Test Report issued under the responsibility of:

TEST REPORT
IEC 60598-2-22
Luminaires
Part 2: Particular requirements
Section 22: Luminaires for emergency lighting

Report Number. ..... :	ETA22020001S-001
Date of issue ..... :	February 17, 2022
Total number of pages ..... :	53 Pages
Name of Testing Laboratory preparing the Report ..... :	Hangzhou ETA Testing Technology Co., Ltd 8/F., Building A, The Western Science Park, Yuhang District, Hangzhou, Zhejiang, China
Applicant's name ..... :	Hangzhou Longlux Electronic Technology Co., Ltd
Address ..... :	The Western Science Park, Hangzhou City, China
Test specification:	
Standard ..... :	IEC 60598-2-22:2014, AMD1:2017 used in conjunction with IEC 60598-1:2020
Test procedure ..... :	CE-LVD
Non-standard test method ..... :	N/A
TRF template used ..... :	IECEE OD-2020-F1:2021, Ed.1.4
Test Report Form No. ..... :	IEC60598_2_22H
Test Report Form(s) Originator .... :	Intertek Semko AB
Master TRF ..... :	Dated 2021-08-20

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Test item description .....:	Luminaires for emergency lighting
Trade Mark(s).....:	N/A
Manufacturer.....:	Same as applicant above
Model/Type reference.....:	LLX-EM-TWIN-1
Ratings.....:	Input : 85-240V~; 50/60Hz; IP20; Output: 2×3W; Class II; Ta:10℃ -35℃; with 3,7V/1800mAh Lithium batteries

Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):			
☒	**Testing Laboratory:**	Hangzhou ETA Testing Technology Co., Ltd	
Testing location/ address ..... :		8/F., Building A, The Western Science Park, Yuhang District, Hangzhou, Zhejiang, China	
Tested by (name, function, signature) ..... :		Jiajun LV (Certification Engineer)	lv jiajun
Approved by (name, function, signature) .. :		Sean Wan (Reviewer)	Sean Wan
☐	**Testing procedure: CTF Stage 1:**		
Testing location/ address ..... :			
Tested by (name, function, signature) ..... :			
Approved by (name, function, signature) .. :			
☐	**Testing procedure: CTF Stage 2:**		
Testing location/ address ..... :			
Tested by (name + signature)..... :			
Witnessed by (name, function, signature) . :			
Approved by (name, function, signature) .. :			
☐	**Testing procedure: CTF Stage 3:**		
☐	**Testing procedure: CTF Stage 4:**		
Testing location/ address ..... :			
Tested by (name, function, signature) ..... :			
Witnessed by (name, function, signature) . :			
Approved by (name, function, signature) .. :			
Supervised by (name, function, signature) :			

List of Attachments (including a total number of pages in each attachment):

-Page 1 to 52: Test report

-Page 52 to 53: Photos

Summary of testing:

A representative sample of the product covered by this report has been tested and complies with the applicable requirements of this standard. Determination of the test result includes consideration of measurement uncertainty from the test equipment and methods.

Tests performed (name of test and test clause):	**Testing location:**
Full test	Same as previous page.

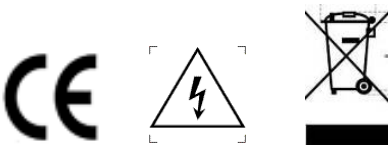
Summary of compliance with National Differences (List of countries addressed):

☒ **The product fulfils the requirements of EN 60598-2-22:2014 + A1:2020 used in conjunction with EN IEC 60598-1:2021.**

Copy of marking plate:

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.

Model: LLX-EM-TWIN-1
Input: 85-240V~; 50/60Hz; Output: 2×3W; Class II;



Hangzhou Longlux Electronic Technology Co., Ltd
The Western Science Park, Hangzhou City, China

The entity (in EU) who put the product on the market must have their name and address on the product.

Test item particulars.....:	Luminaires for emergency lighting
Classification of installation and use.....:	Class II
Supply Connection.....:	Supply cords with plug
Possible test case verdicts:	
- test case does not apply to the test object.....:	N/A
- test object does meet the requirement.....:	P (Pass)
- test object does not meet the requirement.....:	F (Fail)
Testing.....:	
Date of receipt of test item .....:	January 13, 2022
Date (s) of performance of tests.....:	January 13, 2022 ~ February 17, 2022

General remarks:

"(See Enclosure #)" refers to additional information appended to the report.
"(See appended table)" refers to a table appended to the report.

Throughout this report a ☒ comma / ☐ point is used as the decimal separator.

Clause numbers between brackets refer to clauses in IEC 60598-1

Manufacturer's Declaration per sub-clause 4.2.5 of IECEE 02:

The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided ..... :	☐ **Yes** ☒ **Not applicable**

When differences exist; they shall be identified in the General product information section.

Name and address of factory (ies) .....:	Hangzhou Longlux Electronic Technology Co., Ltd The Western Science Park, Hangzhou City, China

General product information and other remarks:

The product covered by this report is Class II Luminaires for emergency lighting for indoor use.

All relevant tests are applied to LLX-EM-TWIN-1 which gives the most unfavourable test result.

Refer to Appendix 1 for the testing of LED module according to EN IEC 62031:2020.

Refer to Appendix 2 for the testing of Lamp control gear according to EN 61347-2-13 used in conjunction with EN 61347-1:2015.

According clause 4.2.2 of EN 62493:2015, lighting equipment deemed to comply with the requirements of EN 62493:2015 without testing.

IEC 60598-2-22			
Clause	Requirement + Test	Result - Remark	Verdict
22.4 (0)	**GENERAL TEST REQUIREMENTS**		
22.4 (0.3)	More sections applicable ..... :	Yes ☐ No ☒ Section/s:	—
22.4 (0.5)	Components	(see Annex 1)	—
22.4 (0.7)	**Information for luminaire design in light sources standards**		—
22.4 (0.7.2)	Light source safety standard ..... :	EN IEC 62031	—
	Luminaire design in the light source safety standard		P
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)	N/A
22.5 (2)	**CLASSIFICATION OF LUMINAIRES**		
22.5 (2.2)	Type of protection ..... :	Class II	
22.5 (2.3)	Degree of protection ..... :	IP20	—
22.5 (2.4)	Luminaire suitable for direct mounting on normally flammable surfaces ..... :	Yes ☒ No ☐	—
22.5 (2.5)	Luminaire for normal use ..... :	Yes ☒ No ☐	—
	Luminaire for rough service ..... :	Yes ☐ No ☒	—
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)	
22.6 (3)	**MARKING**		
22.6 (3.2)	Mandatory markings		P
	Position of the marking		P
	Format of symbols/text		P
22.6 (3.3)	Additional information		P
	Language of instructions		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		N/A
22.6 (3.3.5)	Wiring diagram		N/A

