



# CE LVD TEST REPORT

For  
EMERGENCY EXIT LIGHT

Model No.: VT-523, VT-524, VT-526, VT-519, VT-520, VT-521, VT-522, VT-533, VT-522-S, VT-519-S, VT-523-S, VT-524-S, VT-533ST

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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Issued Date : February 05, 2021

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**Note:**

1. The test data and result is based on the tested sample only.
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<b>LVD Report</b> <b>EN60598-1&amp;EN60598-2-1</b> <b>Luminaires—Part 1 :General requirements and tests</b> <b>Part 2-22: Particular requirements - Luminaires for emergency lighting</b>	
Report reference No. ....	M00.06.0081S-R2
Testing laboratory .....	Global-Standard Testing Service Co., Ltd.
Location.....	Room 1505, Building B, Chuangxin Plaza, Pingshan Avenue, Pingshan District, Shenzhen, 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 60598-2-22: 2014+AC:2016 EN 60598-1: 2015+A1:2018
Procedure deviation.....	N/A
Non-standard test method.....	N/A
Type of test equipment .....	EMERGENCY EXIT LIGHT
Trade mark.....	
Model/Type designation.....	VT-523, VT-524, VT-526, VT-519, VT-520, VT-521, VT-522, VT-533, VT-522-S, VT-519-S, VT-523-S, VT-524-S, VT-533ST
Rating.....	AC220-240V, 50/60Hz, Max. 2W
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 I equipment and Fixed equipment
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 1505, Building B, Chuangxin Plaza, Pingshan Avenue,  
Pingshan District, Shenzhen, China

Prepared by :



Signature

February 02, 2021

Date

Evan Chen / Engineer

Name/title

Approved by :



Signature

February 05, 2021

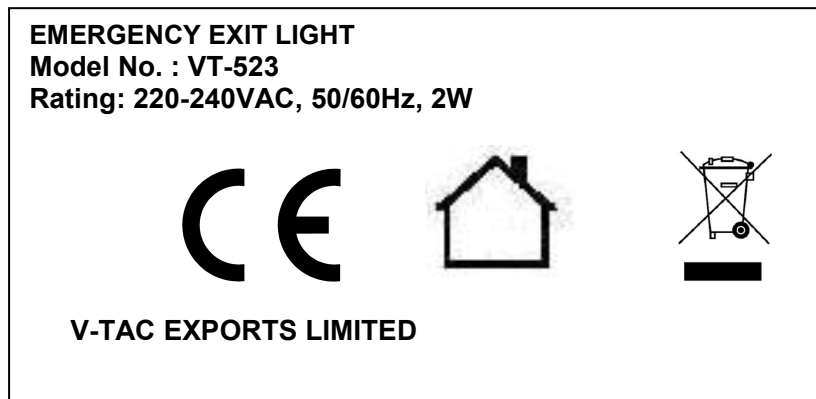
Date

Nico Xie / Manager

Name/title

General remarks:	
<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>Attachment with:</p> <p>1) Photo documentation</p>
<p>The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.</p> <p>This report covers model VT-523, VT-524, VT-526, VT-519, VT-520, VT-521, VT-522, VT-533, VT-522-S, VT-519-S, VT-523-S, VT-524-S, VT-533ST for EMERGENCY EXIT LIGHT.</p> <p>Fixed Luminaires with different power depended on lamp LED numbers and dimension of shade.</p> <p>All tests were performed by model VT-523 to represent the other identical models.</p> <p>The Safety specifications of LED modules for general lighting was evaluated with reference to EN 62031</p> <p>Fixed Luminaires were supplied by SELV equipment controlgear isolated electrical control gear, between live parts of control gear and lamp enclosure was separated by double or reinforce insulation SELV equipment controlgear are approved by CE</p> <p>The European standard IEC 62493 for requirement has considered.</p> <p>This report is based on report M00.06.0081S-R1. It just added new model VT-533ST.</p>	

**Label**



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

- The above copy of marking plate as an example, All the other models will have the same marking plate except the model name and input rating only and other parameter

-The above markings are the minimum requirements required by the safety standard. For the final productions samples, the additional markings which do not give rise to misunderstanding may be added.

- the height of WEEE directive mark is at least 7mm height.

IEC 60598-2-22			
Clause	Requirement + Test	Result - Remark	Verdict

<b>22.1 (0)</b>	<b>SCOPE</b>		---
22.1 (0.2)	More sections applicable..... : No		---
<b>22.4(2)</b>	<b>CLASSIFICATION</b>		---
22.4(2.2)	Type of protection..... : Class I		---
22.4(2.3)	Degree of protection..... : IP20		---
22.4(2.4)	<b>Portable and handheld luminaire</b> ..... :		---
	Fixed luminaire suitable for normally flammable surfaces..... :	Yes	---
	Fixed luminaire suitable for non-combustible materials only ..... :	No	---
22.4 (2.5)	Luminaire for normal use ..... :	Yes	---
	Luminaire for rough service ..... :	No	---
	Suitable for direct mounting on normally flammable surfaces		P
Annex B	Classification code		P
<b>22.5 (3)</b>	<b>MARKING</b>		---
22.5 (3.2)	Mandatory markings	Manufacturer: V-TAC EXPORTS LIMITED Rated voltage: 220-240V~ Rated wattage: 2W	P
	Position of the marking		P
	Format of symbols/text		P
22.5 (3.3)	Additional information		P
	Language of instructions	English	P
22.5 (3.3.1)	Combination luminaires		N
22.5 (3.3.2)	Nominal frequency in Hz	50/60Hz	P
22.5 (3.3.3)	Operating temperature		N
22.5 (3.3.4)	Symbol or warning notice		N
22.5 (3.3.5)	Wiring diagram		N
22.5 (3.3.6)	Special conditions		N
22.5 (3.3.7)	Metal halide lamp luminaire – warning		N
22.5 (3.3.8)	Limitation for semi-luminaires		N
22.5 (3.3.9)	Power factor and supply current		N

