



# CE LVD TEST REPORT

For  
LED EMERGENCY LIGHTS AND SIGNAL BOARDS

Model No.: LED 288 LUMENS WITH SENSOR, SINALIZACAO SAIDA SLIM  
50X25 verde, SINALIZACAO SAIDA PREMIUM 60X30,  
SINALIZACAO BANHEIROS

Applicant : SEGURIMAX-COMERCIO ATACADISTA DE EQUIPAMENTOS  
DE SEGURANCA,IMPORTACAO E EXPORTACAO EIRELI  
CNPJ: 17.011.376/0001-02  
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Report Number : A01.14.0223S

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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;EN60598-2-22</b> <b>Luminaires—Part 1 :General requirements and tests</b> <b>Part 2-22: Particular requirements - Luminaires for emergency lighting</b>	
Report reference No. ....:	A01.14.0223S
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.....:	SEGURIMAX-COMERCIO ATACADISTA DE EQUIPAMENTOS DE SEGURANCA, IMPORTACAO E EXPORTACAO EIRELI CNPJ: 17.011.376/0001-02
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Standards.....:	EN 60598-2-22: 2014 EN 60598-1: 2015 EN 62031: 2008+A2:2015 EN 62471: 2008 EN 62493: 2015
Procedure deviation.....:	N/A
Non-standard test method.....:	N/A
Type of test equipment .....	LED EMERGENCY LIGHTS AND SIGNAL BOARDS
Trade mark.....:	
Model/Type designation.....:	LED 288 LUMENS WITH SENSOR, SINALIZACAO SAIDA SLIM 50X25 verde, SINALIZACAO SAIDA PREMIUM 60X30, SINALIZACAO BANHEIROS
Rating.....:	AC110-240V, 50/60Hz, 6W
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 equipment and Fixed equipment
Protection against ingress of water.....:	IP20

<b>Possible test case verdicts :</b>	
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)
<p>Name and address of the testing laboratory :</p> <p style="text-align: center;">Global-Standard Testing Service Co., Ltd. Room 1911-1914, Noble Plaza, Qian Jin 1st Road, Bao An District, Shenzhen, Guangdong, China.</p>	
<p><b>Tested by :</b> <u>Sean Xiao</u></p> <p style="text-align: center;">Signature</p> <p style="text-align: center;"><u>Sean xiao / Test Engineer</u></p> <p style="text-align: center;">Name/title</p>	<p><u>July 26, 2017</u></p> <p style="text-align: center;">Date</p>
<p><b>Reviewed by :</b> <u>Jerry Hu</u></p> <p style="text-align: center;">Signature</p> <p style="text-align: center;"><u>Jerry Hu / Project Engineer</u></p> <p style="text-align: center;">Name/title</p>	<p><u>July 26, 2017</u></p> <p style="text-align: center;">Date</p>
<p><b>Approved by :</b> <u>Tim Sun</u></p> <p style="text-align: center;">Signature</p> <p style="text-align: center;"><u>Tim Sun / Manager</u></p> <p style="text-align: center;">Name/title</p>	<p><u>August 07, 2017</u></p> <p style="text-align: center;">Date</p>

<b>General remarks:</b>	
<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:</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 LED 288 LUMENS WITH SENSOR, SINALIZACAO SAIDA SLIM 50X25 verde, SINALIZACAO SAIDA PREMIUM 60X30, SINALIZACAO BANHEIROS for LED EMERGENCY LIGHTS AND SIGNAL BOARDS.</p> <p>All tests were performed by model SINALIZACAO SAIDA PREMIUM 60X30 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>The European standard IEC 62471 for LED laser product requirement has considered.</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

22.4 (0)	GENERAL TEST REQUIREMENTS		
22.4 (0.1)	Information for luminaire design considered..... :	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Lamp standard: 62493	—
22.4 (0.3)	More sections applicable..... :	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Section/s:	—
22.4 (-)	Part provide normal lighting, test according relevant part of IEC 60598-2 .....		P
22.4 (-)	Adjacent part fulfils relevant part of this part 2		P
22.4 (-)	Self-contained portable emergency luminaires, requirements according Annex E	(see Annex E)	P

22.5 (2)	CLASSIFICATION		P
22.5 (2.2)	Type of protection .....	Class II	P
22.5 (2.3)	Degree of protection .....	IP20	P
22.5 (2.4)	Luminaire suitable for direct mounting on normally flammable surfaces..... :	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
22.5 (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"/>	—
22.5 (-)	Classified as luminaire suitable for direct mounting on normally flammable surfaces		N/A
22.5 (-)	Classification code according Annex B	(see Annex B)	P

22.6 (3)	MARKING		P
22.6 (3.2)	Mandatory markings		P
	Position of the marking	On product enclosure for front	P
	Format of symbols/text		P
22.6 (3.3)	Additional information		N/A
	Language of instructions	English	P
22.6 (3.3.1)	Combination luminaires		N/A
22.6 (3.3.2)	Nominal frequency in Hz	50/60	P
22.6 (3.3.3)	Operating temperature	25	P
22.6 (3.3.4)	Symbol or warning notice	See instruction manual	P
22.6 (3.3.5)	Wiring diagram		N/A
22.6 (3.3.6)	Special conditions		N/A

IEC 60598-2-22			
Clause	Requirement + Test	Result - Remark	Verdict
22.6 (3.3.7)	Metal halide lamp luminaire – warning		N/A
22.6 (3.3.8)	Limitation for semi-luminaires		N/A
22.6 (3.3.9)	Power factor and supply current		P
22.6 (3.3.10)	Suitability for use indoors		P
22.6 (3.3.11)	Luminaires with remote control		N/A
22.6 (3.3.12)	Clip-mounted luminaire – warning		N/A
22.6 (3.3.13)	Specifications of protective shields		N/A
22.6 (3.3.14)	Symbol for nature of supply		N/A
22.6 (3.3.15)	Rated current of socket outlet		N/A
22.6 (3.3.16)	Rough service luminaire		N/A
22.6 (3.3.17)	Mounting instruction for type Y, type Z and some type X attachments	Y	P
22.6 (3.3.18)	Non-ordinary luminaires with PVC cable		P
22.6 (3.3.19)	Protective conductor current in instruction if applicable		P
22.6 (3.3.20)	Provided with information if not intended to be mounted within arm's reach		N/A
22.6 (3.3.21)	Non replaceable and non-user replaceable light sources information provided		N/A
	Cautionary symbol		N/A
22.6 (3.3.22)	Controllable luminaires, classification of insulation provided		N/A
22.6 (3.4)	Test with water		P
	Test with hexane		P
	Legible after test		P
	Label attached		P
22.6.1 (-)	Supply voltage	110-240VAC	P
22.6.2 (-)	Classification according to annex B		P
22.6.3 (-)	Correct replacement lamp		P

IEC 60598-2-22			
Clause	Requirement + Test	Result - Remark	Verdict
22.6.4 (-)	Range of ambient temperatures		P
22.6.5 (-)	Fuse ratings and/or indicator lamps		P
22.6.6 (-)	Facilities to simulate normal supply failure		N/A
22.6.7 (-)	Marked with correct battery replacement		N/A
	Non-replaceable batteries	See instruction manual	N/A
22.6.8 (-)	Battery marked with date of manufacture		P
	Space provided on battery label		P
22.6.9 (-)	Correct lamp replacement for combined emergency luminaires		P
	Green dot with min 5 mm diameter		N/A
	Instruction leaflet 22.6.10 – 22.6.12 and 22.6.14 – 22.6.16		N/A
22.6.10 (-)	Replacement of battery or luminaire		N/A
22.6.11 (-)	Details of test facilities		N/A
22.6.12 (-)	Details of connection leads		N/A
22.6.14 (-)	Details of device which changes the mode of operation		N/A
22.6.15 (-)	Photometric data available according 22.17		N/A
22.6.16 (-)	Any normal preparation procedure		N/A
22.6.17 (-)	Marking in 22.6.1, 22.6.2, 22.6.7 and 22.6.20 visible on installed luminaire		P
	Marking in 22.6.5, 22.6.7 and 22.6.9 visible during maintenance		P
22.6.18 (-)	Provided with warning if intended for external plug and socket connections		P
22.6.19 (-)	Instruction leaflet specifies if lamp and/or battery is/are non-replaceable		P
22.6.20 (-)	Marking if luminaire mounted on lighting track systems		P
	Photometric data in instruction leaflet		P