IEC 60598-2-22			
Clause	Requirement + Test	Result - Remark	Verdict
22.6 (3.3.6)	Special conditions		N/A
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		N/A
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		P
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	type Y	P
22.6 (3.3.18)	Non-ordinary luminaires with PVC cable		N/A
22.6 (3.3.19)	Protective conductor current in instruction if applicable		N/A
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	non-user replaceable	P
22.6 (3.3.22)	Controllable luminaires, classification of insulation provided		N/A
22.6 (3.3.23)	Luminaires without control gear provided with necessary information for selection of appropriate component		N/A
22.6 (3.3.24)	If not supplied with terminal block, information on the packaging		N/A
22.6 (3.3.25)	Luminaires employing light sources emitting UV on mains wiring, information provided		N/A
22.6 (3.3.26)	Wall mounted luminaire using external flexible cable or cord longer than 0.3 m, information provided		N/A

IEC 60598-2-22			
Clause	Requirement + Test	Result - Remark	Verdict
22.6 (3.4)	Test with water		P
	Test with hexane		P
	Legible after test		P
	Label attached		P
22.6.1 (-)	Supply voltage		P
22.6.2 (-)	Classification according to annex B		P
22.6.3 (-)	Correct replacement lamp		N/A
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		P
22.6.7 (-)	Marked with correct battery replacement		P
	Non-replaceable batteries		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		
22.6.10 (-)	Replacement of battery or luminaire		P
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		P
22.6.15 (-)	Photometric data available according 22.17		P
22.6.16 (-)	Any normal preparation procedure		P
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		N/A
22.6.20 (-)	Marking if luminaire mounted on lighting track systems		N/A
	Photometric data in instruction leaflet		N/A

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

22.7 (4)	**CONSTRUCTION**		
22.7 (4.2)	Components replaceable without difficulty		P
22.7 (4.3)	Wireways smooth and free from sharp edges		P
22.7 (4.4)	**Lamp holders**		
22.7 (4.4.1)	Integral lamp holder		N/A
22.7 (4.4.2)	Wiring connection		N/A
22.7 (4.4.3)	Lamp holder for end-to-end mounting		N/A
22.7 (4.4.4)	Positioning		N/A
	- pressure test (N) ..... :	N/A	—
	After test the lamp holder comply with relevant standard sheets and show no damage		N/A
	After test on single-capped lamp holder the lamp holder has not moved from its position and show no permanent deformation		N/A
	- bending test (N) ..... :	N/A	—
	After test the lamp holder has 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 lamp holder or connection according IEC 60061 not connected another way		N/A
22.7 (4.5)	**Starter holders**		
	Starter holder in luminaires other than class II		N/A
	Starter holder class II construction		N/A
22.7 (4.6)	**Terminal blocks**		
	Tails		N/A
	Unsecured blocks		N/A
22.7 (4.7)	**Terminals and supply connections**		
22.7 (4.7.1)	Contact to metal parts		P
22.7 (4.7.2)	Test 8 mm live conductor		P
	Test 8 mm earth conductor		P

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Clause	Requirement + Test	Result - Remark	Verdict
22.7 (4.7.3)	Terminals for supply conductors		P
22.7 (4.7.3.1)	Welded method and material		
	- stranded or solid conductor		N/A
	- spot welding		N/A
	- welding between wires		N/A
	- Type Z attachment		N/A
	- mechanical test according to 15.6.2		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
22.7 (4.8)	**Switches**		
	- adequate rating		N/A
	- adequate fixing		N/A
	- polarized supply		N/A
	- compliance with IEC 61058-1 for electronic switches		N/A
22.7 (4.9)	**Insulating lining and sleeves**		
22.7 (4.9.1)	Retainment		N/A
	Method of fixing ..... :		N/A
22.7 (4.9.2)	Insulated linings and sleeves:		
	Resistant to a temperature > 20 °C to the wire temperature or		N/A
	a) & c) Insulation resistance and electric strength		N/A
	b) Ageing test. Temperature (°C) ..... :		N/A
22.7 (4.10)	**Double or reinforced insulation**		
22.7 (4.10.1)	No contact, mounting surface – accessible metal parts – wiring of basic insulation		N/A
	Safe installation fixed luminaires		N/A
	Capacitors and switches		N/A
22.7 (4.10.2)	Assembly gaps:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- not coincidental		N/A
	- no straight access with test probe		N/A
22.7 (4.10.3)	Retainment of insulation:		
	- fixed		N/A
	- unable to be replaced; luminaire inoperative		N/A
	- sleeves retained in position		N/A
	- lining in lamp holder		N/A
22.7 (4.10.4)	Protective impedance device		
	Basic and supplementary insulation bridged by resistor(s) or appropriate capacitor		N/A
	Double or reinforced insulation bridged by at least two separate resistors in series or appropriate capacitor(s)		N/A
	Capacitors comply with IEC 60384-14		N/A
	Resistors comply with test (a) in 14.2 of IEC 60065		N/A
22.7 (4.11)	**Electrical connections and current-carrying parts**		
22.7 (4.11.1)	Contact pressure		P
22.7 (4.11.2)	Screws:		
	- self-tapping screws		N/A
	- thread-cutting screws		N/A
22.7 (4.11.3)	Screw locking:		
	- spring washer		P
	- rivets		N/A
22.7 (4.11.4)	Material of current-carrying parts		
22.7 (4.11.5)	No contact to wood or mounting surface		P
22.7 (4.11.6)	Electro-mechanical contact systems		N/A
22.7 (4.12)	**Screws and connections (mechanical) and glands**		
22.7 (4.12.1)	Screws not made of soft metal		P

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Clause	Requirement + Test	Result - Remark	Verdict
	Screws of insulating material		N/A
	Torque test: torque (Nm); part..... :	0,6 Nm; fixing PCB	P
	Torque test: torque (Nm); part..... :	0,6 Nm; fixing LED PCB	P
	Torque test: torque (Nm); part..... :	0,6 Nm; fixing Battery Bracket	P
22.7 (4.12.2)	Screws with diameter < 3 mm screwed into metal		N/A
22.7 (4.12.4)	Locked connections:		
	- fixed arms; torque (Nm) ..... :		N/A
	- lamp holder; torque (Nm) ..... :		N/A
	- push-button switches; torque 0,8 Nm ..... :		N/A
22.7 (4.12.5)	Screwed glands; force (Nm)..... :		N/A
22.7 (4.13)	**Mechanical strength**		
22.7 (4.13.1)	Impact tests:		
	- fragile parts; energy (Nm) ..... :		N/A
	- other parts; energy (Nm)..... :	0,35Nm	P
	1) live parts		P
	2) linings		N/A
	3) protection		P
	4) covers		P
22.7 (4.13.2)	Metal parts have adequate mechanical strength		N/A
22.7 (4.13.3)	Straight test finger		P
22.7 (4.13.4)	Rough service luminaires		
	- 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