IEC 60598-2-22			
Clause	Requirement + Test	Result - Remark	Verdict
22.5 (3.3.10)	Suitability for use indoors		N
22.5 (3.3.11)	Luminaires with remote control		N
22.5 (3.3.12)	Clip-mounted luminaire – warning		N
22.5 (3.3.13)	Specifications of protective shields		N
22.5 (3.3.14)	Symbol for nature of supply	~	P
22.5 (3.3.15)	Rated current of socket outlet		N
22.5 (3.3.16)	Rough service luminaire		N
22.5 (3.3.17)	The mounting instructions for luminaires with type X, Y or Z attachments		N
22.5 (3.3.18)	Information of luminaires provided with a PVC non-detachable cable or cord		N
22.5 (3.4)	Test of marking		---
	Test with water		P
	Test with hexane		P
	Legible after test		P
	Label attached		P
	Emergency lighting shall also be marked:		---
22.5.1	Rated supply voltage	220-240V~	P
22.5.2	Classification according to annex B		P
22.5.3	Correct replacement lamp		P
22.5.4	Range of ambient temperatures		N
22.5.5	Fuse ratings and/or indicator lamps		P
22.5.6	Facilities to simulate normal supply failure	No such facilities	N
22.5.7	Correct battery replacement incl. battery type and rated voltage		P
22.5.8	Battery marked with date of manufacture		P
	Space provided on battery label for installers marking		P
22.5.9	Correct lamp replacement for combined emergency luminaires	Not combined emergency luminaires	N
	Green dot with min 5 mm diameter		N
22.5.10	Replacement of batteries	Provided in the instruction leaflet	P
22.5.11	Detail of test facilities	No such facilities	N

IEC 60598-2-22			
Clause	Requirement + Test	Result - Remark	Verdict
22.5.12	Details of connection leads	Not compound self-contained luminaire	N
22.5.13	Details of rated emergency lumen output	Provided in the instruction leaflet	P
22.5.14	Details of device which changes the mode of operation	The mode changed automatically when the mains supply interrupted	N
22.5.15	Photometric data available		N
22.5.16	Any normal preparation procedure		P
22.5.17	Position of the marking in 22.5.1 and 22.5.2		P
22.5.18	The mounting instructions for luminaires intended for external plug and socket connections, without provisions to prevent accidental disconnection, shall be provided with the warning: "This luminaire is intended only for mounting in locations where the plug and socket are protected from unauthorized disconnection".		P
22.5.19	Compliance with the requirements of 22.5.1 to 22.5.18 is checked by inspection.		P
<b>22.6 (4)</b>	<b>CONSTRUCTION</b>		---
22.6 (4.2)	Components replaceable without difficulty		P
22.6 (4.3)	Wireways smooth and free from sharp edges		P
22.6 (4.4)	Lampholders		---
22.6 (4.4.1)	Integral lampholder		N
22.6 (4.4.2)	Wiring connection		N
22.6 (4.4.3)	Lampholder for end-to-end mounting		N
22.6 (4.4.4)	Positioning		P
22.6 (4.4.5)	Peak pulse voltage		N
22.6 (4.4.6)	Centre contact		N
22.6 (4.4.7)	Rough service luminaires		N
22.6 (4.4.8)	Lamp connectors		N
22.6 (4.5)	Starter holders		---
	Starter holder in luminaires other than class II		N
	Starter holder class II construction		N



IEC 60598-2-22			
Clause	Requirement + Test		Verdict
22.6 (4.6)	Terminal blocks		---
	Tails		N
	Unsecured blocks		N
22.6 (4.7)	Terminals and supply connections		---
22.6 (4.7.1)	Contact to metal parts		N
22.6 (4.7.2)	Location stranded wires		N
	8 mm test live conductor		N
	8 mm test earth conductor		N
22.6 (4.7.3)	Terminals for supply conductors		N
22.6 (4.7.4)	Terminals other than supply connection		N
22.6 (4.7.5)	Heat-resistant wiring/sleeves		N
22.6 (4.7.6)	Multi-pole plug		N
22.6 (4.8)	Switches:		---
	- adequate rating		N
	- adequate fixing		N
	- polarized supply		N
22.6 (4.9)	Insulating lining and sleeves		---
22.6 (4.9.1)	Retainment		P
	Method of fixing..... :		P
22.6 (4.9.2)	Insulated linings and sleeves		---
	a) & c) Insulation resistance and electric strength		P
	b) Ageing test. Temperature (°C) ..... :		N
22.6 (4.10)	Insulation of Class II luminaires		---
22.6 (4.10.1)	No contact, mounting surface - accessible metal parts - wiring of basic insulation		N
	Safe installation fixed luminaires		N
	Capacitors		N
	Interference suppression capacitors according to IEC 60384-14		N
22.6 (4.10.2)	Assembly joints:		---
	- not coincidental		N
	- no straight access		N
	- degree of protection		N