22.7(4)	<b>CONSTRUCTION</b>		P
22.7 (4.2)	Components replaceable without difficulty		P
22.7 (4.3)	Wireways smooth and free from sharp edges		N/A
<b>22.7 (4.4)</b>	<b>Lampholders</b>		N/A
22.7 (4.4.1)	Integral lampholder		N/A



IEC 60598-2-22			
Clause	Requirement + Test	Result - Remark	Verdict
22.7 (4.4.2)	Wiring connection		N/A
22.7 (4.4.3)	Lampholder for end-to-end mounting		N/A
22.7 (4.4.4)	Positioning		N/A
	- pressure test (N) .....		—
	After test the lampholder comply with relevant standard sheets and show no damage		N/A
	After test on single-capped lampholder the lampholder have not moved from its position and show no permanent deformation		N/A
	- bending test (N) .....		—
	After test the lampholder have not moved from its position and show no permanent deformation		N/A
22.7 (4.4.5)	Peak pulse voltage		N/A
22.7 (4.4.6)	Centre contact		N/A
22.7 (4.4.7)	Parts in rough service luminaires resistant to tracking		N/A
22.7 (4.4.8)	Lamp connectors		N/A
22.7 (4.4.9)	Caps and bases correctly used		N/A
22.7 (4.4.10)	Light source for lampholder or connection according IEC 60061 not connected another way		P
<b>22.7 (4.5)</b>	<b>Starter holders</b>		—
	Starter holder in luminaires other than class II		P
	Starter holder class II construction		P
<b>22.7 (4.6)</b>	<b>Terminal blocks</b>		—
	Tails	Quick terminal	P
	Unsecured blocks		N/A
<b>22.7 (4.7)</b>	<b>Terminals and supply connections</b>		—
22.7 (4.7.1)	Contact to metal parts		N/A
22.7 (4.7.2)	Test 8 mm live conductor		N/A
	Test 8 mm earth conductor		N/A
22.7 (4.7.3)	Terminals for supply conductors		P
22.7 (4.7.3.1)	Welded method and material		N/A
	- stranded or solid conductor		N/A
	- spot welding		N/A
	- welding between wires		N/A

IEC 60598-2-22			
Clause	Requirement + Test	Result - Remark	Verdict
	- Type Z attachment		N/A
	- mechanical test according to 15.6.2		N/A
	- electrical test according to 15.6.3		N/A
	- heat test according to 15.6.3.2.3 and 15.6.3.2.4		N/A
22.7 (4.7.4)	Terminals other than supply connection		N/A
22.7 (4.7.5)	Heat-resistant wiring/sleeves		N/A
22.7 (4.7.6)	Multi-pole plug		N/A
	- test at 30 N		N/A
<b>22.7 (4.8)</b>	<b>Switches</b>		<b>P</b>
	- adequate rating		N/A
	- adequate fixing		N/A
	- polarized supply		N/A
	- compliance with IEC 61058-1 for electronic switches		N/A
<b>22.7 (4.9)</b>	<b>Insulating lining and sleeves</b>		<b>P</b>
22.7 (4.9.1)	Retention		P
	Method of fixing..... : Surface mounting		P
22.7 (4.9.2)	Insulated linings and sleeves:		N/A
	Resistant to a temperature > 20 °C to the wire temperature or		P
	a) & c) Insulation resistance and electric strength		P
	b) Ageing test. Temperature (°C)..... :		P
<b>22.7 (4.10)</b>	<b>Double or reinforced insulation</b>		<b>—</b>
22.7 (4.10.1)	No contact, mounting surface – accessible metal parts – wiring of basic insulation		N/A
	Safe installation fixed luminaires		P
	Capacitors and switches		N/A
	Interference suppression capacitors according to IEC 60384-14		N/A
22.7 (4.10.2)	Assembly gaps:		N/A
	- not coincidental		N/A
	- no straight access with test probe		N/A
22.7 (4.10.3)	Retention of insulation:		—

IEC 60598-2-22			
Clause	Requirement + Test	Result - Remark	Verdict
	- fixed		P
	- unable to be replaced; luminaire inoperative		P
	- sleeves retained in position		N/A
	- lining in lampholder		N/A
22.7 (4.10.4)	Protective impedance device		N/A
	Double or reinforced insulation bridged by appropriate and at least two resistors or two Y2 capacitors or one Y1 capacitor		N/A
	Y1 or Y2 capacitors comply with IEC 60384-14		N/A
	Resistors comply with test (a) in 14.1 of IEC 60065		N/A
<b>22.7 (4.11)</b>	<b>Electrical connections and current-carrying parts</b>		N/A
22.7 (4.11.1)	Contact pressure		N/A
22.7 (4.11.2)	Screws:		N/A
	- self-tapping screws		N/A
	- thread-cutting screws		N/A
22.7 (4.11.3)	Screw locking:		P
	- spring washer		N/A
	- rivets		N/A
22.7 (4.11.4)	Material of current-carrying parts		N/A
22.7 (4.11.5)	No contact to wood or mounting surface		N/A
22.7 (4.11.6)	Electro-mechanical contact systems		N/A
<b>22.7 (4.12)</b>	<b>Screws and connections (mechanical) and glands</b>		N/A
22.7 (4.12.1)	Screws not made of soft metal		N/A
	Screws of insulating material		N/A
	Torque test: torque (Nm); part ..... :		N/A
	Torque test: torque (Nm); part ..... :		N/A
	Torque test: torque (Nm); part ..... :		N/A

IEC 60598-2-22			
Clause	Requirement + Test	Result - Remark	Verdict
22.7 (4.12.2)	Screws with diameter < 3 mm screwed into metal		N/A
22.7 (4.12.4)	Locked connections:		N/A
	- fixed arms; torque (Nm) .....		N/A
	- lampholder; torque (Nm).....		N/A
	- push-button switches; torque 0,8 Nm .....		N/A
22.7 (4.12.5)	Screwed glands; force (Nm) .....		N/A
<b>22.7 (4.13)</b>	<b>Mechanical strength</b>		<b>P</b>
22.7 (4.13.1)	Impact tests:		P
	- fragile parts; energy (Nm).....	0.3NM	P
	- other parts; energy (Nm).....		N/A
	1) live parts		N/A
	2) linings		N/A
	3) protection		N/A
	4) covers		N/A
22.7 (4.13.3)	Straight test finger		N/A
22.7 (4.13.4)	Rough service luminaires		N/A
	- IP54 or higher		N/A
	a) fixed		N/A
	b) hand-held		N/A
	c) delivered with a stand		N/A
	d) for temporary installations and suitable for mounting on a stand		N/A
22.7 (4.13.6)	Tumbling barrel		N/A
<b>22.7 (4.14)</b>	<b>Suspensions, fixings and means of adjusting</b>		<b>N/A</b>
22.7 (4.14.1)	Mechanical load:		N/A
	A) four times the weight		N/A
	B) torque 2,5 Nm		N/A
	C) bracket arm; bending moment (Nm) .....		N/A

IEC 60598-2-22			
Clause	Requirement + Test	Result - Remark	Verdict
	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
22.7 (4.14.2)	Load to flexible cables		N/A
	Mass (kg) .....		—
	Stress in conductors (N/mm <sup>2</sup> ) .....		N/A
	Mass (kg) of semi-luminaire .....		N/A
	Bending moment (Nm) of semi-luminaire .....		N/A
22.7 (4.14.3)	Adjusting devices:		N/A
	- flexing test; number of cycles .....		N/A
	- strands broken .....		N/A
	- electric strength test afterwards		N/A
22.7 (4.14.4)	Telescopic tubes: cords not fixed to tube; no strain on conductors		N/A
22.7 (4.14.5)	Guide pulleys		N/A
22.7 (4.14.6)	Strain on socket-outlets		N/A
<b>22.7 (4.15)</b>	<b>Flammable materials</b>		—
	- glow-wire test 650°C .....	See Test Table 22.16 (13.3.2)	P
	- spacing ≥30 mm		P
	- screen withstanding test of 13.3.1		P
	- screen dimensions		P
	- no fiercely burning material		N/A
	- thermal protection		N/A
	- electronic circuits exempted		N/A
22.7 (4.15.2)	Luminaires made of thermoplastic material with lamp control gear		N/A
	a) construction		N/A
	b) temperature sensing control		N/A

