



APPLICATION FOR LVD TEST REPORT

**On Behalf of
Lumatek Ltd.**

Grow Light Reflectors

**Model No.: R-type, Commodore, Xenon2, Arkanoid, Outrun, Last
Ninja, Tekken, Armalyte Barbarian, Thrust**

Prepared for : Lumatek Ltd.
Unit 8KPC Business Centre Ashford Kent TN24 OBP United Kingdom

Prepared By : Shenzhen Accurate Technology Co., Ltd.
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Date of Test: March 07 to March 17, 2018

Date of Report: March 17, 2018

Report Number: ATS2018104

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

Report Number. : ATS2018104
Tested by (name+signature) : Tony
Approved by (name+signature) : Victor
Date of issue : March 17, 2018



Tony
Victor

Testing Laboratory : Shenzhen Accurate Technology Co., Ltd.
Address..... : 1/F., Building A, Changyuan New Material Port, Science & Industry Park, Nanshan District, Shenzhen, Guangdong, P.R. China

Applicant's name..... : Lumatek Ltd.
Address : Unit 8KPC Business Centre Ashford Kent TN24 OBP United Kingdom

Test specification:




Standard : EN 60598-2-1:1989 used in conjunction with EN 60598-1:2015
Test procedure..... : 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 : Grow Light Reflectors
Trade Mark : N/A
Manufacturer..... : MingYu Lighting L.T.D.
Address : FuXing Industrial Zone, YuanZhou Town, Huizhou City, GuangDong Province, China
Model/Type reference..... : See cover page
Model difference : Appearance and power is not the same
Ratings..... : 240V~, 50Hz, E40, 1000W

Test item particulars:	
Classification of installation and use:	Fixed luminaire
Supply Connection	Plug
.....:	
Possible test case verdicts:	
- test case does not apply to the test object..... : N (not applicable)	
- test object does meet the requirement..... : P (Pass)	
- test object does not meet the requirement..... : F (Fail)	
Testing:	
Date of receipt of test item	March 07, 2018
Date (s) of performance of tests	March 07 to March 17, 2018
General remarks:	
<p>"(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report.</p> <p>Throughout this report a <input type="checkbox"/> comma / <input checked="" type="checkbox"/> point is used as the decimal separator.</p>	
General product information:	
<ol style="list-style-type: none"> 1. All the test results comply with the requirement of relevant standards. 2. All the tests are carried out on model R-type to represent other models. 3. These products are fixed luminaires for indoor use, Class I appliance. 4. All the test results comply with the requirement of relevant standards. 5. Photobiological safety of lamps and lamp systems of EN 62471 6. Assessment of lighting equipment related to human exposure to electromagnetic fields of EN 62493, 	
Copy of marking plate:	
<div style="border: 1px solid black; padding: 10px; width: fit-content; margin: 0 auto;"> <p>Grow Light Reflectors Model No.: R-type Rating: 240V~, 50/60Hz, E40, 1000W</p> <div style="display: flex; justify-content: center; align-items: center; gap: 10px;">    </div> <p>Lumatek Ltd.</p> </div>	

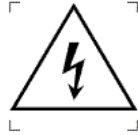
IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict

1.2 (0)	GENERAL TEST REQUIREMENTS		P
1.2 (0.1)	Information for luminaire design considered	Standard Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	—
1.2 (0.3)	More sections applicable.....	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—

1.4 (2)	CLASSIFICATION		P
1.4 (2.2)	Type of protection	Class I luminaires	—
1.4 (2.3)	Degree of protection.....	IP20	—
1.4 (2.4)	Luminaire suitable for direct mounting on normally flammable surfaces	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	—
1.4 (2.5)	Luminaire for normal use	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	—
	Luminaire for rough service	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—

1.5 (3)	MARKING		P
1.5 (3.2)	Mandatory markings	See marking plate	P
	Position of the marking	On the outside of main body	P
	Format of symbols/text	Symbols: 5.0mm min. Letter: 2.0mm min.	P
1.5 (3.3)	Additional information		P
	Language of instructions	English	P
1.5 (3.3.1)	Combination luminaires		N
1.5 (3.3.2)	Nominal frequency in Hz	50	P
1.5 (3.3.3)	Operating temperature		N
1.5 (3.3.4)	Symbol or warning notice		N
1.5 (3.3.5)	Wiring diagram		N
1.5 (3.3.6)	Special conditions		N
1.5 (3.3.7)	Metal halide lamp luminaire – warning	Not metal halide lamp luminaire	N
1.5 (3.3.8)	Limitation for semi-luminaires		N
1.5 (3.3.9)	Power factor and supply current		N
1.5 (3.3.10)	Suitability for use indoors	Indoor use only	P
1.5 (3.3.11)	Luminaires with remote control	No remote control	N
1.5 (3.3.12)	Clip-mounted luminaire – warning	No clip-mounted luminaire	N
1.5 (3.3.13)	Specifications of protective shields		N
1.5 (3.3.14)	Symbol for nature of supply	~	P
1.5 (3.3.15)	Rated current of socket outlet	No socket outlet	N
1.5 (3.3.16)	Rough service luminaire	Luminaire for normal use	N

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IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.5 (3.3.17)	Mounting instruction for type Y, type Z and some type X attachments		N
1.5 (3.3.18)	Non-ordinary luminaires with PVC cable		N
1.5 (3.3.19)	Protective conductor current in instruction if applicable		N
1.5 (3.3.20)	Provided with information if not intended to be mounted within arm's reach		N
1.5 (3.3.21)	Non-replaceable and non-user replaceable light sources information provided		P
	Cautionary symbol		P
1.5 (3.3.22)	Controllable luminaires, classification of insulation provided		N
1.5 (3.4)	Test with water	15s with water	P
	Test with hexane	15s with hexane	P
	Legible after test	Yes	P
	Label attached	Label was not be easily removable and show no curling	P

1.6 (4)	CONSTRUCTION		P
1.6 (4.2)	Components replaceable without difficulty		P
1.6 (4.3)	Wireways smooth and free from sharp edges	No sharp edges	P
1.6 (4.4)	Lampholders		P
1.6 (4.4.1)	Integral lampholder		N
1.6 (4.4.2)	Wiring connection		N
1.6 (4.4.3)	Lampholder for end-to-end mounting		N
1.6 (4.4.4)	Positioning		P
	- pressure test (N)		—
	After test the lampholder comply with relevant standard sheets and show no damage		N
	After test on single-capped lampholder the lampholder have not moved from its position and show no permanent deformation		N
	- bending test (N)	E40, 4.0Nm	—
	After test the lampholder have not moved from its position and show no permanent deformation		P
1.6 (4.4.5)	Peak pulse voltage		N
1.6 (4.4.6)	Centre contact		N

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.6 (4.4.7)	Parts in rough service luminaires resistant to tracking	Not rough service luminaires	N
1.6 (4.4.8)	Lamp connectors	No lamp connector used	N
1.6 (4.4.9)	Caps and bases correctly used		N
1.6 (4.4.10)	Light source for lampholder or connection according IEC 60061 not connected another way		P
1.6 (4.5)	Starter holders		N
	Starter holder in luminaires other than class II	No starter holder	N
	Starter holder class II construction		N
1.6 (4.6)	Terminal blocks		N
	Tails		N
	Unsecured blocks		N
1.6 (4.7)	Terminals and supply connections		P
1.6 (4.7.1)	Contact to metal parts		N
1.6 (4.7.2)	Test 8 mm live conductor		N
	Test 8 mm earth conductor		N
1.6 (4.7.3)	Terminals for supply conductors		P
1.6 (4.7.3.1)	Welded method and material		N
	- stranded or solid conductor		N
	- spot welding		N
	- welding between wires		N
	- Type Z attachment		N
	- mechanical test according to 15.8.2		N
	- electrical test according to 15.9		N
	- heat test according to 15.9.2.3 and 15.9.2.4		N
1.6 (4.7.4)	Terminals other than supply connection	Only in approved components	N
1.6 (4.7.5)	Heat-resistant wiring/sleeves		N
1.6 (4.7.6)	Multi-pole plug	No multi-pole plug	N
	- test at 30 N		N
1.6 (4.8)	Switches		N
	- adequate rating		N
	- adequate fixing		N
	- polarized supply		N
	- compliance with IEC 61058-1 for electronic switches		N
1.6 (4.9)	Insulating lining and sleeves		P
1.6 (4.9.1)	Retainment		P

