>17 (17)</b>	<b>SCREWS, CURRENT-CARRYING PARTS AND CONNECTIONS</b>		---
	Screws, current-carrying parts and connections in compliance with IEC 60598-1 (clause numbers between parentheses refer to IEC 60598-1)		P
<b>18 (18)</b>	<b>RESISTANCE TO HEAT, FIRE AND TRACKING</b>		---
- (18.1)	Ball-pressure test .....	See Test Table 18 (18.1)	N
- (18.3)	Glow-wire test (650°C) .....	See Test Table 18 (18.3)	N
- (18.4)	Needle-flame test (10 s) .....	See Test Table 18 (18.4)	N
- (18.5)	Proof tracking test .....	See Test Table 18 (18.5)	N
<b>19 (19)</b>	<b>RESISTANCE TO CORROSION</b>		---
	- test according 4.18.1 of IEC 60598-1		N
	- adequate varnish on the outer surface		N
<b>20</b>	<b>INFORMATION FOR LUMINAIRE DESIGN</b>		<b>N</b>
	Information in Annex D (informative)		---



IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict
<b>21</b>	<b>HEAT MANAGEMENT</b>		---
<b>21.1</b>	<b>General</b>		<b>N</b>
	Exchangeability is safeguarded by cap or base		N
<b>21.2</b>	<b>Heat-conducting foil and paste</b>		<b>N</b>
	Heat-conducting foil delivered with the module if necessary		N
<b>22</b>	<b>PHOTOBIOLOGICAL SAFETY</b>		---
<b>22.1</b>	<b>UV radiation</b>		<b>N</b>
	Luminous radiation not exceed 2mW/klm		N
<b>22.2</b>	<b>Blue light hazard</b>		<b>P</b>
	Assessed according to IEC TR 62778		P
<b>22.3</b>	<b>Infrared radiation</b>		<b>N</b>
	Requirements for infrared radiation when required		N
<b>A</b>	<b>ANNEX A - TESTS</b>		---
	All tests performed in accordance with the advice given in Annex H of IEC 61347-1, if applicable		P
	<b>ANNEX 1 - SELV-operated LED modules</b>		---
	SELV-operated LED modules in compliance with Annex I of IEC 61347-2-13		N



EN 62493			
Clause	Requirement + Test	Result - Remark	Verdict

Attachment 2: EN 62493:2015

<b>4.2</b>	<b>APPLICATION OF LIMITS (Test summary)</b>			—	
	<b>Specific absorption rate (SAR)</b>			—	
a)	CISPR 15 clause 4.3.1 Disturbance voltage mains terminals 20 kHz – 30 MHz	*)		P	
b)	CISPR 15 clause 4.4 Radiated electromagnetic disturbances 100 kHz – 30 MHz	*)		P	
c)	CISPR 15 clause 4.4.2 Radiated electromagnetic disturbances 30 MHz – 300 MHz	*)		P	
*)	<input checked="" type="checkbox"/> See separate Test Report for measurements of a), b) and c) above <input type="checkbox"/> Only measurement of d) below. See measurement results below. In this case this test report does not show compliance with IEC 62493.			—	
	<b>Induced current density</b>			P	
d)	Induced current density 20 kHz – 10 MHz	See measurement results below		P	
<b>4.2.d</b>	<b>INDUCED CURRENT DENSITY</b>			—	
	Power supply system utilised:			—	
	Voltage.....	AC230V		—	
	Frequency.....	50/60Hz		—	
	Environmental conditions:			—	
	Temperature .....	25°C		—	
	Humidity.....	58% R.H.		—	
	EuT operation mode:			—	
	<input checked="" type="checkbox"/> Normal operation			—	
	<input type="checkbox"/> Other operation:			—	
<b>4.2.d</b>	<b>MEASUREMENT RESULTS</b>			—	
	Measuring with “Van der Hoofden” test head			—	
	Location of EuT	Measuring distance	Result (F)	Limit (F)	Verdict
	Front of EuT	50 cm	0,11	0,85	P
	Rear of EuT	50 cm	0,12	0,85	P



EN 62493				
Clause	Requirement + Test	Result - Remark	Verdict	
Side of EuT	50 cm	0,11	0,85	P

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IEC TR 62778			
Clause	Requirement + Test	Result - Remark	Verdict

