Test Report issued under the responsibility of:
LIA Laboratory Ltd

TEST REPORT
IEC 60598-2-1
Luminaires
Part 2: Particular requirements
Section 1: Fixed general purpose luminaires

Report Number. ..... :	L20578
Date of issue ..... :	2024/08/14
Total number of pages ..... :	45 including attachements
Name of Testing Laboratory preparing the Report ..... :	LIA Laboratory Ltd
Applicant's name ..... :	Astro Lighting Ltd
Address ..... :	The Astro Building Midas, River Way, Harlow, Essex, CM20 2GJ
Test specification:	
Standard ..... :	IEC 60598-2-1:2020 used in conjunction with IEC 60598-1:2020
Test procedure ..... :	As above
Non-standard test method ..... :	N/A
TRF template used ..... :	IECEE OD-2020-F1:2021, Ed.1.4
Test Report Form No. ..... :	IEC60598_2_1I
Test Report Form(s) Originator .... :	Intertek Semko AB
Master TRF ..... :	Dated 2022-04-14

This report is not valid as a CB Test Report unless signed by an approved IECEE Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

General disclaimer:

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 NCB. The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report.

Test item description .....:	Side by Side
Trade Mark(s).....:	astro
Manufacturer.....:	Astro
Model/Type reference .....:	1406004 (For family variants see General product information)
Ratings .....:	~100-240V, 50/60Hz, 4.1W LED, E27 LED 12W max. (for more information refer to General product information)

Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):

☒	**CB Testing Laboratory:**	LIA Laboratory Ltd	
Testing location/ address..... :		Stafford Park 7, Telford, Shropshire, TF3 3BQ, UK	
Tested by (name, function, signature) ..... :		Anton Borovy (Certification Business & Accreditation Manager)	
Approved by (name, function, signature).. :		Jack Adams (Laboratory Manager)	
☐	**Testing procedure: CTF Stage 1:**		
Testing location/ address..... :			
Tested by (name, function, signature) ..... :			
Approved by (name, function, signature).. :			
☐	**Testing procedure: CTF Stage 2:**		
Testing location/ address..... :			
Tested by (name + signature) ..... :			
Witnessed by (name, function, signature). :			
Approved by (name, function, signature).. :			
☐	**Testing procedure: CTF Stage 3:**		
☐	**Testing procedure: CTF Stage 4:**		
Testing location/ address..... :			
Tested by (name, function, signature) ..... :			
Witnessed by (name, function, signature). :			
Approved by (name, function, signature).. :			
Supervised by (name, function, signature) :			

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

- ATTACHMENT 1: ATTACHMENT TO TEST REPORT IEC 60598-2-1 EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES (Pages 41-42) – 2 pages;
- ATTACHMENT 2: PHOTOGRAPHS (Pages 43-45) – 3 pages

Summary of testing:

Tests performed (name of test and test clause):

IEC 60598-2-1:2020

1.5 Classification of luminaires

1.6 Markings

1.7 Construction

1.8 Creepage distances and clearances

1.9 Provision for earthing

1.10 Terminals

1.11 External and Internal wiring

1.12 Protection against electric shock

1.13 Endurance tests and thermal tests

1.14 Resistance to dust and moisture

1.15 Insulation resistance and electric strength

1.16 Resistance to heat, fire and tracking

Family variants were assessed against EN 60598-1 (section 0.5, 3)

Note: All testing was conducted at frequency 50Hz

Note: All tests performed are covered under LIA Laboratory UKAS schedule of accreditation.

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Note: The test results relate only to the sample(s) tested. The testing performed is type testing only not a statement of on-going production.

Testing location:

LIA Laboratory Ltd
Stafford Park 7,
Telford,
Shropshire,
TF3 3BQ
United Kingdom

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

Austria	Greece	Norway
Belgium	Hungary	Poland
Bulgaria	Iceland	Portugal
Croatia	Ireland	Romania
Cyprus	Italy	Serbia
Czech Republic	Latvia	Slovakia
Denmark	Lithuania	Slovenia
Estonia	Luxembourg	Spain
Finland	Republic of North Macedonia	Sweden
France	Malta	Switzerland
Germany	Netherlands	Turkey
		United Kingdom

☒ **The product fulfils the requirements of BS EN IEC 60598-2-1:2021 used in conjunction with BS EN IEC 60598-1:2021+A11:2022**

Use of uncertainty of measurement for decisions on conformity (decision rule) :

☐ No decision rule is specified by the IEC standard, when comparing the measurement result with the applicable limit according to the specification in that standard. The decisions on conformity are made without applying the measurement uncertainty ("simple acceptance" decision rule, previously known as "accuracy method").

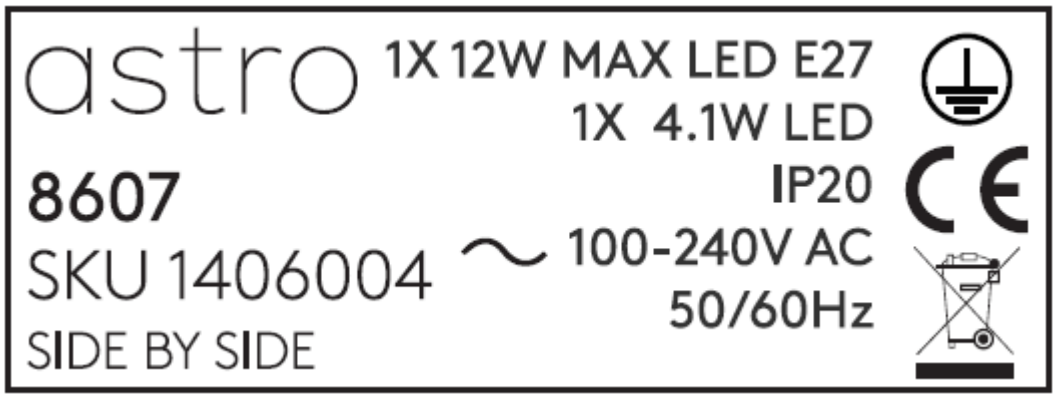
☒ Other: In the event a test result falls on a pass/fail boundary, a decision rule will be applied to the measured values to establish conformity. The decision rule is based on Procedure 1 of IEC Guide 115

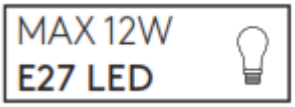
Information on uncertainty of measurement:
The uncertainties of measurement are calculated by the laboratory based on application of criteria given by OD-5014 for test equipment and application of test methods, decision sheets and operational procedures of IECEE.
IEC Guide 115 provides guidance on the application of measurement uncertainty principles and applying the decision rule when reporting test results within IECEE scheme, noting that the reporting of the measurement uncertainty for measurements is not necessary unless required by the test standard or customer.

Calculations leading to the reported values are on file with the NCB and testing laboratory that conducted the testing.

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.





Note: Example of the marking labels. Marking labels of family variants differ accordingly. For product code explanation refer to General product information.

Test item particulars.....:	Side by Side
Classification of installation and use.....:	Class I, IP20, suitable to be mounted on normally flammable surface, for normal use
Supply Connection.....:	3 pole terminal block ~100-240V, 50/60Hz
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 .....:	(L17621) 2017/08/17
Date (s) of performance of tests.....:	(L17621) 2017/08/17 – 2017/09/10; (L20578) 2024/07/19 – 2024/08/14

General remarks:

"(See Enclosure #)" refers to additional information appended to the report.
"(See appended table)" refers to a table appended to the report.

