Test Report No.:	Page 1 of 54
	Issue Date:

Manufacturer:		
Test item:	Luminaires for Emergency Lighting	
Identification:		Serial No:
Receipt No.:		Date of receipt:
Testing laboratory and its address:		
Test specification:	**IS 10322 (Part 5/ Sec 8):2026**	
Test Result:	The test item passed the test specification(s).	
Other Aspects:		

Tested by:	**Approved by / Authorized Signatory:**	**Issued by:**
Date:	**Date:**	**Date:**

TEST REPORT
IS 10322 (Part 5/Sec 8) Luminaires
Part 5 Particular Requirements
Section 8 Luminaires for
Emergency Lighting

Report Number. ..... :

Date of issue ..... :

Total number of pages.....

Applicant's name ..... :

Address ..... :

Test specification:

Standard ..... : **IS 10322 (Part 5/ Sec 8):2026**

Test procedure ..... : Compliance Report

Non-standard test method ..... : N/A

Test Report Form No. ..... : BIS_ IS10322-5-8_V2.0

Test Report Form(s) Originator .... : Bureau of Indian Standards

Master TRF.....:

Test item description……:

Trade

Mark**……..:**

Manufacturer**……..……..:**

Model/Type Reference**…....:……:**

Rating…….....:

Tested by:	**Approved by / Authorized Signatory:**	**Issued by:**
Date:	**Date:**	**Date:**

TEST REPORT
IS 10322 (Part 5/Sec 8): 2026

IEC 60598-2-22
Luminaires Part 5 Particular Requirements Section 8 Luminaires for Emergency Lighting

Report Number. ..... :	
Date of issue ..... :	
Total number of pages ..... :	50
Applicant's name ..... :	
Address ..... :	
Test specification:	
Standard ..... :	IS 10322 (Part-5/Sec 8) used in conjunction with IEC 60598-2:2022
Test procedure ..... :	
Specific program, if applicable ..... :	
Non-standard test method ..... :	
TRF template used ..... :	
Test Report Form No. ..... :	
Test Report Form(s) Originator .... :	
Master TRF ..... :	

General disclaimer:

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 BIS.

Test item description .....:	
Trade Mark(s) .....:	
Manufacturer .....:	
Model/Type reference.....:	
Ratings.....:	

Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):			
☐	**CB Testing Laboratory:**		
Testing location/ address ..... :			
Tested by (name, function, signature) ..... :			
Approved by (name, function, signature) .. :			
☐	**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):

Summary of testing:	
Tests performed (name of test and test clause):	**Testing location:**

Summary of compliance with National Differences:

List of countries addressed

☐ **The product fulfils the requirements of _____ (insert standard number and edition and delete the text in parenthesis, leave it blank or delete the whole sentence, if not applicable)**

Test item particulars .....:
Classification of installation and use .....: **Supply Connection.....:**
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 .....:** **Date (s) of performance of tests.....:**
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.** ☐ **This Test Report Form contains requirements according to IEC/ISO …... Standard dated ….. and includes** Corrigendum dated …….
Manufacturer's Declaration per sub-clause 4.2.5 of IECEE 02:

The application for obtaining an IECEE 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).....:
General product information and other remarks:

IS 10322 (Part 5/ Sec 8) IEC 60598-2-22			
Clause	Requirement + Test	Result - Remark	Verdict
22.4 (4)	**GENERAL TEST REQUIREMENTS**		
22.4 (4.1.2)	More parts of IEC 60598-2 series applicable ..... :	Yes ☐ No ☐	—
	Part(s)..... :		
22.4 (4.3)	Components	(see ANNEX 1)	—
22.4 (4.4)	**Information for luminaire design in light sources and controlgear standards**		—
22.4 (4.4.2)	Light source and/or control gear safety standard ... :		—
	Luminaire design in the light source and/or control gear safety standard		
22.4 (-)	Part providing normal lighting, test according to relevant part of IEC 60598-2 ..... :		
22.4 (-)	Adjacent part fulfils relevant part of this part 2		
22.4 (-)	Self-contained portable emergency luminaires, requirements according Annex E	(See Annex E)	
22.4 (-)	photometric tests of Clause 22.17 shall be made on a separate sample luminaire		
22.5 (5)	**CLASSIFICATION OF LUMINAIRES**		
22.5 (5.2)	Type of protection ..... :	Class	
22.5 (5.3)	Degree of protection..... :	IP	—
22.5 (5.4)	Luminaire suitable for direct mounting on normally flammable surfaces ..... :	Yes ☐ No ☐	—
22.5 (5.5)	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		
22.5 (-)	Emergency luminaires shall also be classified according Annex B	(See Annex B)	
22.6 (6)	**MARKING**		
22.6 (6.1)	Language of instructions		
22.6 (6.2)	**Marking on luminaire**		
	Position of the marking		
	Format of symbols/text		
	Heir classification in accordance with Clause 22.5		
22.6 (6.3)	Information on luminaire		
22.6 (6.4)	**Additional information**		
22.6 (6.4.2)	Combination luminaires		

IS 10322 (Part 5/ Sec 8) IEC 60598-2-22			
Clause	Requirement + Test	Result - Remark	Verdict
22.6 (6.4.3)	Rated frequency in Hz		
22.6 (6.4.4)	Operating temperature		
22.6 (6.4.5)	Wiring diagram		
22.6 (6.4.6)	Special conditions		
22.6 (6.4.7)	Metal halide lamp luminaire – warning		
22.6 (6.4.8)	Limitation for semi-luminaires		
22.6 (6.4.9)	Power factor and supply current		
22.6 (6.4.10)	Luminaires using remote controlgear		
22.6 (6.4.11)	Clip-mounted luminaire – warning		
22.6 (6.4.12)	Specifications of protective shields		
22.6 (6.4.13)	Rough service luminaire		
22.6 (6.4.14)	Mounting instruction for type Y, type Z and some type X attachments		
22.6 (6.4.15)	Non-ordinary luminaires with PVC cable		
22.6 (6.4.16)	Protective conductor current in instruction if applicable		
22.6 (6.4.17)	Provided with information if not intended to be mounted within arm’s reach		
22.6 (6.4.18)	Non replaceable and non-user replaceable light sources information provided		
22.6 (6.4.19)	Controllable luminaires, classification of insulation provided		
22.6 (6.4.20)	Luminaires without control gear provided with necessary information for selection of appropriate component		
22.6 (6.4.21)	If not supplied with terminal block, information on the packaging		
22.6 (6.4.22)	Luminaires employing light sources emitting UV on mains wiring, information provided		
22.6 (6.4.23)	Wall mounted luminaire using external flexible cable or cord longer than 0.3 m, information provided		

IS 10322 (Part 5/ Sec 8) IEC 60598-2-22			
Clause	Requirement + Test	Result - Remark	Verdict
22.6 (6.4.24)	Information for replacement or non-replacement of control gear provided:		
	a) Non-serviceable control gear		
	b) Non-user serviceable control gear		
	c) Serviceable control gear		
22.6 (6.5)	**Test of marking**		
	Test with water		
	Test with hexane		
	Legible after test		
	Label attached		
22.6.1 (-)	Supply voltage		
22.6.2 (-)	Classification according to annex B		
22.6.3 (-)	Correct replacement lamp		
22.6.4 (-)	Range of ambient temperatures		
22.6.5 (-)	Fuse ratings and/or indicator lamps		
22.6.6 (-)	Facilities to simulate normal supply failure		
22.6.7 (-)	Marking with details about nature of ESSS		
22.6.7.1 (-)	Marked with correct battery replacement		
	Non-replaceable batteries		
22.6.7.2 (-)	Battery marked with date of manufacture		
	Space provided on battery label		
22.6.7.3 (-)	Marked with correct EDLC replacement		
	Non-replaceable EDLC		
22.6.9 (-)	Correct lamp replacement for combined emergency luminaires		
	Green dot with min 5 mm diameter		
	Instruction leaflet 22.6.10 – 22.6.12 and 22.6.14 – 22.6.16		
22.6.10 (-)	Replacement of ESSS or luminaire		
	Details for correct ESSS replacement		
	ESSS is not user serviceable, information provided		
22.6.11 (-)	Details of test facilities		
22.6.12 (-)	Details of connection leads		
22.6.14 (-)	Details of device which changes the mode of operation		
22.6.15 (-)	Photometric data available according 22.17		
22.6.16 (-)	Any normal preparation procedure		