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Method of fixing		—
1.6 (4.9.2)	Insulated linings and sleeves:		N
	Resistant to a temperature > 20 °C to the wire temperature or		N
	a) & c) Insulation resistance and electric strength		N
	b) Ageing test. Temperature (°C)		N
1.6 (4.10)	Double or reinforced insulation		N
1.6 (4.10.1)	No contact, mounting surface – accessible metal parts – wiring of basic insulation		N
	Safe installation fixed luminaires		N
	Capacitors and switches	No such component	N
	Interference suppression capacitors according to IEC 60384-14	No such component	N
1.6 (4.10.2)	Assembly gaps:		N
	- not coincidental		N
	- no straight access with test probe		N
1.6 (4.10.3)	Retention of insulation:		P
	- fixed		P
	- unable to be replaced; luminaire inoperative		P
	- sleeves retained in position		P
	- lining in lampholder		N
1.6 (4.11)	Electrical connections and current-carrying parts		P
1.6 (4.11.1)	Contact pressure		P
1.6 (4.11.2)	Screws:		N
	- self-tapping screws		N
	- thread-cutting screws		N
1.6 (4.11.3)	Screw locking:		N
	- spring washer		N
	- rivets		N
1.6 (4.11.4)	Material of current-carrying parts	>50% copper	P
1.6 (4.11.5)	No contact to wood or mounting surface	Current-carrying parts not contact wood	P
1.6 (4.11.6)	Electro-mechanical contact systems	No such systems	N
1.6 (4.12)	Screws and connections (mechanical) and glands		P
1.6 (4.12.1)	Screws not made of soft metal		P
	Screws of insulating material		N

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Torque test: torque (Nm); part..... :	Fixing lampholder 1.2Nm	P
	Torque test: torque (Nm); part..... :	Fixing enclosure 1.2Nm	P
	Torque test: torque (Nm); part..... :		N
1.6 (4.12.2)	Screws with diameter < 3 mm screwed into metal		N
1.6 (4.12.4)	Locked connections:		—
	- fixed arms; torque (Nm)		N
	- lampholder; torque (Nm)	E40, 4.0Nm	P
	- push-button switches; torque 0,8 Nm		N
1.6 (4.12.5)	Screwed glands; force (Nm)..... :		P
1.6 (4.13)	Mechanical strength		—
1.6 (4.13.1)	Impact tests:		P
	- fragile parts; energy (Nm)	0.2Nm, test and passed	P
	- other parts; energy (Nm)..... :	0.35Nm, test and passed	P
	1) live parts		P
	2) linings		P
	3) protection	Remain accordance against ingress of dust, sold objects and moisture classification	P
	4) covers		P
1.6 (4.13.3)	Straight test finger	30N	P
1.6 (4.13.4)	Rough service luminaires		—
	- IP54 or higher	Not rough service luminaires	N
	a) fixed		N
	b) hand-held		N
	c) delivered with a stand		N
	d) for temporary installations and suitable for mounting on a stand		N
1.6 (4.13.6)	Tumbling barrel	Not socket-outlet-mounted luminaires	N
1.6 (4.14)	Suspensions, fixings and means of adjusting		P
1.6 (4.14.1)	Mechanical load:		—
	A) four times the weight	6.5 X 4 = 26kg, No damage	P
	B) torque 2,5 Nm		N
	C) bracket arm; bending moment (Nm)..... :	1.0Nm, No damage	P
	D) load track-mounted luminaires		N

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	E) clip-mounted luminaires, glass-shelve. Thickness (mm)		N
	Metal rod. diameter (mm)		N
	Fixed luminaire or independent control gear without fixing devices		N
1.6 (4.14.2)	Load to flexible cables		—
	Mass (kg)		—
	Stress in conductors (N/mm ²)		N
	Mass (kg) of semi-luminaire		—
	Bending moment (Nm) of semi-luminaire		N
1.6 (4.14.3)	Adjusting devices:		—
	- flexing test; number of cycles.....		N
	- strands broken		N
	- electric strength test afterwards		N
1.6 (4.14.4)	Telescopic tubes: cords not fixed to tube; no strain on conductors	No telescopic tubes	N
1.6 (4.14.5)	Guide pulleys	No guide pulleys	N
1.6 (4.14.6)	Strain on socket-outlets	Not direct plug-in type	N
1.6 (4.15)	Flammable materials		—
	- glow-wire test 650°C	See Test Table 1.15 (13.3.2)	N
	- spacing ≥30 mm		N
	- screen withstanding test of 13.3.1		N
	- screen dimensions		N
	- no fiercely burning material		P
	- thermal protection		N
	- electronic circuits exempted		N
1.6 (4.15.2)	Luminaires made of thermoplastic material with lamp control gear		—
	a) construction		N
	b) temperature sensing control		N
	c) surface temperature		N
1.6 (4.16)	Luminaires for mounting on normally flammable surfaces		P
	No lamp control gear	(compliance with Section 12)	N
1.6 (4.16.1)	Lamp control gear spacing:		—
	- spacing 35 mm		N
	- spacing 10 mm		N
1.6 (4.16.2)	Thermal protection:		—

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Clause	Requirement + Test	Result - Remark	Verdict
	- in lamp control gear		N
	- external		N
	- fixed position		N
	- temperature marked lamp control gear		N
1.6 (4.16.3)	Design to satisfy the test of 12.6	(see clause 12.6)	N
1.6 (4.17)	Drain holes		N
	Clearance at least 5 mm		N
1.6 (4.18)	Resistance to corrosion		—
1.6 (4.18.1)	- rust-resistance		P
1.6 (4.18.2)	- season cracking in copper		N
1.6 (4.18.3)	- corrosion of aluminium		N
1.6 (4.19)	Igniters compatible with ballast	No ignitors	N
1.6 (4.20)	Rough service vibration	Not rough service used	N
1.6 (4.21)	Protective shield		—
1.6 (4.21.1)	Shield fitted if tungsten halogen lamps or metal halide lamps	No such luminaire	N
	Shield of glass if tungsten halogen lamps		N
1.6 (4.21.2)	Particles from a shattering lamp not impair safety		
1.6 (4.21.3)	No direct path		N
1.6 (4.21.4)	Impact test on shield		N
	Glow-wire test on lamp compartment..... :	See Test Table 1.15 (13.3.2)	N
1.6 (4.22)	Attachments to lamps not cause overheating or damage		N
1.6 (4.23)	Semi-luminaires comply Class II		N
1.6 (4.24)	Photobiological hazards		P
1.6 (4.24.1)	No excessive UV radiation if tungsten halogen lamps and metal halide lamps (Annex P)		N
1.6 (4.24.2)	Retinal blue light hazard		N
	Luminaires with E_{thr} :		N
	a) Fixed luminaires		N
	- distance x m, borderline between RG1 and RG2 ... :		N
	- marking and instruction according 3.2.23		N
	b) Portable and handheld luminaires		N
	- marking according 3.2.23 if RG1 exceeded at 200 mm according to IEC/TR 62778		N

