



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

Report Number..... : 160500078HZH-001
Date of issue..... : May 23, 2016
Total number of pages 53 pages(including 12 pages of photos)

Name of Testing Laboratory preparing the Report Intertek Testing Services Hangzhou Limited
 16 No. 1 Ave., Xiasha Economic Development District, Hangzhou
 310018, China

Applicant's name Yuyao Four Star Lamps Co., Ltd.
Address..... : CN6, Far East Industrial Park, Yuyao, Zhejiang, P. R. China

Test specification:

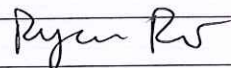
Standard..... : IEC 60598-2-1:1979 (First Edition) + A1:1987 used in conjunction
 with IEC 60598-1:2014 (Eighth Edition)
Test procedure CE-LVD
Non-standard test method N/A

Test Report Form No. : IEC60598_2_1D
Test Report Form(s) Originator : Intertek Semko AB
Master TRF..... : 2014-08

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Test item description	Fixed luminaires for outdoor use
Trade Mark	N/A
Manufacturer.....	Same as applicant above
Model/Type reference	7104 ; 7121 ; 7204 ; 7221 ; 7310 ; 7304 ; 4904 ; 4910; 4502 ; 4506 ; 4602 ; 4606 ; 4702 ; 4706 ; 3405 ; 3404 ; 4512 ; 4516 ; 4612 ; 4616 ; 4712 ; 4716 ; 7122 ; 7222 ; 4521 ; 4522 ; 4621 ; 4622 ; 4721 ; 4722 ; 7131 ; 7132; 7110 ; 7231 ; 7232 ; 7210
Ratings	220-240V~, 50Hz, Class I, IP33, E27 Max. CFL13W: 3404 2 x Max. CFL 13W: 3405 Max.40W: 7310 ; 7304 ; 4904 ; 4910 Max.60W: 4512 ; 4516 ; 4612 ; 4616 ; 4712 ; 4716 Max.100W: 7104 ; 7121 ; 7204 ; 7221 ; 4502 ; 4506 ; 4602 ; 4606 ; 4702 ; 4706 ; 4521 ; 4621 ; 4721 ; 7131 ; 7231 2 x Max.100W: 4522 ; 4622 ; 4722 ; 7122 ; 7222 ; 7132 ; 7110 ; 7232 ; 7210

Testing procedure and testing location:		
☒	Testing Laboratory:	Intertek Testing Services Hangzhou Limited
Testing location/ add.ress		16 No. 1 Ave., Xiasha Economic Development District, Hangzhou 310018, China
☐	Associated Testing Laboratory:	
Testing location/ address		N/A
Tested by (name, function, signature)		Ryan Rui 
Approved by (name, function, signature) ..		Patrick Chen 
☐	Testing procedure: TMP/CTF Stage 1:	
Testing location/ address		N/A
Tested by (name, function, signature)		N/A
Approved by (name, function, signature) ..		N/A
☐	Testing procedure: WMT/CTF Stage 2:	
Testing location/ address		N/A
Tested by (name + signature)		N/A
Witnessed by (name, function, signature) . :		N/A
Approved by (name, function, signature) ..		N/A
☐	Testing procedure: SMT/CTF Stage 3 or 4:	
Testing location/ address		N/A
Tested by (name, function, signature)		N/A
Witnessed by (name, function, signature) . :		N/A
Approved by (name, function, signature) ..		N/A
Supervised by (name, function, signature) :		N/A

List of Attachments (including a total number of pages in each attachment): None.	
Summary of testing: A representative sample of the product covered by this report has been tested and complies with the applicable requirements of this standard.	
Tests performed (name of test and test clause): All applicable tests performed	Testing location: Intertek Testing Services Hangzhou Limited 16 No. 1 Ave., Xiasha Economic Development District, Hangzhou 310018, China
Summary of compliance with National Differences: CENELEC Common Modifications (EN) and National differences for Germany have been checked.	
Copy of marking plate: Sample : Model: 4522 220-240V~ 50Hz IP33 2 x Max.100W E27 Yuyao Four Star Lamps Co., Ltd. The label contents are the same except the following as showed in bellow: Max. CFL13W: 3404 2 x Max. CFL 13W: 3405 Max.40W: 7310 ; 7304 ; 4904 ; 4910 Max.60W: 4512 ; 4516 ; 4612 ; 4616 ; 4712 ; 4716 Max.100W: 7104 ; 7121 ; 7204 ; 7221 ; 4502 ; 4506 ; 4602 ; 4606 ; 4702 ; 4706 ; 4521 ; 4621 ; 4721 ; 7131 ; 7231 2 x Max.100W: 4522 ; 4622 ; 4722 ; 7122 ; 7222 ; 7132 ; 7110 ; 7232 ; 7210 ; Near lampholder (4502) MAX. 100W  All of the labels are the same except the model name and rated wattage.	

Test item particulars : Fixed luminaires for outdoor use	
Classification of installation and use : Outdoor use	
Supply Connection : Terminal	
..... :	
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 : May 4, 2016	
Date (s) of performance of tests : May 4, 2016 – May 23, 2016	
General remarks:	
The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory. "(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report. Throughout this report a comma is used as the decimal separator. Clause numbers between brackets refer to clauses in IEC 60598-1. Determination of the test result includes consideration of measurement uncertainty from the test equipment and methods. 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) : Yuyao Four Star Lamps Co., Ltd. CN6, Far East Industrial Park, Yuyao, Zhejiang, P. R. China	

General product information:

The products are outdoor fixed lightings (Height lower than 2,5m).

These models are the similar construction except the appearance.

Max. CFL13W: 3404

2 x Max. CFL 13W: 3405

Max.40W: 7310 ; 7304 ; 4904 ; 4910

Max.60W: 4512 ; 4516 ; 4612 ; 4616 ; 4712 ; 4716

Max.100W: 7104 ; 7121 ; 7204 ; 7221 ; 4502 ; 4506 ; 4602 ; 4606 ; 4702 ; 4521 ; 4621 ; 4721 ; 7131 ; 7231

2 x Max.100W: 4522 ; 4622 ; 4722 ; 7122 ; 7222 ; 7132 ; 7110 ; 7232 ; 7210 ;

3405 ; 4522 ; 4622 ; 4722 ; 7122 ; 7222 ; 7132 ; 7110 ; 7232 ; 7210 have two lampholder and lampshade

Compared with the one lampholder and lampshade models 3404; 4521; 4621 ; 4721; 7121 ; 7221; 7131; 7231.

4602, 4606, 3404, 3405, 4621 and 4622 are glass lampshade, the others are plastic lampshade.

All tests of these types are applied to Model 4622 (glass lampshade) and 7122 (plastic lampshade) which is rated highest wattage and contains all relevant components.

Temperature measurement for 2x15W is applied to model 3405 which has the most critical space.

Temperature measurement for 40W is applied to model 4904 which has the most critical space.

Temperature measurement for 60W is applied to model 4716 which has the most critical space.

Construction and IP test were applied to all the models.

EN62493: 2010 is considered. According clause 4.3 of EN62493: 2010, all the models without electronic control gear are deemed to comply with the requirements of EN62493: 2010 without testing.

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

1.2 (0)	GENERAL TEST REQUIREMENTS		
1.2 (0.1)	Information for luminaire design considered..... :	Standard EN60432&EN60968 Yes ☒ No ☐	—
1.2 (0.3)	More sections applicable..... :	Yes ☐ No ☒	—

1.4 (2)	CLASSIFICATION		
1.4 (2.2)	Type of protection	Class I	—
1.4 (2.3)	Degree of protection.....	IP33	—
1.4 (2.4)	Luminaire suitable for direct mounting on normally flammable surfaces	Yes ☒ No ☐	—
1.4 (2.5)	Luminaire for normal use	Yes ☒ No ☐	—
	Luminaire for rough service	Yes ☐ No ☒	—

1.5 (3)	MARKING		
1.5 (3.2)	Mandatory markings		P
	Position of the marking	On the enclosure& near lampholder	P
	Format of symbols/text		P
1.5 (3.3)	Additional information		P
	Language of instructions	English	P
1.5 (3.3.1)	Combination luminaires		N/A
1.5 (3.3.2)	Nominal frequency in Hz	50Hz	P
1.5 (3.3.3)	Operating temperature		N/A
1.5 (3.3.4)	Symbol or warning notice		N/A
1.5 (3.3.5)	Wiring diagram		N/A
1.5 (3.3.6)	Special conditions		N/A
1.5 (3.3.7)	Metal halide lamp luminaire – warning		N/A
1.5 (3.3.8)	Limitation for semi-luminaires		N/A
1.5 (3.3.9)	Power factor and supply current		N/A
1.5 (3.3.10)	Suitability for use indoors		N/A
1.5 (3.3.11)	Luminaires with remote control		N/A
1.5 (3.3.12)	Clip-mounted luminaire – warning		N/A
1.5 (3.3.13)	Specifications of protective shields		P
1.5 (3.3.14)	Symbol for nature of supply	~	P
1.5 (3.3.15)	Rated current of socket outlet		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
1.5 (3.3.16)	Rough service luminaire		N/A
1.5 (3.3.17)	Mounting instruction for type Y, type Z and some type X attachments		N/A
1.5 (3.3.18)	Non-ordinary luminaires with PVC cable		N/A
1.5 (3.3.19)	Protective conductor current in instruction if applicable		N/A
1.5 (3.3.20)	Provided with information if not intended to be mounted within arm's reach		N/A
1.5 (3.3.21)	Non-replaceable and non-user replaceable light sources information provided		N/A
	Cautionary symbol		N/A
1.5 (3.3.22)	Controllable luminaires, classification of insulation provided		N/A
1.5 (3.4)	Test with water		P
	Test with hexane		P
	Legible after test		P
	Label attached		P