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Clause	Requirement + Test	Result - Remark	Verdict
22.7 (4.14)	**Suspensions, fixings and means of adjusting**		
22.7 (4.14.1)	Mechanical load:		
	A) four times the weight	Max.0,615kg x 4=2,46kg	P
	B) torque 2,5 Nm		N/A
	C) bracket arm; bending moment (Nm) ..... :		N/A
	D) load track-mounted luminaires		N/A
	E) clip-mounted luminaires, glass-shelve. Thickness (mm) ..... :		N/A
	Metal rod. diameter (mm) ..... :		N/A
	Fixed luminaire or independent control gear without fixing devices		N/A
22.7 (4.14.2)	Load to flexible cables		
	Mass (kg) ..... :		—
	Stress in conductors (N/mm²) ..... :		N/A
	Mass (kg) of semi-luminaire ..... :		N/A
	Bending moment (Nm) of semi-luminaire ..... :		N/A
22.7 (4.14.3)	Adjusting devices:		
	- flexing test; number of cycles..... :	45	P
	- strands broken ..... :	0	P
	- electric strength test afterwards		P
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
22.7 (4.15)	**Flammable materials**		
	- glow-wire test 650°C ..... :	See Test Table 22.15 (13.3.2)	P
	- spacing ≥30 mm		N/A
	- screen withstanding test of 13.3.1		N/A
	- screen dimensions		N/A
	- no fiercely burning material		P
	- thermal protection		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- electronic circuits exempted		N/A
22.7 (4.15.2)	Luminaires made of thermoplastic material with lamp control gear		
	a) construction		N/A
	b) temperature sensing control		N/A
	c) surface temperature		N/A
22.7 (4.16)	**Luminaires for mounting on normally flammable surfaces**		
	No lamp control gear ..... :	(compliance with Section 12)	P
	Provided with adaptor for a track meet the requirements for direct mounting on normally flammable surfaces		N/A
22.7 (4.16.1)	Lamp control gear spacing:		
	- 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
22.7 (4.17)	**Drain holes**		
	Clearance at least 5 mm		N/A
22.7 (4.18)	**Resistance to corrosion**		
22.7 (4.18.1)	- rust-resistance		P
22.7 (4.18.2)	- season cracking in copper		P
22.7 (4.18.3)	- corrosion of aluminium		P
22.7 (4.19)	Ignitors compatible with ballast		N/A
22.7 (4.20)	Rough service vibration		N/A
22.7 (4.21)	**Protective shield**		
22.7 (4.21.1)	Shield fitted if tungsten halogen lamps or metal halide lamps		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	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		N/A
22.7 (4.21.4)	Impact test on shield		N/A
	Glow-wire test on lamp compartment ..... :	See Test Table 1.15 (13.3.2)	N/A
22.7 (4.22)	Attachments to lamps not cause overheating or damage		N/A
22.7 (4.23)	Semi-luminaires comply Class II		N/A
22.7 (4.24)	**Photobiological hazards**		
22.7 (4.24.1)	No excessive UV radiation if tungsten halogen lamps and metal halide lamps (Annex P)		N/A
22.7 (4.24.2)	Retinal blue light hazard		
	Class of risk group assessed according to IEC/TR 62778 .....:	RG0	—
	Luminaires with E_{thr} :		
	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		N/A
	- marking according 3.2.23 if RG1 exceeded at 200 mm according to IEC/TR 62778		N/A
	Portable luminaires for children IEC 60598-2-10 and Mains socket outlet nightlights IEC 60598-2-12 not exceed RG1 at 200 mm according to IEC/62778		N/A
22.7 (4.25)	**Mechanical hazard**		
	No sharp point or edges		P
22.7 (4.26)	**Short-circuit protection**		
22.7 (4.26.1)	Adequate means of uninsulated accessible SELV / PELV parts		N/A
22.7 (4.26.2)	Short-circuit test with test chain according 4.26.3:		
	Supply source ES1 PSE		N/A
	Test chain not melt through		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Test sample not exceed values of Table 12.1 and 12.2		N/A
22.7 (4.27)	**Terminal blocks with integrated screwless protective earthing contacts**		
	Test according Annex V		N/A
	Pull test of terminal fixing (20 N)		N/A
	After test, resistance < 0,05 Ω		N/A
	Pull test of mechanical connection (50 N)		N/A
	After test, resistance < 0,05 Ω		N/A
	Voltage drop test, resistance < 0,05 Ω		N/A
22.7 (4.28)	**Fixing of thermal sensing control**		
	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
22.7 (4.29)	**Luminaires with non-replaceable light source**		
	Not possible to replace light source		N/A
	Live part not accessible after parts have been opened by hand or tools		N/A
22.7 (4.30)	**Luminaires with non-user replaceable light source**		
	If protective cover provide protection against electric shock and marked with “caution, electric shock risk” symbol:		P
	At least one fixing means requiring use of tool		P
22.7 (4.31)	**Insulation between circuits**		
	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 or PELV circuits		

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Clause	Requirement + Test	Result - Remark	Verdict
	Used SELV/PELV source		P
	Voltage ≤ ELV		N/A
	Insulating of SELV/PELV circuits from LV supply		N/A
	Insulating of SELV/PELV circuits from other non SELV/PELV circuits		P
	Insulating of SELV/PELV circuits from FELV		N/A
	Insulating of SELV/PELV circuits from other SELV/PELV circuits		N/A
	SELV/PELV circuits insulated from accessible parts according Table X.1		N/A
	Plugs not able to make any electrical contact with 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		
	Used FELV source		N/A
	Voltage ≤ 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 make any electrical contact with 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		
	Other circuits insulated from accessible parts according Table X.1		P
	Class II construction with equipotential bonding for protection against indirect contacts with live parts:		
	- conductive parts are connected together		N/A
	- test according 7.2.3		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- 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
22.7 (4.32)	**Overvoltage protective devices**		
	Comply with IEC 61643-11		N/A
	External to controlgear and connected to earth:		
	- only in fixed luminaires		N/A
	- only connected to protective earth		N/A
22.7 (4.33)	**Luminaire powered via information technology communication cabling**		
	Requirements for Class III luminaire		N/A
	Rated voltage within the range of ES1 and does not exceed maximum voltage of used connector		N/A
	Luminaire does not create any hazard from overvoltage	(see Annex 2)	N/A
22.7 (4.34)	**Electromagnetic fields (EMF)**		
	No harmful electromagnetic fields		N/A
22.7 (4.35)	**Protection against moving fan blades**		
	Test with a standard test finger		N/A
	Test with test probe acc. to Figure 13 (IEC 61032) for portable luminaire		N/A
	Blades rounded with radius ≥ 0.5 mm and:		
	-hardness less than D60 Shore		N/A
	-peripheral speed less than 15 m/s		N/A
	-input power of fan ≤ 2 W at rated voltage		N/A
22.7 (4.36)	**Track-mounted luminaires**		
	Test in accordance with Annex A of IEC60570:2003/AMD2:2019		N/A
24.7 (-)	Luminaire with automatic testing system complies with IEC 62034 as identified in Annex K of IEC 61347-2-7		N/A
22.7.1 (-)	No glow starters in circuit in start of or during the emergency mode		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
22.7.2 (-)	Lamp control gears comply with relevant part 2 of IEC 61347 and additional safety requirements for electronic controlgear for emergency lighting in appropriate annex of standards		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.)		P
22.7.7 (-)	Charging device		N/A
	Indicator lamp and colour		N/A
22.7.8 (-)	Battery meet requirements in Annex A	(see Annex A)	P
	Battery designed to provide duration for at least four years		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
22.7.11 (-)	Failure of lamp(s) not impair operation of the battery		P
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		N/A
22.7.19 (-)	Lamp voltage in self-contained emergency luminaire with tungsten filament lamps not exceed 1,05 rated voltage		N/A
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		N/A
22.7.23 (-)	Locking system for emergency luminaire on track system used for display lighting requires aid of tool		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