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	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
1.6 (4.25)	Mechanical hazard		P
	No sharp point or edges	No sharp edges	P
1.6 (4.26)	Short-circuit protection		N
1.6 (4.26.1)	Adequate means of uninsulated accessible SELV parts		N
1.6 (4.26.2)	Short-circuit test with test chain according 4.26.3		N
	Test chain not melt through		N
	Test sample not exceed values of Table 12.1 and 12.2		N
1.6 (4.27)	Terminal blocks with integrated screwless earthing contacts		N
	Test according Annex V		N
	Pull test of terminal fixing (20 N)		N
	After test, resistance < 0,05 Ω		N
	Pull test of mechanical connection (50 N)		N
	After test, resistance < 0,05 Ω		N
	Voltage drop test, resistance < 0,05 Ω		N
1.6 (4.28)	Fixing of thermal sensing control		N
	Not plug-in or easily replaceable type		N
	Reliably kept in position		N
	No adhesive fixing if UV radiations from a lamp can degrade the fixing		N
	Not outside the luminaire enclosure		N
	Test of adhesive fixing:		N
	Max. temperature on adhesive material (°C)		—
	100 cycles between t min and t max		N
	Temperature sensing control still in position		N
1.6 (4.29)	Luminaires with non-replaceable light source		N
	Not possible to replace light source		N
	Live part not accessible after parts have been opened by hand or tools		N
1.6 (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
	Minimum two fixing means		P

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.6 (4.31)	Insulation between circuits		P
	Circuits insulated from LV supply fulfil requirements according 4.31.1 – 4.31.3		N
	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
1.6 (4.31.1)	SELV circuits		N
	Used SELV source		N
	Voltage ≤ ELV		N
	Insulating of SELV circuits from LV supply		N
	Insulating of SELV circuits from other non SELV circuits		N
	Insulating of SELV circuits from FELV		N
	Insulating of SELV circuits from other SELV circuits		N
	SELV circuits insulated from accessible parts according Table X.1		N
	Plugs not able to enter socket-outlets of other voltage systems		N
	Socket outlets does not admit plugs of other voltage systems		N
	Plugs and socket-outlets does not have protective conductor contact		N
1.6 (4.31.2)	FELV circuits		N
	Used FELV source		N
	Voltage ≤ ELV		N
	Insulating of FELV circuits from LV supply		N
	FELV circuits insulated from accessible parts according Table X.1		N
	Plugs not able to enter socket-outlets of other voltage systems		N
	Socket outlets does not admit plugs of other voltage systems		N
	Socket-outlets does not have protective conductor contact		N
1.6 (4.31.3)	Other circuits		P
	Other circuits insulated from accessible parts according Table X.1		P
	Class II construction with equipotential bonding for protection against indirect contacts with live parts:		N

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	- conductive parts are connected together		N
	- test according 7.2.3 of above		N
	- conductive part not cause an electric shock in case of an insulation fault		N
	- equipotential bonding in master/slave applications		N
	- master luminaire provided with terminal for accessible conductive parts of slave luminaires		N
	- slave luminaire constructed as class I		N
1.6 (4.32)	Overvoltage protective devices		N
	Comply with IEC 61643-11		N
	External to control gear and connected to earth:		N
	- only in fixed luminaires		N
	- only connected to protective earth		N

1.7 (11)	CREEPAGE DISTANCES AND CLEARANCES		P
1.7 (11.2)	Creepage distances and clearances..... :	See Table 1.7 (11.2)	P
	Working voltage (V)..... :	240V~	—
	Rated pulse voltage (kV)..... :		—
	Voltage form..... :	Sinusoidal <input checked="" type="checkbox"/> Non-sinusoidal <input type="checkbox"/>	—
	PTI..... :	< 600 <input checked="" type="checkbox"/> ≥ 600 <input type="checkbox"/>	—
	Impulse withstand category (Normal category II) (Category III Annex U)	Category II <input checked="" type="checkbox"/> Category III <input type="checkbox"/>	—

1.8 (7)	PROVISION FOR EARTHING		P
1.8 (7.2.1 + 7.2.3)	Accessible metal parts		P
	Metal parts in contact with supporting surface		P
	Resistance < 0,5 Ω..... :	0.097Ω	P
	Self-tapping screws used		N
	Thread-forming screws		N
	Thread-forming screw used in a grove		P
	Earth makes contact first		P
	Terminal blocks with integrated screwless earthing contacts tested according Annex V		N
	Protective earthing of the luminaire not via built-in control gear	Protective earthing of the luminaire	P

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.8 (7.2.2 + 7.2.3)	Earth continuity in joints, etc.		N
1.8 (7.2.4)	Locking of clamping means		P
	Compliance with 4.7.3		N
	Terminal blocks with integrated screwless earthing contacts tested according Annex V		N
1.8 (7.2.5)	Earth terminal integral part of connector socket		N
1.8 (7.2.6)	Earth terminal adjacent to mains terminals		P
1.8 (7.2.7)	Electrolytic corrosion of the earth terminal		N
1.8 (7.2.8)	Material of earth terminal		P
	Contact surface bare metal		N
1.8 (7.2.10)	Class II luminaire for looping-in		N
	Double or reinforced insulation to functional earth		N
1.8 (7.2.11)	Earthing core coloured green-yellow	Yellow-green	P
	Length of earth conductor		P

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

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

1.10 (5)	EXTERNAL AND INTERNAL WIRING		P
1.10 (5.2)	Supply connection and external wiring		P
1.10 (5.2.1)	Means of connection	Plug	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	Indoor	N
1.10 (5.2.2)	Type of cable..... :		P
	Nominal cross-sectional area (mm ²)	3X0.75mm ²	P
	Cables equal to IEC 60227 or IEC 60245		P
1.10 (5.2.3)	Type of attachment, X, Y or Z	Type Y	P
1.10 (5.2.5)	Type Z not connected to screws		N
1.10 (5.2.6)	Cable entries:		P

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Clause	Requirement + Test	Result - Remark	Verdict
	- suitable for introduction		P
	- adequate degree of protection		P
1.10 (5.2.7)	Cable entries through rigid material have rounded edges		P
1.10 (5.2.8)	Insulating bushings:		—
	- suitably fixed		N
	- material in bushings		N
	- material not likely to deteriorate		N
	- tubes or guards made of insulating material		N
1.10 (5.2.9)	Locking of screwed bushings		N
1.10 (5.2.10)	Cord anchorage:		P
	- covering protected from abrasion		P
	- clear how to be effective		P
	- no mechanical or thermal stress		P
	- no tying of cables into knots etc.		P
	- insulating material or lining		N
1.10 (5.2.10.1)	Cord anchorage for type X attachment:		N
	a) at least one part fixed		N
	b) types of cable		N
	c) no damaging of the cable		N
	d) whole cable can be mounted		N
	e) no touching of clamping screws		N
	f) metal screw not directly on cable		N
	g) replacement without special tool		N
	Glands not used as anchorage		N
	Labyrinth type anchorages		N
1.10 (5.2.10.2)	Adequate cord anchorage for type Y and type Z attachment		P
1.10 (5.2.10.3)	Tests:		P
	- impossible to push cable; unsafe		P
	- pull test: 25 times; pull (N) : 60N		P
	- torque test: torque (Nm) : 0.25Nm		P
	- displacement ≤ 2 mm		P
	- no movement of conductors		P

