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

Report Reference No..... :	RBT210615203SR-1
Tested by (name + signature)..... :	Tommy Ma
Tested by (name + signature)..... :	Toddy Tian
Approved by (name + signature) . :	Amy Zhang
Date of issue..... :	2021-06-17

Testing laboratory

Name ..... :	SHENZHEN RONGBIAO TESTING SERVICES CO., LTD
Address ..... :	LIANTAN INDUSTRIAL No.95 OF LUOHU SHENZHEN CHINA.

Application Name..... :	GUANGZHOU HUICHI INDUSTRIAL DEVELOPMENT CO.,LTD
Address ..... :	1/4 LONGTENG INDUSTRIAL YUANXIA VILLAGE LONGGUI BAIYUN DISTRICT GUANGZHOU
Test specification Standard..... :	EN 60598-2-1:2021 EN 60598-1:2021
Test procedure ..... :	CE
Procedure deviation..... :	N/A
Non-standard test method..... :	N/A
Test item Description..... :	Switchable Smart Film
Trademark..... :	N/A
Model and/or type reference ..... :	CT2, GT, GT2, GT10, GT16, CT1, CT10, CT16,HS, QH, SH
Rating(s) ..... :	48/60V 0.2A 10W
Manufacturer..... :	GUANGZHOU HUICHI INDUSTRIAL DEVELOPMENT CO.,LTD
Address ..... :	1/4 LONGTENG INDUSTRIAL YUANXIA VILLAGE LONGGUI BAIYUN DISTRICT GUANGZHOU

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)

Testing ..... :

Date of receipt of test item ..... : 2021-06-11

Date (s) of performance of tests..... : 2021-06-11 to 2021-06-17

General remarks

This test 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 tested.

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

"(see appended table)" refers to a table appended to the report.

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

Label

Product Name: Switchable Smart Film
Model Name: CT2
Rating: 48/60V 0.2A 10W

Manufacturer: GUANGZHOU HUICHI INDUSTRIAL DEVELOPMENT CO.,LTD

Note: Due to similarity of the rating labels, only above label is listed.

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Clause	Requirement Test	Result – Remark	Verdict
2.3 (0)	**GENERAL TEST REQUIREMENTS**		**P**
2.3 (0.1)	Information for luminaire design considered	Standard Yes No	
2.3 (0.3)	More sections applicable. .....:	Yes No	
2.5 (2)	**CLASSIFICATION**		**P**
2.5 (2.2)	Type of protection . .....:	Class II	
2.5 (2.3)	Degree of protection. .....:		
2.5 (2.4)	Luminaire suitable for direct mounting on normally flammable surfaces. .....:	Yes ☒ No	
2.5 (2.5)	Luminaire for normal use . .....:	Yes No	
	Luminaire for rough service . ..... :	Yes No	
2.6 (3)	**MARKING**		P
2.6 (3.2)	Mandatory markings		P
	Position of the marking		P
	Format of symbols/text		P
2.6 (3.3)	Additional information		P
	Language of instructions	English	P
2.6 (3.3.1)	Combination luminaires		N/A
2.6 (3.3.2)	Nominal frequency in Hz		P
2.6 (3.3.3)	Operating temperature		P
2.6 (3.3.4)	Symbol or warning notice		N/A
2.6 (3.3.5)	Wiring diagram		P
2.6 (3.3.6)	Special conditions		N/A
2.6 (3.3.7)	Metal halide lamp luminaire – warning		N/A
2.6 (3.3.8)	Limitation for semi-luminaires		N/A
2.6 (3.3.9)	Power factor and supply current		N/A
2.6 (3.3.10)	Suitability for use indoors		N/A
2.6 (3.3.11)	Luminaires with remote control		N/A
2.6 (3.3.12)	Clip-mounted luminaire – warning		N/A
2.6 (3.3.13)	Specifications of protective shields		N/A
2.6 (3.3.14)	Symbol for nature of supply		N/A
2.6 (3.3.15)	Rated current of socket outlet		N/A
2.6 (3.3.16)	Rough service luminaire		N/A