22.8 (11)	**CREEPAGE DISTANCES AND CLEARANCES**		
22.8 (11.2.1)	Impulse withstand category (Normal category II)	Category II ☒ Category III ☐	—
	Category III according Annex U		N/A
	Protected against pollution, reduced creepage and clearance according Annex P of IEC 61347-1		N/A
22.8 (11.2.2)	Creepage distances for frequency up to 30 kHz	See Test Table 22.8 (11.2) I	P
	Creepage distances for frequency over 30 kHz:		
	- Controlgear marked with $\hat{U}_{OUT}$ and f_{UOUT} according IEC 61347-1, clause 7.1, item w	See Test Table 22.8 (11.2) II	N/A
	- Requirements according IEC 60664-4 for controlgear not covered by IEC 61347	See Test Table 22.8 (11.2) II	N/A
22.8 (11.2.3)	Clearances for frequency up to 30 kHz	See Test Table 22.8 (11.2) I	P
	Clearances distances for frequency over 30 kHz:		
	- Controlgear marked with U_P	See Test Table 22.8 (11.2) II	N/A
	- Requirements according IEC 60664-4 for controlgear not covered by IEC 61347	See Test Table 22.8 (11.2) II	N/A

22.9 (7)	**PROVISION FOR EARTHING**		
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 grove		N/A
	Protective earth makes contact first		N/A
	Terminal blocks with integrated screwless protective 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)	Protective earth continuity in joints, etc.		N/A
22.9 (7.2.4)	Locking of clamping means		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Compliance with 4.7.3		N/A
22.9 (7.2.5)	Protective earth terminal integral part of connector socket		N/A
22.9 (7.2.6)	Protective earth terminal adjacent to mains terminals		N/A
22.9 (7.2.7)	Electrolytic corrosion of the protective earth terminal		N/A
22.9 (7.2.8)	Material of protective 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)	Protective earthing core coloured green-yellow		N/A
	Length of earth conductor		N/A
22.9 (7.2.12)	PELV circuit connected to protective earth for functional purpose		N/A

22.10 (14)	**SCREW TERMINALS**		
	Separately approved; component list	(see Annex 1)	N/A
	Part of the luminaire	(see Annex 3)	N/A

22.10 (15)	**SCREWLESS TERMINALS AND ELECTRICAL CONNECTIONS**		
	Separately approved; component list..... :	(see Annex 1)	P
	Part of the luminaire ..... :	(see Annex 4)	N/A

22.11 (5)	**EXTERNAL AND INTERNAL WIRING**		
22.11 (5.2)	**Supply connection and external wiring**		
22.11 (5.2.1)	Means of connection ..... :	Supply cords with plug	P
	Outdoor luminaire has not PVC insulated external wiring if not Class III or SELV/PELV circuits ≤ 25 V AC/60 V DC/25 V peak interrupted DC voltage with frequency 10Hz -200 Hz or protected from outdoor environment		N/A
22.11 (5.2.2)	Type of cable..... :	H03VVH2-F	P
	Nominal cross-sectional area (mm²) ..... :	2×0,75mm²	P
	Cables equal to IEC 60227 or IEC 60245		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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:		
	- suitable for introduction		P
	- adequate degree of protection		P
22.11 (5.2.7)	Cable entries through rigid material have rounded edges		P
22.11 (5.2.8)	Insulating bushings:		
	- 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:		
	- covering protected from abrasion		P
	- clear how to be effective		P
	- no mechanical or thermal stress		P
	- no tying of cables into knots etc.		P
	- insulating material or lining		P
22.11 (5.2.10.1)	Cord anchorage for type X attachment:		
	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

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Clause	Requirement + Test	Result - Remark	Verdict
22.11 (5.2.10.2)	Adequate cord anchorage for type Y and type Z attachment		N/A
22.11 (5.2.10.3)	Tests:		
	- impossible to push cable; unsafe		P
	- pull test: 25 times; pull (N) ..... :	60	P
	- torque test: torque (Nm) ..... :	0,15	P
	- displacement ≤ 2 mm		P
	- no movement of conductors		P
	- no damage of cable or cord		P
	- function independent of electrical connection		P
22.11 (5.2.10.4)	Luminaire with/designed for use with supply cord with maximum current of 2A:		
	- Ordinary Class III luminaire supplied with SELV ≤ 25V RMS/60V DC		N/A
	- Ordinary Class III luminaire supplied with PELV ≤12V RMS/30V DC		N/A
	- Other than ordinary Class III luminaire supplied with voltage ≤12V RMS/30V DC		N/A
	Pull test of 30N		N/A
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		P
	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 (5.2.15)	Connectors for Class III luminaires (IEC 60603 or IEC 62680)		N/A
22.11 (5.2.16)	Appliance inlets (IEC 60320)		N/A
	Installation couplers (IEC 61535)		N/A
	Appliance inlet or connector systems (IEC 61984)		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
22.11 (5.2.17)	No standardized interconnecting cables properly assembled		N/A
22.11 (5.2.18)	Used plug in accordance with		
	- IEC 60083		N/A
	- other standard		N/A
22.11 (5.3)	**Internal wiring**		
22.11 (5.3.1)	Internal wiring of suitable size and type		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
	Green-yellow for protective earth only		N/A
22.11 (5.3.1.1)	Internal wiring connected directly to fixed wiring		
	Cross-sectional area (mm²)..... :	0,5mm^2	P
	Insulation thickness (mm) ..... :		P
	Extra insulation added where necessary		N/A
22.11 (5.3.1.2)	Internal wiring connected to fixed wiring via internal current-limiting device		
	Cross-sectional area (mm²)..... :		N/A
22.11 (5.3.1.3)	Double or reinforced insulation for class II		N/A
22.11 (5.3.1.4)	Conductors without insulation		N/A
22.11 (5.3.1.5)	SELV/PELV current-carrying parts		P
22.11 (5.3.1.6)	Insulation thickness other than PVC or rubber		N/A
22.11 (5.3.2)	Sharp edges etc.		P
	No moving parts of switches etc.		N/A
	Joints, raising/lowering devices		N/A
	Telescopic tubes etc.		N/A
	No twisting over 360°		P

