



TEST REPORT

Reference No...... : WTF15F0730677S
Applicant..... : Foshan Nanhai World Lighting Co., Ltd.
Address..... : 18th west Taoyuan Road, Shishan Town, Nanhai District, Foshan City, Guangdong Province
Manufacturer : Foshan Nanhai World Lighting Co., Ltd.
Address..... : 18th west Taoyuan Road, Shishan Town, Nanhai District, Foshan City, Guangdong Province
Product Name..... : LED Fixed Light
Model No...... : 37650011/01(VW1030-2), 37650012/01(VC1030-3)
Standards..... : Luminaires
Part 2-1: Fixed general purpose luminaires
EN 60598-2-1:1989
EN 60598-1:2015
Date of Receipt sample : 2015-07-30
Date of Test..... : 2015-08-01 to 2015-08-13
Date of Issue..... : 2015-08-14
Test Report Form No. : WSL-6059821A-01A
Test Result..... : **Pass**

Remarks:

The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

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Test item description..... : Fixed Luminaires

Trade Mark..... : --

Model/Type reference..... : 37650011/01(VW1030-2), 37650012/01(VC1030-3)
220-240VAC, 50/60Hz, Class I, IP44

Ratings..... : LED 6W for 37650011/01(VW1030-2);
LED 3 x 6W for 37650012/01(VC1030-3)

Copy of marking plate:

Model No.: 37650012/01(VC1030-3)
220-240V~ 50/60Hz
LED 3 x 6W



IP44



Foshan Nanhai Vorld Lighting Co., Ltd.

Model No.: 37650011/01(VW1030-2)
220-240V~ 50/60Hz
LED 6W



IP44



Foshan Nanhai Vorld Lighting Co., Ltd.

On the luminaries surface

Summary of testing:

1. All tests were carried out on both models. The tests results complied with the requirements of the standards mentioned on page one.
2. Integral LED module was assessed according to EN 62031:2008+A1:2013+A2:2015 and found to comply with the requirement.
3. Photobiological safety was assessed according to EN 62471:2008, classification group: exempt risk 1
 risk 2 risk 3 .
4. Assessment of lighting equipment related to human exposure to electromagnetic fields was evaluated and fulfilled the requirements of EN 62493:2015 and found to comply with the requirement.
5. Only the most unfavorable results are recorded in this report.

**Test items particulars:**

Classification of installation and use.....: Fixed
 Supply Connection.....: Terminal block

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)

General remarks:

"(see remark #)" refers to a remark appended to the report.
 "(see appended table)" refers to a table appended to the report.
 Throughout this report a point is used as the decimal separator.

General product information:

1. Fixed general purpose luminaries, for indoor use only.
2. Both models have the same construction except the LED driver and rated power.
3. The LED drivers have been approved, for more details see model list below:

Model list

Model	Rated voltage (VAC)	Rated frequency (Hz)	Rated power (W)	LED Driver No.
37650011/01(VW1030-2)	220-240	50/60	LED 6W	KEDH006S0350NR01
37650012/01(VC1030-3)	220-240	50/60	LED 3 x 6W	KEDH018S0350NR07A4



EN 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 0 excluded).....	Class I	—
1.4 (2.3)	Degree of protection (Requirement: Ordinary).....	IP 44	—
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 "Copy of marking plate"	P
	Position of the marking		P
	Format of symbols/text		P
1.5 (3.3)	Additional information		P
	Language of instructions	In English	P
1.5 (3.3.1)	Combination luminaires		N
1.5 (3.3.2)	Nominal frequency in Hz	50/60Hz	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		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		N
1.5 (3.3.11)	Luminaires with remote control		N
1.5 (3.3.12)	Clip-mounted luminaire – warning		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		N
1.5 (3.3.16)	Rough service luminaire		N



EN 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 arms reach		N
1.5 (3.3.21)	Non-replaceable and non-user replaceable light sources information provided		P
	Cautionary symbol		N
1.5 (3.3.22)	Controllable luminaires, classification of insulation provided		N
1.5 (3.4)	Test with water		P
	Test with hexane		P
	Legible after test		P
	Label attached		P

1.6 (4)	CONSTRUCTION		P
1.6 (4.2)	Components replaceable without difficulty		N
1.6 (4.3)	Wireways smooth and free from sharp edges		P
1.6 (4.4)	Lampholders		N
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		N
	- pressure test (N) : --		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 (Nm) : --		N
	After test the lampholder have not moved from its position and show no permanent deformation		N
1.6 (4.4.5)	Peak pulse voltage		N
1.6 (4.4.6)	Centre contact		N
1.6 (4.4.7)	Parts in rough service luminaires resistant to tracking		N
1.6 (4.4.8)	Lamp connectors		N



EN 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
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		N
1.6 (4.5)	Starter holders		N
	Starter holder in luminaires other than class II	No starter holder used	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		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 connections:		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		N
1.6 (4.7.5)	Heat-resistant wiring/sleeves		N
1.6 (4.7.6)	Multi-pole plug		N
	- test at 30 N		N
1.6 (4.8)	Switches:		P
	- adequate rating		P
	- adequate fixing		P
	- polarized supply		N
	- compliance with 61058-1 for electronic switches		N
1.6 (4.9)	Insulating lining and sleeves		P
1.6 (4.9.1)	Retainment		P
	Method of fixing: heat-shrinkable		P
1.6 (4.9.2)	Insulated linings and sleeves		P



EN 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Resistant to a temperature > 20 °C to the wire temperature or		P
	a) & c) Insulation resistance and electric strength		N
	b) Ageing test. Temperature (°C)	--	N
1.6 (4.10)	Insulation of Class II luminaires		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		N
	Interference suppression capacitors according to IEC 60384-14		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:		N
	- fixed		N
	- unable to be replaced; luminaire inoperative		N
	- sleeves retained in position		N
	- lining in lampholder		N
1.6 (4.11)	Electrical connections		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		P
1.6 (4.11.5)	No contact to wood or mounting surface		P
1.6 (4.11.6)	Electro-mechanical contact systems		N
1.6 (4.12)	Mechanical connections and glands		P
1.6 (4.12.1)	Screws not made of soft metal		P
	Screws of insulating material		N
	Torque test: torque (Nm); part	Screw for fixing bracket, 1.2Nm	P
	Torque test: torque (Nm); part	--	P
1.6 (4.12.2)	Screws with diameter < 3 mm screwed into metal		N



