



CIXI FARSTAR LIGHTING ELECTRIC CO.,LTD

CE LVD REPORT

Prepared For:	CIXI FARSTAR LIGHTING ELECTRIC CO.,LTD YUANYI ROAD, SHIGONGSHAN INDUSTRIAL PARK, LONGSHAN TOWN, CIXI CITY, ZHEJIANG PROVINCE, CHINA
Product Name:	FIXED LUMINAIRES WITH LAMPS FOR OUTDOOR USE
Main Test Model:	HD236I
Additional Model	HD118I, HD218I, HD136I, HD158I, HD258I
Prepared By :	Shenzhen BST Technology Co., Ltd.
	Building No.23-24,Zhiheng Industrial Park,Guankouer Road, Nantou,Nanshan District,Shenzhen,Guangdong,China.
Test Date:	Jul. 18, 2017 - Jul. 31, 2017
Date of Report :	Jul. 31, 2017
Report No.:	SHBST1707805620001YSR-2

**TEST REPORT****EN 60598-2-1****Luminaires****Part 2: Particular requirements****Section One – Fixed general purpose luminaires**

Testing Laboratory Name	Shenzhen BST Technology Co.,Ltd.
Address	Building No.23-24,Zhiheng Industrial Park,Guankouer Road, Nantou,Nanshan District,Shenzhen,Guangdong,China
Testing location	Shenzhen BST Technology Co.,Ltd.
Applicant's Name	CIXI FARSTAR LIGHTING ELECTRIC CO.,LTD
Address	YUANYI ROAD, SHIGONGSHAN INDUSTRIAL PARK, LONGSHAN TOWN, CIXI CITY, ZHEJIANG PROVINCE, CHINA
Manufacturer	CIXI FARSTAR LIGHTING ELECTRIC CO.,LTD
Address	YUANYI ROAD, SHIGONGSHAN INDUSTRIAL PARK, LONGSHAN TOWN, CIXI CITY, ZHEJIANG PROVINCE, CHINA
Test specification	
Standard	EN 60598-2-1:1989 EN 60598-1:2015
Trade Name.....	N/A
Procedure deviation	N/A
Non-standard test method	N/A
Test item description	FIXED LUMINAIRES WITH LAMPS FOR OUTDOOR USE
Model and/or type reference	See page 1
Rating(s)	See Copy of marking plate
Test case verdicts	
Test case does not apply to the test object	N/A
Test item does meet the requirement	P(ass)
Test item does not meet the requirement	F(ail)

**General remarks**

This report shall not be reproduced except in full without the written approval of the testing laboratory.

The test results presented in this report relate only to the item(s) tested.

"(see remark #)" refers to a remark appended to the report.

"(see Annex #)" refers to an annex appended to the report.

Clause numbers between brackets refer to clauses in EN 60598-1.

Throughout this report a comma is used as the decimal separator.

General product information:

The series products have the same circuit diagram, PCB layout and functionality. The differences are the model name, so, we select HD236I to test.

Copy of marking plate:

FIXED LUMINAIRES WITH LAMPS FOR
OUTDOOR USE
Model : HD236I
Rating(s): 165-265VAC, 50/60Hz, 0.3A, 2X18W



CIXI FARSTAR LIGHTING ELECTRIC CO.,LTD

Prepared by :

Adam Chen

Engineer

Reviewer :

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Supervisor

Approved & Authorized Signer :