1.6 (4)	CONSTRUCTION		
1.6 (4.2)	Components replaceable without difficulty		P
1.6 (4.3)	Wireways smooth and free from sharp edges		P
1.6 (4.4)	Lampholders		
1.6 (4.4.1)	Integral lampholder		N/A
1.6 (4.4.2)	Wiring connection		N/A
1.6 (4.4.3)	Lampholder for end-to-end mounting		N/A
1.6 (4.4.4)	Positioning		N/A
	- pressure test (N)		—
	After test the lampholder comply with relevant standard sheets and show no damage		N/A
	After test on single-capped lampholder the lampholder have not moved from its position and show no permanent deformation		N/A
	- bending test (N)	2,0 Nm	—
	After test the lampholder have not moved from its position and show no permanent deformation		N/A
1.6 (4.4.5)	Peak pulse voltage		N/A
1.6 (4.4.6)	Centre contact		N/A
1.6 (4.4.7)	Parts in rough service luminaires resistant to tracking		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
1.6 (4.4.8)	Lamp connectors		N/A
1.6 (4.4.9)	Caps and bases correctly used		N/A
1.6 (4.4.10)	Light source for lampholder or connection according IEC 60061 not connected another way		N/A
1.6 (4.5)	Starter holders		
	Starter holder in luminaires other than class II		N/A
	Starter holder class II construction		N/A
1.6 (4.6)	Terminal blocks		
	Tails		N/A
	Unsecured blocks		N/A
1.6 (4.7)	Terminals and supply connections		
1.6 (4.7.1)	Contact to metal parts		P
1.6 (4.7.2)	Test 8 mm live conductor		P
	Test 8 mm earth conductor		P
1.6 (4.7.3)	Terminals for supply conductors		P
1.6 (4.7.3.1)	Welded method and material		
	- stranded or solid conductor		N/A
	- spot welding		N/A
	- welding between wires		N/A
	- Type Z attachment		N/A
	- mechanical test according to 15.8.2		N/A
	- electrical test according to 15.9		N/A
	- heat test according to 15.9.2.3 and 15.9.2.4		N/A
1.6 (4.7.4)	Terminals other than supply connection		N/A
1.6 (4.7.5)	Heat-resistant wiring/sleeves		N/A
1.6 (4.7.6)	Multi-pole plug		N/A
	- test at 30 N		N/A
1.6 (4.8)	Switches		
	- adequate rating		N/A
	- adequate fixing		N/A
	- polarized supply		N/A
	- compliance with IEC 61058-1 for electronic switches		N/A
1.6 (4.9)	Insulating lining and sleeves		
1.6 (4.9.1)	Retainment		P

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Method of fixing	By heat shrinkable tube	—
1.6 (4.9.2)	Insulated linings and sleeves:		
	Resistant to a temperature > 20 °C to the wire temperature or	Approved tube	P
	a) & c) Insulation resistance and electric strength		N/A
	b) Ageing test. Temperature (°C)		N/A
1.6 (4.10)	Double or reinforced insulation		
1.6 (4.10.1)	No contact, mounting surface – accessible metal parts – wiring of basic insulation		N/A
	Safe installation fixed luminaires		N/A
	Capacitors and switches		N/A
	Interference suppression capacitors according to IEC 60384-14		N/A
1.6 (4.10.2)	Assembly gaps:		
	- not coincidental		N/A
	- no straight access with test probe		N/A
1.6 (4.10.3)	Retention of insulation:		
	- fixed		N/A
	- unable to be replaced; luminaire inoperative		N/A
	- sleeves retained in position		N/A
	- lining in lampholder		N/A
1.6 (4.11)	Electrical connections and current-carrying parts		
1.6 (4.11.1)	Contact pressure		P
1.6 (4.11.2)	Screws:		
	- self-tapping screws		N/A
	- thread-cutting screws		N/A
1.6 (4.11.3)	Screw locking:		
	- spring washer	Star washer	P
	- rivets		N/A
1.6 (4.11.4)	Material of current-carrying parts		P
1.6 (4.11.5)	No contact to wood or mounting surface		P
1.6 (4.11.6)	Electro-mechanical contact systems		N/A
1.6 (4.12)	Screws and connections (mechanical) and glands		
1.6 (4.12.1)	Screws not made of soft metal		P
	Screws of insulating material		N/A
	Torque test: torque (Nm); part.....	2,0Nm; Metal Cover	P

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Clause	Requirement + Test	Result - Remark	Verdict
	Torque test: torque (Nm); part..... :	1,20Nm; earth connection Screw	P
	Torque test: torque (Nm); part..... :		N/A
1.6 (4.12.2)	Screws with diameter < 3 mm screwed into metal		P
1.6 (4.12.4)	Locked connections:		
	- fixed arms; torque (Nm)		N/A
	- lampholder; torque (Nm)	2,0 Nm	P
	- push-button switches; torque 0,8 Nm		N/A
1.6 (4.12.5)	Screwed glands; force (Nm)..... :		N/A
1.6 (4.13)	Mechanical strength		
1.6 (4.13.1)	Impact tests:		
	- fragile parts; energy (Nm)	Glass Lamp shade; 0,2 Nm	P
	- other parts; energy (Nm)..... :	Enclosure;0,35 Nm	P
	1) live parts		P
	2) linings		N/A
	3) protection		P
	4) covers		P
1.6 (4.13.3)	Straight test finger		P
1.6 (4.13.4)	Rough service luminaires		
	- 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
1.6 (4.13.6)	Tumbling barrel		N/A
1.6 (4.14)	Suspensions, fixings and means of adjusting		
1.6 (4.14.1)	Mechanical load:		
	A) four times the weight		N/A
	B) torque 2,5 Nm		N/A
	C) bracket arm; bending moment (Nm)		N/A
	D) load track-mounted luminaires		N/A
	E) clip-mounted luminaires, glass-shelve. Thickness (mm)		N/A
	Metal rod. diameter (mm)		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Fixed luminaire or independent control gear without fixing devices		N/A
1.6 (4.14.2)	Load to flexible cables		
	Mass (kg)		—
	Stress in conductors (N/mm ²)		N/A
	Mass (kg) of semi-luminaire		—
	Bending moment (Nm) of semi-luminaire		N/A
1.6 (4.14.3)	Adjusting devices:		
	- flexing test; number of cycles.....		N/A
	- strands broken		N/A
	- electric strength test afterwards		N/A
1.6 (4.14.4)	Telescopic tubes: cords not fixed to tube; no strain on conductors		N/A
1.6 (4.14.5)	Guide pulleys		N/A
1.6 (4.14.6)	Strain on socket-outlets		N/A
1.6 (4.15)	Flammable materials		
	- glow-wire test 650°C		P
	- spacing ≥30 mm		N/A
	- screen withstanding test of 13.3.1		N/A
	- screen dimensions		N/A
	- no fiercely burning material		P
	- thermal protection		N/A
	- electronic circuits exempted		N/A
1.6 (4.15.2)	Luminaires made of thermoplastic material with lamp control gear		
	a) construction		N/A
	b) temperature sensing control		N/A
	c) surface temperature		N/A
1.6 (4.16)	Luminaires for mounting on normally flammable surfaces		
	No lamp control gear	(compliance with Section 12)	P
1.6 (4.16.1)	Lamp control gear spacing:		
	- spacing 35 mm		N/A
	- spacing 10 mm		N/A
1.6 (4.16.2)	Thermal protection:		
	- in lamp control gear		N/A
	- external		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- fixed position		N/A
	- temperature marked lamp control gear		N/A
1.6 (4.16.3)	Design to satisfy the test of 12.6	(see clause 12.6)	N/A
1.6 (4.17)	Drain holes		
	Clearance at least 5 mm		N/A
1.6 (4.18)	Resistance to corrosion		
1.6 (4.18.1)	- rust-resistance		P
1.6 (4.18.2)	- season cracking in copper		P
1.6 (4.18.3)	- corrosion of aluminium		N/A
1.6 (4.19)	Igniters compatible with ballast		N/A
1.6 (4.20)	Rough service vibration		N/A
1.6 (4.21)	Protective shield		
1.6 (4.21.1)	Shield fitted if tungsten halogen lamps or metal halide lamps		N/A
	Shield of glass if tungsten halogen lamps		N/A
1.6 (4.21.2)	Particles from a shattering lamp not impair safety		N/A
1.6 (4.21.3)	No direct path		N/A
1.6 (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
1.6 (4.22)	Attachments to lamps not cause overheating or damage		N/A
1.6 (4.23)	Semi-luminaires comply Class II		N/A
1.6 (4.24)	Photobiological hazards		
1.6 (4.24.1)	No excessive UV radiation if tungsten halogen lamps and metal halide lamps (Annex P)		N/A
1.6 (4.24.2)	Retinal blue light hazard		
	Luminaires with E_{thr} :		
	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
1.6 (4.25)	Mechanical hazard		

