



Global-Standard Testing

# CE-LVD TEST REPORT

For

COB DOWN LIGHT

**Model No.:** VT-2610, VT-2620, VT-2630, VT-2625, VT-2635, VT-2645, VT-2646,  
VT-26101, VT-26201, VT-26301, VT-26451

**Applicant :** V-TAC EXPORTS LIMITED

ROOM NO. 301, KAM ON BUILDING 176A QUEENS ROAD  
CENTRAL, CENTRAL, HONGKONG

**Manufacturer :** V-TAC EXPORTS LIMITED

ROOM NO. 301, KAM ON BUILDING 176A QUEENS ROAD  
CENTRAL, CENTRAL, HONGKONG

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**Report Number :** J01.06.0232S

**Issued Date :** June 27, 2016

**Date of Report :** June 27, 2016

**Note:**

- 1) The test data and result is based on the tested sample only.
  - 2) Please verify information in the report on GST web: [www.gstslab.com](http://www.gstslab.com) through report number.
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<b>LVD Report</b> <b>EN60598-1</b> <b>EN60598-2-2</b> <b>Luminaires—Part 1 :General requirements and tests</b> <b>Part 2-1:Particular requirments</b> <b>Section Two – Recessed luminaires</b>	
Report reference No. ....:	J01.06.0232S
Testing laboratory .....	Global-Standard Testing Service Co., Ltd.
Location.....:	Room 1911-1914, Noble Plaza, Qian Jin 1st Road, Bao An district, Shenzhen, Guangdong, China.
Applicant.....:	V-TAC EXPORTS LIMITED
Address:.....:	ROOM NO. 301, KAM ON BUILDING 176A QUEENS ROAD CENTRAL, CENTRAL, HONGKONG
Manufacturer.....:	V-TAC EXPORTS LIMITED
Address:.....:	ROOM NO. 301, KAM ON BUILDING 176A QUEENS ROAD CENTRAL, CENTRAL, HONGKONG
Standards.....:	EN 60598-1:2015 EN 60598-2-2:2012 EN 62031:2008+A2:2015 EN 61347-1:2015 EN 61347-2-13:2014 EN 62471:2008 EN 62493:2015
Procedure deviation.....:	N/A
Non-standard test method.....:	N/A
Type of test equipment .....	COB DOWN LIGHT
Trade mark.....:	
Model/Type designation.....:	VT-2610, VT-2620, VT-2630, VT-2625,VT-2635, VT-2645, VT-2646, VT-26101, VT-26201, VT-26301, VT-26451
Rating.....:	AC220-240V, 50/60Hz, 900mA, Max.40W
TRF originator.....:	Global-Standard Testing Service Co., Ltd.
Copyright blank test report:	Global-Standard Testing Service Co., Ltd.
Test item particulars:	--
Operating Condition	Continuous
Tested for IT power systems	No
IT testing, phase-phase voltage (V)	N/A.
Class of equipment	Class II
Protection against ingress of water	IP20

Possible test case verdicts :	
test case does not apply to the test object	N(/A.)
test object does meet the requirement	P(ass)
test object does not meet the requirement	F(ail)

Name and address of the testing laboratory :

Global-Standard Testing Service Co., Ltd.  
 Room 1911-1914, Noble Plaza, Qian Jin 1st Road, Bao An  
 District, Shenzhen, Guangdong, China.

**Tested by :** Sean Xiao June 22, 2016  
 Signature Date

Sean Xiao / Test Engineer  
 Name/title

**Reviewed by :** Peter Chen June 27, 2016  
 Signature Date

Peter Chen / Project Engineer  
 Name/title

**Approved by :** [Signature] June 27, 2016  
 Signature Date

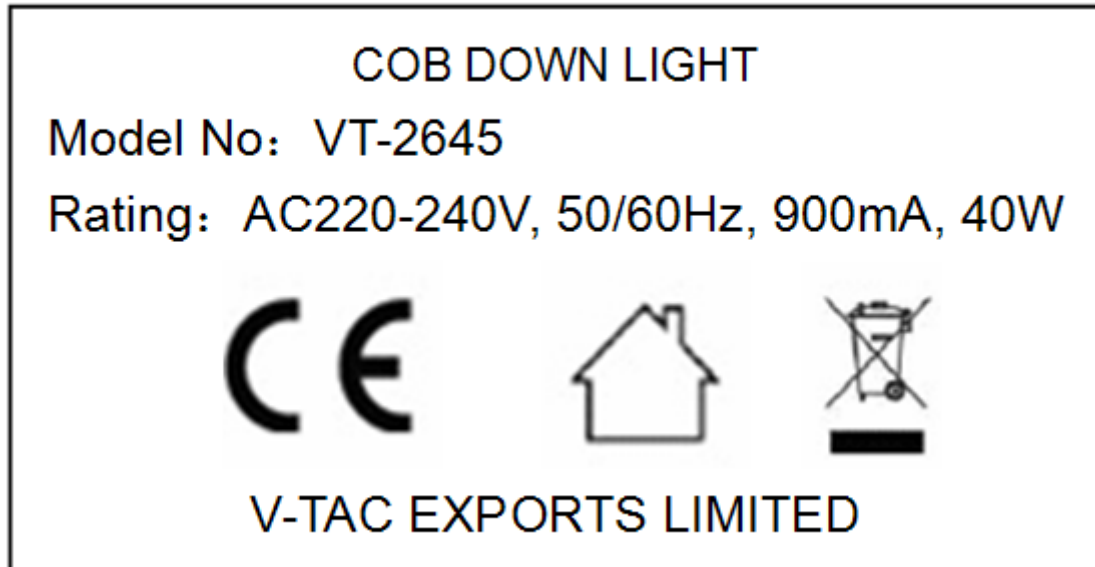


Tim Sun / Manager  
 Name/title

<p><b>General remarks:</b></p> <p>Clause number between brackets refer to clauses in IEC 60598-1</p> <p>"(see remark #)" refers to a remark appended to the report.</p> <p>"(see appended table)" refers to a table appended to the report.</p> <p>Throughout this report a comma is used as the decimal separator.</p> <p>The test results presented in this report relate only to the object tested.</p> <p>This report shall not be reproduced except in full without the written approval of the testing laboratory.</p> <p>Unless otherwise specified, test are made under normal conditions at an ambient temperature within the range of 15°C to 35°C, RH45% to 75% and an air pressure of 860mbar of 1060mbar</p>	<p>Attachment with: Photo documentation</p>
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1. This report covers VT-2610, VT-2620, VT-2630, VT-2625, VT-2635, VT-2645, VT-2646, VT-26101, VT-26201, VT-26301, VT-26451 class II COB DOWN LIGHT used for Self-ballasted lamps for general lighting services;
2. Model VT-2645 was selected as representative sample due to the maximum wattage to perform full tests and the test result was pass;
3. The lamp drive was evaluated with reference to EN61347-2-13;
5. The European standard EN 62471 for LED laser product requirement has considered;
6. The Safety specifications of LED modules for general lighting was evaluated with reference to EN 62031;
7. The test result presented in this report relate only to the object tested. The samples tested comply with the requirements of this standard;
8. The European standard EN 62493 for requirement has considered.
9. This report is based on report GST1509221135S, dated September 28, 2015.