Andy Yan

Manager



EN 60598-2-1			
Cl.	Requirement – Test	Result	Verdict
1.1 (0)	SCOPE		P
1.1 (0.1)	More sections applicable	Yes [☒] No [☐]	—
1.4 (2)	CLASSIFICATION		P
1.4 (2.2)	Type of protection	Class I	—
1.4 (2.3)	Degree of protection	IP65	P
1.4 (2.4)	Luminaire only suitable for non-combustible materials	No	—
	Luminaire suitable for normally flammable surfaces	Yes	—
	Luminaire suitable to be covered by insulating material	No	—
1.4 (2.5)	Luminaire for normal use	Yes	—
	Luminaire for rough service	No	—
1.5 (3)	MARKING		P
1.5 (3.2)	Marking on luminaires		P
	Position of the marking	On the enclosure	P
	Format of symbols/text		P
1.5 (3.3)	Additional information		P
	Language of instructions	English	P
1.5 (3.3.1)	Combination luminaires		N
1.5 (3.3.2)	Nominal frequency in Hz	50/60Hz	P
1.5 (3.3.3)	Operating temperature		P
1.5 (3.3.4)	Symbol or warning notice		P
1.5 (3.3.5)	Wiring diagram		N
1.5 (3.3.6)	Special conditions		N
1.5 (3.3.7)	Metal halid lamp luminaire – warning		N
1.5 (3.3.8)	Limitation for semi-luminaires	Not semi-luminaires	N
1.5 (3.3.9)	Power factor and supply current		P
1.5 (3.3.10)	Suitability for use indoors		P
1.5 (3.3.11)	Luminaires with remote control	No remote control	N
1.5 (3.3.12)	Clip-mounted luminaire – warning		N



EN 60598-2-1			
Cl.	Requirement – Test	Result	Verdict
1.5 (3.3.13)	Specifications of protective shields		N
1.5 (3.3.14)	Symbol for nature of supply	~	P
1.5 (3.3.15)	Rated current of socket outlet		N
1.5 (3.3.16)	Rough service luminaire	Ordinary luminaire	N
1.5 (3.3.17)	Mounting instruction for type Y, type Z and some type X attachments	Type Y	P
1.5 (3.3.18)	Non-ordinary luminaires with PVC cable	Ordinary luminaire	N
1.5(3.3.19)	Protective conductor current in instruction if applicable		N
1.5(3.3.20)	Provided with information if not intended to be mounted within arms reach		P
1.5 (3.3.101)	Terminal block is not supplied with luminaire		P
1.5 (3.4)	Test with water	15s with water	P
	Test with hexane	15s with hexane	P
	Legible after test	The marking is legible	P
	Label attached	The marking not be easily removable and shows no curling	P

1.6 (4)	CONSTRUCTION		P
1.6 (4.2)	Components replaceable without difficulty		P
1.6 (4.3)	Wireways smooth and free from sharp edges		P
1.6 (4.4)	Lampholders		N
1.6 (4.4.1)	Integral lampholder		N
1.6 (4.4.2)	Wiring connection		P
1.6 (4.4.3)	Lampholder for end-to-end mounting		N
1.6 (4.4.4)	Positioning		P
1.6 (4.4.5)	Peak pulse voltage		N
1.6 (4.4.6)	Centre contact		N
1.6 (4.4.7)	Rough service luminaires	Ordinary luminaires	N
1.6 (4.4.8)	Lamp connectors		N
1.6 (4.4.9)	Caps and bases correctly used		N



EN 60598-2-1			
Cl.	Requirement – Test	Result	Verdict
1.6 (4.5)	Starter holders		N
	Starter holder in luminaires other than class II		N
	Starter holder class II construction		N
1.6 (4.6)	Terminal blocks		P
	Tails		P
	Unsecured blocks		N
1.6 (4.7)	Terminals and supply connections		N
1.6 (4.7.1)	Contact to metal parts		P
1.6 (4.7.2)	Test 8 mm live conductor		P
	Test 8 mm earth conductor		N
1.6 (4.7.3)	Terminals for supply conductors		N
1.6 (4.7.4)	Terminals other than supply connection		N
1.6 (4.7.5)	Heat-resistant wiring/sleeves		N
1.6 (4.7.6)	Multi-pole plug		N
1.6 (4.8)	Switches:		N
	- adequate rating		N
	- adequate fixing		N
	- polarized supply		N
1.6 (4.9)	Insulating lining and sleeves		P
1.6 (4.9.1)	Retainment		P
	Method of fixing :		P
1.6 (4.9.2)	Insulated linings and sleeves		P
	a) & c) Insulation resistance and electric strength		P
	b) Ageing test. Temperature (°C) :		N
1.6 (4.10)	Insulation of Class II luminaires		N
1.6 (4.10.1)	No contact, mounting surface - accessible metal parts - wiring of basic insulation		N
	Safe installation fixed luminaires		N
	Capacitors		N
	Interference suppression capacitors according to IEC 60384-14		N
1.6 (4.10.2)	Assembly gaps:		N
	- not coincidental		N
	- no straight access with test probe		N