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Clause	Requirement + Test	Result - Remark	Verdict
	No sharp point or edges		P
1.6 (4.26)	Short-circuit protection		
1.6 (4.26.1)	Adequate means of uninsulated accessible SELV parts		N/A
1.6 (4.26.2)	Short-circuit test with test chain according 4.26.3		N/A
	Test chain not melt through		N/A
	Test sample not exceed values of Table 12.1 and 12.2		N/A
1.6 (4.27)	Terminal blocks with integrated screwless earthing contacts		
	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
1.6 (4.28)	Fixing of thermal sensing control		
	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:		
	Max. temperature on adhesive material ($^{\circ}\text{C}$) :		—
	100 cycles between t min and t max		
	Temperature sensing control still in position		N/A
1.6 (4.29)	Luminaires with non-replaceable light source		
	Not possible to replace light source		N/A
	Live part not accessible after parts have been opened by hand or tools		N/A
1.6 (4.30)	Luminaires with non-user replaceable light source		
	If protective cover provide protection against electric shock and marked with “caution, electric shock risk” symbol:		N/A
	Minimum two fixing means		N/A
1.6 (4.31)	Insulation between circuits		
	Circuits insulated from LV supply fulfil requirements according 4.31.1 – 4.31.3		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	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
1.6 (4.31.1)	SELV circuits		
	Used SELV source		N/A
	Voltage $\leq$ ELV		N/A
	Insulating of SELV circuits from LV supply		N/A
	Insulating of SELV circuits from other non SELV circuits		N/A
	Insulating of SELV circuits from FELV		N/A
	Insulating of SELV circuits from other SELV circuits		N/A
	SELV circuits insulated from accessible parts according Table X.1		N/A
	Plugs not able to enter socket-outlets of other voltage systems		N/A
	Socket outlets does not admit plugs of other voltage systems		N/A
	Plugs and socket-outlets does not have protective conductor contact		N/A
1.6 (4.31.2)	FELV circuits		
	Used FELV source		N/A
	Voltage $\leq$ ELV		N/A
	Insulating of FELV circuits from LV supply		N/A
	FELV circuits insulated from accessible parts according Table X.1		N/A
	Plugs not able to enter socket-outlets of other voltage systems		N/A
	Socket outlets does not admit plugs of other voltage systems		N/A
	Socket-outlets does not have protective conductor contact		N/A
1.6 (4.31.3)	Other circuits		
	Other circuits insulated from accessible parts according Table X.1		N/A
	Class II construction with equipotential bonding for protection against indirect contacts with live parts:		
	- conductive parts are connected together		N/A
	- test according 7.2.3 of above		N/A

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	- 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
1.6 (4.32)	Overvoltage protective devices		
	Comply with IEC 61643-11		N/A
	External to control gear and connected to earth:		
	- only in fixed luminaires		N/A
	- only connected to protective earth		N/A

1.7 (11)	CREEPAGE DISTANCES AND CLEARANCES		
1.7 (11.2)	Creepage distances and clearances..... :	See Table 1.7 (11.2)	
	Working voltage (V)..... :	220-240V~	—
	Rated pulse voltage (kV)..... :	N/A	—
	Voltage form..... :	Sinusoidal ☒ Non-sinusoidal ☐	—
	PTI..... :	< 600 ☒ ≥ 600 ☐	—
	Impulse withstand category (Normal category II) (Category III Annex U)	Category II ☒ Category III ☐	—

1.8 (7)	PROVISION FOR EARTHING		
1.8 (7.2.1 + 7.2.3)	Accessible metal parts		P
	Metal parts in contact with supporting surface		P
	Resistance < 0,5 Ω..... :	0,2Ω	P
	Self-tapping screws used		N/A
	Thread-forming screws		N/A
	Thread-forming screw used in a grove		N/A
	Earth makes contact first		P
	Terminal blocks with integrated screwless earthing contacts tested according Annex V		N/A
	Protective earthing of the luminaire not via built-in control gear		P
1.8 (7.2.2 + 7.2.3)	Earth continuity in joints, etc.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
1.8 (7.2.4)	Locking of clamping means		P
	Compliance with 4.7.3		P
	Terminal blocks with integrated screwless earthing contacts tested according Annex V		N/A
1.8 (7.2.5)	Earth terminal integral part of connector socket		N/A
1.8 (7.2.6)	Earth terminal adjacent to mains terminals		P
1.8 (7.2.7)	Electrolytic corrosion of the earth terminal		P
1.8 (7.2.8)	Material of earth terminal		P
	Contact surface bare metal		P
1.8 (7.2.10)	Class II luminaire for looping-in		N/A
	Double or reinforced insulation to functional earth		N/A
1.8 (7.2.11)	Earthing core coloured green-yellow		P
	Length of earth conductor		P

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

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

1.10 (5)	EXTERNAL AND INTERNAL WIRING		
1.10 (5.2)	Supply connection and external wiring		
1.10 (5.2.1)	Means of connection	Terminal	P
	Outdoor luminaire has not PVC insulated external wiring if not class III or SELV ≤ 25 V a.c./60 V d.c. or protected from outdoor environment		N/A
1.10 (5.2.2)	Type of cable..... :		N/A
	Nominal cross-sectional area (mm ²)		N/A
	Cables equal to IEC 60227 or IEC 60245		N/A
1.10 (5.2.3)	Type of attachment, X, Y or Z		N/A
1.10 (5.2.5)	Type Z not connected to screws		N/A
1.10 (5.2.6)	Cable entries:		
	- suitable for introduction		P
	- adequate degree of protection		P

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Clause	Requirement + Test	Result - Remark	Verdict
1.10 (5.2.7)	Cable entries through rigid material have rounded edges		P
1.10 (5.2.8)	Insulating bushings:		N/A
	- suitably fixed		N/A
	- material in bushings		N/A
	- material not likely to deteriorate		N/A
	- tubes or guards made of insulating material		N/A
1.10 (5.2.9)	Locking of screwed bushings		N/A
1.10 (5.2.10)	Cord anchorage:		
	- covering protected from abrasion		N/A
	- clear how to be effective		N/A
	- no mechanical or thermal stress		N/A
	- no tying of cables into knots etc.		N/A
	- insulating material or lining		N/A
1.10 (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
1.10 (5.2.10.2)	Adequate cord anchorage for type Y and type Z attachment		N/A
1.10 (5.2.10.3)	Tests:		
	- 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

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Clause	Requirement + Test	Result - Remark	Verdict
	- function independent of electrical connection		N/A
1.10 (5.2.11)	External wiring passing into luminaire		N/A
1.10 (5.2.12)	Looping-in terminals		N/A
1.10 (5.2.13)	Wire ends not tinned		N/A
	Wire ends tinned: no cold flow		N/A
1.10 (5.2.14)	Mains plug same protection		N/A
	Class III luminaire plug		N/A
	No unsafe compatibility		N/A
1.10 (5.2.16)	Appliance inlets (IEC 60320)		N/A
	Installation couplers (IEC 61535)		N/A
	Other appliance inlet or connector according relevant IEC standard		N/A
1.10 (5.2.17)	No standardized interconnecting cables properly assembled		N/A
1.10 (5.2.18)	Used plug in accordance with		
	- IEC 60083		N/A
	- other standard		N/A
1.10 (5.3)	Internal wiring		
1.10 (5.3.1)	Internal wiring of suitable size and type		P
	Through wiring		
	- not delivered/ mounting instruction		N/A
	- factory assembled		N/A
	- socket outlet loaded (A)		N/A
	- temperatures	(see Annex 2)	N/A
	Green-yellow for earth only		P
1.10 (5.3.1.1)	Internal wiring connected directly to fixed wiring		
	Cross-sectional area (mm ²).....	2 x 0,75 mm ² & 3x 1,0 mm ²	P
	Insulation thickness		P
	Extra insulation added where necessary		N/A
1.10 (5.3.1.2)	Internal wiring connected to fixed wiring via internal current-limiting device		

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Clause	Requirement + Test	Result - Remark	Verdict
	Adequate cross-sectional area and insulation thickness		N/A
1.10 (5.3.1.3)	Double or reinforced insulation for class II		N/A
1.10 (5.3.1.4)	Conductors without insulation		N/A
1.10 (5.3.1.5)	SELV current-carrying parts		N/A
1.10 (5.3.1.6)	Insulation thickness other than PVC or rubber		N/A
1.10 (5.3.2)	Sharp edges etc.		N/A
	No moving parts of switches etc.		P
	Joints, raising/lowering devices		N/A
	Telescopic tubes etc.		N/A
	No twisting over 360°		p
1.10 (5.3.3)	Insulating bushings:		
	- suitable fixed		N/A
	- material in bushings		N/A
	- material not likely to deteriorate		N/A
	- cables with protective sheath		N/A
1.10 (5.3.4)	Joints and junctions effectively insulated		N/A
1.10 (5.3.5)	Strain on internal wiring		N/A
1.10 (5.3.6)	Wire carriers		N/A
1.10 (5.3.7)	Wire ends not tinned		N/A
	Wire ends tinned: no cold flow		N/A