**Label:**



Note: Due to similarity of the rating labels, only above label is listed.

EN 60598-2-2			
Clause	Requirement – Test	Result – Remark	Verdict

2.1 (0)	SCOPE		P
2.2 (0.1)	Information for luminaire disigen concerned .....	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
2.2 (0.3)	More sections applicable.....	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—

2.4 (2)	CLASSIFICATION		P
2.4 (2.2)	Type of protection.....	Class II	—
2.4 (2.3)	Degree of protection.....	IP20	—
2.4 (2.4)	Luminaire only suitable for non-combustible surfaces .....	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	—
	Luminaire suitable for normally flammable surfaces .....	Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/>	—
	Luminaire suitable to be covered by insulating materials .....	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
2.4 (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"/>	—

2.5 (3)	MARKING		P
2.5.1 (-)	Warning notice, if not suitable for insulating ceiling		P
2.5 (3.2)	Mandatory markings		P
	Position of the marking		P
	Format of symbols/text		P
2.5 (3.3)	Additional information		P
	Language of instructions	English	N/A
2.5 (3.3.1)	Combination luminaires		P
2.5 (3.3.2)	Nominal frequency in Hz	50/60Hz	P
2.5 (3.3.3)	Operating temperatures		N/A
2.5 (3.3.4)	Symbol or warning notice		N/A
2.5 (3.3.5)	Wiring diagram		N/A
2.5 (3.3.6)	Special conditions		N/A
2.5 (3.3.7)	Metal halide lamp luminaire – warning		N/A
2.5 (3.3.8)	Limitation for semi-luminaires		N/A
2.5 (3.3.9)	Power factor and supply current		P
2.5 (3.3.10)	Suitability for use indoor		P
2.5 (3.3.11)	Luminaires with remote control		N/A

EN 60598-2-2			
Clause	Requirement – Test	Result – Remark	Verdict

2.5 (3.3.12)	Clip-mounted luminaire-warning		P
2.5 (3.3.13)	Specifications of protective shields		N/A
2.5 (3.3.14)	Symbol for nature of supply	~	P
2.5 (3.3.15)	Rated current of socket outlet		N/A
2.5 (3.3.16)	Rough service luminaire		N/A
2.5 (3.3.17)	Mounting instruction for type Y, type Z and some type X attachments	type Y	P
2.5 (3.3.18)	Non-ordinary luminaires with PVC cable		P
2.5 (3.3.101)	Adequate warning on the package (EN)		P
2.5 (3.4)	Test with water	Legible	P
	Test with hexane	Legible	P
	Legible after test	Yes	P
	Label attached	Yes	P

2.6 (4)	CONSTRUCTION		<b>P</b>
2.6 (4.2)	Components replaceable without difficulty		N/A
2.6 (4.3)	Wireways smooth and free from sharp edges		P
2.6 (4.4)	Lampholders		N/A
2.6 (4.4.1)	Integral lampholder	Use LED light	N/A
2.6 (4.4.2)	Wiring connection		N/A
2.6 (4.4.3)	Lampholder for end-to-end mounting		N/A
2.6 (4.4.4)	Positioning	No lampholder	N/A
	- pressure test (N) .....		N/A
	- bending test (Nm) .....		N/A
2.6 (4.4.5)	Peak pulse voltage		N/A
2.6 (4.4.6)	Centre contact		N/A
2.6 (4.4.7)	Parts in rough service luminaires resistant to tracking		N/A
2.6 (4.4.8)	Lamp connectors		N/A
2.6 (4.4.9)	Caps and bases correctly used		N/A
2.6 (4.5)	Starter holders		N/A
	Starter holders in luminaires other than class II		N/A
	Starter holder class II construction		N/A
2.6 (4.6)	Terminal blocks		N/A

EN 60598-2-2			
Clause	Requirement – Test	Result – Remark	Verdict
	Tails		N/A
	Unsecured blocks		N/A
2.6 (4.7)	Terminals and supply connections		P
2.6 (4.7.1)	Contact to metal parts		P
2.6 (4.7.2)	Test 8 mm live conductor		P
	Test 8 mm earth conductor		P
2.6 (4.7.3)	Terminals for supply conductors		N/A
2.6 (4.7.3.1)	Welded connections:		P
	- stranded or solid conductor		N/A
	- spot welding		N/A
	- welding between wires		N/A
	- Type Z attachment		N/A
	- mechanical test according to 15.8.2		N/A
	- electrical test according to 15.9		N/A
	- heat test according to 15.9.2.3 and 15.9.2.4		N/A
2.6 (4.7.4)	Terminals other than supply connection		N/A
2.6 (4.7.5)	Heat-resistant wiring/sleeves		P
2.6 (4.7.6)	Multi-pole plug		N/A
	- test at 30 N		N/A
2.6 (4.8)	Switches:		N/A
	- adequate rating		N/A
	- adequate fixing		N/A
	- polarized supply		N/A
2.6 (4.9)	Insulating lining and sleeves		N/A
2.6 (4.9.1)	Retainment		N/A
	Method of fixing .....		N/A
2.6 (4.9.2)	Insulated linings and sleeves		N/A
	a) & c) Insulation resistance and electric strength		N/A
	b) Ageing test. Temperature (°C) .....		N/A
2.6 (4.10)	Insulation of Class II luminaires		N/A
2.6 (4.10.1)	No contact, mounting surface - accessible metal parts - wiring of basic insulation		N/A
	Safe installation fixed luminaires		N/A
	Capacitors and switches		N/A



EN 60598-2-2			
Clause	Requirement – Test	Result – Remark	Verdict
	Interference suppression capacitors according to IEC 60384-14		N/A
2.6 (4.10.2)	Assembly gaps:		N/A
	- not coincidental		N/A
	- no straight access with test probe		N/A
2.6 (4.10.3)	Retention of insulation:		N/A
	- fixed		N/A
	- unable to be replaced; luminaire inoperative		N/A
	- sleeves retained in position		N/A
	- lining in lampholder		N/A
2.6 (4.11)	Electrical connections		P
2.6 (4.11.1)	Contact pressure		P
2.6 (4.11.2)	Screws:		N/A
	- self-tapping screws		N/A
	- thread-cutting screws		N/A
	- at least two self-tapping screws		N/A
2.6 (4.11.3)	Screw locking:		N/A
	- spring washer		N/A
	- rivets		N/A
2.6 (4.11.4)	Material of current-carrying parts		N/A
2.6 (4.11.5)	No contact to wood		P
2.6 (4.11.6)	Electro-mechanical contact systems		N/A
2.6 (4.12)	Mechanical connections and glands		N/A
2.6 (4.12.1)	Screws not made of soft metal		P
	Screws of insulating material		N/A
	Torque test: torque (Nm); part .....	0.80Nm; Fixed cover	P
	Torque test: torque (Nm); part .....		N/A
	Torque test: torque (Nm); part .....		N/A
2.6 (4.12.2)	Screws with diameter < 3 mm screwed into metal		N/A
2.6 (4.12.4)	Locked connections:		N/A
	- fixed arms; torque (Nm) .....	0.80Nm;	P
	- lampholder; torque (Nm) .....		N/A
	- push-button switches; torque 0,8 Nm.....		N/A
2.6 (4.12.5)	Screwed glands; force (N) .....		N/A