Throughout this report a ☐ comma / ☒ point is used as the decimal separator.

Manufacturer's Declaration per sub-clause 4.2.5 of IECEE 02:

The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided ..... :	☐ **Yes** ☒ **Not applicable**

When differences exist; they shall be identified in the General product information section.

Name and address of factory (ies).....:	Target Lighting No. 1 Industrial Zone, Zhongcun Panyu, Guangzhou 511495 China Starlit No.3 Lizhihao's building, Kengtougang Shixi village, Shilian Danzao Town, Nanhai District 528216 China

General product information:

Protection class……..	Class I;
Protection against dust, solid object and moisture……..	IP20;
Suitable for surfaces:……	For normally flammable surfaces;
Classification of use:……	For indoor use;
Construction:……..	Metal frame, Plastic diffuser of LED module;
Supply connection:……	3 pole terminal block;
Used lamp……..	12W LED E27; 4.1W LED module- Non-user replaceable
Ratings……	100-240V, 50/60Hz;

Note: Test report L20578 was prepared to reflect changes in the newest edition of IEC 60598 testing standards. Original assessment was conducted under LIA Laboratory job L17621.

Family variants: Side by Side

Model Number:	Lamp type	Voltage (V)	Power (W)	Frequency (Hz)	Product Finish	Dimensions (mm)		
						L	W	H
1406004	LED module/ E27	100-240V	12W Max E27 LED ; 4.1W LED	50/60	Bronze	159	200	180
1406002					Matt Black			
1406003					Matt Nickel			

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

1.4 (0)	**GENERAL TEST REQUIREMENTS**		P
1.4 (0.3)	More sections applicable ..... :	Yes ☐ No ☒ Section/s:	—
1.4 (0.5)	Components	(see Annex 1)	—
1.4 (0.7)	**Information for luminaire design in light sources standards**		—
1.4 (0.7.2)	Light source safety standard ..... :	IEC/EN 62560; IEC/EN 62031	—
	Luminaire design in the light source safety standard		P

1.5 (2)	**CLASSIFICATION OF LUMINAIRES**		P
1.5 (2.2)	Type of protection ..... :	Class I	P
1.5 (2.3)	Degree of protection ..... :	IP20	—
1.5 (2.4)	Luminaire suitable for direct mounting on normally flammable surfaces ..... :	Yes ☒ No ☐	—
1.5 (2.5)	Luminaire for normal use ..... :	Yes ☒ No ☐	—
	Luminaire for rough service ..... :	Yes ☐ No ☒	—

1.6 (3)	**MARKING**		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	GB/FR/IT/DE	P
1.6 (3.3.1)	Combination luminaires	Not combination	N/A
1.6 (3.3.2)	Nominal frequency in Hz	50/60Hz	P
1.6 (3.3.3)	Operating temperature	Not above limits, no transformer	N/A
1.6 (3.3.5)	Wiring diagram	Suitable to be connected directly to mains	P
1.6 (3.3.6)	Special conditions	No special condition	N/A
1.6 (3.3.7)	Metal halide lamp luminaire – warning	No Metal halide	N/A
1.6 (3.3.8)	Limitation for semi-luminaires	Not semi luminaire	N/A
1.6 (3.3.9)	Power factor and supply current	Replaceable light source (lamp not provided with product)	N/A
1.6 (3.3.10)	Suitability for use indoors	IP20	N/A
1.6 (3.3.11)	Luminaires with remote control	No remote control	N/A

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.6 (3.3.12)	Clip-mounted luminaire – warning	Not clip mounted	N/A
1.6 (3.3.13)	Specifications of protective shields	No shield	N/A
1.6 (3.3.14)	Symbol for nature of supply	~	P
1.6 (3.3.15)	Rated current of socket outlet	No socket-outlet	N/A
1.6 (3.3.16)	Rough service luminaire	Not Rough service	N/A
1.6 (3.3.17)	Mounting instruction for type Y, type Z and some type X attachments	No supply cable	N/A
1.6 (3.3.18)	Non-ordinary luminaires with PVC cable	Provided without supply cable	N/A
1.6 (3.3.19)	Protective conductor current in instruction if applicable	Protective conductor current <10mA	N/A
1.6 (3.3.20)	Provided with information if not intended to be mounted within arm's reach	No such intention	N/A
1.6 (3.3.21)	Non replaceable and non-user replaceable light sources information provided	Non-user replaceable	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	Not controllable	N/A
1.6 (3.3.24)	If not supplied with terminal block, information on the packaging	Supplied with terminal block	N/A
1.6 (3.3.25)	Luminaires employing light sources emitting UV on mains wiring, information provided	No UV emitted	N/A
1.6 (3.3.26)	Wall mounted luminaire using external flexible cable or cord longer than 0.3 m, information provided	No such cable used	N/A
1.6 (3.4)	Test with water		P
	Test with hexane		P
	Legible after test	Still legible	P
	Label attached	Still attached	P

1.7 (4)	**CONSTRUCTION**		P
1.7 (4.2)	Components replaceable without difficulty	Lamp, controlgear	P
1.7 (4.3)	Wireways smooth and free from sharp edges		P
1.7 (4.4)	**Lamp holders**		N/A
1.7 (4.4.1)	Integral lamp holder	No integral lampholder	N/A
1.7 (4.4.2)	Wiring connection		N/A
1.7 (4.4.3)	Lamp holder for end-to-end mounting		N/A
1.7 (4.4.4)	Positioning		N/A

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	- 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	No ignitor	N/A
1.7 (4.4.6)	Centre contact		N/A
1.7 (4.4.7)	Parts in rough service luminaires resistant to tracking	Not rough service type	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
1.7 (4.5)	**Starter holders**		N/A
	Starter holder in luminaires other than class II	No starter holder	N/A
	Starter holder class II construction		N/A
1.7 (4.6)	**Terminal blocks**		**N/A**
	Tails	Provided with terminal block	N/A
	Unsecured blocks		P
1.7 (4.7)	**Terminals and supply connections**		**P**
1.7 (4.7.1)	Contact to metal parts		P
1.7 (4.7.2)	Test 8 mm live conductor		P
	Test 8 mm earth conductor		P
1.7 (4.7.3)	Terminals for supply conductors		P
1.7 (4.7.3.1)	Welded method and material		N/A
	- stranded or solid conductor	No welded connections	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

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.7 (4.7.4)	Terminals other than supply connection	Cable crimp; Earthing terminal (screw); LED module solder point	P
1.7 (4.7.5)	Heat-resistant wiring/sleeves		P
1.7 (4.7.6)	Multi-pole plug	No such plug is used	N/A
	- test at 30 N		N/A
1.7 (4.8)	**Switches**		**P**
	- adequate rating		P
	- adequate fixing		P
	- polarized supply		N/A
	- compliance with IEC 61058-1 for electronic switches	See Annex 1	P
1.7 (4.9)	**Insulating lining and sleeves**		N/A
1.7 (4.9.1)	Retainment	Class I; Basic insulated cable are mechanically protected by sleeve	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
1.7 (4.10)	**Double or reinforced insulation**		N/A
1.7 (4.10.1)	No contact, mounting surface – accessible metal parts – wiring of basic insulation	Class I	N/A
	Safe installation fixed luminaires		N/A
	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