IEC 60598-2-22			
Clause	Requirement + Test	Result - Remark	Verdict
	c) surface temperature		N/A
<b>22.7 (4.16)</b>	<b>Luminaires for mounting on normally flammable surfaces</b>		N/A
	No lamp control gear..... :	(compliance with Section 12)	N/A
22.7 (4.16.1)	Lamp control gear spacing:		N/A
	- spacing 35 mm		N/A
	- spacing 10 mm		N/A
22.7 (4.16.2)	Thermal protection:		
	- in lamp control gear		N/A
	- external		N/A
	- fixed position		N/A
	- temperature marked lamp control gear		N/A
22.7 (4.16.3)	Design to satisfy the test of 12.6	(see clause 12.6)	N/A
<b>22.7 (4.17)</b>	<b>Drain holes</b>		N/A
	Clearance at least 5 mm		N/A
<b>22.7 (4.18)</b>	<b>Resistance to corrosion</b>		N/A
22.7 (4.18.1)	- rust-resistance		N/A
22.7 (4.18.2)	- season cracking in copper		N/A
22.7 (4.18.3)	- corrosion of aluminium		N/A
22.7 (4.19)	Igniters compatible with ballast		N/A
22.7 (4.20)	Rough service vibration		N/A
<b>22.7 (4.21)</b>	<b>Protective shield</b>		N/A
22.7 (4.21.1)	Shield fitted if tungsten halogen lamps or metal halide lamps		N/A
	Shield of glass if tungsten halogen lamps		N/A
22.7 (4.21.2)	Particles from a shattering lamp not impair safety		N/A
22.7 (4.21.3)	No direct path		P
22.7 (4.21.4)	Impact test on shield		P

IEC 60598-2-22			
Clause	Requirement + Test	Result - Remark	Verdict
	Glow-wire test on lamp compartment .....	See Test Table 22.16 (13.3.2)	P
22.7 (4.22)	Attachments to lamps not cause overheating or damage		N/A
22.7 (4.23)	Semi-luminaires comply Class II		P
<b>22.7 (4.24)</b>	<b>Photobiological hazards</b>		<b>P</b>
22.7 (4.24.1)	No excessive UV radiation if tungsten halogen lamps and metal halide lamps (Annex P)		P
22.7 (4.24.2)	Retinal blue light hazard		P
	Class of risk group assessed according to IEC/TR 62778 .....		—
	Luminaires with $E_{thr}$ :		N/A
	a) Fixed luminaires		N/A
	- distance x m, borderline between RG1 and RG2.. :		N/A
	- marking and instruction according 3.2.23		N/A
	b) Portable and handheld luminaires		P
	- marking according 3.2.23 if RG1 exceeded at 200 mm according to IEC/TR 62778		P
	Portable luminaires for children IEC 60598-2-10 and Mains socket outlet nightlights IEC 60598-2-12 not exceed RG1 at 200 mm according to IEC/62778		P
<b>22.7 (4.25)</b>	<b>Mechanical hazard</b>		<b>P</b>
	No sharp point or edges		P
<b>22.7 (4.26)</b>	<b>Short-circuit protection</b>		<b>N/A</b>
22.7 (4.26.1)	Adequate means of uninsulated accessible SELV parts		N/A
22.7 (4.26.2)	Short-circuit test with test chain according 4.26.3		N/A
	Test chain not melt through		N/A
	Test sample not exceed values of Table 12.1 and 12.2		N/A
<b>22.7 (4.27)</b>	<b>Terminal blocks with integrated screwless earthing contacts</b>		<b>N/A</b>
	Test according Annex V		N/A
	Pull test of terminal fixing (20 N)		N/A
	After test, resistance < 0,05 $\Omega$		N/A
	Pull test of mechanical connection (50 N)		N/A

IEC 60598-2-22			
Clause	Requirement + Test	Result - Remark	Verdict
	After test, resistance < 0,05 Ω		N/A
	Voltage drop test, resistance < 0,05 Ω		N/A
<b>22.7 (4.28)</b>	<b>Fixing of thermal sensing control</b>		N/A
	Not plug-in or easily replaceable type		N/A
	Reliably kept in position		N/A
	No adhesive fixing if UV radiations from a lamp can degrade the fixing		N/A
	Not outside the luminaire enclosure		N/A
	Test of adhesive fixing:		N/A
	Max. temperature on adhesive material (°C) ..... :		—
	100 cycles between t min and t max		N/A
	Temperature sensing control still in position		N/A
<b>22.7 (4.29)</b>	<b>Luminaires with non-replaceable light source</b>		—
	Not possible to replace light source		N/A
	Live part not accessible after parts have been opened by hand or tools		N/A
<b>22.7 (4.30)</b>	<b>Luminaires with non-user replaceable light source</b>		—
	If protective cover provide protection against electric shock and marked with “caution, electric shock risk” symbol:		N/A
	Minimum two fixing means		N/A
<b>22.7 (4.31)</b>	<b>Insulation between circuits</b>		N/A
	Circuits insulated from LV supply fulfil requirements according 4.31.1 – 4.31.3		N/A
	Controllable luminaires requiring same level of insulation for all components, the insulation between control terminals and LV supply fulfil requirements according 4.31.1 – 4.31.3		N/A
22.7 (4.31.1)	SELV circuits		N/A
	Used SELV source		N/A
	Voltage ≤ ELV		N/A
	Insulating of SELV circuits from LV supply		N/A
	Insulating of SELV circuits from other non SELV circuits		N/A
	Insulating of SELV circuits from FELV		N/A
	Insulating of SELV circuits from other SELV circuits		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
	SELV circuits insulated from accessible parts according Table X.1		N/A
	Plugs not able to enter socket-outlets of other voltage systems		N/A
	Socket outlets does not admit plugs of other voltage systems		N/A
	Plugs and socket-outlets does not have protective conductor contact		N/A
22.7 (4.31.2)	FELV circuits		N/A
	Used FELV source		N/A
	Voltage $\leq$ ELV		N/A
	Insulating of FELV circuits from LV supply		N/A
	FELV circuits insulated from accessible parts according Table X.1		N/A
	Plugs not able to enter socket-outlets of other voltage systems		N/A
	Socket outlets does not admit plugs of other voltage systems		N/A
	Socket-outlets does not have protective conductor contact		N/A
22.7 (4.31.3)	Other circuits		N/A
	Other circuits insulated from accessible parts according Table X.1		N/A
	Class II construction with equipotential bonding for protection against indirect contacts with live parts:		N/A
	- conductive parts are connected together		N/A
	- test according 7.2.3		N/A
	- conductive part not cause an electric shock in case of an insulation fault		N/A
	- equipotential bonding in master/slave applications		N/A
	- master luminaire provided with terminal for accessible conductive parts of slave luminaires		N/A
	- slave luminaire constructed as class I		N/A
<b>22.7 (4.32)</b>	<b>Overvoltage protective devices</b>		—
	Comply with IEC 61643-11		N/A
	External to controlgear and connected to earth:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- only in fixed luminaires		N/A
	- only connected to protective earth		N/A
22.7 (-)	Luminaire with automatic testing system complies with IEC 62034		P
	Specific items according IEC 61347-2-7 Annex K		N/A
22.7.1 (-)	No glow starters in circuit in start of or during the emergency mode		N/A
22.7.2 (-)	Lamp control gears comply with relevant part 2 of IEC 61347		P
22.7.3 (-)	Protective device disconnect luminaire in case of failure		P
22.7.4 (-)	Impact test min. 0,35 Nm		P
22.7.5 (-)	Circuit separation (self-contained lum.)		N/A
22.7.6 (-)	Circuit separation (centrally supplied lum.)		N/A
22.7.7 (-)	Charging device		N/A
	Indicator lamp and colour	Red and green for indicator lamp	P
22.7.8 (-)	Battery meet requirements in Annex A	(see Annex A)	P
	Battery designed to provide duration for at least four years	See instruction manual	P
	Battery only for emergency function		P
22.7.10 (-)	No switch in self-contained emergency luminaire between battery and emergency lighting lamps		P
	No switch in self-contained and central supplied emergency luminaire isolating emergency circuits from mains supply		P
	Installation according IEC 60364-5-56		P
22.7.11 (-)	Failure of lamp(s) not impair operation of the battery		N/A
22.7.12 (-)	Batteries in self-contained emergency luminaire comply with cl. 23 of IEC 61347-2-7 if applicable		P
22.7.13 (-)	No influence in emergency mode in self-contained emergency luminaire by short-circuit, contact to earth or interruption in normal supply wiring		P
22.7.14 (-)	Self-contained emergency luminaire with remote inhibiting and/or rest mode meet requirements of clause 25 of IEC 61347-2-7		P

