IEC IECEE CB SCHEME

Ref. Certif. No.

JPTUV-098105

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE) CB SCHEME

SYSTEME CEI D'ACCEPTATION MUTUELLE DE CERTIFICATS D ESSAIS DES EQUIPEMENTS ELECTRIQUES (IECEE) METHODE OC

CB TEST CERTIFICATE

CERTIFICAT D'ESSAI OC

Product Produit	LED street light
Name and address of the applicant Nom et adresse du demandeur	FOSHAN KAICHENG LIGHTING CO.,LTD NO.235 Lianjiang First Road, Chancheng District, Foshan, Guangdong 528000, P. R. China
Name and address of the manufacturer Nom et adresse du fabricant	FOSHAN KAICHENG LIGHTING CO.,LTD NO.235 Lianjiang First Road, Chancheng District, Foshan, Guangdong 528000, P. R. China
Name and address of the factory Nom et adresse de l'usine	FOSHAN KAICHENG LIGHTING CO.,LTD NO.235 Lianjiang First Road, Chancheng District, Foshan, Guangdong 528000, P. R. China
Ratings and principal characteristics Valeurs nominales et charactéristiques principales	AC 220-240V; 50/60Hz; Class I; IP65; For other ratings, see test report.
Trademark (if any) Marque de fabrique (si elle existe)	
Type of Manufacturer's Testing Laboratories used Type de programme du laboratoire d'essais constructeur	N/A
Model / Type Ref. Ref. de type	SL-50W, SL-100W, SL-150W, SL-200W
Additional information (if necessary may also be reported on page 2) Les informations complémentaires (si nécessaire, peuvent être indiqués sur la 2ème page)	For model differences, refer to the test report.
A sample of the product was tested and found to be in conformity with Un échantillon de ce produit a été essayé et a été considéré conforme à la	IEC 60598-2-3:2002+A1 IEC 60598-1:2014+A1 See Test Report for National Differences
As shown in the Test Report Ref. No. which forms part of this Certificate Comme indiqué dans le Rapport d'essais numéro de référence qui constitue partie de ce Certificat	50258971 001

Digitally signed by Carpovici Aliona
Date: 2021.04.09 14:23:23 EEST
Reason: MoldSign Signature
Location: Moldova

This CB Test Certificate is issued by the National Certification Body
Ce Certificat d'essai OC est établi par l'Organisme National de Certification

TÜVRheinland®

TÜV Rheinland Japan Ltd.
Global Technology Assessment Center
4-25-2 Kita-Yamata, Tsuzuki-ku
Yokohama 224-0021 Japan
Phone + 81 45 914-3888
Fax + 81 45 914-3354
Mail: info@jpn.tuv.com
Web: www.tuv.com

Date: 02.07.2019

Signature: Tim Feng

TÜV Rheinland (China) Ltd.
Member of TÜV Rheinland Group

TÜVRheinland®
Precisely Right.

FOSHAN KAICHENG LIGHTING CO.,LTD

Date : 02.07.2019
Our ref. : MaMartin SZ
Your ref.: 168115191

NO.235 Lianjiang First Road,
Chancheng District, Foshan,
Guangdong 528000
P. R. China

Ref : CB Certificate Japan

Type of Equipment : LED street light
Model Designation : See Certificate
Certificate No. : JPTUV-098105
Report No. : 50258971 001

Dear Ladies and Gentlemen,

Thank you very much for your interest in our services.

Please find enclosed your certification documents.

We appreciate your support and would like to offer our assistance in the approval of your future products through our extensive range of technical services.

Please feel free to contact us whatever your requirements may be.

With kind regards,

Certification Body

Tim Feng

Enclosure

TÜV Rheinland (China) Ltd.
莱茵检测认证服务（中国）有限公司
Unit 707, AVIC Bldg., No. 10B, Central Road, East 3rd Ring Road, Chaoyang District, Beijing, 100022, P.R.China
北京市朝阳区东三环中路乙10号艾维克大厦707室
邮编：100022
Tel: (8610)6566 6660
Fax: (8610)6566 6667
e-mail: info@bj.chn.tuv.com
Internet: http://www.chn.tuv.com

Test Report issued under the responsibility of:

TÜVRheinland®

TEST REPORT
IEC 60598-2-3
Luminaires
Part 2: Particular requirements
Section 3: Luminaires for road and street lighting

Report Number.....:	**50258971 001**
Date of issue.....:	**02-07-2019**
Total number of pages .....:	**38 pages**
Name of Testing Laboratory preparing the Report.....:	World Standardization Certification & Testing Group Co., Ltd. (WSCT)
Applicant's name.....:	FOSHAN KAICHENG LIGHTING CO.,LTD
Address.....:	NO.235 Lianjiang First Road, Chancheng District, Foshan, Guangdong, 528000, P. R. China
Test specification:	
Standard.....:	IEC 60598-2-3:2002, AMD1:2011 used in conjunction with IEC 60598-1:2014, AMD1:2017
Test procedure.....:	CB Scheme
Non-standard test method.....:	N/A
Test Report Form No.....:	IEC60598_2_3L
Test Report Form(s) Originator.....:	Intertek Semko AB
Master TRF.....:	Dated 2018-03-09

If this Test Report Form is used by non-IECEE members, the IECEE/IEC logo and the reference to the CB Scheme procedure shall be removed.

This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

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 CB Testing Laboratory. The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report.

Test item description.....:	LED street light
Trade Mark.....:	/
Manufacturer.....:	FOSHAN KAICHENG LIGHTING CO.,LTD NO.235 Lianjiang First Road, Chancheng District, Foshan, Guangdong, 528000, P. R. China
Model/Type reference.....:	See model list
Ratings.....:	Input: AC220-240V; 50/60Hz; class I; IP65; 200W Max.

Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):			
☒	**CB Testing Laboratory:**	World Standardization Certification & Testing Group Co., Ltd. (WSCT)	
Testing location/ address.....:		1-3F, Building A , Baoshi Science & Technology Park, Baoshi Road, Tangtou, Shiyan, Bao'an District, Shenzhen, Guangdong,China	
Tested by (name, function, signature).....:		Baron He	Baron He
Approved by (name, function, signature)...:		Huang Zhidian	Colin Huang
☐	**Testing procedure: CTF Stage 1:**	N/A	
Testing location/ address.....:		N/A	
Tested by (name, function, signature).....:		N/A	
Approved by (name, function, signature)...:		N/A	
☐	**Testing procedure: CTF Stage 2:**	N/A	
Testing location/ address.....:		N/A	
Tested by (name + signature).....:		N/A	
Witnessed by (name, function, signature)..:		N/A	
Approved by (name, function, signature)...:		N/A	
☐	**Testing procedure: CTF Stage 3:**	N/A	
☐	**Testing procedure: CTF Stage 4:**	N/A	
Testing location/ address.....:		N/A	
Tested by (name, function, signature).....:		N/A	
Witnessed by (name, function, signature)..:		N/A	
Approved by (name, function, signature)...:		N/A	
Supervised by (name, function, signature) :		N/A	

List of Attachments (including a total number of pages in each attachment):
Attachment1:EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES (1page)
Attachment 2:Acceptable test for self-ballasted LED module according to
IEC 62031:2008+A1:2012+A2:2014 and EN 62031:2008+A1:2013+A2:2015
Attachment 3:Photobiological safety according to IEC 62471:2006, EN 62471:2008
Attachment 4: Test according to IEC TR 62778:2014.
Attachment 5: Photo document (6 pages)

Summary of testing:

Tests performed (name of test and test clause):

3.5（3.4）	Label test
3.6（4）	construction
3.7 (11)	Creepage distances and clearances
3.8 (7)	Provision for earthing
3.10 (5)	External and internal wiring
3.11 (8)	Protection against electric shock
3.12 (12)	Endurance test and thermal test
3.13 (9)	Resistance to dust and moisture
5.14 (10)	Insulation resistance and electric strength
5.15 (13)	Resistance to heat, fire and tracking

SL-200W, SL-150W, SL-100W, SL-50W were selected for representing.