IS 10322 (Part 5/ Sec 8) IEC 60598-2-22			
Clause	Requirement + Test	Result - Remark	Verdict
22.6.17 (-)	Marking in 22.6.1, 22.6.2, 22.6.7.1 (2nd paragraph), 22.6.7.3 (2nd paragraph) and 22.6.20 visible on installed luminaire		
	Marking in 22.6.5, 22.6.7.1 (1st paragraph), 22.6.7.3 (1st paragraph) and 22.6.9 visible during maintenance		
22.6.18 (-)	Provided with warning if intended for external plug and socket connections		
22.6.19 (-)	Instruction leaflet specifies if lamp and/or ESSS is/are non-replaceable		
22.6.20 (-)	Marking if luminaire mounted on lighting track systems		
	Photometric data in instruction leaflet		
22.6.21 (-)	Rated charge time lower than 24 h, information in instruction leaflet provided		
22.6.22 (-)	Allowed time for rest/remote inhibiting mode, information in instruction leaflet provided		
22.7 (7)	**CONSTRUCTION**		
22.7 (7.2)	Components replaceable or serviceable without difficulty		
22.7 (7.3)	Wireways smooth and free from sharp edges		
22.7 (7.4)	**Lamp holders**		
22.7 (7.4.1)	Integral lamp holder		
22.7 (7.4.2)	Wiring connection		
22.7 (7.4.3)	Lamp holder for end-to-end mounting		
22.7 (7.4.4)	Positioning		
	- pressure test (N) ..... :		—
	After test the lamp holder comply with relevant standard sheets and show no damage		
	After test on single-capped lamp holder the lamp holder has not moved from its position and show no permanent deformation		
	- bending test (N) ..... :		—
	After test the lamp holder has not moved from its position and show no permanent deformation		
22.7 (7.4.5)	Peak pulse voltage		
22.7 (7.4.6)	Centre contact		
22.7 (7.4.7)	Parts in rough service luminaires resistant to tracking		
22.7 (7.4.8)	Lamp connectors		
22.7 (7.4.9)	Caps and bases correctly used		

IS 10322 (Part 5/ Sec 8) IEC 60598-2-22			
Clause	Requirement + Test	Result - Remark	Verdict
22.7 (7.4.10)	Light source for lamp holder or connection according to IEC 60061 not connected another way		
22.7 (7.5)	**Starter holders**		
	Starter holder in luminaires other than class II		
	Starter holder class II construction		
22.7 (7.6)	**Terminal blocks**		
	Connecting leads (tails)		
	Unsecured blocks		
22.7 (7.7)	**Terminals and supply connections**		
22.7 (7.7.1)	Contact to metal parts		
22.7 (7.7.2)	Test 8 mm hazardous live conductor		
	Test 8 mm earth conductor		
22.7 (7.7.3)	Terminals for supply conductors		
22.7 (7.7.4)	Welded method and material		
	- stranded or solid conductor		
	- spot welding		
	- type Y and Z attachment		
	- mechanical test according to 17.5.2		
	- electrical test according to 17.5.3		
	- heat test according to 17.5.3.3.4 and 17.5.3.3.5		
22.7 (7.7.5)	Terminals other than supply connection		
22.7 (7.7.6)	Heat-resistant wiring/sleeves		
22.7 (7.7.7)	Multi-pole plug		
	- test at 30 N		
22.7 (7.8)	**Switches**		
	- adequate rating		
	- adequate fixing		
	- polarized supply		
	- compliance with IEC 61058-1-1 or IEC 60669-1 for mechanical switches		
	- compliance with IEC 61058-1-2 or IEC 60669-2-1 for electronic switches		
	- compliance with IEC 61058-2-1 for cord switches		
22.7 (7.9)	**Insulating lining and sleeves**		
22.7 (7.9.1)	Retainment		
	Method of fixing..... :		

IS 10322 (Part 5/ Sec 8) IEC 60598-2-22			
Clause	Requirement + Test	Result - Remark	Verdict
22.7 (7.9.2)	Insulated linings and sleeves:		
	Resistant to a temperature > 20 °C to the wire temperature or		
	a) & c) Insulation resistance and electric strength		
	b) Ageing test. Temperature (°C)..... :		
22.7 (7.10)	**Double or reinforced insulation**		
22.7 (7.10.1)	No contact, mounting surface – accessible metal parts –basic insulation		
	Safe installation fixed luminaires		
	Capacitors and switches		
22.7 (7.10.2)	Assembly gaps:		
	- not coincidental		
	- no straight access with test probe		
22.7 (7.10.3)	Retainment of insulation:		
	- fixed		
	- unable to be replaced; luminaire inoperative		
	- sleeves retained in position		
	- lining in lamp holder		
22.7 (7.10.4)	Protective impedance device:		
	Basic or supplementary insulation bridged by resistor(s) or appropriate capacitor		
	Double or reinforced insulation bridged by at least two separate resistors in series or appropriate capacitor(s)		
22.7 (7.11)	**Electrical connections and current-carrying parts**		
22.7 (7.11.1)	Contact pressure		
22.7 (7.11.2)	Screws:		
	- self-tapping screws		
	- thread-cutting screws		
22.7 (7.11.3)	Screw locking:		
	- spring washer		
	- rivets		
22.7 (7.11.4)	Material of current-carrying parts		

IS 10322 (Part 5/ Sec 8) IEC 60598-2-22			
Clause	Requirement + Test	Result - Remark	Verdict
	FELV, SELV or PELV supplying circuits:		
	- load less than 15 W		
	- load (including short-circuit) not higher than 2 A		
22.7 (7.11.5)	No contact to wood or mounting surface		
22.7 (7.11.6)	Electro-mechanical contact systems		
22.7 (7.12)	**Screws and connections (mechanical) and glands**		
22.7 (7.12.1)	Screws not made of soft metal		
	Screws of insulating material		
	Torque test: torque (Nm); part ..... :		
	Torque test: torque (Nm); part ..... :		
	Torque test: torque (Nm); part ..... :		
22.7 (7.12.2)	Screws with diameter < 3 mm screwed into metal		
22.7 (7.12.3)	Locked connections:		
	- fixed arms; torque (Nm) ..... :		
	- lamp holder; torque (Nm) ..... :		
	- push-button switches; torque 0,8 Nm ..... :		
22.7 (7.12.4)	Screwed glands; force (Nm) ..... :		
22.7 (7.13)	**Mechanical strength**		
22.7 (7.13.1)	Impact tests:		
	- fragile parts; energy (Nm) ..... :		
	- other parts; energy (Nm) ..... :		
	1) live parts		
	2) linings		
	3) protection		
	4) covers		
22.7 (7.13.2)	Metal parts have adequate mechanical strength		
22.7 (7.13.3)	Test with straight unjointed test finger		
22.7 (7.13.4)	Tumbling barrel		

IS 10322 (Part 5/ Sec 8) IEC 60598-2-22			
Clause	Requirement + Test	Result - Remark	Verdict
22.7 (7.14)	**Suspensions, fixings and means of adjusting**		
22.7 (7.14.1)	Mechanical load:		
	A) four times the weight		
	B) torque 2,5 Nm		
	C) bracket arm; bending moment (Nm) ..... :		
	D) load track-mounted luminaires		
	E) clip-mounted luminaires, glass-shelve. Thickness (mm) ..... :		
	Metal rod. diameter (mm) ..... :		
	Fixed luminaire or independent controlgear without fixing devices		
	Magnets not used as the primary fixing		
22.7 (7.14.2)	Load to flexible cables:		
	Mass (kg) ..... :		—
	Stress in conductors (N/mm²) ..... :		
	Special cable or cord, force applied (N)..... :		
	Mass (kg) of semi-luminaire ..... :		
	Bending moment (Nm) of semi-luminaire ..... :		
22.7 (7.14.3)	Adjusting devices:		
	- flexing test; number of cycles ..... :		
	- strands broken ..... :		
	- insulation resistance and electric strength tests afterwards		
22.7 (7.14.4)	Telescopic tubes: cords not fixed to tube; no strain on conductors		
22.7 (7.14.5)	Guide pulleys		
22.7 (7.14.6)	Strain on socket-outlets		
22.7 (7.15)	**Flammable materials**		
	- glow-wire test 650°C ..... :	See Test Table 22.16 (15.3.3)	
	- spacing ≥30 mm		
	- screen withstanding test of 15.3.2		
	- screen dimensions		
	- no fiercely burning material		