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.7 (4.10.4)	Protective impedance device		N/A
	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)	No such device	N/A
	Capacitors comply with IEC 60384-14		N/A
	Resistors comply with test (a) in 14.2 of IEC 60065		N/A
1.7 (4.11)	**Electrical connections and current-carrying parts**		**P**
1.7 (4.11.1)	Contact pressure		P
1.7 (4.11.2)	Screws:		P
	- self-tapping screws	Earthing terminal	P
	- thread-cutting screws		N/A
1.7 (4.11.3)	Screw locking:		P
	- spring washer		P
	- rivets	No rivets	N/A
1.7 (4.11.4)	Material of current-carrying parts	Copper, Brass	P
1.7 (4.11.5)	No contact to wood or mounting surface		P
1.7 (4.11.6)	Electro-mechanical contact systems	No such part	N/A
1.7 (4.12)	**Screws and connections (mechanical) and glands**		**P**
1.7 (4.12.1)	Screws not made of soft metal		P
	Screws of insulating material	No such screws	N/A
	Torque test: torque (Nm); part..... :	Fix arm,1.2Nm	P
	Torque test: torque (Nm); part..... :	Fix Diffuser, 0.4Nm	P
	Torque test: torque (Nm); part..... :		N/A
1.7 (4.12.2)	Screws with diameter < 3 mm screwed into metal		P
1.7 (4.12.4)	Locked connections:		N/A
	- fixed arms; torque (Nm) ..... :	2.5Nm	P
	- lamp holder; torque (Nm) ..... :	E27; 2Nm	P
	- push-button switches; torque 0,8 Nm ..... :		P
1.7 (4.12.5)	Screwed glands; force (Nm)..... :	No screwed gland	N/A
1.7 (4.13)	**Mechanical strength**		**P**
1.7 (4.13.1)	Impact tests:		P
	- fragile parts; energy (Nm) ..... :		N/A

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	- other parts; energy (Nm)..... :	Metal housing; 0.35Nm	P
	1) live parts		P
	2) linings	No 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	For normal use only	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
1.7 (4.14)	**Suspensions, fixings and means of adjusting**		**P**
1.7 (4.14.1)	Mechanical load:		P
	A) four times the weight	Weight-0.72kg Tested with-2.9kg	P
	B) torque 2,5 Nm		P
	C) bracket arm; bending moment (Nm) ..... :	No such part	N/A
	D) load track-mounted luminaires	Not track mounted	N/A
	E) clip-mounted luminaires, glass-shelve. Thickness (mm) ..... :	Not clip mounted	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) ..... :	No flexible cable	—
	Stress in conductors (N/mm²) ..... :		N/A
	Mass (kg) of semi-luminaire ..... :	Not semi-luminaire	N/A
	Bending moment (Nm) of semi-luminaire ..... :		N/A
1.7 (4.14.3)	Adjusting devices:		P
	- flexing test; number of cycles..... :	150	P
	- strands broken ..... :	0	P

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	- electric strength test afterwards	1500V	P
1.7 (4.14.4)	Telescopic tubes: cords not fixed to tube; no strain on conductors	No telescopic tube	N/A
1.7 (4.14.5)	Guide pulleys	No guide pulleys	N/A
1.7 (4.14.6)	Strain on socket-outlets		N/A
1.7 (4.15)	**Flammable materials**		P
	- glow-wire test 650°C ..... :	See Test Table 1.15 (13.3.2)	P
	- spacing ≥30 mm	No flammable materials	N/A
	- screen withstanding test of 13.3.1		N/A
	- screen dimensions		N/A
	- no fiercely burning material		P
	- thermal protection		N/A
	- electronic circuits exempted		N/A
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
1.7 (4.16)	**Luminaires for mounting on normally flammable surfaces**		**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:		N/A
	- spacing 35 mm	No control gear	N/A
	- spacing 10 mm		N/A
1.7 (4.16.2)	Thermal protection:		P
	- in lamp control gear		P
	- external		N/A
	- fixed position		N/A
	- temperature marked lamp control gear	110	P
1.7 (4.16.3)	Design to satisfy the test of 12.6	(see clause 12.6)	N/A
1.7 (4.17)	**Drain holes**		N/A
	Clearance at least 5 mm	No drain holes	N/A
1.7 (4.18)	**Resistance to corrosion**		N/A
1.7 (4.18.1)	- rust-resistance	IP20	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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)	Ignitors compatible with ballast		N/A
1.7 (4.20)	Rough service vibration	Not rough service	N/A
1.7 (4.21)	**Protective shield**		N/A
1.7 (4.21.1)	Shield fitted if tungsten halogen lamps or metal halide lamps	No protective shield	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	Not semi-luminaire	N/A
1.7 (4.24)	**Photobiological hazards**		P
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 .....:	RG1 *4.89E+03 (W m-2 sr-1)*	—
	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
1.7 (4.25)	**Mechanical hazard**		**P**
	No sharp point or edges		P
1.7 (4.26)	**Short-circuit protection**		N/A
1.7 (4.26.1)	Adequate means of uninsulated accessible SELV / PELV parts	No uninsulated SELV parts	N/A
1.7 (4.26.2)	Short-circuit test with test chain according 4.26.3:		N/A

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	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
1.7 (4.27)	**Terminal blocks with integrated screwless protective earthing contacts**		N/A
	Test according Annex V	No such terminal block	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
1.7 (4.28)	**Fixing of thermal sensing control**		N/A
	Not plug-in or easily replaceable type	No thermal sensing control	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
1.7 (4.29)	**Luminaires with non-replaceable light source**		N/A
	Not possible to replace light source		N/A
	Live part not accessible after parts have been opened by hand or tools		N/A
1.7 (4.30)	**Luminaires with non-user replaceable light source**		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	SELV light source	P
1.7 (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	Not controlable	N/A
1.7 (4.31.1)	SELV or PELV circuits		P

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Clause	Requirement + Test	Result - Remark	Verdict
	Used SELV/PELV source	HEP Group LSC4W700 UNI	P
	Voltage ≤ ELV	12Vdc	P
	Insulating of SELV/PELV circuits from LV supply		P
	Insulating of SELV/PELV circuits from other non SELV/PELV circuits	No other circuits	N/A
	Insulating of SELV/PELV circuits from FELV	No FELV	N/A
	Insulating of SELV/PELV circuits from other SELV/PELV circuits	No other SELV 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	No plug	N/A
	Socket outlets does not admit plugs of other voltage systems	No socket-outlet	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	No FELV circuits	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 have protective conductor contact		N/A
1.7 (4.31.3)	Other circuits		N/A
	Other circuits insulated from accessible parts according Table X.1	No other circuits	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

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Clause	Requirement + Test	Result - Remark	Verdict
	- slave luminaire constructed as class I		N/A
1.7 (4.32)	**Overvoltage protective devices**		N/A
	Comply with IEC 61643-11	No such device is used	N/A
	External to controlgear and connected to earth:		N/A
	- only in fixed luminaires		N/A
	- only connected to protective earth		N/A
1.6 (4.33)	**Luminaire powered via information technology communication cabling**		N/A
	Requirements for Class III luminaire	Powered from mains (via terminal block)	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
1.6 (4.34)	**Electromagnetic fields (EMF)**		P
	No harmful electromagnetic fields	LED light source	P
1.6 (4.35)	**Protection against moving fan blades**		N/A
	Test with a standard test finger	No fans	N/A
	Test with test probe acc. to Figure 13 (IEC 61032) for portable luminaire		N/A
	Blades rounded with radius ≥ 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 ≤ 2 W at rated voltage		N/A
1.6 (4.36)	**Track-mounted luminaires**		N/A
	Test in accordance with Annex A of IEC60570:2003/AMD2:2019	No track system	N/A