Testing location:
World Standardization Certification & Testing Group Co., Ltd. (WSCT)
1-3F, Building A , Baoshi Science & Technology Park,Baoshi Road, Tangtou, Shiyan, Bao'an District,Shenzhen, Guangdong,China

Summary of compliance with National Differences:
List of countries addressed
DE=Germanny

☒ **The product fulfils the requirements of EN 60598-1:2015+A1:2018, EN 60598-2-3: 2003+A1:2011**

Copy of marking plate:

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

Test item particulars.....:	LED street light
Classification of installation and use.....:	Fixed luminaires
Supply Connection.....:	Supply cord
.....:	
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.....:	29-04-2019
Date (s) of performance of tests.....:	29-04-2019 to 29-05-2019

General remarks:

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

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

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

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

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

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

Name and address of factory (ies).....: Same as applicant's name and address

General product information:

Product: LED street light

Rating: AC 220-240V, 50/60Hz, ta=45℃, IP65, Class I, suitable for direct mounting surfaces.

(1) All models have the similar electrical and mechanical construction.

(2) Difference of models are at size, circuit digram, quantity of LEDs and power.

Model Name.	Input current (A)	Wattage (Max.)	LED quantity (pcs)	Size (mm)
SL-50W	0,25	50W	83	409,6 X 165,4 X 54,0
SL-100W	0,5	100W	124	498,3 X 201,7 X 73,4
SL-150W	0,75	150W	192	571,2 X 246,0 X 75,4
SL-200W	1,0A	200W	248	633,2 X 282,9 X 75,4

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
3.2 (0)	**GENERAL TEST REQUIREMENTS**		P
3.2 (0.3)	More sections applicable.....:	Yes ☐ No ☒ Section/s:	—
3.2 (0.5)	Components	(see Annex 1)	—
3.2 (0.7)	**Information for luminaire design in light sources standards**		—
3.2 (0.7.2)	Light source safety standard ..... :	EN/IEC 62031	—
	Luminaire design in the light source safety standard		P
3.4 (2)	**CLASSIFICATION OF LUMINAIRES**		P
3.4 (2.2)	Type of protection .....:	Class I	P
3.4 (2.3)	Degree of protection.....:	IP65	—
3.4 (2.4)	Luminaire suitable for direct mounting on normally flammable surfaces..... :	Yes ☒ No ☐	—
3.4 (2.5)	Luminaire for normal use .....:	Yes ☒ No ☐	—
	Luminaire for rough service ..... :	Yes ☐ No ☒	—
3.4 (-)	Modes of installation of road or street lighting		—
	a) on a pipe	Yes ☐ No ☒	—
	b) on a mast arm	Yes ☒ No ☐	—
	c) on a post top	Yes ☐ No ☒	—
	d) on span or suspension wires	Yes ☐ No ☒	—
	e) on a wall	Yes ☐ No ☒	—
3.5 (3)	**MARKING**		P
3.5 (3.2)	Mandatory markings		P
	Position of the marking		P
	Format of symbols/text		P
3.5 (3.3)	Additional information		P
	Language of instructions	English	P
3.5 (3.3.1)	Combination luminaires		N/A
3.5 (3.3.2)	Nominal frequency in Hz	50/60Hz	P
3.5 (3.3.3)	Operating temperature		N/A
3.5 (3.3.5)	Wiring diagram		N/A
3.5 (3.3.6)	Special conditions		N/A
3.5 (3.3.7)	Metal halide lamp luminaire – warning		N/A
3.5 (3.3.8)	Limitation for semi-luminaires		P

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
3.5 (3.3.9)	Power factor and supply current		N/A
3.5 (3.3.10)	Suitability for use indoors		N/A
3.5 (3.3.11)	Luminaires with remote control		N/A
3.5 (3.3.12)	Clip-mounted luminaire – warning		N/A
3.5 (3.3.13)	Specifications of protective shields	~	P
3.5 (3.3.14)	Symbol for nature of supply		N/A
3.5 (3.3.15)	Rated current of socket outlet		N/A
3.5 (3.3.16)	Rough service luminaire		N/A
3.5 (3.3.17)	Mounting instruction for type Y, type Z and some type X attachments	Type Y	P
3.5 (3.3.18)	Non-ordinary luminaires with PVC cable		N/A
3.5 (3.3.19)	Protective conductor current in instruction if applicable		N/A
3.5 (3.3.20)	Provided with information if not intended to be mounted within arm's reach		N/A
3.5 (3.3.21)	Non-replaceable and non-user replaceable light sources information provided	Non-user replaceable light sources	P
3.5 (3.3.22)	Controllable luminaires, classification of insulation provided		N/A
3.5 (3.3.23)	Luminaire without controlgear provided with necessary information for selection of appropriate component		N/A
3.5 (3.3.24)	If not supplied with terminal block, information on the packaging		N/A
3.5 (3.4)	Test with water	15S	P
	Test with hexane	15S	P
	Legible after test		P
	Label attached		P
3.5 (-)	Additional information in instruction leaflet		P
	a) Design attitude		P
	b) Weight		P
	c) Overall dimensions		P
	d) Maximum projected area if applicable		P
	e) Cross-sectional area of wires if applicable		N/A
	f) Suitability for indoors use		N/A
	g) Dimensions of the compartment		N/A
	h) Torque setting to be applied to bolts or screws		P

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	i) Maximum mounting height		P
3.6 (4)	**CONSTRUCTION**		P
3.6 (4.2)	Components replaceable without difficulty		P
3.6 (4.3)	Wireways smooth and free from sharp edges		P
3.6 (4.4)	**Lampholders**		N/A
3.6 (4.4.1)	Integral lampholder		N/A
3.6 (4.4.2)	Wiring connection		N/A
3.6 (4.4.3)	Lampholder for end-to-end mounting		N/A
3.6 (4.4.4)	Positioning		N/A
	- pressure test (N) ..... :		—
	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) .....:		—
	After test the lampholder have not moved from its position and show no permanent deformation		N/A
3.6 (4.4.5)	Peak pulse voltage		N/A
3.6 (4.4.6)	Centre contact		N/A
3.6 (4.4.7)	Parts in rough service luminaires resistant to tracking		N/A
3.6 (4.4.8)	Lamp connectors		N/A
3.6 (4.4.9)	Caps and bases correctly used		N/A
3.6 (4.4.10)	Light source for lampholder or connection according IEC 60061 not connected another way		N/A
3.6 (4.5)	**Starter holders**		N/A
	Starter holder in luminaires other than class II		N/A
	Starter holder class II construction		N/A
3.6 (4.6)	**Terminal blocks**		N/A
	Tails		N/A
	Unsecured blocks		N/A
3.6 (4.7)	**Terminals and supply connections**		N/A
3.6 (4.7.1)	Contact to metal parts		N/A
3.6 (4.7.2)	Test 8 mm live conductor		N/A
	Test 8 mm earth conductor		N/A
3.6 (4.7.3)	Terminals for supply conductors		N/A

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
3.6 (4.7.3.1)	Welded method and material		N/A
	- stranded or solid conductor		N/A
	- spot welding		N/A
	- welding between wires		N/A
	- Type Z attachment		N/A
	- mechanical test according to 15.6.2		N/A
	- electrical test according to 15.6.3		N/A
	- heat test according to 15.6.3.2.3 and 15.6.3.2.4		N/A
3.6 (4.7.4)	Terminals other than supply connection		N/A
3.6 (4.7.5)	Heat-resistant wiring/sleeves		N/A
3.6 (4.7.6)	Multi-pole plug		N/A
	- test at 30 N		N/A
3.6 (4.8)	**Switches**		N/A
	- adequate rating		N/A
	- adequate fixing		N/A
	- polarized supply		N/A
	- compliance with IEC 61058-1 for electronic switches		N/A
3.6 (4.9)	**Insulating lining and sleeves**		N/A
3.6 (4.9.1)	Retainment		N/A
	Method of fixing.....:		N/A
3.6 (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
3.6 (4.10)	**Double or reinforced insulation**		N/A
3.6 (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 IEC 60384-14		N/A
3.6 (4.10.2)	Assembly gaps:		N/A
	- not coincidental		N/A