EN 60598-2-2			
Clause	Requirement – Test	Result – Remark	Verdict
2.6 (4.13)	Mechanical strength		P
2.6 (4.13.1)	Impact tests:		P
2.6.1 (-)	- recessed parts providing protection against electric shock; energy (Nm) .....		P
	- other recessed parts; energy (Nm) .....		N/A
2.6 (4.13.1)	- fragile parts; energy (Nm) .....	0.20Nm	P
	- other parts; energy (Nm) .....	0.35Nm	P
	1) live parts		P
	2) linings		N/A
	3) protection		N/A
	4) covers		N/A
2.6 (4.13.3)	Straight test finger	30N	P
2.6 (4.13.4)	Rough service luminaires		N/A
	- IP54 or higher		N/A
	a) fixed		P
	b) hand-held		P
	c) delivered with a stand		P
	d) for temporary installations and suitable for mounting on a stand		P
2.6 (4.13.6)	Tumbling barrel		N/A
2.6 (4.14)	Suspensions and adjusting devices		N/A
2.6 (4.14.1)	Mechanical load:		N/A
	A) four times the weight		P
	B) torque 2,5 Nm .....	1Min	P
	C) bracket arm; bending moment (Nm) .....		N/A
	D) load track-mounted luminaires		N/A
	E) clip-mounted luminaires, glass-shelve. Thickness (mm) .....		N/A
	metal rod. Diameter (mm) .....		N/A
	Fixed luminaire or independent control gear without fixing devices		N/A
2.6 (4.14.2)	Load to flexible cables		N/A
	Mass (kg):		N/A
	Stress in conductors (N/mm <sup>2</sup> ):		N/A
	Semi-luminaires - mass (kg):		N/A
	Semi-luminaires - bending moment (Nm):		N/A

EN 60598-2-2			
Clause	Requirement – Test	Result – Remark	Verdict
2.6 (4.14.3)	Adjusting devices:		N/A
	- flexing test; number of cycles .....		N/A
	- strands broken		N/A
	- electric strength test afterwards		N/A
2.6 (4.14.4)	Telescopic tubes: cords not fixed to tube; no strain on conductors		N/A
2.6 (4.14.5)	Guide pulleys		N/A
2.6 (4.14.6)	Strain on socket-outlets		N/A
2.6 (4.15)	Flammable materials:		P
	- glow-wire test 650 °C		P
	- spacing $\geq$ 30 mm		N/A
	- screen withstanding test of 13.3.1		N/A
	- screen dimensions		N/A
	- no fiercely burning material		N/A
	- thermal protection		N/A
	- electronic circuits exempted		N/A
1.6 (4.15.2)	Luminaires made of thermoplastic material with lamp control gear		N/A
	a) construction		N/A
	b) temperature sensing control		N/A
	c) surface temperature		N/A
2.6 (4.16)	Luminaires marked with F-symbol		N/A
	No lamp control gear		N/A
2.6 (4.16.1)	Lamp control gear spacing:		N/A
	- spacing 35 mm		N/A
	- spacing 10 mm		N/A
2.6 (4.16.2)	Thermal protection:		N/A
	- in lamp control gear		N/A
	- external		N/A
	- fixed position		N/A
	- temperature marked lamp control gear		N/A
2.6 (4.16.3)	"F" curve measured		N/A
2.6 (4.17)	Drain holes		N/A
	Clearance at least 5 mm		N/A
2.6 (4.18)	Resistance to corrosion:		N/A
2.6 (4.18.1)	- rust-resistance		N/A

EN 60598-2-2			
Clause	Requirement – Test	Result – Remark	Verdict

2.6 (4.18.2)	- season cracking in copper		N/A
2.6 (4.18.3)	- corrosion of aluminium		N/A
2.6 (4.19)	Igniters compatible with ballast		N/A
2.6 (4.20)	Rough service vibration		N/A
2.6 (4.21)	Protective shield:		N/A
2.6 (4.21.1)	Shield fitted		N/A
2.6 (4.21.2)	Particles from a shattering lamp not impair safety		N/A
2.6 (4.21.3)	No direct path		P
2.6 (4.21.4)	Impact test on shield		N/A
	Glow-wire test on lamp compartment		N/A
2.6 (4.22)	Attachments to lamps		N/A
2.6 (4.23)	Semi-luminaires comply class II		N/A
2.6 (4.24)	UV radiation, metal halide lamps		P
2.6 (4.25)	No sharp point or edges		P
2.6 (4.26)	Short-circuit protection:		P
2.6 (4.26.1)	Uninsulated accessible SELV parts		P
2.6 (4.26.2)	Short-circuit test		P
2.6 (4.26.3)	Test chain according to Figure 29		P

2.7 (11)	CREEPAGE DISTANCES AND CLEARANCES		P
	Working voltage (V) .....		—
	Voltage form	Sinusoidal <input checked="" type="checkbox"/> Non-sinusoidal <input type="checkbox"/>	— —
	PTI	< 600 <input checked="" type="checkbox"/> > 600 <input type="checkbox"/>	—
	Rated pulse voltage (kV) .....		—
	(1) Current-carrying parts of different polarity: cr (mm); cl (mm) .....		P
	(2) Current-carrying parts and accessible parts: cr (mm); cl (mm) .....		P
	(3) Parts becoming live due to breakdown of basic insulation and metal parts: cr (mm); cl (mm) .....		N/A
	(4) Outer surface of cable where it is clamped and metal parts: cr (mm); cl (mm) .....		N/A
	(5) Not used		N/A

EN 60598-2-2			
Clause	Requirement – Test	Result – Remark	Verdict

	(6) Current-carrying parts and supporting surface: cr (mm); cl (mm) .....		P
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2.8 (7)	PROVISION FOR EARTHING		N/A
2.8 (7.2.1 + 7.2.3)	Accessible metal parts		N/A
	Metal parts in contact with supporting surface		N/A
	Resistance < 0,5 Ω		N/A
	Two self-tapping screws used		N/A
	Thread-forming screws		N/A
	Thread-forming screw used in a groove		N/A
	Earth makes contact first		N/A
2.8 (7.2.2 + 7.2.3)	Earth continuity in joints etc.		N/A
2.8 (7.2.4)	Locking of clamping means		N/A
	Compliance with 4.7.3		N/A
2.8 (7.2.5)	Earth terminal integral part of connector socket		N/A
2.8 (7.2.6)	Earth terminal adjacent to mains terminals		N/A
2.8 (7.2.7)	Electrolytic corrosion of the earth terminal		N/A
2.8 (7.2.8)	Material of earth terminal		N/A
	Contact surface bare metal		N/A
2.8 (7.2.10)	Class II luminaire for looping-in		N/A
	Double or reinforced insulation to functional earth		N/A
2.8 (7.2.11)	Earthing core coloured green-yellow		N/A
	Length of earth conductor		N/A