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Clause	Requirement + Test	Result - Remark	Verdict
	- no damage of cable or cord		P
	- function independent of electrical connection		N
1.10 (5.2.11)	External wiring passing into luminaire		P
1.10 (5.2.12)	Looping-in terminals		N
1.10 (5.2.13)	Wire ends not tinned		N
	Wire ends tinned: no cold flow		N
1.10 (5.2.14)	Mains plug same protection		N
	Class III luminaire plug		N
	No unsafe compatibility		N
1.10 (5.2.16)	Appliance inlets (IEC 60320)		N
	Installation couplers (IEC 61535)		N
	Other appliance inlet or connector according relevant IEC standard		N
1.10 (5.2.17)	No standardized interconnecting cables properly assembled		N
1.10 (5.2.18)	Used plug in accordance with		N
	- IEC 60083		N
	- other standard		N
1.10 (5.3)	Internal wiring		P
1.10 (5.3.1)	Internal wiring of suitable size and type		N
	Through wiring		N
	- not delivered/ mounting instruction		N
	- factory assembled		N
	- socket outlet loaded (A)		N
	- temperatures	(see Annex 2)	N
	Green-yellow for earth only		P
1.10 (5.3.1.1)	Internal wiring connected directly to fixed wiring		—
	Cross-sectional area (mm ²).....		N
	Insulation thickness		N
	Extra insulation added where necessary		N
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
1.10 (5.3.1.3)	Double or reinforced insulation for class II		N
1.10 (5.3.1.4)	Conductors without insulation		N
1.10 (5.3.1.5)	SELV current-carrying parts		N
1.10 (5.3.1.6)	Insulation thickness other than PVC or rubber		N
1.10 (5.3.2)	Sharp edges etc.		N
	No moving parts of switches etc.		N
	Joints, raising/lowering devices		N
	Telescopic tubes etc.		N
	No twisting over 360°		N
1.10 (5.3.3)	Insulating bushings:		—
	- suitable fixed		N
	- material in bushings		N
	- material not likely to deteriorate		N
	- cables with protective sheath		N
1.10 (5.3.4)	Joints and junctions effectively insulated		N
1.10 (5.3.5)	Strain on internal wiring		N
1.10 (5.3.6)	Wire carriers		N
1.10 (5.3.7)	Wire ends not tinned		N
	Wire ends tinned: no cold flow		N

1.11 (8)	PROTECTION AGAINST ELECTRIC SHOCK		P
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		N
	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

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Clause	Requirement + Test	Result - Remark	Verdict
	Basic insulation only accessible under lamp or starter replacement		N
	Protection in any position		P
	Double-ended tungsten filament lamp		N
	Insulation lacquer not reliable		P
	Double-ended high pressure discharge lamp		N
	Relevant warning according to 3.2.18 fitted to the luminaire		N
1.11 (8.2.2)	Portable luminaire adjusted in most unfavourable position		N
1.11 (8.2.3.a)	Class II luminaire:		N
	- basic insulated metal parts not accessible during starter or lamp replacement		N
	- basic insulation not accessible other than during starter or lamp replacement		N
	- glass protective shields not used as supplementary insulation		N
1.11 (8.2.3.b)	BC lampholder of metal in class I luminaires shall be earthed		N
1.11 (8.2.3.c)	SELV circuits with exposed current carrying parts:		N
	Ordinary luminaire:		N
	- touch current		N
	- no-load voltage.....		N
	Other than ordinary luminaire:		N
	- nominal voltage		N
1.11 (8.2.4)	Portable luminaire have protection independent of supporting surface		N
1.11 (8.2.5)	Compliance with the standard test finger or relevant probe	30N	P
1.11 (8.2.6)	Covers reliably secured		P
1.11 (8.2.7)	Discharging of capacitors $\geq 0,5 \mu\text{F}$	$< 0.5\mu\text{F}$	N
	Portable plug connected luminaire with capacitor		N
	Other plug connected luminaire with capacitor		N
	Discharge device on or within capacitor		N
	Discharge device mounted separately		N

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.12 (12)	ENDURANCE TEST AND THERMAL TEST		P
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:		P
	- mounting-position..... :	As in normal use	—
	- test temperature (°C) :	35°C	—
	- total duration (h)..... :	240h	—
	- supply voltage: Un factor; calculated voltage (V)... :	264V	—
	- lamp used..... :	1000W incandescent lamp use	—
1.12 (12.3.2)	After endurance test:		—
	- no part unserviceable	Compliance is checked by inspection	P
	- luminaire not unsafe	Ditto.	P
	- no damage to track system		P
	- marking legible	Compliance is checked by inspection	P
	- no cracks, deformation etc.	Compliance is checked by inspection	P
1.12 (12.4)	Thermal test (normal operation)	(see Annex 2)	P
1.12 (12.5)	Thermal test (abnormal operation)		N
1.12 (12.6)	Thermal test (failed lamp control gear condition):		N
1.12 (12.6.1)	Through wiring or looping-in wiring loaded by a current of (A) :		—
	- case of abnormal conditions :		—
	- electronic lamp control gear		N
	- measured winding temperature (°C): at 1,1 Un :		—
	- measured mounting surface temperature (°C) at 1,1 Un..... :		N
	- calculated mounting surface temperature (°C) :		N
	- track-mounted luminaires		N
1.12 (12.6.2)	Temperature sensing control		N
	- case of abnormal conditions :		—
	- thermal link		N
	- manual reset cut-out		N
	- auto reset cut-out		N
	- measured mounting surface temperature (°C) :		N

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

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

1.13 (9)	RESISTANCE TO DUST, SOLID OBJECTS AND MOISTURE		P
1.13 (-)	If IP > IP 20 the order of tests as specified in clause 1.12		P
1.13 (9.2)	Tests for ingress of dust, solid objects and moisture:		—
	- classification according to IP.....	IP20	—
	- mounting position during test	Normal use, most unfavourable position	—
	- fixing screws tightened; torque (Nm)		—
	- tests according to clauses.....	9.2.0	—
	- electric strength test afterwards	See 10.2.2	P
	a) no deposit in dust-proof luminaire	Not dust-proof luminaire	N
	b) no talcum in dust-tight luminaire	Not dust-tight luminaire	N
	c) no trace of water on current-carrying parts or on insulation where it could become a hazard		N
	d) i) For luminaires without drain holes – no water entry		N
	d) ii) For luminaires with drain holes – no hazardous water entry		N
	e) no water in watertight luminaire	Not watertight luminaires	N
	f) no contact with live parts (IP 2X)	IP20, no contact with live parts	P
	f) no entry into enclosure (IP 3X and IP 4X)		N
	f) no contact with live parts (IP3X and IP4X)		N
	g) no trace of water on part of lamp requiring protection from splashing water		N
	h) no damage of protective shield or glass envelope		N
1.13 (9.3)	Humidity test 48 h	48h, 25°C, 93%	P

1.14 (10)	INSULATION RESISTANCE AND ELECTRIC STRENGTH		P
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		—
	Insulation resistance (MΩ)		—

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Clause	Requirement + Test	Result - Remark	Verdict
	SELV		N
	- between current-carrying parts of different polarity :		N
	- between current-carrying parts and mounting surface..... :		N
	- between current-carrying parts and metal parts of the luminaire..... :		N
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts..... :		N
	- Insulation bushings as described in Section 5 :		N
	Other than SELV		P
	- between live parts of different polarity :	>100 MΩ	P
	- between live parts and mounting surface :	>100 MΩ	P
	- between live parts and metal parts :	>100 MΩ	P
	- between live parts of different polarity through action of a switch..... :		N
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts..... :		N
	- Insulation bushings as described in Section 5 :		N
1.14 (10.2.2)	Electric strength test		P
	Dummy lamp		N
	Luminaires with ignitors after 24 h test		N
	Luminaires with manual ignitors		N
	Test voltage (V)..... :		N
	SELV		N
	- between current-carrying parts of different polarity :		N
	- between current-carrying parts and mounting surface..... :		N
	- between current-carrying parts and metal parts of the luminaire..... :		N
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts..... :		N
	- Insulation bushings as described in Section 5 :		N
	Other than SELV		P
	- between live parts of different polarity :	2x240+1000=1480V, No breakdown	P
	- between live parts and mounting surface :	2x240+1000=1480V, No breakdown	P