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	- no straight access with test probe		N/A
3.6 (4.10.3)	Retainment of insulation:		N/A
	- fixed		N/A
	- unable to be replaced; luminaire inoperative		N/A
	- sleeves retained in position		N/A
	- lining in lampholder		N/A
3.6 (4.10.4)	Protective impedance device		N/A
	Double or reinforced insulation bridged by appropriate and at least two resistors or two Y2 capacitors or one Y1 capacitor		N/A
	Y1 or Y2 capacitors comply with IEC 60384-14		N/A
	Resistors comply with test (a) in 14.1 of IEC 60065		N/A
3.6 (4.11)	**Electrical connections and current-carrying parts**		**P**
3.6 (4.11.1)	Contact pressure		P
3.6 (4.11.2)	Screws:		P
	- self-tapping screws		P
	- thread- cutting screws		N/A
3.6 (4.11.3)	Screw locking:		P
	- spring washer		P
	- rivets		N/A
3.6 (4.11.4)	Material of current-carrying parts		P
3.6 (4.11.5)	No contact to wood or mounting surface		P
3.6 (4.11.6)	Electro-mechanical contact systems		N/A
3.6 (4.12)	**Screws and connections (mechanical) and glands**		**P**
3.6 (4.12.1)	Screws not made of soft metal		P
	Screws of insulating material		N/A
	Torque test: torque (Nm); part.....:	Screw for Waterproof device:0,5Nm	P
	Torque test: torque (Nm); part.....:	Screw for earthing:0,5Nm	P
	Torque test: torque (Nm); part.....:	Screw for fixing LED cover:0,5Nm	P
	Torque test: torque (Nm); part.....:	Screw for fixing LED board:0,5Nm	P
3.6 (4.12.2)	Screws with diameter < 3 mm screwed into metal		P
3.6 (4.12.4)	Locked connections:		N/A
	- fixed arms; torque (Nm)..... :		N/A

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	- lampholder; torque (Nm)..... :		N/A
	- push-button switches; torque 0,8 Nm..... :		N/A
3.6 (4.12.5)	Screwed glands; force (Nm)..... :		N/A
3.6 (4.13)	**Mechanical strength**		**P**
3.6 (4.13.1)	Impact tests:		P
	- fragile parts; energy (Nm)..... :	Lamp cover: 0,50Nm	P
	- other parts; energy (Nm)..... :	Enclosure: 0,70Nm	P
	1) live parts		P
	2) linings		N/A
	3) protection		P
	4) covers		P
3.6 (4.13.2)	Metal parts have adequate mechanical strength		P
3.6 (4.13.3)	Straight test finger		P
3.6 (4.13.4)	Rough service luminaires		N/A
	- IP54 or higher		N/A
	a) fixed		N/A
	b) hand-held		N/A
	c) delivered with a stand		N/A
	d) for temporary installations and suitable for mounting on a stand		N/A
3.6 (4.13.6)	Tumbling barrel		N/A
3.6 (4.14)	**Suspensions, fixings and means of adjusting**		P
3.6 (4.14.1)	Mechanical load:		P
	A) four times the weight	2,85kg×4=11,4kg	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
3.6 (4.14.2)	Load to flexible cables		N/A
	Mass (kg) ..... :		—
	Stress in conductors (N/mm²) .....:		N/A
	Mass (kg) of semi-luminaire .....:		N/A

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	Bending moment (Nm) of semi-luminaire .....:		N/A
3.6 (4.14.3)	Adjusting devices:		N/A
	- flexing test; number of cycles.....:		N/A
	- strands broken.....:		N/A
	- electric strength test afterwards		N/A
3.6 (4.14.4)	Telescopic tubes: cords not fixed to tube; no strain on conductors		N/A
3.6 (4.14.5)	Guide pulleys		N/A
3.6 (4.14.6)	Strain on socket-outlets		N/A
3.6 (4.15)	**Flammable materials**		**P**
	- glow- wire test 650°C.....:	See Test Table 3.15 (13.3.2)	P
	- spacing ≥30 mm		N/A
	- screen withstanding test of 13.3.1		N/A
	- screen dimensions		N/A
	- no fiercely burning material		P
	- thermal protection		N/A
	- electronic circuits exempted		N/A
3.6 (4.15.2)	Luminaires made of thermoplastic material with lamp control gear		N/A
	a) construction		N/A
	b) temperature sensing control		N/A
	c) surface temperature		N/A
3.6 (4.16)	**Luminaires for mounting on normally flammable surfaces**		P
	No lamp control gear.....:	(compliance with Section 12)	N/A
	Provided with adaptor for a track meet the requirements for direct mounting on normally flammable surfaces		N/A
3.6 (4.16.1)	Lamp control gear spacing:		N/A
	- spacing 35 mm		N/A
	- spacing 10 mm		N/A
3.6 (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
3.6 (4.16.3)	Design to satisfy the test of 12.6	(see clause 12.6)	N/A
3.6 (4.17)	**Drain holes**		N/A

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	Clearance at least 5 mm		N/A
3.6 (4.18)	**Resistance to corrosion**		P
3.6 (4.18.1)	- rust- resistance		P
3.6 (4.18.2)	- season cracking in copper		N/A
3.6 (4.18.3)	- corrosion of aluminium		P
3.6 (4.19)	Ignitors compatible with ballast		N/A
3.6 (4.20)	Rough service vibration		N/A
3.6 (4.21)	**Protective shield**		N/A
3.6 (4.21.1)	Shield fitted if tungsten halogen lamps or metal halide lamps		N/A
	Shield of glass if tungsten halogen lamps		N/A
3.6 (4.21.2)	Particles from a shattering lamp not impair safety		N/A
3.6 (4.21.3)	No direct path		N/A
3.6 (4.21.4)	Impact test on shield		N/A
	Glow-wire test on lamp compartment.....:	See Test Table 3.15 (13.3.2)	N/A
3.6 (4.22)	Attachments to lamps not cause overheating or damage		N/A
3.6 (4.23)	Semi-luminaires comply Class II		N/A
3.6 (4.24)	**Photobiological hazards**		P
3.6 (4.24.1)	No excessive UV radiation if tungsten halogen lamps and metal halide lamps (Annex P)		N/A
3.6 (4.24.2)	Retinal blue light hazard		P
	Class of risk group assessed according to IEC/TR 62778 .....:	RG1	—
	Luminaires with E_{thr} :		N/A
	a) Fixed luminaires		N/A
	- distance x m, borderline between RG1 and RG2... :		N/A
	- marking and instruction according 3.2.23		N/A
	b) Portable and handheld luminaires		N/A
	- marking according 3.2.23 if RG1 exceeded at 200 mm according to IEC/TR 62778		N/A
	Portable luminaires for children IEC 60598-2-10 and Mains socket outlet nightlights IEC 60598-2-12 not exceed RG1 at 200 mm according to IEC/62778		N/A
3.6 (4.25)	**Mechanical hazard**		**P**
	No sharp point or edges		P
3.6 (4.26)	**Short-circuit protection**		N/A

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
3.6 (4.26.1)	Adequate means of uninsulated accessible SELV parts		N/A
3.6 (4.26.2)	Short-circuit test with test chain according 4.26.3		N/A
	Test chain not melt through		N/A
	Test sample not exceed values of Table 12.1 and 12.2		N/A
3.6 (4.27)	**Terminal blocks with integrated screwless earthing contacts**		N/A
	Test according Annex V		N/A
	Pull test of terminal fixing (20 N)		N/A
	After test, resistance < 0,05 Ω		N/A
	Pull test of mechanical connection (50 N)		N/A
	After test, resistance < 0,05 Ω		N/A
	Voltage drop test, resistance < 0,05 Ω		N/A
3.6 (4.28)	**Fixing of thermal sensing control**		N/A
	Not plug-in or easily replaceable type		N/A
	Reliably kept in position		N/A
	No adhesive fixing if UV radiations from a lamp can degrade the fixing		N/A
	Not outside the luminaire enclosure		N/A
	Test of adhesive fixing:		N/A
	Max. temperature on adhesive material (°C) .....:		N/A
	100 cycles between t min and t max		N/A
	Temperature sensing control still in position		N/A
3.6 (4.29)	**Luminaires with non-replaceable light source**		N/A
	Not possible to replace light source		N/A
	Live part not accessible after parts have been opened by hand or tools		N/A
3.6 (4.30)	**Luminaires with non-user replaceable light source**		P
	If protective cover provide protection against electric shock and marked with “caution, electric shock risk” symbol:		P
	Minimum two fixing means		P
3.6 (4.31)	**Insulation between circuits**		**P**
	Circuits insulated from LV supply fulfil requirements according 4.31.1 – 4.31.3		N/A
	Controllable luminaires requiring same level of insulation for all components, the insulation between control terminals and LV supply fulfil requirements according 4.31.1 – 4.31.3		N/A