2.9 (14)	SCREW TERMINALS		P
	Separately approved; component list		P
	Part of the luminaire		P

2.9 (15)	SCREWLESS TERMINALS		N/A
	Separately approved; component list		N/A
	Part of the luminaire	(see Annex 4)	N/A

2.10 (5)	EXTERNAL AND INTERNAL WIRING		P
2.10 (5.2)	Supply connection and external wiring		P

EN 60598-2-2			
Clause	Requirement – Test	Result – Remark	Verdict
2.10 (5.2.1)	Means of connection.....:		P
	Connecting leads (EN)		N/A
	- without a means for connection to the supply		N/A
	- terminal block specified		N/A
	- relevant information provided		N/A
	- compliance with 4.6, 4.7.1, 4.7.2, 4.10.1, 11.2, 12 and 13.2 of Part 1		N/A
2.10 (5.2.2)	Type of cable .....		N/A
	Cables equal to HD21 S2 or HD22 S2 (EN)		N/A
	Nominal cross-sectional area (mm <sup>2</sup> ) .....		N/A
2.10 (5.2.3)	Type of attachment, X, Y or Z	Type Y	P
2.10 (5.2.5)	Type Z not connected to screws		N/A
2.10 (5.2.6)	Cable entries:		
	- suitable for introduction		N/A
	- adequate degree of protection		N/A
2.10 (5.2.7)	Cable entries through rigid material have rounded edges		N/A
2.10 (5.2.8)	Insulating bushings:		N/A
	- suitably fixed		N/A
	- material in bushings		N/A
	- material not likely to deteriorate		N/A
	- tubes or guards made of insulating material		N/A
2.10 (5.2.9)	Locking of screwed bushings		N/A
2.10 (5.2.10)	Cord anchorage:		N/A
	- covering protected from abrasion		N/A
	- clear how to be effective		N/A
	- no mechanical or thermal stress		N/A
	- no tying of cables into knots etc.		N/A
	- insulating material or lining		N/A
2.10 (5.2.10.1)	Cord anchorage for type X attachment:		N/A
	a) at least one part fixed		N/A
	b) types of cable		N/A
	c) no damaging of the cable		N/A
	d) whole cable can be mounted		N/A
	e) no touching of clamping screws		N/A

EN 60598-2-2			
Clause	Requirement – Test	Result – Remark	Verdict
	f) metal screw not directly on cable		N/A
	g) replacement without special tool		N/A
	Glands not used as anchorage		N/A
	Labyrinth type anchorages		N/A
2.10 (5.2.10.2)	Adequate cord anchorage for type Y and type Z attachment		N/A
2.10 (5.2.10.3)	Tests:		N/A
	- impossible to push cable; unsafe		N/A
	- pull test: 25 times; pull (N) .....		N/A
	- torque test: torque (Nm) .....		N/A
	- displacement $\leq$ 2 mm		N/A
	- no movement of conductors		N/A
	- no damage of cable or cord		N/A
2.10 (5.2.11)	External wiring passing into luminaire		N/A
2.10 (5.2.12)	Looping-in terminals		N/A
2.10 (5.2.13)	Wire ends not tinned		N/A
	Wire ends tinned: no cold flow		N/A
2.10 (5.2.14)	Mains plug same protection		N/A
	Class III luminaire plug		N/A
2.10 (5.2.15)	Colour code low voltage (EN)		N/A
2.10 (5.2.16)	Appliance inlets (IEC 60320)		N/A
	Appliance couplers of class II type		N/A
2.10 (5.2.17)	Non standardized interconnecting cables properly assembled		N/A
2.10 (5.2.18)	Used plug in accordance with:		N/A
	- IEC 60083		N/A
	- other standard		N/A
2.10 (5.3)	Internal wiring		P
2.10 (5.3.1)	Internal wiring of suitable size and type		P
	Through wiring		P
	- not delivered/ mounting instruction		P
	- factory assembled		P
	- socket outlet loaded (A) .....		P
	- temperatures .....	(see Annex 2)	P
	Green-yellow for earth only		N/A

EN 60598-2-2			
Clause	Requirement – Test	Result – Remark	Verdict

2.10 (5.3.1.1)	Internal wiring connected directly to fixed wiring		
	Cross-sectional area (mm <sup>2</sup> ) .....		N/A
	Insulation thickness		N/A
	Extra insulation added where necessary		N/A
2.10 (5.3.1.2)	Internal wiring connected to fixed wiring via internal current-limiting device		
	Adequate cross-sectional area and insulation thickness		N/A
2.10 (5.3.1.3)	Double or reinforced insulation for class II		N/A
2.10 (5.3.1.4)	Conductors without insulation		N/A
2.10 (5.3.1.5)	SELV current-carrying parts		N/A
2.10 (5.3.1.6)	Insulation thickness other than PVC or rubber		N/A
2.10 (5.3.2)	Sharp edges etc.		N/A
	No moving parts of switches etc.		N/A
	Joints, raising/lowering devices		N/A
	Telescopic tubes etc.		N/A
	No twisting over 360°		N/A
2.10 (5.3.3)	Insulating bushings:		
	- suitable fixed		N/A
	- material in bushings		N/A
	- material not likely to deteriorate		N/A
	- cables with protective sheath		N/A
2.10 (5.3.4)	Joints and junctions effectively insulated		N/A
2.10 (5.3.5)	Strain on internal wiring		N/A
2.10 (5.3.6)	Wire carriers		N/A
2.10 (5.3.7)	Wire ends not tinned		N/A
	Wire ends tinned: no cold flow		N/A

2.11 (8)	PROTECTION AGAINST ELECTRIC SHOCK		<b>P</b>
2.11 (8.2.1)	Live parts not accessible		P
	Basic insulated parts not used on the outer surface without appropriate protection		P



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Clause	Requirement – Test	Result – Remark	Verdict

	Protection in any position		N/A
	Double-ended tungsten filament lamp		P
	Insulation lacquer not reliable		N/A
	Double-ended high pressure discharge lamp		N/A
	Relevant warning according to 3.2.18 fitted to the luminaire		N/A
2.11 (8.2.2)	Portable luminaire adjusted in most unfavourable position		N/A
2.11 (8.2.3)	Class II luminaire:		N/A
	- basic insulated metal parts not accessible during starter or lamp replacement		N/A
	- basic insulation not accessible other than during starter or lamp replacement		N/A
	- glass protective shields not used as supplementary insulation		N/A
	Class I luminaire with BC lampholder		N/A
2.11 (8.2.4)	Portable luminaire:		N/A
	- protection independent of supporting surface		N/A
	- terminal block completely covered		N/A
2.11 (8.2.5)	Compliance with the standard test finger or relevant probe		N/A
2.11 (8.2.6)	Covers reliably secured		N/A
2.11 (8.2.7)	Discharging of capacitors $\geq 0,5 \mu\text{F}$		N/A
	Portable plug connected luminaire with capacitor		N/A
	Other plug connected luminaire with capacitor		N/A
	Discharge device on or within capacitor		
	Discharge device mounted separately		N/A