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Clause	Requirement + Test	Result - Remark	Verdict
22.11 (5.3.3)	Insulating bushings:		
	- suitable fixed		N/A
	- material in bushings		N/A
	- material not likely to deteriorate		N/A
	- cables with protective sheath		N/A
22.11 (5.3.4)	Joints and junctions effectively insulated		N/A
22.11 (5.3.5)	Strain on internal wiring		N/A
22.11 (5.3.6)	Wire carriers		P
22.11 (5.3.7)	Wire ends not tinned		P
	Wire ends tinned: no cold flow		N/A
22.11 (5.4)	**Test to determine suitability of conductors having a reduced cross-sectional area**		
	Under test the temperature of the luminaire wiring insulation not exceed the limits stated in Table 12.2	(see Annex 2)	P
	No damage to luminaire wiring after test		P
22.11.1 (-)	Permanently connected		P

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		P
	Basic insulated parts not accessible with standard test finger on portable, settable and adjustable luminaires		N/A
	Basic insulated parts not accessible with Ø 50 mm probe from outside, other types of luminaires		P
	Lamp and starter holders 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		P

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Clause	Requirement + Test	Result - Remark	Verdict
	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		N/A
22.12 (8.2.3.a)	Class II luminaire:		
	- 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 lamp holder of metal in class I luminaires shall be connected to protective earth		N/A
22.12 (8.2.3.c)	SELV circuits with exposed current carrying parts:		
	Ordinary luminaire:		
	- voltage under load/ no-load AC (V)..... :		N/A
	- voltage under load/ no-load DC (V)……...:		N/A
	- interrupted DC voltage (V) ……..:		N/A
	- touch current if applicable (mA) ..... :		N/A
	One conductive part insulated if required		N/A
	Other than ordinary luminaire:		
	- voltage under load/ no-load AC (V)..... :		N/A
	- voltage under load/ no-load DC (V)……...:		N/A
	- interrupted DC 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 (8.2.3.d)	PELV circuits with exposed current carrying parts:		
	Ordinary luminaire:		
	- voltage under load/ no-load AC (V)..... :		N/A
	- voltage under load/ no-load DC (V)……...:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Other than ordinary luminaire:		
	- voltage under load/ no-load AC (V)..... :		N/A
	- voltage under load/ no-load DC (V)……...:		N/A
	One pole insulated if required		N/A
22.12 (8.2.4)	Portable luminaire has protection independent of supporting surface		N/A
22.12 (8.2.5)	Compliance with the standard test finger or relevant probe		P
22.12 (8.2.6)	Covers reliably secured		P
22.12 (8.2.7)	Luminaire other than below with capacitor > 0,5 µF not exceed 50 V 1 min after disconnection		N/A
	Portable luminaire with capacitor > 0,1 µF (0.25) not exceed 34 V 1 s after disconnection		N/A
	Other luminaires with capacitor > 0,1 µF (0.25) with plug and track adaptors not exceed 60 V 5 s after disconnection		N/A
22.13 (12)	**ENDURANCE TEST AND THERMAL TEST**		
22.13 (-)	If IP > IP 20 relevant test of (12.4), (12.5), (12.6) and (12.7) after (9.2) before (9.3) as specified in 22.14		—
22.13 (12.2)	**Selection of lamps and ballasts**		**—**
	Lamp used according Annex B	(Lamp used see Annex 2)	—
	Control gear if separate and not supplied	(Control gear used see Annex 2)	—
22.13 (12.3)	**Endurance test**		
	a) mounting-position ..... :	Wall mounted	—
	b) test temperature (°C) ..... :	45°C	—
	c) total duration (h) ..... :	240h	—
	d) supply voltage (V) ..... :	264V	—
	d) if not equipped with control gear, constant voltage/current (V) or (A) ..... :	N/A	—
22.13 (12.3.1d)	d) Class III luminaires powered via information technology communication cable:		
	- voltage under normal operation (V)……...:	N/A	—
	- voltage under abnormal operation (V)……...:	N/A	—

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Clause	Requirement + Test	Result - Remark	Verdict
	e) luminaire ceases to operate	N/A	—
	f) luminaire with constant light output function		N/A
22.13 (12.3.2)	After endurance test:		
	- no part unserviceable		P
	- luminaire not unsafe		P
	- no damage to track system		N/A
	- marking legible		N/A
	- no cracks, deformation etc.		N/A
22.13 (12.4)	**Thermal test (normal operation)**	(see Annex 2)	P
22.13 (12.5)	**Thermal test (abnormal operation)**	(see Annex 2)	N/A
22.13 (12.6)	**Thermal test (failed lamp control gear condition):**		
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		
	- 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):**		
22.13 (12.7.1)	Luminaire without temperature sensing control		

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Clause	Requirement + Test	Result - Remark	Verdict
22.13 (12.7.1.1)	Luminaire with fluorescent lamp ≤ 70W		
	Test method 12.7.1.1 or Annex W ..... :		—
	Test according to 12.7.1.1:		
	- 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:		
	- 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 Test Table 22.16 (13.2.1)	N/A
22.13 (12.7.1.2)	Luminaire with discharge lamp, fluorescent lamp > 70W, transformer > 10 VA		
	- 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 Test Table 22.16 (13.2.1)	N/A
22.13 (12.7.1.3)	Luminaire with short circuit proof transformers ≤ 10 VA		N/A
	- case of abnormal conditions ..... :		—
	- Components retained in place after the test		N/A
	- Test with standard test finger after the test		N/A
22.13 (12.7.2)	Luminaire with temperature sensing control		
	- thermal link..... :	Yes ☐ No ☐	—
	- manual reset cut-out ..... :	Yes ☐ No ☐	—
	- auto reset cut-out ..... :	Yes ☐ No ☐	—

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Clause	Requirement + Test	Result - Remark	Verdict
	- case of abnormal conditions ..... :		—
	- highest measured temperature of fixing point/ exposed part (°C): ..... :		—
	Ball-pressure test: ..... :	See Test Table 22.16 (13.2.1)	N/A
22.13.1 (-)	Endurance test for self-contained luminaire		N/A
	Operate satisfactory during 50 supply switching		N/A
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)	P
22.13.7 (-)	Provide Vmin according Clause 20 of IEC 61347-2-7 at the end of operation		P

22.14 (9)	**RESISTANCE TO DUST AND MOISTURE**		
22.14 (-)	If IP > IP 20 the order of tests as specified in clause 22.12		
22.14 (9.2)	Tests for ingress of dust, solid objects and moisture:		
	- classification according to IP..... :	IP20	—
	- mounting position during test ..... :	Wall mounted	—
	- fixing screws tightened; torque (Nm) ..... :	2/3; torque	—
	- tests according to clauses..... :	9.2.0	—
	- electric strength test afterwards		P
	a) no deposit in dust-proof luminaire		N/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, pressure watertight, high pressure and temperature water jet-proof or high pressure and cold water jet-proof luminaire		N/A
	e) no contact with live parts (IP 2X)		P

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Clause	Requirement + Test	Result - Remark	Verdict
	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
	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	93%, 25ºC	P

