

Test Report No.:	Page 1 of 35
Issue Date:	

Manufacturer:	
Test item:	Handlamps
Identification:	Serial No:
Receipt No.:	Date of receipt:
Testing laboratory and its address:	
Test specification:	IS 10322 (Part 5/ Sec 6):2013
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 6)
Luminaires
Part 5: Particular requirements
Section 6: Handlamps

Report Number.:

Date of issue

Total number of pages.....

Applicant's name

Address

Test specification:

Standard: **IS 10322 (Part 5/ Sec 6):2013**

Test procedure: Compliance Report

Non-standard test method: N/A

Test Report Form No.: BIS_LUM/HL_IS10322-5-6_V1.0

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

Master TRF.....: 09/02/2018

Test item description.....:

Trade Mark.....:

Manufacturer.....:

Model/Type Reference.....:

Rating.....:

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

Report No.:

IS 10322 (Part 5/Sec 6): 2013

Page 3 of 36

Dated:

Description	Measurement/ testing	Total No. of tests	Total no. of applicable tests/ Req.	No. of tests/ Req. passed	Page No.
Marking	Marking				
Construction	Construction				
Creepage Distances And Clearances	Creepage Distances And Clearances				
Provision For Earthing	Provision For Earthing				
Terminals	Screw Terminals				
Terminals	Screw less Terminals				
External And Internal Wiring	External And Internal Wiring				
Protection Against Electric Shock	Protection Against Electric Shock				
Endurance Tests And Thermal Tests	Endurance Tests And Thermal Tests				
Resistance To Dust And Moisture	Resistance To Dust And Moisture				
Insulation Resistance And Electric Strength	Insulation Resistance And Electric Strength				
Resistance to Heat, Fire And Tracking	Resistance to Heat, Fire And Tracking				

Certificate: It is certified that the above tests were performed and found to be passing in the requirement test

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(Approving Authority)

Copy of marking plate:

Copy of trademark:

(provided on the equipment)

Table – List of Attachments

Attachment No.	Attachment Description	No. of pages in Attachment
Attachment – 1	Photo Document	Page no.
<p>General remarks:</p> <p>The test results presented in this report relate only to the object tested.</p> <p>This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.</p>		
<p>Possible test case verdicts:</p> <p>- test case does not apply to the test object : N/A</p> <p>- test object does meet the requirement : P (Pass)</p> <p>- test object does not meet the requirement : F (Fail)</p>		
<p>Testing :</p> <p>Date of receipt of test item :</p> <p>Date (s) of performance of tests :</p>		
<p>Laboratory conditions.....:</p> <p>Ambient Temperature.....:</p> <p>Ambient Humidity.....:</p>		

Report No.:

IS 10322 (Part 5/Sec 6): 2013

Page 5 of 36

Dated:

General product information:

Product Description

Model Tested:

Sr. No.	Product description	Model	Specifications
1			

Representative Models:

Sr. No.	Product Description	Model	Specifications	Variation From Family Representative
1				
2				
3				
4				
5				

Supply connections:

Representative Models:

Technical Considerations:

Report Summary

Dated:

Clause No	Test / Requirement name	code	Test result/ observation	Verdict
4 (1)	GENERAL TEST REQUIREMENTS			--
4 (0.1)	Information for luminaire design considered.....:	--	Standard Yes <input type="checkbox"/> No <input type="checkbox"/>	—
4 (0.3)	More sections applicable.....:	--	Yes <input type="checkbox"/> No <input type="checkbox"/>	—
4.2 (-)	Not apply third paragraph of 0.4.2	--		

Clause No	Test / Requirement name		Test result/ observation	Verdict
5 (2)	CLASSIFICATION OF LUMINAIRES			--
5 (2.2)	Type of protection	--		—
5 (2.3)	Degree of protection.....:	--		—
5 (2.4)	Luminaire suitable for mounting on normally flammable surfaces.....:	--	Yes <input type="checkbox"/> No <input type="checkbox"/>	—
	Luminaire suitable for mounting on non-combustible materials.....:	--	Yes <input type="checkbox"/> No <input type="checkbox"/>	
5 (2.5)	Luminaire for normal use	--	Yes <input type="checkbox"/> No <input type="checkbox"/>	—
	Luminaire for rough service	--	Yes <input type="checkbox"/> No <input type="checkbox"/>	—
5.1 (-)	Class II or III	--		
5.2 (-)	Classified as Rewirable or Non-rewirable	--		
5.3 (-)	Classified as rough service luminaire	--		

