TEST REPORT

Reference No.	:	WTF14F0312223S
Applicant	:	GuangZhou O' Ming ELECTRIC & MACHINING CO., Ltd.
Address	:	No. 2, WeiMin South Road, ZhangBian Village, NanCun Town, PanYu District, Guangzhou, China
Manufacturer	:	The same as above
Address	:	The same as above
Product Name	:	Pendent lamp
Model No.	:	P50626 (37660001)
Standards	:	Luminaires Part 2-1: Fixed general purpose luminaries EN 60598-2-1:1989 EN 60598-1: 2008+A11:2009
Date of Receipt sample	:	2014-03-31
Date of Test	:	2014-03-31 to 2014-04-11
Date of Issue	:	2014-04-11
Test Report Form No.	:	WSL-6059821A-02A
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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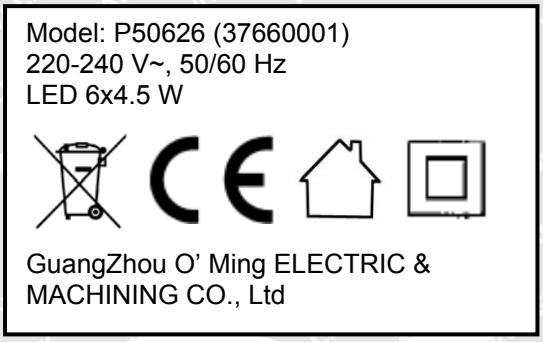
Eason Huang / Project Engineer

Approved by:

Oren Yang / Manager

Test item description	:	LED Pendent lamp
Trade Mark	:	---
Model/Type reference	:	P50626 (37660001)
Ratings	:	220-240V~,50/60Hz, LED 6x4.5W, Class II, IP20

Copy of marking plate:



On the luminaries exterior surface

Summary of testing:

1. Tests are carried out on model P50626 (37660001) and 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.

3. EN 62471:2008 was evaluated, 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 62493:2010.

5. Only the most unfavorable results are recorded in this report.

Test items particulars:	
Classification of installation and use..... :	Fixing mounting
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:	
Fixed general purpose luminaries, for indoor use only.	

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 ☒ No ☐	—
1.2 (0.3)	More sections applicable .....:	Yes ☐ No ☒	—
1.4 (2)	**CLASSIFICATION**		**P**
1.4 (2.2)	Type of protection (Class 0 excluded)..... :	Class II	—
1.4 (2.3)	Degree of protection (Requirement: Ordinary)..... :	IP 20	—
1.4 (2.4)	Luminaire suitable for direct mounting on normally flammable surfaces ..... :	Yes ☒ No ☐	—
	Luminaire not suitable for direct mounting on normally flammable surfaces..... :	Yes ☐ No ☒	—
1.4 (2.5)	Luminaire for normal use ..... :	Yes ☒ No ☐	—
	Luminaire for rough service ..... :	Yes ☐ No ☒	—
1.5 (3)	**MARKING**		**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	50/60 Hz	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

EN 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.5 (3.3.16)	Rough service luminaire		N
1.5 (3.3.17)	Mounting instruction for type Y, type Z and some type X attachments	Type Y	P
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 (3.4)	Test with water	Rubbing lightly for 15 s	P
	Test with hexane	Rubbing lightly for 15 s	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
1.6 (4.4.9)	Caps and bases correctly used		N
1.6 (4.5)	Starter holders		N
	Starter holder in luminaires other than class II	No starter holder used	N

EN 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Starter holder class II construction		N
1.6 (4.6)	Terminal blocks		P
	Tails		N
	Unsecured blocks		P
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		P
	Test 8 mm earth conductor		N
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:		N
	- adequate rating		N
	- adequate fixing		N
	- 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)	Retainement		P
	Method of fixing ..... :	Heat-shrinkable	P
1.6 (4.9.2)	Insulated linings and sleeves		P
	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		P

EN 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.6 (4.10.1)	No contact, mounting surface – accessible metal parts – wiring of basic insulation		P
	Safe installation fixed luminaires		P
	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)	Retainment 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		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	> 65% Cu	P
1.6 (4.11.5)	No contact to wood or mounting surface		P
1.6 (4.11.6)	Electro-mechanical contact systems		P
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		P
	Torque test: torque (Nm); part ..... :	Screw for fixing LED board; 0.5 Nm	P
	Torque test: torque (Nm); part ..... :	Screw used as cord anchorage; 0.5 Nm	P
	Torque test: torque (Nm); part ..... :	Screw for fixing mounting bracket; 1.2 Nm	P
1.6 (4.12.2)	Screws with diameter < 3 mm screwed into metal	No such screw	N
1.6 (4.12.4)	Locked connections:		P
	- fixed arms; torque (Nm)..... :	M10, 2.5Nm	P