1.8 (11)	**CREEPAGE DISTANCES AND CLEARANCES**		P
1.8 (11.2.1)	Impulse withstand category (Normal category II)	Category II ☒ Category III ☐	—
	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_{UOUT} according IEC 61347-1, clause 7.1, item w	See Test Table 1.7 (11.2) II	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- 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 Ω..... :	R_{Max} 81mΩ	P
	Self-tapping screws used		P
	Thread-forming screws		N/A
	Thread-forming screw used in a grove		N/A
	Protective earth makes contact first		N/A
	Terminal blocks with integrated screwless protective earthing contacts tested according Annex V	No such terminal block	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	Serrated washer	P
	Compliance with 4.7.3		P
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		P
1.9 (7.2.7)	Electrolytic corrosion of the protective earth terminal		P
1.9 (7.2.8)	Material of protective earth terminal	Brass / Metal	P
	Contact surface bare metal		P
1.9 (7.2.10)	Class II luminaire for looping-in	Class I	N/A
	Double or reinforced insulation to functional earth		N/A
1.9 (7.2.11)	Protective earthing core coloured green-yellow	Luminaire provided without supply cord; Internal wire for earthing connection is green/yellow	P

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Clause	Requirement + Test	Result - Remark	Verdict
	Length of protective earthing conductor		N/A
1.9 (7.2.12)	PELV circuit connected to protective earth for functional purpose		N/A
1.10 (14)	**SCREW TERMINALS**		P
	Separately approved; component list	(see Annex 1)	P
	Part of the luminaire	Earthing terminal (lug terminal); (see Annex 3)	P
1.10 (15)	**SCREWLESS TERMINALS AND ELECTRICAL CONNECTIONS**		P
	Separately approved; component list..... :	(see Annex 1)	P
	Part of the luminaire ..... :	Cable crimp; LED module solder point (see Annex 4)	P
1.11 (5)	**EXTERNAL AND INTERNAL WIRING**		P
1.11 (5.2)	**Supply connection and external wiring**		**P**
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	No cable provided with luminaire	N/A
1.11 (5.2.2)	Type of cable..... :		N/A
	Nominal cross-sectional area (mm²) ..... :		N/A
	Cables equal to IEC 60227 or IEC 60245		N/A
1.11 (5.2.3)	Type of attachment, X, Y or Z	No such attachment	N/A
1.11 (5.2.5)	Type Z not connected to screws		N/A
1.11 (5.2.6)	Cable entries:		P
	- 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:		N/A
	- suitably fixed	No insulating bushing	N/A
	- material in bushings		N/A
	- material not likely to deteriorate		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- tubes or guards made of insulating material		N/A
1.11 (5.2.9)	Locking of screwed bushings	No screwed bushing	N/A
1.11 (5.2.10)	Cord anchorage:		N/A
	- covering protected from abrasion	No cord anchorage	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
1.11 (5.2.10.1)	Cord anchorage for type X attachment:		N/A
	a) at least one part fixed	No such attachment	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	No such attachment	N/A
1.11 (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
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	No such luminaire	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- 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	No external cable	N/A
1.11 (5.2.12)	Looping-in terminals	Not for looping-in	N/A
1.11 (5.2.13)	Wire ends not tinned		N/A
	Wire ends tinned: no cold flow		N/A
1.11 (5.2.14)	Mains plug same protection	No plug	N/A
	Class III luminaire plug	No class III plugs	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)	No appliance inlets	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
1.11 (5.3)	**Internal wiring**		**P**
1.11 (5.3.1)	Internal wiring of suitable size and type		P
	Through wiring		N/A
	- not delivered/ mounting instruction	No through wiring	N/A
	- factory assembled		N/A
	- socket outlet loaded (A) ..... :	No socket-outlet	N/A
	- temperatures ..... :	(see Annex 2)	N/A
	Green-yellow for protective earth only		Ppp
1.11 (5.3.1.1)	Internal wiring connected directly to fixed wiring		P

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Clause	Requirement + Test	Result - Remark	Verdict
	Cross-sectional area (mm²)..... :	0.5mm²	P
	Insulation thickness (mm) ..... :	0.6mm	P
	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 (mm²)..... :	0.5mm²	P
1.11 (5.3.1.3)	Double or reinforced insulation for class II	Class I	N/A
1.11 (5.3.1.4)	Conductors without insulation		N/A
1.11 (5.3.1.5)	SELV/PELV current-carrying parts	No SELV/PELV circuits	N/A
1.11 (5.3.1.6)	Insulation thickness other than PVC or rubber	FEP	P
1.11 (5.3.2)	Sharp edges etc.	No sharp edges	P
	No moving parts of switches etc.		P
	Joints, raising/lowering devices		P
	Telescopic tubes etc.	No telescopic tube	N/A
	No twisting over 360°		P
1.11 (5.3.3)	Insulating bushings:		P
	- suitable fixed		P
	- material in bushings	Sleeve used for mechanical protection of double insulated wiring	P
	- material not likely to deteriorate		P
	- cables with protective sheath		P
1.11 (5.3.4)	Joints and junctions effectively insulated	Cable crimp connection	P
1.11 (5.3.5)	Strain on internal wiring	Internal wiring doesn't pass out of luminaire	N/A
1.11 (5.3.6)	Wire carriers		N/A
1.11 (5.3.7)	Wire ends not tinned		P
	Wire ends tinned: no cold flow		N/A
1.11 (5.4)	**Test to determine suitability of conductors having a reduced cross-sectional area**		N/A
	Under test the temperature of the luminaire wiring insulation not exceed the limits stated in Table 12.2	(see Annex 2)	N/A
	No damage to luminaire wiring after test	No such conductors	N/A

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Clause	Requirement + Test	Result - Remark	Verdict

1.12 (8)	**PROTECTION AGAINST ELECTRIC SHOCK**		P
1.12 (8.2.1)	Live parts not accessible		P
	Basic insulated parts not used on the outer surface without appropriate protection	Adjustable	N/A
	Basic insulated parts not accessible with standard test finger on portable, settable and adjustable luminaires		P
	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		P
	Basic insulation only accessible under lamp or starter replacement		P
	Protection in any position		P
	Double-ended tungsten filament lamp	E27, LED module	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	No portable	N/A
1.12 (8.2.3.a)	Class II luminaire:		N/A
	- basic insulated metal parts not accessible	Class I	N/A
	- required insulation from live parts in compliance with Table X.1		N/A
	- glass protective shields not used as supplementary insulation	No such shield	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)..... :	No exposed SELV circuits	N/A
	- voltage under load/ no-load DC (V)……...:		N/A
	- interrupted DC voltage (V) ……:		N/A
	- touch current if applicable (mA) ..... :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	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/PELV		N/A
			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)..... :	No PELV circuits	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	Fixed luminaire	N/A
1.12 (8.2.5)	Compliance with the standard test finger or relevant probe		P
1.12 (8.2.6)	Covers reliably secured		P
1.12 (8.2.7)	Luminaire other than below with capacitor > 0,5 μF not exceed 50 V 1 min after disconnection	No such capacitor	N/A
	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