IS 10322 (Part 5/ Sec 8) IEC 60598-2-22			
Clause	Requirement + Test	Result - Remark	Verdict
	- thermal protection		
	- electronic circuits exempted		
22.7 (7.15.2)	Luminaires made of thermoplastic material with control gear:		
	a) construction		
	b) temperature sensing control		
	c) surface temperature		
22.7 (7.16)	**Luminaires for mounting on normally flammable surfaces**		
22.7 (7.16.1)	No control gear..... :	(compliance with Clause 14)	
	Provided with adaptor for a track meet the requirements for direct mounting on normally flammable surfaces		
22.7 (7.16.2)	Control gear spacing:		
	- spacing 35 mm		
	- spacing 10 mm		
22.7 (7.16.3)	Thermal protection:		
	- in control gear		
	- external		
	- fixed position		
	- temperature marked control gear		
22.7 (7.16.4)	Design to satisfy the test of 14.6	(see 14.6)	
22.7 (7.17)	**Drain holes**		
	Clearance at least 5 mm		
22.7 (7.18)	**Resistance to corrosion**		
22.7 (7.18.1)	- rust-resistance		
22.7 (7.18.2)	- season cracking in copper		
22.7 (7.18.3)	- corrosion of aluminium		
22.7 (7.19)	Ignitors compatible with ballast		
22.7 (7.20)	**Rough service luminaires**		
22.7 (7.20.1)	Resistance to vibrations		

IS 10322 (Part 5/ Sec 8) IEC 60598-2-22			
Clause	Requirement + Test	Result - Remark	Verdict
22.7 (7.20.2)	IP54 or higher		
	a) fixed		
	b) hand-held		
	c) delivered with a stand		
	d) for temporary installations and suitable for mounting on a stand		
22.7 (7.21)	**Protective shield**		
22.7 (7.21.1)	Shield fitted if tungsten halogen lamps or metal halide lamps		
	Shield of glass if tungsten halogen lamps		
22.7 (7.21.2)	Particles from a shattering lamp not impair safety		
22.7 (7.21.3)	No direct path		
22.7 (7.21.4)	Impact test on shield		
	Glow-wire test on lamp compartment ..... :	See Test Table 22.16 (15.3.3)	
22.7 (7.22)	**Attachments to lamps**		
	Attachments to lamps do not cause overheating or damage		
22.7 (7.23)	**Semi-luminaires**		
	Semi-luminaires comply Class II		
22.7 (7.24)	**Photobiological hazards**		
22.7 (7.24.1)	**Actinic UV hazards for skin and eye 200 nm to 400 nm)**		
	No excessive UV radiation; luminaires used with:		
	- self-shielded lamps or light sources having a UV emission ≤ 2 mW · klm^{-1}		
	- light sources emitting ≤ 6 mW · klm^{-1} and having a glass cover		
	- light sources emitting > 6 mW · klm^{-1}, compliance with Annex M		
22.7 (7.24.2)	**UV-A hazard for the eye lens (315 nm to 400 nm)**		
	No excessive UV-A radiation		
22.7 (7.24.3)	**Retinal blue light hazard**		
22.7 (7.24.3.2)	**Luminaire assessment according to IEC 62471-7:2023**		

IS 10322 (Part 5/ Sec 8) IEC 60598-2-22			
Clause	Requirement + Test	Result - Remark	Verdict
	Luminaire application group.....:	☐ BLH-A ☐ BLH-B ☐ BLH-C	_
	Blue light radiance emission limit not exceeded for application group at applicable assessment distance		
	Increased assessment distance for fixed luminaire based on luminaire application applied		
	Assessment distance used (m)……:		—
	Information according to clause 6.3.22 a) provided		
	Luminaire assessment based on light source data		
	Light source application group .....:	☐ BLH-A ☐ BLH-B ☐ BLH-C	—
	Data in accordance with luminaire application group emission limit		
22.7 (7.24.3.3)	**Luminaire assessment according to IEC 62471-7:2023**		
	Class of risk group assessed according to IEC TR 62778 .....:		—
	Luminaires with E_{thr} :		
	a) Fixed luminaires		
	- distance x m, borderline between RG1 and RG2 .. :		
	- marking and instruction according 6.3.22		
	b) Portable and handheld luminaires		
	- marking according 6.3.22 if RG1 exceeded at 200 mm according to IEC/TR 62778		
	Portable luminaires for children IEC 60598-2-10 and Mains socket outlet nightlights IEC 62471-7:2023 not exceed RG1 at 200 mm according to IEC TR 62778		
22.7 (7.24.4)	**Retinal thermal hazard (380 nm to 1400 nm)**		
	Not exceeding retinal thermal radiance limits		
22.7 (7.24.5)	**Infrared hazard for the eye (780 nm to 3000 nm)**		
	Not exceeding limits for IR radiation		
22.7 (7.24.6)	**Thermal hazard for the skin (380 nm to 3000 nm)**		
	Not exceeding exposure limit		—
22.7 (7.25)	**Mechanical hazard**		
	No sharp point or edges		

IS 10322 (Part 5/ Sec 8) IEC 60598-2-22			
Clause	Requirement + Test	Result - Remark	Verdict
22.7 (7.26)	**Short-circuit protection**		
22.7 (7.26.1)	Means preventing impairing of safety of uninsulated accessible SELV / PELV parts		
	Short-circuit test with test chain according 7.26.2:		
	Supply source ES1 PSE		
	Test chain does not melt through		
	Test sample does not exceed values of Table 21 and 22		
22.7 (7.27)	**Terminal blocks with integrated screwless protective earthing contacts**		
	Test according to Annex R		
	Pull test of terminal fixing (20 N)		
	After test, resistance < 0,05 Ω		
	Pull test of mechanical connection (50 N)		
	After test, resistance < 0,05 Ω		
	Voltage drop test, resistance < 0,05 Ω		
22.7 (7.28)	**Fixing of thermal sensing control**		
	Not plug-in or easily replaceable type		
	Reliably kept in position		
	No adhesive fixing if UV radiations from light source can degrade the fixing		
	Not outside the luminaire enclosure		
	Test of adhesive fixing:		
	Max. temperature on adhesive material (°C) ..... :		—
	100 cycles between t min and t max		
	Temperature sensing control still in position		
22.7 (7.29)	**Luminaires with non-replaceable light source**		
	Not possible to replace light source		
	Hazardous live part not accessible after parts have been opened by hand or tools		
22.7 (7.30)	**Luminaires with non-user replaceable light source and non-user serviceable components**		
	If protective cover provide protection against electric shock and marked with “caution, electric shock risk” symbol:		
	At least one fixing means requiring use of tool		
22.7 (7.31)	**Insulation between circuits**		
22.7 (7.31.1)	Circuits insulated from mains supply fulfil requirements according 7.31.2 – 7.31.4		

IS 10322 (Part 5/ Sec 8) IEC 60598-2-22			
Clause	Requirement + Test	Result - Remark	Verdict
	Controllable luminaires requiring same level of insulation for all components, the insulation between control terminals and mains supply fulfil requirements according 7.31.2 – 7.31.4		
22.7 (7.31.2)	**SELV or PELV circuits**		
	Used SELV/PELV source		
	Voltage ≤ ELV		
	PELV connected to earth		
	Insulation of SELV/PELV circuits from mains supply		
	Insulation of SELV/PELV circuits from other non SELV/PELV circuits		
	Insulation of SELV/PELV circuits from FELV		
	Insulation of SELV/PELV circuits from other SELV/PELV circuits		
	SELV/PELV circuits insulated from accessible parts according Table T.1		
	Plugs not able to make any electrical contact with socket-outlets of other voltage systems		
	Socket outlets do not admit plugs of other voltage systems		
	Plugs and socket-outlets do not have protective conductor contact		
22.7 (7.31.3)	**FELV circuits**		
	Used FELV source		
	Voltage ≤ ELV		
	Insulating of FELV circuits from mains supply		
	FELV circuits insulated from accessible parts according Table T.1		
	Plugs not able to make any electrical contact with socket-outlets of other voltage systems		
	Socket outlets do not admit plugs of other voltage systems		
	Socket-outlets have protective conductor contact		
22.7 (7.31.4)	**Other circuits**		
	Other circuits insulated from accessible conductive parts according Table T.1		
	Class II construction with equipotential bonding for protection against indirect contacts with hazardous live parts:		