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Clause	Requirement + Test	Result - Remark	Verdict
22.7.19 (-)	Lamp voltage in self-contained emergency luminaire with tungsten filament lamps not exceed 1,05 rated voltage		P
22.7.20 (-)	Battery in self-contained emergency luminaire according manufacturers specification and Annex A		P
22.7.21 (-)	Batteries and chargers within self-contained emergency luminaire or in remote box		P
22.7.22 (-)	Remote box in self-contained emergency luminaire comply with same requirements as for the luminaire		P
22.7.23 (-)	Locking system for emergency luminaire on track system used for display lighting requires aid of tool		P

<b>22.8 (11)</b>	<b>CREEPAGE DISTANCES AND CLEARANCES</b>		P
22.8 (11.2)	Creepage distances and clearances .....	See Table 22.8 (11.2)	P
	Impulse withstand category (Normal category II) (Category III Annex U, Table U.1)	Category II <input checked="" type="checkbox"/> Category III <input type="checkbox"/>	—

<b>22.9 (7)</b>	<b>PROVISION FOR EARTHING</b>		—
22.9 (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
	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
	Terminal blocks with integrated screwless earthing contacts tested according Annex V		N/A
	Protective earthing of the luminaire not via built-in control gear		N/A
22.9 (7.2.2 + 7.2.3)	Earth continuity in joints, etc.		N/A
22.9 (7.2.4)	Locking of clamping means		N/A
	Compliance with 4.7.3		N/A
	Terminal blocks with integrated screwless earthing contacts tested according Annex V		N/A
22.9 (7.2.5)	Earth terminal integral part of connector socket		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
22.9 (7.2.6)	Earth terminal adjacent to mains terminals		N/A
22.9 (7.2.7)	Electrolytic corrosion of the earth terminal		N/A
22.9 (7.2.8)	Material of earth terminal		N/A
	Contact surface bare metal		N/A
22.9 (7.2.10)	Class II luminaire for looping-in		N/A
	Double or reinforced insulation to functional earth		N/A
22.9 (7.2.11)	Earthing core coloured green-yellow		N/A
	Length of earth conductor		N/A
<b>22.10 (14)</b>	<b>SCREW TERMINALS</b>		—
	Separately approved; component list	(see Annex 1)	N/A
	Part of the luminaire	(see Annex 3)	N/A
<b>22.10 (15)</b>	<b>SCREWLESS TERMINALS AND ELECTRICAL CONNECTIONS</b>		—
	Separately approved; component list .....	(see Annex 1)	N/A
	Part of the luminaire .....	(see Annex 4)	N/A
<b>22.11 (5)</b>	<b>EXTERNAL AND INTERNAL WIRING</b>		—
<b>22.11 (5.2)</b>	<b>Supply connection and external wiring</b>		<b>P</b>
22.11 (5.2.1)	Means of connection .....		N/A
	Outdoor luminaire has not PVC insulated external wiring if not class III or SELV $\leq 25$ V a.c./60 V d.c. or protected from outdoor environment		N/A
22.11 (5.2.2)	Type of cable .....	H03VVH2-F	P
	Nominal cross-sectional area (mm <sup>2</sup> ) .....	2 x 0.75mm <sup>2</sup>	P
	Cables equal to IEC 60227 or IEC 60245		P
22.11 (5.2.3)	Type of attachment, X, Y or Z	Type Y	P
22.11 (5.2.5)	Type Z not connected to screws		N/A
22.11 (5.2.6)	Cable entries:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- suitable for introduction		N/A
	- adequate degree of protection		N/A
22.11 (5.2.7)	Cable entries through rigid material have rounded edges		N/A
22.11 (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
22.11 (5.2.9)	Locking of screwed bushings		N/A
22.11 (5.2.10)	Cord anchorage:		P
	- 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
22.11 (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
	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
22.11 (5.2.10.2)	Adequate cord anchorage for type Y and type Z attachment		P
22.11 (5.2.10.3)	Tests:		P
	- impossible to push cable; unsafe		P

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Clause	Requirement + Test	Result - Remark	Verdict
	- pull test: 25 times; pull (N) .....		P
	- torque test: torque (Nm).....		N/A
	- displacement ≤ 2 mm	1.03 mm	P
	- no movement of conductors		N/A
	- no damage of cable or cord		P
	- function independent of electrical connection		P
22.11 (5.2.11)	External wiring passing into luminaire		P
22.11 (5.2.12)	Looping-in terminals		N/A
22.11 (5.2.13)	Wire ends not tinned		N/A
	Wire ends tinned: no cold flow		N/A
22.11 (5.2.14)	Mains plug same protection		N/A
	Class III luminaire plug		N/A
	No unsafe compatibility		N/A
22.11 (5.2.16)	Appliance inlets (IEC 60320)		N/A
	Installation couplers (IEC 61535)		N/A
	Other appliance inlet or connector according relevant IEC standard		N/A
22.11 (5.2.17)	No standardized interconnecting cables properly assembled		N/A
22.11 (5.2.18)	Used plug in accordance with		N/A
	- IEC 60083		N/A
	- other standard		N/A
<b>22.11 (5.3)</b>	<b>Internal wiring</b>		—
22.11 (5.3.1)	Internal wiring of suitable size and type	2464 for 20AWG	P
	Through wiring		N/A
	- not delivered/ mounting instruction		N/A
	- factory assembled		N/A
	- socket outlet loaded (A) .....		N/A
	- temperatures.....	(see Annex 2)	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Green-yellow for earth only		N/A
22.11 (5.3.1.1)	Internal wiring connected directly to fixed wiring		N/A
	Cross-sectional area (mm <sup>2</sup> ) .....		N/A
	Insulation thickness		N/A
	Extra insulation added where necessary		N/A
22.11 (5.3.1.2)	Internal wiring connected to fixed wiring via internal current-limiting device		P
	Adequate cross-sectional area and insulation thickness		N/A
22.11 (5.3.1.3)	Double or reinforced insulation for class II		P
22.11 (5.3.1.4)	Conductors without insulation		P
22.11 (5.3.1.5)	SELV current-carrying parts		N/A
22.11 (5.3.1.6)	Insulation thickness other than PVC or rubber		N/A
22.11 (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
22.11 (5.3.3)	Insulating bushings:		P
	- suitable fixed		P
	- material in bushings		P
	- material not likely to deteriorate		P
	- cables with protective sheath		P
22.11 (5.3.4)	Joints and junctions effectively insulated		P
22.11 (5.3.5)	Strain on internal wiring		N/A
22.11 (5.3.6)	Wire carriers		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
22.11 (5.3.7)	Wire ends not tinned		N/A
	Wire ends tinned: no cold flow		N/A
22.11.1 (-)	Permanently connected		N/A

22.12 (8)	PROTECTION AGAINST ELECTRIC SHOCK		—
22.12 (8.2.1)	Live parts not accessible		P
	Basic insulated parts not used on the outer surface without appropriate protection		N/A
	Basic insulated parts not accessible with standard test finger on portable, settable and adjustable luminaires		P
	Basic insulated parts not accessible with Ø 50 mm probe from outside, other types of luminaires		N/A
	Lamp and starterholders in portable and adjustable luminaires comply with double or reinforced insulation requirements		N/A
	Basic insulation only accessible under lamp or starter replacement		N/A
	Protection in any position		N/A
	Double-ended tungsten filament lamp		N/A
	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
22.12 (8.2.2)	Portable luminaire adjusted in most unfavourable position		P
22.12 (8.2.3.a)	Class II luminaire:		P
	- 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
22.12 (8.2.3.b)	BC lampholder of metal in class I luminaires shall be earthed		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
22.12 (8.2.3.c)	SELV circuits with exposed current carrying parts:		N/A
	Ordinary luminaire:		N/A
	- voltage under load (V) .....		N/A
	- no-load voltage (V) .....		N/A
	- touch current if applicable (mA) .....		N/A
	One conductive part insulated if required		N/A
	Other than ordinary luminaire:		N/A
	- nominal voltage (V) .....		N/A
	Class III luminaire only for connection to SELV		N/A
	Class III luminaire not provided with means for protective earthing		N/A
22.12 (8.2.4)	Portable luminaire have protection independent of supporting surface		P
22.12 (8.2.5)	Compliance with the standard test finger or relevant probe		P
22.12 (8.2.6)	Covers reliably secured		N/A
22.12 (8.2.7)	Luminaire other than below with capacitor > 0,5 $\mu$ F not exceed 50 V 1 min after disconnection		N/A
	Portable luminaire with capacitor > 0,1 $\mu$ F (0.25) not exceed 34 V 1 s after disconnection		N/A
	Other luminaires with capacitor > 0,1 $\mu$ F (0.25) with plug and track adaptors not exceed 60 V 5 s after disconnection		N/A