Clause No	Test / Requirement name	code	Test result/ observation	Verdict
6 (3)	MARKING			
6 (3.2)	Mandatory markings.	--		
	Position of the marking.	--		
	Format of symbols/text	--		
6 (3.3)	Additional information.	--		
	Language of instructions .	--		
6 (3.3.1)	Combination luminaires .	--		
6 (3.3.2)	Nominal frequency in Hz .	--		
6 (3.3.3)	Operating temperature .	--		
6 (3.3.4)	Symbol or warning notice .	--		
6 (3.3.5)	Wiring diagram .	--		
6 (3.3.6)	Special conditions .	--		
6 (3.3.7)	Metal halide lamp luminaire – warning .	--		
6 (3.3.8)	Limitation for semi-luminaires .	--		
6 (3.3.9)	Power factor and supply current .	--		
6 (3.3.10)	Suitability for use indoors .	--		
6 (3.3.11)	Luminaires with remote control .	--		
6 (3.3.12)	Clip-mounted luminaire – warning .	--		
6 (3.3.13)	Specifications of protective shields .	--		
6 (3.3.14)	Symbol for nature of supply .	--		
6 (3.3.15)	Rated current of socket outlet .	--		
6 (3.3.16)	Rough service luminaire .	--		
6 (3.3.17)	Mounting instruction for type X, type Y and type Z attachments .	--		
6 (3.3.18)	Non-ordinary luminaires with PVC cable .	--		
6 (3.4)	Test with water	--		
	Test with hexane	--		
	Legible after test .	--		
	Label attached .	--		
6.1 (-)	Symbols outside the handlamp	--		
	Wattage not in paint or ink	--		
6.2 (-)	Symbol for rough service luminaire (optional)	--		

6.3 (-)	Instruction on the protective cover how to open and close if replaceable lamp and type X attachment	--		
6.4	Standard Mark is governed by the provisions of the Bureau of Indian Standards Act, 1986 .	--		

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Total No. of Applicable Requirement =

No of Requirements for which the sample passed =

Total number of tests to be conducted =

Total No. of Applicable Tests =

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(Approving Authority)

Clause No	Test / Requirement name	Code	Test result/ observation	Verdict
7 (4)	CONSTRUCTION			
7 (4.2)	Components replaceable without difficulty .	--		
7 (4.3)	Wire ways smooth and free from sharp edges .	--		
7 (4.4)	Lamp holders			
7 (4.4.1)	Integral lamp holder .	--		
7 (4.4.2)	Wiring connection .	--		
7 (4.4.3)	Lamp holder for end-to-end mounting .	--		
7 (4.4.4)	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 have not moved from its position and show no permanent deformation	--		
	- bending test (N)	--		
	After test the lamp holder have not moved from its position and show no permanent deformation	--		
7 (4.4.5)	Peak pulse voltage	--		
7 (4.4.6)	Centre contact .	--		
7 (4.4.7)	Parts in rough service luminaires resistant to tracking	--		
7 (4.4.8)	Lamp connectors .	--		
7 (4.5)	Starter holders			
	Starter holder in luminaires other than class II .	--		
	Starter holder class II construction .	--		
	Starter can be touched with the standard test finger in class II luminaires .	--		
7 (4.6)	Terminal blocks			
	Tails	--		
	Unsecured blocks	--		
7 (4.7)	Terminals and supply connections			
7 (4.7.1)	Contact to metal parts .	--		
7 (4.7.2)	Test 8 mm live conductor	--		
	Test 8 mm earth conductor	--		
7 (4.7.3)	Terminals for supply conductors	--		
7 (4.7.4)	Terminals other than supply connection .	--		