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	- between live parts and metal parts	2x240+1000=1480V, No breakdown	P
	- between live parts of different polarity through action of a switch.....		N
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts.....		N
	- Insulation bushings as described in Section 5		N
1.14 (10.3)	Touch current or protective conductor current (mA) :	Accessible enclosure, 0.176 mA Limit: 2 mA.	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)	N
1.15 (13.3.1)	Needle-flame test (10 s).....	See Test Table 1.15 (13.3.1)	N
1.15 (13.3.2)	Glow-wire test (650°C).....	See Test Table 1.15 (13.3.2)	N
1.15 (13.4)	Proof tracking test (IEC 60112).....	See Test Table 1.15 (13.4)	N

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Clause	Requirement + Test	Result - Remark	Verdict

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

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

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

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Clause	Requirement + Test	Result - Remark	Verdict

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

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

ZC	ANNEX ZC, NATIONAL DEVIATIONS (EN)		N
(4 & 5)	FR: Shuttered socket-outlets 10/16A		N
	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
	- 850°C for luminaires in stairways and horizontal travel paths		N
	- 650°C for indoor luminaires		N
	GB: Requirements according to United Kingdom Building Regulation		N

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Clause	Requirement + Test	Result - Remark				Verdict
1.7 (11.2)	TABLES: Creepage distances and clearances					P
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 \geq 600	0,6	0,8	1,5	3	4	5,5
Measured	-	-	-	-	-	-
Measured	-	-	-	-	-	-
Measured	-	-	-	-	-	-
Required basic insulation, PTI < 600	1,2	1,6	2,5	5	8	10
Measured: L to N			>2.5			
Measured: live parts to accessible metal enclosure			>5.0			
Required supplementary insulation PTI \geq 600	-	0,8	1,5	3	4	5,5
Measured	-	-	-	-	-	-
Required supplementary insulation PTI < 600	-	1,6	2,5	5	8	10
Measured	-	-	-	-	-	-
Required reinforced insulation	-	3,2	5	6	8	11
Measured	-	-	-	-	-	-
Clearances						
Required basic insulation	0,2	0,8	1,5	3	4	5,5
Measured: L to N	-	-	>2.5	-	-	-
Measured: live parts to accessible metal enclosure	-	-	>5.0	-	-	-
Required supplementary insulation	-	0,8	1,5	3	4	5,5
Measured	-	-	-	-	-	-
Required reinforced insulation	-	1,6	3	6	8	11
Measured	-	-	-	-	-	-
Table 11.2	Minimum distances (mm) for non-sinusoidal pulse voltages					N

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Clause	Requirement + Test	Result - Remark	Verdict
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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							

1.15 (13.2.1)	TABLE: Ball Pressure Test of Thermoplastics					N
Allowed impression diameter (mm) :					<2mm	—
Object/ Part No./ Material		Manufacturer/ trademark	Test temperature (°C)		Impression diameter (mm)	
Supplementary information:						

1.15 (13.3.1)	TABLE: Needle-flame test (IEC 60695-11-5)					N
Object/ Part No./ Material	Manufacturer/ trademark	Duration of application of test flame (ta); (s)	Ignition of specified layer Yes/No	Duration of burning (tb) (s)	Verdict	
Supplementary information:						

1.15 (13.3.2)	TABLE: Glow-wire test (IEC 60695-2-11)					N
Glow wire temperature :					650°C	—
Object/ Part No./ Material	Manufacturer/ trademark	Duration of application of test flame (ta); (s)	Ignition of specified layer Yes/ No	Duration of burning (tb) (s)	Verdict	
Any flame or glowing of the sample extinguished within 30 s of withdrawing the glow-wire, and any burning or molten drop did not ignite the underlying parts (Yes/No)..... :					Yes	
Supplementary information:						

1.15 (13.4)	TABLE: Proof tracking test (IEC 60112)					N
Test voltage PTI :					175 V	—

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Clause	Requirement + Test	Result - Remark	Verdict
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Object/ Part No./ Material	Manufacturer/ trademark	Withstand 50 drops without failure on three places or on three specimens	Verdict
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Supplementary information:

ANNEX 1 TABLE: Critical components information						P
Object / part No.	Code	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹⁾
lampholder	A	KANGRONG FINE CERAMICI Co.,ltd	K548A	16A, AC750V	EN 60238	ENEC
Alt.	A	DeXin tomorrow electrical Co.,LTD	MT540	16A, AC750V	EN 60238	VDE
Power cord	A	NINGBO XUANHUA ELECCTRIC CO.,LTD.	H05VV-F	3x0.75mm ²	VDE 0821	VDE 40016531
Alt.	A	NINGBO XUANHUA ELECCTRIC CO.,LTD.	H03VV-F	2x0.75mm ²	VDE 0821	VDE 40016531
Plug for Europe	A	NINGBO XUANHUA ELECCTRIC CO.,LTD.	XH-03	16A, AC250V	VDE 0620	VDE 40019691
Plug for UK	A	NingBo Yunhuan electronics Group corp.,	XH032	13A, AC250V	--	KM45980
Plug for Australia	A	NingBo qiaopu electric co.,Ltd.	D05A	7.5A, AC250V	--	SAA Q02462
Plug for Switzerland	A	NingBo Yunhuan electronics Group corp.,	Y004	10A, AC250V	--	SEV 03-IK-01116.02
Alt.	A	NingBo Yunhuan electronics Group corp.,	Y005	10A, AC250V	--	SEV 03-IK-01116.02
Plug for Italy	A	NingBo qiaopu electric co.,Ltd.	D08	10A, AC250V	--	IMQ CA02.01117
Connector	A	NingBo Qiaopu Electric co.,Ltd.	QZ3	AC250V, 10A	EN 60320	VDE 40009663

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Clause	Requirement + Test	Result - Remark	Verdict

Supplementary information:
¹⁾ Provided evidence ensures the agreed level of compliance.
 The codes above have the following meaning:
 A - The component is replaceable with another one, also certified, with equivalent characteristics
 B - The component is replaceable if authorised by the test house
 C - Integrated component tested together with the appliance
 D - Alternative component

ANNEX 2	TABLE: Temperature measurements, thermal tests of Section 12	P
	Type reference	—
	Lamp used.....	1000W Incandescent lamp use
	Lamp control gear used.....	—
	Mounting position of luminaire	Normal use, most unfavourable position
	Supply wattage (W).....	—
	Supply current (A)	—
	Calculated power factor.....	—
	Table: measured temperatures corrected for ta = 25 °C:	P
	- abnormal operating mode	—
	- test 1: rated voltage.....	—
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage	1.06 × 240V=254.4V
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage	--
	- test 4: 1,1 times rated voltage or 1,05 times rated wattage	--
	Through wiring or looping-in wiring loaded by a current of A during the test	--

Temperature measurements, (°C)							
Part	Ambient	Clause 12.4 – normal				Clause 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
Tc of the electrical ballast	--	--	68.0	--	75	--	--
Metal enclosure	--	--	73.2	--	Ref	--	--
Cord near lampholder	--	--	80.1	--	105	--	--
Lampholder	--	--	176.2	--	225	--	--
Mounting surface	--	--	38.5	--	90	--	--