1.11 (8)	PROTECTION AGAINST ELECTRIC SHOCK		
1.11 (8.2.1)	Live parts not accessible		P
	Basic insulated parts not used on the outer surface without appropriate protection		P
	Basic insulated parts not accessible with standard test finger on portable, settable and adjustable luminaires		P
	Basic insulated parts not accessible with Ø 50 mm probe from outside, other types of luminaires		P
	Lamp and starterholders in portable and adjustable luminaires comply with double or reinforced insulation requirements		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Basic insulation only accessible under lamp or starter replacement		P
	Protection in any position		P
	Double-ended tungsten filament lamp		N/A
	Insulation lacquer not reliable		P
	Double-ended high pressure discharge lamp		N/A
	Relevant warning according to 3.2.18 fitted to the luminaire		N/A
1.11 (8.2.2)	Portable luminaire adjusted in most unfavourable position		N/A
1.11 (8.2.3.a)	Class II luminaire:		
	- basic insulated metal parts not accessible during starter or lamp replacement		N/A
	- basic insulation not accessible other than during starter or lamp replacement		N/A
	- glass protective shields not used as supplementary insulation		N/A
1.11 (8.2.3.b)	BC lampholder of metal in class I luminaires shall be earthed		N/A
1.11 (8.2.3.c)	SELV circuits with exposed current carrying parts:		
	Ordinary luminaire:		
	- touch current		N/A
	- no-load voltage.....		N/A
	Other than ordinary luminaire:		
	- nominal voltage		N/A
1.11 (8.2.4)	Portable luminaire have protection independent of supporting surface		N/A
1.11 (8.2.5)	Compliance with the standard test finger or relevant probe		P
1.11 (8.2.6)	Covers reliably secured		P
1.11 (8.2.7)	Discharging of capacitors $\geq 0,5 \mu\text{F}$		N/A
	Portable plug connected luminaire with capacitor		N/A
	Other plug connected luminaire with capacitor		N/A
	Discharge device on or within capacitor		N/A
	Discharge device mounted separately		N/A

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Clause	Requirement + Test		Verdict
1.12 (12)	ENDURANCE TEST AND THERMAL TEST		
1.12 (-)	If IP > IP 20 relevant test of (12.4), (12.5) and (12.6) after (9.2) before (9.3) specified in 4.13		—
1.12 (12.3)	Endurance test:		
	- mounting-position..... :	Ground Mounted	—
	- test temperature (°C)	35°C	—
	- total duration (h)	240	—
	- supply voltage: Un factor; calculated voltage (V)...	1,05x240V= 252V	—
	- lamp used..... :	GLS	—
1.12 (12.3.2)	After endurance test:		
	- no part unserviceable		P
	- luminaire not unsafe		P
	- no damage to track system		N/A
	- marking legible		P
	- no cracks, deformation etc.		P
1.12 (12.4)	Thermal test (normal operation)	(see Annex 2)	P
1.12 (12.5)	Thermal test (abnormal operation)	(see Annex 2)	N/A
1.12 (12.6)	Thermal test (failed lamp control gear condition):		
1.12 (12.6.1)	Through wiring or looping-in wiring loaded by a current of (A)	N/A	—
	- case of abnormal conditions	N/A	—
	- electronic lamp control gear		N/A
	- measured winding temperature (°C): at 1,1 Un	N/A	—
	- measured mounting surface temperature (°C) at 1,1 Un..... :		N/A
	- calculated mounting surface temperature (°C)		N/A
	- track-mounted luminaires		N/A
1.12 (12.6.2)	Temperature sensing control		
	- case of abnormal conditions	N/A	—
	- 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

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Clause	Requirement + Test	Result - Remark	Verdict
1.12 (12.7)	Thermal test (failed lamp control gear in plastic luminaires):		
1.12 (12.7.1)	Luminaire without temperature sensing control		
1.12 (12.7.1.1)	Luminaire with fluorescent lamp $\leq 70W$		
	Test method 12.7.1.1 or Annex W	N/A	—
	Test according to 12.7.1.1:		
	- case of abnormal conditions	N/A	—
	- Ballast failure at supply voltage (V)	N/A	—
	- Components retained in place after the test		N/A
	- Test with standard test finger after the test		N/A
	Test according to Annex W:		
	- case of abnormal conditions	N/A	—
	- measured winding temperature (°C): at 1,1 Un	N/A	—
	- measured temperature of fixing point/exposed part (°C): at 1,1 Un	N/A	—
	- calculated temperature of fixing point/exposed part (°C)	N/A	—
	Ball-pressure test	See Table 1.15 (13.2.1)	N/A
1.12 (12.7.1.2)	Luminaire with discharge lamp, fluorescent lamp $> 70W$, transformer $> 10 VA$		
	- case of abnormal conditions	N/A	—
	- measured winding temperature (°C): at 1,1 Un	N/A	—
	- measured temperature of fixing point/exposed part (°C): at 1,1 Un	N/A	—
	- calculated temperature of fixing point/exposed part (°C)	N/A	—
	Ball-pressure test	See Table 1.15 (13.2.1)	N/A
1.12 (12.7.1.3)	Luminaire with short circuit proof transformers $\leq 10 VA$		N/A
	- case of abnormal conditions	N/A	—
	- Components retained in place after the test		N/A
	- Test with standard test finger after the test		N/A
1.12 (12.7.2)	Luminaire with temperature sensing control		
	- thermal link	Yes ☐ No ☐	—
	- manual reset cut-out	Yes ☐ No ☐	—

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Clause	Requirement + Test	Result - Remark	Verdict
	- auto reset cut-out	Yes ☐ No ☐	—
	- case of abnormal conditions	N/A	—
	- highest measured temperature of fixing point/ exposed part (°C):	N/A	—
	Ball-pressure test:	See Table 1.15 (13.2.1)	P

1.13 (9)	RESISTANCE TO DUST, SOLID OBJECTS AND MOISTURE		
1.13 (-)	If IP > IP 20 the order of tests as specified in clause 1.12		
1.13 (9.2)	Tests for ingress of dust, solid objects and moisture:		—
	- classification according to IP.....	IP33	—
	- mounting position during test	Ground Mounted	—
	- fixing screws tightened; torque (Nm)	N/A	—
	- tests according to clauses.....	9.2.1 & 9.2.4	—
	- electric strength test afterwards		P
	a) no deposit in dust-proof luminaire		N/A
	b) no talcum in dust-tight luminaire		N/A
	c) no trace of water on current-carrying parts or on insulation where it could become a hazard		P
	d) i) For luminaires without drain holes – no water entry		P
	d) ii) For luminaires with drain holes – no hazardous water entry		N/A
	e) no water in watertight luminaire		N/A
	f) no contact with live parts (IP 2X)		N/A
	f) no entry into enclosure (IP 3X and IP 4X)		P
	f) no contact with live parts (IP3X and IP4X)		P
	g) no trace of water on part of lamp requiring protection from splashing water		P
	h) no damage of protective shield or glass envelope		P
1.13 (9.3)	Humidity test 48 h	25°C, R.H.93%	P

1.14 (10)	INSULATION RESISTANCE AND ELECTRIC STRENGTH		
1.14 (10.2.1)	Insulation resistance test		P
	Cable or cord covered by metal foil or replaced by a metal rod of mm Ø	Covered by metal foil	—
	Insulation resistance (MΩ)	N/A	—

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	SELV		
	- between current-carrying parts of different polarity :		N/A
	- between current-carrying parts and mounting surface..... :		N/A
	- between current-carrying parts and metal parts of the luminaire..... :		N/A
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts..... :		N/A
	- Insulation bushings as described in Section 5 :		N/A
	Other than SELV		
	- between live parts of different polarity :	199 MΩ	P
	- between live parts and mounting surface :	199 MΩ	P
	- between live parts and metal parts :	199 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 :		N/A
1.14 (10.2.2)	Electric strength test		N/A
	Dummy lamp		N/A
	Luminaires with ignitors after 24 h test		N/A
	Luminaires with manual ignitors		N/A
	Test voltage (V) :		N/A
	SELV		
	- between current-carrying parts of different polarity :		N/A
	- between current-carrying parts and mounting surface..... :		N/A
	- between current-carrying parts and metal parts of the luminaire..... :		N/A
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts..... :		N/A
	- Insulation bushings as described in Section 5 :		N/A
	Other than SELV		
	- between live parts of different polarity :	1480V	P
	- between live parts and mounting surface :	1480V	P

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Clause	Requirement + Test	Result - Remark	Verdict
	- between live parts and metal parts	1480V	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
1.14 (10.3)	Touch current or protective conductor current (mA) :	0,06mA	P

1.15 (13)	RESISTANCE TO HEAT, FIRE AND TRACKING		
1.15 (13.2.1)	Ball-pressure test	See Test Table 1.15 (13.2.1)	P
1.15 (13.3.1)	Needle-flame test (10 s)	See Test Table 1.15 (13.3.1)	P
1.15 (13.3.2)	Glow-wire test (650°C)	See Test Table 1.15 (13.3.2)	P
1.15 (13.4)	Proof tracking test (IEC 60112)	See Test Table 1.15 (13.4)	P