7 (4.7.5)	Heat-resistant wiring/sleeves .	--		
7 (4.7.6)	Multi-pole plug .	--		
7 (4.8)	Switches			
	- adequate rating .	--		
	- adequate fixing .	--		
	- polarized supply .	--		
7 (4.9)	Insulating lining and sleeves			
7 (4.9.1)	Retainment .	--		
	Method of fixing.....:	--		
7 (4.9.2)	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).....:	--		
7 (4.10)	Double or reinforced insulation			
7 (4.10.1)	No contact, mounting surface – accessible metal parts – wiring of basic insulation .	--		
	Safe installation fixed luminaires .	--		
	Capacitors and switches .	--		
	Interference suppression capacitors according to ISQC 302400 .	--		
7 (4.10.2)	Assembly gaps:			
	- not coincidental .	--		
	- no straight access with test probe	--		
7 (4.10.3)	Retainment of insulation:			
	- fixed .	--		
	- unable to be replaced; luminaire inoperative .	--		
	- sleeves retained in position .	--		
	- tube of insulating material .	--		
7 (4.11)	Electrical connections and current-carrying parts			
7 (4.11.1)	Contact pressure .	--		
7 (4.11.2)	Screws:			
	- self-tapping screws .	--		
	- thread-cutting screws .	--		
7 (4.11.3)	Screw locking:			
	- spring washer .	--		
	- rivets .	--		
7 (4.11.4)	Material of current-carrying parts .	--		
7 (4.11.5)	No contact to wood or mounting surface .	--		
7 (4.11.6)	Electro-mechanical contact systems	--		
7 (4.12)	Screws and connections (mechanical) and glands			
7 (4.12.1)	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.....:	--		
7 (4.12.2)	Screws with diameter < 3 mm screwed into metal .	--		
7 (4.12.4)	Locked connections:			
	- fixed arms; torque (Nm).....:	--		
	- Lamp holder; torque (Nm).....:	--		
	- Push-button switches; torque 0,8 Nm.....:	--		
7 (4.12.5)	Screwed glands; force (Nm).....:	--		
7 (4.13)	Mechanical strength			
7 (4.13.1)	Impact tests: Table 1 in 10322 (part 5/ sec 2)			
	- Fragile parts; energy (Nm).....:	--		
	- Other parts; energy (Nm).....:	--		
	1) live parts	--		
	2) linings	--		
	3) protection	--		
	4) covers	--		
7 (4.13.3)	Straight test finger	--		
7 (4.13.4)	Rough service luminaires			
	- IP54 or higher	--		
	a) fixed	--		
	b) hand-held	--		
	c) delivered with a stand	--		
	d) for temporary installations and suitable for mounting on a stand	--		
7 (4.13.6)	Tumbling barrel	--		
7 (4.14)	Suspensions, fixings and means of adjusting			
7 (4.14.1)	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)	--		
7 (4.14.2)	Load to flexible cables			
	Mass (kg)	--		
	Stress in conductors (N/mm ²)	--		
	Mass (kg) of semi-luminaire	--		
	Bending moment (Nm) of semi-luminaire	--		
7 (4.14.3)	Adjusting devices:			
	- flexing test; number of cycles.....:	--		
	- Strands broken.....:	--		
	- electric strength test afterwards	--		