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
3.6 (4.31.1)	SELV circuits		N/A
	Used SELV source		N/A
	Voltage ≤ ELV		N/A
	Insulating of SELV circuits from LV supply		N/A
	Insulating of SELV circuits from other non SELV circuits		N/A
	Insulating of SELV circuits from FELV		N/A
	Insulating of SELV circuits from other SELV circuits		N/A
	SELV circuits insulated from accessible parts according Table X.1		N/A
	Plugs not able to enter socket-outlets of other voltage systems		N/A
	Socket outlets does not admit plugs of other voltage systems		N/A
	Plugs and socket-outlets does not have protective conductor contact		N/A
3.6 (4.31.2)	FELV circuits		N/A
	Used FELV source		N/A
	Voltage ≤ ELV		N/A
	Insulating of FELV circuits from LV supply		N/A
	FELV circuits insulated from accessible parts according Table X.1		N/A
	Plugs not able to enter socket-outlets of other voltage systems		N/A
	Socket outlets does not admit plugs of other voltage systems		N/A
	Socket-outlets does not have protective conductor contact		N/A
3.6 (4.31.3)	Other circuits		P
	Other circuits insulated from accessible parts according Table X.1		P
	Class II construction with equipotential bonding for protection against indirect contacts with live parts:		N/A
	- conductive parts are connected together		N/A
	- test according 7.2.3		N/A
	- conductive part not cause an electric shock in case of an insulation fault		N/A
	- equipotential bonding in master/slave applications		N/A

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	- master luminaire provided with terminal for accessible conductive parts of slave luminaires		N/A
	- slave luminaire constructed as class I		N/A
3.6 (4.32)	**Overvoltage protective devices**		N/A
	Comply with IEC 61643-11		N/A
	External to controlgear and connected to earth:		N/A
	- only in fixed luminaires		N/A
	- only connected to protective earth		N/A
3.6.1 (-)	At least IP X3 or X5 respectively. IP .....:	IP65	P
	Column-integrated luminaires:		N/A
	- parts below 2,5 m. IP .....:		N/A
	- parts above 2,5 m. IP ..... :		N/A
3.6.2 (-)	Suspension on span wires		N/A
3.6.3 (-)	Means for attaching the luminaire or external parts to its support appropriate to the weight		P
3.6.3.1 (-)	Static load test		P
	- drag coefficient..... :	1,2	P
	- loaded area (m²).....:	0,179mm^2	P
	- used load (N)..... :	295N	P
	- measured deformation (cm/m) .....:	1,2cm/m	P
	- no rotation		P
3.6.4 (-)	Adjustable lampholders		N/A
3.6.5 (-)	Luminaires installed above 5 m, glass covers shall be:		N/A
	a) glass that fractures into small pieces (test according to 3.6.5.1), or		N/A
	b) glass having a high impact shock resistance (test according to 3.6.5.2), or		N/A
	c) protected by any means to retain glass fragments		N/A
	For tunnel luminaires 3.6.5.1 apply		N/A
	Method of protection declared by the manufacturer		N/A
3.6.5.1 (-)	Protection by the use of glass that fractures into small pieces		N/A
	- number of particles is more than 40.....:		N/A
3.6.5.2 (-)	Protection by the use of high impact resistant glass		N/A
3.6.5.2.1 (-)	Glass covers have high mechanical strength		N/A
	Test according IEC 62262 with test apparatus according IEC 60068-2-75 with impact energy of 5J on preconditioned sample		N/A

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
3.6.5.2.2 (-)	Glass covers not break into large pieces		N/A
	- test according 3.6.5.1, number of particles is more than 20..... :		N/A
3.6.6 (-)	Connection compartment of column-integrated luminaire		N/A
	- provides adequate space		N/A
	- means for attachment		N/A
	- means for attachment of metal corrosion-resistant		N/A
3.6.7 (-)	Compliance with ISO standard or other.....:		N/A
3.6.8 (-)	Doors of column-integrated luminaires:		N/A
	- corrosion-resistant		N/A
	- opening only possible for an authorized person		N/A
	- impact test 5 Nm		N/A
	- sample show no damage		N/A
3.6.9 (-)	Column-integrated luminaire:		N/A
	- dimension of the cable entry slot (mm).....:		N/A
	- cable path from the slot to the connection compartment (mm) .....:		N/A
	- cable path free from obstruction that might cause abrasion of the cable		N/A

3.7 (11)	**CREEPAGE DISTANCES AND CLEARANCES**		P
3.7 (11.2.1)	Impulse withstand category (Normal category II)	Category II ☒ Category III ☐	—
	Category III according Annex U		N/A
	Protected against pollution, reduced creepage and clearance according Annex P of IEC 61347-1		N/A
3.7 (11.2.2)	Creepage distances for frequency up to 30 kHz	See Test Table 3.7 (11.2) I	P
	Creepage distances for frequency over 30 kHz:		N/A
	- Controlgear marked with $\hat{U}_{OUT}$ and f_{UOUT} according IEC 61347-1, clause 7.1, item w	See Test Table 3.7 (11.2) II	N/A
	- Requirements according IEC 60664-4 for controlgear not covered by IEC 61347	See Test Table 3.7 (11.2) II	N/A
3.7 (11.2.3)	Clearances for frequency up to 30 kHz	See Test Table 3.7 (11.2) I	P
	Clearances distances for frequency over 30 kHz:		N/A
	- Controlgear marked with U_P	See Test Table 3.7 (11.2) II	N/A
	- Requirements according IEC 60664-4 for controlgear not covered by IEC 61347	See Test Table 3.7 (11.2) II	N/A

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
3.8 (7)	**PROVISION FOR EARTHING**		P
3.8 (7.2.1 + 7.2.3)	Accessible metal parts		P
	Metal parts in contact with supporting surface		P
	Resistance < 0,5 Ω.....:	0,035	P
	Self-tapping screws used		N/A
	Thread-forming screws		N/A
	Thread-forming screw used in a grove		N/A
	Earth makes contact first		P
	Terminal blocks with integrated screwless earthing contacts tested according Annex V		N/A
	Protective earthing of the luminaire not via built-in control gear		N/A
3.8 (7.2.2 + 7.2.3)	Earth continuity in joints, etc.		P
3.8 (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		N/A
3.8 (7.2.5)	Earth terminal integral part of connector socket		N/A
3.8 (7.2.6)	Earth terminal adjacent to mains terminals		N/A
3.8 (7.2.7)	Electrolytic corrosion of the earth terminal		P
3.8 (7.2.8)	Material of earth terminal		P
	Contact surface bare metal		P
3.8 (7.2.10)	Class II luminaire for looping-in		N/A
	Double or reinforced insulation to functional earth		N/A
3.8 (7.2.11)	Earthing core coloured green-yellow		P
	Length of earth conductor		P
3.8.1 (-)	Attachment prevented from rotation		P

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

3.9 (15)	**SCREWLESS TERMINALS AND ELECTRICAL CONNECTIONS**		N/A
	Separately approved; component list.....:	(see Annex 1)	N/A

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	Part of the luminaire.....:	(see Annex 4)	N/A
3.10 (5)	**EXTERNAL AND INTERNAL WIRING**		P
3.10 (5.2)	**Supply connection and external wiring**		**P**
3.10 (5.2.1)	Means of connection.....:	Supply cords	P
	Outdoor luminaire has not PVC insulated external wiring if not class III or SELV ≤ 25 V a.c./60 V d.c. or protected from outdoor environment		N/A
3.10 (5.2.2)	Type of cable.....:	H05RN-F	P
	Nominal cross-sectional area (mm²)..... :	3×1,0 mm²	P
	Cables equal to IEC 60227 or IEC 60245		P
3.10 (5.2.3)	Type of attachment, X, Y or Z		P
3.10 (5.2.5)	Type Z not connected to screws		P
3.10 (5.2.6)	Cable entries:		P
	- suitable for introduction		P
	- adequate degree of protection		P
3.10 (5.2.7)	Cable entries through rigid material have rounded edges		P
3.10 (5.2.8)	Insulating bushings:		N/A
	- suitably fixed		N/A
	- material in bushings		N/A
	- material not likely to deteriorate		N/A
	- tubes or guards made of insulating material		N/A
3.10 (5.2.9)	Locking of screwed bushings		N/A
3.10 (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		P
3.10 (5.2.10.1)	Cord anchorage for type X attachment:		N/A
	a) at least one part fixed		N/A
	b) types of cable		N/A
	c) no damaging of the cable		N/A