22.15 (10)	**INSULATION RESISTANCE AND ELECTRIC STRENGTH**		
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):		
	SELV/PELV:		
	- between current-carrying parts of different polarity :	199MΩ	P
	- between current-carrying parts and mounting surface..... :	199MΩ	P
	- 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/PELV:		
	- between live parts of different polarity ..... :	199MΩ	P
	- between live parts and mounting surface ..... :	199MΩ	P
	- 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		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Luminaires with ignitors after 24 h test		N/A
	Luminaires with manual ignitors		N/A
	Test voltage (V):		
	SELV/PELV:		
	- between current-carrying parts of different polarity:	500V	P
	- between current-carrying parts and mounting surface.....:	500V	P
	- 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/PELV:		
	- between live parts of different polarity .....:	1460V	P
	- between live parts and mounting surface .....:	2920V	P
	- 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 (mA).....:	0,02mA	P
	Protective conductor current (mA).....:	2mA	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)	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
22.17 (-)	**PHOTOMETRIC DATA**		
22.17.1 (-)	Intensity distribution data provided		P
22.17.2 (-)	If declared values in cd/1 000 lm, reference flux in emergency mode provided		P
22.17.3 (-)	At least 50% of level declared photometric data 5 s after failure of supply		P
	100% of level declared photometric data		
	- after 60 s		P
	- after 0,5 s after failure of supply if high-risk task-area lighting		N/A
	Photometric measurements according CIE 121 SP1		P
	LED luminaires measurements according CIE S025		P
	All values at least minimum declared data		P
22.17.4 (-)	Colour-rendering index		P
22.17.5 (-)	Internally illuminated emergency safety sign meets requirements of ISO 30061		P
	Luminance of permanently illuminated safety sign meet requirements of ISO 3864-1 and ISO 3864-4		P
	Luminance measurements according Annex C	(see Annex C)	P
22.18 (-)	**CHANGEOVER OPERATION**		
	Changeover device comply with Clause 21 of IEC 61347-2-7		P
22.19 (-)	**HIGH TEMPERATURE OPERATION**		
	Operation at 70°C		P
	Relative light outputs		P
22.20 (-)	**BATTERY CHARGERS FOR SELF-CONTAINED EMERGENCY LUMINAIRES**		
	Devices for recharging batteries comply with Clause 22 of IEC 61347-2-7		P
22.21 (-)	**TEST DEVICES FOR EMERGENCY OPERATION**		
22.21.1 (-)	Self-contained luminaire provided with test facility		N/A
22.21.2 (-)	Remote testing device not influence proper function of safety illumination		N/A
22.21.3 (-)	Indicators colour according IEC 60073		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

22.8 (11.2)	**TABLE I: Creepage distances and clearances**							**P**
	Minimum distances (mm) for a.c. up to 30 kHz sinusoidal voltages							
	Applicable part of IEC 60598-1 Table 11.1.A*, 11.1.B* and 11.2*							
	Insulation type **	**Measured clearance**	**Required**		**Measured creepage**	**Required**		
			clearance	***Table**		**creepage**	***Table**	
Distance 1:	B	3	1,5	**11.1.B***	3	2,5	**11.1.A***	
Working voltage (V) ..... :					240V~			—
PTI ..... :					< 600 ☒ ≥ 600 ☐			—
Pulse voltage or U_P if applicable (kV) ..... :								—
Supplementary information: between current-carrying parts of different polarity								
Distance 2:	R	>5,5	3	**11.1.B***	>5,5	5	**11.1.A***	
Working voltage (V) ..... :					240V~			—
PTI ..... :					< 600 ☒ ≥ 600 ☐			—
Pulse voltage or U_P if applicable (kV) ..... :								—
Supplementary information: between current-carrying parts and mounting surface								
Distance 3:	R	>5,5	3	**11.1.B***	>5,5	5	**11.1.A***	
Working voltage (V) ..... :					240V~			—
PTI ..... :					< 600 ☒ ≥ 600 ☐			—
Pulse voltage or U_P if applicable (kV) ..... :								—
Supplementary information: between current-carrying parts and accessible parts								

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

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Clause	Requirement + Test	Result - Remark	Verdict

22.8 (11.2)	**TABLE II: Creepage distances and clearances**							N/A
Minimum distances (mm) for a.c. higher than 30 kHz sinusoidal voltages								
Applicable part of IEC 61347-1 Table 7 and 8* or IEC 60664-4 Table 1 and 2								
Distances	**Insulation type ****	**Measured clearance**	**Required**		**Measured creepage**	**Required**		
			clearance	***Table**		**creepage**	***Table**	
Distance 1:								
Working voltage (V) .....:								—
Frequency if applicable (kHz) .....:								—
PTI .....:					< 600 ☐ ≥ 600 ☐			—
Peak value of the working voltage $\hat{U}_{out}$ if applicable (kV) .....:								—
Supplementary information:								
Distance 2:								
Working voltage (V) .....:								—
Frequency if applicable (kHz) .....:								—
PTI .....:					< 600 ☐ ≥ 600 ☐			—
Peak value of the working voltage $\hat{U}_{out}$ if applicable (kV) .....:								—
Supplementary information:								
Distance 3:								
Working voltage (V) .....:								—
Frequency if applicable (kHz) .....:								—
PTI .....:					< 600 ☐ ≥ 600 ☐			—
Peak value of the working voltage $\hat{U}_{out}$ if applicable (kV) .....:								—
Supplementary information:								

** Insulation type: B – Basic; S – Supplementary; R – Reinforced.

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Clause	Requirement + Test	Result - Remark	Verdict

22.16 (13.2.1)	**TABLE: Ball Pressure Test of Thermoplastics**		**P**
Allowed impression diameter (mm) ..... :		2	—
Object/ Part No./ Material	Manufacturer/ trademark	Test temperature (°C)	Impression diameter (mm)
Enclosure	-	80	1,0
Driver PCB	-	125	0,9
Lampshade	-	80	1,0
Terminal block	-	125	0,9
Supplementary information:			

22.16 (13.3.1)	**TABLE: Needle-flame test**				**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
Driver PCB	-	10	No	0	P
Terminal block	-	10	No	0	P
Supplementary information:					

22.16 (13.3.2)	**TABLE: Resistance to heat and fire - Glow wire tests**						**P**
Object/ Part No./ Material	**Manufacturer/ trademark**	**Glow wire test (°C)**					**Verdict**
		650		**750**		**850**	
		te	**ti**	**te**	**ti**		
Enclosure	-	<30s	<10s	-	-	-	P
Lampshade	-	<30s	<10s	-	-	-	P
Ignition of the specified layer placed underneath the test specimen (Yes/No)..... :							
Supplementary information:							

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Clause	Requirement + Test	Result - Remark	Verdict

22.16 (13.4)	**TABLE: Proof tracking test**					**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
Supplementary information:						