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

1.7 (11.2)	TABLES: Creepage distances and clearances							
Table 11.1	Minimum distances (mm) for a.c. (50/60 Hz) sinusoidal voltages						P	
RMS working voltage (V) not exceeding		50	150	250	500	750	1000	
Creepage distances								
Required basic insulation, PTI ≥ 600		0,6	0,8	1,5	3	4	5,5	
Measured		-	-	-	-	-	-	
Required basic insulation, PTI < 600		1,2	1,6	2,5	5	8	10	
Measured		-	-	6	-	-	-	
Required supplementary insulation PTI ≥ 600		-	0,8	1,5	3	4	5,5	
Measured		-	-	-	-	-	-	
Required supplementary insulation PTI < 600		-	1,6	2,5	5	8	10	
Measured		-	-	5	-	-	-	
Required reinforced insulation		-	3,2	5	6	8	11	
Measured		-	-	-	-	-	-	
Clearances								
Required basic insulation		0,2	0,8	1,5	3	4	5,5	
Measured		-	-	6	-	-	-	
Required supplementary insulation		-	0,8	1,5	3	4	5,5	
Measured		-	-	4	-	-	-	
Required reinforced insulation		-	1,6	3	6	8	11	
Measured		-	-	-	-	-	-	
Table 11.2	Minimum distances (mm) for non-sinusoidal pulse voltages						N/A	
Rated pulse voltage (peak kV)		2,0	2,5	3,0	4,0	5,0	6,0	8,0
Required clearances		1,0	1,5	2	3	4	5,5	8
Measured		-	-	-	-	-	-	-
Rated pulse voltage (peak kV)		10	12	15	20	25	30	40
Required clearances		11	14	18	25	33	40	60
Measured		-	-	-	-	-	-	-
Rated pulse voltage (peak kV)		50	60	80	100	-	-	-
Required clearances		75	90	130	170	-	-	-
Measured		-	-	-	-	-	-	-

IEC 60598-2-1				
Clause	Requirement + Test		Result - Remark	Verdict
1.15 (13.2.1)	TABLE: Ball Pressure Test of Thermoplastics			P
Allowed impression diameter (mm) :		2mm		—
Object/ Part No./ Material		Manufacturer/ trademark	Test temperature (°C)	Impression diameter (mm)
Terminal box		Yuyao Mazhu Chen Min Lighting Parts Factory	75°C	1,0
Insulation sheet		Yuyao Daming mechanical hardware wholesale dapartment	75°C	1,0
Supplementary information: N/A				

1.15 (13.3.1)	TABLE: Needle-flame test (IEC 60695-11-5)				P
Object/ Part No./ Material	Manufacturer/ trademark	Duration of application of test flame (ta); (s)	Ignition of specified layer Yes/No	Duration of burning (tb) (s)	Verdict
Terminal	Yuyao Mazhu Chen Min Lighting Parts Factory	10	No	0	P
Supplementary information: N/A					

1.15 (13.3.2)	TABLE: Glow-wire test (IEC 60695-2-11)				P
Glow wire temperature		650°C	—		
Object/ Part No./ Material	Manufacturer/ trademark	Duration of application of test flame (ta); (s)	Ignition of specified layer Yes/No	Duration of burning (tb) (s)	Verdict
Plastic Lampshade	Yuyao Xin Ming Plastic Products factory	30	No	0	P
Terminal box	Yuyao Mazhu Chen Min Lighting Parts Factory	30	No	0	P
Insulation sheet	Yuyao Daming mechanical hardware wholesale dapartment	30	No	0	P
Supplementary information: N/A					

IEC 60598-2-1					
Clause	Requirement + Test			Result - Remark	Verdict
1.15 (13.4)	TABLE: Proof tracking test (IEC 60112)				P
Test voltage PTI		175			—
Object/ Part No./ Material	Manufacturer/ trademark	Withstand 50 drops without failure on three places or on three specimens			Verdict
Terminal	Yuyao Mazhu Chen Min Lighting Parts Factory	P	P	P	P
Supplementary information: N/A					

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

ANNEX 1	TABLE: Critical components information	
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object/part No.	code	manufacturer/ trademark	type/model	technical data	standard	mark(s) of conformity
Lampholder	B	Fujian Mingqing Mcwong Ceramics & Electronic Co., Ltd.	F519	500V, 4A, T180	DIN EN 60238	VDE/12180 2
	D	Kangrong Fine Ceramic Co., Ltd.	K327A	250V, 4A, T230	DIN EN 60238	VDE/40026 630
	D	Yuyao Ming Cheng Lightings Co., Ltd.	PA200	250V, 4A, T210	DIN EN 60238	VDE/40031 040
Terminal	B	Heavy Power Co., Ltd	PA9	450V, 24A, 1,0 ... 2,5 mm ² , T110	DIN EN 60998-2-1	VDE/40016 425
	D	Heavy Power Co., Ltd	PA7	450V, 17,5A, 0,75... 1,5 mm ² , T110	DIN EN 60998-2-1	VDE/40019 839
	D	Yuyao Ming Cheng Lightings Co., Ltd	PA8	450V, 17,5A, 0,75... 1,5 mm ² , T110	DIN EN 60998-2-1	VDE/40019 113
	D	Jiangxi Kimbetter Electrical Co., Ltd	PA10 PA10DS	450V, 24A, 1,0... 2,5 mm ² , T110	DIN EN 60998-2-1	VDE/40025 212
	D	Yuyao Ming Cheng Lightings Co., Ltd.	PA10	450V, 32A, 1,0... 4,0mm ² , T110	DIN EN 60998-2-1	VDE/40018 352
	D	Heavy Power Co., Ltd	PA12	500V, 41A, 2,5 mm ² , T110	DIN EN 60998-2-1	VDE/40016 433
	D	Yuyao Ming Cheng Lightings Co., Ltd.	PA12	450V, 32A, 1,0... 4,0mm ² , T110	DIN EN 60998-2-1	VDE/40022 463
Flexible Cable	B	Yuyao Guochang Electric Appliance Co., Ltd.	H03VVH2-F	2 x 0,75mm ²	DIN VDE 0281-5	VDE/12856 9
	D	Ningbo Haoguang Electric Appliance Co., Ltd.	H03W-F H05W-F	2 x 0,75mm ² 3 x 0,75mm ²	DIN VDE0282-4	VDE/12610 9
	D	Shangyu Jintao Electron Co., Ltd.	H03VVH2-F	2 x 0.75mm ²	DIN EN50525-2-21	VDE/40013 419
	D	Ningbo Yuxin Electrical Appliance Co., Ltd.	H05VV-F	2 x 0.75mm ²	DIN VDE 0281-5	VDE/40010 786
	D	Ningbo Qiaopu Electric Co., Ltd.	H03VV-F	3 x 0.75mm ²	DIN VDE0282-4	VDE/40035 976
	D	Shangyu Jintao Electron Co., Ltd	H05RN-F	3 x 1,0mm ²	DIN EN50525-2-21	VDE/40018 106
	D	Ningbo Huashun Electronics Co., Ltd.	H05RN-F	3 x 1,0mm ²	DIN VDE0282-4	VDE/40014 082
	D	Ningbo Qiaopu Electric Co., Ltd.	H05RN-F	3 x 1,0mm ²	DIN VDE0282-4	VDE/40035 531

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Clause	Requirement + Test			Result - Remark		Verdict
	D	Shangyu Jintao ElectronCo., Ltd	H05V-K	1 x 0.75mm ²	DIN VDE 0281-3	VDE/40033 762
	D	Ningbo Haoguang Electric Appliance Co., Ltd.	H05V-K	1 x 0.75mm ²	DIN VDE 0281-3	VDE/12606 2
Terminal box	C	Yuyao Jiming Hardware Factory	-	PE Thickness>1mm	EN 60598-1	Test with appliance
Material of terminal box	C	Ningbo yuyao hangbo plastic trading company	-	PE	EN 60598-1	Test with appliance
Heat Shrinkable Sleeve	C	Shengzhen Woer Heat-Shrinkable Material Co., Ltd.	RSFR-H	600V,125°C (UL/E203950)	EN 60598-1	Test with appliance
Lampshade	C	Yuyao jiming hardware factory	-	PC Thickness>2mm	EN 60598-1	Test with appliance
Material of lampshade	C	Yuyao Jiming Hardware Factory	-	PC	EN 60598-1	Test with appliance
Insulation sheet	C	Yuyao jinming electrical supplier Co., Ltd.	-	Mylar Thickness>1mm	EN 60598-1	Test with appliance
Material of Insulation sheet	C	Jintan hongwei electrical insulation material factory	-	Mylar	EN 60598-1	Test with appliance
Water proof gasket	C	Yuyao Ji Ming Hardware factory	-	Silicone Rubber Thickness>1,5mm	EN 60598-1	Test with appliance
Material of Water proof gasket	C	Yuyao shenghui rubber factory	-	Silicone Rubber	EN 60598-1	Test with appliance