EN 60598-2-1			
Cl.	Requirement – Test	Result	Verdict
1.6 (4.10.3)	Retainment of insulation:		N
	- fixed		N
	- unable to be replaced; luminaire inoperative		N
	- sleeves retained in position		N
	- lining in lampholder		N
1.6 (4.11)	Electrical connections		P
1.6 (4.11.1)	Contact pressure	Not transmitted through insulating material	P
1.6 (4.11.2)	Screws:		N
	- self-tapping screws		N
	- thread-cutting screws		N
	- at least two self-tapping screws		N
1.6 (4.11.3)	Screw locking:		N
	- spring washer		N
	- rivets		N
1.6 (4.11.4)	Material of current-carrying parts		P
1.6 (4.11.5)	No contact to wood	No wood material in the luminaire	N
1.6 (4.11.6)	Electro-mechanical contact systems	No such systems	N
1.6 (4.12)	Mechanical connections and glands		P
1.6 (4.12.1)	Screws not made of soft metal		P
	Screws of insulating material		P
	Torque test: torque (Nm); part.....:	2.5 Nm	P
	Torque test: torque (Nm); part.....:		N
	Torque test: torque (Nm); part.....:		N
1.6 (4.12.2)	Screws with diameter < 3 mm screwed into metal		N
1.6 (4.12.4)	Locked connections:		N
	- fixed arms; torque (Nm)		N
	- lampholder; torque (Nm)		N
	- push-button switches; torque 0,8 Nm.....:		N



EN 60598-2-1			
Cl.	Requirement – Test	Result	Verdict
1.6 (4.12.5)	Screwed glands; force (N)	No screwed gland	N
1.6 (4.13)	Mechanical strength		P
1.6 (4.13.1)	Impact tests:		P
	- fragile parts; energy (Nm).....		N
	- other parts; energy (Nm)	0.35 Nm	P
	1) live parts	Not access	P
	2) linings		P
	3) protection	Continue to afford the degree of protection against ingress of dust, solid objects and moisture	P
	4) covers	No break	P
1.6 (4.13.3)	Straight test finger	Can't touch with live part with 30N	P
1.6 (4.13.4)	Rough service luminaires		N
	a) fixed		N
	b) hand-held		N
	c) delivered with a stand		N
	d) for temporary installations and suitable for mounting on a stand		N
1.6 (4.13.6)	Tumbling barrel		N
1.6 (4.14)	Suspensions and adjusting devices		N
1.6 (4.14.1)	Mechanical load:		N
	A) four times the weight		N
	B) torque 2,5 Nm		N
	C) bracket arm; bending moment (Nm).....		N
	D) load track-mounted luminaires		N
	E) clip-mounted luminaires, glass-shelve. Thickness (mm)		N
	metal rod. Diameter (mm)		N
1.6 (4.14.2)	Load to flexible cables		N
	Mass (kg).....		N
	Stress in conductors (N/mm ²).....		N



EN 60598-2-1			
Cl.	Requirement – Test	Result	Verdict
	Semi-luminaires – mass (kg)		N
	Semi-luminaires – bending moment (Nm).....		N
1.6 (4.14.3)	Adjusting devices:		N
	- flexing test; number of cycles		N
	- strands broken		N
	- electric strength test afterwards		N
1.6 (4.14.4)	Telescopic tubes: cords not fixed to tube; no strain on conductors	No telescopic tubes	N
1.6 (4.14.5)	Guide pulleys	No guide pulleys	N
1.6 (4.14.6)	Strain on socket-outlets	No socket-outlet	N
1.6 (4.15)	Flammable materials:		P
	- glow-wire test 650 °C		P
	- spacing $\geq$ 30 mm		P
	- screen withstanding test of 13.3.1		N
	- screen dimensions		N
	- no fiercely burning material		P
	- thermal protection		N
	- electronic circuits exempted		N
1.6 (4.15.2)	Luminaires made of thermoplastic material with lamp control gear		N
	a) construction		N
	b) temperature sensing control		N
	c) surface temperature		N
1.6 (4.16)	Luminaires for mounting on normally flammable surfaces		P
	No lamp control gear	(compliance with Section 12)	N
1.6 (4.16.1)	Electronic lamp control gear		N
	Lamp control gear spacing:		N
	- spacing 35 mm		N
	- spacing 10 mm		N
1.6 (4.16.2)	Thermal protection:		N
	- in lamp control gear		N
	- external		N