	Annex A: Batteries for self-contained emergency luminaires		
A.1	Type of batteries	Sealed nickel cadmium	P
A.2	Battery conform to relevant standard		P
	Luminaire operate within specific tolerances		P
A.3	Battery capacity		P
A.4	**Sealed nickel cadmium batteries**		
A.4.1	Battery conform to IEC 61951-1		N/A
A.4.2.a	Maximum surface temperature of the battery °C .....:		N/A
A.4.2.b	Maximum overcharge rate 0,08 C_5A		N/A
A.4.2.c	Minimum ambient temperature of the cells 5 °C		N/A
A.4.2.d	Maximum discharge rates		N/A
A.5	**Sealed nickel metal-hydride batteries**		
A.5.1	Battery conform to IEC 61951-2		N/A
A.5.2.a	Maximum case temperature of the battery °C .....:		N/A
A.5.2.b	Maximum overcharge rate 0,08 C_5A		N/A
A.5.2.c	Minimum ambient temperature of the cells 5 °C		N/A
A.5.2.d	Maximum discharge rates		N/A
A.6	**Valve regulated lead acid batteries**		
A.6.1	Battery conform to relevant part of IEC 60869-21 or IEC 61056-1		N/A
A.6.2.a	Maximum surface temperature of the battery °C .....:		N/A
A.6.2.b	Maximum recharge current 0,4 C_{20}		N/A
A.6.2.c	Maximum discharge rates		N/A
A.6.2.d	Maximum r.m.s. ripple current 0,1 C_{20}		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
A.6.2.e	Minimum ambient temperature of the cells 5 °C		N/A
A.7	Ambient temperature of the cells measured after 48 h		N/A
A.8	Alternative operating parameters and evidence if operating outside limits in A.4 and A.5		N/A
A.9	Battery only replaced by a competent person		N/A

	Annex B: Luminaire classification					
	Classified and marked according Annex B.....:	X	1	–	180	P

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

	Annex E: Requirements for self-contained portable emergency luminaires		
E.5	**Classification of luminaires**		
	Base unit and portable emergency luminaires with mains-voltage supplied integrated charger of Class I or Class II		N/A
	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 ☐ No ☐	—
E.5.1.b	Part of the control unit remains in the base unit	Yes ☐ No ☐	—
E.5.2	Classified according operation		—
E.5.2.a	Automatic initiation with manual control	Yes ☐ No ☐	—
E.5.2.b	Automatic initiation with automatic control	Yes ☐ No ☐	—
E.5.2.c	Manual control	Yes ☐ No ☐	—
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

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Clause	Requirement + Test	Result - Remark	Verdict
E.5.3.d	Variable beam angels – state the range of angels		N/A
E.6	**Marking**		
E.6.1	Marking visible after installation		N/A
	Marking on both parts if separate charging device		N/A
	Class II symbol only on the charger if separate charging device		N/A
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
E.7	**Construction**		
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		N/A
	Mechanical strength tests according 4.13.4 of IEC 60598-1 of portable section		N/A
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		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
E.7.10	At least two independent replaceable lamps if incandescent lamps		N/A
E.7.11	Colour rendering index of any emergency lamps *Ra* 40 or better		N/A
E.7.12	Audible and/or visible warning on re-instatement of normal supply		N/A
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 ≤ 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
E.8	**Changeover operation**		
	Requirements according 22.7.10 excluded if integral manual switch		N/A
	Design avoid switching of charger whilst holding the luminaire		N/A
E.9	**High temperature operation**		—
	Ambient temperature of 40°C in Clause 22.19		—
E.10	**Thermal test**		—
	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 2	**TABLE: Thermal tests of Section 12**		
	Type reference ..... :	LLX-EM-TWIN-1	—
	Lamp used..... :	Integral LEDs	—
	Lamp control gear used ..... :	N/A	—
	Mounting position of luminaire ..... :	Wall Mounted	—
	Supply wattage (W) ..... :	2,2	—
	Supply current (A) ..... :	0,02	—
	Temperatures in test 1 - 4 below are corrected for ta (°C) ..... :	35	—
	- abnormal operating mode ..... :	N/A	—
22.13 (12.4)	- test 1: rated voltage ..... :	N/A	—
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current ..... :	1,06 x 240V =254,4V	—
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage ..... :	N/A	—
	Through wiring or looping-in wiring loaded by a current of A during the test ..... :	N/A	—
22.13 (12.5)	- test 4: 1,1 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current or 130/150% of rated input voltage ..... :	N/A	—

Temperature measurements (°C)

Part	Ambient	Cl. 12.4 – normal				Cl. 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
Terminal block	35	--	37,5	--	130	--	--
Input wire	35	--	36,6	--	90	--	--
Output wire	35	--	41,1	--	105	--	--
Battery	35	--	36,7	--	Ref.	--	--
Lampshade	35	--	36,4	--	130	--	--
Enclosure	35	--	39,6	--	130	--	--
LED PCB	35	--	62,7	--	130	--	--
Driver PCB	35	--	36,8	--	130	--	--
Mounting surface	35	--	36,1	--	90	--	--
Supplementary information:							

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Clause	Requirement + Test	Result - Remark	Verdict

ANNEX 2	**TABLE: Thermal tests of Section 12**		
	Type reference ..... :	LLX-EM-TWIN-1 for discharging	—
	Lamp used..... :	Integral LEDs	—
	Lamp control gear used ..... :	N/A	—
	Mounting position of luminaire ..... :	Wall Mounted	—
	Supply wattage (W) ..... :	-	—
	Supply current (A) ..... :	-	—
	Temperatures in test 1 - 4 below are corrected for ta (°C) ..... :	35	—
	- abnormal operating mode ..... :	N/A	—
22.13 (12.4)	- test 1: rated voltage ..... :	N/A	—
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current ..... :	Supplied by battery	—
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage ..... :	N/A	—
	Through wiring or looping-in wiring loaded by a current of A during the test ..... :	N/A	—
22.13 (12.5)	- test 4: 1,1 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current or 130/150% of rated input voltage ..... :	N/A	—

Temperature measurements (°C)

Part	Ambient	Cl. 12.4 – normal				Cl. 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
Terminal block	35	--	36,6	--	130	--	--
Input wire	35	--	37,7	--	90	--	--
Output wire	35	--	37,4	--	105	--	--
Battery	35	--	37,3	--	Ref.	--	--
Lampshade	35	--	36,2	--	130	--	--
Enclosure	35	--	36,2	--	130	--	--
LED PCB	35	--	47,7	--	130	--	--
Driver PCB	35	--	47,7	--	130	--	--
Mounting surface	35	--	36,3	--	90	--	--
Supplementary information:							

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Clause	Requirement + Test	Result - Remark	Verdict

ANNEX 3	**Screw terminals (part of the luminaire)**		
(14)	**SCREW TERMINALS**		
(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 (mm²).....:		—
(14.3.3)	Conductor space (mm).....:		N/A
(14.4)	Mechanical tests		
(14.4.1)	Minimum distance		N/A
(14.4.2)	Cannot slip out		N/A
(14.4.3)	Special preparation		N/A
(14.4.4)	Nominal diameter of thread (metric ISO thread) .....:	M	N/A
	External wiring		N/A
	No soft metal		N/A
(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