IEC 60598-2-22			
Clause	Requirement + Test		Verdict
22.6 (4.10.3)	Retainment of insulation:		---
	- fixed		N
	- unable to be replaced; luminaire inoperative		N
	- sleeves retained in position		N
	- lining in lampholder		N
22.6 (4.11)	Electrical connections		---
22.6 (4.122.1)	Contact pressure		P
22.6 (4.122.2)	Screws:		---
	- spaced threaded screws		N
	- thread-cutting screws		N
	- earth continuity		N
	- at least two screws		N
22.6 (4.122.3)	Screw locking:		---
	- spring washer		N
	- rivets		N
22.6 (4.122.4)	Material of current-carrying parts	Copper	P
22.6 (4.122.5)	No contact to wood		P
22.6 (4.122.6)	Electro-mechanical contact systems		N
22.6 (4.12)	Mechanical connections and glands		---
22.6 (4.12.1)	Mechanical stress		P
	Not made of soft metal		P
	Screws of insulating material		N
	Torque test: torque (Nm); part..... :	9,5mm; 17,00Nm	P
	Torque test: torque (Nm); part..... :		N
	Torque test: torque (Nm); part..... :		N
22.6 (4.12.2)	Screw diameter up to 3 mm		N
22.6 (4.12.4)	Locked connections:		---
	- fixed arms; torque (Nm)..... :		P
	- lampholder; torque (Nm)..... :		P
	- push-button switches; torque (Nm)..... :	No such switch	N
22.6 (4.12.5)	Screwed glands; force (N)..... :		N
22.6 (4.13)	Mechanical strength		---

IEC 60598-2-22			
Clause	Requirement + Test		Verdict
22.6 (4.13.1)	Impact tests:		---
	- fragile parts; 0,2Nm energy (Nm).....:		N
	- other parts; 0,35Nm energy (Nm).....:	0,35Nm	P
	1) live parts		P
	2) linings		P
	3) protection		P
	4) covers		P
22.6 (4.13.3)	Straight test finger	30N	P
22.6 (4.13.4)	Rough service luminaires		---
	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
22.6 (4.13.6)	Tumbling barrel		N
22.6 (4.14)	Suspensions and adjusting devices		---
22.6 (4.14.1)	Mechanical load:		---
	A) four times the weight	4×1,47kg	P
	B) torque 2,5 Nm		P
	C) bracket arm; force (N).....:		N
	D) load track-mounted luminaires		N
	E) clip-mounted luminaires, glass-shelve. Thickness (mm) .....		N
	metal rod. Diameter (mm) .....		N
22.6 (4.14.2)	Load to flexible cables		---
	Mass (kg).....:		N
	Stress in conductors (N/mm <sup>2</sup> ).....:		N
	Semi-luminaires – mass (kg) .....		N
	Semi-luminaires – bending moment (Nm)..:		N
22.6 (4.14.3)	Adjusting devices:		---
	- rotating test; number of cycles.....:		N
	- strands broken		N
	- high voltage test		N

IEC 60598-2-22			
Clause	Requirement + Test	Result - Remark	Verdict
22.6 (4.14.4)	Telescopic tubes: cords not fixed to tube; no strain on conductors		N
22.6 (4.14.5)	Guide pulleys		N
22.6 (4.14.6)	Strain on socket-outlets		N
22.6 (4.15)	Flammable materials:		---
	- 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		P
	- thermal protection		N
	- electronic circuits exempted		N
22.6 (4.15.2)	Luminaires made of thermoplastic material		---
	a) construction		N
	b) temperature sensing control		N
	c) surface temperature		N
22.6 (4.16)	Luminaires marked with "F" symbol		---
	No lamp control gear	No lamp control gear, the requirements of this clause not applied	P
22.6 (4.16.1)	Lamp control gear spacing:		---
	- spacing 35 mm		N
	- spacing 10 mm		N
22.6 (4.16.2)	Thermal protection:		---
	- in lamp control gear		N
	- external		N
	- fixed position		N
	- temperature marked lamp control gear		N
22.6 (4.16.3)	"F" curve measured		N
22.6 (4.17)	Drain holes		N
	Clearance at least 5 mm		N
22.6 (4.18)	Resistance to corrosion:		---
22.6 (4.18.1)	- rust-resistance		N
22.6 (4.18.2)	- season cracking in copper		N

IEC 60598-2-22			
Clause	Requirement + Test	Result - Remark	Verdict
22.6 (4.18.3)	- corrosion of aluminium		N
22.6 (4.19)	Igniters compatible with ballast		N
22.6 (4.20)	Rough service vibration..... :		N
22.6 (4.21)	Protective shield:		---
22.6 (4.222.1)	Shield fitted		N
22.6 (4.222.2)	Particles from a shattering lamp not impair safety		N
22.6 (4.222.3)	No direct path		N
22.6 (4.222.4)	Impact test on shield		N
	Glow-wire test on lamp compartment		N
22.6 (4.22)	Attachments to lamps		N
22.6 (4.23)	Semi-luminaires comply class II		N
22.6 (4.24)	UV radiation, metal halide lamps		N
22.6 (4.25)	No sharp point or edges		P
22.6 (4.26)	Short-circuit protection:		---
22.6 (4.26.1)	Uninsulated accessible SELV parts		N
22.6 (4.26.2)	Short-circuit test		N
22.6 (4.26.3)	Test chain according to IEC 61032		N
22.6.1	starters		P
22.6.2	Lamp control gears	Tested according to EN 61347-2-3 and EN 61347-2-7	P
22.6.3	Failure of one luminaire not affect other		N
22.6.4	The mechanical strength	0,35Nm	P
22.6.5	Circuit separation (self-contained luminaire)		P
22.6.6	Circuit separation (centrally supplied luminaire)	Not centrally supplied combined emergency luminaires	N
22.6.7	Charging device		P
	Indicator lamp and colour		P
22.6.8	Battery requirements	Tested according to Annex A	P
22.6.9	Safety device		P
22.6.10	No switch		P
22.6.11	Failure of lamp(s)		P
22.6.12	Current limiting device	Single battery used	N