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

ANNEX 2	TABLE: Temperature measurements, thermal tests of Section 12	
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	Type reference :	4622	—				
	Lamp used..... :	GLS lamp, 2x100W	—				
	Lamp control gear used..... :	N/A	—				
	Mounting position of luminaire :	Ground mounted	—				
	Supply wattage (W) :	210	—				
	Supply current (A) :	0,85	—				
	Calculated power factor..... :	N/A	—				
	Table: measured temperatures corrected for ta = 25 °C:						
	- abnormal operating mode :	N/A	—				
	- test 1: rated voltage..... :	N/A	—				
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage..... :	1,05 x 200W (232V)=210W	—				
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage..... :	N/A	—				
	- test 4: 1,1 times rated voltage or 1,05 times rated wattage..... :	N/A	—				
	Through wiring or looping-in wiring loaded by a current of A during the test :	N/A	—				
temperature (°C) of part		Clause 12.4 – normal			Clause 12.5 – abnormal		
		test 1	test 2	test 3	limit	test 4	limit
Bifurcation of cable		N/A	83	N/A	120	27	130
lampholder		N/A	172	N/A	180	N/A	N/A
Terminal		N/A	26	N/A	110	N/A	N/A
Terminal box		N/A	26	N/A	*	N/A	N/A
Mounting surface		N/A	29	N/A	90	N/A	N/A
Enclosure(external surface)		N/A	53	N/A	90	N/A	N/A

“*” means for ball pressure test

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

ANNEX 2	TABLE: Temperature measurements, thermal tests of Section 12	
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	Type reference :	7122	—			
	Lamp used..... :	GLS lamp, 2x100W	—			
	Lamp control gear used..... :	N/A	—			
	Mounting position of luminaire :	Ground mounted	—			
	Supply wattage (W) :	210	—			
	Supply current (A) :	0,85	—			
	Calculated power factor..... :	N/A	—			
	Table: measured temperatures corrected for ta = 25 °C:					
	- abnormal operating mode :	N/A	—			
	- test 1: rated voltage..... :	N/A	—			
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage..... :	1,05 x 200W (232V)=210W	—			
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage..... :	N/A	—			
	- test 4: 1,1 times rated voltage or 1,05 times rated wattage..... :	N/A	—			
	Through wiring or looping-in wiring loaded by a current of A during the test :	N/A	—			
temperature (°C) of part		Clause 12.4 – normal			Clause 12.5 – abnormal	
		test 1	test 2	test 3	limit	
Bifurcation of cable		N/A	82	N/A	120	28
lampholder		N/A	169	N/A	180	N/A
Terminal		N/A	27	N/A	110	N/A
Terminal box		N/A	26	N/A	*	N/A
Mounting surface		N/A	30	N/A	90	N/A
Enclosure(external surface)		N/A	61	N/A	90	N/A

“*” means for ball pressure test

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

ANNEX 2	TABLE: Temperature measurements, thermal tests of Section 12	
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	Type reference :	3405	—				
	Lamp used..... :	CFL 2x15W	—				
	Lamp control gear used..... :	N/A	—				
	Mounting position of luminaire :	Ground mounted	—				
	Supply wattage (W) :	31,8	—				
	Supply current (A) :	0,18	—				
	Calculated power factor..... :	N/A	—				
	Table: measured temperatures corrected for ta = 25 °C:						
	- abnormal operating mode :	N/A	—				
	- test 1: rated voltage..... :	N/A	—				
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage..... :	1,05 x 30W (230V)=31,5W	—				
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage..... :	N/A	—				
	- test 4: 1,1 times rated voltage or 1,05 times rated wattage..... :	N/A	—				
	Through wiring or looping-in wiring loaded by a current of A during the test :	N/A	—				
temperature (°C) of part		Clause 12.4 – normal			Clause 12.5 – abnormal		
		test 1	test 2	test 3	limit	test 4	limit
Bifurcation of cable		N/A	90	N/A	120	28	130
lampholder		N/A	162	N/A	180	N/A	N/A
Terminal		N/A	41	N/A	110	N/A	N/A
Terminal box		N/A	27	N/A	*	N/A	N/A
Mounting surface		N/A	42	N/A	90	N/A	N/A
Gasket		N/A	76	N/A	230	N/A	N/A
Enclosure(external surface)		N/A	44	N/A	90	N/A	N/A

“*” means for ball pressure test

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

ANNEX 2	TABLE: Temperature measurements, thermal tests of Section 12	
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	Type reference :	4904	—				
	Lamp used..... :	GLS 40W	—				
	Lamp control gear used..... :	N/A	—				
	Mounting position of luminaire :	Ground mounted	—				
	Supply wattage (W) :	42	—				
	Supply current (A) :	0,20	—				
	Calculated power factor..... :	N/A	—				
	Table: measured temperatures corrected for ta = 25 °C:						
	- abnormal operating mode :	N/A	—				
	- test 1: rated voltage..... :	N/A	—				
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage..... :	1,05 x 40W (230V)=42W	—				
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage..... :	N/A	—				
	- test 4: 1,1 times rated voltage or 1,05 times rated wattage..... :	N/A	—				
	Through wiring or looping-in wiring loaded by a current of A during the test :	N/A	—				
temperature (°C) of part		Clause 12.4 – normal			Clause 12.5 – abnormal		
		test 1	test 2	test 3	limit	test 4	limit
Bifurcation of cable		N/A	48	N/A	120	28	130
lampholder		N/A	70	N/A	180	N/A	N/A
Terminal		N/A	37	N/A	110	N/A	N/A
Insulation sheet under terminal		N/A	25	N/A	*	N/A	N/A
Mounting surface		N/A	33	N/A	90	N/A	N/A
Lampshade		N/A	62	N/A	90	N/A	N/A
Enclosure(external surface)		N/A	41	N/A	90	N/A	N/A

“*” means for ball pressure test

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

ANNEX 2	TABLE: Temperature measurements, thermal tests of Section 12	
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	Type reference :	4716	—				
	Lamp used..... :	GLS 60W	—				
	Lamp control gear used..... :	N/A	—				
	Mounting position of luminaire :	Ground mounted	—				
	Supply wattage (W) :	63	—				
	Supply current (A) :	0,26	—				
	Calculated power factor..... :	N/A	—				
	Table: measured temperatures corrected for ta = 25 °C:						
	- abnormal operating mode :	N/A	—				
	- test 1: rated voltage..... :	N/A	—				
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage..... :	1,05 x 60W (230V)=63W	—				
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage..... :	N/A	—				
	- test 4: 1,1 times rated voltage or 1,05 times rated wattage..... :	N/A	—				
	Through wiring or looping-in wiring loaded by a current of A during the test :	N/A	—				
temperature (°C) of part		Clause 12.4 – normal			Clause 12.5 – abnormal		
		test 1	test 2	test 3	limit	test 4	limit
Bifurcation of cable		N/A	65	N/A	65	28	130
lampholder		N/A	131	N/A	131	N/A	N/A
Terminal		N/A	84	N/A	84	N/A	N/A
Terminal box		N/A	26	N/A	*	N/A	N/A
Mounting surface		N/A	37	N/A	37	N/A	N/A
Enclosure(external surface)		N/A	60	N/A	90	N/A	N/A

“*” means for ball pressure test

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

ANNEX 3	Screw terminals (part of the luminaire)	
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(14)	SCREW TERMINALS		
(14.2)	Type of terminal..... :	Pillar (PA9DS; PA9; PA9F; PA9FDS PA12DS; 830WP; 830; PA12)	—
	Rated current (A)..... :	6 A in appliance	—
(14.3.2.1)	One or more conductors		N/A
(14.3.2.2)	Special preparation		N/A
(14.3.2.3)	Terminal size	0	N/A
	Cross-sectional area (mm ²)..... :	0,75 mm ² tested (2,5mm ² rated)	P
(14.3.3)	Conductor space (mm)..... :		N/A
(14.4)	Mechanical tests		
(14.4.1)	Minimum distance		P
(14.4.2)	Cannot slip out		P
(14.4.3)	Special preparation		N/A
(14.4.4)	Nominal diameter of thread (metric ISO thread) . :	M3	P
	External wiring		P
	No soft metal		P
(14.4.5)	Corrosion		P
(14.4.6)	Nominal diameter of thread (mm) :	2,3mm	P
	Torque (Nm) :		N/A
(14.4.7)	Between metal surfaces		N/A
	Lug terminal		N/A
	Mantle terminal		N/A
	Pull test; pull (N) :	50N	P
(14.4.8)	Without undue damage		P

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

ANNEX 4	Screwless terminals (part of the luminaire)		
(15)	SCREWLESS TERMINALS		
(15.2)	Type of terminal..... :		—
	Rated current (A)..... :		—
(15.3.1)	Material		N/A
(15.3.2)	Clamping		N/A
(15.3.3)	Stop		N/A
(15.3.4)	Unprepared conductors		N/A
(15.3.5)	Pressure on insulating material		N/A
(15.3.6)	Clear connection method		N/A
(15.3.7)	Clamping independently		N/A
(15.3.8)	Fixed in position		N/A
(15.3.10)	Conductor size		N/A
	Type of conductor		N/A
(15.5.1)	Terminals internal wiring		N/A
(15.5.1.1)	Pull test spring-type terminals (4 N, 4 samples)		N/A
(15.5.1.2)	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		
	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 external wiring		N/A
	Terminal size and rating		N/A
(15.6.2.1)	Pull test spring-type terminals or welded connections (4 samples); pull (N)		N/A