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Clause	Requirement + Test	Result - Remark	Verdict
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Supplementary information:

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

ANNEX 4	Screwless terminals (part of the luminaire)		N
(15)	SCREWLESS TERMINALS		N
(15.2)	Type of terminal..... :		—
	Rated current (A)..... :		—
(15.3.1)	Material		N
(15.3.2)	Clamping		N
(15.3.3)	Stop		N
(15.3.4)	Unprepared conductors		N

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Clause	Requirement + Test	Result - Remark	Verdict
(15.3.5)	Pressure on insulating material		N
(15.3.6)	Clear connection method		N
(15.3.7)	Clamping independently		N
(15.3.8)	Fixed in position		N
(15.3.10)	Conductor size		N
	Type of conductor		N
(15.5.1)	Terminals internal wiring		N
(15.5.1.1)	Pull test spring-type terminals (4 N, 4 samples)		N
(15.5.1.2)	Pull test pin or tab terminals (4 N, 4 samples)		N
	Insertion force not exceeding 50 N		N
(15.5.1.2)	Permanent connections: pull-off test (20 N)		N
(15.5.2)	Electrical tests		N
	Voltage drop (mV) after 1 h (4 samples)..... :		N
	Voltage drop of two inseparable joints		N
	Number of cycles:		—
	Voltage drop (mV) after 10th alt. 25th cycle (4 samples)..... :		N
	Voltage drop (mV) after 50th alt. 100th cycle (4 samples)..... :		N
	After ageing, voltage drop (mV) after 10th alt. 25th cycle (4 samples)		N
	After ageing, voltage drop (mV) after 50th alt. 100th cycle (4 samples)		N
(15.6)	Terminals external wiring		N
	Terminal size and rating		N
(15.6.2.1)	Pull test spring-type terminals or welded connections (4 samples); pull (N)		N
	Pull test pin or tab terminals (4 samples); pull (N)		N

(15.6.3.1)	TABLE: Contact resistance test										N
	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)										—

IEC60598_2_1D - ATTACHMENT

Clause	Requirement + Test	Result - Remark	Verdict
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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:

Appendix 1
List of equipment

No.	Equipment	Manufacturer	Model No.	Serial No.	Calibrati on date	Calibrati on due date
01	Hybrid Recorder	Yokogawa	DR130	27D216293	2018.1.2	2019.1.1
02	Hybrid Recorder	Yokogawa	DR130	27D216294	2018.1.2	2019.1.1
03	Data Acquisition / Switch Unit	Agilent	34970A	MY41027365	2018.1.2	2019.1.1
04	Data Acquisition / Switch Unit	Agilent	34970A	MY41025924	2018.1.2	2019.1.1
05	Temp. & Humid. Chamber	Gongwen	HSD-500	0109	2018.1.2	2019.1.1
13	Oscilloscope	Tektronix	TDS2012	C035606	2018.1.2	2019.1.1
14	Oscilloscope	Tektronix	TDS3012B	B035855	2018.1.2	2019.1.1
15	Digital Power Meter	Qingzhi	8716C	870307119	2018.1.2	2019.1.1
16	Digital Power Meter	Ainuo	8715B	038710069	2018.1.2	2019.1.1
17	Digital Power Meter	Everfine	YF9901	405075	2018.1.2	2019.1.1
22	Desktop Multi Meter	Fluke	45	8392013	2018.1.2	2019.1.1
26	Grounding Bond Meter	Ainuo	9613B	039606212	2018.1.2	2019.1.1
27	Leakage Current Meter	EXTECH	7611	1330308	2018.1.2	2019.1.1
30	Digital Power Meter	Qingzhi	8716C	870307126	2018.1.2	2019.1.1
32	Push-Pull Scale	ALGOL	NK-300	49779	2018.1.2	2019.1.1
33	Test hook	Zhilitong	TH-1	W8L180T1	2018.1.2	2019.1.1
40	Tumbling Barrel	Zhilitong	GT-1	G010104	2018.1.2	2019.1.1
41	Audio Generator	Good Will	GAG-809	EG835424	2018.1.2	2019.1.1
43	Plug Torque Tester	Zhilitong	LJ-1	LJ010104	2018.1.2	2019.1.1
44	Shot Test Pin Probe	Zhilitong	ZP-1	44/ATCS-44	2018.1.2	2019.1.1
45	Test Probe 41	Zhilitong	ZT-1	D30L80/ATCS-45	2018.1.2	2019.1.1
46	Finger Nail Probe	Zhilitong	ZJ-1	D14N30/ATCS-46	2018.1.2	2019.1.1
47	Test Finger Probe	Zhilitong	ZF-1	X010106/ATCS-47	2018.1.2	2019.1.1
48	Accessibility Probe	Zhilitong	ZA-1	A010102/ATCS-48	2018.1.2	2019.1.1
49	UL Finger Probe	America	ULP-01	A01/ATCS-49	2018.1.2	2019.1.1
50	Rigid Finger Probe	Zhilitong	TZ-1	L010304	2018.1.2	2019.1.1
51	Test Probe	Zhilitong	TZ-11	D4L100/ATCS-51	2018.1.2	2019.1.1
52	Test Probe	Zhilitong	TZ-12	D3L100/ATCS-52	2018.1.2	2019.1.1
53	Test Probe	Zhilitong	TZ-13	D1L20/ATCS-53	2018.1.2	2019.1.1
54	Test Probe	Zhilitong	TZ-14	D40/ATCS-54	2018.1.2	2019.1.1
55	Steel Ball	Zhilitong	ZB-1	D5W500	2018.1.2	2019.1.1
60	Isolating Transformer	Kong Tel	5KVA	002	—	—
61	Hammer	Guangdong Zhijian	CJ-2	24003	2018.1.2	2019.1.1
62	Hammer	Zhilitong	CJ-2	C021204	2018.1.2	2019.1.1
63	Hammer	Guangdong Zhijian	CJ-2	24004	2018.1.2	2019.1.1
64	Hammer	Zhilitong	CJ-2	C021104	2018.1.2	2019.1.1
65	Torque Driver	kanon	30LTDK	04C175	2018.1.2	2019.1.1
66	Torque Driver	kanon	12LTDK	04A037	2018.1.2	2019.1.1
67	AC Voltage Stabilizer	Sanke Electrical	SVC-30KVA	31208433081	—	—
68	AC Voltage Stabilizer	Sanke Electrical	SVC-30KVA	31208455481	—	—
69	Frequency Converter Power Supply	All Power	AFC-220	890411	—	—
75	Tape line	Great Wall	GW-589E	18955	2018.1.2	2019.1.1
76	Platform Scale	Shanghai	TGT-100	ATCS-76	2018.1.2	2019.1.1
77	Timer	Tian Fu	PC396	AT24H	2018.1.2	2019.1.1
78	Digital Power Meter	Qingzhi	8716C	870512009	2018.1.2	2019.1.1
79	Digital Power Meter	Qingzhi	8716C	870512012	2018.1.2	2019.1.1
80	Digital Power Meter	Everfine	PF9805	301020	2018.1.2	2019.1.1
81	Digital Power Meter	iDRC	CP-280	280887	2018.1.2	2019.1.1
82	Data Acquisition / Switch Unit	Agilent	34970A	MY44008068	2018.1.2	2019.1.1
83	Glow Wire Test Set	Zhilitong	GTR-B	R024007	2018.1.2	2019.1.1
84	Needle Flame Test Set	Zhilitong	ZY-2	Y021507	2018.1.2	2019.1.1
88	Ball Pressure Tester	Zhilitong	QY-1	Q013408/ATCS-88	2018.1.2	2019.1.1
89	Ball Pressure Tester	Zhilitong	QY-1	Q013508/ATCS-89	2018.1.2	2019.1.1
91	K type thermocouple	OMEGA	TT-K-30-1000	ATCS-91	2018.1.2	2019.1.1