EN 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.6 (4.12.4)	Locked connections:		N
	- fixed arms; torque (Nm)..... :	--	N
	- lampholder; torque (Nm)..... :	--	N
	- push-button switches; torque 0,8 Nm..... :	--	N
1.6 (4.12.5)	Screwed glands; force (Nm)	--	N
1.6 (4.13)	Mechanical strength		P
1.6 (4.13.1)	Impact tests:		P
	- fragile parts; energy (Nm)..... :	--	N
	- other parts; energy (Nm)	Enclosure; 0.35Nm	P
	1) live parts		P
	2) linings		N
	3) protection		P
	4) covers		P
1.6 (4.13.3)	Straight test finger	30N	P
1.6 (4.13.4)	Rough service luminaires		N
	- IP54 or higher		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		N
1.6 (4.14)	Suspensions and adjusting devices		P
1.6 (4.14.1)	Mechanical load:		P
	A) four times the weight	Max. 4 x 11.516kg for 37650012/01(VC1030-3)	P
	B) torque 2,5 Nm	--	N
	C) bracket arm; bending moment (Nm)	--	N
	D) load track-mounted luminaires	--	N
	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		N
	Mass (kg)	--	N
	Stress in conductors (N/mm ²)	--	N



EN 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Mass (kg) of semi-luminaire	--	N
	Bending moment (Nm) of semi-luminaire	--	N
1.6 (4.14.3)	Adjusting devices:		N
	- 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		N
1.6 (4.14.5)	Guide pulleys		N
1.6 (4.14.6)	Strain on socket-outlets		N
1.6 (4.15)	Flammable materials:		N
	- glow-wire test 650 °C		N
	- spacing \geq 30 mm		N
	- screen withstanding test of 13.3.1		N
	- screen dimensions		N
	- no fiercely burning material		N
	- thermal protection		N
	- electronic circuits exempted		N
1.6 (4.15.2)	Luminaires made of thermoplastic material with lamp control gear		N
	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	Electronic lamp control gear	N
1.6 (4.16.1)	Lamp control gear spacing:		N
	- spacing 35 mm		N
	- spacing 10 mm		N
1.6 (4.16.2)	Thermal protection:		N
	- 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 12.6)	N
1.6 (4.17)	Drain holes		P
	Clearance at least 5 mm		P



EN 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.6 (4.18)	Resistance to corrosion:		P
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		P
1.6 (4.19)	Igniters compatible with ballast		N
1.6 (4.20)	Rough service vibration		N
1.6 (4.21)	Protective shield:		N
1.6 (4.21.1)	Shield fitted		N
	Shield of glass if tungsten halogen lamps		N
1.6 (4.21.2)	Particles from a shattering lamp not impair safety		N
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		N
1.6 (4.22)	Attachments to lamps		N
1.6 (4.23)	Semi-luminaires comply Class II		N
1.6 (4.24)	Photobiological hazards		N
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
	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)	No sharp point or 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



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Clause	Requirement + Test	Result - Remark	Verdict
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		N
	If protective cover provide protection against electric shock and marked with "caution, electric shock risk" symbol:		N
	Minimum two fixing means	Not used for protection against electric shock	N
1.6 (4.31)	Insulation between circuits		P
	Circuits insulated from LV supply fulfil requirements according 4.31.1 – 4.31.3		P
	Controllable luminaires requiring same level of insulation for all components, the insulation between control terminals and LV supply fulfil requirements according 4.31.1 – 4.31.3		N
1.6 (4.31.1)	SELV circuits		P
	Used SELV source		P
	Voltage ≤ ELV		P
	Insulating of SELV circuits from LV supply		P
	Insulating of SELV circuits from other non SELV circuits		P



EN 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	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		P
	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 \leq 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
	- 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



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Clause	Requirement + Test	Result - Remark	Verdict

	- only connected to protective earth		N
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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)	--	—
	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	0.012Ω	P
	Self-tapping screws used		N
	Thread-forming screws		N
	Thread-forming screw used in a groove		N
	Earth makes contact first		N
	Terminal blocks with integrated screwless earthing contacts tested according Annex V		N
	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.		P
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
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		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
	Double or reinforced insulation to functional earth		N



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Clause	Requirement + Test	Result - Remark	Verdict
1.8 (7.2.11)	Earthing core coloured green-yellow		P
	Length of earth conductor		N
1.9 (14)	SCREW TERMINALS		P
	Separately approved; component list	(see Annex 1)	P
	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.....	Terminal block	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
1.10 (5.2.2)	Type of cable	--	N
	Nominal cross-sectional area (mm ²).....	--	N
	Cables equal to IEC 60227 or IEC 60245		N
1.10 (5.2.3)	Type of attachment, X, Y or Z		N
1.10 (5.2.5)	Type Z not connected to screws		N
1.10 (5.2.6)	Cable entries:		N
	- suitable for introduction		N
	- adequate degree of protection		N
1.10 (5.2.7)	Cable entries through rigid material have rounded edges		N
1.10 (5.2.8)	Insulating bushings:		N
	- 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:		N
	- covering protected from abrasion		N
	- clear how to be effective		N
	- no mechanical or thermal stress		N



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Clause	Requirement + Test	Result - Remark	Verdict
	- no tying of cables into knots etc.		N
	- 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		N
1.10 (5.2.10.3)	Tests:		N
	- impossible to push cable; unsafe		N
	- pull test: 25 times; pull (N) : --		N
	- torque test: torque (Nm) : --		N
	- displacement ≤ 2 mm		N
	- no movement of conductors		N
	- no damage of cable or cord		N
1.10 (5.2.11)	External wiring passing into luminaire		N
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



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Clause	Requirement + Test	Result - Remark	Verdict
	- 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	(see Annex 1)	P
	Through wiring		N
	- not delivered/ mounting instruction		N
	- factory assembled		N
	- socket outlet loaded (A).....: --		N
	- temperatures: --		N
	Green-yellow for earth only		P
1.10 (5.3.1.1)	Internal wiring connected directly to fixed wiring		P
	Cross-sectional area (mm ²): (see Annex 1)		P
	Insulation thickness		P
	Extra insulation added where necessary		N
1.10 (5.3.1.2)	Internal wiring connected to fixed wiring via internal current-limiting device		P
	Adequate cross-sectional area and insulation thickness		P
1.10 (5.3.1.3)	Double or reinforced insulation for class II		N
1.10 (5.3.1.4)	Conductors without insulation		P
1.10 (5.3.1.5)	SELV current-carrying parts		P
1.10 (5.3.1.6)	Insulation thickness other than PVC or rubber	PVC	N
1.10 (5.3.2)	Sharp edges etc.		P
	No moving parts of switches etc.		P
	Joints, raising/lowering devices		N
	Telescopic tubes etc.		N
	No twisting over 360°		P
1.10 (5.3.3)	Insulating bushings:		N
	- 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



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Clause	Requirement + Test	Result - Remark	Verdict
	Wire ends tinned: no cold flow		P
1.11 (8)	PROTECTION AGAINST ELECTRIC SHOCK		P
1.11 (8.2.1)	Live parts not accessible with standard test finger		P
	Basic insulated parts not used on the outer surface without appropriate protection		P
	Basic insulated parts not accessible with standard test finger on portable, settable and adjustable luminaires		P
	Basic insulated parts not accessible with \varnothing 50 mm probe from outside, other types of luminaires		P
	Lamp and starterholders in portable and adjustable luminaires comply with double or reinforced insulation requirements		N
	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		N
	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)	Class III luminaires with exposed SELV 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