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	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
3.10 (5.2.10.2)	Adequate cord anchorage for type Y and type Z attachment		P
3.10 (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
	- displacement ≤ 2 mm	1,2mm	P
	- no movement of conductors		P
	- no damage of cable or cord		P
	- function independent of electrical connection		P
3.10 (5.2.11)	External wiring passing into luminaire		P
3.10 (5.2.12)	Looping-in terminals		P
3.10 (5.2.13)	Wire ends not tinned		P
	Wire ends tinned: no cold flow		N/A
3.10 (5.2.14)	Mains plug same protection		N/A
	Class III luminaire plug		N/A
	No unsafe compatibility		N/A
3.10 (5.2.16)	Appliance inlets (IEC 60320)		N/A
	Installation couplers (IEC 61535)		N/A
	Other appliance inlet or connector according relevant IEC standard		N/A
3.10 (5.2.17)	No standardized interconnecting cables properly assembled		N/A
3.10 (5.2.18)	Used plug in accordance with		N/A
	- IEC 60083		N/A

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	- other standard		N/A
3.10 (5.3)	**Internal wiring**		**P**
3.10 (5.3.1)	Internal wiring of suitable size and type		P
	Through wiring		N/A
	- not delivered/ mounting instruction		N/A
	- factory assembled		N/A
	- socket outlet loaded (A)..... :		N/A
	- temperatures.....:	(see Annex 2)	N/A
	Green- yellow for earth only		P
3.10 (5.3.1.1)	Internal wiring connected directly to fixed wiring		N/A
	Cross-sectional area (mm²)..... :		N/A
	Insulation thickness (mm) ..... :		N/A
	Extra insulation added where necessary		N/A
3.10 (5.3.1.2)	Internal wiring connected to fixed wiring via internal current-limiting device		N/A
	Cross-sectional area (mm²)..... :		N/A
3.10 (5.3.1.3)	Double or reinforced insulation for class II		N/A
3.10 (5.3.1.4)	Conductors without insulation		N/A
3.10 (5.3.1.5)	SELV current-carrying parts		N/A
3.10 (5.3.1.6)	Insulation thickness other than PVC or rubber		N/A
3.10 (5.3.2)	Sharp edges etc.		P
	No moving parts of switches etc.		P
	Joints, raising/lowering devices		N/A
	Telescopic tubes etc.		N/A
	No twisting over 360°		P
3.10 (5.3.3)	Insulating bushings:		N/A
	- suitable fixed		N/A
	- material in bushings		N/A
	- material not likely to deteriorate		N/A
	- cables with protective sheath		N/A
3.10 (5.3.4)	Joints and junctions effectively insulated		N/A
3.10 (5.3.5)	Strain on internal wiring		N/A

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
3.10 (5.3.6)	Wire carriers		N/A
3.10 (5.3.7)	Wire ends not tinned		P
	Wire ends tinned: no cold flow		N/A
3.10 (5.4)	**Test to determine suitability of conductors having a reduced cross-sectional area**		N/A
	Under test the temperature of the luminaire wiring insulation not exceed the limits stated in Table 12.2	(see Annex 2)	N/A
	No damage to luminaire wiring after test		N/A
3.10.1 (-)	Cord anchorage if applicable		N/A
	- pull test: 25 times; pull (N)..... :		N/A
	- torque test: torque (Nm)..... :		N/A
3.11 (8)	**PROTECTION AGAINST ELECTRIC SHOCK**		P
3.11 (8.2.1)	Live parts not accessible		P
	Basic insulated parts not used on the outer surface without appropriate protection		P
	Basic insulated parts not accessible with standard test finger on portable, settable and adjustable luminaires		P
	Basic insulated parts not accessible with Ø 50 mm probe from outside, other types of luminaires		P
	Lamp and starterholders in portable and adjustable luminaires comply with double or reinforced insulation requirements		N/A
	Basic insulation only accessible under lamp or starter replacement		N/A
	Protection in any position		P
	Double-ended tungsten filament lamp		N/A
	Insulation lacquer not reliable		P
	Double-ended high-pressure discharge lamp		N/A
	Relevant warning according to 3.2.18 fitted to the luminaire		N/A
3.11 (8.2.2)	Portable luminaire adjusted in most unfavourable position		N/A
3.11 (8.2.3.a)	Class II luminaire:		N/A
	- basic insulated metal parts not accessible during starter or lamp replacement		N/A
	- basic insulation not accessible other than during starter or lamp replacement		N/A

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	- glass protective shields not used as supplementary insulation		N/A
3.11 (8.2.3.b)	BC lampholder of metal in class I luminaires shall be earthed		N/A
3.11 (8.2.3.c)	SELV circuits with exposed current carrying parts:		N/A
	Ordinary luminaire:		N/A
	- voltage under load (V).....:		N/A
	- no-load voltage (V).....:		N/A
	- touch current if applicable (mA) .....:		N/A
	One conductive part insulated if required		N/A
	Other than ordinary luminaire:		N/A
	- nominal voltage (V) .....:		N/A
	Class III luminaire only for connection to SELV		N/A
	Class III luminaire not provided with means for protective earthing		N/A
3.11 (8.2.4)	Portable luminaire has protection independent of supporting surface		N/A
3.11 (8.2.5)	Compliance with the standard test finger or relevant probe		P
3.11 (8.2.6)	Covers reliably secured		P
3.11 (8.2.7)	Luminaire other than below with capacitor > 0,5 μF not exceed 50 V 1 min after disconnection		N/A
	Portable luminaire with capacitor > 0,1 μF (0.25) not exceed 34 V 1 s after disconnection		N/A
	Other luminaires with capacitor > 0,1 μF (0.25) with plug and track adaptors not exceed 60 V 5 s after disconnection		N/A

3.12 (12)	**ENDURANCE TEST AND THERMAL TEST**		P
3.12.2 (-)	If IP > IP 20 relevant test of (12.4), (12.5) and (12.6) after (9.2) before (9.3) specified in 3.13		—
3.12 (12.2)	**Selection of lamps and ballasts**		**—**
	Lamp used according Annex B	(Lamp used see Annex 2)	—
	Controlgear if separate and not supplied	(Controlgear used see Annex 2)	—
3.12 (12.3)	**Endurance test**		**P**
	a) mounting- position .....:	on a mast arm	—
	b) test temperature (°C).....:	55°C	—

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	c) total duration (h) .....:	240h	—
	d) supply voltage (V).....:	264V	—
	d) if not equipped with controlgear, constant voltage/current (V) or (A) .....:	/	—
	e) luminaire ceases to operate	LED Module	—
3.12 (12.3.2)	After endurance test:		P
	- no part unserviceable		P
	- luminaire not unsafe		P
	- no damage to track system		N/A
	- marking legible		P
	- no cracks, deformation etc.		P
3.12 (12.4)	**Thermal test (normal operation)**	(see Annex 2)	P
3.12 (12.5)	**Thermal test (abnormal operation)**	(see Annex 2)	N/A
3.12 (12.6)	**Thermal test (failed lamp control gear condition):**		N/A
3.12 (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
3.12 (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
3.12 (12.7)	**Thermal test (failed lamp control gear in plastic luminaires):**		N/A
3.12 (12.7.1)	Luminaire without temperature sensing control		N/A
3.12 (12.7.1.1)	Luminaire with fluorescent lamp ≤ 70W		N/A

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	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
	- 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 3.15 (13.2.1)	N/A
3.12 (12.7.1.2)	Luminaire with discharge lamp, fluorescent lamp > 70W, transformer > 10 VA		N/A
	- 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 3.15 (13.2.1)	N/A
3.12 (12.7.1.3)	Luminaire with short circuit proof transformers ≤ 10 VA		N/A
	- case of abnormal conditions.....:		—
	- Components retained in place after the test		N/A
	- Test with standard test finger after the test		N/A
3.12 (12.7.2)	Luminaire with temperature sensing control		N/A
	- 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 3.15 (13.2.1)	N/A