Attachment 3: IEC TR 62778 : 2014

IEC TR 62778:2014			
Clause	Requirement + Test	Result – Remark	Verdict
5	Spectrum, colour temperature, and blue light hazard		P
5.1	Calculation of blue light hazard quantities and photometric quantities from emission spectra		P
5.2	Luminance and illuminance regimes that give rise to tmax values below 100s		P
<b>7</b>	<b>MEASUREMENT INFORMATION FLOW</b>		<b>P</b>
7.1	Basic flow		P
	'Law of conservation of luminance' applied		P
	Use of only true luminance/radiance values		P
	In case of luminaire: The light source is operated in the luminaire under similar conditions as when tested as a component		P
	In case E <sub>thr</sub> value for RG2 was established the peak value was derived from angular light distribution		P
7.2	Conditions for the radiance measurement		P
	Standard condition applied (200mm distance, 0,011rad field of view)		P
	Non-standard condition applied		N/A
7.3	Special cases (I): Replacement by a lamp or LED module of another type		N/A
	Light source is a white light source		N/A
	Evaluation done based on highest luminance		N/A
	Evaluation done based on CCT value		N/A
7.4	Special cases (II): Arrays and clusters of primary light sources		N/A
	LED package is evaluated as.....: <input checked="" type="checkbox"/> RG0 unlimited <input type="checkbox"/> RG1 unlimited		P
	E <sub>thr</sub> of LED package applies to array		N/A
<b>8</b>	<b>RISK GROUP CLASSIFICATION</b>		<b>P</b>
	Risk group achieved:		P
	-.. Risk Group 0 unlimited		P
	-.. Risk Group 1 unlimited		N/A



IEC TR 62778			
Clause	Requirement + Test	Result - Remark	Verdict

IEC TR 62778:2014			
Clause	Requirement + Test	Result – Remark	Verdict
5	Spectrum, colour temperature, and blue light hazard		P
5.1	Calculation of blue light hazard quantities and photometric quantities from emission spectra		P
5.2	Luminance and illuminance regimes that give rise to t <sub>max</sub> values below 100s		P
	- E <sub>thr</sub> ..... (lx): Distance to reach RG1..... (m):		N/A

Risk Group Number	Risk Group Name	Corresponding t <sub>max</sub> range (s)	Blue light hazard L <sub>B</sub> (W/m <sup>2</sup> .sr)
RG0	Exempt	>10000	<100
RG1	Low Risk	100-10000	100-10000
RG2	Moderate Risk	0.25-100	10000-4000000
RG3	High Risk	<0.25	>4000000

IEC TR 62778:2014			
Clause	Requirement + Test	Result – Remark	Verdict
<b>TABLE</b>	<b>SPECTRORADIOMETRIC MEASUREMENT</b>		<b>P</b>
Tested model number.....	DR-TPL050- FG5XPM		
Tested voltage.....	230VAC		
Tested current.....	0.210A		
Tested frequency.....	--		
Ambient temperature.....	24.3°C		
Measurement distance.....	100mm		
Source size.....	<input checked="" type="checkbox"/> Non-small source <input type="checkbox"/> Small source		
Field of view.....	<input type="checkbox"/> 100 mrad <input checked="" type="checkbox"/> 11 mrad <input type="checkbox"/> 1.7 mrad		
Blue light hazard radiance (L <sub>B</sub> ).....	22.4W/(m <sup>2</sup> •sr)		

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IEC TR 62778			
Clause	Requirement + Test	Result - Remark	Verdict

IEC TR 62778:2014			
Clause	Requirement + Test	Result – Remark	Verdict
	Blue light hazard irradiance (E <sub>B</sub> )	--W/m <sup>2</sup>	
	Luminance (L).....:	--cd/m <sup>2</sup>	
	Illuminance (E <sub>thr</sub> ).....:	--lx	
	Calculate distance (d <sub>min</sub> ).....:	--m	

**Measurement Uncertainty Statement:**

EB, Urel=2.52% (k=2)  
LB, Urel=2.84% (k=2)  
LR, Urel=2.84% (k=2)



Attachment 4: Photo document:

**Photo 1**

For model  
DR-TPL050-  
FG5XPM



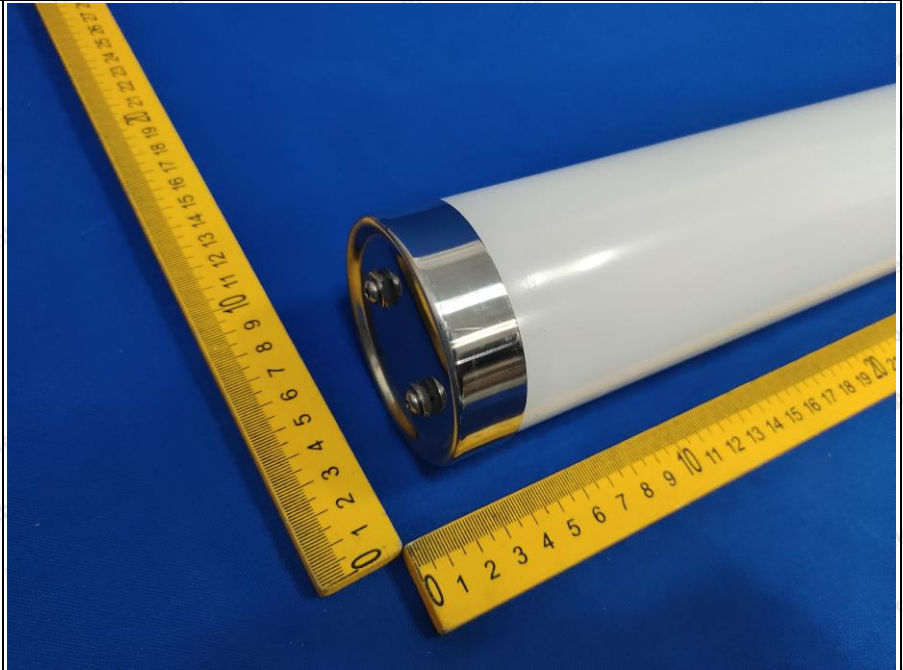
**Photo 2**

For model  
DR-TPL050-  
FG5XPM



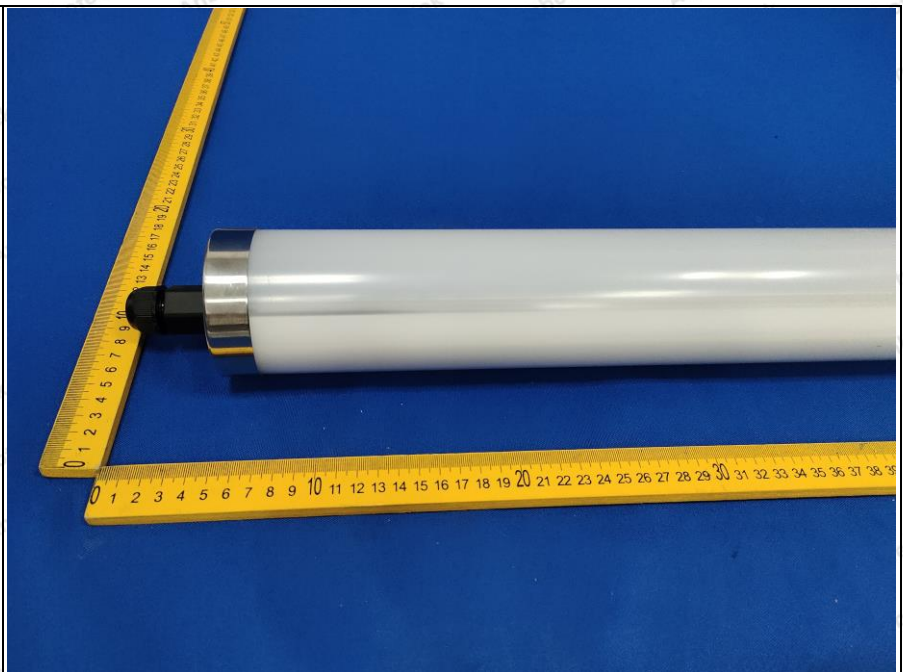
**Photo 3**

For model  
DR-TPL050-  
FG5XPM



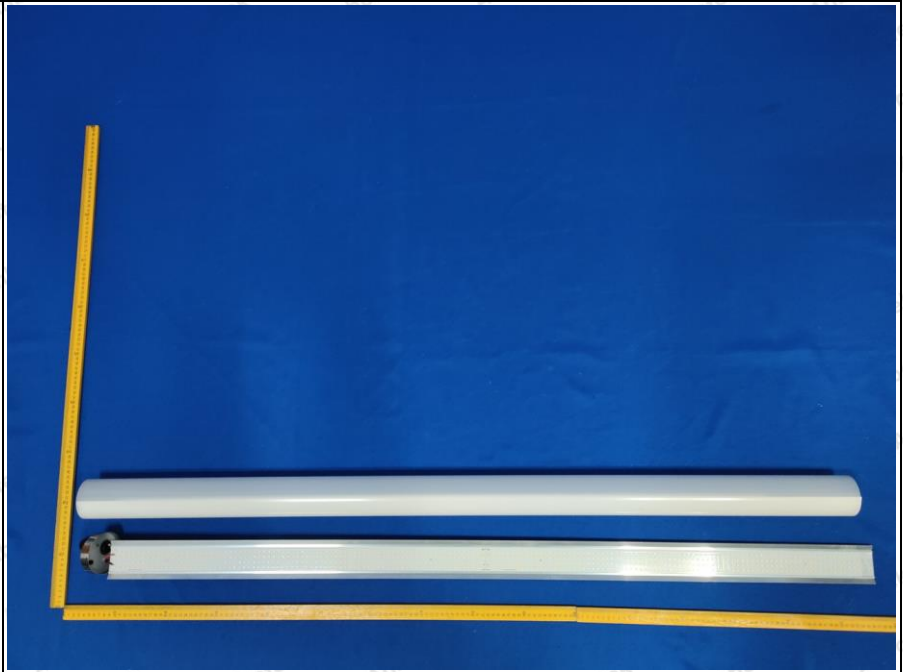
**Photo 4**

For model  
DR-TPL050-  
FG5XPM



**Photo 5**

For model  