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Clause	Requirement + Test	Result - Remark	Verdict
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 $\geq 0.5 \mu\text{F}$		P
	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		P
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	Acc. to user manual	—
	- test temperature (°C)	35 °C	—
	- total duration (h)	240 h	—
	- supply voltage: Un factor; calculated voltage (V):	264V	—
	- lamp used	LED module	—
1.12 (12.3.2)	After endurance test:		P
	- no part unserviceable		P
	- luminaire not unsafe		P
	- no damage to track system		N
	- 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
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



EN 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	- case of abnormal conditions.....	--	—
	- thermal link		N
	- manual reset cut-out		N
	- auto reset cut-out		N
	- measured mounting surface temperature (°C) ...	--	N
	- track-mounted luminaires		N
1.12 (12.7)	Thermal test (failed lamp control gear in plastic luminaires):		N
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 V.....	--	—
	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 V:		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:		N
	- part tested; temperature (°C).....	--	N
	- part tested; temperature (°C).....	--	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:		N
	- part tested; temperature (°C).....	--	N
	- part tested; temperature (°C).....	--	N



EN 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
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"/>	—
	- 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:		N
	- part tested; temperature (°C).....	--	N
	- part tested; temperature (°C).....	--	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		—
1.13 (9.2)	Tests for ingress of dust, solid objects and moisture:		P
	- classification according to IP	IP44	—
	- mounting position during test	Acc. to user manual	—
	- fixing screws tightened; torque (Nm).....	--	—
	- tests according to clauses	9.2.0 & 9.2.5	—
	- electric strength test afterwards		P
	a) no deposit in dust-proof luminaire		N
	b) no talcum in dust-tight luminaire		N
	c) no trace of water on current-carrying parts or SELV parts or 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
	e) no water in watertight luminaire		N
	f) no contact with live parts (IP 2X)		N
	f) no entry into enclosure (IP 3X and IP 4X)	IP44	P
	f) no contact with live parts (IP3X and IP4X)	IP44	P



EN 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	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	25 °C, 93%RH	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)		—
	SELV:		P
	- between current-carrying parts of different polarity	--	N
	- between current-carrying parts and mounting surface	100MΩ	P
	- between current-carrying parts and metal parts of the luminaire	100MΩ	P
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts	--	N
	- Insulation bushings as described in Section 5 ...	--	N
	Other than SELV:		P
	- between live parts of different polarity	100MΩ	P
	- between live parts and mounting surface	100MΩ	P
	- between live parts and metal parts	100MΩ	P
	- between live parts of different polarity through action of a switch	--	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):		P
	SELV:		P
	- between current-carrying parts of different polarity	--	N



EN 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	- between current-carrying parts and mounting surface	500V	P
	- between current-carrying parts and metal parts of the luminaire	500V	P
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts	--	N
	- Insulation bushings as described in Section 5 ..	--	N
	Other than SELV:		P
	- between live parts of different polarity.....	1480V	P
	- between live parts and mounting surface.....	1480V	P
	- between live parts and metal parts.....	1480V	P
	- between live parts of different polarity through action of a switch	--	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 (mA).....	--	N
	Protective conductor current (mA).....	Max. 0.010mA	P
1.15 (13)	RESISTANCE TO HEAT, FIRE AND TRACKING		P
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



EN 60598-2-1							
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	--	--	--	--	--	--	
Required basic insulation, PTI < 600	1,2	1,6	2,5	5	8	10	
Measured	--	--	>3.0	--	--	--	
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	--	--	>3.0	--	--	--	
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
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						P
Allowed impression diameter (mm)	≤ 2.0						—



EN 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
Object/ Part No./ Material	Manufacturer/ trademark	Test temperature (°C)	Impression diameter (mm)
Lens	FOSHAN SHUNDE LUNJIAO XISHUN PLASTICS FACTORY	75	1.3
Supplementary information:			

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
Close-end connector	HEAVY POWER CO LTD	10	No	0	P
Supplementary information:					

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 glow (ta); (s)	Ignition of specified layer Yes/No	Duration of burning (tb) (s)	Verdict
Close-end connector	HEAVY POWER CO LTD	30	No	0	P
Terminal box(black)	Huawang Plastic Factory	30	No	0	P
Lens	FOSHAN SHUNDE LUNJIAO XISHUN PLASTICS FACTORY	30	No	0	P
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)				P
Test voltage PTI		175 V		—	
Object/ Part No./ Material	Manufacturer/ trademark	Withstand 50 drops without failure on three places or on three specimens			Verdict
Close-end connector	HEAVY POWER CO LTD	--	--	--	P
Supplementary information:					



EN 60598-2-1						
Clause	Requirement + Test			Result - Remark	Verdict	
	ANNEX 1 components					P
object/part No.	code	manufacturer/ trademark	type/model	technical data	standard	mark(s) of conformity
Terminal block	B	SHENZHEN GREENWAY ELECTRONIC CO., LTD	PA7	450V; 1.5mm ²	EN 60998-1 EN 60998-2-1	TUV SUD U6 15 06 90250 009
Alternative	D	Foshan Nanhai Ding QingHardware &Electric Co., Ltd.	PA7	450V;0.75-1.5mm ² ; T110	EN 60998-1 EN 60998-2-1	VDE 40027883
Terminal box(black)	B	Huawang Plastic Factory	PP	--	--	Test with appliance
Earthing wire	B	Dongguan Nistar TransmittingTechnology Co. Inc.	H05SJ-K	0.75mm ²	DIN VDE 0250	VDE 40017570
Alternative	D	Shenzhen MysunInsulation Materials Co., Ltd	H05S-K	0.75mm ²	DIN VDE 0250	VDE 40016705
Heat-shrinkable tube	B	SHENZHEN WOLIDATRADING CO LTD	RSFR-H	600V; 125°C	--	UL E329530
Alternative	D	SHENZHEN WOER HEAT-SHRINKABLE MATERIAL CO LTD	RSFR-H	600V; 125°C; VW-1	--	UL E203950
Close-end connector	B	HEAVY POWER CO LTD	CE2 CE5 CE1	600V; 150°C	--	UL E113650
Input wire for LED driver	B	Feiyang Lighting Electric Factory	FEP	Double insulation, 300V; 0.5/0.75mm ² ; 180°C	DIN VDE 0250	VDE 40023163
Alternative	D	Zhongshan Yiying Wire & CableCo., Ltd.	FEP YY-201	Double insulation, 300/500V; 0.5-0.75mm ² ; 180°C; double-insulated	DIN VDE 0250	VDE 40024745
Alternative	D	Yang Tai Wire & Cable Co., Ltd.	FEP/FEP	Double insulation, 300/500V; 0.5-0.75mm ² ; 180°C; double-insulated	DIN VDE 0250	VDE 40016729
LED driver for Model 37650011/01 (VW1030-2)	B	KEGU POWER ELECTRONICS CO., LTD.	KEDH006S03 50NR01	Input:220-240VAC; 50/60Hz; Output: DC 12-21V; 210-350mA; No load:33V; ta=50°C; tc=85°C; SELV; Constant current type; built-in; IP20; Class II	EN 61347-1 EN 61347-2-13	TUV SUD Z1 15 01 76089 036