IEC 60598-2-22			
Clause	Requirement + Test	Result - Remark	Verdict
22.6.13	Influence in emergency mode		P
22.6.14	Changing device		N
22.6.15	Influence on luminaire with remote inhibiting facility	No remote inhibiting facility used	N
22.6.16	Operation of remote control	No remote control	N
22.6.17	Influence on luminaire with rest mode facility		N
22.6.18	Current drain		N
22.6.19	Lamp voltage	Fluorescent lamp used	N
<b>22.7 (11)</b>	<b>CREEPAGE DISTANCES AND CLEARANCES</b>		---
	Class of protection..... :	Class I	---
	Working voltage (V)..... :	220-240V~	---
	Voltage form	Sinusoidal [ $\sqrt{\quad}$ ] Non-sinusoidal [ $\quad$ ]	---
	PTI	< 600 [ $\sqrt{\quad}$ ] $\geq$ 600 [ $\quad$ ]	---
	Rated pulse voltage (kV) .....		---
	(1) Live parts of different polarity: cr (mm); cl (mm)..... :	Cr: $\geq$ Cl: > 3,5mm	P
	(2) Live parts and accessible parts: cr (mm); cl (mm)..... :	Cr: $\geq$ Cl: > 3,5mm	P
	(3) Parts becoming live: cr (mm); cl (mm).... :		N
	(4) Outer surface of cable: cr (mm); cl (mm) ..... :		N
	(5) Live parts of switches: cr (mm); cl (mm):		N
	(6) Live parts and supporting surface: cr (mm); cl (mm)..... :	Cr: $\geq$ Cl: > 4.6mm	P
<b>22.8 (7)</b>	<b>PROVISION FOR EARTHING</b>		---
22.8 (7.2.1 + 7.2.3)	Metal parts		P
	Accessible metal parts		P
	Metal parts and supporting surface		P
	Resistance < 0,5 $\Omega$		P
	Two spaced threaded screws used		N
	Thread-forming screws		N
	Connector earthing first	No such connector	N

IEC 60598-2-22			
Clause	Requirement + Test	Result - Remark	Verdict
22.8 (7.2.2 + 7.2.3)	Earth continuity		P
22.8 (7.2.4)	Locking of clamping means		N
	Compliance with 4.7.3		N
	Adequate locking		N
	Loosening of clamping means		N
22.8 (7.2.5 + 7.2.9)	Connector socket		N
22.8 (7.2.6 + 7.2.9)	Position of the earth terminal		P
22.8 (7.2.7 + 7.2.9)	Corrosion of the earth terminal	Ordinary luminaires	N
22.8 (7.2.8 + 7.2.9)	Material of earth terminal		P
	Contact surface bare metal		P
22.8 (7.2.10)	Class II luminaire for looping-in		N
22.8 (7.2.11)	Earthing core coloured green-yellow		P
	Length of earth conductor		P
<b>22.9 (14)</b>	<b>SCREW TERMINALS</b>		---
	Separately approved; component list	See below	N
	Part of the luminaire		N
<b>22.9 (15)</b>	<b>SCREWLESS TERMINALS</b>		---
	Separately approved; component list	See below	N
	Part of the luminaire		N
<b>22.10 (5)</b>	<b>EXTERNAL AND INTERNAL WIRING</b>		---
22.10 (5.2)	Supply connection and external wiring		---
22.10 (5.2.1 + 5.2.4)	Means of connection..... :	Connecting leads	P
22.10 (5.2.2 + 5.2.4)	Type of cable..... :	H05VV-F	P
	Nominal cross-sectional area (mm <sup>2</sup> )..... :	Ordinary luminaires 0,75	P
22.10 (5.2.3 + 5.2.4)	Replacement of non-detachable cable and cords		N
22.10 (5.2.5)	Non-rewirable connection		N
22.10 (5.2.6)	Cable entries:		---
	- suitable for introduction		P

IEC 60598-2-22			
Clause	Requirement + Test	Result - Remark	Verdict
	- adequate degree of protection		P
22.10 (5.2.7)	Cable entries through rigid material have rounded edges		P
22.10 (5.2.8)	Insulating bushings:		---
	- suitably fixed		N
	- material in bushings		N
	- tubes or guards made of insulating material		N
22.10 (5.2.9)	Locking of bushings		N
22.10 (5.2.10)	Cord anchorage:		---
	- covering protected from abrasion		N
	- clear how to be effective		N
	- no mechanical or thermal stress		N
	- no tying of cables into knots etc.		N
	- insulating material or lining		N
22.10 (5.2.10.1)	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
22.10 (5.2.10.3)	Tests:		---
	- impossible to push cable; unsafe		P
	- pull test: 25 times; pull (N).....:		P
	- torque test: torque (Nm).....:	0,25	P
	- displacement $\leq 2$ mm		P
	- no movement of conductors		P
	- no damage of cable or cord		P
22.10 (5.2.11)	External wiring passing into luminaire		P
22.10 (5.2.12)	Looping-in terminals		N



IEC 60598-2-22			
Clause	Requirement + Test	Result - Remark	Verdict
22.10 (5.2.13)	Wire ends not tinned		N
	Wire ends tinned: no cold flow		N
22.10 (5.2.14)	Mains plug same protection		N
	Class III luminaire plug		N
22.10 (5.2.15)	Colour code low voltage		N
22.10 (5.2.16)	Appliance inlets (IEC 60320)		N
	Appliance couplers of class II type		N
22.10 (5.3)	Internal wiring		---
22.10 (5.3.1)	Cross-sectional area (mm <sup>2</sup> ).....: 0,5mm <sup>2</sup>		P
	Insulation thickness		P
	Temperature resistant		P
	Sleeves suitable for hot spots		N
	Green- yellow for earth only		P
	Through wiring		---
	- cross-sectional area (mm <sup>2</sup> )..... :		N
	- not delivered/ mounting instruction		N
	- factory assembled		N
	- socket outlet loaded (A)..... :		N
	- temperatures..... :		N
22.10 (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
22.10 (5.3.3)	Openings		N
	Bushings not removable		N
	Bushings in sharp openings		N
	Cables with protective sheath		N
22.10 (5.3.4)	Joints and junctions:		---
	- easily accessible		P
	- effectively insulated		P
22.10 (5.3.5)	Strain on internal wiring		N
22.10 (5.3.6)	Wire carriers		N