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Clause	Requirement + Test	Result - Remark	Verdict
	- conductive parts are connected together		
	- test according 9.2.3		
	- conductive part does not cause electric shock in case of insulation fault		
	- equipotential bonding used in applications when one or more luminaires supplied by another		
	- supplying luminaire provided with terminal for accessible conductive parts of other luminaires		
	- other luminaire constructed as class I		
22.7 (7.31.5)	**Additional requirements for luminaires using controllable control gear providing SELV output(s)**		
	Insulation between SELV output(s) of control gear and control port meets requirements of IEC 61347-1 for interconnected control gear		
22.7 (7.32)	**Overvoltage protective devices external to control gear**		
22.7 (7.32.1)	SPDs comply with requirements in 7.32.2		
	SPCs comply with requirements in 7.32.3		
	SPDs or SPCs requiring connection to earth:		
	- only used in fixed luminaires		
	- only connected to protective earth		
22.7 (7.32.2)	**Surge protective devices (SPDs)**		
	Compliance with IEC 61643-11		
	Rated ambient temperature verified according to test in 14.4		
22.7 (7.32.3)	**Surge protective components (SPCs)**		
22.7 (7.32.3.1)	Only connected across the mains (L to L or L to N)		
	Compliance with IEC 61051-2:2021 or IEC 61643-331:2020		
	Compliance with requirements in 7.32.3.2 – 7.32.3.6		
22.7 (7.32.3.2)	**Climatic conditions**		
	Climatic conditions according to:		
	- Option A		
	- Option B		
22.7 (7.32.3.3)	**Maximum continuous voltage**		

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Clause	Requirement + Test	Result - Remark	Verdict
	At least 1.25 times rated voltage of luminaire / upper voltage of rated voltage range		
22.7 (7.32.3.4)	**Surge capability**		
	Mains supply voltage (V).....:		—
22.7 (7.32.3.5)	**SPC resistance to fire**		
	Needle flame test	See Test Table 22.16 (15.3.2)	
22.7 (7.32.3.6)	**SPC overload test**		
22.7 (7.33)	**Luminaire powered via information technology communication cabling**		
	Requirements for Class III luminaire		
	Rated voltage does not exceed maximum voltage of used connector		
	Luminaire does not create any hazard from overvoltage	(see Annex 2)	
22.7 (7.34)	**Electromagnetic fields (EMF)**		
	No harmful electromagnetic fields		
22.7 (7.35)	**Protection against moving fan blades**		
	Test with a standard test finger		
	Test with test probe acc. to Figure 13 (IEC 61032) for portable luminaire		
	Blades rounded with radius ≥ 0.5 mm and:		
	-hardness less than D60 Shore		
	-peripheral speed less than 15 m/s		
	-input power of fan ≤ 2 W at rated voltage		
22.7 (7.36)	**Track-mounted luminaires**		
	Test in accordance with Annex A of IEC 60570:2003/AMD2:2019		
22.7 (-)	Luminaire with automatic testing system complies with IEC 62034 as identified in Annex K of IEC 61347-2-7		
22.7.1 (-)	No glow starters in circuit in start of or during the emergency mode		
22.7.2 (-)	Lamp control gears comply with relevant part 2 of IEC 61347 and additional safety requirements for electronic control gear for emergency lighting in appropriate annex of standards		
22.7.3 (-)	Protective device disconnects luminaire in case of failure		
22.7.4 (-)	Impact test min. 0,35 Nm		

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Clause	Requirement + Test	Result - Remark	Verdict
22.7.5 (-)	Circuit separation (self-contained lum.)		
22.7.6 (-)	Circuit separation (centrally supplied lum.)		
22.7.7 (-)	Charging device		
	Indicator lamp and colour		
22.7.8 (-)	ESSS meets requirements in Annex A	(See Annex A)	
	ESSS designed to provide duration for at least four years		
	ESSS only for emergency function		
22.7.10 (-)	No switch in self-contained emergency luminaire between ESSS and emergency lighting lamps		
	No manual/non-self-resetting switch in self-contained and central supplied emergency luminaire isolating emergency circuits from mains supply		
22.7.11 (-)	Failure of lamp(s) not impair operation of ESSS		
22.7.12 (-)	Batteries in self-contained emergency luminaire comply with cl. 23 of IEC 61347-2-7 if applicable		
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		
22.7.14 (-)	Self-contained emergency luminaire with remote inhibiting and/or rest mode meets requirements of cl. 25 of IEC 61347-2-7		
22.7.19 (-)	Lamp voltage in self-contained emergency luminaire with tungsten filament lamps do not exceed 1,05 rated voltage		
22.7.20 (-)	Battery in self-contained emergency luminaire according control gear manufacturers specification and Annex A		
22.7.21 (-)	ESSS and chargers within self-contained emergency luminaire or in remote box		
22.7.22 (-)	Remote box in self-contained emergency luminaire complies with same requirements as for the luminaire		
22.7.23 (-)	Locking system for emergency luminaire on track system used for display lighting requires aid of tool		
22.7.24 (-)	Adequate space around EDLC		
	Creepage/clearances are not reduced		

22.8 (13)	**CREEPAGE DISTANCES AND CLEARANCES**		
22.8 (13.2.1)	Impulse withstand category (Normal category II)	Category II ☐ Category III ☐	—
	Category III according to Annex Q		

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Clause	Requirement + Test	Result - Remark	Verdict
	Protected against pollution, reduced creepage and clearance according Annex P of IEC 61347-1:2015		
22.8 (13.2.2)	Creepage distances for frequency up to 30 kHz	See Test Table 22.8 (13) I	
	Creepage distances for frequency over 30 kHz:		
	- Controlgear marked with $\hat{U}_{OUT}$ and f_{UOUT} according to IEC 61347-1:2015, clause 7.1, item w	See Test Table 22.8 (13) II	
	- Requirements according to IEC 60664-4 for controlgear not covered by IEC 61347	See Test Table 22.8 (13) II	
22.8 (13.2.3)	Clearances for frequency up to 30 kHz	See Test Table 22.8 (13) I	
	Clearances distances for frequency over 30 kHz:		
	- Controlgear marked with U_P	See Test Table 22.8 (13) II	
	- Requirements according to IEC 60664-4 for controlgear not covered by IEC 61347	See Test Table 22.8 (13) II	
22.9 (9)	**PROVISION FOR EARTHING**		
22.9 (9.2.1 + 9.2.3)	Accessible metal parts		
	Metal parts in contact with supporting surface		
	Resistance < 0,5 Ω ..... :		
	Self-tapping screws used		
	Thread-forming screws		
	Thread-forming screw used in a grove		
	Protective earth makes contact first		
	Terminal blocks with integrated screwless protective earthing contacts tested according to Annex R		
	Protective earthing of the luminaire not via built-in controlgear		
22.9 (9.2.2 + 9.2.3)	Protective earth continuity in joints, etc.		
22.9 (9.2.4)	Locking of clamping means		
	Compliance with 7.7.3		
22.9 (9.2.5)	Protective earth terminal integral part of connector socket		
22.9 (9.2.6)	Protective earth terminal adjacent to mains terminals		
22.9 (9.2.7)	Electrolytic corrosion of the protective earth terminal		