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Clause	Requirement Test	Result – Remark	Verdict
2.7 (4)	**CONSTRUCTION**		**P**
2.7 (4.2)	Components replaceable without difficulty		N/A
2.7 (4.3)	Wireways smooth and free from sharp edges		N/A
2.7 (4.4)	Lampholders		N/A
2.7 (4.4.1)	Integral lampholder		N/A
2.7 (4.4.2)	Wiring connection		P
2.7 (4.4.3)	Lampholder for end- to- end mounting		N/A
2.7 (4.4.4)	Positioning		N/A
	- pressure test (N) .....:		N/A
	After test the lampholder comply with relevant standard sheets and show no damage		N/A
	After test on single-capped lampholder the lampholder have not moved from its position and show no permanent deformation		N/A
	- bending test (N) ..... :		N/A
	After test the lampholder have not moved from its position and show no permanent deformation		N/A
2.7 (4.4.5)	Peak pulse voltage		N/A
2.7 (4.4.6)	Centre contact		N/A
2.7 (4.4.7)	Parts in rough service luminaires resistant to tracking		N/A
2.7 (4.4.8)	Lamp connectors		P
2.7 (4.4.9)	Caps and bases correctly used		P
2.7 (4.5)	Starter holders		N/A
	Starter holder in luminaires other than class II		N/A
	Starter holder class II construction		N/A
2.7 (4.6)	Terminal blocks		N/A
	Tails		N/A
	Unsecured blocks		N/A
2.7 (4.7)	Terminals and supply connections		N/A
2.7 (4.7.1)	Contact to metal parts		N/A
2.7 (4.7.2)	Test 8 mm live conductor		P
	Test 8 mm earth conductor		N/A
2.7 (4.7.3)	Terminals for supply conductors		N/A
2.7 (4.7.3.1)	Welded connections:		N/A
	- stranded or solid conductor		N/A

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Clause	Requirement Test	Result – Remark	Verdict
	- spot welding		N/A
	- welding between wires		N/A
	- Type Z attachment		N/A
	- mechanical test according to 15.8.2		P
	- electrical test according to 15.9		P
	- heat test according to 15.9.2.3 and 15.9.2.4		P
2.7 (4.7.4)	Terminals other than supply connection		P
2.7 (4.7.5)	Heat-resistant wiring/sleeves		N/A
2.7 (4.7.6)	Multi-pole plug		P
	- test at 30 N		P
2.7 (4.8)	Switches:		N/A
	- adequate rating		N/A
	- adequate fixing		N/A
	- polarized supply		N/A
	- compliance with EN 61058-1 for electronic switches		N/A
2.7 (4.9)	Insulating lining and sleeves		N/A
2.7 (4.9.1)	Retainement		N/A
	Method of fixing.....:		N/A
2.7 (4.9.2)	Insulated linings and sleeves		N/A
	Resistant to a temperature > 20 C to the wire temperature or		N/A
	a) & c) Insulation resistance and electric strength		N/A
	b) Ageing test. Temperature (C).....:		N/A
2.7 (4.10)	Insulation of Class II luminaires		N/A
2.7 (4.10.1)	No contact, mounting surface – accessible metal parts – wiring of basic insulation		N/A
	Safe installation fixed luminaires		N/A
	Capacitors and switches		N/A
	Interference suppression capacitors according to EN 60384-14		N/A
2.7 (4.10.2)	Assembly gaps:		P
	- not coincidental		N/A
	- no straight access with test probe		N/A
2.7 (4.10.3)	Retainment of insulation:		P
	- fixed		P
	- unable to be replaced; luminaire inoperative		N/A

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Clause	Requirement Test	Result – Remark	Verdict
	- sleeves retained in position		N/A
	- lining in lampholder		N/A
2.7 (4.11)	Electrical connections		P
2.7 (4.11.1)	Contact pressure		P
2.7 (4.11.2)	Screws:		P
	- self-tapping screws		N/A
	- thread- cutting screws		N/A
2.7 (4.11.3)	Screw locking:		P
	- spring washer		P
	- rivets		N/A
2.7 (4.11.4)	Material of current-carrying parts		N/A
2.7 (4.11.5)	No contact to wood or mounting surface		N/A
2.7 (4.11.6)	Electro-mechanical contact systems		N/A
2.7 (4.12)	Mechanical connections and glands		N/A
2.7 (4.12.1)	Screws not made of soft metal		N/A
	Screws of insulating material		N/A
	Torque test: torque (Nm); part..... :		N/A
	Torque test: torque (Nm); part..... :		N/A
	Torque test: torque (Nm); part..... :		N/A
2.7 (4.12.2)	Screws with diameter < 3 mm screwed into metal		N/A
2.7 (4.12.4)	Locked connections:		P
	- fixed arms; torque (Nm)..... :	0.5	P
	- lampholder; torque (Nm)..... :		N/A
	- push-button switches; torque 0,8 Nm..... :		N/A
2.7 (4.12.5)	Screwed glands; force (Nm)..... :		N/A
2.7 (4.13)	Mechanical strength		P
2.7 (4.13.1)	Impact tests:		P
	- fragile parts; energy (Nm)..... :		P
	- other parts; energy (Nm)..... :		N/A
	1) live parts		P
	2) linings		P
	3) protection		P
	4) covers		P
2.7 (4.13.3)	Straight test finger		P
2.7 (4.13.4)	Rough service luminaires		P
	- IP54 or higher	IP44	P