7 (4.14.4)	Telescopic tubes: cords not fixed to tube; no strain on conductors .	--		
7 (4.14.5)	Guide pulleys .	--		
7 (4.14.6)	Strain on socket-outlets .	--		
7 (4.15)	Flammable materials			
	- Glow-wire test 650°C.....:	--		
	- spacing ≥ 30 mm	--		
	- screen withstanding test of 13.3.1	--		
	- screen dimensions	--		
	- no fiercely burning material	--		
	- thermal protection	--		
	- electronic circuits exempted	--		
	Luminaires made of thermoplastic material with lamp control gear			
	a) construction .	--		
	b) temperature sensing control	--		
	c) surface temperature	--		
7 (4.16)	Luminaires marked with  symbol			
	No lamp control gear.....:	--		
7 (4.16.1)	Lamp control gear spacing:			
	- spacing 10 mm	--		
	- spacing 35 mm	--		
7 (4.16.2)	Thermal protection:			
	- in lamp control gear	--		
	- external	--		
	- fixed position	--		
	- temperature marked lamp control gear	--		
7 (4.16.3)	Design to satisfy the test of 12.6	--		
7 (4.17)	Drain holes			
	Clearance at least 5 mm	--		
7 (4.18)	Resistance to corrosion			
7 (4.18.1)	- rust-resistance	--		
7 (4.18.2)	- season cracking in copper	--		
7 (4.18.3)	- corrosion of aluminium	--		
7 (4.19)	Igniters compatible with ballast .	--		
7 (4.20)	Rough service vibration	--		
7 (4.21)	Protective shield			
7 (4.21.1)	Shield fitted if tungsten halogen lamps	--		
7 (4.21.2)	Particles from a shattering lamp not impair safety	--		
7 (4.21.3)	No direct path	--		
7 (4.21.4)	Impact test on shield	--		
	Glow-wire test on lamp compartment.....:	--		
7 (4.22)	Attachments to lamps not cause overheating or damage .	--		

Dated:

7 (4.23)	Semi-luminaires comply Class II .	--		
7 (4.24)	UV Radiation			
	UV radiation for metal halide lamps (Annex P)	--		
7 (4.25)	Mechanical hazard			
	No sharp point or edges .	--		
7 (4.26)	Short-circuit protection			
7 (4.26.1)	Adequate means of uninsulated accessible SELV parts	--		
7 (4.26.2)	Short-circuit test	--		
7 (4.26.3)	Test chain according to Fig. 29	--		
7.1 (-)	Shell, handle and other protective covers made of insulating material	--		
7.2 (-)	Protected against accidental damage	--		
	Not possible to remove protecting device by hand	--		
	Possible to replace lamp without completely removing protecting device	--		
	Special arranged opening for tubular fluorescent lamp	--		
	Device of metal positioned or insulated	--		
	Distance between glass of the lamp to protective glass or protective grid or cover ≥ 3 mm	--		
	Loading test of the hook	--		
7.3 (-)	No resistive ballasts or cables	--		
7.4 (-)	Lampholder locked against rotation	--		
7.5 (-)	Ballast or transformer ≤ 1 m from the plug	--		
	Ballast or transformer has a suspension hook	--		
7.6 (-)	Mechanical strength	--		
7.6.1 (-)	Pull test 100 N 1h	--		
	Additional torque test of 10 Nm for sealed handlamp	--		
7.6.2 (-)	Impact tests	--		
	- safety after 1st test (0,4 m)	--		
	- safety after 2nd test (1,0 m)	--		

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Clause No	Test / Requirement name	Code	Test result/ observation	Verdict
8 (11)	CREEPAGE DISTANCES AND CLEARANCES			
8 (11.2)	Working voltage (V).....:	--		—
	Voltage form.....:	--	Sinusoidal <input type="checkbox"/> Non-sinusoidal <input type="checkbox"/>	—
	PTI.....:	--	< 600 <input type="checkbox"/> > 600 <input type="checkbox"/>	—
	Impulse withstand category (Normal category II) (Category III Annex U)	--	Category II <input type="checkbox"/> Category III <input type="checkbox"/>	—
	Rated pulse voltage (kV).....:	--	--	—
	(1) Current-carrying parts of different polarity: cr (mm); cl (mm).....:	--		
	(2) Current-carrying parts and accessible parts: cr (mm); cl (mm).....:	--		

Dated:

	(3) Parts becoming live due to breakdown of basic insulation and metal parts: cr (mm); cl (mm).....:	--		
	(4) Outer surface of cable where it is clamped and metal parts: cr (mm); cl (mm).....:	--		
	(6) Current-carrying parts and supporting surface: cr (mm); cl (mm).....:	--		

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Clause No	Test / Requirement name	Code	Test result/ observation	Verdict
9 (7)	PROVISION FOR EARTHING			
9 (7.2.1 + 7.2.3)	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 .	--		
	Earth makes contact first .	--		
9 (7.2.2 + 7.2.3)	Earth continuity in joints, etc. .	--		
9 (7.2.4)	Compliance with 4.7.3	--		
	Connections adequately locked	--		