2.12 (12)	ENDURANCE TEST AND THERMAL TEST		P
2.12 (12.3)	Endurance test:		P
	- mounting-position .....		—
	- test temperature (°C) .....	35°C	—
	- total duration (h) .....	240h	—
	- supply voltage: Un factor; calculated voltage (V)	1.05x240	—
	- lamp used .....	LED lamp	—
2.12 (12.3.2)	After endurance test:		P

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Clause	Requirement – Test	Result – Remark	Verdict
	- no part unserviceable		P
	- luminaire not unsafe		P
	- no damage to track system		N/A
	- marking legible		P
	- no cracks, deformation etc.		P
2.12 (12.4)	Thermal test (normal operation)		P
2.12 (12.5)	Thermal test (abnormal operation)		N/A
2.12 (12.6)	Thermal test (failed lamp control gear condition):		N/A
2.12 (12.6.1)	Through wiring or looping-in wiring loaded by a current of (A) .....		—
	- case of abnormal conditions.....		—
	- electronic lamp control gear		N/A
	- measured winding temperature (°C): at 1,1 Un...		—
	- measured mounting surface temperature (°C): at 1,1 Un:		N/A
	- calculated mounting surface temperature (°C) ...:		N/A
	- track-mounted luminaires		N/A
2.12 (12.6.2)	Temperature sensing control		N/A
	- case of abnormal conditions.....		—
	- thermal link		N/A
	- manual reset cut-out		N/A
	- auto reset cut-out		N/A
	- measured mounting surface temperature (°C): ..:		N/A
	- track-mounted luminaires		N/A
2.12 (12.7)	Thermal test (failed lamp control gear in plastic luminaires):		N/A
2.12 (12.7.1)	Through wiring or looping-in wiring loaded by a current of (A) .....		—
	- case of abnormal conditions.....		—
	- measured winding temperature (°C) at 1,1 Un....:		—
	- measured temperature of fixing point/ exposed part (°C) at 1,1 Un.....		N/A
	- calculated temperature of fixing point/ exposed part (°C) .....		N/A
2.12 (12.7.2)	Temperature sensing control		N/A
	- thermal link		N/A
	- manual reset cut-out		N/A

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Clause	Requirement – Test	Result – Remark	Verdict

	- auto reset cut-out		N/A
	- measured temperature of fixing point/ exposed part (°C) .....		N/A

2.13 (9)	RESISTANCE TO DUST, SOLID OBJECTS AND MOISTURE		P
2.13 (9.2)	Tests for ingress of dust, solid objects and moisture:		P
	- classification according to IP .....	IP20	—
	- mounting position during test .....		—
	- fixing screws tightened; torque (Nm).....		—
	- tests according to clauses .....		—
	- electric strength test afterwards		N/A
	a) no deposit in dust-proof luminaire		N/A
	b) no talcum in dust-tight luminaire		N/A
	c) no trace of water on current-carrying parts or where it could become a hazard		N/A
	d) i) For luminaires without drain holes – no water entry		N/A
	d) ii) For luminaires with drain holes – no hazardous water entry		N/A
	e) no water in watertight luminaire		N/A
	f) no contact with live parts (IP 2X)		N/A
	f) no entry into enclosure (IP 3X and IP 4X)		N/A
	f) no contact with live parts (IP 3X and IP 4X)		N/A
2.13 (9.3)	Humidity test 48 h	25°C, 93%RH, 48h	P

2.14 (10)	INSULATION RESISTANCE AND ELECTRIC STRENGTH		P
2.14 (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:		N/A
	- between current-carrying parts of different polarity .....		N/A
	- between current-carrying parts and mounting surface .....		N/A

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Clause	Requirement – Test	Result – Remark	Verdict

	- between current-carrying parts and metal parts of the luminaire .....		N/A
	Other than SELV:		N/A
	- between live parts of different polarity .....	100M $\Omega$	P
	- between live parts and mounting surface .....	100M $\Omega$	P
	- between live parts and metal parts .....	100M $\Omega$	P
	- between live parts of different polarity through action of a switch .....		
2.14 (10.2.2)	Electric strength test		P
	Dummy lamp		N/A
	Luminaires with ignitors after 24 h test	No ignitor	N/A
	Luminaires with manual ignitors	No manual ignitor	N/A
	Test voltage (V):		P
	SELV:		N/A
	- between current-carrying parts of different polarity .....		N/A
	- between current-carrying parts and mounting surface .....		N/A
	- between current-carrying parts and metal parts of the luminaire .....		N/A
	Other than SELV:		P
	- between live parts of different polarity .....	1480V	P
	- between live parts and mounting surface .....	3750V	P
	- between live parts and metal parts .....	3750V	P
	- between live parts of different polarity through action of a switch .....		N/A
2.14 (10.3.1)	Leakage current (mA).....	<0.08mA	P

2.15 (13)	RESISTANCE TO HEAT, FIRE AND TRACKING		P
2.15 (13.2.1)	Ball-pressure test:		N/A
	- part tested; temperature (°C) .....	Metal enclosure	N/A
	- part tested; temperature (°C) .....		N/A
2.15 (13.3.1)	Needle flame test (10 s):		N/A
	- part tested .....		N/A
	- part tested .....		N/A
2.15 (13.3.2)	Glow-wire test (650°C):		N/A

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Clause	Requirement – Test	Result – Remark	Verdict

	- part tested .....	Metal enclosure	N/A
	- part tested .....		N/A
2.15 (13.4.1)	Tracking test: part tested..... :		N/A

ZB	ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)		N/A
(2.2)	Class 0 not accepted		N/A
(3.3)	DK: power supply cord with label		N/A
	IT: warning label on Class 0 luminaire		N/A
(4.5.1)	DK: socket-outlets		N/A
(4.5.1)	FR: socket-outlets		N/A
(5.2.1)	CY, DK, FI, SE, GB: type of plug		N/A

ZC	ANNEX ZC, NATIONAL DEVIATIONS (EN)		N/A
(13.3)	DK: Needle flame test during 30 s		N/A
(13.3)	GB: Requirements according to United Kingdom Building Regulation		N/A
(13.3.2)	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/A

	ANNEX 3: screw terminals (part of the luminaire)		N/A
(14)	SCREW TERMINALS		N/A
(14.2)	Type of terminal.....		—
	Rated current (A).....		—
(14.3.2.1)	One or more conductors		N/A
(14.3.2.2)	Special preparation		N/A
(14.3.2.3)	Terminal size		N/A
	Cross-sectional area (mm <sup>2</sup> ) .....		N/A
(14.3.3)	Conductor space (mm).....		N/A
(14.4)	Mechanical tests		
(14.4.1)	Minimum distance		N/A
(14.4.2)	Cannot slip out		N/A
(14.4.3)	Special preparation		N/A
(14.4.4)	Nominal diameter of thread (metric ISO thread) ..	M	N/A
	External wiring		N/A
	No soft metal		N/A

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Clause	Requirement – Test	Result – Remark	Verdict