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Clause	Requirement Test	Result – Remark	Verdict
	a) fixed		P
	b) hand-held		N/A
	c) delivered with a stand		N/A
	d) for temporary installations and suitable for mounting on a stand		N/A
2.7 (4.13.6)	Tumbling barrel		N/A
2.7 (4.14)	Suspensions and adjusting devices		N/A
2.7 (4.14.1)	Mechanical load:		P
	A) four times the weight		P
	B) torque 2,5 Nm		P
	C) bracket arm; bending moment (Nm)..... :		N/A
	D) load track- mounted luminaires		N/A
	E) clip-mounted luminaires, glass-shelve. Thickness (mm) .....:		N/A
	Metal rod. diameter (mm) ..... :		N/A
	Fixed luminaire or independent control gear without fixing devices		N/A
2.7 (4.14.2)	Load to flexible cables		N/A
	Mass (kg) ..... :		N/A
	Stress in conductors (N/mm²) .....:		N/A
	Mass (kg) of semi-luminaire .....:		N/A
	Bending moment (Nm) of semi-luminaire ..... :		N/A
2.7 (4.14.3)	Adjusting devices:		N/A
	- flexing test; number of cycles..... :		N/A
	- strands broken		N/A
	- electric strength test afterwards		N/A
2.7 (4.14.4)	Telescopic tubes: cords not fixed to tube; no strain on conductors		N/A
2.7 (4.14.5)	Guide pulleys		N/A
2.7 (4.14.6)	Strain on socket-outlets		P
2.7 (4.15)	Flammable materials:		P
	- glow- wire test 650 C		P
	- spacing 30 mm		P
	- screen withstanding test of 13.3.1		P
	- screen dimensions		P
	- no fiercely burning material		P

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Clause	Requirement Test	Result – Remark	Verdict
	- thermal protection		P
	- electronic circuits exempted		P
2.7 (4.15.2)	Luminaires made of thermoplastic material with lamp control gear		P
	a) construction		P
	b) temperature sensing control		N/A
	c) surface temperature		P
2.7 (4.16)	Luminaires for mounting on normally flammable surfaces		P
	No lamp control gear	(compliance with Section 12)	P
2.7 (4.16.1)	Lamp control gear spacing:		N/A
	- spacing 35 mm		N/A
	- spacing 10 mm		N/A
2.7 (4.16.2)	Thermal protection:		N/A
	- in lamp control gear		N/A
	- external		N/A
	- fixed position		N/A
	- temperature marked lamp control gear		N/A
2.7 (4.16.3)	Design to satisfy the test of 12.6	(see 12.6)	N/A
2.7 (4.17)	Drain holes		N/A
	Clearance at least 5 mm		N/A
2.7 (4.18)	Resistance to corrosion:		P
2.7 (4.18.1)	- rust- resistance		P
2.7 (4.18.2)	- season cracking in copper		N/A
2.7 (4.18.3)	- corrosion of aluminium		N/A
2.7 (4.19)	Ignitors compatible with ballast		P
2.7 (4.20)	Rough service vibration		N/A
2.7 (4.21)	Protective shield:		P
2.7 (4.21.1)	Shield fitted		N/A
	Shield of glass if tungsten halogen lamps		N/A
2.7 (4.21.2)	Particles from a shattering lamp not impair safety		N/A
2.7 (4.21.3)	No direct path		N/A
2.7 (4.21.4)	Impact test on shield		P
	Glow-wire test on lamp compartment		P
2.7 (4.22)	Attachments to lamps		P
2.7 (4.23)	Semi-luminaires comply Class II		N/A
2.7 (4.24)	UV radiation for tungsten halogen lamps and metal halide lamps (Annex P)		P

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Clause	Requirement Test	Result – Remark	Verdict
2.7 (4.25)	No sharp point or edges		N/A
2.7 (4.26)	Short-circuit protection:		P
2.7 (4.26.1)	Uninsulated accessible SELV parts		P
2.7 (4.26.2)	Short-circuit test		P
2.7 (4.26.3)	Test chain according to Figure 29		N/A
2.7 (4.27)	Terminal blocks with integrated screwless earthing contacts tested according Annex V		N/A
	Pull test of terminal fixing (20 N)		N/A
	After test, resistance < 0,05		N/A
	Pull test of mechanical connection (50 N)		N/A
	After test, resistance < 0,05		N/A
	Voltage drop test, resistance < 0,05		N/A