Dated:

9 (7.2.5)	Earth terminal integral part of connector socket .	--		
9 (7.2.6)	Earth terminal adjacent to mains terminals .	--		
9 (7.2.7)	Electrolytic corrosion of the earth terminal .	--		
9 (7.2.8)	Material of earth terminal .	--		
	Contact surface bare metal .	--		
9 (7.2.10)	Class II luminaire for looping-in .	--		
	Double or reinforced insulation to functional earth .	--		
9 (7.2.11)	Earthing core coloured green-yellow .	--		
	Length of earth conductor .	--		

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Clause No	Test / Requirement name	Code	Test result/ observation	Verdict
10 (14)	SCREW TERMINALS			
	Separately approved; component list.....	--		
	Part of the luminaire	--		
10.1 (-)	Terminals suitable for 0,75 to 1,5 mm ²			

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Clause No	Test / Requirement name	Code	Test result/ observation	Verdict
10 (15)	SCREWLESS TERMINALS AND ELECTRICAL CONNECTIONS			
	Separately approved; component list.....	--		
	Part of the luminaire	--		
10.1 (-)	Terminals suitable for 0,75 to 1,5 mm ²	--		

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Dated:

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Clause No	Test / Requirement name	Code	Test result/ observation	Verdict
11 (5)	EXTERNAL AND INTERNAL WIRING			P
11 (5.2)	Supply connection and external wiring			
11 (5.2.1)	Means of connection	--		
11 (5.2.2)	Type of cable	--		
	Nominal cross-sectional area (mm ²)	--		
	Cables equal to IS 694 and IS 9968 (Part 1) .	--		
	Luminaire provided with socket-outlet .	--		
11 (5.2.3)	Type of attachment, X, Y or Z .	--		
11 (5.2.5)	Type Z not connected to screws	--		

11 (5.2.6)	Cable entries:			
	- suitable for introduction	--		
	- adequate degree of protection	--		
11 (5.2.7)	Cable entries through rigid material have rounded edges .	--		
11 (5.2.8)	Insulating bushings:			
	- suitably fixed .	--		
	- material in bushings .	--		
	- material not likely to deteriorate .	--		
	- tubes or guards made of insulating material .	--		
11 (5.2.9)	Locking of screwed bushings .	--		
11 (5.2.10)	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	--		
11 (5.2.10.1)	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	--		
11 (5.2.10.2)	Adequate cord anchorage for type Y and type Z attachment	--		
11 (5.2.10.3)	Tests:			
	- impossible to push cable; unsafe	--		
	- pull test: 25 times; pull (N)	--		
	- torque test: torque (Nm)	--		
	- displacement ≤ 2 mm	--		
	- no movement of conductors	--		

	- no damage of cable or cord	---		
11 (5.2.11)	External wiring passing into luminaire	--		
11 (5.2.12)	Looping-in terminals .	--		
11 (5.2.13)	Wire ends not tinned .	--		
	Wire ends tinned: no cold flow .	--		
11 (5.2.14)	Mains plug same protection .	--		
	Class III luminaire plug .	--		
11 (5.2.15)	Colour coded red and black .	--		
11 (5.2.16)	Appliance inlets .	--		
	Appliance couplers .	--		
11 (5.3)	Internal wiring			
11 (5.3.1)	Internal wiring of suitable size and type .	--		
	Through wiring			
	- not delivered/ mounting instruction	--		
	- factory assembled	--		
	- socket outlet loaded (A).....	--		
	- temperatures.....	--		
	Green-yellow for earth only	--		
11 (5.3.1.1)	Internal wiring connected directly to fixed wiring .			
	Cross-sectional area (mm ²)	--		
	Insulation thickness	--		
	Extra insulation added where necessary	--		
11 (5.3.1.2)	Internal wiring connected to fixed wiring via internal current-limiting device .			
	Adequate cross-sectional area and insulation thickness	--		
11 (5.3.1.3)	Double or reinforced insulation for class II .	--		
11 (5.3.1.4)	Conductors without insulation .	--		
11 (5.3.1.5)	SELV current-carrying parts .	--		
11 (5.3.1.6)	Insulation thickness other than PVC or rubber .	--		
11 (5.3.2)	Sharp edges etc. .	--		
	No moving parts of switches etc. .	--		
	Joints, raising/lowering devices .	--		
	Telescopic tubes etc. .	--		