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Pull test pin or tab terminals (4 samples); pull (N)		N/A

(15.6.3.1)	TABLE: Contact resistance test										
	Voltage drop (mV) after 1 h										—
terminal	1	2	3	4	5	6	7	8	9	10	
voltage drop (mV)											
	Voltage drop of two inseparable joints										N/A
	Voltage drop after 10th alt. 25th cycle										
	Max. allowed voltage drop (mV) :					N/A					—
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) :					N/A					—
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) :					N/A					—
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) :					N/A					—
terminal	1	2	3	4	5	6	7	8	9	10	
voltage drop (mV)											
Supplementary information:											

IEC/EN 62031			
Clause	Requirement + Test	Result - Remark	Verdict

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 60598-2-1:1989 used in conjunction with EN 60598-1:2015			
Annex Form No.....: EU_GD_IEC60598_2_1D			
Annex Form Originator OVE			
Master Annex Form.....: 2015-04			
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	CENELEC COMMON MODIFICATIONS (EN)	
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1.5 (3)	MARKING	
1.5 (3.3.101)	For luminaires not supplied with terminal block: Adequate warning on the package	N/A

1.6 (4)	CONSTRUCTION	
1.6 (4.11.6)	Electro-mechanical contact systems	N/A

1.10 (5)	EXTERNAL AND INTERNAL WIRING	
1.10 (5.2.1)	Connecting leads	N/A
	- without a means for connection to the supply	N/A
	- terminal block specified	N/A
	- relevant information provided	N/A
	- compliance with 4.6, 4.7.1, 4.7.2, 4.10.1, 11.2, 12 and 13.2 of Part 1	N/A
1.10 (5.2.2)	Cables equal to EN 50525	N/A
	Replace table 5.1 – Supply cord	N/A

1.12 (12)	ENDURANCE TESTS AND THERMAL TESTS	
1.12 (12.4.2c)	Thermal test (normal operation) see footnote c to table 12.2 relating to unsleeved fixed wiring	P

IEC/EN 62031			
Clause	Requirement + Test	Result - Remark	Verdict

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

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

Overview



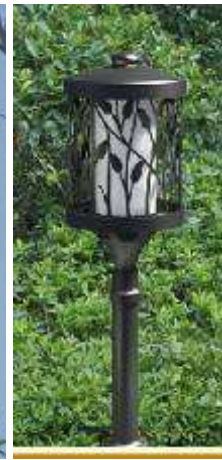
7104



7121



7204



7221



7304



4904



4502



4602



7310



4910



4506



4606



4706

Remarks



3405



3404



4516



4616



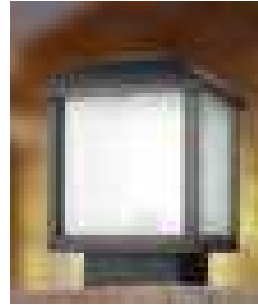
4716



4702



4512



4612



4712



7122



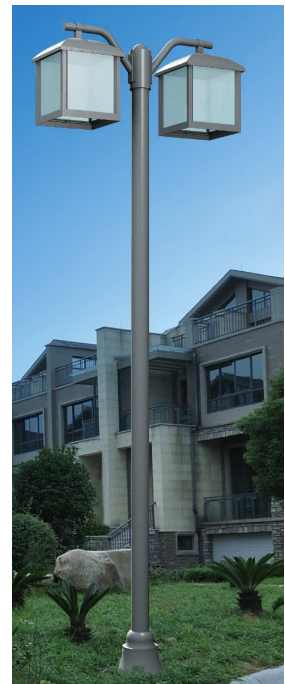
7222



4521



4621



4622

Remarks



7131



7110



7210



4522



4721



7231



4722



7132

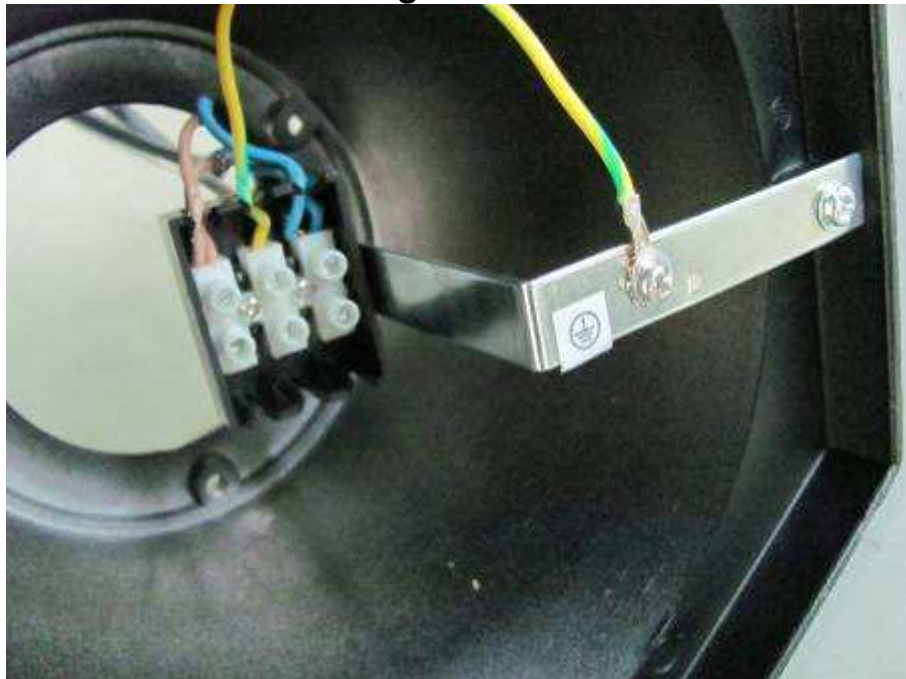


7232

Internal structure (typical model 4622)



Earthing and terminal



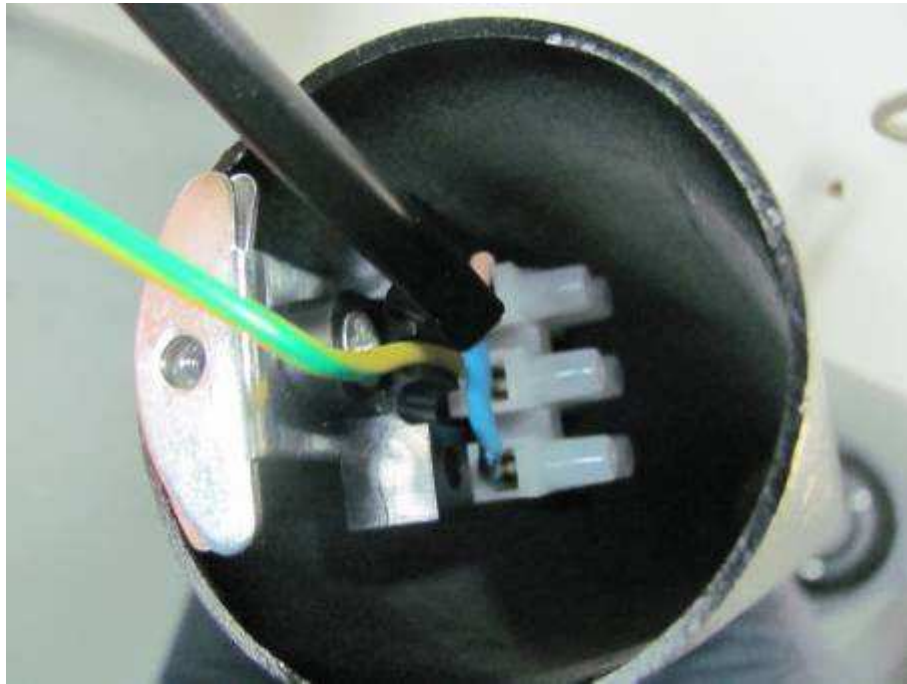
Construction (typical model 7121)