EN 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	- 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: 0.35 Nm	P
	1) live parts		P
	2) linings		N
	3) protection		P
	4) covers		P
1.6 (4.13.3)	Straight test finger	Enclosure: 30 N	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 2.094 kg	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		P
	Mass (kg) ..... :	1.86 kg	P
	Stress in conductors (N/mm²) ..... :	9.1 N/mm²	P
	Mass (kg) of semi-luminaire ..... :	---	N
	Bending moment (Nm) of semi-luminaire ..... :	---	N

EN 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.6 (4.14.3)	Adjusting devices:		P
	- flexing test; number of cycles ..... :	150 cycles (for wire halyard)	P
	- 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		P
1.6 (4.14.6)	Strain on socket-outlets		N
1.6 (4.15)	Flammable materials:		N
	- glow-wire test 650 °C		N
	- spacing ≥ 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	Electric 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		N
	Clearance at least 5 mm		N
1.6 (4.18)	Resistance to corrosion:		P
1.6 (4.18.1)	- rust-resistance		N

EN 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.6 (4.18.2)	- season cracking in copper		P
1.6 (4.18.3)	- corrosion of aluminium		N
1.6 (4.19)	Ignitors 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)	UV radiation for tungsten halogen lamps and metal halide lamps (Annex P)		N
1.6 (4.25)	No sharp point or edges		P
1.6 (4.26)	Short-circuit protection:		P
1.6 (4.26.1)	Uninsulated accessible SELV parts		P
1.6 (4.26.2)	Short-circuit test		P
1.6 (4.26.3)	Test chain according to Figure 29		P
2.6 (4.27)	Terminal blocks with integrated screwless earthing contacts tested 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

1.7 (11)	**CREEPAGE DISTANCES AND CLEARANCES**		**P**
	Working voltage (V) ..... :	Max.240 V~	—
	Voltage form	Sinusoidal ☒ Non-sinusoidal ☐	—
	PTI	< 600 ☒ ≥ 600 ☐	—
	Impulse withstand category (Normal category II) (Category III Annex U)	Category II☒ Category III☐	—
	Rated pulse voltage (kV) ..... :	---	—

EN 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	(1) Current-carrying parts of different polarity: cr (mm); cl (mm) ..... :	Approved class II SELV output (Max. 60Vd.c.) LED driver and terminal block	P
	(2) Current-carrying parts and accessible parts: cr (mm); cl (mm) ..... :	Between live parts and accessible part : cr > cl > 6.5 mm	P
	(3) Parts becoming live due to breakdown of basic insulation and metal parts: cr (mm); cl (mm) ..... :	---	N
	(4) Outer surface of cable where it is clamped and metal parts: cr (mm); cl (mm)..... :	---	N
	(5) Not used		N
	(6) Current-carrying parts and supporting surface: cr (mm); cl (mm) ..... :	Between live parts and mounting surface: cr > cl > 6.5 mm	P
1.8 (7)	**PROVISION FOR EARTHING**		**N**
1.8 (7.2.1 + 7.2.3)	Accessible metal parts		N
	Metal parts in contact with supporting surface		N
	Resistance < 0,5 Ω		N
	Self-tapping screws used		N
	Thread-forming screws		N
	Thread-forming screw used in a grove		N
	Earth makes contact first		N
1.8 (7.2.2 + 7.2.3)	Earth continuity in joints etc.		N
1.8 (7.2.4)	Locking of clamping means		N
	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		N
1.8 (7.2.7)	Electrolytic corrosion of the earth terminal		N
1.8 (7.2.8)	Material of earth terminal		N
	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		N
	Length of earth conductor		N

EN 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
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
1.10 (5.2.2)	Type of cable .....:	See Annex 1 for detail of external suspended wire	P
	Nominal cross-sectional area (mm²).....:	See Annex 1	P
	Cables equal to HD21 or HD22	See CTL decision 070/06	N
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
	- suitable for introduction		P
	- adequate degree of protection		P
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:		P
	- covering protected from abrasion		P
	- clear how to be effective		P
	- no mechanical or thermal stress		P
	- no tying of cables into knots etc.		P
	- insulating material or lining		P
1.10 (5.2.10.1)	Cord anchorage for type X attachment:		N
	a) at least one part fixed		N

EN 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	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	Type Y	P
1.10 (5.2.10.3)	Tests:		P
	- impossible to push cable; unsafe		P
	- pull test: 25 times; pull (N) ..... :	60 N	P
	- torque test: torque (Nm) ..... :	0.25 Nm	P
	- displacement ≤ 2 mm		P
	- no movement of conductors		P
	- no damage of cable or cord		P
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		P
	Wire ends tinned: no cold flow		N
1.10 (5.2.14)	Mains plug same protection		N
	Class III luminaire plug		N
1.10 (5.2.16)	Appliance inlets (IEC 60320)		N
	Appliance couplers of class II type		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	(see Annex 1)	P
	Through wiring		N
	- not delivered/ mounting instruction		N
	- factory assembled		N