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Clause	Requirement + Test	Result - Remark	Verdict
22.10 (5.3.7)	Wire ends not tinned		P
	Wire ends tinned: no cold flow		N
22.10.1	Electrical connections to the mains, between separate parts of the luminaire and between luminaire components shall be protected against the risk of accidental disconnection.		N
	Electrical connections shall be permanent or have a provision to prevent accidental disconnection		N
<b>22.11 (8)</b>	<b>PROTECTION AGAINST ELECTRIC SHOCK</b>		---
22.11 (8.2.1 + 8.2.5)	Live parts not accessible		P
	Protection in any position		P
	Insulation lacquer not reliable		P
	Double-ended tungsten filament lamp		N
	Double-ended high pressure discharge lamp		N
22.11 (8.2.2 + 8.2.5)	Portable luminaire		N
22.11 (8.2.3 + 8.2.5)	Class II luminaire:		---
	- insulation-encased, reinforced insulation		N
	- metal-encased, double insulation		N
	- basic insulated metal parts or basic insulated live conductors only accessible during starter or lamp replacement		N
	- glass protective shields not used as supplementary insulation		N
	Class I luminaire with BC lampholder		N
22.11 (8.2.4 + 8.2.5)	Portable luminaire:		---
	- non-detachable cable		N
	- terminal block completely covered		N
22.11 (8.2.6)	Covers have adequate strength		P
	Covers reliably secured		P
22.11 (8.2.7)	Discharging of capacitors $\geq 0,5 \mu\text{F}$	No capacitors used, No such requirements	N

IEC 60598-2-22			
Clause	Requirement + Test	Result - Remark	Verdict
	Portable plug connected luminaire with capacitor		N
	Other plug connected luminaire with capacitor		N
	Discharge device on or within capacitor		N
	Discharge device mounted separately		N
<b>22.12 (12)</b>	<b>ENDURANCE TEST AND THERMAL TEST</b>		---
22.12 (12.3)	Endurance test:		---
	- mounting- position.....:	Normally mounted	---
	- test temperature (°C).....:	25°C	---
	- total duration (h).....:	240h	---
	- supply voltage: Un factor; calculated voltage (V).....:	254.4V	---
	- lamp used.....:	Tungsten filament lamp	---
	IP classification greater than IP20		N
22.12.1 (12.3)	- total duration (h) (modified).....:	390h (made up of 10 cycles of 36h and a final normal operation for 30h; in each 10 cycles, 30h for normal operation and 6h for emergency mode)	--
	- supply voltage: Un factor; calculated voltage (V) (modified).....:	240V	--
	- lamp used.....:	(see Annex 1)	--
22.12 (12.3.2)	After endurance test:		---
	- no part unserviceable		P
	- luminaire not unsafe		P
	- no damage to track system		N
	- marking legible		P
	- no cracks, deformation etc.		P
22.12 (12.4)	Thermal test (normal operation)	(see Annex 2)	P
22.12 (12.5)	Thermal test (abnormal operation)	(see Annex 2)	N
22.12.2	Emergency mode 22.12.3 to 22.12.5		P
22.12 (12.6)	Thermal test (failed lamp control gear condition):		---
22.12 (12.6.1)	- case of abnormal conditions.....:		N
	- electronic lamp control gear		N

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Clause	Requirement + Test	Result - Remark	Verdict
	- measured winding temperature (°C) at 1,1 Un.....:		N
	- measured mounting surface temperature (°C) at 1,1 Un.....:		N
	- calculated mounting surface temperature (°C).....:		N
	- track-mounted luminaires		N
22.12 (12.6.2)	Temperature sensing control		---
	- thermal link		N
	- manual reset cut-out		N
	- auto reset cut-out		N
	- measured mounting surface temperature (°C) .....		N
	- track-mounted luminaires		N
22.12 (12.7)	Thermal test (failed lamp control gear in plastic luminaires):		---
	- case of abnormal conditions.....:		N
22.12 (12.7.1)	- measured winding temperature (°C) at 1,1 Un.....:		N
	- measured temperature of fixing point/ exposed part (°C) at 1,1 Un.....:		N
	- calculated temperature of fixing point/ exposed part (°C).....:		N
22.12 (12.7.2)	Temperature sensing control		---
	- thermal link		N
	- manual reset cut-out		N
	- auto reset cut-out		N
	- measured temperature of fixing point/ exposed part (°C) .....		N
22.12.2	Emergency mode 22.12.3 to 22.12.5		P
22.12.6	Additional thermal test		P
22.12.7	Rated lumen output		P
<b>22.13 (9)</b>	<b>RESISTANCE TO DUST, SOLID OBJECTS AND MOISTURE</b>		---
22.13 (9.2)	Tests for ingress of dust, solid objects and moisture:		---
	IP classification greater than IP20	IP20 luminaires	N
	- classification according to IP.....:	IP 20	---