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
3.12.1 (-)	Temperature reduction if for outdoor use only		N/A
3.12.2 (-)	(See above)		—
3.12.3 (-)	Glass covers used within the thermal limits declared by the glass manufacturer		N/A
3.13 (9)	**RESISTANCE TO DUST AND MOISTURE**		P
3.13.1 (-)	If IP > IP 20 the order of tests as specified in clause 3.12		P
3.13 (9.2)	Tests for ingress of dust, solid objects and moisture:		P
	- classification according to IP.....:	IP65	—
	- mounting position during test.....:	on a mast arm	—
	- fixing screws tightened; torque (Nm).....:	Screw for fixing LED cover/gland: 0,33Nm	—
	- tests according to clauses.....:	9.2.2 / 9.2.6	—
	- electric strength test afterwards		P
	a) no deposit in dust-proof luminaire		N/A
	b) no talcum in dust- tight luminaire		P
	c) no trace of water on current-carrying parts or on insulation where it could become a hazard		P
	c.1) For luminaires without drain holes – no water entry		P
	c.2) For luminaires with drain holes – no hazardous water entry		N/A
	d) no water in watertight or pressure watertight luminaire		N/A
	e) no contact with live parts (IP 2X)		N/A
	e) no entry into enclosure (IP 3X and IP 4X)		N/A
	e) no contact with live parts through drain holes and ventilation slots (IP3X and IP4X)		N/A
	f) no trace of water on part of lamp requiring protection from splashing water		N/A
	g) no damage of protective shield or glass envelope		P
3.13 (9.3)	Humidity test 48 h		P
3.14 (10)	**INSULATION RESISTANCE AND ELECTRIC STRENGTH**		P
3.14 (10.2.1)	Insulation resistance test		P
	Cable or cord covered by metal foil or replaced by a metal rod of mm Ø .....:	Covered by metal foil	—

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	Insulation resistance (MΩ)..... :	＞100MΩ	—
	SELV		N/A
	- 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 ..... :		N/A
	Other than SELV		P
	- between live parts of different polarity..... :	L-N ＞100MΩ	P
	- between live parts and mounting surface.....:	L&N-mounting surface ＞100MΩ	P
	- between live parts and metal parts.....:	L&N-enclosure ＞100MΩ	P
	- 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..... :	Clamp wire position-enclosure ＞100MΩ	P
	- Insulation bushings as described in Section 5 .....:		N/A
3.14 (10.2.2)	Electric strength test		P
	Dummy lamp		N/A
	Luminaires with ignitors after 24 h test		N/A
	Luminaires with manual ignitors		N/A
	Test voltage (V).....:	1480V	P
	SELV		N/A
	- 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

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	- Insulation bushings as described in Section 5 ..... :		N/A
	Other than SELV		P
	- between live parts of different polarity..... :	L-N 1480V	P
	- between live parts and mounting surface.....:	L&N-mounting surface 1480V	P
	- between live parts and metal parts.....:	L&N-enclosure 1480V	P
	- 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..... :	Clamp wire position-enclosure 1480V	P
	- Insulation bushings as described in Section 5 ..... :		N/A
3.14 (10.3)	Touch current or protective conductor current (mA).:	Protective conductor current 0,04mA Max.	P

3.15 (13)	**RESISTANCE TO HEAT, FIRE AND TRACKING**		P
3.15 (13.2.1)	Ball-pressure test..... :	See Test Table 3.15 (13.2.1)	P
3.15 (13.3.1)	Needle-flame test (10 s).....:	See Test Table 3.15 (13.3.1)	N/A
3.15 (13.3.2)	Glow- wire test (650°C).....:	See Test Table 3.15 (13.3.2)	P
3.15 (13.4)	Proof tracking test (IEC 60112).....:	See Test Table 3.15 (13.4)	N/A

3.7 (11.2)	**TABLE I: Creepage distances and clearances**							**P**
	Minimum distances (mm) for a.c. up to 30 kHz sinusoidal voltages							**P**
	Applicable part of IEC 60598-1 Table 11.1.A*, 11.1.B* and 11.2*							**P**
	Insulation type **	**Measured clearance**	**Required**		**Measured creepage**	**Required**		
			clearance	***Table**		**creepage**	***Table**	
Distance 1:	B	2,63	1,5	11.1B	2,63	2,5	11.1A	
Working voltage (V)..... :					AC 220-240V			—
PTI..... :					< 600 ☒ ≥ 600 ☐			—
Pulse voltage or U_P if applicable (kV) ..... :					/			—
Supplementary information: Live parts (L-N)of different polarity								
	Minimum distances (mm) for a.c. up to 30 kHz sinusoidal voltages							**P**

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict

	Applicable part of IEC 60598-1 Table 11.1.A*, 11.1.B* and 11.2*						P
	Insulation type **	Measured clearance	Required		Measured creepage	Required	
			clearance	*Table		creepage	*Table
Distance 2:	B	3,42	1,5	11.1B	3,42	2,5	11.1A
Working voltage (V) ..... :					AC 220-240V		—
PTI ..... :					< 600 ☒ ≥ 600 ☐		—
Pulse voltage or U_P if applicable (kV) ..... :					/		—
Supplementary information:Live parts (PCB) to accessible metal parts							

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

3.7 (11.2)	TABLE II: Creepage distances and clearances						N/A
Minimum distances (mm) for a.c. higher than 30 kHz sinusoidal voltages							
Applicable part of IEC 61347-1 Table 7 and 8* or IEC 60664-4 Table 1 and 2							
Distances	Insulation type **	Measured clearance	Required		Measured creepage	Required	
			clearance	*Table		creepage	*Table
Distance 1:	--	--	--	--	--	--	--
Working voltage (V) ..... :					--		—
Frequency if applicable (kHz) ..... :					--		—
PTI ..... :					< 600 ☐ ≥ 600 ☐		—
Peak value of the working voltage $\hat{U}_{out}$ if applicable (kV) ..... :					--		—
Supplementary information:/							

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

3.15 (13.2.1)	TABLE: Ball Pressure Test of Thermoplastics			P
Allowed impression diameter (mm) .....:		2		—
Object/ Part No./ Material	Manufacturer/ trademark	Test temperature (°C)	Impression diameter (mm)	
LED cover	See Annex 1	108	1,1	
Supplementary information:				

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict

3.15 (13.3.1)	TABLE: Needle-flame test (IEC 60695-11-5)				N/A
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:					

3.15 (13.3.2)	TABLE: Glow-wire test (IEC 60695-2-11)			P
Glow wire temperature .....:	650°C			—
Object/ Part No./ Material	Manufacturer/ trademark	Ignition of specified layer Yes/No	Duration of burning (tb) (s)	Verdict
LED cover	See Annex 1	No	0	P
Supplementary information:				

3.15 (13.4)	TABLE: Proof tracking test (IEC 60112)				N/A
Test voltage PTI .....:	175 V				—
Object/ Part No./ Material	Manufacturer/ trademark	Withstand 50 drops without failure on three places or on three specimens			Verdict
--	**--**	--	--	--	--
Supplementary information:/					

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict

ANNEX 1	TABLE Critical components information				P
Object / part No.	**Manufacturer/ trademark**	**Type / model**	**Technical data**	**Standard**	**Mark(s) of conformity[1)]**
Input wire	Zhejiang Jinniu Cable Co., Ltd.	H05RN-F	3×1,0mm²	EN 50525-2-21	VDE 40028195
Fuse resistor(RZ 1)	ANHUI CHANGSHENG ELECTRONICS CO LTD	RXF-1W	1W; 2,2Ω	--	Test in Appliance UL E330127
RV1	SHENZHEN JINYANG ELECTRONICS CO., LTD.	JYVDR-10D471	AC 470V; 125℃	IEC 61051-1 IEC 61051-2 IEC 61051-2-2	TUV: B 094255 0002 Rev. 00
RV2	SHENZHEN JINYANG ELECTRONICS CO., LTD.	JYVDR-07D471	AC 470V; 125℃	IEC 61051-1 IEC 61051-2 IEC 61051-2-	TUV: B 094255 0002 Rev. 00
PCB	SHENZHEN MEILAITE TECHNOLOGY CO LTD	MLT-AL1	130 ℃; V-0	--	UL E366055 Test in appliance
LED	GUANGZHOU HONGLI TRONIC CO LTD	HL-AS-2835D1W-2C-S1-08-PCT-HR3	VF:5,6- 6,8V; IF: 150mA; CCT:2700-6500K	--	Test in appliance
Lamp cover	LG CHEM (GUANGZHOU) ENGINEERING PLASTICS CO LTD	LUMID GP-2151BF(#)	V-0; 120℃	--	ULE248280 Test in Appliance