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No.	Equipment	Manufacturer	Model No.	Serial No.	Calibration date	Calibration due date
93	Small finger probe (Φ8.6)	HUANAN	EX-A02	ATCS-93	2018.1.2	2019.1.1
94	Small finger probe (Φ5.6)	HUANAN	EX-A02	ATCS-94	2018.1.2	2019.1.1
95	Draught-proof enclosure	Shanghai Jingtian	DMS-B12	DAMS2009110136	2018.1.2	2019.1.1
96	Proof tracking Test Apparatus	Shenzhen Demaisheng	LD-H	TI09101201	2018.1.2	2019.1.1
97	228 meter	SIMPSON	228	10-866030	2018.1.2	2019.1.1
98	Digital Caliper	Guang Lu	(0-150mm)/ 0.01mm	090074695	2018.1.2	2019.1.1
99	Torque Driver	Kanon	10DPSK	0907005	2018.1.2	2019.1.1
100	Digital Power Meter	Yokogawa	WT110	12VC26618M	2018.1.2	2019.1.1
101	Desktop Multi Meter	Fluke	45	7664009	2018.1.2	2019.1.1
102	Steel Ball	XINNA	YD2810B	11051101	2018.1.2	2019.1.1
104	Digital Power Meter	Qingzhi	8716C	871102401	2018.1.2	2019.1.1
105	Data Acquisition / Switch Unit	Agilent	34970A	MY44060502	2018.1.2	2019.1.1
106	K type thermocouple	OMEGA	TT-K-30	ATCS-106	2018.1.2	2019.1.1
107	E27 Cap "GO" Gauge	Guangzhou Gerui	7006-27B-1	GRT110727002	2018.1.2	2019.1.1
108	E27 Cap "NOT GO" Gauge	Guangzhou Gerui	7006-28A-1	110711012	2018.1.2	2019.1.1
109	E27 Cap "GO" Gauge for dimension S1	Guangzhou Gerui	7006-27C-1	110720005	2018.1.2	2019.1.1
110	E27 Cap Gauge for testing contact making	Guangzhou Gerui	7006-50-1	110711013	2018.1.2	2019.1.1
111	E27 Cap Gauge for testing contact making	Guangzhou Gerui	7006-51-2	110711005	2018.1.2	2019.1.1
112	E27 Cap Gauge for testing protection against accidental contact during insertion	Guangzhou Gerui	7006-51A-2	110720008	2018.1.2	2019.1.1
113	E14 Cap "GO" Gauge	Guangzhou Gerui	7006-27F-1	110711046	2018.1.2	2019.1.1
114	E14 Cap "NOT GO" Gauge	Guangzhou Gerui	7006-28B-1	110711044	2018.1.2	2019.1.1
115	E14 Cap "GO" Gauge for dimension S1	Guangzhou Gerui	7006-27G-1	110711050	2018.1.2	2019.1.1
116	E14 Cap Gauge for testing contact making	Guangzhou Gerui	7006-54-2	110711040	2018.1.2	2019.1.1
117	E14 Cap Gauge for testing protection against accidental contact	Guangzhou Gerui	7006-55-2	110711037	2018.1.2	2019.1.1
118	G13 "GO" Gauge	Guangzhou Gerui	7006-45-4	GRT11092730	2018.1.2	2019.1.1
119	G13 "GO" and "NOT GO" Gauge	Guangzhou Gerui	7006-44-4	GRT11092731	2018.1.2	2019.1.1
120	Power cord flexing and swivel tester	DEMAISHENG	DMS-801H	2011DMS-801H0902	2018.1.2	2019.1.1
121	10 kV surge tester	CEPREI	1065A	1108AG41	2018.1.2	2019.1.1
122	Cylindrical contact plane(Φ12.7)	Zhilitong	Φ12.7mm	ATCS-122	2018.1.2	2019.1.1
123	Cylindrical contact plane(Φ30)	Zhilitong	Φ30mm	ATCS-123	2018.1.2	2019.1.1
124	0.1Ω constant resistance	ATC	0.1Ω	ATCS-124	2018.1.2	2019.1.1
125	30A Current Shunt	Agilent	34330A	0418	2018.1.2	2019.1.1
126	Test Probe	Zhilitong	ZLT-I23	I231201	2018.1.2	2019.1.1
127	Test A Probe	Zhilitong	ZLT-I01	I011201	2018.1.2	2019.1.1
128	Test C Probe	Zhilitong	ZLT-I03	I031201	2018.1.2	2019.1.1
129	Test D Probe	Zhilitong	ZLT-I04	I041203	2018.1.2	2019.1.1
130	Test 31 Probe	Zhilitong	ZLT-I14	I141201	2018.1.2	2019.1.1
131	Wedge-shaped test probe	Zhilitong	ZLT-U14	U141202	2018.1.2	2019.1.1
132	Hammer	Zhilitong	ZLT-CJ1	C011208	2018.1.2	2019.1.1
133	Steel Ball(Φ12.5)	Zhilitong	ZLT-I06	I061201	2018.1.2	2019.1.1
134	Tumbling Barrel	Zhilitong	ZLT-GT2	G021202	2018.1.2	2019.1.1
136	Transformer bump testing appliance	SHENZHEN GANGWEI	ATCS-136	ATCS-136	2018.1.2	2019.1.1
137	HOT WIRE ANEMOMETER	Lutron	AM-4204	Q619466	2018.1.2	2019.1.1
139	Digital Protractor	GUANGZHOU XINHE	82201B-00	ATCS-139	2018.1.2	2019.1.1
140	Test chain	GUANGZHOU	SH3306	50612	2018.1.2	2019.1.1