EN 60598-2-1						
Clause	Requirement + Test			Result - Remark	Verdict	
LED driver for Model37650 012/01(VC10 30-3)	B	KEGU POWER ELECTRONICS CO., LTD.	KEDH018S03 50NR07A4	Input: 220-240VAC; 50/60Hz; 0.11A; PF \geq 0.95; Output: DC 36-53V; 352mA; No load: 65VMax. 18WMax.; ta=50°C; tc=85°C; SELV; Constant Current type; Independent; Class II	EN 61347-1 EN 61347-2-13	TUV SUD N8A 15 03 76089 048
Output wire for LED driver, lead wire to LED	B	Zhongshan Yiyang Wire & Cable Co., Ltd.	FEP YY-101	300/500V; 0.3mm ² ; 180°C	DIN VDE 0250	VDE 40022722
Alternative	D	Yang Tai Wire & Cable Co., Ltd.	(N)6YAF	450/750V; 0.3mm ² ; 180°C	DIN VDE0250	VDE 40002489
Alternative	D	Feiyang Lighting Electric Factory	FEP	300/500V; 0.3mm ² ; 180°C	DIN VDE 0250	VDE 40023163
Alternative	D	Yang Tai Wire & Cable Co., Ltd.	FEP	300/500V; 0.5-4mm ² ; 180°C;	DIN VDE 0250	VDE 40034032
LED	B	SHENZHEN HOYOL OPTO ELECTRONIC CO., LTD.	2835 0.2W Series	If=60mA; Vf=3.4V; 3000K	EN 62471	Test with appliance
LED board	B	HUIZHOU BOYU TECHNOLOGY CO LTD	AL-01-P	V-0; 150°C; AI	--	UL E333613
Lens	B	FOSHAN SHUNDE LUNJIAO XISHUN PLASTICS FACTORY	--	PMMA	--	Tested 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



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Clause	Requirement + Test	Result - Remark	Verdict
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ANNEX 2	Temperature measurements, thermal tests of Section 12		P
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Annex 2-1	Type reference	37650012/01(VC1030-3)	—
	Lamp used.....	LED	—
	Lamp control gear used.....	KEDH018S0350NR07A4	—
	Mounting position of luminaire.....	Acc. to user manual	—
	Supply wattage (W)	--	—
	Supply current (A).....	--	—
	Calculated power factor.....	--	—
	Table: measured temperatures corrected for $t_a = 25\text{ }^\circ\text{C}$:		P
	- abnormal operating mode :		—
	- test 1: rated voltage.....	--	—
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage.....	1.06 x 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 ($^\circ\text{C}$) of part	Clause 12.4 – normal				Clause 12.5 – abnormal	
	test 1	test 2	test 3	limit	test 4	limit
Terminal block	--	40.5	--	110	--	--
Input wire for LED driver	--	39.2	--	180	--	--
tc of LED driver	--	51.4	--	85	--	--
Output wire for LED driver	--	47.2	--	180	--	--
Leads wire for LED	--	45.5	--	180	--	--
LED board	--	50.3	--	Ref.	--	--
LED cover	--	31.5	--	Ref.	--	--
Mounting surface	--	38.8	--	90	--	--
Illuminated surface (0.1m)	--	31.1	--	90	--	--

Annex 2-1	Type reference	37650011/01(VW1030-2)	—
	Lamp used.....	LED	—
	Lamp control gear used.....	KEDH006S0350NR01	—



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Clause	Requirement + Test	Result - Remark	Verdict
	Mounting position of luminaire..... :	Acc. to user manual	—
	Supply wattage (W)	--	—
	Supply current (A)..... :	--	—
	Calculated power factor..... :	--	—
	Table: measured temperatures corrected for $t_a = 25\text{ }^\circ\text{C}$:		P
	- abnormal operating mode :		—
	- test 1: rated voltage.....	--	—
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage.....	1.06 x 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 ($^\circ\text{C}$) of part	Clause 12.4 – normal				Clause 12.5 – abnormal	
	test 1	test 2	test 3	limit	test 4	limit
Terminal block	--	37.3	--	110	--	--
Input wire for LED driver	--	36.0	--	180	--	--
tc of LED driver	--	47.3	--	85	--	--
Output wire for LED driver	--	43.4	--	180	--	--
Leads wire for LED	--	41.9	--	180	--	--
LED board	--	46.3	--	Ref.	--	--
LED cover	--	29.0	--	Ref.	--	--
Mounting surface	--	35.7	--	90	--	--
Illuminated surface (0.1m)	--	28.6	--	90	--	--



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Clause	Requirement + Test	Result - Remark	Verdict
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ANNEX 3	Screw terminals (part of the luminaire)		N
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(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).....		N
(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		—
(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
(15.3.5)	Pressure on insulating material		N



EN 60598-2-1										
Clause	Requirement + Test									Verdict
(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									
	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									N
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)	--	--	--	--	--	--	--	--	--	--
	Voltage drop of two inseparable joints									N
	Voltage drop after 10th alt. 25th cycle									N
	Max. allowed voltage drop (mV)									—
terminal	1	2	3	4	5	6	7	8	9	10



EN 60598-2-1											
Clause	Requirement + Test									Result - Remark	Verdict
voltage drop (mV)	--	--	--	--	--	--	--	--	--	--	--
	Voltage drop after 50th alt. 100th cycle										N
	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										N
	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										N
	Max. allowed voltage drop (mV)									--	—
terminal	1	2	3	4	5	6	7	8	9	10	
voltage drop (mV)	--	--	--	--	--	--	--	--	--	--	--

ANNEX 5	National Differences for (country name) or Group Differences	P
	CENELEC COMMON MODIFICATIONS (EN)	P

ATTACHMENT TO TEST REPORT IEC 60598-2-1 EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES Luminaires Part 2: Particular Requirements: Section One – 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	Intertek Semko AB
Master Annex Form.....	2015-05
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	CENELEC COMMON MODIFICATIONS (EN)	P
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1.5 (3)	MARKING	N
1.5 (3.3.101)	For luminaires not supplied with terminal block: Adequate warning on the package	N



EN 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.6 (4)	CONSTRUCTION		N
1.6 (4.11.6)	Electro-mechanical contact systems		N
1.10 (5)	EXTERNAL AND INTERNAL WIRING		N
1.10 (5.2.1)	Connecting leads		N
	- without a means for connection to the supply		N
	- terminal block specified		N
	- 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		N
	Replace table 5.1 – Supply cord		N
1.12 (12)	ENDURANCE TESTS AND THERMAL TESTS		P
1.12 (12.4.2c)	Thermal test (normal operation) see footnote c to table 12.2 relating to unsleeved fixed wiring		P
ZB	ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)		N
(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		N
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