(14.4.5)	Corrosion		N/A
(14.4.6)	Nominal diameter of thread (mm) .....		N/A
	Torque (Nm) .....		N/A
(14.4.7)	Between metal surfaces		N/A
	Lug terminal		N/A
	Mantle terminal		N/A
	Pull test; pull (N) .....		N/A
(14.4.8)	Without undue damage		N/A

	ANNEX 4: screwless terminals (part of the luminaire)		N/A
(15)	SCREWLESS TERMINALS		N/A
(15.2)	Type of terminal .....		—
	Rated current (A) .....		—
(15.3.1)	Material		N/A
(15.3.2)	Clamping		N/A
(15.3.3)	Stop		N/A
(15.3.4)	Unprepared conductors		N/A
(15.3.5)	Pressure on insulating material		N/A
(15.3.6)	Clear connection method		N/A
(15.3.7)	Clamping independently		N/A
(15.3.8)	Fixed in position		N/A
(15.3.10)	Conductor size		N/A
	Type of conductor		N/A
(15.5.1)	Terminals internal wiring		N/A
(15.5.1.1)	Pull test spring-type terminals (4 N, 4 samples)		N/A
(15.5.1.2)	Pull test pin or tab terminals (4 N, 4 samples)		N/A
	Insertion force not exceeding 50 N		N/A
(15.5.2)	Permanent connections: pull-off test (20 N)		N/A
(15.6)	Electrical tests		N/A
	Voltage drop (mV) after 1 h (4 samples).....		N/A
	Voltage drop of two inseparable joints		N/A
	Number of cycles .....		—
	Voltage drop (mV) after 10th alt. 25th cycle (4 samples) .....		N/A
	Voltage drop (mV) after 50th alt. 100th cycle (4 samples) .....		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
	After ageing, voltage drop (mV) after 10th alt. 25th cycle (4 samples) .....		N/A
	After ageing, voltage drop (mV) after 50th alt. 100th cycle (4 samples) .....		N/A
(15.7)	Terminals external wiring		N/A
	Terminal size and rating		N/A
(15.8.1)	Pull test spring-type terminals or weded connections (4 samples); pull (N) .....		N/A
	Pull test pin or tab terminals (4 samples); pull (N) .....		N/A

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Clause	Requirement – Test	Result – Remark	Verdict

ANNEX 1: Components list					P
Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard	Certification No.
LED driver	V-TAC EXPORTS LIMITED	SHP-096-2A	Input:AC220-240V,50/60Hz, Output: DC42V,2A	--	TUV CB
Power wire	Shenzhen Dong Ju Wire & Cable Co Ltd	1015	22AWG ,105°C 300/500V, 2X0.75mm	--	UL
Internal wire	Dongguan Zhengwei Electric Wire & Cable Industry Co Ltd	1672	300V,105°C,20 AWG	--	UL
LED PCB	Guangzhou Huadu Jingshun Electronics Plant	KS-M	V-0 130°C	--	UL
Plastic Enclosure	Chang Chun Plastics Co Ltd	3020	V-0, 90°C	--	UL

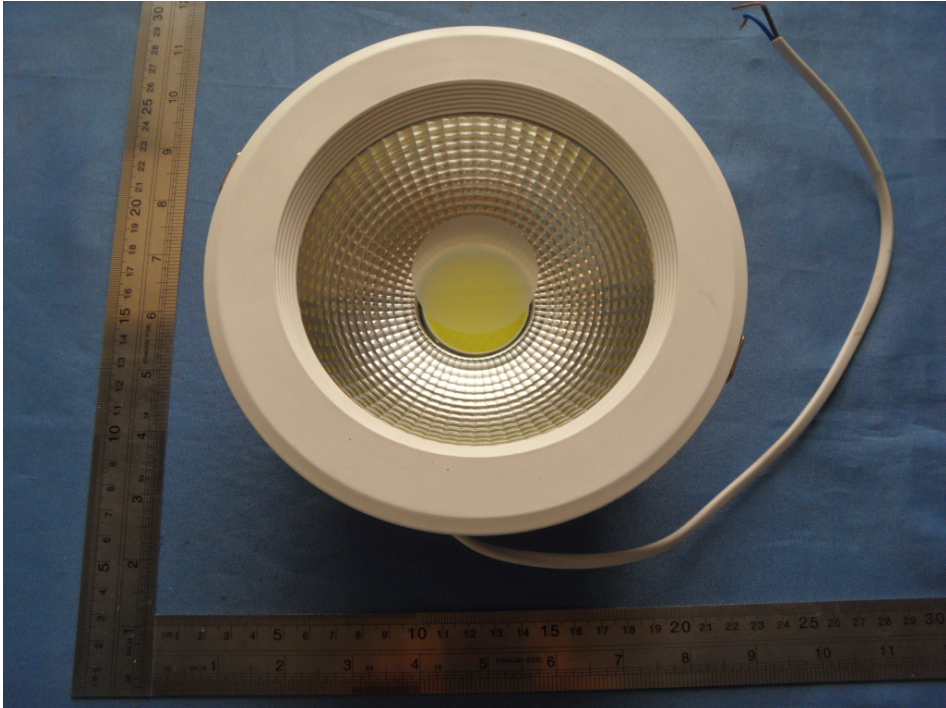


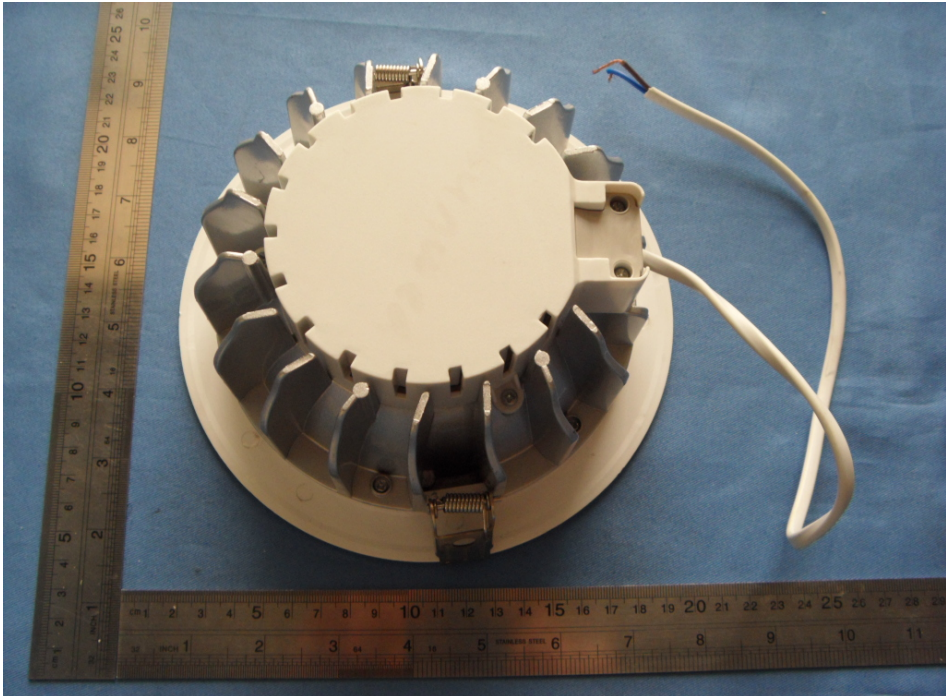
EN 60598-2-2			
Clause	Requirement – Test	Result – Remark	Verdict