Dated:

	No twisting over 360°	--		
11 (5.3.3)	Insulating bushings:			
	- suitable fixed .	--		
	- material in bushings .	--		
	- material not likely to deteriorate .	--		
	- cables with protective sheath .	--		
11 (5.3.4)	Joints and junctions effectively insulated .	--		
11 (5.3.5)	Strain on internal wiring .	--		
11 (5.3.6)	Wire carriers .	--		
11 (5.3.7)	Wire ends not tinned .	--		
	Wire ends tinned: no cold flow .	--		
11.1 (-)	Rewirable handlamp equipped with type X attachment	--		
	Non-rewirable handlamp equipped with type Y or Z attachment	--		
11.2 (-)	Flexible cables or cord according to IEC 60245	--		
	Flexible cables or cord polychloroprene sheathed	--		
	Ordinary handlamp; conductors not less than 0,75 mm ²	--		
	Other handlamp; conductors not less than 1 mm ²	--		
11.3 (-)	Only one cable entry	--		
11.4.1 (-)	Flexing test	--		
	Not more than 50 % of the strands broken	--		
	Insulation resistance and high voltage test	--		
11.5 (-)	Test of 5.2.10.1 of IEC 60598-1	--		
	Rewirable handlamp without cord guard or gland	--		
	Non-rewirable handlamp as delivered	--		
	Gland not used as cord anchorage	--		
11.6 (-)	Non-detachable flexible cable or cord at least 5 m	--		

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(Approving Authority)

Clause No	Test / Requirement name	Code	Test result/ observation	Verdict
12 (8)	PROTECTION AGAINST ELECTRIC SHOCK			
12 (8.2.1)	Live parts not accessible .	--		
	Protection shall be maintained after removal of all parts .	--		
	Supply conductors held by screw less terminals with push-button .	--		
	Tubular filament lamps having a cap/base at each end .	--		
	Insulating properties of lacquer, enamel, paper and similar materials .	--		
	Luminaires with ignitors	--		
12 (8.2.2)	Portable luminaire adjusted in most unfavourable position .	--		
12 (8.2.3.a)	Class II luminaire:			
	- basic insulated metal parts not accessible during starter or lamp replacement .	--		
	- glass protective shields not used as supplementary insulation .	--		
12 (8.2.3.b)	BC lampholder of metal in class I luminaires shall be earthed .	--		
12 (8.2.4)	Portable luminaire have protection independent of supporting surface .	--		

12 (8.2.5)	Compliance with the standard test finger or relevant probe	--		
12 (8.2.6)	Covers reliably secured .	--		
12 (8.2.7)	Discharging of capacitors $\geq 0,5 \mu\text{F}$	--		
	Portable plug connected luminaire with capacitor	--		
	Other plug connected luminaire with capacitor	--		
	Discharge device on or within capacitor	--		
	Discharge device mounted separately	--		
12.1 (-)	Not possible to remove by hand parts prevent contact with ES or BC lamp caps			
	Protection against electrical shock checked with the protective grid and glass removed if with tungsten filament lamp			

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Clause No	Test / Requirement name	Code	Test result/ observation	Verdict
13 (12)	ENDURANCE TEST AND THERMAL TEST			
13 (12.3)	Endurance test:	--		
	- mounting-position.....	--		—
	- test temperature (°C)	--		—
	- total duration (h)	--		—
	- supply voltage: Un factor; calculated voltage (V).....	--		—
	- lamp used.....	--		—
13 (12.3.2)	After endurance test:	--		
	- no part unserviceable .	--		
	- plastic ES lampholder not deformed .	--		
	- luminaire not unsafe .	--		
	- no damage to track system .	--		
	- marking legible .	--		
	- no cracks, deformation etc. .	--		
13 (12.4)	Thermal test (normal operation)	--		
13 (12.5)	Thermal test (abnormal operation)	--		
13 (12.6)	Thermal test (failed lamp control gear condition):			
13 (12.6.1)	Without Thermal Cut-Outs	--		
	- case of abnormal conditions	--		
	- electronic lamp control gear	--		
	- 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	--		
13 (12.6.2)	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			
13 (12.7)	Thermal test (fault conditions in lamp control gear or electronic devices in plastic luminaires):			