2.8 (11)	**CREEPAGE DISTANCES AND CLEARANCES**		**P**
	Working voltage (V).....:		
	Voltage form	Sinusoidal ☒ Non-sinusoidal	
	PTI	< 600 ≥ 600 ☒	
	Impulse withstand category (Normal category II) (Category III Annex U)	Category II ☒ Category III	
	Rated pulse voltage (kV)..... :		
	(1) Current-carrying parts of different polarity: cr (mm); cl (mm).....:		P
	(2) Current-carrying parts and accessible parts: cr (mm); cl (mm).....:	☐	P
	(3) Parts becoming live due to breakdown of basic insulation and metal parts: cr (mm); cl (mm).....:	☐	P
	(4) Outer surface of cable where it is clamped and metal parts: cr (mm); cl (mm)..... :		P
	(6) Current-carrying parts and supporting surface: cr (mm); cl (mm)..... :		P

2.9 (7)	**PROVISION FOR EARTHING**		**P**
2.9 (7.2.1 + 7.2.3)	Accessible metal parts		P
	Metal parts in contact with supporting surface		P

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Clause	Requirement Test	Result – Remark	Verdict
	Resistance < 0,5 .....:		P
	Self-tapping screws used		P
	Thread-forming screws		N/A
	Thread-forming screw used in a grove		N/A
	Earth makes contact first		N/A
	Terminal blocks with integrated screwless earthing contacts tested according Annex V		N/A
2.9 (7.2.2 + 7.2.3)	Earth continuity in joints etc.		N/A
2.9 (7.2.4)	Locking of clamping means		P
	Compliance with 4.7.3		P
	Terminal blocks with integrated screwless earthing contacts tested according Annex V		P
2.9 (7.2.5)	Earth terminal integral part of connector socket		N/A
2.9 (7.2.6)	Earth terminal adjacent to mains terminals		N/A
2.9 (7.2.7)	Electrolytic corrosion of the earth terminal		N/A
2.9 (7.2.8)	Material of earth terminal		N/A
	Contact surface bare metal		P
2.9 (7.2.10)	Class II luminaire for looping-in		N/A
	Double or reinforced insulation to functional earth		N/A
2.9 (7.2.11)	Earthing core coloured green-yellow		N/A
	Length of earth conductor		N/A

2.10 (14)	**SCREW TERMINALS**		**P**
	Separately approved; component list	(see Annex 1)	P
	Part of the luminaire	(see Annex 3)	P

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

2.11 (5)	**EXTERNAL AND INTERNAL WIRING**		**P**
2.11 (5.2)	Supply connection and external wiring		P
2.11 (5.2.1)	Means of connection..... :		N/A
2.11 (5.2.2)	Type of cable.....:		P
	Nominal cross-sectional area (mm²)..... :		P

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Clause	Requirement Test	Result – Remark	Verdict
	Cables equal to IEC 60227 or IEC 60245		P
2.11 (5.2.3)	Type of attachment, X, Y or Z		P
2.11 (5.2.5)	Type Z not connected to screws		N/A
2.11 (5.2.6)	Cable entries:		P
	- suitable for introduction		P
	- adequate degree of protection		N/A
2.11 (5.2.7)	Cable entries through rigid material have rounded edges		P
2.11 (5.2.8)	Insulating bushings:		
	- suitably fixed		P
	- material in bushings		P
	- material not likely to deteriorate		N/A
	- tubes or guards made of insulating material		N/A
2.11 (5.2.9)	Locking of screwed bushings		P
2.11 (5.2.10)	Cord anchorage:		P
	- covering protected from abrasion		P
	- clear how to be effective		N/A
	- no mechanical or thermal stress		N/A
	- no tying of cables into knots etc.		N/A
	- insulating material or lining		N/A
2.11 (5.2.10.1)	Cord anchorage for type X attachment:		P
	a) at least one part fixed		P
	b) types of cable		P
	c) no damaging of the cable		N/A
	d) whole cable can be mounted		N/A
	e) no touching of clamping screws		N/A
	f) metal screw not directly on cable		N/A
	g) replacement without special tool		N/A
	Glands not used as anchorage		N/A
	Labyrinth type anchorages		N/A
2.11 (5.2.10.2)	Adequate cord anchorage for type Y and type Z attachment		P
2.11 (5.2.10.3)	Tests:		P
	- impossible to push cable; unsafe		P
	- pull test: 25 times; pull (N)..... :		P