DR-TPL050-  
FG5XPM



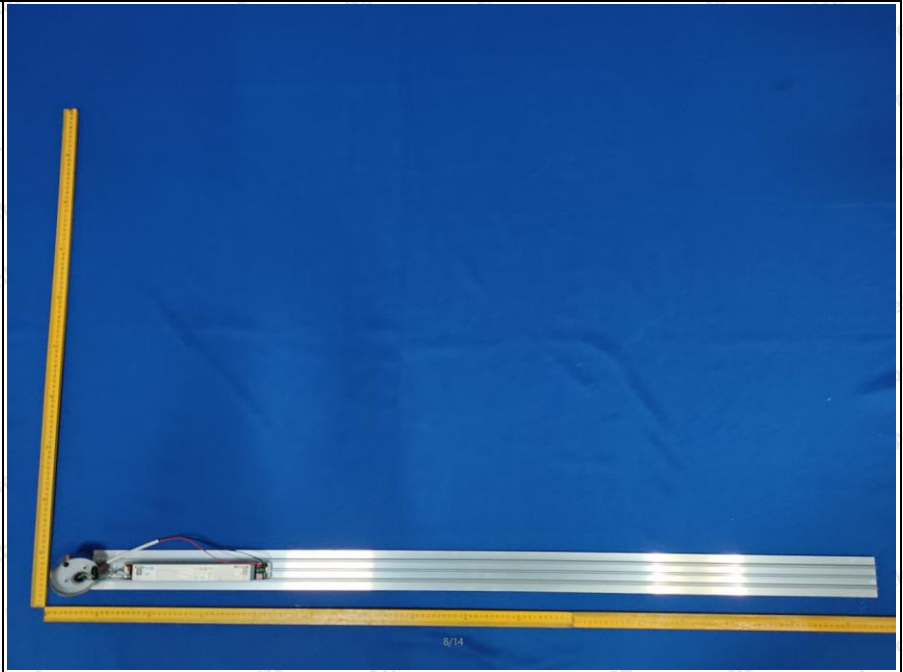
**Photo 6**

For model  
DR-TPL050-  
FG5XPM



**Photo 7**

For model  
DR-TPL050-  
FG5XPM



**Photo 8**

For model  
DR-TPL050-  
FG5XPM



**Photo 9**

For model  
DR-TPL050-  
FG5XPM



**Photo 10**

For model  
DR-TPL050-  
FG5XPM



**\*\*END REPORT\*\***