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict

ANNEX 2	TABLE: Thermal tests of Section 12		P
1/4	Type reference.....:	SL-200W	—
	Lamp used.....:	Self-ballasted LED module	—
	Lamp control gear used.....:	--	—
	Mounting position of luminaire.....:	on a mast arm	—
	Supply wattage (W).....:	205,9	—
	Supply current (A)..... :	0,813	—
	Temperatures in test 1 - 4 below are corrected for ta (°C) .....:	0,996	—
	- abnormal operating mode.....:	--	—
1.12 (12.4)	- test 1: rated voltage .....:	--	—
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current .....:	1,06X240=254,4V	—
	- 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 ..... :	--	—
1.12 (12.5)	- test 4: 1,1 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current.....:	--	—

Temperature measurements (°C)

Part	Ambient	Cl. 12.4 – normal				Cl. 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
Input wire	45,0	--	57,8	--	90	--	--
Rv4	45,0	--	119,2	--	125	--	--
Rz12	45,0	--	105.4	--	125	--	--
PCB near BD2	45,0	--	103,9	--	130	--	--
C11	45,0	--	102,8	--	105	--	--
PCB near U1	45,0	--	94,1	--	130	--	--
PCB of LED	45,0	--	103,8	--	130	--	--
LED Cover	45,0	--	83,2	--	120	--	--
Metal enclosure	45,0	--	103,4	--	Ref.	--	--
Irradiated surface	45,0	--	51,6	--	90	--	--
Room Ambient	45,0	--	45,0	--	Ref.	--	--

Supplementary information:

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict

ANNEX 2	TABLE: Thermal tests of Section 12		P
2/4	Type reference.....:	SL-150W	—
	Lamp used.....:	Self-ballasted LED module	—
	Lamp control gear used.....:	--	—
	Mounting position of luminaire.....:	on a mast arm	—
	Supply wattage (W).....:	141,7	—
	Supply current (A)..... :	0,562	—
	Temperatures in test 1 - 4 below are corrected for ta (°C) .....:	0,993	—
	- abnormal operating mode.....:	--	—
1.12 (12.4)	- test 1: rated voltage .....:	--	—
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current .....:	1,06X240=254,4V	—
	- 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 ..... :	--	—
1.12 (12.5)	- test 4: 1,1 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current.....:	--	—

Temperature measurements (°C)

Part	Ambient	Cl. 12.4 – normal				Cl. 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
Input wire	45,0	--	54,9	--	90	--	--
Rv4	45,0	--	96,5	--	125	--	--
Rz12	45,0	--	95,3	--	125	--	--
PCB near BD2	45,0	--	90,7	--	130	--	--
C11	45,0	--	91,9	--	105	--	--
PCB near U1	45,0	--	92,0	--	130	--	--
PCB of LED	45,0	--	94,4	--	130	--	--
LED Cover	45,0	--	84,2	--	120	--	--
Metal enclosure	45,0	--	94,6	--	Ref.	--	--
Irradiated surface	45,0	--	49,3	--	90	--	--
Room Ambient	45,0	--	45,0	--	Ref.	--	--

Supplementary information:

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict

ANNEX 2	TABLE: Thermal tests of Section 12		P
3/4	Type reference.....:	SL-100W	—
	Lamp used.....:	LED module	—
	Lamp control gear used.....:	Self-ballasted LED module	—
	Mounting position of luminaire.....:	on a mast arm	—
	Supply wattage (W).....:	95,6	—
	Supply current (A)..... :	0,377	—
	Temperatures in test 1 - 4 below are corrected for ta (°C) .....:	0,994	—
	- abnormal operating mode.....:	--	—
1.12 (12.4)	- test 1: rated voltage .....:	--	—
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current .....:	1,06X240=254,4V	—
	- 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 ..... :	--	—
1.12 (12.5)	- test 4: 1,1 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current.....:	--	—

Temperature measurements (°C)

Part	Ambient	Cl. 12.4 – normal				Cl. 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
Input wire	45,0	--	50,6	--	90	--	--
Rv4	45,0	--	92,8	--	125	--	--
Rz12	45,0	--	84,9	--	125	--	--
PCB near BD2	45,0	--	84,6	--	130	--	--
C11	45,0	--	85,8	--	105	--	--
PCB near U1	45,0	--	86,0	--	130	--	--
PCB of LED	45,0	--	87,3	--	130	--	--
LED Cover	45,0	--	75,5	--	120	--	--
Metal enclosure	45,0	--	86,5	--	Ref.	--	--
Irradiated surface	45,0	--	47,9	--	90	--	--
Room Ambient	45,0	--	45,0	--	Ref.	--	--

Supplementary information:

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict

ANNEX 2	TABLE: Thermal tests of Section 12		P
4/4	Type reference..... :	SL-50W	—
	Lamp used..... :	Self-ballasted LED module	—
	Lamp control gear used..... :	--	—
	Mounting position of luminaire..... :	on a mast arm	—
	Supply wattage (W)..... :	46,2	—
	Supply current (A)..... :	0,182	—
	Temperatures in test 1 - 4 below are corrected for ta (°C) ..... :	0,992	—
	- abnormal operating mode..... :	--	—
1.12 (12.4)	- test 1: rated voltage ..... :	--	—
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current ..... :	1,06X240=254,4V	—
	- 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 ..... :	--	—
1.12 (12.5)	- test 4: 1,1 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current..... :	--	—

Temperature measurements (°C)

Part	Ambient	Cl. 12.4 – normal				Cl. 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
Input wire	45,0	--	54,0	--	90	--	--
Rv4	45,0	--	76,6	--	125	--	--
Rz12	45,0	--	76,6	--	125	--	--
PCB near BD2	45,0	--	78,7	--	130	--	--
C11	45,0	--	75,8	--	105	--	--
PCB near U1	45,0	--	79,0	--	130	--	--
PCB of LED	45,0	--	78,0	--	130	--	--
LED Cover	45,0	--	69,1	--	120	--	--
Metal enclosure	45,0	--	77,1	--	Ref.	--	--
Irradiated surface	45,0	--	46,8	--	90	--	--
Room Ambient	45,0	--	45,0	--	Ref.	--	--

Supplementary information:

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict

ANNEX 3	**Screw terminals (part of the luminaire)**		N/A
(14)	**SCREW TERMINALS**		N/A
(14.2)	Type of terminal.....:		—
	Rated current (A).....:		—
(14.3.2.1)	One or more conductors		N/A
(14.3.2.2)	Special preparation		N/A
(14.3.2.3)	Terminal size		N/A
	Cross-sectional area (mm²).....:		—
(14.3.3)	Conductor space (mm).....:		N/A
(14.4)	Mechanical tests		N/A
(14.4.1)	Minimum distance		N/A
(14.4.2)	Cannot slip out		N/A
(14.4.3)	Special preparation		N/A
(14.4.4)	Nominal diameter of thread (metric ISO thread).....:	M	N/A
	External wiring		N/A
	No soft metal		N/A
(14.4.5)	Corrosion		N/A
(14.4.6)	Nominal diameter of thread (mm).....:		N/A
	Torque (Nm).....:		N/A
(14.4.7)	Between metal surfaces		N/A
	Lug terminal		N/A
	Mantle terminal		N/A
	Pull test; pull (N).....:		N/A
(14.4.8)	Without undue damage		N/A