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Clause	Requirement + Test	Result - Remark	Verdict
22.9 (9.2.8)	Material of protective earth terminal		
	Contact surface bare metal		
22.9 (9.2.10)	Class II luminaire for looping-in or through wiring		
	Double or reinforced insulation to functional earth		
22.9 (9.2.11)	Protective earthing core coloured green-yellow		
	Length of protective earthing conductor		
22.9 (9.2.12)	PELV circuit connected to protective earth for functional purpose		
22.10 (16)	**SCREW TERMINALS**		
	Separately approved; component list	(See Annex 1)	
	Part of the luminaire	(See Annex 3)	
22.10 (17)	**SCREWLESS TERMINALS AND ELECTRICAL CONNECTIONS**		
	Separately approved; component list..... :	(See Annex 1)	
	Part of the luminaire ..... :	(See Annex 4)	
22.11 (8)	**EXTERNAL AND INTERNAL WIRING**		
22.11 (8.2)	**Supply connection and external wiring**		
22.11 (8.2.1)	Means of connection..... :		
	Outdoor luminaire without PVC insulated external wiring unless Class III or SELV/PELV circuits ≤ 25 V AC or 60 V DC or 25 V peak interrupted DC voltage with frequency 10Hz -200 Hz or protected from outdoor environment		
22.11 (8.2.2)	Type of cable..... :		
	Nominal cross-sectional area (mm²)..... :		
	Cables equal to IEC 60227 or IEC 60245		
22.11 (8.2.3)	Type of attachment, X, Y or Z		
22.11 (8.2.5)	Type Z not connected to screws		
22.11 (8.2.6)	Cable entries:		
	- suitable for introduction		

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Clause	Requirement + Test	Result - Remark	Verdict
	- adequate degree of protection		
22.11 (8.2.7)	Cable entries through rigid material have rounded edges		
22.11 (8.2.8)	Insulating bushings:		
	- suitably fixed		
	- material in bushings		
	- material not likely to deteriorate		
	- tubes or guards made of insulating material		
22.11 (8.2.9)	Locking of screwed bushings		
22.11 (8.2.10)	Cord anchorage:		
	- covering protected from abrasion		
	- clear how to be effective		
	- no mechanical or thermal stress		
	- no tying of cables into knots etc.		
	- insulating material or lining		
22.11 (8.2.10.2)	Cord anchorage for type X attachment:		
	a) at least one part fixed		
	b) types of cable		
	c) no damaging of the cable		
	d) whole cable can be mounted		
	e) no touching of clamping screws		
	f) metal screw not directly on cable		
	g) replacement without special tool		
	Glands not used as anchorage		
	Labyrinth type anchorages		
22.11 (8.2.10.3)	Adequate cord anchorage for type Y and type Z attachment		
22.11 (8.2.10.4)	Tests:		
	- impossible to push cable; unsafe		
	- pull test: 25 times; pull (N) ..... :		
	- torque test: torque (Nm)..... :		
	- displacement ≤ 2 mm		

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Clause	Requirement + Test	Result - Remark	Verdict
	- no movement of conductors		
	- no damage of cable or cord		
	- function independent of electrical connection		
22.11 (8.2.10.5)	Luminaire with/designed for use with supply cord with maximum current of 2A:		
	- Ordinary Class III luminaire supplied with SELV ≤ 25 V RMS or 60 V DC		
	- Ordinary Class III luminaire supplied with PELV ≤12 V RMS or 30 V DC		
	- Other than ordinary Class III luminaire supplied with voltage ≤12 V RMS or 30 V DC		
	Pull test of 30 N		
22.11 (8.2.11)	External wiring passing into luminaire		
22.11 (8.2.12)	Looping-in terminals		
22.11 (8.2.13)	Wire ends not tinned		
	Wire ends tinned: no cold flow		
22.11 (8.2.14)	Mains plug same protection		
	Class III luminaire plug		
	No unsafe compatibility		
22.11 (8.2.15)	Connectors for Class III luminaires (IEC 60603 or IEC 62680)		
22.11 (8.2.16)	Appliance inlets (IEC 60320)		
	Installation couplers (IEC 61535)		
	Appliance inlet or connector systems (IEC 61984)		
22.11 (8.2.17)	No standardized interconnecting cables properly assembled		
22.11 (8.2.18)	Used plug in accordance with:		
	- IEC 60083		
	- other standard		
22.11 (8.3)	**Internal wiring**		
22.11 (8.3.1.1)	Internal wiring of suitable size and type		
	Through wiring:		

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Clause	Requirement + Test	Result - Remark	Verdict
	- not delivered/ mounting instruction		
	- factory assembled		
	Green-yellow for protective earth only		
22.11 (8.3.1.2)	Internal wiring connected directly to fixed wiring:		
	Cross-sectional area (mm²) ..... :		
	Insulation thickness (mm) .....:		
	Extra insulation added where necessary		
22.11 (8.3.1.3)	Internal wiring connected to fixed wiring via internal current-limiting device:		
	Cross-sectional area (mm²) .....:		
22.11 (8.3.1.4)	Double or reinforced insulation for class II		
22.11 (8.3.1.5)	Conductors without insulation		
22.11 (8.3.1.6)	SELV/PELV current-carrying parts		
22.11 (8.3.1.7)	Insulation thickness other than PVC or rubber		
22.11 (8.3.2)	Sharp edges etc.		
	No moving parts of switches etc.		
	Joints, raising/lowering devices		
	Telescopic tubes etc.		
	No twisting over 360°		
22.11 (8.3.3)	Insulating bushings:		
	- suitable fixed		
	- material in bushings		
	- material not likely to deteriorate		
	- cables with protective sheath		
22.11 (8.3.4)	Joints and junctions effectively insulated		
22.11 (8.3.5)	Strain on internal wiring		
22.11 (8.3.6)	Wire carriers		
22.11 (8.3.7)	Wire ends not tinned		

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Clause	Requirement + Test	Result - Remark	Verdict
	Wire ends tinned: no cold flow		
22.11 (8.4)	**Test to determine suitability of conductors having a reduced cross-sectional area**		
	Under test the temperature of the luminaire wiring insulation does not exceed the limits stated in Table 22	(see Annex 2)	
	No damage to luminaire wiring after test		
22.11.1 (-)	Permanently connected		

22.12 (10)	**PROTECTION AGAINST ELECTRIC SHOCK**		
22.12 (10.2.1)	Hazardous live parts not accessible		
	Basic insulated parts not used on the outer surface without appropriate protection		
	Basic insulated parts not accessible with standard test finger on portable, settable and adjustable luminaires		
	Basic insulated parts not accessible with Ø 50 mm probe from outside, other types of luminaires		
	Lamp and starter holders in portable, settable and adjustable luminaires comply with double or reinforced insulation requirements		
	Basic insulation only accessible under light source/ starter replacement or for accessing serviceable components		
	Protection in any position		
	Double-ended tungsten filament lamp or equivalent lamps		
	Insulation lacquer not reliable		
	Double-ended high-pressure discharge lamp		
	Relevant warning according to 6.3.18 fitted to the luminaire		
22.12 (10.2.2)	Portable luminaire adjusted in most unfavourable position		
22.12 (10.2.3.a)	Class II luminaire:		
	- basic insulated metal parts not accessible		
	- required insulation from hazardous live parts in compliance with Table T.1		
	- glass protective shields not used as supplementary insulation		
22.12 (10.2.3.b)	BC lamp holder of metal in class I luminaires shall be connected to protective earth		

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Clause	Requirement + Test	Result - Remark	Verdict
22.12 (10.2.3.c)	SELV circuits with exposed current carrying parts:		
	Ordinary luminaire:		
	- voltage under load/ no-load AC (V) ..... :		
	- voltage under load/ no-load DC (V)……...:		
	- interrupted DC voltage (V) ……..:		
	- touch current if applicable (mA) ..... :		
	One conductive part insulated if required		
	Other than ordinary luminaire:		
	- voltage under load/ no-load AC (V) ..... :		
	- voltage under load/ no-load DC (V)……...:		
	- Interrupted DC (f<10Hz or f >200Hz) (mA)……..:		
	- Interrupted DC (10Hz ≤ f ≤ 200 Hz) (mA)….....:		
	Class III luminaire only for connection to SELV/PELV		
22.12 (10.2.3.d)	PELV circuits with exposed current carrying parts:		
	Ordinary luminaire:		
	- voltage under load/ no-load AC (V) ..... :		
	- voltage under load/ no-load DC (V)……...:		
	Other than ordinary luminaire:		
	- voltage under load/ no-load AC (V) ..... :		
	- voltage under load/ no-load DC (V)……...:		
	One pole insulated if required		
22.12 (10.2.4)	Portable luminaire has protection independent of mounting surface		
22.12 (10.2.5)	Compliance with the standard test finger or relevant probe		
22.12 (10.2.6)	Covers reliably secured		
22.12 (10.2.7)	Luminaire other than below with capacitor > 0,5 μF not exceed 50 V, 1 min after disconnection		
	Portable luminaire with capacitor > 0,1 μF (0.25) not exceed 34 V, 1 s after disconnection		
	Other luminaires with capacitor > 0,1 μF (0.25) with plug and track adaptors not exceed 60 V, 5 s after disconnection		