EN 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	- socket outlet loaded (A)..... :	---	N
	- temperatures ..... :	---	N
	Green-yellow for earth only		N
1.10 (5.3.1.1)	Internal wiring connected directly to fixed wiring		P
	Cross-sectional area (mm²)..... :	(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		P
1.10 (5.3.1.4)	Conductors without insulation		N
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.		N
	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
	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 and adjustable luminaires		P

EN 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Basic insulated parts not accessible with Ø 50 mm probe from outside, within arms reach, on wall-mounted luminaires		N
	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:		P
	- basic insulated metal parts not accessible during starter or lamp replacement		N
	- basic insulation not accessible other than during starter or lamp replacement		P
	- 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:		P
	Ordinary luminaire:		P
	- touch current ..... :	Max.60Vdc, no need to test	P
	- no-load voltage ..... :	Max.60Vdc	P
	Other than ordinary luminaire:		N
	- nominal voltage ..... :	---	N
1.11 (8.2.4)	Portable luminaire:		N
	- protection independent of supporting surface		N
	- terminal block completely covered		N
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 ≥ 0,5 μF		P
	Portable plug connected luminaire with capacitor		N
	Other plug connected luminaire with capacitor		N

EN 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Discharge device on or within capacitor		N
	Discharge device mounted separately		P
1.12 (12)	**ENDURANCE TEST AND THERMAL TEST**		**P**
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):	1,1xU_n	—
	- lamp used ..... :	LED integral	—
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)	P
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
	- track-mounted luminaires		N
1.12 (12.7)	Thermal test (failed lamp control gear in plastic luminaires):		N

EN 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
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
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 ☐ No ☐	—

EN 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	- manual reset cut-out	Yes ☐ No ☐	—
	- auto reset cut-out	Yes ☐ No ☐	—
	- case of abnormal conditions		—
	- highest measured temperature of fixing point/exposed part (°C):..... :	---	—
	Ball-pressure test:		N
	- part tested; temperature (°C)..... :	---	N
	- part tested; temperature (°C)..... :	---	N
1.13 (9)	**RESISTANCE TO DUST, SOLID OBJECTS AND MOISTURE**		**P**
1.13 (9.2)	Tests for ingress of dust, solid objects and moisture:		P
	- classification according to IP ..... :	IP 20	—
	- mounting position during test ..... :	Acc. to user manual	—
	- fixing screws tightened; torque (Nm)..... :	2/3 torque	—
	- tests according to clauses ..... :	9.2.0	—
	- 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		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		N
	f) no contact with live parts (IP 2X)		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	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 ..... :	Metal foil	—

EN 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Insulation resistance (MΩ)		—
	SELV:		P
	- between current-carrying parts of different polarity ..... :	---	N
	- between current-carrying parts and mounting surface ..... :	100 MΩ	P
	- between current-carrying parts and metal parts of the luminaire ..... :	100 MΩ	P
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts ..... :	---	N
	- 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 .. :	100 MΩ	P
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
	- between current-carrying parts and mounting surface ..... :	500 V	P
	- between current-carrying parts and metal parts of the luminaire ..... :	500 V	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..... :	1480 V	P
	- between live parts and mounting surface..... :	2960 V	P

EN 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	- between live parts and metal parts..... :	2960 V	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 .. :	2960 V	P
1.14 (10.3)	Touch current or protective conductor current (mA) ..... :	Max. 0.02 mA	P

1.15 (13)	**RESISTANCE TO HEAT, FIRE AND TRACKING**		**P**
1.15 (13.2.1)	Ball-pressure test:		P
	- part tested; temperature (°C)..... :	LED board: 125°C, 0.9 mm	P
	- part tested; temperature (°C)..... :	---	N
1.15 (13.3.1)	Needle flame test (10 s):		P
	- part tested..... :	Terminal block	P
1.15 (13.3.2)	Glow-wire test (650°C):		P
	- part tested..... :	Close-end connector	P
	- part tested..... :	LED board	P
	- part tested..... :	Plastic cover for LED	P
1.15 (13.4.1)	Tracking test:		N
	- part tested..... :	---	N