No.	Equipment	Manufacturer	Model No.	Serial No.	Calibration date	Calibration due date
		XINHE				
141	G13 lamp holder test fixture	SHENZHEN GANGWEI	ATCS-141	ATCS-141	—	—
142	Digital Power Meter	YOKOGAWA	WT210	91F603491	2018.1.2	2019.1.1
143	Leakage Current Meter	CHANGSHENG	CS5520E	1109203-002	2018.1.2	2019.1.1
144	Oscilloscope voltage probe (1000X)	Tektronix	P6015	010-0131-00	2018.1.2	2019.1.1
145	Electronic Scale	XIANGSHAN	ACS-6-ZE1	3050111	2018.1.2	2019.1.1
146	High-frequency spark generator	SPKM	SPKM-M15	19121366236	—	—
147	Frequency Converter Power Supply	APE	AFR-230	991787	—	—
148	Touch Current Meter	CEPREI	421A	1309AG20	2018.1.2	2019.1.1
149	Hi-Pot Tester	KIKUSUI	TOS5051	EL003517	2018.1.2	2019.1.1
150	Electronic Thermo-Hygrometer	YINDU	YD-HT818J	YD1404172	2018.1.2	2019.1.1
151	Electronic load	Chroma	6304	63044415	2018.1.2	2019.1.1
152	Digital Caliper	Guang Lu	(0~150mm)/0.01mm	K14M019684	2018.1.2	2019.1.1
153	Digital Caliper	Guang Lu	(0~150mm)/0.01mm	K14M019452	2018.1.2	2019.1.1
154	DIGITAL ILLUMINANCE METER	TES	TES-1335	141207331	2018.1.2	2019.1.1
155	Luminance Meter	TES	TES-137	150105221	2018.1.2	2019.1.1
158	Crush test apparatus	DONGGUAN JIANCE	ATCS-158	ATCS-158	2018.1.2	2019.1.1
159	E27 Test Lampholder	DONGGUAN JIANCE	E27	ATCS-159	—	—
160	E14/20 Test Lampholder	DONGGUAN JIANCE	E14/20	ATCS-160	—	—
161	Centre Punch	HANDUN	59558	ATCS-161	—	—
162	Electronic load	Chroma	6304	53045123	2018.1.2	2019.1.1
163	Oven Chamber	YIHENG	DHG-9245A	151143120	2018.1.2	2019.1.1
164	Desktop Multi Meter	HEWLETT PACKARD	34401A	US36067693	2018.1.2	2019.1.1
165	Oscilloscope voltage probe (100X)	Tektronix	P5100	B001949	—	—
166	Programmable constant Temp. & Humid. Chamber	REALE	RHP-800BT	R20170318310	2018.1.2	2019.1.1
167	Digital Clamp Meter	FLUKE	319	38210070WS	2018.1.2	2019.1.1
168	Digital Clamp Meter	UNI-T	UT204	R160056455	2018.1.2	2019.1.1
169	500×500×8mm Nylon board	/	ATCS-169	ATCS-169	—	—
170	Revolution Meter	testo	testo 460	38816495/702	2018.1.2	2019.1.1
171	Resistance Meter	HIOKI	RM3544	170410245	2018.1.2	2019.1.1
172	Dielectric Strength for sheet material	ATC	ATCS-172	ATCS-172	—	—
173	Leakage Current Meter	Extech	7630	1332014	2018.1.2	2019.1.1
174	Grounding Bond Meter	Extech	7316	1370399	2018.1.2	2019.1.1
175	Insulation Resistance Tester	KIKUSUI	TOS7200	XH003556	2018.1.2	2019.1.1
176	Micrometer	Mitutoyo	293-240-30	66192985	2018.1.2	2019.1.1
177	Noise Generator	Taiwan Sunlight	8121C	NS797041127	2018.1.2	2019.1.1
178	Microscope	Guiyang Xintian	JT12A-B	AG0213	2018.1.2	2019.1.1
179	Push-Pull Scale	IMADA	FB-500N	377007	2018.1.2	2019.1.1
180	Total Harmonic Distortion Tester	PROVA	6603	16300978	2018.1.2	2019.1.1
181	Cheesecloth	Dongguan Hanyang	40g/m ²	ATCS-181	—	—
182	Tissue Paper	Dongguan Hanyang	12g/ m ² – 30g/m ²	ATCS-182	—	—
183	Hexane	Haizhu Chemical	N-hexane	160860804005	—	—
184	Card	Dongguan	200g/m ²	ATCS-184	—	—

No.	Equipment	Manufacturer	Model No.	Serial No.	Calibration date	Calibration due date
		Hanyang				
185	Antenna Coaxial Test Plug	Dongguan Hanyang	FZ-1120	1608020	2018.1.2	2019.1.1
186	Steel Plate	Dongguan Hanyang	Cl. 12.7 of IEC 60065	ATCS-186	—	—
187	Steel Plate	Dongguan Hanyang	Cl. 4.1 of IEC 60950-1	ATCS-187	—	—
188	Hardwood Board	Dongguan Hanyang	1 layer of hardwood thick 13mm min., on two layers of plywood 19-20 mm	ATCS-188	—	—
189	Non-inductive Resistor	Dongguan Hanyang	FZ-1250	1710076	2018.1.2	2019.1.1
190	Test probe	Dongguan Hanyang	IEC 60950-1 4.6.4.2	ATCS-190	2018.1.2	2019.1.1
191	40N weight	Dongguan Hanyang	ATCS-191	ATCS-191	2018.1.2	2019.1.1
192	Plug pin tester for pull test	Dongguan Hanyang	FZ-7807B	1710079	2018.1.2	2019.1.1
193	Glide Rheostat	Shanghai Qiuqing	BX7D-7/16	ATCS-193	—	—
194	Glide Rheostat	Shanghai Qiuqing	BX7D-7/16	ATCS-194	—	—
195	Glide Rheostat	Shanghai Qiuqing	BX7D-7/15	ATCS-195	—	—
196	Glide Rheostat	Shanghai Qiuqing	BX7D-8/14	ATCS-196	—	—
197	Glide Rheostat	Shanghai Qiuqing	BX7D-1/7	ATCS-197	—	—
198	Glide Rheostat	Shanghai Qiuqing	BX7D-16	ATCS-198	—	—
199	Glide Rheostat	Shanghai Qiuqing	BX7D-16	ATCS-199	—	—
200	Glide Rheostat	Shanghai Qiuqing	BX7D-8/14	ATCS-200	—	—
201	Feeler Gauge	Shanghai Qiuqing	/	ATCS-201	2018.1.2	2019.1.1
202	Test Box	/	/	ATCS-201	—	—
204	Wooden Test Box	/	/	ATCS-202	—	—
205	DC power source	Manson	KPS-6604	ATCS-205	2018.1.2	2019.1.1
206	DVD player	GIEC	BDP-G4308	Bd43084kXM17070100086	—	—
207	50Hz BD signal	IEC	DVD_BD_50	ATCS-207	—	—
208	60Hz BD signal	IEC	DVD_BD_60	ATCS-208	—	—
209	50Hz DVD signal	IEC	DVD_50	ATCS-209	—	—
210	60Hz DVD signal	IEC	DVD_60	ATCS-210	—	—
211	High voltage resistor	Dahongpao	RI80	ATCS-211	2018.1.2	2019.1.1
212	Clamping device	ATC	/	ATCS-212	—	—
213	Weight	Dongguan Hanyang	/	ATCS-213	—	—
214	Weight	Dongguan Hanyang	/	ATCS-214	—	—
215	Weight	Dongguan Hanyang	/	ATCS-215	—	—
216	Weight	Dongguan Hanyang	/	ATCS-216	—	—
217	Weight	Dongguan Hanyang	/	ATCS-217	—	—
218	Weight	Dongguan Hanyang	/	ATCS-218	—	—
219	Weight	Dongguan Hanyang	/	ATCS-219	—	—
220	Weight	Dongguan Hanyang	/	ATCS-220	—	—
221	Weight	Dongguan	/	ATCS-221	—	—

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No.	Equipment	Manufacturer	Model No.	Serial No.	Calibrati on date	Calibrati on due date
		Hanyang				
222	BS Plug pin tester for torque test	Dongguan Hanyang	/	ATCS-222	—	—
223	Push-Pull Scale	IMADA	FB-20N	375713	2018.1.2	2019.1.1
224	Oscilloscope	Tektronix	TDS3052B	B010891	2018.1.2	2019.1.1
225	Resistor	Shenzhen Taihebailiang	/	ATCS-225	2018.1.2	2019.1.1
226	Resistor	Shenzhen Taihebailiang	/	ATCS-226	2018.1.2	2019.1.1
E30	LCR bridge	YANGZHI	YD2810B	272	2018.1.2	2019.1.1
E53	Exposure level tester	NARDA	2304/03	B-0138	2017.6.30	2018.6.29
E54	Magnetic field probe 100cm ²	NARDA	2300/90.10	B-0137	2017.6.30	2018.6.29

Appendix 2
Photo documentation

Photo 1

View:

- front
 rear
 right side
 left side
 top
 bottom
 internal

**Photo 2**

View:

- front
 rear
 right side
 left side
 top
 bottom
 internal



Photo documentation**Photo 3**

View:

- front
- rear
- right side
- left side
- top
- bottom
- internal

**Photo 4**

View:

- front
- rear
- right side
- left side
- top
- bottom
- internal



-End of report-