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Clause	Requirement + Test	Result - Remark	Verdict
22.13 (14)	**ENDURANCE TEST AND THERMAL TEST**		
22.13 (-)	If IP > IP 20 relevant test of (14.4), (14.5), (14.6) and (14.7) after (11.2) before (11.3) as specified in 22.14		—
22.13 (14.2)	**Selection of lamps and control gear**		—
	Lamp used according to Annex B	(Lamp used see Annex 2)	—
	Control gear if separate and not supplied	(Control gear used see Annex 2)	—
22.13 (14.3)	**Endurance test**		
22.13 (14.3.2)	a) mounting-position ..... :		—
	b) test temperature (°C) ..... :		—
	c) total duration (h) ..... :		—
	d) supply voltage (V) ..... :		—
	d) if not equipped with control gear, constant voltage/current (V) or (A) ..... :		—
	d) Class III luminaires powered via information technology communication cable:		
	- voltage under normal operation (V)……...:		—
	- voltage under abnormal operation (V)……..:		—
	e) luminaire ceases to operate		—
	f) luminaire with constant light output function		
22.13 (14.3.3)	After endurance test:		
	- no part unserviceable		
	- luminaire not unsafe		
	- no damage to track system		
	- marking legible		
	- no cracks, deformation etc.		
22.13 (14.4)	**Thermal test (normal operation)**	(see Annex 2)	
22.13 (14.5)	**Thermal test (abnormal operation)**	(see Annex 2)	
22.13 (14.6)	**Thermal test (failed windings in control gear):**		
22.13 (14.6.2)	Through wiring or looping-in wiring loaded by a current of (A) ..... :		—
	- case of abnormal conditions ..... :		—

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Clause	Requirement + Test	Result - Remark	Verdict
	- electronic controlgear		
	- measured winding temperature (°C): at 1,1 Un .... :		—
	- measured mounting surface temperature (°C) at 1,1 Un ..... :		
	- calculated mounting surface temperature (°C) ..... :		
	- track-mounted luminaires		
22.13 (14.6.3)	Temperature sensing control		
	- case of abnormal conditions ..... :		—
	- thermal link		
	- manual reset cut-out		
	- auto reset cut-out		
	- measured mounting surface temperature (°C) ..... :		
	- track-mounted luminaires		
22.13 (14.7)	**Thermal test in regard to fault conditions in control gear or electronic devices incorporated in thermoplastic luminaires**		
22.13 (14.7.2)	**Luminaire without temperature sensing control**		
22.13 (14.7.2.1)	Luminaire with fluorescent lamp ≤ 70W:		
	Test method 14.7.1.1 or Annex S ..... :		—
	Test according to 14.7.1.1:		
	- case of abnormal conditions ..... :		—
	- Ballast failure at supply voltage (V) ..... :		—
	- Components retained in place after the test		
	- Test with standard test finger after the test		
	Test according to Annex S:		
	- 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 (15.2.2)	
22.13 (14.7.2.2)	Luminaire with discharge lamp, fluorescent lamp > 70W, transformer > 10 VA:		
	- case of abnormal conditions ..... :		—

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Clause	Requirement + Test	Result - Remark	Verdict
	- 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 (15.2.2)	
22.13 (14.7.2.3)	Luminaire with short circuit proof transformers ≤ 10 VA:		
	- case of abnormal conditions ..... :		—
	- Components retained in place after the test		
	- Test with standard test finger after the test		
22.13 (14.7.3)	**Luminaire with temperature sensing control**		
	- thermal link..... :	Yes ☐ No ☐	—
	- manual reset cut-out ..... :	Yes ☐ No ☐	—
	- auto reset cut-out ..... :	Yes ☐ No ☐	—
	- case of abnormal conditions ..... :		—
	- highest measured temperature of fixing point/ exposed part (°C): ..... :		—
	Ball-pressure test: ..... :	See Test Table 22.16 (15.2.2)	
22.13.1 (-)	Endurance test for self-contained luminaire		
	Operate satisfactory during 50 supply switching		
22.13.2 (-)	Thermal test 14.4 to 14.5 in IEC 60598-1	(See Annex 2)	
22.13.3 (-)	Conditions of tests		—
22.13.4 (-)	Battery discharge		—
	EDLC discharge		—
22.13.5 (-)	Reduced temperature		—
22.13.6 (-)	Additional thermal test	(See Annex 2)	
22.13.7 (-)	Provide Vmin according to Clause 20 of IEC 61347-2-7 at the end of operation		

22.14 (11)	**RESISTANCE TO DUST, SOLID OBJECTS AND MOISTURE**		
22.14 (-)	If IP > IP 20 the order of tests as specified in clause 22.13		
22.14 (11.2.1)	Tests for ingress of dust, solid objects and moisture:		
	- classification according to IP ..... :	IP	—
	- mounting position during test..... :		—

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Clause	Requirement + Test	Result - Remark	Verdict
	- fixing screws tightened; torque (Nm) ..... :		—
	- tests according to clauses ..... :		—
	- electric strength test afterwards		
	a) no deposit in dust-proof luminaire		
	b) no talcum in dust-tight luminaire		
	c) no trace of water on current-carrying parts or on insulation where it could become a hazard		
	c.1) For luminaires without drain holes – no water entry		
	c.2) For luminaires with drain holes – no hazardous water entry		
	d) no water in watertight, pressure watertight, high pressure and temperature water jet-proof or high pressure and cold-water jet-proof luminaire		
	e) no contact with live parts (IP 2X)		
	e) no entry into enclosure (IP 3X and IP 4X)		
	e) no contact with live parts through drain holes and ventilation slots (IP3X and IP4X)		
	f) no trace of water on part of lamp requiring protection from splashing water		
	g) no damage of protective shield or glass envelope		
22.14 (11.3)	Humidity test 48 h		
22.15 (12)	**INSULATION RESISTANCE AND ELECTRIC STRENGTH, TOUCH CURRENT AND PROTECTIVE CONDUCTOR CURRENT**		
22.15 (12.2.2)	**Insulation resistance test**		
	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 :		
	- between current-carrying parts and mounting surface ..... :		
	- between current-carrying parts and metal parts of the luminaire ..... :		
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts ..... :		
	- Insulation bushings as described in Clause 8 ..... :		

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Clause	Requirement + Test	Result - Remark	Verdict
	Other than SELV/PELV:		
	- between hazardous live parts of different polarity . :		
	- between hazardous live parts and mounting surface :		
	- between hazardous live parts and metal parts ..... :		
	- between hazardous live parts of different polarity through action of a switch ..... :		
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts..... :		
	- Insulation bushings as described in Clause 8 ..... :		
22.15 (12.2.3)	**Electric strength test**		
	Dummy lamp		
	Luminaires with ignitors after 24 h test		
	Luminaires with manual ignitors		
	Test voltage (V):		
	SELV/PELV:		
	- between current-carrying parts of different polarity :		
	- between current-carrying parts and mounting surface ..... :		
	- between current-carrying parts and metal parts of the luminaire..... :		
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts..... :		
	- Insulation bushings as described in Clause 8 ..... :		
	Other than SELV/PELV:		
	- between hazardous live parts of different polarity . :		
	- between hazardous live parts and mounting surface :		
	- between hazardous live parts and metal parts ..... :		
	- between hazardous live parts of different polarity through action of a switch ..... :		
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts..... :		
	- Insulation bushings as described in Clause 8 ..... :		
22.15 (12.3)	**Touch current, protective conductor current and electric burn**		
22.15 (12.3)	Touch current (mA)……:		

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Clause	Requirement + Test	Result - Remark	Verdict
	Protective conductor current (mA).....:		