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 Green Way Electronic Co., Ltd.	MK1282	250V, 1.5mm²	EN 60998-1 EN 60998-2-1	Semko
Alternative	D	Zhongshan Lianjin Metal & Electrical Appliances Co., Ltd.	EJE-2215	250VAC, 0.75-1.5mm²,T100	EN 60998-1 EN 60998-2-1	VDE 40030009
Input cable of LED driver	B	Yu Jia Wire Electronics	H03VVH2-F	2 x 0.75 mm²	DIN VDE 0281-5	VDE 40022346
Alternative	D	Arditi CN Electric (Huizhou) Co., Ltd.	H03VVH2-F	2 x 0.75 mm²	DIN VDE 0281-5	VDE 40032075
Alternative	D	Shenzhen MJM Electronic Co.,Ltd.	H03VVH2-F	2 x 0.75 mm²	DIN VDE 0281-5	VDE 40036699
Output wire of LED driver	B	Guangzhou Feng Tai Electronic Co. Ltd.	FEP-101	300/300 V;0.75 mm²; T180	VDE 0250	VDE 136964
Alternative	D	Zhongshan Yiying Wire & Cable Co., Ltd.	FEP YY-101	300/500 V; 0.75mm²; T180	VDE 0250	VDE 40022722
Alternative	D	Yang Tai Wire & Cable Co., Ltd.	(N)6YAF	450/750 V; 0.75mm²; T180	VDE 0250	VDE 40002489
Lead wire for LED	B	Guangzhou Feng Tai Electronic Co. Ltd.	FEP-101	300/300 V;0.3 mm²; T180	VDE 0250	VDE 136964
Alternative	D	Zhongshan Yiying Wire & Cable Co., Ltd.	FEP YY-101	300/500 V; 0.3mm²; T180	VDE 0250	VDE 40022722
Alternative	D	Yang Tai Wire & Cable Co., Ltd.	(N)6YAF	450/750 V; 0.3mm²; T180	VDE 0250	VDE 40002489
LED driver	B	FOSHAN VIG ELECTRONIC TECHNOLOGY CO., LTD	K08-30C500	Pri:100-240VAC; Sec:DC30-60V, 500mA, ta :40°C, tc :80°C, built-in, SELV-equivalent	EN 61347-1 EN 61347-2-13	TUV SUD B 13 11 75367 030 and tested with appliance
Heat shrinkable tube	B	CHANGYUAN ELECTRONICS (SHENZHEN) CO LTD	CB-HFT	600V, 125°C	--	UL E180908
Alternative	D	SUZHOU HUANENG SHRINKABLE MATERIAL CO LTD	ZRG	125°C; 600V	--	UL E210401
Close-end connector	B	Heavy Power Co.,Ltd	CE1; CE2	600V; 150℃	--	UL E113650
Silicone coated fiberglass sleeving	B	HENG HUI CHANG INSULATION MATERIAL CO LTD	HHC-03	V-0	--	UL E240604

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

Alternative	D	SHENZHEN WAHCHANGWEI INDUSTRIAL CO LTD	SGS-15	VW-1	--	UL E233804
Plastic cover for LED	B	GuangZhou O' Ming ELECTRIC & MACHINING CO., Ltd.	T50333	PC	--	Tested with appliance
LED	C	PARAGON SEMICONDUCTOR LIGHTING TECHNOLOGY CO., LTD.	LBCC-18-5007	9V,500mA	EN62471	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

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

ANNEX 2	**Temperature measurements, thermal tests of Section 12**		**P**
	Type reference .....:	P50626 (37660001)	—
	Lamp used.....:	LED integral	—
	Lamp control gear used .....:	K02-6C500	—
	Mounting position of luminaire .....:	Acc. to user manual	—
	Supply wattage (W).....:	30.3	—
	Supply current (A) .....:	0.131	—
	Calculated power factor .....:	0.92	—
	Table: measured temperatures corrected for t_a = 25 °C:		P
	- abnormal operating mode :	Shorted circuit LED, shut up immediately, lower power running than normal operating	—
	- test 1: rated voltage	-----	—
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage.....	1,06 times rated voltage	—
	- 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 (°C) of part	Clause 12.4 – normal				Clause 12.5 – abnormal	
	test 1	test 2	test 3	limit	test 4	limit
Plastic box for terminal block	--	22.8	--	Ref.	--	--
Terminal block	--	22.8	--	100	--	--
Input cable of LED driver	--	32.5	--	90	--	--
Output wire of LED driver	--	36.0	--	180	--	--
Internal wire near LED board	--	45.6	--	180	--	--
LED board	--	51.0	--	Ref.cl.13	--	--
LED driver, tc	--	53.0	--	80	--	--
Mounting surface (flammable surface)	--	36.4	--	90	--	--
Surface illuminated by lamp(0.1m)	--	36.5	--	90	--	--
Ambient	--	25.0	--	--	--	--

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

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 (mm²) .....:		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

EN 60598-2-1			
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
(15.5.2)	Permanent connections: pull-off test (20 N)		N
(15.6)	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
(15.7)	Terminals external wiring		N
	Terminal size and rating		N
(15.8.1)	Pull test spring-type terminals or welded connections (4 samples); pull (N) ..... :	-----	N
	Pull test pin or tab terminals (4 samples); pull (N) ..... :	-----	N
(15.9)	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) ..... :	-----	—