1.13 (12)	**ENDURANCE TEST AND THERMAL TEST**		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		—
1.13 (12.2)	**Selection of lamps and ballasts**		**—**
	Lamp used according Annex B	(Lamp used see Annex 2)	—
	Control gear if separate and not supplied	(Control gear used see Annex 2)	—
1.13 (12.3)	**Endurance test**		**P**

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Clause	Requirement + Test	Result - Remark	Verdict
	a) mounting-position ..... :	Fixed on wall	—
	b) test temperature (°C) ..... :	35	—
	c) total duration (h) ..... :	240	—
	d) supply voltage (V) ..... :	264	—
	d) if not equipped with control gear, constant voltage/current (V) or (A) ..... :	E27 12W LED, integral LED module	—
1.13 (12.3.1d)	d) Class III luminaires powered via information technology communication cable:		N/A
	- voltage under normal operation (V)……...:	For connection to mains voltage	—
	- 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	No track system	N/A
	- marking legible		P
	- no cracks, deformation etc.		P
1.13 (12.4)	**Thermal test (normal operation)**	(see Annex 2)	P
1.13 (12.5)	**Thermal test (abnormal operation)**	(see Annex 2)	P
1.13 (12.6)	**Thermal test (failed lamp control gear condition):**		N/A
1.13 (12.6.1)	Through wiring or looping-in wiring loaded by a current of (A) ..... :	No through wiring	—
	- 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 ..... :	No temperature sensing control	—
	- 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
1.13 (12.7)	**Thermal test (failed lamp control gear in plastic luminaires):**		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 ..... :	Not to be used with fluorescent lamps	—
	Test according to 12.7.1.1:		N/A
	- case of abnormal conditions ..... :		—
	- Ballast failure at supply voltage (V) ..... :		—
	- Components retained in place after the test		N/A
	- Test with standard test finger after the test		N/A
	Test according to Annex W:		N/A
	- case of abnormal conditions ..... :		—
	- measured winding temperature (°C): at 1,1 Un ..... :		—
	- measured temperature of fixing point/exposed part (°C): at 1,1 Un ..... :		—
	- calculated temperature of fixing point/exposed part (°C) ..... :		—
	Ball-pressure test .....:	See Test Table 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

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Clause	Requirement + Test	Result - Remark	Verdict
1.13 (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 Test Table 1.15 (13.2.1)	N/A

1.14 (9)	**RESISTANCE TO DUST AND MOISTURE**		P
1.14 (-)	If IP > IP 20 the order of tests as specified in clause 1.12		N/A
1.14 (9.2)	Tests for ingress of dust, solid objects and moisture:		P
	- classification according to IP..... :	IP20	—
	- mounting position during test ..... :	Fixed on wall	—
	- fixing screws tightened; torque (Nm) ..... :	0.8Nm	—
	- tests according to clauses..... :	9.2.0	—
	- electric strength test afterwards	1500V	P
	a) no deposit in dust-proof luminaire		N/A
	b) no talcum in dust-tight luminaire		N/A
	c) no trace of water on current-carrying parts or on insulation where it could become a hazard		N/A
	c.1) For luminaires without drain holes – no water entry		N/A
	c.2) For luminaires with drain holes – no hazardous water entry	No drain hole	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		N/A
	e) no contact with live parts (IP 2X)		P
	e) no entry into enclosure (IP 3X and IP 4X)	IP20	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	25ºC; 94% humidity	P

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Clause	Requirement + Test	Result - Remark	Verdict

1.15 (10)	**INSULATION RESISTANCE AND ELECTRIC STRENGTH**		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 ..... :	No cable	—
	Insulation resistance (MΩ)……..:		P
	SELV/PELV:		P
	- between current-carrying parts of different polarity :		N/A
	- between current-carrying parts and mounting surface..... :	4559 MΩ	P
	- between current-carrying parts and metal parts of the luminaire..... :	>5000 MΩ	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 ..... :	>5000 MΩ	P
	Other than SELV/PELV:		P
	- between live parts of different polarity ..... :		N/A
	- between live parts and mounting surface ..... :	>5000 MΩ	P
	- between live parts and metal parts ..... :	>5000 MΩ	P
	- 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 .....:	>5000 MΩ	P
1.15 (10.2.2)	Electric strength test		P
	Dummy lamp		N/A
	Luminaires with ignitors after 24 h test	No ignitors	N/A
	Luminaires with manual ignitors		N/A
	Test voltage (V)……:		N/A
	SELV/PELV:		P
	- between current-carrying parts of different polarity :		N/A
	- between current-carrying parts and mounting surface..... :	500V	P

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Clause	Requirement + Test	Result - Remark	Verdict
	- between current-carrying parts and metal parts of the luminaire ..... :	500V	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 ..... :	500V	P
	Other than SELV/PELV:		P
	- between live parts of different polarity ..... :		N/A
	- between live parts and mounting surface ..... :	1500V	P
	- between live parts and metal parts ..... :	1500V	P
	- 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
1.15 (10.3)	Touch current (mA)..... :	1500V	P
	Protective conductor current (mA)..... :	0.026 mA (limit 3.5mA)	P

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)	P
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

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Clause	Requirement + Test	Result - Remark	Verdict

1.8 (11.2)	**TABLE I: Creepage distances and clearances**							**P**
	Minimum distances (mm) for a.c. up to 30 kHz sinusoidal voltages							**P**
	Applicable part of IEC 60598-1 Table 11.1.A*, 11.1.B* and 11.2*							**P**
	Insulation type **	**Measured clearance**	**Required**		**Measured creepage**	**Required**		
			clearance	***Table**		**creepage**	***Table**	
Distance 1:	B	10.56	1.5	11.1.B	10.56	2.5	11.1.A	
Working voltage (V) ..... :					240VAC			—
PTI ..... :					< 600 ☒ ≥ 600 ☐			—
Pulse voltage or U_P if applicable (kV) ..... :					N/A			—
Supplementary information: Between live parts of different polarity								
Distance 2:	B	7.27	1.5	11.1.B	7.27	2.5	11.1.A	
Working voltage (V) ..... :					240VAC			—
PTI ..... :					< 600 ☒ ≥ 600 ☐			—
Pulse voltage or U_P if applicable (kV) ..... :					N/A			—
Supplementary information: Between live parts and accessible metal parts								
Distance 3:	B	7.27	1.5	11.1.B	7.27	2.5	11.1.A	
Working voltage (V) ..... :					240VAC			—
PTI ..... :					< 600 ☒ ≥ 600 ☐			—
Pulse voltage or U_P if applicable (kV) ..... :					N/A			—
Supplementary information: Between live parts and supporting surface								

** 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)	**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) .....:								—
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.