<b>22.13 (12)</b>	<b>ENDURANCE TEST AND THERMAL TEST</b>		P
22.13.1 (-)	If IP > IP 20 relevant test of (12.4), (12.5) and (12.6) after (9.2) before (9.3) specified in 22.14		—
22.13 (12.3)	Endurance test:		P
	- mounting-position .....	Normal mounting	—
	- test temperature (°C) .....	35	—
	- total duration (h).....	240	—
	- supply voltage: Un factor; calculated voltage (V) ..	230	—
	- lamp used .....	LED	—

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Clause	Requirement + Test	Result - Remark	Verdict
22.13 (12.3.2)	After endurance test:		P
	- no part unserviceable		P
	- luminaire not unsafe		P
	- no damage to track system		P
	- marking legible		P
	- no cracks, deformation etc.		P
22.13 (12.4)	Thermal test (normal operation)	(see Annex 2)	P
22.13 (12.5)	Thermal test (abnormal operation)	(see Annex 2)	P
22.13 (12.6)	Thermal test (failed lamp control gear condition):		P
22.13 (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
22.13 (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
22.13 (12.7)	Thermal test (failed lamp control gear in plastic luminaires):		N/A
22.13 (12.7.1)	Luminaire without temperature sensing control		N/A
22.13 (12.7.1.1)	Luminaire with fluorescent lamp ≤ 70W		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Test method 12.7.1.1 or Annex W .....		—
	Test according to 12.7.1.1:		N/A
	- case of abnormal conditions .....		—
	- Ballast failure at supply voltage (V) .....		—
	- Components retained in place after the test		N/A
	- Test with standard test finger after the test		N/A
	Test according to Annex W:		N/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 .....		—
	- calculated temperature of fixing point/exposed part (°C).....		—
	Ball-pressure test .....	See Table 22.16 (13.2.1)	P
22.13 (12.7.1.2)	Luminaire with discharge lamp, fluorescent lamp > 70W, transformer > 10 VA		N/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 .....		—
	- calculated temperature of fixing point/exposed part (°C).....		—
	Ball-pressure test .....	See Table 22.16 (13.2.1)	P
22.13 (12.7.1.3)	Luminaire with short circuit proof transformers ≤ 10 VA		P
	- case of abnormal conditions .....		—
	- Components retained in place after the test		P
	- Test with standard test finger after the test		P
22.13 (12.7.2)	Luminaire with temperature sensing control		N/A
	- thermal link.....	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
	- manual reset cut-out .....	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
	- auto reset cut-out.....	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
	- case of abnormal conditions .....		—

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Clause	Requirement + Test	Result - Remark	Verdict
	- highest measured temperature of fixing point/ exposed part (°C):..... :		—
	Ball-pressure test: ..... :	See Table 22.16 (13.2.1)	P
22.13.1 (-)	Endurance test for self-contained luminaire		P
	Operate satisfactory during 50 supply switching		P
22.13.2 (-)	Thermal test 12.4 to 12.5 in IEC 60598-1	(see Annex 2)	N/A
22.13.3 (-)	Condition of tests		—
22.13.4 (-)	Battery discharge		—
22.13.5 (-)	Reduced temperature		—
22.13.6 (-)	Additional thermal test	(see Annex 2)	N/A
22.13.7 (-)	Provide Vmin according Clause 20 of IEC 61347-2-7 at the end of operation		N/A

<b>22.14 (9)</b>	<b>RESISTANCE TO DUST AND MOISTURE</b>		—
22.14 (-)	The order of tests as specified in clause 22.12		N/A
22.14 (9.2)	Tests for ingress of dust, solid objects and moisture:		N/A
	- 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 on insulation where it could become a hazard		N/A
	c.1) For luminaires without drain holes – no water entry		N/A
	c.2) For luminaires with drain holes – no hazardous water entry		N/A
	d) no water in watertight or pressure watertight luminaire		N/A
	e) no contact with live parts (IP 2X)		P
	e) no entry into enclosure (IP 3X and IP 4X)		N/A
	e) no contact with live parts through drain holes and ventilation slots (IP3X and IP4X)		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	f) no trace of water on part of lamp requiring protection from splashing water		N/A
	g) no damage of protective shield or glass envelope		N/A
22.14 (9.3)	Humidity test 48 h		P

22.15 (10)	INSULATION RESISTANCE AND ELECTRIC STRENGTH		P
22.15 (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) .....	More than 100M	—
	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
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts .....		N/A
	- Insulation bushings as described in Section 5 .....		N/A
	Other than SELV		N/A
	- between live parts of different polarity .....		N/A
	- between live parts and mounting surface .....		N/A
	- between live parts and metal parts.....		N/A
	- between live parts of different polarity through action of a switch .....		N/A
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts .....		N/A
	- Insulation bushings as described in Section 5 .....		N/A
22.15 (10.2.2)	Electric strength test		P
	Dummy lamp		P
	Luminaires with ignitors after 24 h test		P
	Luminaires with manual ignitors		P

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Clause	Requirement + Test	Result - Remark	Verdict
	Test voltage (V)..... :	3000	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
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts ..... :		N/A
	- Insulation bushings as described in Section 5 ..... :		N/A
	Other than SELV		
	- between live parts of different polarity ..... :		N/A
	- between live parts and mounting surface ..... :		N/A
	- between live parts and metal parts..... :		N/A
	- between live parts of different polarity through action of a switch ..... :		N/A
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts ..... :		N/A
	- Insulation bushings as described in Section 5 ..... :		N/A
22.15 (10.3)	Touch current or protective conductor current (mA):	0.18	P

22.16 (13) RESISTANCE TO HEAT, FIRE AND TRACKING			—
22.16 (13.2.1)	Ball-pressure test..... :	See Test Table 22.16 (13.2.1)	P
22.16 (13.3.1)	Needle-flame test (10 s)..... :	See Test Table 22.16 (13.3.1)	P
22.16 (13.3.2)	Glow-wire test (650°C)..... :	See Test Table 22.16 (13.3.2)	P
22.16 (13.4)	Proof tracking test (IEC 60112) ..... :	See Test Table 22.16 (13.4)	P
22.16 (-)	Glow-wire test (850°C) if applicable ..... :		N/A
	Glow-wire test (850°C) or fire resistant cable if applicable ..... :		N/A

<b>IEC 60598-2-22</b>			
Clause	Requirement + Test	Result - Remark	Verdict
<b>22.17 (-)</b>	<b>PHOTOMETRIC DATA</b>		—
22.17.1 (-)	Intensity distribution data available		N/A
	At least 50% of level declared photometric data 5 s after failure of supply		N/A
	100% of level declared photometric data if high-risk task-area lighting 0,5 s after failure of supply		N/A
	Photometric measurements according CIE 121 SP1		N/A
	All values at least minimum declared data		N/A
22.17.4 (-)	Colour-rendering index		N/A
22.17.5 (-)	Internally illuminated emergency safety sign meet requirements of ISO 30061		N/A
	Luminance of permanently illuminated safety sign meet requirements of ISO 3864-1 and ISO 3864-4		N/A
	Luminance measurements according Annex C	(see Annex C)	N/A
<b>22.18 (-)</b>	<b>CHANGEOVER OPERATION</b>		—
	Changeover device comply with Clause 21 of IEC 61347-2-7		N/A
<b>22.19 (-)</b>	<b>HIGH TEMPERATURE OPERATION</b>		—
	Operation at 70°C		P
	Relative light outputs		N/A
<b>22.20 (-)</b>	<b>BATTERY CHARGERS FOR SELF-CONTAINED EMERGENCY LUMINAIRES</b>		—
	Devices for recharging batteries comply with Clause 22 of IEC 61347-2-7		P
<b>22.21 (-)</b>	<b>TEST DEVICES FOR EMERGENCY OPERATION</b>		—
22.21.1 (-)	Self-contained luminaire provided with test facility		P
22.21.2 (-)	Remote testing device not influence proper function of safety illumination		P
22.21.3 (-)	Indicators colour according IEC 60073		P