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

terminal	1	2	3	4	5	6	7	8	9	10
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

1.5 (3)	**MARKING**		N
1.5 (3.3.101)	Adequate warning on the package		N

1.6 (4)	**CONSTRUCTION**		P
1.6 (4.11.6)	Electro-mechanical contact systems		P

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 HD21 S2 or HD22 S2		N

1.12 (12)	**ENDURANCE TEST AND THERMAL TEST**		P
1.12 (12.4.2c)	Thermal test (normal operation)		P

ZB	**ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)**	N

EN 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
(3.3)	DK: power supply cord with label		N
	IT: warning label on Class 0 luminaire		N
(4.5.1)	DK: socket-outlets		N
(5.2.1)	CY, DK, FI, SE, GB: type of plug		N
ZC	**ANNEX ZC, NATIONAL DEVIATIONS (EN)**		N
(4 & 5)	FR: Shuttered socket-outlets 10/16A		N
(13.3)	FR: Glow-wire test 850°C alt. 750°C for luminaires in premises open to public or 960°C for luminaires in emergency exits		N
(13.3)	GB: Requirements according to United Kingdom Building Regulation		N
	EN 60598-1:2008 + A11:2009		**P**
	Replace the existing definition 1.2.76 with the following:		P
1.2.76	Impulse withstand category (former term “overvoltage categories”)		P
	Numeral defining a transient overvoltage condition		P
Note 1	Impulse withstand categories I, II, III and IV are used.		P
Note 2	Explanation is taken from IEC 60364-4-44:2007		P
	Table 1.1		P

EN 62031			
Clause	Requirement + Test	Result - Remark	Verdict
ANNEX 6	**LED modules for general lighting – Safety specifications EN 62031:2008+A1:2013**		P
4	**GENERAL REQUIREMENTS**		P
4.4	Integral modules treated as part of luminaires defined in clause 0.5 of IEC 60598-1		P
4.5	Independent modules complies with requirements in IEC 60598-1		N
6	**CLASSIFICATION**		P
	Built-in module ..... :	Yes ☐ No ☒	—
	Independent module..... :	Yes ☐ No ☒	—
	Integral module ..... :	Yes ☒ No ☐	—
	For Integral module; Note to 1.2.1 in IEC 60598-1 applies.		P
13	**FAULT CONDITIONS**		P
13.1	In compliance with IEC 61347-1 (clause numbers between parentheses refer to IEC 61347-1)		P
	When operated under fault conditions the LED-module:		P
	- does not emit flames or molten material		P
	- does not produce flammable gases		P
	- protection against accidental contact not impaired		P
	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		N
- (14.1)	Short-circuit of creepage distances and clearances if less than specified in clause 16 in Part 1 (except between live parts and accessible metal parts)		N
	Distances on printed boards provided with coating according to IEC 60664-3		N
- (14.2)	Short-circuit or interruption of semiconductor devices	LED	P
- (14.3)	Short-circuit across insulation consisting of lacquer, enamel or textile		N
- (14.4)	Short-circuit across electrolytic capacitors		N
- (14.5)	During the tests, a five-layer tissue paper, where the test specimen is wrapped, does not ignite		P

EN 62031			
Clause	Requirement + Test	Result - Remark	Verdict
	After the tests the insulation resistance with d.c. 500 V (MΩ) are ≥ 1 MΩ ..... :	100 MΩ	P
	Temperature declared thermally protected LED-modules fulfil the requirements in Annex C of IEC 61437-1		N
13.2	LED Module withstands overpower condition >15 min.	1.5 times power	P
	LED 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
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 62471			
Clause	Requirement + Test	Result - Remark	Verdict

Annex 7	**Photobiological safety evaluated according to standard EN 62471:2008.**	**P**

Emission limits for risk groups of continuous wave lamps
α=0.0270rad — 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	$W \cdot m^{-2}$	0.001	4.6e-05	-	-	-	-
Near UV		E_{uvA}	$W \cdot m^{-2}$	0.33	2.9e-03	-	-	-	-
Blue light	$B(\lambda)$	L_B	$W \cdot m^{-2} \cdot sr^{-1}$	100	1.3e+01	10000	-	4000000	-
Bluelight, small source	$B(\lambda)$	E_B	$W \cdot m^{-2}$	0.01*	-	1.0	-	400	-
Retinal thermal	$R(\lambda)$	L_R	$W \cdot m^{-2} \cdot sr^{-1}$	28000/α	2.1e+03	28000/α	-	71000/α	-
Retinal thermal, weak visual stimulus**	$R(\lambda)$	L_{IR}	$W \cdot m^{-2} \cdot sr^{-1}$	545000 0.0017≤α≤0.011	-				
				6000/α 0.011≤α≤0.1	-				
IR radiation, eye		E_{IR}	$W \cdot m^{-2}$	100	-	570	-	3200	-