EN 62031			
Clause	Requirement + Test	Result - Remark	Verdict
ANNEX 6	LED modules for general lighting – Safety specifications		P
4	GENERAL REQUIREMENTS		P
4.4	Integral modules tested assembled in the luminaire		P
4.5	Independent modules complies with requirements in IEC 60598-1		N
5	GENERAL TEST REQUIREMENTS		—
5.5	SELV-operated LED modules comply with Annex I of IEC 61347-2-13	(see Annex 1)	N
	General conditions for tests in Annex A	(see Annex A)	N
6	CLASSIFICATION		—
	Built-in module	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
	Independent module	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
	Integral module	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	—
	For Integral module; Note to 1.2.1 in IEC 60598-1 applies.		—
7	MARKING		N
	Requirements not applicable to the evaluated product.		—
8	TERMINALS		N
	Screw terminals according section 14 of IEC 60598-1:		N
	Separately approved; component list	(see Annex 2)	N
	Part of the luminaire	(see Annex 3)	N
	Screwless terminals according section 15 of IEC 60598-1:		N
	Separately approved; component list	(see Annex 2)	N
	Part of the luminaire	(see Annex 4)	N
	Connectors according IEC 60838-2-2:		N
	Separately approved; component list	(see Annex 2)	N
9 (9)	PROVISION FOR PROTECTIVE EARTHING		N
	Requirements not applicable to the evaluated product.		—



EN 62031			
Clause	Requirement + Test	Result - Remark	Verdict

10 (10)	PROTECTION AGAINST ACCIDENTAL CONTACT WITH LIVE PARTS		N
	Requirements not applicable to the evaluated product.		—

11 (11)	MOISTURE RESISTANCE AND INSULATION		P
	After storage 48 h at 91-95% relative humidity and 20-30 °C measuring of insulation resistance with d.c. 500 V (MΩ):		P
	For basic insulation $\geq 2 \text{ M}\Omega$	100MΩ	P
	For double or reinforced insulation $\geq 4 \text{ M}\Omega$		N
	Between primary and secondary circuits in controlgear providing SELV, values in Annex L in IEC 61347-1		N

12 (12)	ELECTRIC STRENGTH		P
	Immediately after clause 11 electric strength test for 1 min		P
	Basic insulation for SELV, test voltage 500 V		P
	Working voltage $\leq 50 \text{ V}$, test voltage 500 V		N
	Working voltage $> 50 \text{ V} \leq 1000 \text{ V}$, test voltage (V):		N
	Basic insulation, $2U + 1000 \text{ V}$		N
	Supplementary insulation, $2U + 1000 \text{ V}$		N
	Double or reinforced insulation, $4U + 2000 \text{ V}$		N
	No flashover or breakdown		P
	Solid or thin sheet insulation for double or reinforced insulation fulfil the requirements in Annex N in IEC 61347-1		N

13 (14)	FAULT CONDITIONS		P
- (14)	When operated under fault conditions the controlgear:		N
	- does not emit flames or molten material		N
	- does not produce flammable gases		N
	- protection against accidental contact not impaired		N
	Thermally protected controlgear does not exceed the marked temperature value		N
	Fault conditions: capacitors, resistors or inductors without proof of compliance with relevant specifications have been short-circuited or disconnected	(see appended table)	N



EN 62031			
Clause	Requirement + Test	Result - Remark	Verdict
- (14.1)	Short-circuit of creepage distances and clearances if less than specified in clause 16 in Part 1 (except between live parts and accessible metal parts)	(see appended table)	N
	Creepage distances on printed boards less than specified in clause 16 in Part 1 provided with coating according to IEC 60664-3		N
- (14.2)	Short-circuit or interruption of semiconductor devices	(see appended table)	N
- (14.3)	Short-circuit across insulation consisting of lacquer, enamel or textile	(see appended table)	N
- (14.4)	Short-circuit across electrolytic capacitors	(see appended table)	N
- (14.5)	After the tests has been carried out on three samples:		N
	The insulation resistance $\geq 1 \text{ M}\Omega$		N
	No flammable gases		N
	No accessible parts have become live		N
	During the tests, a five-layer tissue paper, where the test specimen is wrapped, does not ignite		N
- (14.6)	Relevant fault condition tests with high-power supply		—
13.2	Module withstands overpower condition >15 min.		P
	Module with automatic protective device or power limiter, test performed 15 min. at limit.		N
	During the tests, tissue paper, spread below module, does not ignite		P

15	CONSTRUCTION		P
	Wood, cotton, silk, paper and similar fibrous material not used as insulation		P

16	CREEPAGE DISTANCES AND CLEARANCES		P
	Creepage and distances and clearances in compliance with IEC 60598-1		P

17 (17)	SCREWS, CURRENT-CARRYING PARTS AND CONNECTIONS		P
	Screws, current-carrying parts and connections in compliance with IEC 60598-1 (clause numbers between parentheses refer to IEC 60598-1)		P

18 (18)	RESISTANCE TO HEAT, FIRE AND TRACKING		N
	Resistance to Heat, Fire and Tracking in compliance with IEC 61347-1 (clause numbers between parentheses refer to IEC 61347-1)		N
(18.1)	Ball-pressure test:		N
	- part tested; temperature (°C)..... :		N



EN 62031			
Clause	Requirement + Test	Result - Remark	Verdict
(18.2)	Test of printed boards		N
	- part tested..... :		N
(18.3)	Glow-wire test (650°C):		N
	- part tested..... :		N
(18.4)	Needle flame test (10 s):		N
	- part tested..... :		N
(18.5)	Tracking test:		N
	- part tested..... :		N

19 (19)	RESISTANCE TO CORROSION		N
	Rust protection:		N
	- test according 4.18.1 of IEC 60598-1		N
	- adequate varnish on the outer surface		N

20	INFORMATION FOR LUMINAIRE DESIGN		N
	Information in Annex D		—

21	HEAT MANAGEMENT		N
21.1	General		N
	Exchangeability is safeguarded by cap or base		N
21.2	Heat-conducting foil and paste		N
	Heat-conducting foil delivered with the module if necessary		N
21.4	Construction		N
	Electrical connection and mechanical holding are separate		N

22	Photobiological safety		P
22.1	UV radiation		N
22.2	Blue light hazard		P
	RG at 200 mm according to IEC/TR 62778	RG0 unlimited	P
22.3	Infrared radiation		N

A	ANNEX A - TESTS		P
	All tests performed in accordance with the advice given in Annex H of IEC 61347-1, if applicable		P



EN 62031			
Clause	Requirement + Test	Result - Remark	Verdict

	ANNEX 1 - SELV-operated LED modules		N
	SELV-operated LED modules in compliance with Annex I of IEC 61347-2-13		N