ANNEX 4	**Screwless terminals (part of the luminaire)**		
(15)	**SCREWLESS TERMINALS**		
(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		N/A
(15.5.1.2)	Permanent connections: pull-off test (20 N)		N/A
(15.5.2)	Electrical tests		
	Voltage drop (mV) after 1 h (4 samples).....:		N/A
	Voltage drop of two inseparable joints		N/A
	Number of cycles:		—
	Voltage drop (mV) after 10th alt. 25th cycle (4 samples).....:		N/A
	Voltage drop (mV) after 50th alt. 100th cycle (4 samples).....:		N/A
	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		
	Terminal size and rating		N/A
15.6.2	Mechanical tests		
(15.6.2.1)	Pull test spring-type terminals or welded connections (4 samples); pull (N) .....:		N/A
(15.6.2.2)	Pull test pin or tab terminals (4 samples); pull (N) .....:		N/A
(15.6.3)	Electrical tests		
	Tests according 15.6.3.1 + 15.6.3.2 in IEC 60598-1		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

(15.6.3.1) **(15.6.3.2)**	**TABLE: Contact resistance test / Heating tests**										**N/A**
	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)											
Supplementary information:											

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Clause	Requirement + Test	Result - Remark	Verdict

IEC60598_2_22H ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
ATTACHMENT TO TEST REPORT **IEC 60598-2-22** **EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES** Luminaires Part 2: Particular requirements Section 22: Luminaires for emergency lighting			
Differences according to.....:	EN 60598-2-22:2014 + A1:2020 used in conjunction with EN IEC 60598-1:2021		
TRF template used.....:	IECEE OD-2020-F2:2020, Ed. 1.1		
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Master Attachment.....:	Dated 2021-10-01		
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	CENELEC COMMON MODIFICATIONS (EN)		N/A

ZA	**ANNEX ZA,** **Normative references to international publications with their corresponding European publications**		
	Reference ISO 30061, Emergency lighting replaced by: EN 1838, Lighting applications - Emergency lighting		P

ZB	**ANNEX ZB, A-deviations**		
22.6.18	FR: In premises open to the public, electrical installations have only permanent fittings		P
22.11.1	FR: In premises open to the public, electrical installations have only permanent fittings		P
22.6.15	FR: The required photometric characteristics of products are only based on the “rated lumen output” as defined in 22.3.14. Photometric data distribution of the luminaire may not to be provided or checked		P

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Clause	Requirement + Test	Result - Remark	Verdict
22.17.1	FR: The required photometric characteristics of products are only based on the “rated lumen output” as defined in 22.3.14. Photometric data distribution of the luminaire may not to be provided or checked		P

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Clause	Requirement + Test	Result - Remark	Verdict

	Appendix 1: Summary of requirements and test clauses of: **EN IEC 62031:2020 LED modules for general lighting – Safety specifications**	

4.2	Classification		**P**
	Built-in; Independent; Integral	Integral	P
6	Marking		N/A
6.2	Contents of marking for built-in and for independent LED modules		N/A
6.3	Location of marking for built-in LED modules		N/A
6.4	Location of marking for independent LED modules		N/A
6.5	Marking of integral LED modules		N/A
6.6	Durable and legibility of marking		N/A
7	Terminals		N/A
8	Provisions for protective earthing		N/A
9	Protection against accidental contact with live parts		P
10	Moisture resistance and insulation	Evaluated in final product.	P
11	Electric strength	Evaluated in final product.	P
12	Fault conditions		P
12.1	Fault conditions according to IEC 61347-1, cl.14		P
12.2	Overpower conditions		P
13	Conformity testing during manufacture		N/A
14	Construction		P
	No wood, cotton, silk, paper and similar fibrous material used as insulation		P
15	Creepage distances and clearances	Evaluated in final product.	P
16	Screw, current-carrying parts and connections	Evaluated in final product.	P
17	Resistance to heat, fire and tracking	Evaluated in final product.	P
18	Resistance to corrosion		N/A

14	TABLE: tests of fault conditions	P
Part	Simulated fault	Hazard
LED	Short-circuit. No fire, no smoke, no flammable material.	No

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Clause	Requirement + Test	Result - Remark	Verdict

	Appendix 2: **EN 61347-2-13:2014+A1:2017 used in conjunction with EN 61347-1:2015** **Lamp control gear** **Part 2: Particular requirements** **Section Thirteen – Particular requirements for D.C. or A.C. supplied electronic control gear for LED modules**	

14 (14)	**FAULT CONDITIONS**		
	When operated under fault conditions the controlgear:		
	- does not emit flames or molten material		P
	- does not produce flammable gases		P
	- protection against accidental contact not impaired		N/A
	Thermally protected controlgear does not exceed the marked temperature value		N/A
	Fault conditions: capacitors, resistors or inductors without proof of compliance with relevant specifications have been short-circuited or disconnected	(see appended table)	P
- (14.1)	Short-circuit of creepage distances and clearances if less than specified in clause 16 in Part 1 (except between live parts and accessible metal parts)	(see appended table)	N/A
	Distances on printed boards provided with coating according to IEC 60664-3		N/A
- (14.2)	Short-circuit or interruption of semiconductor devices	(see appended table)	P
- (14.3)	Short-circuit across insulation consisting of lacquer, enamel or textile	(see appended table)	N/A
- (14.4)	Short-circuit across electrolytic capacitors	(see appended table)	P
- (14.5)	After the tests the insulation resistance with d.c. 500 V (MΩ) are ≥ 1 MΩ ..... :		N/A
	After the tests the accessible parts has not become live		N/A
	During the tests, a five-layer tissue paper, where the test specimen is wrapped, does not ignite		N/A
	Temperature declared thermally protected controlgear fulfil the requirements in Annex C		N/A
16	**ABNORMAL CONDITIONS**		
	Safety not impaired when the controlgear is operated at any voltage between 90% and 110% of rated voltage		P
16.1	Control gear which are of the constant voltage output type:		—
	a) No LED module inserted		P
	b) Double LED modules or equivalent load connected to the output terminals		P
	c) Output terminal short-circuited (20 cm and 200 cm or declared length)		P
	During and at the end of the tests no defect impairing safety, nor any smoke or flammable gases produced		P

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Clause	Requirement + Test	Result - Remark	Verdict
16.2	Control gear which are of the constant current output type:		—
	a) No LED module connected		N/A
	b) Double the LED modules or equivalent load connected in series to the output terminals		N/A
	c) Output terminal short-circuited (20 cm and 200 cm or declared length)		N/A
	Maximum output voltage not exceeded		N/A
	During and at the end of the tests no defect impairing safety, nor any smoke or flammable gases produced		N/A

14	**TABLE: tests of fault conditions**	**P**
Part	Simulated fault	Hazard
IC1	Short-circuited – Not work, recoverable	No
Q1	Short-circuited – Not work, recoverable	No
Q2	Short-circuited – Not work, recoverable	No
Q3	Short-circuited – Not work, recoverable	No
Q4	Short-circuited – Not work, recoverable	No
Q5	Short-circuited – Not work, recoverable	No
C1	Short-circuited – Not work, recoverable	No
C2	Short-circuited – Not work, recoverable	No
C3	Short-circuited – Not work, recoverable	No
Output(-, +)	Short-circuited – Not work, recoverable	No

Remarks

Overview