* Small source defined as one with α<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☐

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

Photo Documentation

Reference No.: WTF14F0312223S

Model: P50626 (37660001)

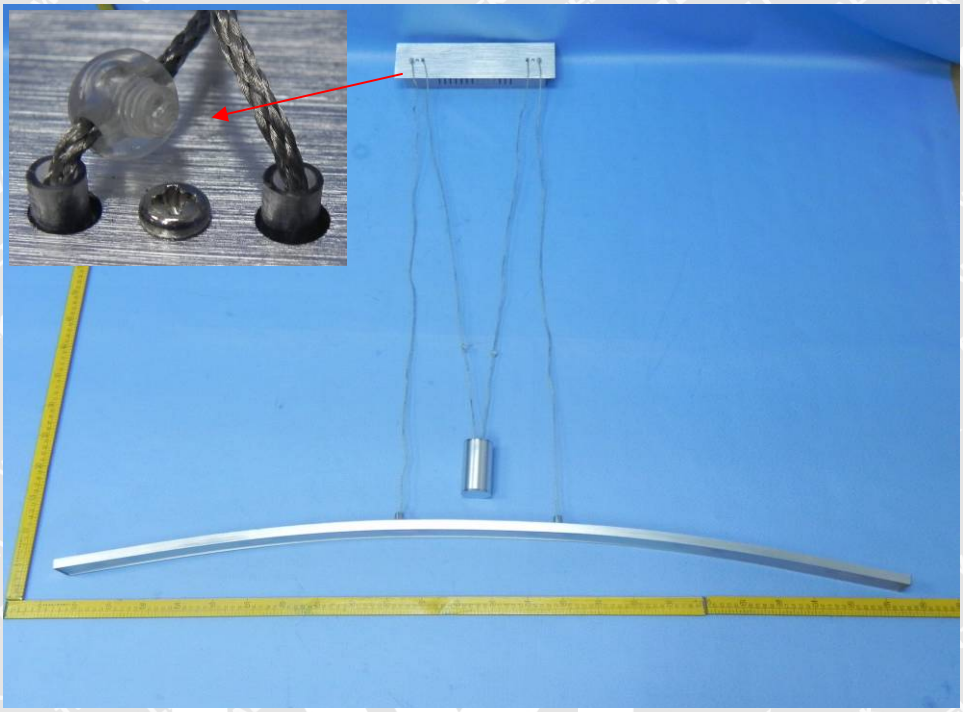