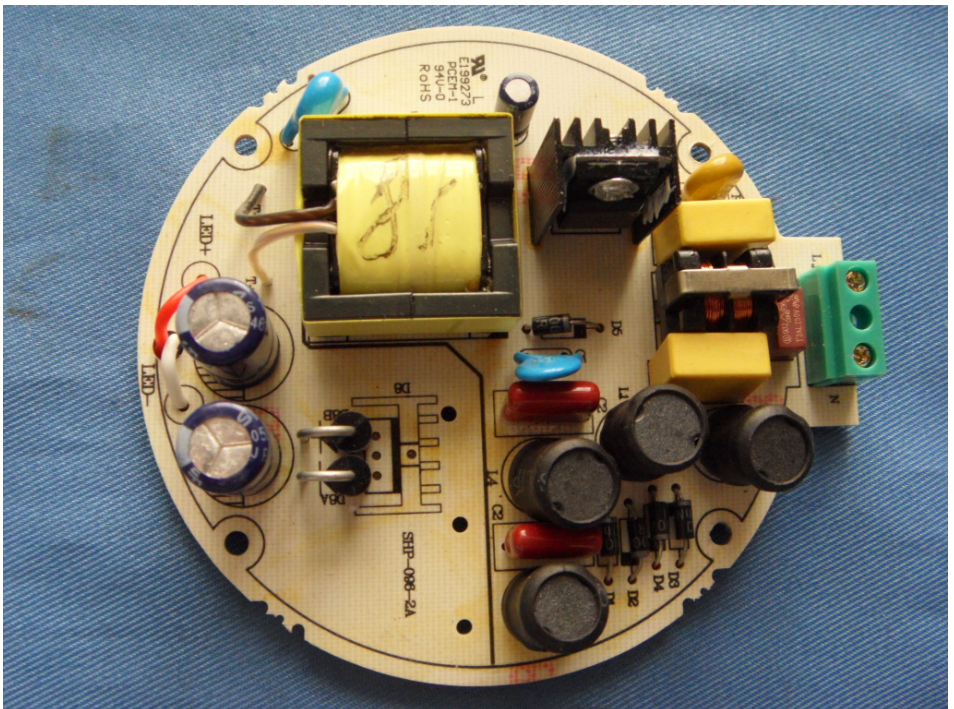
	ANNEX 2: temperature measurements, thermal tests of Section 12			P		
	Lamp used .....	---		—		
	Ballast used .....	—		—		
	Mounting position of luminaire.....	As in normal use		—		
	Supply wattage (W) .....	40.12W		—		
	Supply current (A).....	0.901A		—		
	Table: measured temperatures corrected for Ta = 25°C:			P		
	- abnormal operating mode .....	—		—		
	- test 1: rated voltage .....	—		—		
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage .....			—		
	- 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 .....	—		—		
temperature (°C) of part	clause 12.4 - normal				clause 12.5 - abnormal	
	test 1	test 2	test 3	limits	test 4	limit
Power wire	—	58.8	—	85	—	—
Connector		57.9	—	85		
Wire		58.1	—	105		
Winding of transformer		68.0	—	110		
Heatsink of product		59.8	—	ref		
Enclosure of product ,outside		66.1	—	70		
LED Body		76.6	—	ref		
Enclosure of LED ,outside		52.2	—	70		