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Clause	Requirement + Test	Result - Remark	Verdict
	- mounting position during test..... :	Normally mounted	---
	- fixing screws tightened; torque (Nm)..... :	11,3Nm	---
	- tests according to clauses..... :	9.2.0	---
	- electric strength		N
	a) no deposit in dust-proof luminaire		N
	b) no talcum in dust-tight luminaire		N
	c) no trace of water on live parts		N
	d) no accumulation of water in waterproof luminaire		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
22.13 (9.3)	Humidity test 48 h		P
<b>22.14 (10)</b>	<b>INSULATION RESISTANCE AND ELECTRIC STRENGTH</b>		---
22.14 (10.2.1)	Insulation resistance test:		---
	Class of protection..... :		---
	Insulation resistance (MΩ):		---
	SELV:		---
	- between current-carrying parts of different polarity..... :		N
	- between current-carrying parts and mounting surface..... :		N
	- between current-carrying parts and metal parts of the luminaire..... :		N
	Other than SELV:		---
	- 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
22.14 (10.2.2)	Electric strength test		---
	Class of protection..... :		---
	Dummy lamp		N
	Luminaires with ignitors after 24 h test		N

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Clause	Requirement + Test	Result - Remark	Verdict
	Luminaires with manual ignitors		N
	Test voltage (V):		---
	SELV:		---
	- between current carrying parts of different polarity.....:		N
	- between current carrying parts and mounting surface.....:		N
	- between carrying parts parts and metal parts of the luminaire.....:		N
	Other than SELV:		---
	- between live parts of different polarity.....:	1500V	P
	- between live parts and mounting surface :	1500V	P
	- between live parts and metal parts.....:	1500V	P
	- between live parts of different polarity through action of a switch.....:		N
22.14 (10.3.1)	Leakage current (mA).....:	0,01mA	P
<b>22.15 (13)</b>	<b>RESISTANCE TO HEAT, FIRE AND TRACKING</b>		---
22.15 (13.2.1)	Ball-pressure test:		---
	- part tested; temperature 125(°C).....:	Enclosure: 75°C (impression diameter: < 0.73mm) LED PCB:125°C (impression diameter: < 0.68mm)	P
	- part tested; temperature 125(°C).....:		N
22.15 (13.3.1)	Needle flame test (10 s):		---
	- part tested.....:	Enclosure	P
	- part tested.....:		N
22.15 (13.3.2)	Glow wire test (650 °C):		---
	- part tested.....:		N
	- part tested.....:		N
22.15 (13.3.2)	850°C on enclosure		P
22.15 (13.4.1)	Tracking test: part tested.....:		N
<b>22.16</b>	<b>FUNCTIONAL SAFETY</b>		---
22.16.1	Rated lumen output		P
22.16.2	Photometric data		P

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Clause	Requirement + Test	Result - Remark	Verdict
22.16.3	Photometric measurements		P
22.16.4	Colour-rendering index	Not used for escape lighting	N
22.16.5	Illuminance and luminance requirements		N
<b>22.17</b>	<b>CHANGEOVER OPERATION</b>		---
22.17.1	Changeover test		P
22.17.2	Rated lumen output		P
22.17.3	Changeover test		N
	Rated lumen output		N
<b>22.18</b>	<b>HIGH TEMPERATURE OPERATION</b>		---
	Operation at 70°C		P
	Rated lumen output		P
<b>22.19</b>	<b>BATTERY CHARGERS FOR SELF-CONTAINED EMERGENCY LUMINAIRES</b>		---
22.19.1	Charge performance		P
22.19.2	Compliance with IEC 60742		P
<b>22.20</b>	<b>TEST DEVICES FOR EMERGENCY OPERATION</b>		---
22.20.1	Device for simulation failure		P
22.20.2	Influence of remote testing device		N
22.20.3	Indication colour		P
	<b>COMMON MODIFICATIONS</b>		---
(3.3.101+5.2.1)	For luminaires connected by tails, information about terminal block		N
(5.2.2)	Cables equal to HD 21 S2 or HD 22 S2		Not checked
(5.2.15)	Colour code low voltage		Not checked
22.16.1	Rated lumen output within 0,5 s		N
22.16.2 b)	0,5 s for high-risk task-area luminaires		N
22.17.2	0,5 s for high-risk task-area luminaires		N
22.18	Operation for at least 1 h		P
<b>A</b>	<b>APPENDIX A</b>		---
	Type of batteries		P
<b>ZB</b>	<b>ANNEX ZB, SPECIAL NATIONAL CONDITIONS</b>		---

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Clause	Requirement + Test	Result - Remark	Verdict
(2.2)	Class 0 not accepted		N
(3.3)	DK: power supply cord with label		N
	IT: warning label on Class 0 luminaire		N
(4.5.1)	DK: socket-outlets		N
(4.5.1)	FR: socket-outlets		N
(5.2.1)	DK, FI, SE, GB: type of plug		N
<b>ZC</b>	<b>ANNEX ZC, NATIONAL DEVIATIONS</b>		---
(13.3)	DK: Needle flame test or glow-wire test 750° for luminaires in access routes		N
(13.3)	GB: Requirements according to United Kingdom Building Regulation		N
(13.3.2)	FR: Glow-wire test 850° alt. 750° for luminaires in premises open to public and workers		N
22.3.8	FR: Elements adjacent to luminaire not allowed		N
22.6.6	FR: Combined luminaries not allowed for escape lightings		N
	FR: Circuits independent		N
22.15	FR: Glow wire test 850°C for centrally supplied luminaires		N
	FR: Glow wire test 750°C for self-contained luminaires		N
22.16.2-3	FR: Photometric not to be checked		N