Photo 1

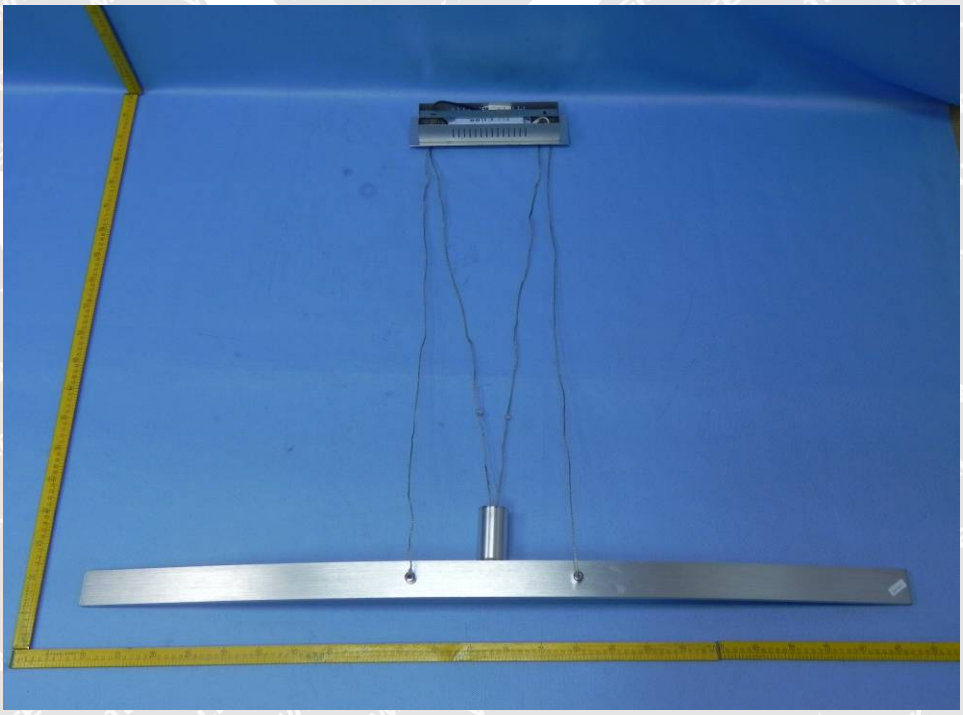


Photo 2

Photo Documentation

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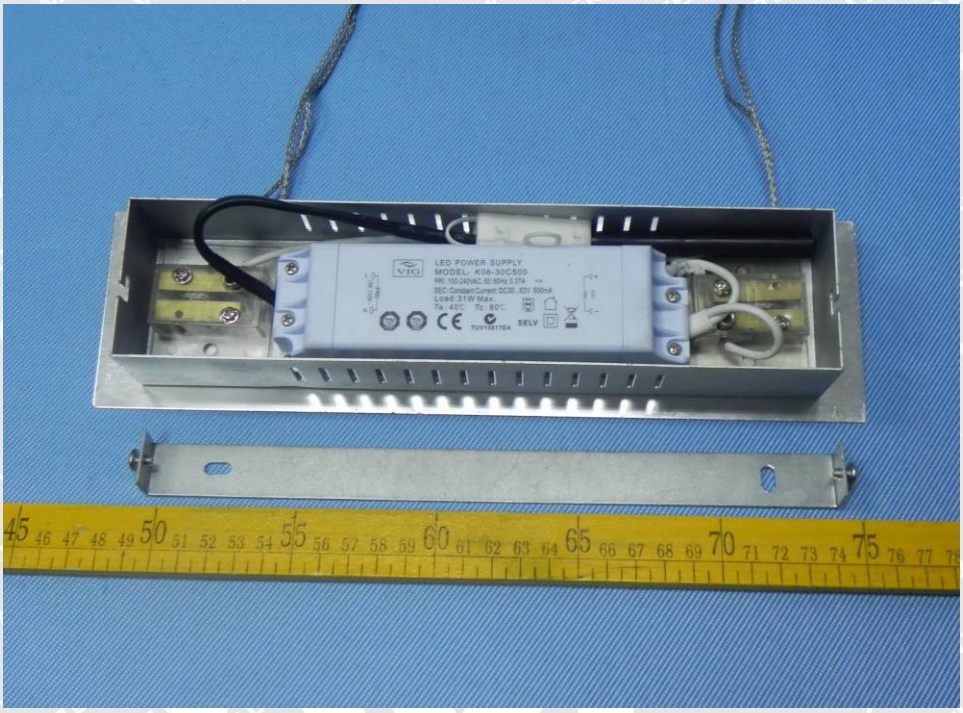


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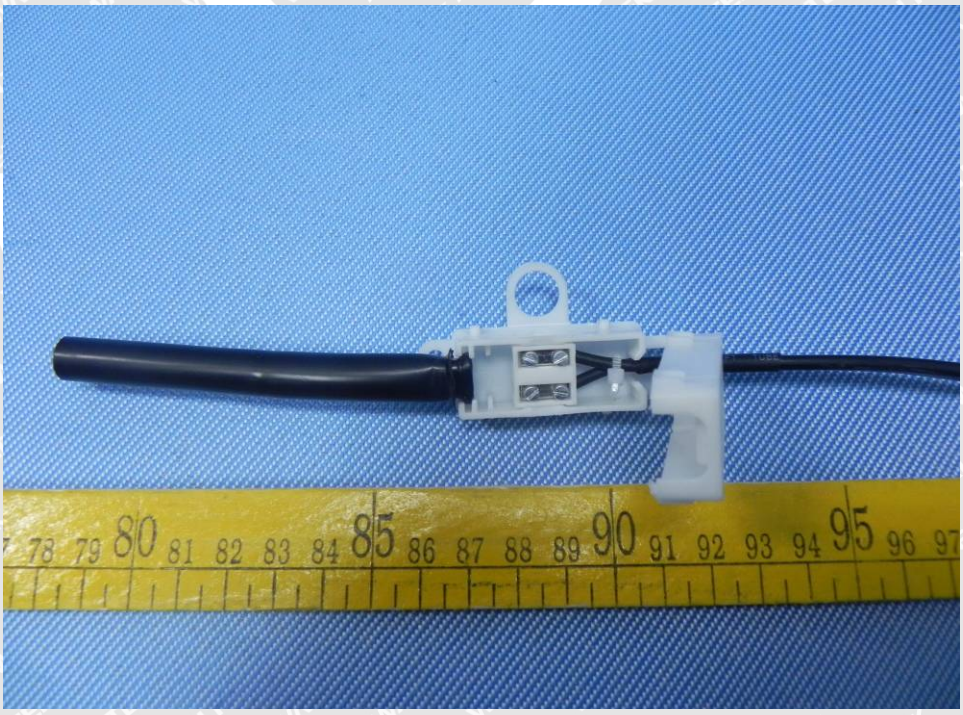