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Clause	Requirement + Test	Result - Remark	Verdict

22.8 (11.2)	TABLE: Creepage distances and clearances						P
	Minimum distances (mm) for a.c. (50/60 Hz) sinusoidal voltages						
	Applicable part of IEC 60598-1 Table 11.1* and 11.2*						
	Insulation type **	Measured clearance	Required		Measured creepage	Required	
			clearance	*Table		creepage	*Table
Distance 1:	R	3.4	3.0	11.1	6.8	5.0	11.1
Working voltage (V).....:					230	—	
PTI.....:					< 600 <input checked="" type="checkbox"/>	≥ 600 <input type="checkbox"/>	—
Pulse voltage if applicable (kV) .....						—	
Supplementary information:							
Distance 2:							
Working voltage (V).....:					230	—	
PTI.....:					< 600 <input checked="" type="checkbox"/>	≥ 600 <input type="checkbox"/>	—
Pulse voltage if applicable (kV) .....						—	
Supplementary information:							
Distance 3:							
Working voltage (V).....:					230	—	
PTI.....:					< 600 <input checked="" type="checkbox"/>	≥ 600 <input type="checkbox"/>	—
Pulse voltage if applicable (kV) .....						—	
Supplementary information:							

\*\* Insulation type: B – Basic; S – Supplementary; R – Reinforced. See also IEC 60598-1 Annex M.

22.16 (13.2.1)	TABLE: Ball Pressure Test of Thermoplastics			P
Allowed impression diameter (mm) .....				—
Object/ Part No./ Material	Manufacturer/ trademark	Test temperature (°C)	Impression diameter (mm)	
Plastic enclosure	Various	75	0.74	
PCB	Various	125	0.65	



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Clause	Requirement + Test	Result - Remark	Verdict
Diffuser	Various	0.75	1.14
Supplementary information:			

22.16 (13.3.1)	TABLE: Needle-flame test (IEC 60695-11-5)				P
Object/ Part No./ Material	Manufacturer/ trademark	Duration of application of test flame (ta); (s)	Ignition of specified layer Yes/No	Duration of burning (tb) (s)	Verdict
Plastic enclosure	Various	4	N	5	Pass
PCB	Various	0	N	0	Pass
Diffuser	Various	5	N	6	Pass
Supplementary information:					

22.16 (13.3.2)	TABLE: Glow-wire test (IEC 60695-2-11)				P
Glow wire temperature .....		650°C		—	
Object/ Part No./ Material	Manufacturer/ trademark	Ignition of specified layer Yes/No	Duration of burning (tb) (s)	Verdict	
Plastic enclosure	Various	N	0	Pass	
PCB	Various	N	0	Pass	
Diffuser	Various	N	0	Pass	
Any flame or glowing of the sample extinguished within 30 s of withdrawing the glow-wire, and any burning or molten drop did not ignite the underlying parts (Yes/No).....:					
Supplementary information:					

22.16 (13.4)	TABLE: Proof tracking test (IEC 60112)				N/A
Test voltage PTI .....		175 V		—	
Object/ Part No./ Material	Manufacturer/ trademark	Withstand 50 drops without failure on three places or on three specimens		Verdict	



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Clause	Requirement + Test			Result - Remark	Verdict
Supplementary information:					

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

Annex A: Batteries for self-contained emergency luminaires			—
A.1	Type of batteries		—
A.2	Battery conform to relevant standard		—
	Luminaire operate within specific tolerances		—
A.3	Battery capacity		—
<b>A.4</b>	<b>Sealed nickel cadmium batteries</b>		—
A.4.1	Battery conform to IEC 61951-1		—
A.4.2.a	Maximum surface temperature of the battery °C..... :		—
A.4.2.b	Maximum overcharge rate 0,08 C <sub>5</sub> A		—
A.4.2.c	Minimum ambient temperature of the cells 5 °C		—
A.4.2.d	Maximum discharge rates		—
<b>A.5</b>	<b>Sealed nickel metal-hydride batteries</b>		—
A.5.1	Battery conform to IEC 61951-2		—
A.5.2.a	Maximum case temperature of the battery °C..... :		—
A.5.2.b	Maximum overcharge rate 0,08 C <sub>5</sub> A		—
A.5.2.c	Minimum ambient temperature of the cells 5 °C		—
A.5.2.d	Maximum discharge rates		—
<b>A.6</b>	<b>Valve regulated lead acid batteries</b>		—
A.6.1	Battery conform to relevant part of IEC 60869-21 or IEC 61056-1		—
A.6.2.a	Maximum surface temperature of the battery °C..... :		—
A.6.2.b	Maximum recharge current 0,4 C <sub>20</sub>		—
A.6.2.c	Maximum discharge rates		—
A.6.2.d	Maximum r.m.s. ripple current 0,1 C <sub>20</sub>		—
A.6.2.e	Minimum ambient temperature of the cells 5 °C		—
A.7	Ambient temperature of the cells measured after 48 h		—
A.8	Alternative operating parameters and evidence if operating outside limits in A.4 and A.5		—
A.9	Battery only replaced by a competent person		—

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Clause	Requirement + Test	Result - Remark	Verdict

Annex B: Luminaire classification			—
	Classified and marked according Annex B ..... :		N/A

Annex C: Luminance measurements			—
C.1	Contrast measurements		N/A
C.2	On site photometric tests		N/A
	according to Annex C of ISO 3864-4		N/A
	Measured values not less than specified in this standard		N/A

Annex E: Requirements for self-contained portable emergency luminaires			—
<b>E.5</b>	<b>Classification of luminaires</b>		<b>P</b>
	Base unit and portable emergency luminaires with mains-voltage supplied integrated charger of Class I or Class II	Class II	P
	Self-contained portable emergency luminaire without integrated mains-voltage supplied charger of Class III		N/A
E.5.1	Classified according construction		—
E.5.1.a	Control unit contained in the self-contained portable emergency luminaire	Yes <input type="checkbox"/> No <input type="checkbox"/>	—
E.5.1.b	Part of the control unit remains in the base unit	Yes <input type="checkbox"/> No <input type="checkbox"/>	—
E.5.2	Classified according operation		—
E.5.2.a	Automatic initiation with manual control	Yes <input type="checkbox"/> No <input type="checkbox"/>	—
E.5.2.b	Automatic initiation with automatic control	Yes <input type="checkbox"/> No <input type="checkbox"/>	—
E.5.2.c	Manual control	Yes <input type="checkbox"/> No <input type="checkbox"/>	—
E.5.3	Classified according photometric performance		—
	Distribution measured according IEC TR 61341		N/A
E.5.3.a	Narrow beam angels not greater than 15°		N/A
E.5.3.b	Medium beam angels between 15° and 25°		N/A
E.5.3.c	Wide beam angels greater than 25°		N/A
E.5.3.d	Variable beam angels – state the range of angels		N/A
<b>E.6</b>	<b>Marking</b>		—
E.6.1	Marking visible after installation		P
	Marking on both parts if separate charging device		P