IEC 60598-2-22			
Clause	Requirement + Test	Result - Remark	Verdict

ANNEX 1 TABLE: Critical components information						P
Object / part No.	Code	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity <sup>1)</sup>
Enclosure	B	Various	Various	V-1, 110°C	UL 94	UL
LED driver	B	Various	Various	Input: 220-240VAC, 50/60Hz, 0.2A MAX. Output: 12-24VDC, 500mA MAX.	EN 61347-1 EN 61347-2-13	CE
Battery	B	Various	Various	DC12-24V, 5000mAh	--	CE
Diffuser	B	Various	Various	ASA/PC material, V-2, HWI 0, HAI 0, RTI 90, Min. thickness 2mm.	UL 94	UL
Supply cord	B	Various	Various	0.75mm <sup>2</sup> x3	--	VDE
Internal wire	B	Various	1015	18AWG, 105°C 300/500V	--	UL
LED PCB	B	Various	Various	V-0, 130°C. thickness: 1.0mm	--	UL
Heat-shrinkable tube	B	Various	Various	300V, 105°C, VW-1	--	UL
<p>Supplementary information:</p> <p><sup>1)</sup> Provided evidence ensures the agreed level of compliance.</p> <p>The codes above have the following meaning:</p> <p>A - The component is replaceable with another one, also certified, with equivalent characteristics</p> <p>B - The component is replaceable if authorised by the test house</p> <p>C - Integrated component tested together with the appliance</p> <p>D - Alternative component</p>						

ANNEX 2	Temperature measurements, thermal tests of Section 12		P
	Type reference..... :		---

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Clause	Requirement + Test	Result - Remark	Verdict
	Lamp used.....	LED	---
	Ballast used.....	LED driver	---
	Mounting position of luminaire.....	Normally mounted	---
	Supply wattage (W).....	2.02W	---
	Supply current (A).....	0.075A	---
	Calculated power factor.....	1	---
	Table: measured temperatures corrected for Ta = 25 °C:		--
	- 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.....	240x1.05=254.4V	---
	- test 4: 1,1 times rated voltage or 1,05 times rated wattage.....		---

Temperature measurements, (°C)							
Part	Ambient	Clause 12.4 – normal				Clause 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
Supply cord	25	35.4	-	-	75	-	-
Diffuser, inside	25	46.5	-	-	90	-	-
Internal wire	25	52.3	-	-	105	-	-
LED	25	74.5	-	-	Ref.	-	-
LED PCB	25	67.3	-	-	130	-	-
Surface of LED driver (Tc)	25	57.3	-	-	75	-	-
Battery surface	25	44.2	-	-	75	-	-
Enclosure of LED river, inside	25	48.6	-	-	90	-	-
Mounting surface	25	34.7	-	-	90	-	-

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Clause	Requirement + Test	Result - Remark	Verdict

<b>ANNEX 3</b>	<b>Screw terminals (part of the luminaire)</b>	---
<b>(14)</b>	<b>SCREW TERMINALS</b>	---
(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 <sup>2</sup> ).....:	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

<b>ANNEX 4</b>	<b>Screwless terminals (part of the luminaire)</b>	---
<b>(15)</b>	<b>SCREWLESS TERMINALS</b>	---
(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

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Clause	Requirement + Test					Result - Remark					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	
(15.5.22.1)	Pull test spring-type terminals (4 N, 4 samples)										N	
(15.5.22.2)	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										--	
	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 (4 samples); pull (N)										N	
	Pull test pin or tab terminals (4 samples); pull (N)										N	
(15.9)	Contact resistance test										--	
	Voltage drop (mV) after 1 h										---	
terminal		1	2	3	4	5	6	7	8	9	10	
voltage drop (mV)												
		Voltage drop of two inseparable joints										--
		Voltage drop after 10th alt. 25th cycle										--

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Clause	Requirement + Test					Result - Remark					Verdict

	Max. allowed voltage drop (mV).....:										---
terminal	1	2	3	4	5	6	7	8	9	10	
voltage drop (mV)											
	Voltage drop after 50th alt. 100th cycle										--
	Max. allowed voltage drop (mV).....:										---
terminal	1	2	3	4	5	6	7	8	9	10	
voltage drop (mV)											
	Continued ageing: voltage drop after 10th alt. 25th cycle										--
	Max. allowed voltage drop (mV).....:										---
terminal	1	2	3	4	5	6	7	8	9	10	
voltage drop (mV)											
	Continued ageing: voltage drop after 50th alt. 100th cycle										--
	Max. allowed voltage drop (mV).....:										---
terminal	1	2	3	4	5	6	7	8	9	10	
voltage drop (mV)											

## 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>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>	
--	--



Photo 3

View:

- ☐ Front
- ☐ Rear
- ☐ Right side
- ☐ Left side
- ☐ Top
- ☐ Bottom
- ☒ Internal



Photo 4

View:

- ☐ Front
- ☐ Rear
- ☐ Right side
- ☐ Left side
- ☐ Top
- ☐ Bottom
- ☒ Internal

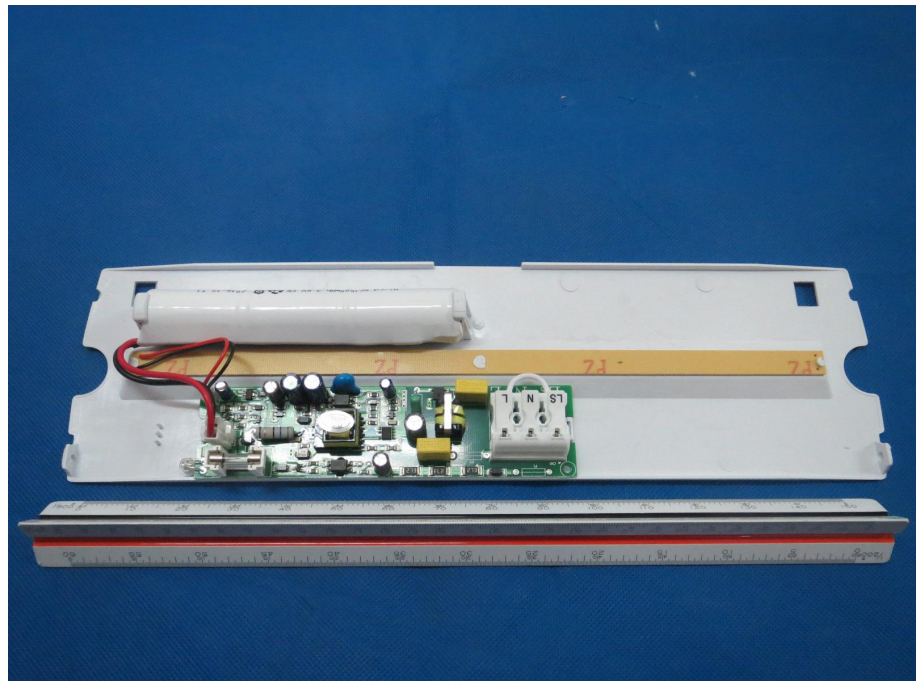


Photo 5

View:

- ☐ Front
- ☐ Rear
- ☐ Right side
- ☐ Left side
- ☐ Top
- ☐ Bottom
- ☒ Internal

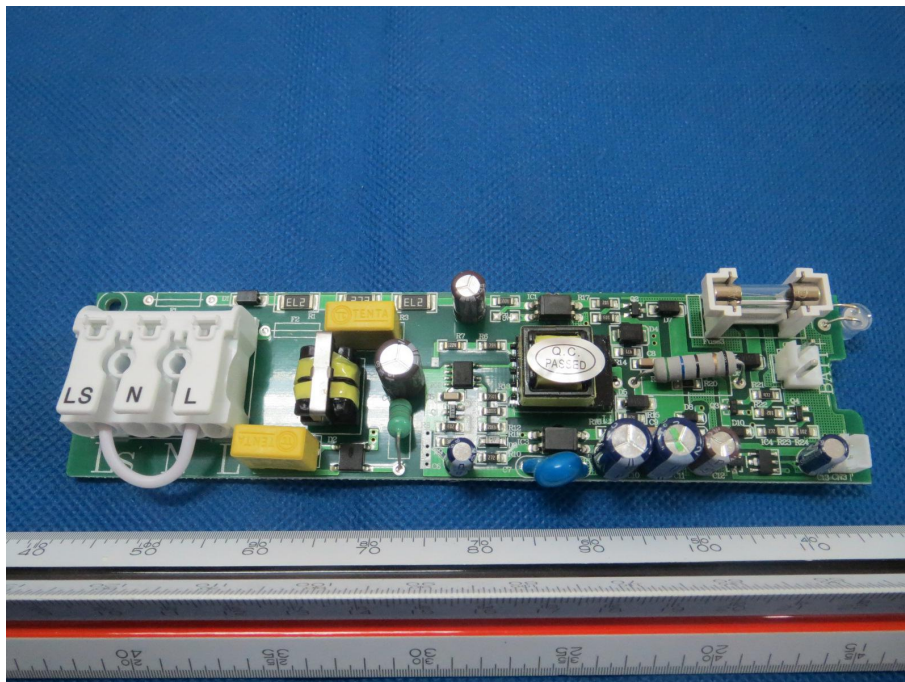
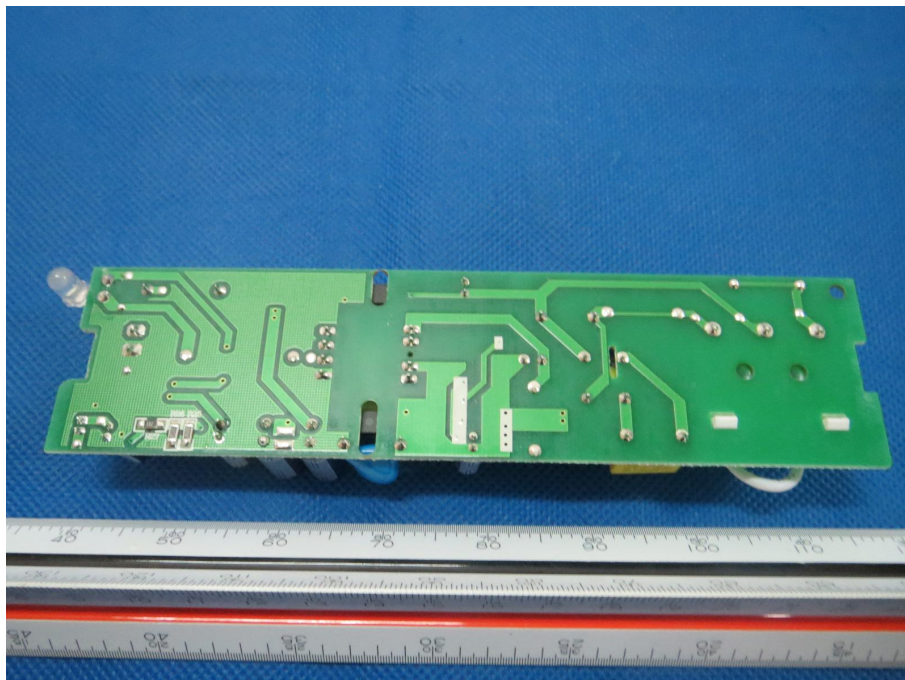


Photo 6

View:

- ☐ Front
- ☐ Rear
- ☐ Right side
- ☐ Left side
- ☐ Top
- ☐ Bottom
- ☒ Internal



---END---