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Clause	Requirement Test	Result – Remark	Verdict
	- torque test: torque (Nm)..... :		P
	- displacement 2 mm		P
	- no movement of conductors		N/A
	- no damage of cable or cord		N/A
2.11 (5.2.11)	External wiring passing into luminaire		P
2.11 (5.2.12)	Looping- in terminals		N/A
2.11 (5.2.13)	Wire ends not tinned		N/A
	Wire ends tinned: no cold flow		N/A
2.11 (5.2.14)	Mains plug same protection		N/A
	Class III luminaire plug		N/A
2.11 (5.2.16)	Appliance inlets (EN 60320)		P
	Appliance couplers of class II type		P
2.11 (5.2.17)	No standardized interconnecting cables properly assembled		N/A
2.11 (5.2.18)	Used plug in accordance with		P
	- EN 60083		N/A
	- other standard		N/A
2.11 (5.3)	Internal wiring		P
2.11 (5.3.1)	Internal wiring of suitable size and type		P
	Through wiring		P
	- not delivered/ mounting instruction		P
	- factory assembled		N/A
	- socket outlet loaded (A)..... :		N/A
	- temperatures.....:	(see Annex 2)	N/A
	Green- yellow for earth only		N/A
2.11 (5.3.1.1)	Internal wiring connected directly to fixed wiring		P
	Cross-sectional area (mm^2)..... :		N/A
	Insulation thickness		N/A
	Extra insulation added where necessary		P
2.11 (5.3.1.2)	Internal wiring connected to fixed wiring via internal current-limiting device		P
	Adequate cross-sectional area and insulation thickness		P
2.11 (5.3.1.3)	Double or reinforced insulation for class II		P
2.11 (5.3.1.4)	Conductors without insulation		P
2.11 (5.3.1.5)	SELV current-carrying parts		P
2.11 (5.3.1.6)	Insulation thickness other than PVC or rubber		N/A
2.11 (5.3.2)	Sharp edges etc.		N/A

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Clause	Requirement Test	Result – Remark	Verdict
	No moving parts of switches etc.		N/A
	Joints, raising/lowering devices		N/A
	Telescopic tubes etc.		N/A
	No twisting over 360		N/A
2.11 (5.3.3)	Insulating bushings:		P
	- suitable fixed		P
	- material in bushings		P
	- material not likely to deteriorate		N/A
	- cables with protective sheath		N/A
2.11 (5.3.4)	Joints and junctions effectively insulated		N/A
2.11 (5.3.5)	Strain on internal wiring		N/A
2.11 (5.3.6)	Wire carriers		N/A
2.11 (5.3.7)	Wire ends not tinned		N/A
	Wire ends tinned: no cold flow		N/A

2.12 (8)	**PROTECTION AGAINST ELECTRIC SHOCK**		**P**
2.12 (8.2.1)	Live parts not accessible		P
	Basic insulated parts not used on the outer surface without appropriate protection		P
	Basic insulated parts not accessible with standard test finger on portable and adjustable luminaires		P
	Basic insulated parts not accessible with Ø 50 mm probe from outside, within arm's reach, on wall-mounted luminaires		P
	Lamp and starterholders in portable and adjustable luminaires comply with double or reinforced insulation requirements		P
	Basic insulation only accessible under lamp or starter replacement		P
	Protection in any position		P
	Double-ended tungsten filament lamp		N/A
	Insulation lacquer not reliable		P
	Double-ended high pressure discharge lamp		P
	Relevant warning according to 3.2.18 fitted to the luminaire		P
2.12 (8.2.2)	Portable luminaire adjusted in most unfavourable position		P

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Clause	Requirement Test	Result – Remark	Verdict
2.12 (8.2.3.a)	Class II luminaire:		P
	- basic insulated metal parts not accessible during starter or lamp replacement		P
	- basic insulation not accessible other than during starter or lamp replacement		P
	- glass protective shields not used as supplementary insulation		P
2.12 (8.2.3.b)	BC lampholder of metal in class I luminaires shall be earthed		N/A
2.12 (8.2.3.c)	Class III luminaires with exposed SELV parts:		N/A
	Ordinary luminaire:		N/A
	- touch current ..... :		N/A
	- no-load voltage..... :		N/A
	Other than ordinary luminaire:		N/A
	- nominal voltage ..... :		N/A
2.12 (8.2.4)	Portable luminaire have protection independent of supporting surface		N/A
2.12 (8.2.5)	Compliance with the standard test finger or relevant probe		P
2.12 (8.2.6)	Covers reliably secured		N/A
2.12 (8.2.7)	Discharging of capacitors 0,5 F		P
	Portable plug connected luminaire with capacitor		P
	Other plug connected luminaire with capacitor		N/A
	Discharge device on or within capacitor		N/A
	Discharge device mounted separately		N/A
2.13 (12)	**ENDURANCE TEST AND THERMAL TEST**		N/A
2.13 (-)	If IP > IP 20 relevant test of (12.4), (12.5) and (12.6) after (9.2) before (9.3) specified in 2.14		
2.13 (12.3)	Endurance test:		
	- mounting- position..... :		
	- test temperature (C)..... :		
	- total duration (h)..... :		
	- supply voltage: Un factor; calculated voltage (V) ..... :		
	- lamp used..... :		