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Clause	Requirement + Test	Result - Remark	Verdict
	Class II symbol only on the charger if separate charging device		P
E.6.2	Instruction for electrical, mechanical and use according classification		N/A
E.6.3	Warning notice on both parts to return the luminaire to base unit for recharging after use		N/A
E.6.4	Instruction with photometric data		N/A
<b>E.7</b>	<b>Construction</b>		—
E.7.1	Control unit completely contained in the luminaire or part of the control unit in the base unit		N/A
E.7.2	Mechanical strength tests according 4.13 of IEC 60598-1		P
	Mechanical strength tests according 4.13.4 of IEC 60598-1 of portable section		P
E.7.3	Base unit permanently connected to unswitched supply		N/A
E.7.4	Integral manual switch used to switch the unit between inhibit mode and emergency mode and vice versa		N/A
	Recharging before supply voltage reach 0,85 times nominal value		N/A
E.7.5	Integral over current protection device connected immediately after the terminals connecting to the supply		N/A
E.7.6	Power supply connection between the luminaire and its base unit made without a tool		N/A
	Connecting devices according relevant standard		N/A
E.7.7	No access to live parts during or after connection or disconnection		N/A
E.7.8	Supply cable disconnected from the portable part before use		N/A
E.7.9	Connection between the portable part and the charger mechanically interlocked to prevent incorrect polarised connection		P
E.7.10	At least two independent replaceable lamps if incandescent lamps		N/A
E.7.11	Colour rendering index of any emergency lamps $R_a$ 40 or better		N/A
E.7.12	Audible and/or visible warning on re-instatement of normal supply		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
E.7.13	Failure of the mains supply the luminaire operate in emergency mode or an indicator identify the location of the luminaire		N/A
	Load $\leq 0,01C5/h$ of the battery if indicator is used		N/A
E.7.14	Indicator give warning of low battery capacity remaining		N/A
E.7.15	Adequate stability		N/A
	Test at an angle of 15° to the horizontal		N/A
E.7.16	Adequate stability to illuminate the task area on non-horizontal surface		N/A
	Test at an angle of 15° to the horizontal		N/A
<b>E.8</b>	<b>Changeover operation</b>		N/A
	Requirements according 22.7.10 excluded if integral manual switch		N/A
	Design avoid switching of charger whilst holding the luminaire		N/A
<b>E.9</b>	<b>High temperature operation</b>		—
	Ambient temperature of 40°C in Clause 22.19		—
<b>E.10</b>	<b>Thermal test</b>		—
	Test made with portable part either placed on dull black painted wooden floor or rest against a dull black painted wooden wall		—

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Clause	Requirement + Test	Result - Remark	Verdict

ANNEX 1 TABLE: Critical components information						
Object / part No.	Code	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity <sup>1)</sup>
Plug	B	Shengyi Electric Wire & Cable Co., Ltd.	SY-28	250VAC, 2.5A	VDE 0620	VDE
Supply cord	B	Shengyi Electric Wire & Cable Co., Ltd.	H03VVH2-F	2x0,75mm <sup>2</sup>	VDE 0281	VDE
Internal wire	D	YUEQING BOYUAN ELECTRONIC WIRE & CABLE CO LTD	2468	20AWG, 105°C	UL 758	UL
Quick terminal	B	Cixi Kaifeng Electronic Co., Ltd.	KF10H	250VAC, 6A	VDE 0613	VDE
Switch	B	Shin Chin Industrial Co., Ltd.	LQ-101	250VAC, 3A	VDE 0630	VDE
PCB	B	Kingboard Laminates Ltd	ZD-9F	V-0, 130°C	UL 94	UL
Battery	B	SEALED LEAD-ACID RECHARGEABLE BATTERY	DT4240J	3.6VDC, 1200mAh	--	CE
LED PCB	B	International Laminate Material Ltd	ILM-U1##	V-0, 130°C	UL 796	UL
LED	B	QUANZHOU DAMING ELECTRONIC APPLICATIONS CO., LTD.	2835	Vf: 2.5-3.8V; If: 60mA; CCT: 2700-6500K; view angle: 120	EN 60598-2-22	Tested with appliance
Plastic enclosure	B	Mitsubishi Engineering-Plastics Corp	S-2000+ (f1)	1.5mm, 125°C, V-1	UL 94	UL

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Clause	Requirement + Test	Result - Remark	Verdict
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Supplementary information:

<sup>1)</sup> Provided evidence ensures the agreed level of compliance. See OD-CB2039.

The codes above have the following meaning:

- A - The component is replaceable with another one, also certified, with equivalent characteristics
- B - The component is replaceable if authorised by the test house
- C - Integrated component tested together with the appliance
- D - Alternative component



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Clause	Requirement + Test	Result - Remark	Verdict

ANNEX 2	TABLE: Temperature measurements, thermal tests of Section 12		P
	Type reference .....	SINALIZACAO SAIDA PREMIUM 60X30	—
	Lamp used .....	LED	—
	Lamp control gear used .....	LED driver	—
	Mounting position of luminaire .....	Normal mounting	—
	Supply wattage (W).....	5.6	—
	Supply current (A) .....	0.1	—
	Calculated power factor .....	--	—
	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 .....	230 x 1.06=243.8	—
	- test 4: 1,1 times rated voltage or 1,05 times rated wattage.....		—
	Through wiring or looping-in wiring loaded by a current of A during the test .....		—

**Temperature measurements, (°C)**

Part	Ambient	Clause 12.4 – normal			Clause 12.5 – abnormal		
		test mode Charger for battery		test mode Discharging for battery			limit
Supply cord	25	30.4	—	—	—	—	75
C3	25	48.9	—	32.6	—	—	105
Switch	25	44.6	—	31.7	—	—	75
Internal wire near IC3	25	48.6	—	34.8	—	—	105
PCB near Q2	25	58.6	—	41.2	—	—	130
PCB near IC3	25	66.3	—	41.8	—	—	130
PCB near Q2	25	55.7	—	38.6	—	—	130

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Clause	Requirement + Test				Result - Remark		Verdict
Battery surface	25	41.3	—	44.7	—	—	65
Quick terminal	25	33.7	—	29.6	—	—	105
LED	25	69.7	—	55.2	—	—	Ref.
LED PCB	25	60.8	—	62.3	—	—	130
Plastic near battery inside	25	42.1	—	40.4	—	—	90
Plastic near battery outside	25	30.6	—	28.7	—	—	90
Supplementary information:							

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Clause	Requirement + Test	Result - Remark	Verdict

<b>ANNEX 3</b>	<b>Screw terminals (part of the luminaire)</b>		P
<b>(14)</b>	<b>SCREW TERMINALS</b>		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> ) .....		—
(14.3.3)	Conductor space (mm) .....		N/A
(14.4)	Mechanical tests		P
(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	P
	External wiring		P
	No soft metal		N/A
(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

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Clause	Requirement + Test	Result - Remark	Verdict

<b>ANNEX 4</b>	<b>Screwless terminals (part of the luminaire)</b>		P
<b>(15)</b>	<b>SCREWLESS TERMINALS</b>		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)	Terminals and connections for internal wiring		N/A
(15.5.1)	Mechanical tests		N/A
(15.5.1.1.1)	Pull test spring-type terminals (4 N, 4 samples) .....		N/A
(15.5.1.1.2)	Pull test pin or tab terminals (4 N, 4 samples) .....		N/A
	Insertion force not exceeding 50 N		P
(15.5.1.2)	Permanent connections: pull-off test (20 N)		N/A
(15.5.2)	Electrical tests		P
	Voltage drop (mV) after 1 h (4 samples) .....		P
	Voltage drop of two inseparable joints		P
	Number of cycles:		—
	Voltage drop (mV) after 10th alt. 25th cycle (4 samples) .....		P
	Voltage drop (mV) after 50th alt. 100th cycle (4 samples) .....		N/A
	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
(15.6)	Terminals and connections for external wiring		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

(15.6.1)	Conductors		N/A
	Terminal size and rating		N/A
15.6.2	Mechanical tests		P
(15.6.2.1)	Pull test spring-type terminals or welded connections (4 samples); pull (N) .....		P
(15.6.2.2)	Pull test pin or tab terminals (4 samples); pull (N) .....		P
(15.6.3)	Electrical tests		P
	Tests according 15.6.3.1 + 15.6.3.2 in IEC 60598-1		P

<b>(15.6.3.1)</b>	<b>TABLE: Contact resistance test / Heating tests</b>										P
<b>(15.6.3.2)</b>	Voltage drop (mV) after 1 h										—
terminal	1	2	3	4	5	6	7	8	9	10	
voltage drop (mV)											
	Voltage drop of two inseparable joints										
	Voltage drop after 10th alt. 25th cycle										
	Max. allowed voltage drop (mV).....:										—
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)											