22.16 (15)	**RESISTANCE TO HEAT, FIRE AND TRACKING**		
22.16 (15.2.2)	Ball-pressure test ..... :	See Test Table 22.16 (15.2.2)	
22.16 (15.3.2)	Needle-flame test (10 s)..... :	See Test Table 22.16 (15.3.2)	
22.16 (15.3.3)	Glow-wire test (650°C) ..... :	See Test Table 22.16 (15.3.3)	
22.16 (15.4.2)	Proof tracking test (IEC 60112)..... :	See Test Table 22.16 (15.4.1)	

22.17 (-)	**PHOTOMETRIC DATA**		
22.17.1 (-)	Intensity distribution data provided		
22.17.2 (-)	If declared values in cd/1 000 lm, reference flux in emergency mode provided		
22.17.3 (-)	At least 50% of level declared photometric data 5 s after failure of supply		
	100% of level declared photometric data		
	- after 60 s		
	- after 0,5 s after failure of supply if high-risk task-area lighting		
	Photometric measurements according to CIE 121 SP1		
	LED luminaires measurements according to CIE S025		
	All values at least minimum declared data		
22.17.4 (-)	Colour-rendering index		
22.17.5 (-)	Internally illuminated emergency safety sign meets requirements of ISO 30061		
	Luminance of permanently illuminated safety sign meets requirements of ISO 30061		
	Luminance measurements according Annex C only	(See Annex C)	

22.18 (-)	**CHANGEOVER OPERATION**		
	Changeover device complies with Clause 21 of IEC 61347-2-7		

22.19 (-)	**HIGH TEMPERATURE OPERATION**		
	Operation at 70°C		
	Relative light outputs		

IS 10322 (Part 5/ Sec 8) IEC 60598-2-22			
Clause	Requirement + Test	Result - Remark	Verdict

22.20 (-)	**BATTERY CHARGERS FOR SELF-CONTAINED EMERGENCY LUMINAIRES**		
	Devices for recharging batteries comply with Clause 22 of IEC 61347-2-7		

22.21 (-)	**TEST DEVICES FOR EMERGENCY OPERATION**		
22.21.1 (-)	Self-contained luminaire provided with test facility		
22.21.2 (-)	Remote testing device not influence proper function of safety illumination		
22.21.3 (-)	Indicators colour according to IEC 60073		

22.8 (13)	**TABLE I: Creepage distances and clearances**						
	Minimum distances (mm) for AC up to 30 kHz sinusoidal voltages						
	Applicable part of IEC 60598-1 Table 18*, 19* and 20*						
	Insulation type **	**Measured clearance**	**Required**		**Measured creepage**	**Required**	
			clearance	***Table**		**creepage**	***Table**
Distance 1:							
Working voltage (V) ..... :							—
PTI ..... :					< 600 ☐	≥ 600 ☐	—
Pulse voltage or U_P if applicable (kV) ..... :							—
Supplementary information:							
Distance 2:							
Working voltage (V) ..... :							—
PTI ..... :					< 600 ☐	≥ 600 ☐	—
Pulse voltage or U_P if applicable (kV) ..... :							—
Supplementary information:							
Distance 3:							
Working voltage (V) ..... :							—
PTI ..... :					< 600 ☐	≥ 600 ☐	—
Pulse voltage or U_P if applicable (kV) ..... :							—
Supplementary information:							

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

22.8 (13)	**TABLE II: Creepage distances and clearances**	
	Minimum distances (mm) for AC higher than 30 kHz sinusoidal voltages	
	Applicable part of IEC 61347-1 Table 7 and 8* or IEC 60664-4 Table 1 and 2	

IS 10322 (Part 5/ Sec 8) IEC 60598-2-22			
Clause	Requirement + Test	Result - Remark	Verdict

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 Ûout if applicable (kV) .....:							—
Supplementary information:							
Distance 2:							
Working voltage (V) .....:							—
Frequency if applicable (kHz) .....:							—
PTI .....:					< 600 ☐ ≥ 600 ☐		—
Peak value of the working voltage Ûout if applicable (kV) .....:							—
Supplementary information:							
Distance 3:							
Working voltage (V) .....:							—
Frequency if applicable (kHz) .....:							—
PTI .....:					< 600 ☐ ≥ 600 ☐		—
Peak value of the working voltage Ûout 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 (15.2.2)	TABLE: Ball Pressure Test of Thermoplastics		
Allowed impression diameter (mm) ..... :		2	—

Object/ Part No./ Material	Manufacturer/ trademark	Test temperature (°C)	Impression diameter (mm)

Supplementary information:

22.16 (15.3.2)	TABLE: Needle-flame test				

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

Supplementary information:

22.16 (15.3.3)	TABLE: Resistance to heat and fire - Glow wire tests							

Object/ Part No./ Material	Manufacturer/ trademark	GWT (°C):650			GWT (°C):850			Verdict
		t_E (s)	t_I (s)	t_R (s)	t_E (s)	t_I (s)	t_R (s)	
Ignition of the specified layer placed underneath the test specimen (Yes/No):								

Supplementary information:

IS 10322 (Part 5/ Sec 8) IEC 60598-2-22			
Clause	Requirement + Test	Result - Remark	Verdict

22.16 (15.4.2)	**TABLE: Proof tracking test**				
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: ESSSs for self-contained emergency luminaires		
A.1	**General**		
	Type of ESSSs		
	Other battery/EDLC types conform to relevant standard		
A.2	**Safety and lifetime**		
	ESSS conform to relevant standard		
	Luminaire operates within specific tolerances		
A.3	**Charge capacity**		
A.4	**Sealed nickel cadmium batteries**		
A.4.1	Battery conforms 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_5A		
A.4.2.c	Minimum ambient temperature of the cells 5 °C		
A.4.2.d	Maximum discharge rates		
A.5	**Sealed nickel metal-hydride batteries**		
A.5.1	Battery conforms 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_5A		
A.5.2.c	Minimum ambient temperature of the cells 5 °C		
A.5.2.d	Maximum discharge rates		
A.6	**Valve regulated lead acid batteries**		
A.6.1	Battery conforms 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_{20}		

IS 10322 (Part 5/ Sec 8) IEC 60598-2-22			
Clause	Requirement + Test	Result - Remark	Verdict
A.6.2.c	Maximum discharge rates		
A.6.2.d	Maximum r.m.s. ripple current 0,1 C_{20}		
A.6.2.e	Minimum ambient temperature of the cells 5 °C		
A.7	**Lithium iron phosphate ($LiFePO_4$), lithium nickel manganese cobalt oxide ($Li(NiCoMn)O_2$), lithium titanate oxide (LTO) batteries**		
A.7.1	Cells conform to IEC 62620 and IEC 62133-2		
A.7.2	Battery conforms to following subclauses IEC 62133-2:		
	-7.2.2 – Case stress at high ambient temperature (battery)		
	-7.3.2 – External short-circuit (battery)		
	-7.3.6 – Over-charging of battery		
	-9.2 – Battery marking		
	-9.4 – Other information		
A.7.3	Battery conforms to following subclauses IEC 62620:		
	-5.3 – Battery designation		
	-6.3.1 – Discharge performance at +25 °C		
	--6.3.2 – Discharge performance at low temperature		
	-6.3.3 – High rate permissible current		
	-6.5 – Cell and battery internal resistance		
	-6.6.2 – Endurance in storage at constant voltage (permanent charge life)		
A.7.4	Conformity of similar lithium battery:		
	-Battery constructed of identical cells		
	-Same cell quantity and electrical configuration		
	Battery connected by cable and plug:		
	-plug provides equivalent connection		
	-cable resistance no higher than in reference battery		
	Battery pack with protection device:		
	-DC resistance of battery system equal or less than in reference sample		
	-evidence of equivalent design of protection circuit is provided		
	Addition or removal of mounting bracket		
A.7.5	Battery built-in protection device for luminaires designed for battery replacement		
	Protection device incorporated in battery/lamp control gear for luminaires designed for non-replaceable battery:		

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Clause	Requirement + Test	Result - Remark	Verdict
	- battery is not accessible during normal operation/installation		
	-position of battery pack/cell		
	- Marking “Do not remove”		
	- Battery is secured		
	- Protection device not contained within battery, assessed as part of control gear		
A.7.6	Maximum surface temperature of battery not exceed temperature stated by manufacturer or Table 3 IEC 61347-2-7		
A.8	**EDLC**		
A.8.1	EDLC conforms to relevant requirements of IEC 62391-1 and IEC 62391-2		
A.8.2	Operations limits of EDLC:		
	- Maximum continuous surface temperature in accordance with manufacture`s declared temperature		
	- Maximum charge voltage in accordance with manufacture`s declared voltage		
A.8.3	Designed duration time with consideration to capacitance degradation		
A.9	**Maximum surface temperature**		
	Measured after 48 hrs from start of recharge		
	Measured after twice rated charge time (minimum of 12 hrs) , if manufacturer declares lower charging time		
A.10	**Alternative operating parameters**		
A.11	**ESSS replacement**		