WALTEK



EN 62471			
Clause	Requirement + Test	Result - Remark	Verdict

Annex 7	Photobiological safety	P
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Emission limits for risk groups of continuous wave lamps $\alpha=0.0496\text{rad}$	P
--	----------

Risk	Action spectrum	Symbol	Units	Emission Measurement					
				Exempt		Low risk		Mod risk	
				Limit	Result	Limit	Result	Limit	Result
Actinic UV	$S_{UV}(\lambda)$	E_S	$\text{W}\cdot\text{m}^{-2}$	0.001	7.4e-05	-	-	-	-
Near UV		E_{UVA}	$\text{W}\cdot\text{m}^{-2}$	0.33	0.0e+00	-	-	-	-
Blue light	$B(\lambda)$	L_B	$\text{W}\cdot\text{m}^{-2}\cdot\text{sr}^{-1}$	100	3.6e+00	10000	-	4000000	-
Bluelight, small source	$B(\lambda)$	E_B	$\text{W}\cdot\text{m}^{-2}$	0.01*	-	1.0	-	400	-
Retinal thermal	$R(\lambda)$	L_R	$\text{W}\cdot\text{m}^{-2}\cdot\text{sr}^{-1}$	$28000/\alpha$	5.5e+02	$28000/\alpha$	-	$71000/\alpha$	-
Retinal thermal, weak visual stimulus**	$R(\lambda)$	L_{IR}	$\text{W}\cdot\text{m}^{-2}\cdot\text{sr}^{-1}$	545000	-				
				$0.0017\leq\alpha\leq 0.011$					
				$6000/\alpha$	-				
				$0.011\leq\alpha\leq 0.1$					
IR radiation, eye		E_{IR}	$\text{W}\cdot\text{m}^{-2}$	100	0.0e+00	570	-	3200	-

* Small source defined as one with $\alpha < 0.011$ radian. Averaging field of view at 10000 s is 0.1 radian.

** Involves evaluation of non-GLS source.

Assessment:

Lamp classification group..... exempt risk 1 risk 2 risk 3



EN 62493			
Clause	Requirement + Test	Result - Remark	Verdict

ANNEX 8	Assessment Of Lighting Equipment Related To Human Exposure To Electromagnetic Fields		P
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4.2.d	INDUCED CURRENT DENSITY		P
-------	-------------------------	--	---

	Power supply system utilized:		—
	Voltage	220-240VAC	—
	Frequency	50/60Hz	—
	Environmental conditions:		—
	Temperature.....	25°C	—
	Humidity.....	55%	—
	EuT operation mode:		—
	<input checked="" type="checkbox"/> Normal operation		—
	<input type="checkbox"/> Other operation:		—
			—

4.2.d	MEASUREMENT RESULTS				P	
	Measuring with "Van der Hoofden" test head					
	Location of EUT	Test model	Measuring distance	Result(F)	Limit(F)	Verdict
	Reference Figure B.2a of EN 62493:2010	37650011/01(VW1030-2)	50cm	0.042	0.85	P
		37650012/01(VC1030-3)	50cm	0.073	0.85	P

4.3	Lighting equipment deemed to comply without testing		N
	Lighting equipment without electronic control gear is deemed to comply with the requirements of the standard without testing. All kind of ignitors, starters, switches, dimmers (including phase control units e.g. triac, GTO) and sensors are not considered as electronic control gear.		N

===== End of Report =====



Photo Documentation

Reference No.: WTF15F0730677S

Model: 37650011/01(VW1030-2)