Dated:

13 (12.7.1)	Luminaire without temperature sensing control	--		
	- 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)	--		—
13 (12.7.2)	Luminaire with temperature sensing control	--		
	- thermal link	--	Yes <input type="checkbox"/> No <input type="checkbox"/>	—
	- manual reset cut-out	--	Yes <input type="checkbox"/> No <input type="checkbox"/>	—
	- auto reset cut-out	--	Yes <input type="checkbox"/> No <input type="checkbox"/>	—
	- case of abnormal conditions	--		—
	- highest measured temperature of fixing point/ exposed part (°C):	--		—
13.1 (-)	If IP > IP 20 relevant test of (12.4), (12.5) and (12.6) after (9.2) before (9.3) specified in 8.13	--		
	No unsafe change of rubber parts after aged	--		
	Electrical strength test (reduced by 500 V)	--		
13.2 (-)	Thermal test normal and abnormal operation with the object placed on a dull black painted wooden floor or wall	--		
13.3 (-)	The limiting temperature of 70 °C for rubber does not apply to non-protective parts	--		

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Clause No	Test / Requirement name	Code	Test result/ observation	Verdict
14 (9)	RESISTANCE TO DUST AND MOISTURE			
14 (-)	If IP > IP 20 the order of tests as specified in clause 9.2	--		
14 (9.2)	Tests for ingress of dust, solid objects and moisture:	--		—
	- classification according to IP.....	--		—
	- mounting position during test.....	--		—
	- 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	--		
	d) i) For luminaires without drain holes – no water entry	--		
	d) ii) For luminaires with drain holes – no hazardous water entry	--		
	e) no water in watertight luminaire	--		
	f) no contact with live parts (IP 2X)	--		
	g) no entry into enclosure (IP 3X and IP 4X)	--		
	h) no contact with live parts (IP3X and IP4X)	--		
14 (9.3)	Humidity test 48 h	--		
14.1 (-)	Protective glasses, translucent covers and similar parts removed before the humidity treatment	--		

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TRF No._BIS_LUM/HL_IS10322-5-6_V1.0

Dated:

tested.

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Clause No	Test / Requirement name	Code	Test result/ observation	Verdict
15 (10)	INSULATION RESISTANCE AND ELECTRIC STRENGTH			
15 (10.2.1)	Insulation resistance test	--		
	Cable or cord covered by metal foil or replaced by a metal rod of mm Ø	--		
	Insulation resistance (MΩ)	--		
	SELV	--		
	- between current-carrying parts of different polarity	--		
	- between current-carrying parts and mounting surface	--		
	- between current-carrying parts and metal parts of the luminaire	--		
	Other than SELV	--		
	- between live parts of different polarity	--		
	- between live parts and mounting surface	--		
	- between live parts and metal parts	--		
	- between live parts of different polarity through action of a switch	--		
15 (10.2.2)	Electric strength test	--		
	Dummy lamp	--		
	Luminaires with ignitors after 24 h test	--		
	Luminaires with manual ignitors	--		
	Test voltage (V)	--		
	SELV	--		
	- between current-carrying parts of different polarity	--		
	- between current-carrying parts and mounting surface	--		
	- between current-carrying parts and metal parts of the luminaire	--		
	Other than SELV	--		
	- between live parts of different polarity	--		
	- between live parts and mounting surface	--		
	- between live parts and metal parts	--		
	- between live parts of different polarity through action of a switch	--		
15 (10.3)	Touch current or protective conductor current (mA)	--		