	Annex B: Luminaire classification					
	Classified and marked according to Annex B.....:					

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

	Annex E: Requirements for self-contained portable emergency luminaires	
E.5	**Classification of luminaires**	

IS 10322 (Part 5/ Sec 8) IEC 60598-2-22			
Clause	Requirement + Test	Result - Remark	Verdict
	Base unit and portable emergency luminaires with mains-voltage supplied integrated charger of Class I or Class II		
	Self-contained portable emergency luminaire without integrated mains-voltage supplied charger of Class III		
E.5.1	Classified according to 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 to 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 to photometric performance		—
	Distribution measured according to IEC TR 61341		
E.5.3.a	Narrow beam angels not greater than 15°		
E.5.3.b	Medium beam angels between 15° and 25°		
E.5.3.c	Wide beam angels greater than 25°		
E.5.3.d	Variable beam angels – state the range of angels		
E.6	**Marking**		
E.6.1	Marking visible after installation		
	Marking on both parts if separate charging device		
	Class II symbol only on the charger if separate charging device		
E.6.2	Instruction for electrical, mechanical and use according classification		
E.6.3	Warning notice on both parts to return the luminaire to base unit for recharging after use		
E.6.4	Instruction with photometric data		
E.7	**Construction**		
E.7.1	Control unit completely contained in the luminaire or part of the control unit in the base unit		
E.7.2	Mechanical strength tests according 4.13 of IEC 60598-1		
	Mechanical strength tests according 4.13.4 of IEC 60598-1 of portable section		
E.7.3	Base unit permanently connected to unswitched supply		

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Clause	Requirement + Test	Result - Remark	Verdict
E.7.4	Integral manual switch used to switch the unit between inhibit mode and emergency mode and vice versa		
	Recharging before supply voltage reach 0,85 times nominal value		
E.7.5	Integral over current protection device connected immediately after the terminals connecting to the supply		
E.7.6	Power supply connection between the luminaire and its base unit made without a tool		
	Connecting devices according to relevant standard		
E.7.7	No access to live parts during or after connection or disconnection		
E.7.8	Supply cable disconnected from the portable part before use		
E.7.9	Connection between the portable part and the charger mechanically interlocked to prevent incorrect polarized connection		
E.7.10	At least two independent replaceable lamps if incandescent lamps		
E.7.11	Colour rendering index of any emergency lamps *Ra* 40 or better		
E.7.12	Audible and/or visible warning on re-instatement of normal supply		
E.7.13	Failure of the mains supply the luminaire operate in emergency mode or an indicator identify the location of the luminaire		
	Load ≤ 0,01C_5/h of ESSS if indicator is used		
E.7.14	Indicator gives warning of low ESSS capacity remaining		
E.7.15	Adequate stability		
	Test at an angle of 15° to the horizontal		
E.7.16	Adequate stability to illuminate the task area on non-horizontal surface		
	Test at an angle of 15° to the horizontal		
E.8	**Changeover operation**		
	Requirements according 22.7.10 excluded if integral manual switch		
	Design avoids switching of charger whilst holding the luminaire		
E.9	**High temperature operation**		—
	Ambient temperature of 40°C in Clause 22.19		—

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Clause	Requirement + Test	Result - Remark	Verdict

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		—

ANNEX 1	**TABLE: Critical components information**					
Object / part No.	**Code**	**Manufacturer/ trademark**	**Type / model**	**Technical data**	**Standard**	**Mark(s) of conformity[1)]**
Description:						
Description:						
Description:						

Supplementary information:

[1)] 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: Thermal tests of Section 14**		
	Type reference ..... :		—
	Light source used ..... :		—
	Controlgear used ..... :		—
	Battery/EDLC used ..... :		—
	Mounting position of luminaire ..... :		—
	Supply wattage (W) ..... :		—
	Supply current (A) ..... :		—
	Temperatures in test 1 - 4 below are corrected for ta (°C) ..... :		—
	- abnormal operating mode ..... :		—
22.13 (14.4)	- test 1: rated voltage ..... :		—
	- test 2: 1,06 times rated voltage, or 1,05 times rated wattage or 1,1 times constant voltage/current ..... :		—
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage ..... :		—
	Through wiring or looping-in wiring loaded by a current of A during the test ..... :		—
22.13 (14.5)	- 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 ..... :		—

Temperature measurements (°C)

Part	Ambient	Sub-cl. 14.4 – normal				Sub-cl. 14.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit

Supplementary information:

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Clause	Requirement + Test	Result - Remark	Verdict

ANNEX 3	**Screw terminals (part of the luminaire)**		
(16)	**SCREW TERMINALS**		
(16.2)	Type of terminal ..... :		—
	Rated current (A)..... :		—
(16.2.2.2)	One or more conductors		
(16.2.2.3)	Special preparation		
(16.2.2.4)	Terminal size		
	Cross-sectional area (mm²)..... :		—
(16.2.3)	Conductor space (mm)..... :		
(16.3)	**Mechanical requirements and tests**		
(16.3.1)	Minimum distance		
(16.3.2)	Cannot slip out		
(16.3.3)	Special preparation		
(16.3.4)	Nominal diameter of thread (metric ISO thread) ..... :	M	
	External wiring		
	No soft metal		
(16.3.5)	Corrosion		
(16.3.6)	Nominal diameter of thread (mm) ..... :		
	Torque (Nm)..... :		
(16.3.7)	Between metal surfaces		
	Lug terminal		
	Mantle terminal		
	Pull test; pull (N)..... :		
(16.3.8)	Without undue damage		

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Clause	Requirement + Test	Result - Remark	Verdict
ANNEX 4	**Screwless terminals (part of the luminaire)**		
(17)	**SCREWLESS TERMINALS**		
(17.2)	Type of terminal ..... :		—
	Rated current (A)..... :		—
(17.2.1)	Material		
(17.2.2)	Clamping		
(17.2.3)	Stop		
(17.2.4)	Unprepared conductors		
(17.2.5)	Pressure on insulating material		
(17.2.6)	Clear connection method		
(17.2.7)	Clamping independently		
(17.2.8)	Fixed in position		
(17.2.10)	Conductor size		
	Type of conductor		
(17.4)	**Terminals and connections for internal wiring**		
(17.4.1)	Mechanical tests		
(17.4.1.2.1)	Pull test spring-type terminals (4 N, 4 samples) ..... :		
(17.4.1.2.3)	Pull test pin or tab terminals (4 N, 4 samples) ..... :		
	Insertion force not exceeding 50 N		
(17.4.1.3)	Permanent connections: pull-off test (20 N)		
(17.4.2)	**Electrical tests**		
	Voltage drop (mV) after 1 h (4 samples)..... :		
	Voltage drop of two inseparable joints		
	Number of cycles:		—
	Voltage drop (mV) after 10th alt. 25th cycle (4 samples)..... :		
	Voltage drop (mV) after 50th alt. 100th cycle (4 samples)..... :		
	After ageing, voltage drop (mV) after 10th alt. 25th cycle (4 samples) ..... :		
	After ageing, voltage drop (mV) after 50th alt. 100th cycle (4 samples) ..... :		
(17.5)	**Terminals and connections for external wiring**		
(17.5.1)	Conductors		
	Terminal size and rating		

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Clause	Requirement + Test	Result - Remark	Verdict

17.5.2	Mechanical tests										
(17.5.2.2)	Pull test spring-type terminals or welded connections (4 samples); pull (N) ..... :										
(17.5.2.3)	Pull test pin or tab terminals (4 samples); pull (N) ..... :										
(17.5.3)	**Electrical tests**										
	Tests according 17.5.3.2 + 17.5.3.3 in IEC 60598-1										
(17.5.3.2) **(17.5.3.3)**	**TABLE: Contact resistance test / Heating tests**										
	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:											