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Clause	Requirement Test	Result – Remark	Verdict
2.13 (12.3.2)	After endurance test:		N/A
	- no part unserviceable		N/A
	- luminaire not unsafe		N/A
	- no damage to track system		N/A
	- marking legible		N/A
	- no cracks, deformation etc.		N/A
2.13 (12.4)	Thermal test (normal operation)	(see Annex 2)	N/A
2.13 (12.5)	Thermal test (abnormal operation)	(see Annex 2)	N/A
2.13 (12.6)	Thermal test (failed lamp control gear condition):		N/A
2.13 (12.6.1)	Through wiring or looping-in wiring loaded by a current of (A) ..... :		
	- case of abnormal conditions..... :		
	- electronic lamp control gear		N/A
	- measured winding temperature (C): at 1,1 Un :		
	- measured mounting surface temperature (C) at 1,1 Un.....:		N/A
	- calculated mounting surface temperature (C) . :		N/A
	- track- mounted luminaires		N/A
2.13 (12.6.2)	Temperature sensing control		N/A
	- case of abnormal conditions..... :		
	- thermal link		N/A
	- manual reset cut- out		N/A
	- auto reset cut- out		N/A
	- measured mounting surface temperature (C)... :		N/A
	- track- mounted luminaires		N/A
2.13 (12.7)	Thermal test (failed lamp control gear in plastic luminaires):		N/A
2.13 (12.7.1)	Luminaire without temperature sensing control		N/A
2.13 (12.7.1.1)	Luminaire with fluorescent lamp ≤ 70W		N/A
	Test method 12.7.1.1 or Annex W ..... :		
	Test according to 12.7.1.1:		N/A
	- case of abnormal conditions		
	- Ballast failure at supply voltage (V) .....:		
	- Components retained in place after the test		N/A
	- Test with standard test finger after the test		N/A
	Test according to Annex W:		N/A

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Clause	Requirement Test	Result – Remark	Verdict
	- 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:		P
	- part tested; temperature (C)..... :		P
	- part tested; temperature (C)..... :		P
2.13 (12.7.1.2)	Luminaire with discharge lamp, fluorescent lamp > 70W, transformer > 10 VA		P
	- 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:		P
	- part tested; temperature (C)..... :		P
	- part tested; temperature (C)..... :		P
2.13 (12.7.1.3)	Luminaire with short circuit proof transformers ≤ 10 VA		P
	- case of abnormal conditions		
	- Components retained in place after the test		N/A
	- Test with standard test finger after the test		N/A
2.13 (12.7.2)	Luminaire with temperature sensing control		P
	- 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:		
	- part tested; temperature (C)..... :		P
	- part tested; temperature (C)..... :		P
2.13.1 (-)	Wiring, for connection to the supply, not reach unsafe temperature		P
	- measured temperature of the cable (C) ..... :		N/A

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Clause	Requirement Test	Result – Remark	Verdict

2.14 (9)	**RESISTANCE TO DUST, SOLID OBJECTS AND MOISTURE**		**P**
2.14 (-)	If IP > IP 20 the order of the test specified in clause 2.13		
2.14 (9.2)	Tests for ingress of dust, solid objects and moisture:		P
	- classification according to IP..... :	IP44	
	- 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		P
	b) no talcum in dust- tight luminaire		P
	c) no trace of water on current-carrying parts or SELV 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		P
	e) no water in watertight luminaire		P
	f) no contact with live parts (IP 2X)		P
	f) no entry into enclosure (IP 3X and IP 4X)		P
	f) no contact with live parts (IP3X and IP4X)		P
	g) no trace of water on part of lamp requiring protection from splashing water		P
	h) no damage of protective shield or glass envelope		P
2.14 (9.3)	Humidity test 48 h		P