Photo 4

Photo Documentation

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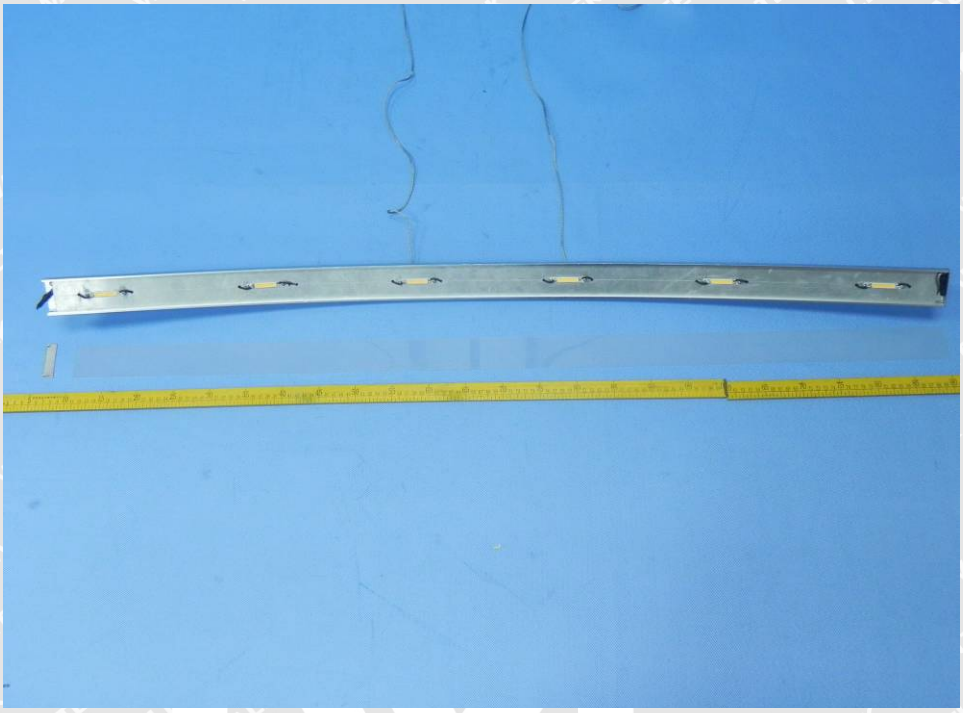


Photo 5

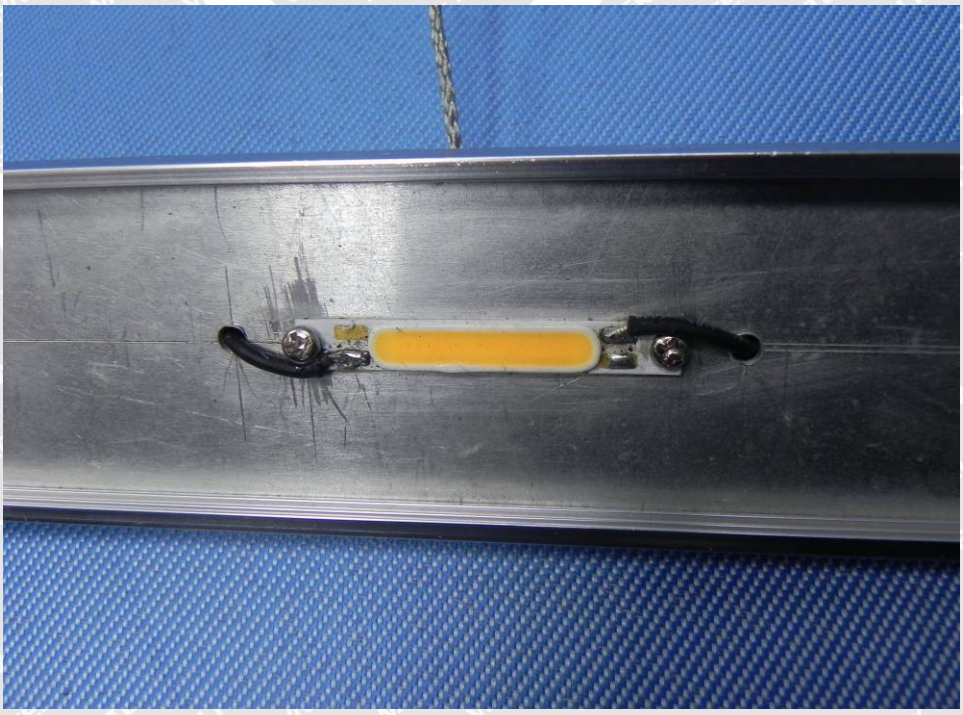


Photo 6