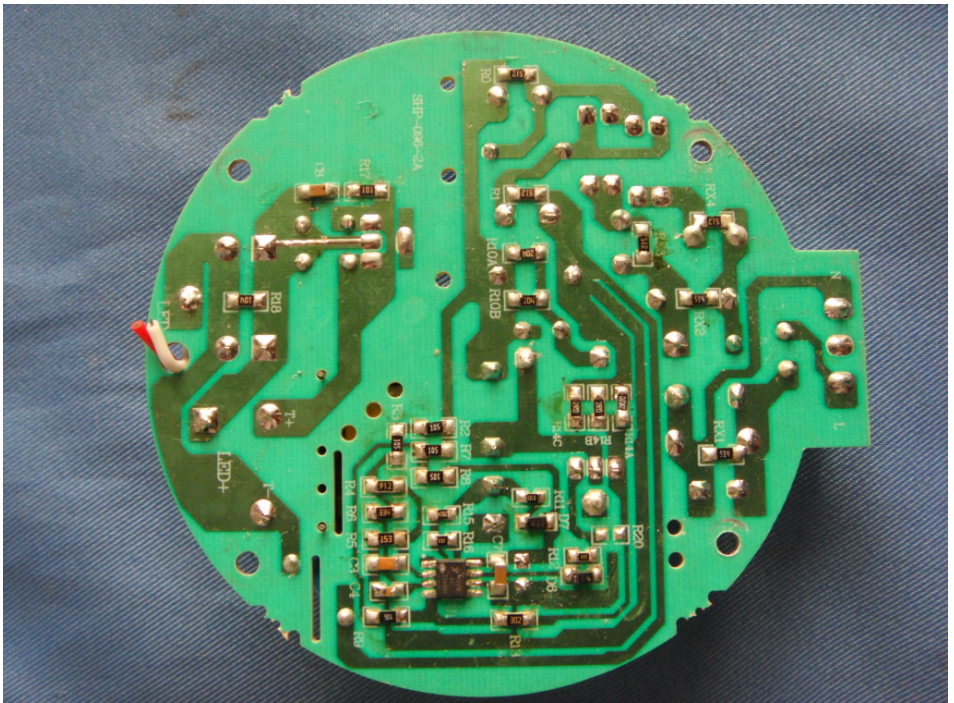
**Appendix 1**

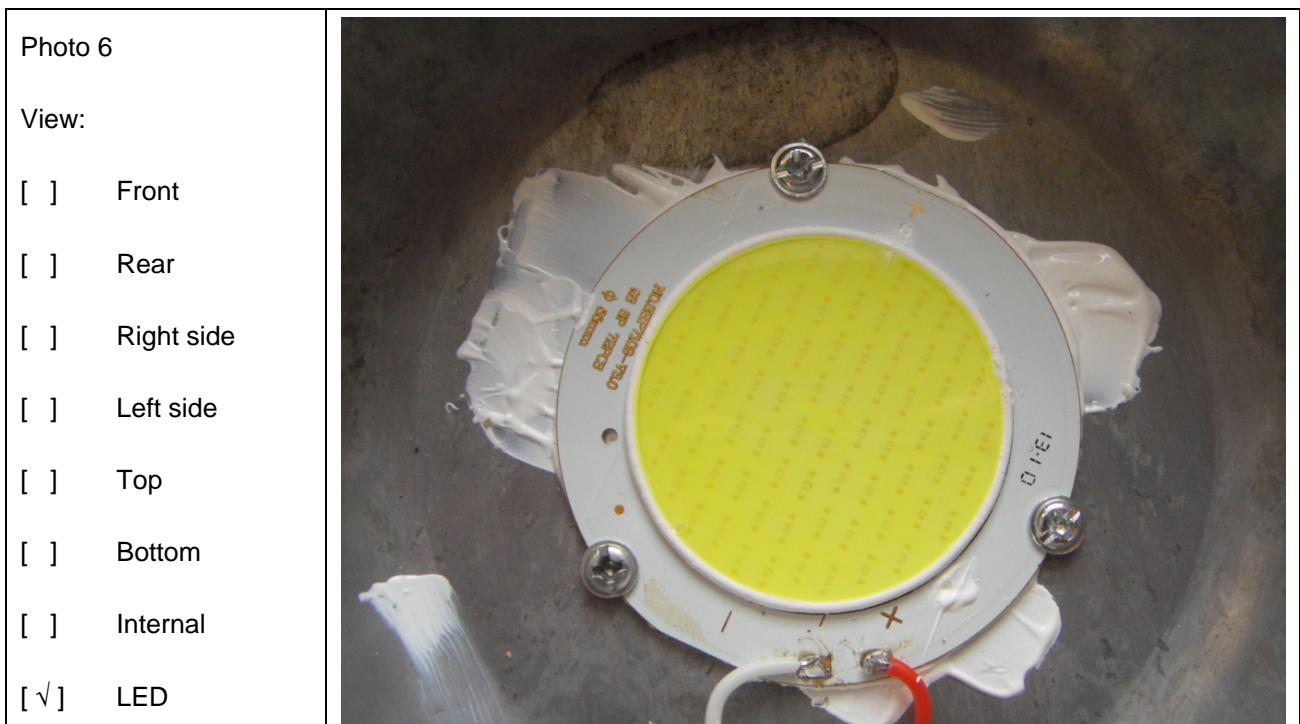
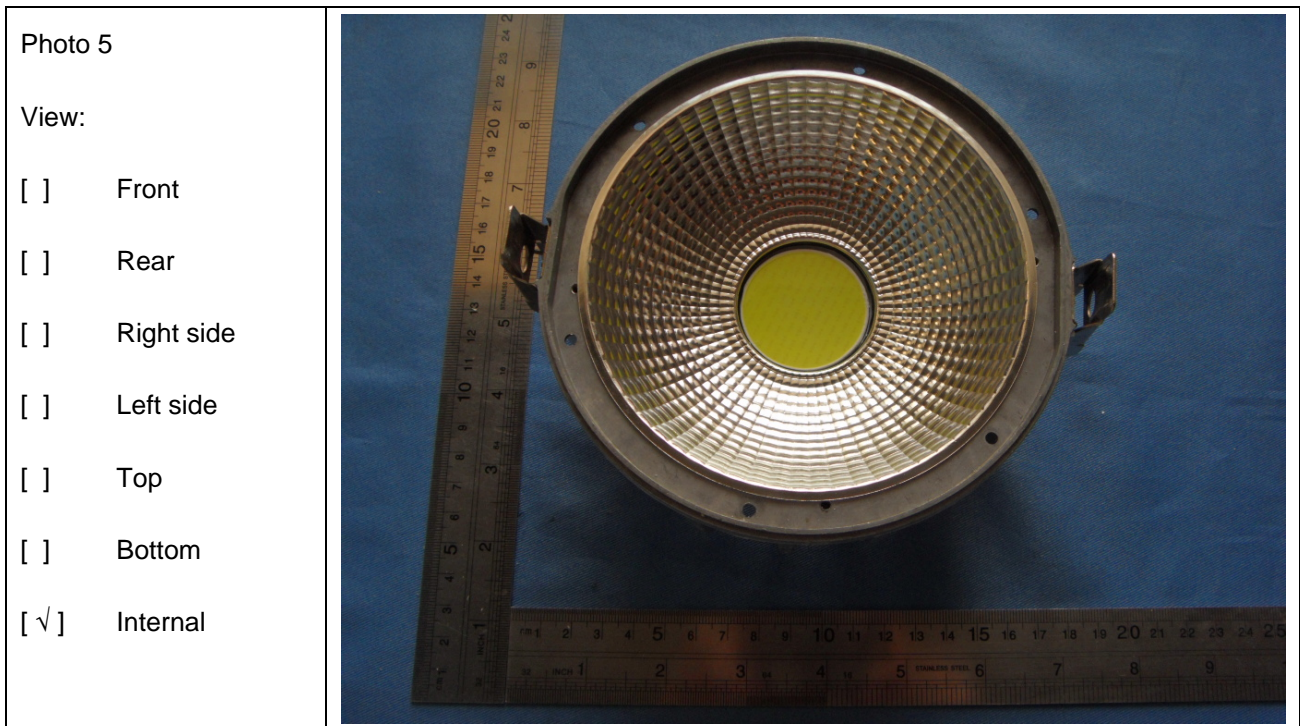
Photo Documentation

<p>Photo 1</p> <p>View:</p> <p><input checked="" type="checkbox"/> Front</p> <p><input type="checkbox"/> Rear</p> <p><input type="checkbox"/> Right side</p> <p><input type="checkbox"/> Left side</p> <p><input type="checkbox"/> Top</p> <p><input type="checkbox"/> Bottom</p> <p><input type="checkbox"/> Internal</p>	 <p>A photograph showing the front view of a circular, white LED light fixture. The fixture has a central yellow LED chip and a textured, circular lens. A wooden ruler is placed vertically on the left and horizontally at the bottom for scale. The background is a blue surface.</p>
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<p>Photo 2</p> <p>View:</p> <p><input type="checkbox"/> Front</p> <p><input checked="" type="checkbox"/> Rear</p> <p><input type="checkbox"/> Right side</p> <p><input type="checkbox"/> Left side</p> <p><input type="checkbox"/> Top</p> <p><input type="checkbox"/> Bottom</p> <p><input type="checkbox"/> Internal</p>	 <p>A photograph showing the rear view of the same circular, white LED light fixture. The fixture has a central metal component and a textured, circular lens. A wooden ruler is placed vertically on the left and horizontally at the bottom for scale. The background is a blue surface.</p>
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<p>Photo 3</p> <p>View:</p> <p><input type="checkbox"/> Front</p> <p><input type="checkbox"/> Rear</p> <p><input type="checkbox"/> Right side</p> <p><input type="checkbox"/> Left side</p> <p><input type="checkbox"/> Top</p> <p><input type="checkbox"/> Bottom</p> <p><input type="checkbox"/> Internal</p> <p><input checked="" type="checkbox"/> PCB</p>	
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<p>Photo 4</p> <p>View:</p> <p><input type="checkbox"/> Front</p> <p><input type="checkbox"/> Rear</p> <p><input type="checkbox"/> Right side</p> <p><input type="checkbox"/> Left side</p> <p><input type="checkbox"/> Top</p> <p><input type="checkbox"/> Bottom</p> <p><input type="checkbox"/> Internal</p> <p><input checked="" type="checkbox"/> PCB</p>	
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