2.15 (10)	**INSULATION RESISTANCE AND ELECTRIC STRENGTH**		**P**
2.15 (10.2.1)	Insulation resistance test		P
	Cable or cord covered by metal foil or replaced by a metal rod of mm Ø .....:		
	Insulation resistance (M)		
	SELV:		P
	- between current-carrying parts of different polarity :		P
	- between current-carrying parts and mounting surface .....:		P
	- between current-carrying parts and metal parts of the luminaire.....:		P

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Clause	Requirement Test	Result – Remark	Verdict
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts..... :		P
	- Insulation bushings as described in Section 5 .. :		P
	Other than SELV:		P
	- between live parts of different polarity..... :		N/A
	- between live parts and mounting surface..... :		P
	- between live parts and metal parts.....:		N/A
	- between live parts of different polarity through action of a switch..... :		N/A
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts..... :		N/A
	- Insulation bushings as described in Section 5 .. :		N/A
2.15 (10.2.2)	Electric strength test		P
	Dummy lamp		P
	Luminaires with ignitors after 24 h test		P
	Luminaires with manual ignitors		N/A
	Test voltage (V):		P
	SELV:		
	- between current-carrying parts of different polarity :		N/A
	- between current-carrying parts and mounting surface .....:		N/A
	- between current-carrying parts and metal parts of the luminaire.....:		N/A
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts..... :		N/A
	- Insulation bushings as described in Section 5 .. :		P
	Other than SELV:		
	- between live parts of different polarity..... :		P
	- between live parts and mounting surface..... :		N/A
	- between live parts and metal parts.....:		N/A
	- between live parts of different polarity through action of a switch..... :		N/A

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Clause	Requirement Test	Result – Remark	Verdict
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts..... :		N/A
	- Insulation bushings as described in Section 5 .. :		N/A
2.15 (10.3)	Touch current or protective conductor current (mA) :		P
2.16 (13)	**RESISTANCE TO HEAT, FIRE AND TRACKING**		**P**
2.16 (13.2.1)	Ball-pressure test:		P
	- part tested; temperature (C)..... :		P
	- part tested; temperature (C)..... :		P
2.16 (13.3.1)	Needle flame test (10 s):		P
	- part tested..... :		P
	- part tested..... :		P
2.16 (13.3.2)	Glow- wire test (650 C):		P
	- part tested..... :		P
	- part tested..... :		P
2.16 (13.4.1)	Tracking test:		P
	- part tested..... :		P
	- part tested..... :		P

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Clause	Requirement – Test	Result – Remark	Verdict

4	**EXPOSURE LIMITS (EL'S)**		**---**
4.2	Specific factors involved in the determination and application of retinal exposure limits		P
4.2.1	Pupil diameter		P
4.2.2	Angular subtense of source and measurement field-of-view		P
4.3	Hazard exposure limits		P
4.3.1	Actinic UV hazard exposure limit for the skin and eye		N/A
4.3.2	Near-UV hazard exposure limit for the eye		N/A
4.3.3	Retinal blue light hazard exposure limit		P
4.3.4	Retinal blue light hazard exposure limit - small source		P
4.3.5	Retinal thermal hazard exposure limit		N/A
4.3.6	Retinal thermal hazard exposure limit – weak visual stimulus		P
4.3.7	Infrared radiation hazard exposure limits for the eye		N/A
4.3.8	Thermal hazard exposure limit for the skin		P
5	**MEASUREMENT OF LAMPS AND LAMP SYSTEMS**		**P**
5.1	Measurement conditions		P
5.1.1	Lamp ageing (seasoning)		P
5.1.2	Test environment		P
5.1.3	Extraneous radiation		P
5.1.4	Lamp operation		P
5.1.5	Lamp system operation		P
5.2	Measurement procedure		P
5.2.1	Irradiance measurements		P
5.2.2	Radiance measurements		P
5.2.3	Measurement of source size		P
5.2.4	Pulse width measurement for pulsed sources		N/A
5.3	Analysis methods		P
5.3.1	Weighting curve interpolations		P
5.3.2	Calculations		P
5.3.3	Measurement uncertainty		P
6	**LAMP CLASSIFICATION**		**P**
6.1	Continuous wave lamps		P
6.1.1	Exempt group		P
6.1.2	Risk Group 1 (Low-Risk)		N/A
6.1.3	Risk Group 2 (Moderate-Risk)		N/A
6.1.4	Risk Group 3 (High-Risk)		N/A
6.2	Pulsed lamps		N/A
Annex A	**SUMMARY OF BIOLOGICAL EFFECTS**		**--**

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Clause	Requirement – Test	Result – Remark	Verdict