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Clause	Requirement + Test	Result - Remark	Verdict

1.16 (13.2.1)	**TABLE: Ball Pressure Test of Thermoplastics**			**P**
Allowed impression diameter (mm) ..... :		2		—
Object/ Part No./ Material	Manufacturer/ trademark	Test temperature (°C)	Impression diameter (mm)	
Cable crimp	Heavy power	125	1.1mm	
Supplementary information:				

1.16 (13.3.1)	**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
Crimp	Heavy power	10	No	0	P
Supplementary information:					

1.16 (13.3.2)	**TABLE: Resistance to heat and fire - Glow wire tests**				**N/A**
Object/ Part No./ Material	**Manufacturer/ trademark**	**GWT (°C) : 650**			**Verdict**
		t_E (s)	**t_I (s)**	**t_R (s)**	
LED cover	Astro	N/A	N/A	0	P
Ignition of the specified layer placed underneath the test specimen (Yes/No)..... :					No
Supplementary information: No flame or molten drops					

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Clause	Requirement + Test	Result - Remark	Verdict

1.16 (13.4)	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	TABLE: Critical components information					P
Object / part No.	**Code**	**Manufacturer/ trademark**	**Type / model**	**Technical data**	**Standard**	**Mark(s) of conformity[1)]**
Internal wire	A	Guangzhou Tang Yao Wires Co. Ltd.	TY 1990	300/500 V 0.5mm^2 T180ºC	DIN 57250 Teil 106 (VDE 0250 Teil 106):1982-10	VDE 40002540
Switch	A	BJB GmbH & Co.	43.409	250V 6(2)A T55ºC IP20	EN IEC 61058-1:2018, EN 61058-1-1:2016	VDE ENEC 40052307
Lampholder	A	Arditi	81S	E27, 250V, 4A, T210	EN 60238:2018+A1+A2+A11:2021	IMQ ENEC EN732
Terminal block	A	Openwise Industrial Ltd	923	16A, 400V	EN 60998-2-2:2004, EN 60998-1:2004	VDE 40022690
Description:	The component is replaceable with another one, also certified, with equivalent characteristics					
LED driver	B	HEP Group	LSC4W700LRP UNI	100-240VAC, 85mA max., 0.45-0.65C, 50-60 Hz Ta -20 …+50°C U_{out} 15V, SE :V Tc 90°C, IP20	EN 61347-1:2015+A1:2021; EN 61347-2-13:2014+A1:2017; EN 62384:2020	DEKRA ENEC 88-125013
LED module	B	Forge Europa	FEM-2035	4Vdc 350mA 1.4W tc 110°C	EN 62031:2020	Centre Testing International Group (CTI) Report: EED31N805115
Description:	The component is replaceable if authorised by the test house					

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Clause	Requirement + Test	Result - Remark	Verdict

Screwless crimp	C	Heavy Power Co Ltd	CE2	600V 125ºC	EN IEC 60598-1:2021+A11:2022; UL486A-486B	Tested with appliance; E113650
Description:	Integrated component tested together with the appliance					
Lampholder	D	BJB	22.317	E27, 250V, 4A, T210	EN 60238:2018+A1+A2:2021	VDE ENEC 120923
Lampholder	D	Zhongshan Gexin Electric Appliances Co., Ltd.	E27P2A	E27, 250V, 4A, T210	EN 60238:2018+A1+A2:2021	VDE 40045783
Lampholder	D	KTE	863-H3	E27, 250V, 4A, T210	EN60238:2018+A1:2018	NEMKO ENEC NO4773
Lampholder	D	Guangdong Kangrong High-Tech New Material Co., Ltd	K327K	E27, 250V, 4A, T210	EN60238:2018+A1:+A2:2021	VDE 40028752
Lampholder	D	Zhong Shan Yi Hang Electric Co., Ltd.	YH267	E27, 250V, 4A, T210	EN60238:2018+A1:+A2:2021	VDE 40033010
Description:	Alternative component					

Supplementary information:

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

The codes above have the following meaning:

A - The component is replaceable with another one, also certified, with equivalent characteristics

B - The component is replaceable if authorised by the test house

C - Integrated component tested together with the appliance

D - Alternative component

ANNEX 2	**TABLE: Thermal tests of Section 12**		P
	Type reference ..... :	1406004	—
	Lamp used..... :	LED module and E27 12W lamp	—
	Lamp control gear used ..... :	HPE LSC4W700 UNI	—
	Mounting position of luminaire ..... :	Fixed on wall	—
	Supply wattage (W) ..... :	13.5	—

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

	Supply current (A) ..... :	0.095	—
	Temperatures in test 1 - 4 below are corrected for ta (°C) ..... :	25 C	—
	- abnormal operating mode ..... :	Short-circuit of driver output	—
1.13 (12.4)	- test 1: rated voltage ..... :	240V	—
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current ..... :	254.2	—
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage ..... :	No socket-outlet	—
	Through wiring or looping-in wiring loaded by a current of A during the test ..... :	No through wiring	—
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 ..... :	264V	—

Temperature measurements (°C)

Part	Ambient	Cl. 12.4 – normal				Cl. 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
Mounting Surface	25.0	-	28.2	-	90	25.2	135
Terminal block body	25.0	-	30.9	-	90	-	-
Cord 10mm from Terminal block	25.0	-	32.3	-	90	-	-
Crimp connection	25.0	-	32.7	-	125	-	-
Switch 1	25.0	-	30.1	-	55	-	-
Switch 2	25.0	-	36.0	-	55	-	-
LED solder point	25.0	-	51.5	-	Ref	-	-
Cord 10 mm from LED module	25.0	-	51.0	-	90	-	-
LED side	25.0	-	69.5	-	Ref	-	-
Cord 10 mm from lampholder	25.0	-	32.0	-	90	-	-
Lampholder rear	25.0	-	33.3	-	210	-	-
Lamp cap	25.0	-	41.8	-	210	-	-
Lampholder rim	25.0	-	46.7	-	210	-	-
Diffuser LED	25.0	-	51.0	-	90	-	-
Supplementary information:							

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Clause	Requirement + Test	Result - Remark	Verdict

ANNEX 3	**Screw terminals (part of the luminaire)**		P
(14)	**SCREW TERMINALS**		P
(14.2)	Type of terminal.....:	Eathing terminal (lug terminal)	—
	Rated current (A).....:	1A	—
(14.3.2.1)	One or more conductors	One	P
(14.3.2.2)	Special preparation	Lug terminal	P
(14.3.2.3)	Terminal size	1	P
	Cross-sectional area (mm^2).....:	0.75mm^2	—
(14.3.3)	Conductor space (mm).....:	Assembled by manufacturer	N/A
(14.4)	Mechanical tests		P
(14.4.1)	Minimum distance		N/A
(14.4.2)	Cannot slip out		P
(14.4.3)	Special preparation	Lug	P
(14.4.4)	Nominal diameter of thread (metric ISO thread) .....:	M	N/A
	External wiring	Internal wire only	N/A
	No soft metal		P
(14.4.5)	Corrosion	Brass	P
(14.4.6)	Nominal diameter of thread (mm) .....:	10	P
	Torque (Nm).....:	10	P
(14.4.7)	Between metal surfaces		P
	Lug terminal		P
	Mantle terminal		N/A
	Pull test; pull (N).....:	40	P
(14.4.8)	Without undue damage		P

ANNEX 4	**Screwless terminals (part of the luminaire)**		P
(15)	**SCREWLESS TERMINALS**		P
(15.2)	Type of terminal.....:	Solder point of LED module, permanent connection	—
	Rated current (A).....:	1 A	—
(15.3.1)	Material	Tin	P
(15.3.2)	Clamping		N/A
(15.3.3)	Stop		N/A
(15.3.4)	Unprepared conductors		P