EN 60598-2-1			
Cl.	Requirement – Test	Result	Verdict
	- fixed position		N
	- temperature marked lamp control gear		N
1.6 (4.16.3)	The test of 12.6.	(see 12.6)	N
1.6 (4.17)	Drain holes	Ordinary luminaire	N
	Clearance at least 5 mm		N
1.6 (4.18)	Resistance to corrosion:		P
1.6 (4.18.1)	- rust-resistance	Ordinary luminaire	N
1.6 (4.18.2)	- season cracking in copper		P
1.6 (4.18.3)	- corrosion of aluminium		N
1.6 (4.19)	Ignitors compatible with ballast	No ignitors	N
1.6 (4.20)	Rough service vibration:	Ordinary luminaire	N
1.6 (4.21)	Protective shield:		N
1.6 (4.21.1)	Shield fitted		N
1.6 (4.21.2)	Particles from a shattering lamp not impair safety		N
1.6 (4.21.3)	No direct path		N
1.6 (4.21.4)	Impact test on shield		P
	Glow-wire test on lamp compartment		N
1.6 (4.22)	Attachments to lamps	No attachments	N
1.6 (4.23)	Semi-luminaires comply class II		N
1.6(4.24.1)	No excessive UV radiation if tungsten halogen lamps and metal halide lamps (Annex P)		P
1.6(4.24.2)	Retinal blue light hazard		P
	Class of risk group assessed according to IEC/TR 62778:		P
	Luminaires with E_{thr} :		P
	a) Fixed luminaires		P
	- distance x m, borderline between RG1 and RG2.		P
	- marking and instruction according 3.2.23		N
	b) Portable and handheld luminaires		N



EN 60598-2-1			
Cl.	Requirement – Test	Result	Verdict
	- marking according 3.2.23 if RG1 exceeded at 200 mm according to IEC/TR 62778		N
	Portable luminaires for children IEC 60598-2-10 and Mains socket outlet nightlights IEC 60598-2-12 not exceed RG1 at 200 mm according to IEC/62778		N
1.6 (4.25)	No sharp point or edges	No sharp points or edges	P
1.6 (4.26)	Short-circuit protection:		P
1.6 (4.26.1)	Uninsulated accessible SELV parts		P
1.6 (4.26.2)	Short-circuit test		P
1.6 (4.26.3)	Test chain according to Figure 29		P

1.7 (11)	CREEPAGE DISTANCES AND CLEARANCES		P
	Working voltage (V)	165-265Vac	—
	Voltage form	Sinusoidal	—
	PTI	< 600V	—
	Rated pulse voltage (kV)		—
	(1) Current-carrying parts of different polarity: cr (mm); cl (mm)	Cr >2.5mm, Cl>1.5mm	P
	(2) Current-carrying parts and accessible parts: cr (mm); cl (mm)	Cr >5.0mm, Cl>3.0mm	P
	(3) Parts becoming live due to breakdown of basic insulation and metal parts: cr (mm); cl (mm)		N
	(4) Outer surface of cable where it is clamped and metal parts: cr (mm); cl (mm)		N
	(5) Current-carrying parts of switches and metal parts, after removal of insulation: cr (mm); cl (mm)		N
	(6) Current-carrying parts and supporting surface: cr (mm); cl (mm)	Cr >5.0mm, Cl>3.0mm	P

1.8 (7)	PROVISION FOR EARTHING		P
1.8 (7.2.1 + 7.2.3)	Accessible metal parts		P
	Metal parts in contact with supporting surface		P
	Resistance < 0,5 Ω	< 0,5 Ω	P