Annex B	**MEASUREMENT METHOD**	**--**

Annex C	**UNCERTAINTY ANALYSIS**	**--**

Annex D	**GENERAL REFERENCES**	**--**

Table 6.1	**Emission limits for risk groups of continuous wave lamps**									**P**
Risk	**Action spectrum**	**Symbol**	**Units**	**Emission Measurement**						
				Exempt		**Low risk**		**Mod risk**		
				Limit	**Result**	**Limit**	**Result**	**Limit**	**Result**	
Actinic UV	SUV(λ)	E_S	$W•m^{-2}$	0,001	$1,40×10^{-4}$	-	-	-	-	
Near UV		E_{UVA}	$W•m^{-2}$	0,33	$1,42×10^{-4}$	-	-	-	-	
Blue light	B(λ)	L_B	$W•m^{-2}•sr^{-1}$	100	$0,52×10^{1}$	10000	-	4000000	-	
Blue light, small source	B(λ)	E_B	$W•m^{-2}$	0,01*	-	1,0	-	400	-	
Retinal thermal	R(λ)	L_R	$W•m^{-2}•sr^{-1}$	28000/α	$5,93×10^{3}$	28000/α	-	71000/α	-	
Retinal thermal, weak visual stimulus**	R(λ)	L_{IR}	$W•m^{-2}•sr^{-1}$	545000 0,0017 ≦α≦ 0,011	-	-	-	-	-	
				6000/α 0,011≦ α≦0.1	-	-	-	-	-	
IR radiation, eye		E_{IR}	$W•m^{-2}$	100	0,0056	570	-	3200	-	

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Clause	Requirement – Test	Result – Remark	Verdict

Table 6.1	**Emission limits for risk groups of continuous wave lamps**	**P**

* Small source defined as one with α < 0,011 radian. Averaging field of view at 10000 s is 0,1 radian.

** Involves evaluation of non-GLS source

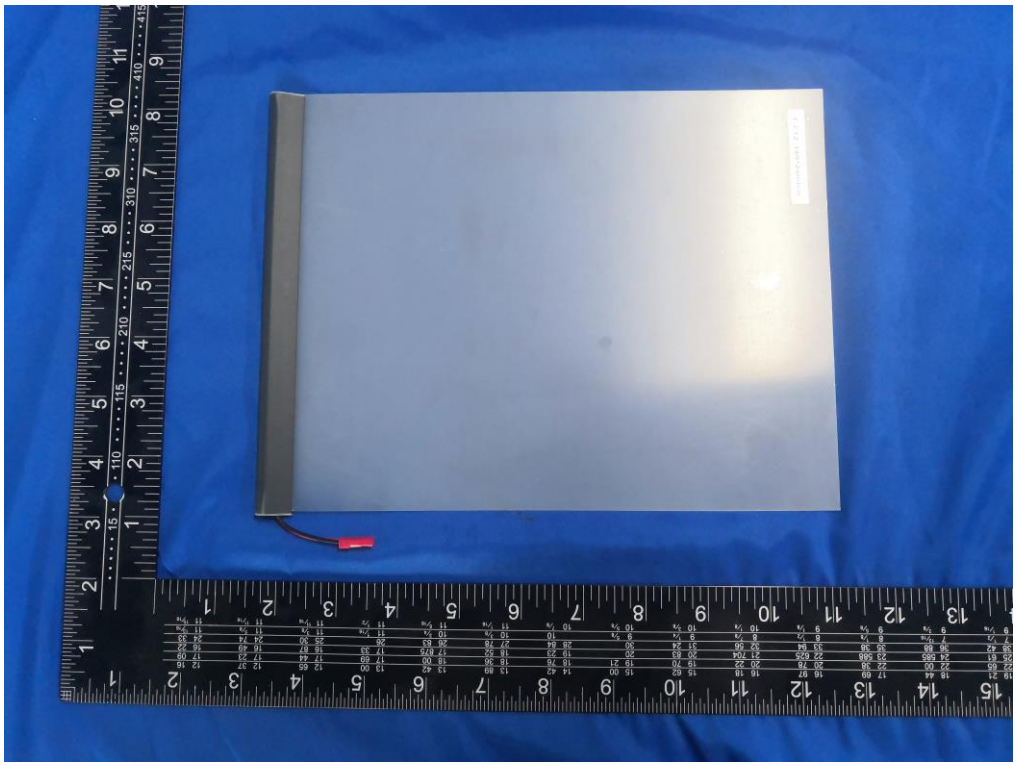
Note: The action functions: see Table 4.1 and Table 4.2

The applicable aperture diameters: see 4.2.1

The limitations for the angular subtenses: see 4.2.2

The related measurement condition 5.2.3 and the range of acceptance angles: see Table 5.5

Photos document



End of report