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Clause	Requirement + Test	Result - Remark	Verdict
(15.3.5)	Pressure on insulating material		P
(15.3.6)	Clear connection method		P
(15.3.7)	Clamping independently	One conductor only	N/A
(15.3.8)	Fixed in position		P
(15.3.10)	Conductor size	0.75mm2	P
	Type of conductor	See Annex 1	P
(15.5)	Terminals and connections for internal wiring	Permanent connection	N/A
(15.5.1)	Mechanical tests		P
(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)		P
(15.5.2)	Electrical tests		N/A
	Voltage drop (mV) after 1 h (4 samples).....:		N/A
	Voltage drop of two inseparable joints		N/A
	Number of cycles:		—
	Voltage drop (mV) after 10th alt. 25th cycle (4 samples).....:		N/A
	Voltage drop (mV) after 50th alt. 100th cycle (4 samples).....:		N/A
	After ageing, voltage drop (mV) after 10th alt. 25th cycle (4 samples) .....:		N/A
	After ageing, voltage drop (mV) after 50th alt. 100th cycle (4 samples) .....:		N/A
(15.6)	Terminals and connections for external wiring		N/A
(15.6.1)	Conductors		N/A
	Terminal size and rating		N/A
15.6.2	Mechanical tests		N/A
(15.6.2.1)	Pull test spring-type terminals or welded connections (4 samples); pull (N) .....:		N/A
(15.6.2.2)	Pull test pin or tab terminals (4 samples); pull (N) .....:		N/A
(15.6.3)	Electrical tests		N/A
	Tests according 15.6.3.1 + 15.6.3.2 in IEC 60598-1		N/A
ANNEX 4	**Screwless terminals (part of the luminaire)**		P
(15)	**SCREWLESS TERMINALS**		P

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
(15.2)	Type of terminal.....:	Crimp connection	—
	Rated current (A).....:	1 A	—
(15.3.1)	Material	Metal	P
(15.3.2)	Clamping		P
(15.3.3)	Stop		N/A
(15.3.4)	Unprepared conductors		P
(15.3.5)	Pressure on insulating material		P
(15.3.6)	Clear connection method		P
(15.3.7)	Clamping independently	Assembled by client	N/A
(15.3.8)	Fixed in position		P
(15.3.10)	Conductor size	0.5mm^2	P
	Type of conductor	See Annex 1	P
(15.5)	Terminals and connections for internal wiring	Permanent connection	N/A
(15.5.1)	Mechanical tests		P
(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)		P
(15.5.2)	Electrical tests		N/A
	Voltage drop (mV) after 1 h (4 samples).....:		N/A
	Voltage drop of two inseparable joints		N/A
	Number of cycles:		—
	Voltage drop (mV) after 10th alt. 25th cycle (4 samples).....:		N/A
	Voltage drop (mV) after 50th alt. 100th cycle (4 samples).....:		N/A
	After ageing, voltage drop (mV) after 10th alt. 25th cycle (4 samples) .....:		N/A
	After ageing, voltage drop (mV) after 50th alt. 100th cycle (4 samples) .....:		N/A
(15.6)	Terminals and connections for external wiring		N/A
(15.6.1)	Conductors		N/A
	Terminal size and rating		N/A
15.6.2	Mechanical tests		N/A
(15.6.2.1)	Pull test spring-type terminals or welded connections (4 samples); pull (N) .....:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

(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)											
	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 TO TEST REPORT
IEC 60598-2-1
EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES
LUMINAIRES
PART 2: PARTICULAR REQUIREMENTS
SECTION 1: FIXED GENERAL PURPOSE LUMINAIRES

Differences according to ..... :	EN IEC 60598-2-1:2021 used in conjunction with EN IEC 60598-1:2021 + AMD11:2022
TRF template used ..... :	IECEE OD-2020-F2:2020, Ed. 1.1
Attachment Form No..... :	EU_GD_IEC60598_2_1I
Attachment Originator ..... :	UL(Demko)
Master Attachment..... :	2022-05-13

	CENELEC COMMON MODIFICATIONS (EN)		P
1.6 (3)	**MARKING**		P
1.6 (3.2.12)	Note 4 deleted		P
1.7 (4)	**CONSTRUCTION**		P
1.7 (4.11.6)	Electro-mechanical contact systems: electric strength test at 1 500 V	Not such system	N/A
1.11 (5)	**EXTERNAL AND INTERNAL WIRING"**		P
1.11 (5.2.2)	Cables equal to EN 50525 (all parts)	Provided without supply cable	N/A
	Paragraph 2 deleted		N/A
	Replace table 5.1 – Supply cord		N/A
1.13 (12)	**ENDURANCE TESTS AND THERMAL TESTS**		P
1.13 (12.4.2c)	Thermal test (normal operation) see footnote c to table 12.2 relating to unsleeved fixed wiring	See Annex 2	P
ZB	**ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)**		P
(3.3)	DK: power supply cords of class I luminaires with label	No socket-outlet or plug	N/A
(5.2.1)	CY, DK, FI, UK: type of plug		N/A
(5.2.18)	DK: socket-outlets		N/A
ZC	ANNEX ZC, NATIONAL DEVIATIONS (EN)		**P**
(4 & 5)	FR: Shuttered socket-outlets 10/16A		N/A
	FR: Safety requirements for high buildings *(Decree of 30 December 2011 on safety regulations for the construction of high-rise buildings and their protection against fire and panic risks; Section VIII; Article GH 48, Lighting)* Glow-wire test for outer parts of luminaires:		N/A

	- 850°C for luminaires in stairways and horizontal travel paths	Small part	N/A
	- 650°C for indoor luminaires		P
	UK: Requirements according to United Kingdom Building Regulation	Not recessed	N/A