EN 60598-2-1			
Cl.	Requirement – Test	Result	Verdict
	Self-tapping screws used		N
	Thread-forming screws		N
	Connector earthing first		P
1.8 (7.2.2 + 7.2.3)	Earth continuity in joints etc.		N
1.8 (7.2.4)	Locking of clamping means		N
	Compliance with 4.7.3		N
1.8 (7.2.5)	Earth terminal integral part of connector socket		N
1.8 (7.2.6)	Earth terminal adjacent to mains terminals		P
1.8 (7.2.7)	Electrolytic corrosion of the earth terminal		N
1.8 (7.2.8)	Material of earth terminal		P
	Contact surface bare metal		P
1.8 (7.2.10)	Class II luminaire for looping-in		N
1.8 (7.2.11)	Earthing core coloured green-yellow		N
	Length of earth conductor		N
1.9 (14)	SCREW TERMINALS		N
	Separately approved; component list		N
	Part of the luminaire		N
1.9 (15)	SCREWLESS TERMINALS		N
	Separately approved; component list		N
	Part of the luminaire		N
1.10 (5)	EXTERNAL AND INTERNAL WIRING		P
1.10 (5.2)	Supply connection and external wiring		P
1.10 (5.2.1)	Means of connection	Wire leader	P
1.10 (5.2.2)	Type of cable		P
	Nominal cross-sectional area (mm ²)		P
1.10 (5.2.3)	Type of attachment, X, Y or Z	Type Y	P
1.10 (5.2.5)	Type Z not connected to screws		N



EN 60598-2-1			
Cl.	Requirement – Test	Result	Verdict
1.10 (5.2.6)	Cable entries:		P
	- suitable for introduction		P
	- adequate degree of protection		P
1.10 (5.2.7)	Cable entries through rigid material have rounded edges		P
1.10 (5.2.8)	Insulating bushings:		N
	- suitably fixed		N
	- material in bushings		N
	- tubes or guards made of insulating material		N
1.10 (5.2.9)	Locking of screwed bushings		N
1.10 (5.2.10)	Cord anchorage:		P
	- covering protected from abrasion		P
	- clear how to be effective		P
	- no mechanical or thermal stress		P
	- no tying of cables into knots etc.		P
	- insulating material or lining		N
1.10 (5.2.10.1)	Cord anchorage for type X attachment:		N
	a) at least one part fixed		N
	b) types of cable		N
	c) no damaging of the cable		N
	d) whole cable can be mounted		N
	e) no touching of clamping screws		N
	f) metal screw not directly on cable		N
	g) replacement without special tool		N
	Glands not used as anchorage		N
	Labyrinth type anchorages		N
1.10 (5.2.10.2)	Adequate cord anchorage for type Y and type Z attachment	type Y	P
1.10 (5.2.10.3)	Tests:		P
	- impossible to push cable; unsafe		P
	- pull test: 25 times; pull (N).....: 60N		P
	- torque test: torque (Nm): 0.25Nm		P



EN 60598-2-1			
Cl.	Requirement – Test	Result	Verdict
	- displacement ≤ 2 mm	0.5mm<2mm	P
	- no movement of conductors		P
	- no damage of cable or cord		P
1.10 (5.2.11)	External wiring passing into luminaire		P
1.10 (5.2.12)	Looping-in terminals		N
1.10 (5.2.13)	Wire ends not tinned		P
	Wire ends tinned: no cold flow		P
1.10 (5.2.14)	Mains plug same protection		N
	Class III luminaire plug		N
1.10 (5.2.16)	Appliance inlets (IEC 60320)	No appliance inlet	N
	Appliance couplers of class II type		N
1.10 (5.2.17)	No standardized interconnecting cables properly assembled		N
1.10 (5.2.18)	Used plug in accordance with		N
	-IEC 60083		N
	-Other standard		N
1.10 (5.3)	Internal wiring		N
1.10 (5.3.1)	Internal wiring of suitable size and type		N
	Through wiring		N
	- not delivered/ mounting instruction		N
	- factory assembled		N
	- socket outlet loaded (A).....:		N
	- temperatures:		N
	Green-yellow for earth only		N
1.10 (5.3.1.1)	Internal wiring connected directly to fixed wiring		P
	Cross-sectional area (mm ²).....:		P
	Insulation thickness		P
	Extra insulation added where necessary		N
1.10 (5.3.1.2)	Internal wiring connected to fixed wiring via internal current-limiting device		N