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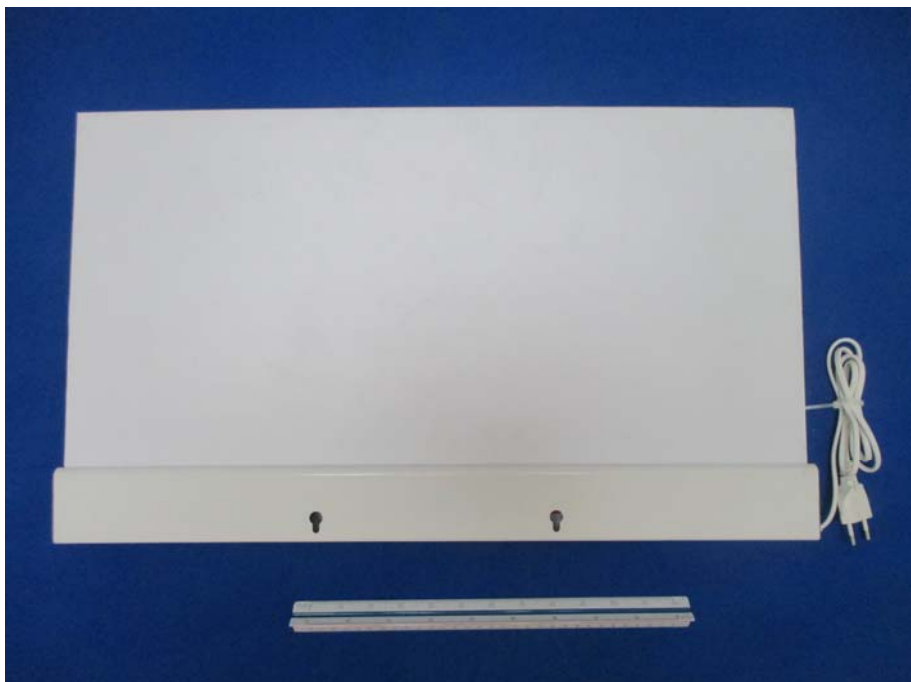
Clause	Requirement + Test	Result - Remark	Verdict
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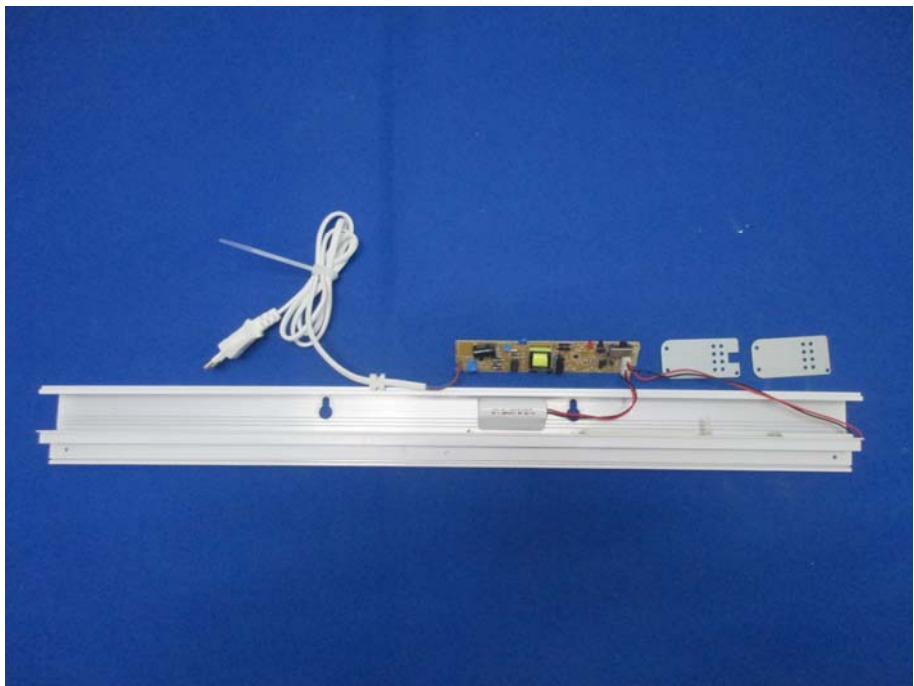
Supplementary information:

**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>	
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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>	
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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 checked="" type="checkbox"/> Internal</p>	
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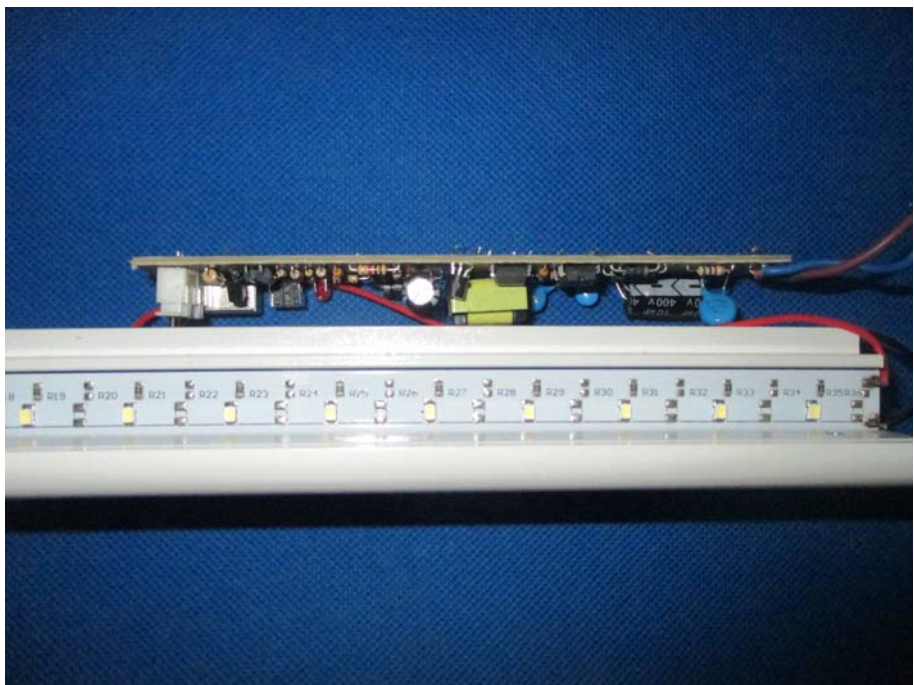
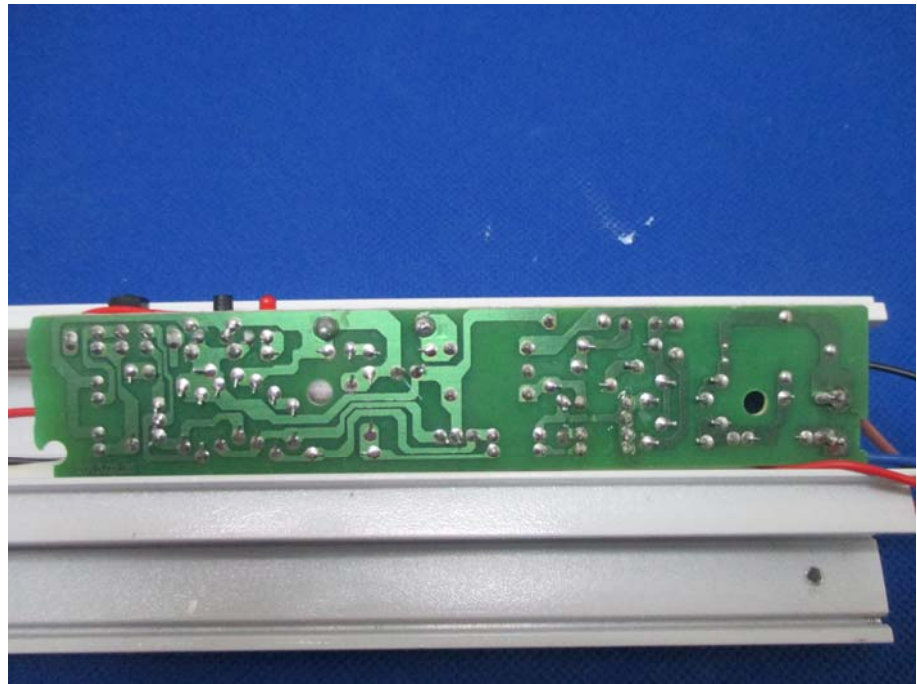
<p>Photo 4</p> <p>View:</p> <p><input type="checkbox"/> Front</p> <p><input type="checkbox"/> Rear</p> <p><input type="checkbox"/> Right side</p> <p><input type="checkbox"/> Left side</p> <p><input type="checkbox"/> Top</p> <p><input type="checkbox"/> Bottom</p> <p><input checked="" type="checkbox"/> Internal</p>	
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Photo 5

View:

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



---END---