ATTACHMENT 2: PHOTOGRAPHS

Figure 1. Model 1406004, Overview

Figure 2.Optic, LED module

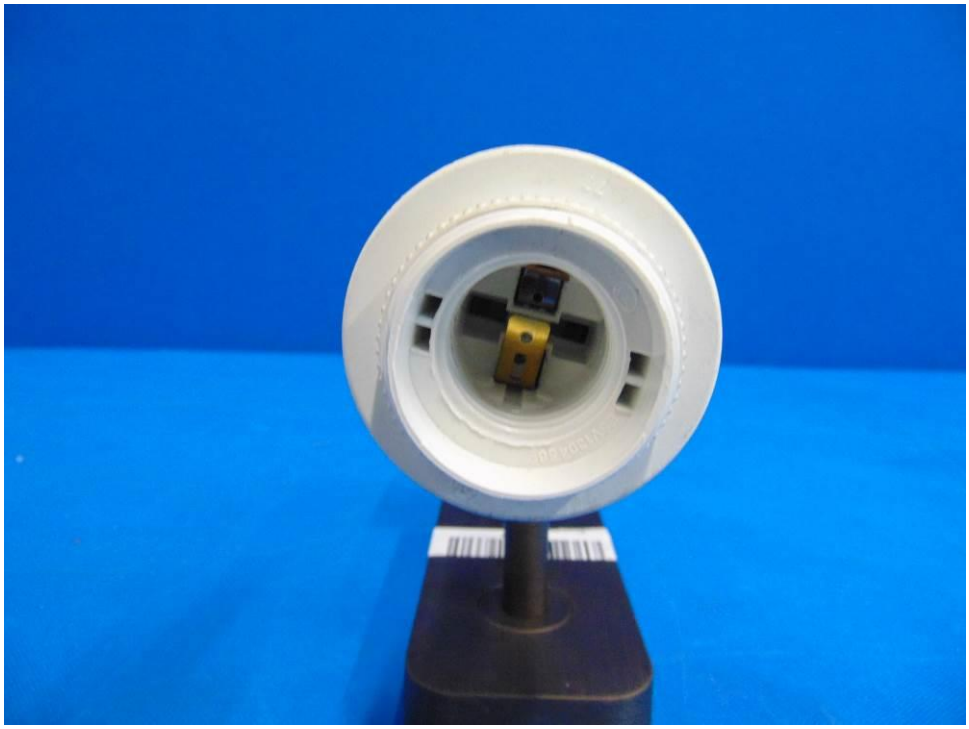

Figure 3. E27 lampholder

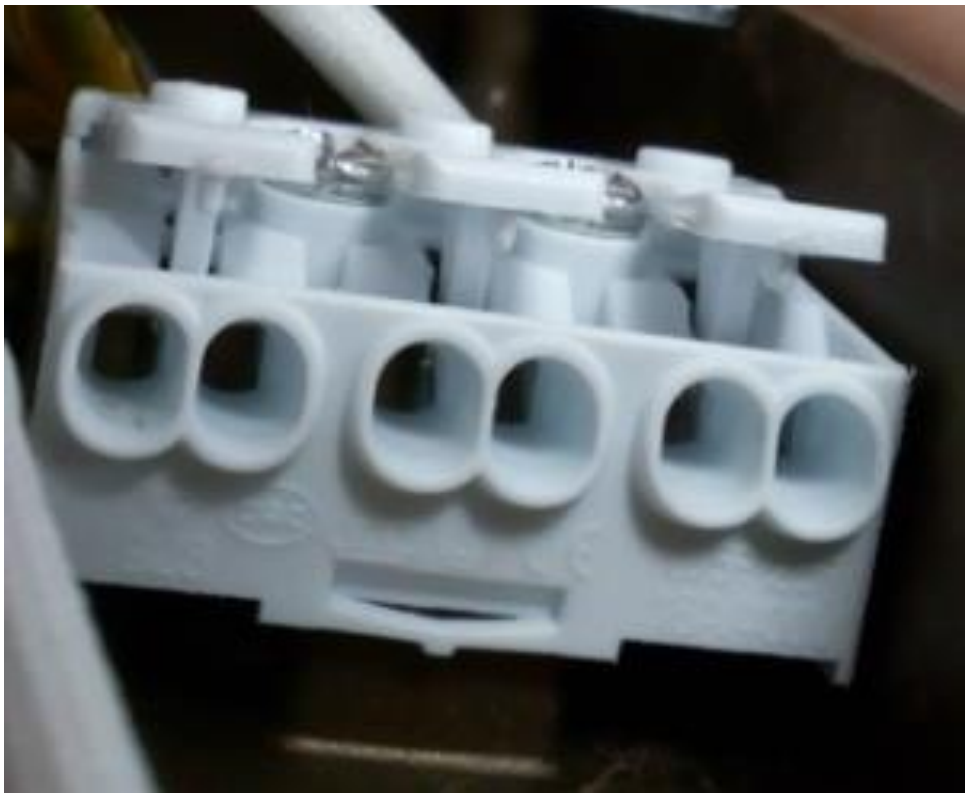

Figure 4. Terminal block

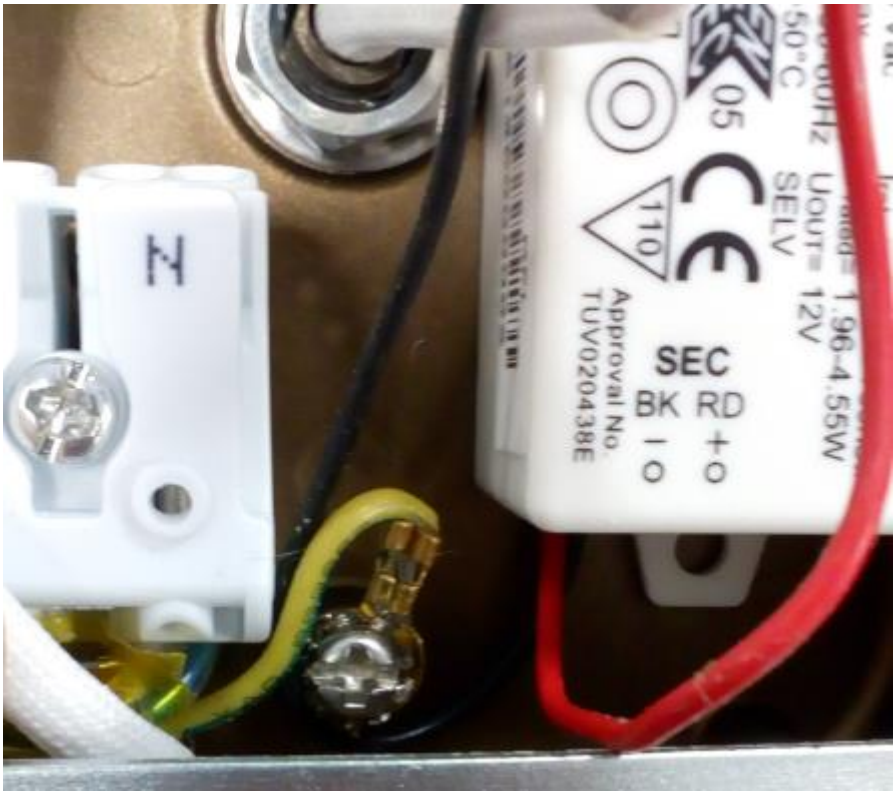

Figure 5. Earthing terminal

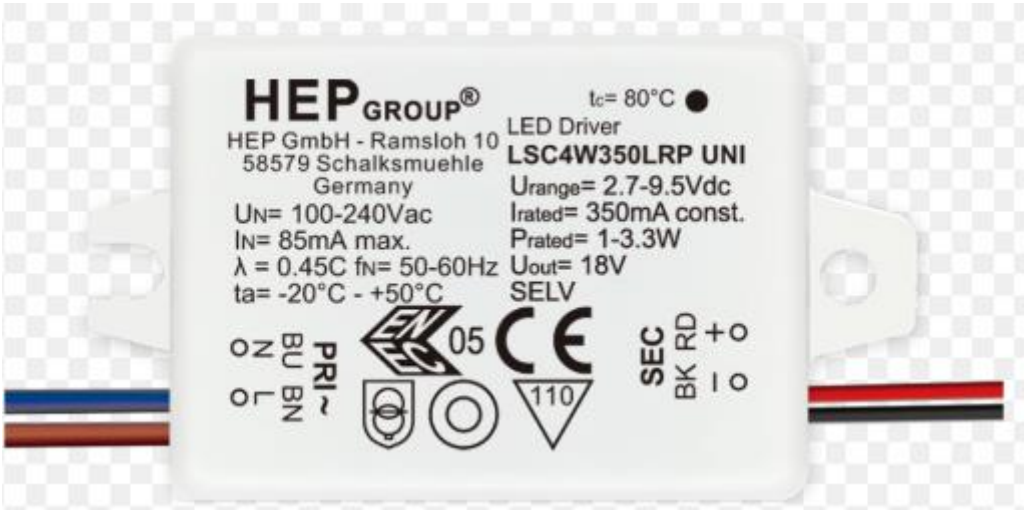

Figure 6. Controlgear