Photo 1



Photo 2



Photo Documentation

Reference No.: WTF15F0730677S

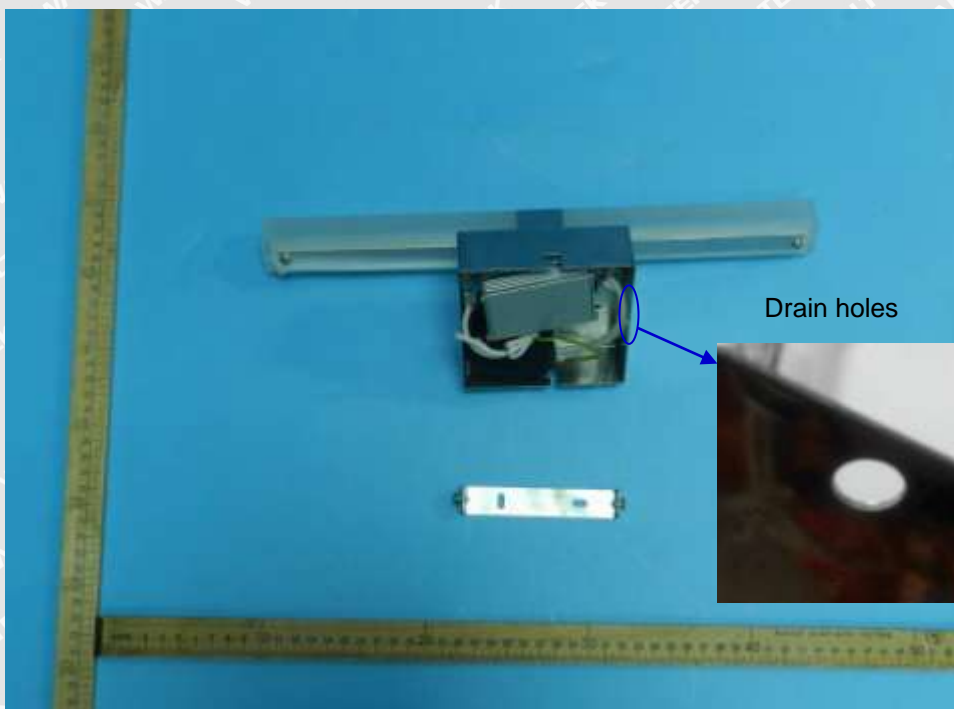


Photo 3

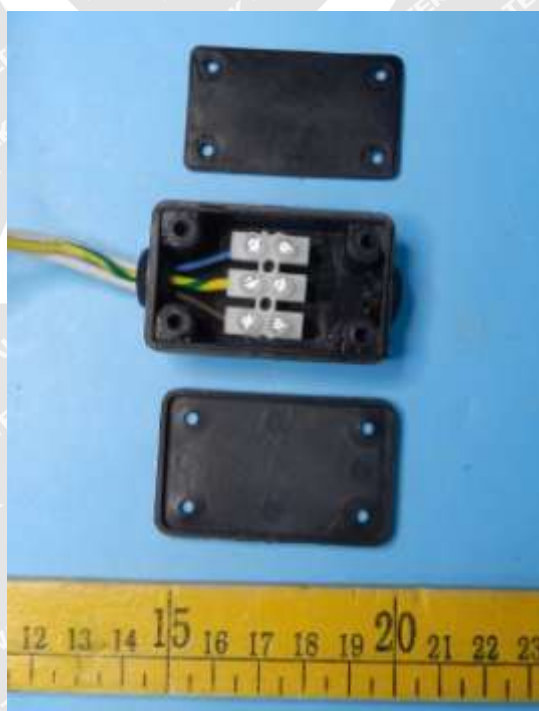


Photo 4



Photo Documentation

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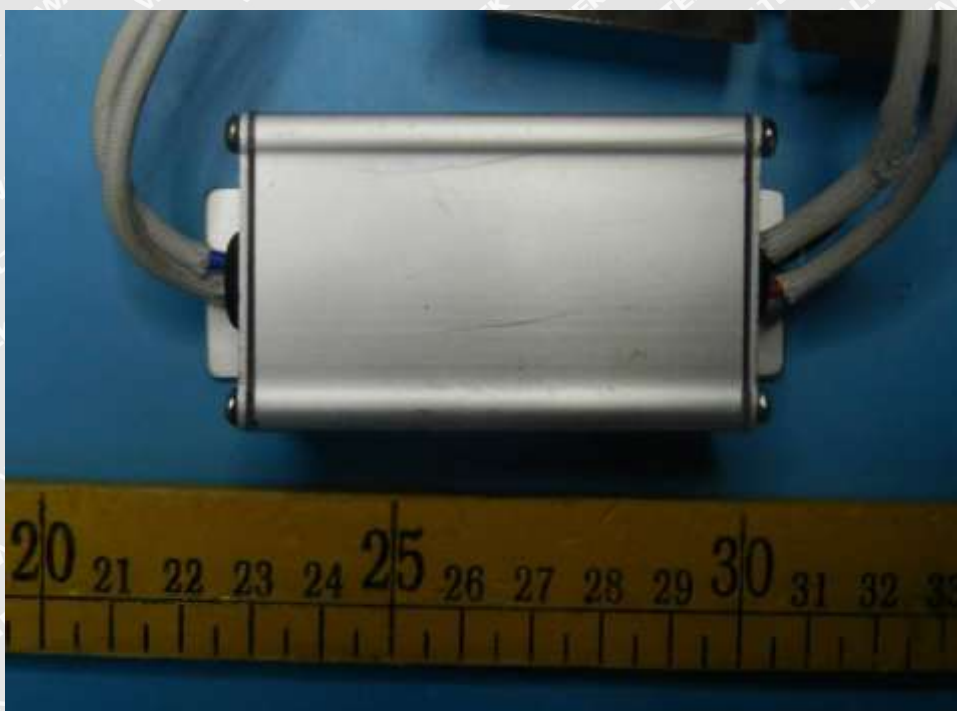


Photo 5



Gule will be used for waterproof

Photo 6



Photo Documentation

Reference No.: WTF15F0730677S



Photo 7



Photo 8



Photo Documentation

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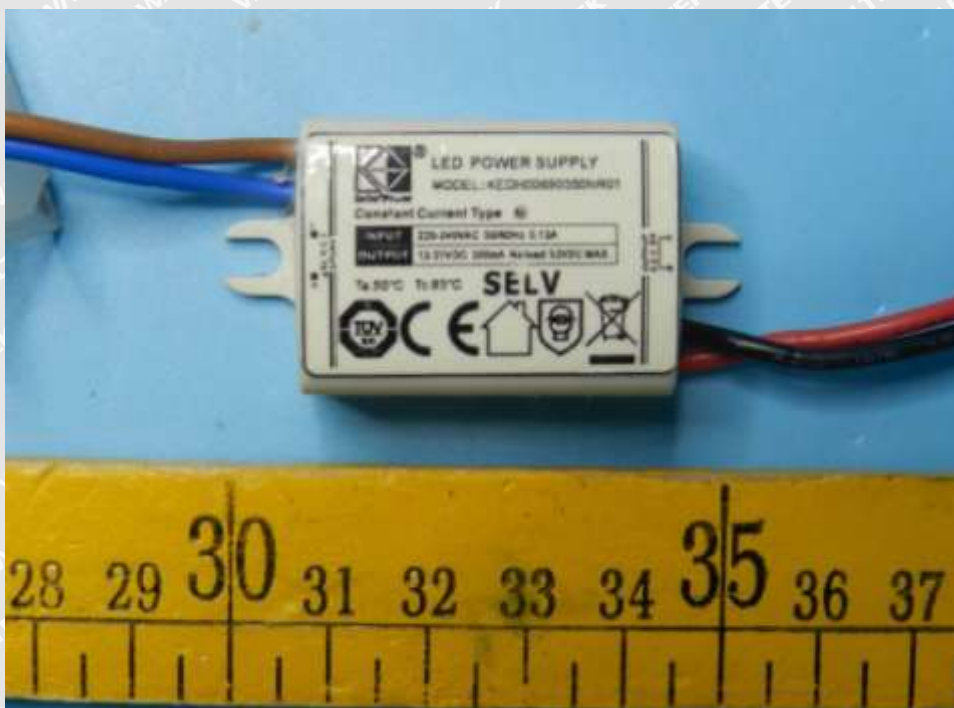


Photo 9

Model: 37650012/01(VC1030-3)