EN 60598-2-1			
Cl.	Requirement – Test	Result	Verdict
	Adequate cross-sectional area and insulation thickness		N
1.10 (5.3.1.3)	Double or reinforced insulation for class II		N
1.10 (5.3.1.4)	Conductors without insulation	No such conductors	N
1.10 (5.3.1.5)	SELV current-carrying parts		N
1.10 (5.3.1.6)	Insulation thickness other than PVC or rubber		N
1.10 (5.3.2)	Sharp edges etc.		N
	No moving parts of switches etc.	No such part	N
	Joints, raising/lowering devices		N
	Telescopic tubes etc.	No such device	N
	No twisting over 360°		N
1.10 (5.3.3)	Openings		N
	Bushings not removable		N
	Bushings in sharp openings		N
	Cables with protective sheath		N
1.10 (5.3.4)	Joints and junctions effectively insulated		N
1.10 (5.3.5)	Strain on internal wiring		N
1.10 (5.3.6)	Wire carriers		N
1.10 (5.3.7)	Wire ends may be tinned		N
	Wire ends tinned: no cold flow		N

1.11 (8)	PROTECTION AGAINST ELECTRIC SHOCK		P
1.11 (8.2.1)	Live parts not accessible	No access of live part in normal use	P
	Basic insulated parts not used on the outer surface without appropriate protection		P
	Protection in any position		P
	Double-ended tungsten filament lamp		N
	Insulation lacquer not reliable	No insulation lacquer	N



EN 60598-2-1			
Cl.	Requirement – Test	Result	Verdict
	Double-ended high pressure discharge lamp		N
1.11 (8.2.2)	Portable luminaire adjusted in most unfavourable position		N
1.11 (8.2.3)	Class II luminaire:		N
	- basic insulated metal parts not accessible during starter or lamp replacement		N
	- basic insulation not accessible other than during starter or lamp replacement		N
	- glass protective shields not used as supplementary insulation		N
	Class I luminaire with BC lampholder		N
1.11 (8.2.4)	Portable luminaire:		N
	- protection independent of supporting surface		N
	- terminal block completely covered		N
1.11 (8.2.5)	Compliance with the standard test finger or relevant probe		P
1.11 (8.2.6)	Covers reliably secured		P
1.11 (8.2.7)	Discharging of capacitors $\geq 0,5 \mu\text{F}$		N
	Portable plug connected luminaire with capacitor		N
	Other plug connected luminaire with capacitor		N
	Discharge device on or within capacitor		N
	Discharge device mounted separately		N

1.12 (12)	ENDURANCE TEST AND THERMAL TEST		P
1.12 (12.3)	Endurance test:		P
	- mounting-position	Normal position	—
	- test temperature (°C).....	35°C	—
	- total duration (h)	240h	—
	- supply voltage: Un factor; calculated voltage (V):	265*1.1=291.5V	—
	- lamp used		—
1.12 (12.3.2)	After endurance test:		P
	- no part unserviceable		P
	- luminaire not unsafe		P



EN 60598-2-1			
Cl.	Requirement – Test	Result	Verdict
	- no damage to track system		N
	- marking legible	Marking still legible and shows no curling	P
	- no cracks, deformation etc.		P
1.12 (12.4)	Thermal test (normal operation)	(see Annex 2)	P
1.12 (12.5)	Thermal test (abnormal operation)		N
1.12 (12.6)	Thermal test (failed lamp control gear condition):		N
1.12 (12.6.1)	- case of abnormal conditions		—
	- electronic lamp control gear		N
	- measured winding temperature (°C) at 1,1 Un..:		—
	- measured mounting surface temperature (°C) at 1,1 Un		N
	- calculated mounting surface temperature (°C) .:		N
	- track-mounted luminaires		N
1.12 (12.6.2)	Temperature sensing control		N
	- case of abnormal conditions		—
	- thermal link		N
	- manual reset cut-out		N
	- auto reset cut-out		N
	- measured mounting surface temperature (°C) :		N
	- track-mounted luminaires		N
1.12 (12.7)	Thermal test (failed lamp control gear in plastic luminaires):		N
	- case of abnormal conditions		—
1.12 (12.7.1)	- measured winding temperature (°C) at 1,1 Un..:		—
	- measured temperature of fixing point/ exposed part (°C) at 1,1 Un		N
	- calculated temperature of fixing point/ exposed part (°C)		N
1.12 (12.7.2)	Temperature sensing control		N
	- thermal link		N
	- manual reset cut-out		N
	- auto reset cut-out		N
	- measured temperature of fixing point/ exposed part (°C)		N