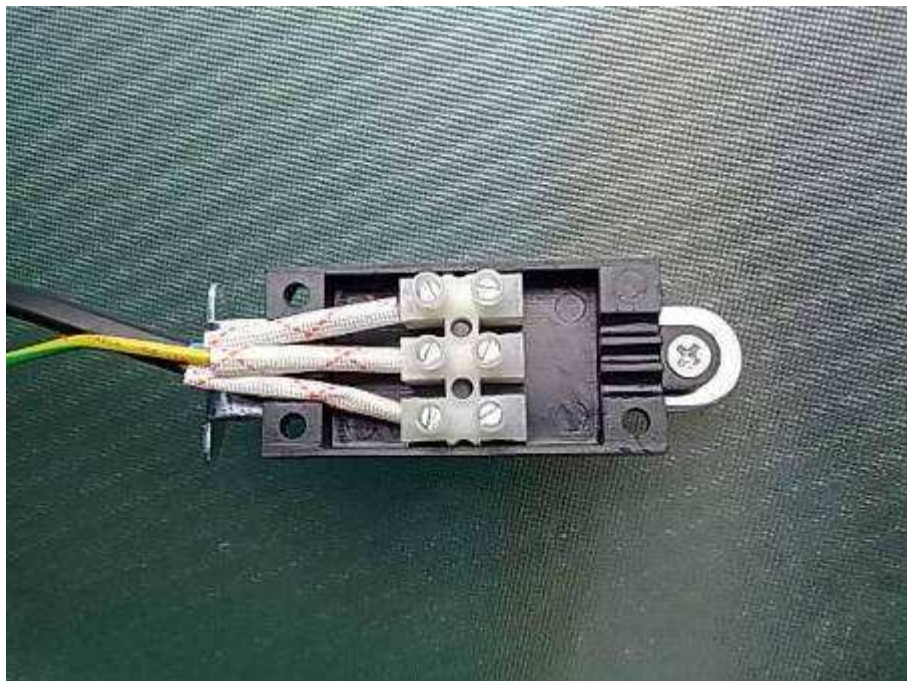
Earthing



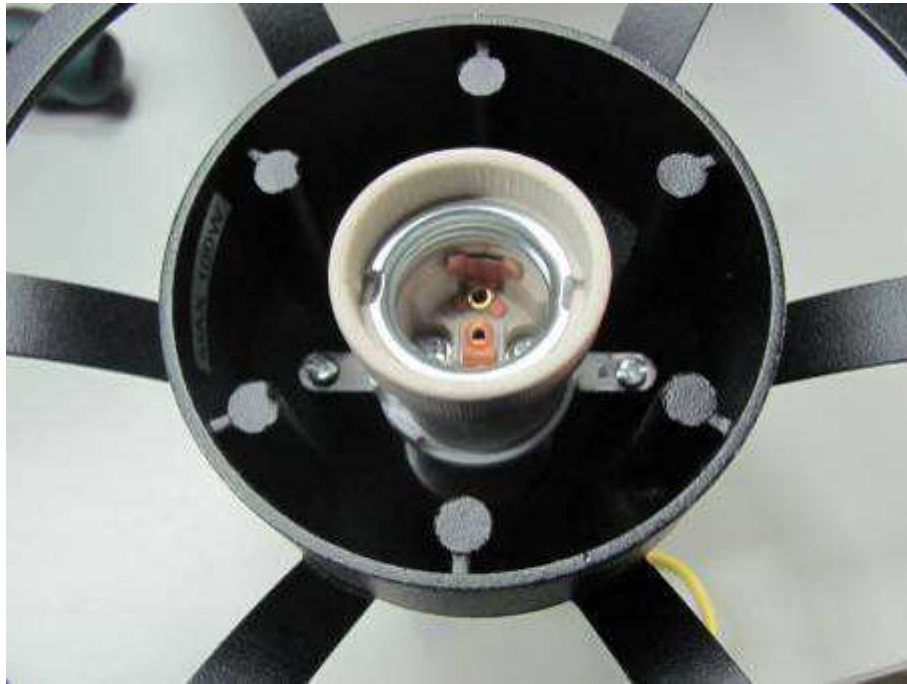
Terminal box fixed



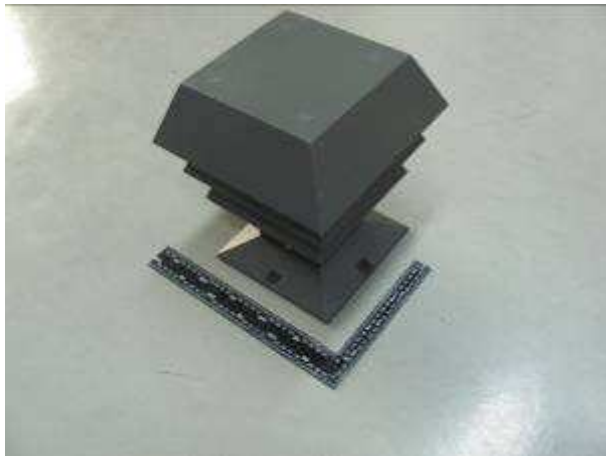
Terminal box



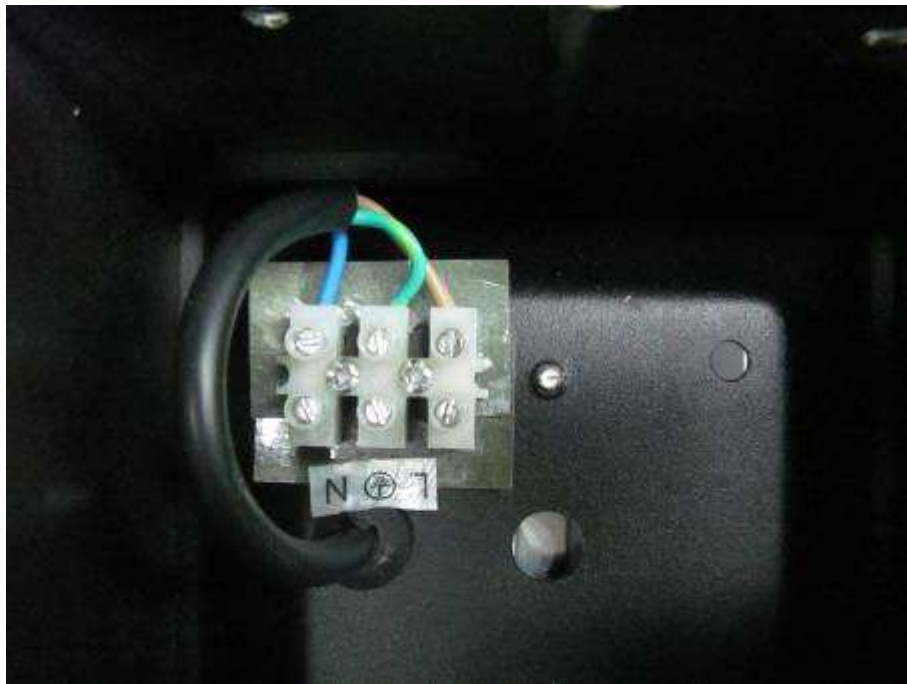
Lampholder



Construction (typical model 7121)



Earthing and terminal block



Lampholder



Construction (typical model 3404 and 3405)



Gasket



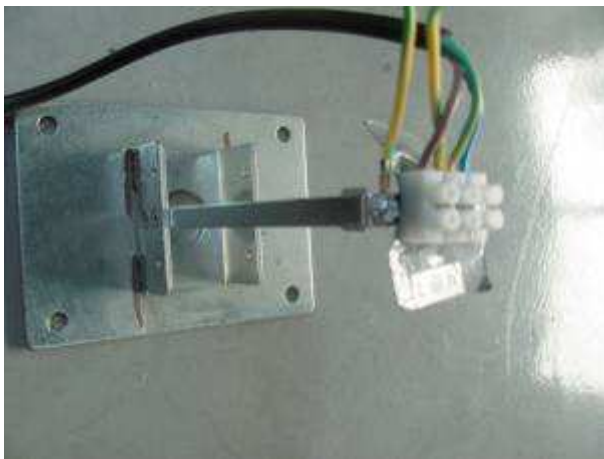
Lampholder

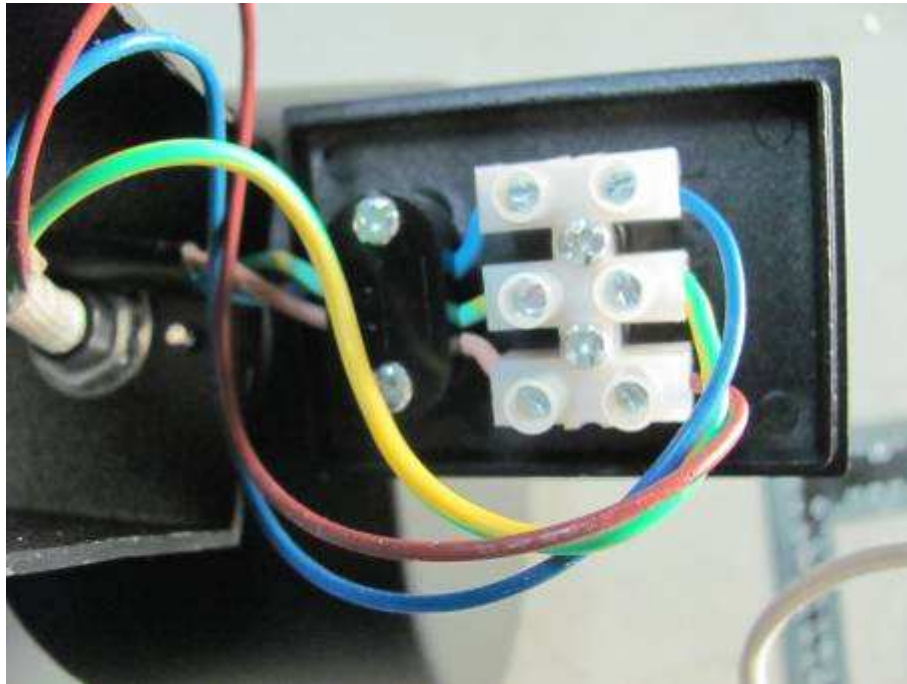


Lampshade



Earthing and terminal block for 3404 (side view and top view)



Terminal block for 3404**Terminal block for 3405**