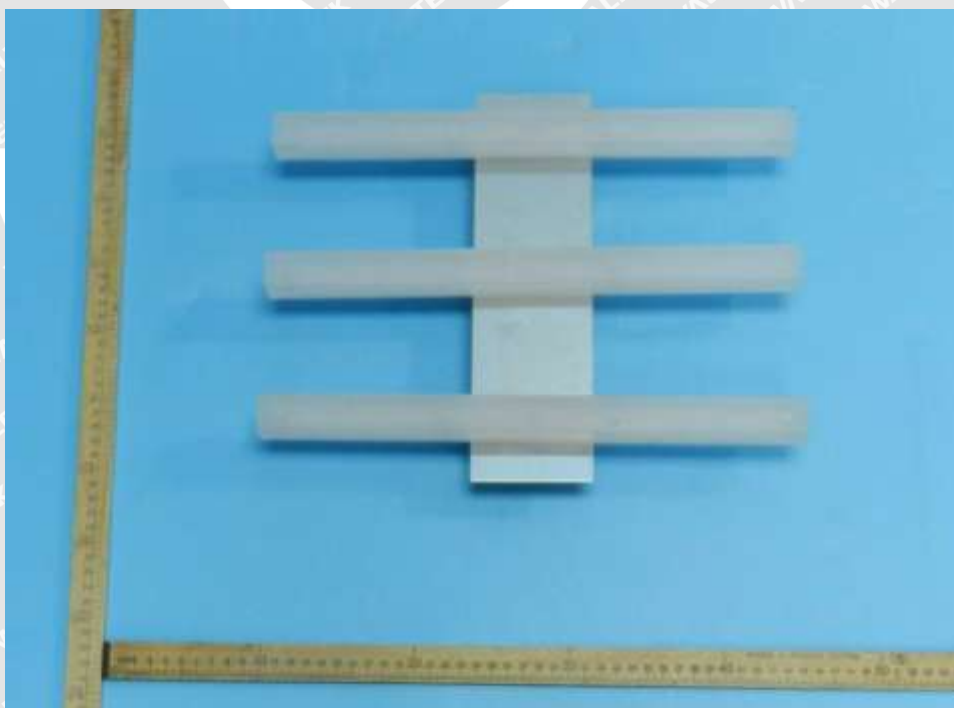


Photo 10



Photo Documentation

Reference No.: WTF15F0730677S



Photo 11



Photo 12



Photo Documentation

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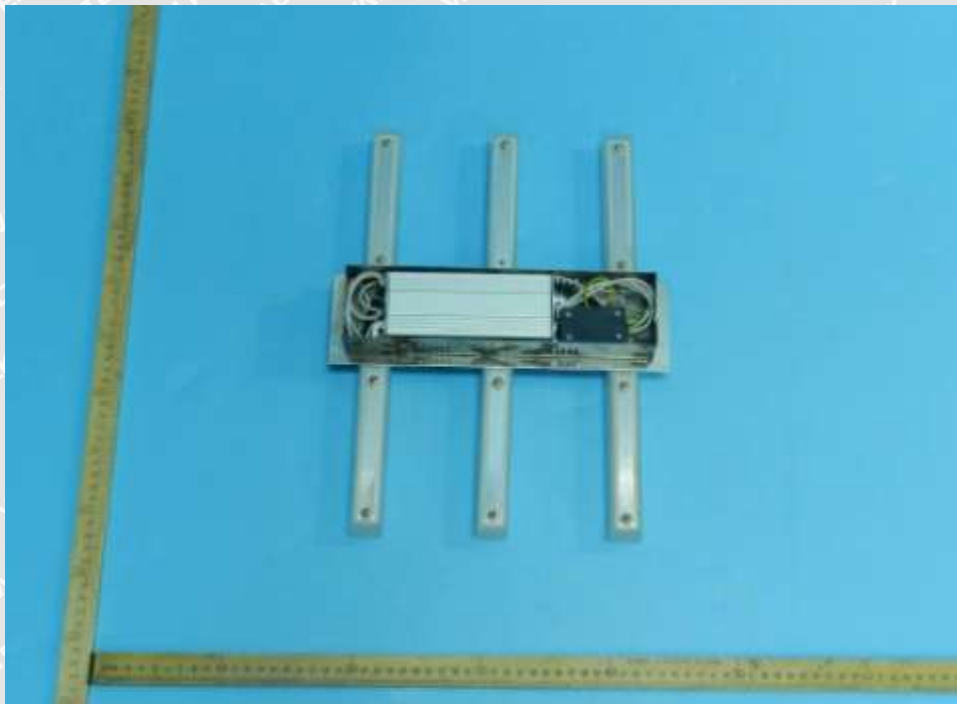


Photo 13

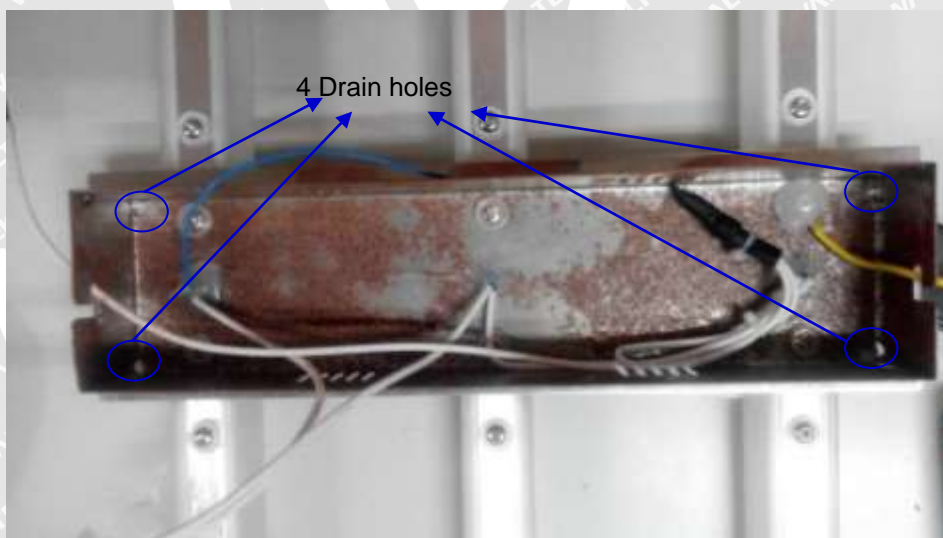


Photo 14



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Reference No.: WTF15F0730677S



Photo 15



Photo 16



Photo Documentation

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Photo 17



Photo 18



Photo Documentation

Reference No.: WTF15F0730677S

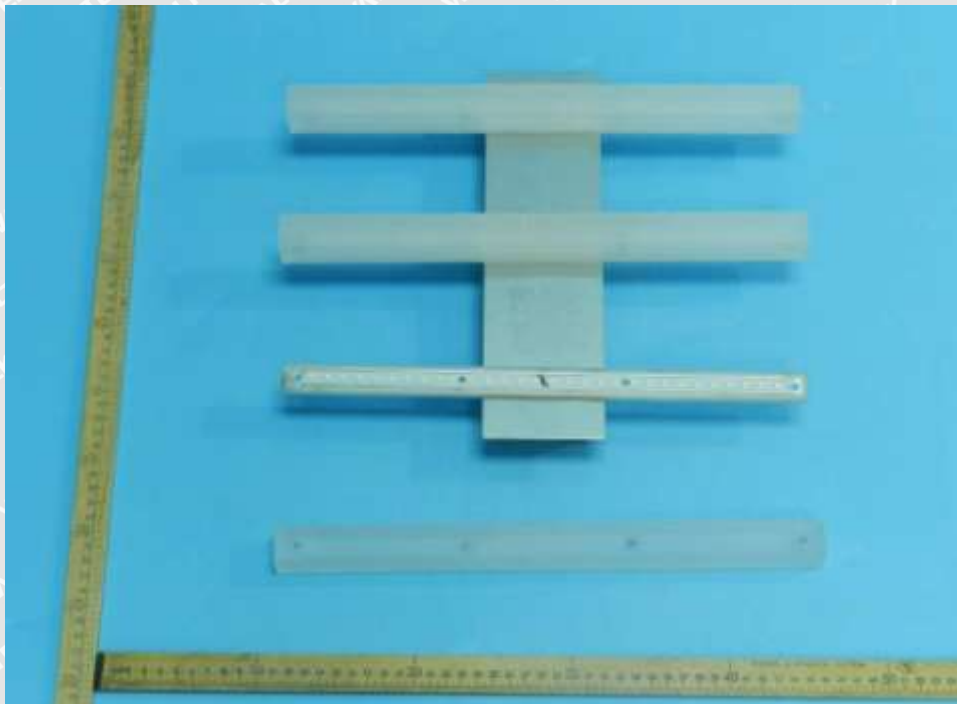


Photo 19

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