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Clause No	Test / Requirement name	Code	Test result/ observation	Verdict
16 (13)	RESISTANCE TO HEAT, FIRE AND TRACKING	--		
16 (13.2.1)	Ball-pressure test	--		
	- part tested; temperature (°C)	--		
	- part tested; temperature (°C)	--		
	- part tested; temperature (°C)	--		
	- part tested; temperature (°C)	--		
16 (13.3.1)	Needle-flame test (10 s).....	--		
	- part tested	--		
	- part tested	--		
16 (13.3.2)	Glow-wire test (650°C)	--		
	- part tested	--		
	- part tested	--		
16 (13.4.1)	Tracking test	--		
	- part tested	--		
16.1 (-)	Pressure test on handle at 100°C	--		
	No damage on the sample	--		

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ANNEX 1		TABLE: Critical components information					
Object / part No.	Code	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity	
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 authorized by the test house C - Integrated component tested together with the appliance D - Alternative component							

Dated:

ANNEX 2	TABLE: Temperature measurements, thermal tests of Section 12						
	Type reference.....:						—
	Lamp used						—
	Lamp control gear used						—
	Mounting position of luminaire						—
	Supply wattage (W)						—
	Supply current (A)						—
	Calculated power factor						—
	Table: measured temperatures corrected for $t_a = 25\text{ }^{\circ}\text{C}$:						--
	- abnormal operating mode.....:						—
	- test 1: rated voltage						—
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage						—
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage.....:						—
	- test 4: 1,1 times rated voltage or 1,05 times rated wattage						—

Temperature measurements, ($^{\circ}\text{C}$)							
Sr. No.	Part	Clause 12.4 – normal				Clause 12.5 – abnormal	
		test 1	test 2	test 3	Limit	test 4	Limit

Supplementary information: Measured temperatures corrected for $t_a = \text{ }^{\circ}\text{C}$

.Ref : For Internal Reference only.

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		
(14.3.2.2)	Special preparation		
(14.3.2.3)	Terminal size		
	Cross-sectional area (mm ²)		
(14.3.3)	Conductor space (mm)		
(14.4)	Mechanical tests		
(14.4.1)	Minimum distance		
(14.4.2)	Cannot slip out		
(14.4.3)	Special preparation		
(14.4.4)	Nominal diameter of thread (metric ISO thread)		
	External wiring		
	No soft metal		
(14.4.5)	Corrosion		
(14.4.6)	Nominal diameter of thread (mm)		
	Torque (Nm)		
(14.4.7)	Between metal surfaces		
	Lug terminal		
	Mantle terminal		
	Pull test; pull (N)		
(14.4.8)	Without undue damage		
ANNEX 4	Screwless terminals (part of the luminaire)		
(15)	SCREWLESS TERMINALS		
(15.2)	Type of terminal		
	Rated current (A)		
(15.3.1)	Material		
(15.3.2)	Clamping		
(15.3.3)	Stop		
(15.3.4)	Unprepared conductors		
(15.3.5)	Pressure on insulating material		
(15.3.6)	Clear connection method		
(15.3.7)	Clamping independently		

Dated:

(15.3.8)	Fixed in position									
(15.3.10)	Conductor size									
	Type of conductor									
(15.5.1)	Terminals internal wiring									
(15.5.1.1)	Pull test spring-type terminals (4 N, 4 samples).....:									
(15.5.1.2)	Pull test pin or tab terminals (4 N, 4 samples).....:									
	Insertion force not exceeding 50 N									
(15.5.2)	Permanent connections: pull-off test (20 N)									
(15.6)	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)									
(15.7)	Terminals external wiring									
	Terminal size and rating									
(15.8.1)	Pull test spring-type terminals or welded connections (4 samples); pull (N)									
	Pull test pin or tab terminals (4 samples); pull (N)									
(15.9)	Contact resistance test									
	Voltage drop (mV) after 1 h									
Terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										
	Voltage drop of two inseparable joints								--	
	Voltage drop after 10th alt. 25th cycle									
	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)										

Report No.:

IS 10322 (Part 5/Sec 6): 2013

Page 36 of 36

Dated:

Attachment – 1

Photo Document