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Cl.	Requirement – Test	Result	Verdict
1.13 (9)	RESISTANCE TO DUST, SOLID OBJECTS AND MOISTURE		P
1.13 (9.2)	Tests for ingress of dust, solid objects and moisture:		P
	- classification according to IP	IP65	—
	- mounting position during test		—
	- fixing screws tightened; torque (Nm).....		—
	- tests according to clauses		—
	- electric strength test afterwards		P
	a) no deposit in dust-proof luminaire		N
	b) no talcum in dust-tight luminaire		P
	c) no trace of water on current-carrying parts or where it could become a hazard		P
	d) i) For luminaires without drain holes – no water entry		P
	d) ii) For luminaires with drain holes – no hazardous water entry		N
	e) no water in watertight luminaire		P
	f) no contact with live parts (IP 2X)		N
	f) no entry into enclosure (IP 3X and IP 4X)		N
	f) no contact with live parts (IP 3X and IP 4X)		N
1.13 (9.3)	Humidity test 48 h	R.H.:95% T:25°C	P
1.14 (10)	INSULATION RESISTANCE AND ELECTRIC STRENGTH		P
1.14 (10.2.1)	Insulation resistance test		P
	Insulation resistance (MΩ):		--
	SELV:		N
	- between current-carrying parts of different polarity		N
	- between current-carrying parts and mounting surface		N
	- between current-carrying parts and metal parts of the luminaire		N
	Other than SELV:		P
	- between live parts of different polarity	>100MΩ	P
	- between live parts and mounting surface	>100MΩ	P



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Cl.	Requirement – Test	Result	Verdict
	- between live parts and enclosure	>100MΩ	P
	- between live parts of different polarity through action of a switch	No switch	N
1.14 (10.2.2)	Electric strength test		P
	Dummy lamp		N
	Luminaires with ignitors after 24 h test		N
	Luminaires with manual ignitors		N
	Test voltage (V):		P
	SELV:		N
	- between current-carrying parts of different polarity		N
	- between current-carrying parts and mounting surface		N
	- between current-carrying parts and metal parts of the luminaire		N
	Other than SELV:		P
	- between live parts of different polarity	1530V	P
	- between live parts and mounting surface	1530V	P
	- between live parts and enclosure	1530V	P
	- between live parts of different polarity through action of a switch		N
1.14 (10.3.1)	Touch current, protective conductor current and electric burn (mA)	0.32mA < 0.7mA	P
1.15 (13)	RESISTANCE TO HEAT, FIRE AND TRACKING		P
1.15 (13.2.1)	Ball-pressure test:		P
	- part tested; temperature (°C)	Enclosure, 75°C, 1.1mm Limit: 2mm	P
	- part tested; temperature (°C)		N
1.15 (13.3.1)	Needle flame test (10 s):		P
	- part tested	Enclosure	P
1.15 (13.3.2)	Glow wire test (650°C):		P
	- part tested	Enclosure	P
1.15 (13.4.1)	Tracking test: part tested		N



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Cl.	Requirement – Test	Result	Verdict

	COMMON MODIFICATIONS		N
(3.3.101 + 5.2.1)	For luminaires connected by tails, information about terminal block		N
(5.2.2)	Cables equal to HD 21 S2 or HD 22 S2		N
(5.2.15)	Colour code low voltage		N

ZB	ANNEX ZB, SPECIAL NATIONAL CONDITIONS		N
(2.2)	Class 0 not accepted		N
(3.3)	DK: power supply cord with label		N
	IT: warning label on Class 0 luminaire		N
(4.5.1)	DK: socket-outlets		N
(4.5.1)	FR: socket-outlets		N
(5.2.1)	DK, FI, SE, GB: type of plug		N

ZC	ANNEX ZC, NATIONAL DEVIATIONS		N
(13.3)	DK: Needle flame test or glow-wire test 750°C for luminaires in access routes		N
(13.3)	GB: Requirements according to United Kingdom Building Regulation		N
(13.3.2)	FR: Glow-wire test 850°C alt. 750°C for luminaires in premises open to public and workers		N

	ANNEX 1: components					P
object/part No.	manufacturer/ trademark	type/model	technical data	standard	mark(s) of conformity	
Input wire	various	various	min 80°C, 300vac	UL 758	UL	

	ANNEX 2: temperature measurements, thermal tests of Section 12		P
	Type reference	See page 2	—
	Lamp used.....		—
	Lamp control gear used.....		—
	Mounting position of luminaire.....	Normal position	—
	Supply wattage (W)		—
	Supply current (A).....		—
	Calculated power factor		—



	Table: measured temperatures corrected for ta = 25 °C:					P
	- abnormal operating mode	--				—
	- test 1: rated voltage	--				—
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage	240V x1.06=254.4V				—
	- 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 (°C) of part		clause 12.4 - normal			clause 12.5 - abnormal	
		test 1	test 2	test 3	limits	test 4 limit
Connecting wire			40.3		80	
Enclosure			37.6		90	
Mounting surface			46.7		90	
Ambient			25.1		--	
	ANNEX 3: screw terminals (part of the luminaire)					N
(14)	SCREW TERMINALS					N
(14.2)	Type of terminal.....				—	
	Rated current (A)				—	
(14.3.2.1)	One or more conductors					N
(14.3.2.2)	Special preparation					N
(14.3.2.3)	Terminal size					N
	Cross-sectional area (mm²).....					N
(14.3.3)	Conductor space (mm)					N
(14.4)	Mechanical tests					N
(14.4.1)	Minimum distance					N
(14.4.2)	Cannot slip out					N
(14.4.3)	Special preparation					N
(14.4.4)	Nominal diameter of thread (metric ISO thread) .:					N
	External wiring					N
	No soft metal					N
(14.4.5)	Corrosion					N
(14.4.6)	Nominal diameter of thread (mm)					N
	Torque (Nm)					N
(14.4.7)	Between metal surfaces					N
	Lug terminal					N
	Mantle terminal					N



	Pull test; pull (N)		N
(14.4.8)	Without undue damage		N
	ANNEX 4: SCREWLESS TERMINALS (PART OF THE LUMINAIRE)		N
(15)	SCREWLESS TERMINALS		N
(15.2)	Type of terminal.....		—
	Rated current (A)		—
(15.3.1)	Material		N
(15.3.2)	Clamping		N
(15.3.3)	Stop		N
(15.3.4)	Unprepared conductors		N
(15.3.5)	Pressure on insulating material		N
(15.3.6)	Clear connection method		N
(15.3.7)	Clamping independently		N
(15.3.8)	Fixed in position		N
(15.3.10)	Conductor size		N
	Type of conductor		N
(15.5.1)	Terminals internal wiring		N
(15.5.1.1)	Pull test spring-type terminals (4 N, 4 samples)		N
(15.5.1.2)	Pull test pin or tab terminals (4 N, 4 samples)		N
	Insertion force not exceeding 50 N		N
(15.5.2)	Permanent connections: pull-off test (20 N)		N
(15.6)	Electrical tests		N
	Voltage drop (mV) after 1 h (4 samples)		N
	Voltage drop of two inseparable joints		N
	Number of cycles.....		—
	Voltage drop (mV) after 10th alt. 25th cycle (4 samples).....		N
	Voltage drop (mV) after 50th alt. 100th cycle (4 samples).....		N
	After ageing, voltage drop (mV) after 10th alt. 25th cycle (4 samples).....		N
	After ageing, voltage drop (mV) after 50th alt. 100th cycle (4 samples).....		N
(15.7)	Terminals external wiring		N
	Terminal size and rating		N
(15.8.1)	Pull test spring-type terminals (4 samples); pull (N)		N
	Pull test pin or tab terminals (4 samples); pull (N)		N



(15.9)	Contact resistance test									N	
	Voltage drop (mV) after 1 h									N	
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)											



ANNEX A:

Photo-documentation



Photo 1



Photo 2





Photo 3



End of the report