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
ANNEX 4	**Screwless terminals (part of the luminaire)**		N/A
(15)	**SCREWLESS TERMINALS**		N/A
(15.2)	Type of terminal.....:		—
	Rated current (A).....:		—
(15.3.1)	Material		N/A
(15.3.2)	Clamping		N/A
(15.3.3)	Stop		N/A
(15.3.4)	Unprepared conductors		N/A
(15.3.5)	Pressure on insulating material		N/A
(15.3.6)	Clear connection method		N/A
(15.3.7)	Clamping independently		N/A
(15.3.8)	Fixed in position		N/A
(15.3.10)	Conductor size		N/A
	Type of conductor		N/A
(15.5)	Terminals and connections for internal wiring		N/A
(15.5.1)	Mechanical tests		N/A
(15.5.1.1.1)	Pull test spring-type terminals (4 N, 4 samples).....:		N/A
(15.5.1.1.2)	Pull test pin or tab terminals (4 N, 4 samples).....:		N/A
	Insertion force not exceeding 50 N		N/A
(15.5.1.2)	Permanent connections: pull-off test (20 N)		N/A
(15.5.2)	Electrical tests		
	Voltage drop (mV) after 1 h (4 samples)..... :		N/A
	Voltage drop of two inseparable joints		N/A
	Number of cycles:		—
	Voltage drop (mV) after 10th alt. 25th cycle (4 samples).....:		N/A
	Voltage drop (mV) after 50th alt. 100th cycle (4 samples).....:		N/A
	After ageing, voltage drop (mV) after 10th alt. 25th cycle (4 samples).....:		N/A
	After ageing, voltage drop (mV) after 50th alt. 100th cycle (4 samples)..... :		N/A
(15.6)	Terminals and connections for external wiring		N/A
(15.6.1)	Conductors		N/A
	Terminal size and rating		N/A
15.6.2	Mechanical tests		

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
(15.6.2.1)	Pull test spring-type terminals or welded connections (4 samples); pull (N) ..... :		N/A
(15.6.2.2)	Pull test pin or tab terminals (4 samples); pull (N) .....:		N/A
(15.6.3)	Electrical tests		N/A
	Tests according 15.6.3.1 + 15.6.3.2 in IEC 60598-1		N/A

(15.6.3.1) (15.6.3.2)	**TABLE: Contact resistance test / Heating tests**									N/A
	Voltage drop (mV) after 1 h									—
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										
	Voltage drop of two inseparable joints									
	Voltage drop after 10th alt. 25th cycle									
	Max. allowed voltage drop (mV).....:									—
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										
	Voltage drop after 50th alt. 100th cycle									
	Max. allowed voltage drop (mV).....:									—
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										
	Continued ageing: voltage drop after 10th alt. 25th cycle									
	Max. allowed voltage drop (mV).....:									—
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										
	Continued ageing: voltage drop after 50th alt. 100th cycle									
	Max. allowed voltage drop (mV).....:									—
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										
Supplementary information:										

Attachment 1	European group differences and national differences		
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT
IEC 60598-2-3
EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES
Luminaires
Part 2: Particular requirements
Section 3: Luminaires for road and street lighting

Differences according to..... EN 60598-2-3:2003, AMD1:2011 used in conjunction with EN 60598-1:2015, AMD1:2018

Annex Form No..... EU_GD_IEC60598_2_3L

Annex Form Originator..... Intertek Semko AB

Master Annex Form..... 2018-12-07

	CENELEC COMMON MODIFICATIONS (EN)		P
3.6 (4)	**CONSTRUCTION**		**P**
3.6 (4.11.6)	Electro-mechanical contact systems		N/A
3.10 (5)	**EXTERNAL AND INTERNAL WIRING**		**P**
3.10 (5.2.2)	Cables equal to EN 50525		P
	Replace table 5.1 – Supply cord		P
3.12 (12)	**ENDURANCE TESTS AND THERMAL TESTS**		**P**
3.12 (12.4.2c)	Thermal test (normal operation) see footnote c to table 12.2 relating to unsleeved fixed wiring		P
ZB	**ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)**		N/A
(3.3)	DK: power supply cords of class I luminaires with label		N/A
(4.5.1)	DK: socket- outlets		N/A
(5.2.1)	CY, DK, FI, GB: type of plug		N/A
ZC	**ANNEX ZC, NATIONAL DEVIATIONS (EN)**		N/A
(4 & 5)	FR: Shuttered socket-outlets 10/16A		N/A
	FR: Safety requirements for high buildings *(Decree of 30 December 2011 on safety regulations for the construction of high-rise buildings and their protection against fire and panic risks; Section VIII; Article GH 48, Lighting)* Glow-wire test for outer parts of luminaires:		N/A
	- 850°C for luminaires in stairways and horizontal travel paths		N/A
	- 650°C for indoor luminaires		N/A
	GB: Requirements according to United Kingdom Building Regulation		N/A

Attachment 2	Tests according to IEC 62031:2008+A1:2012+A2:2014, EN62031:2008+A1:2013+A2:2015		
Clause	Requirement + Test	Result - Remark	Verdict

4	**GENERAL REQUIREMENTS**		P
4.4	Integral modules tested assembled in the luminaire		P
4.5	Independent modules complies with requirements in IEC 60598-1		N/A

5	**GENERAL TEST REQUIREMENTS**		P
5.5	SELV-operated LED modules comply with Annex I of IEC 61347-2-13	(see Annex 1)	N/A
	General conditions for tests in Annex A	(see Annex A)	P

6	**CLASSIFICATION**		P
	Built-in module ..... :	Yes ☐ No ☒	—
	Independent module..... :	Yes ☐ No ☒	—
	Integral module ..... :	Yes ☒ No ☐	—
	For Integral module; Note to 1.2.1 in IEC 60598-1 applies.		—

7	**MARKING**		N/A
7.1	**Mandatory markings for built-in or independent modules**		N/A
	a) mark of origin		N/A
	b) model number, type reference		N/A
	c1) constant voltage module; rated supply voltage and supply frequency		N/A
	c2) constant current module; rated supply current and supply frequency		N/A
	d) nominal power		N/A
	e) indication of connections, wiring diagram		N/A
	f) value of t_c and place on the module		N/A
	g) Ethr if required		N/A
	h) symbol for built-in modules		N/A
	i) heat transfer temperature t_d		N/A
	j) power for heat-conduction P_d		N/A
	k) working voltage for insulation		N/A
7.2	**Location of marking**		N/A
	- marking of a), b), c) and f) on the modules		N/A
	- marking of d), e), g), h), i) and j) on the modules or data sheet		N/A

Attachment 2	Tests according to IEC 62031:2008+A1:2012+A2:2014, EN62031:2008+A1:2013+A2:2015		
Clause	Requirement + Test	Result - Remark	Verdict
	- marking of k) in manufactures literature		N/A
	- integral modules a) to g) in literature		N/A
7.3	**Durable and legibility of marking**		N/A
	- marking of a), b), c) and f) legible after test with water		N/A
	- marking of d) to j) inspection of compliance		N/A

8	**TERMINALS**		N/A
	Screw terminals according section 14 of IEC 60598-1:		N/A
	Separately approved; component list	(see Annex 2)	N/A
	Part of the luminaire	(see Annex 3)	N/A
	Screwless terminals according section 15 of IEC 60598-1:		N/A
	Separately approved; component list	(see Annex 2)	N/A
	Part of the luminaire	(see Annex 4)	N/A
	Connectors according IEC 60838-2-2:		N/A
	Separately approved; component list	(see Annex 2)	N/A

9 (9)	**PROVISION FOR PROTECTIVE EARTHING**		N/A
- (9.1)	**Provisions for protective earthing**		N/A
	Terminal complying with clause 8		N/A
	Locked against loosening and not possible to loosen by hand		N/A
	Not possible to loosen clamping means unintentionally on screwless terminals		N/A
	Earthing via means of fixing		N/A
	Earthing terminal only used for the earthing of the control gear		N/A
	All parts of material minimizing the danger of electrolytic corrosion		N/A
	Made of brass or equivalent material		N/A
	Contact surface bare metal		N/A
- (9.2)	**Provision for functional earthing**		N/A
	Comply with clause 8 and 9.1		N/A
- (9.3)	**Earth contact via the track on the printed board**		N/A
	Test with a current of 25 A between earthing terminal and each of the accessible metal parts; measured resistance (Ω) at ≥ 10 A according 7.2.3 of IEC 60598-1: < 0,5 Ω .....:		N/A

Attachment 2	Tests according to IEC 62031:2008+A1:2012+A2:2014, EN62031:2008+A1:2013+A2:2015		
Clause	Requirement + Test	Result - Remark	Verdict
- (9.4)	**Earthing of built-in lamp controlgear**		N/A
	Earth by means of fixing to earthed metal of luminaire in compliance of 7.2 of IEC 60598-1		N/A
	Earthing terminal only for earthing the built-in controlgear		N/A
- (9.5)	**Earthing via independent controlgear**		N/A
- (9.5.1)	Earth connection to other equipment		N/A
	Looping or through connection, conductor min. 1,5 mm² and of copper or equivalent		N/A
	Protective earthing wires in line with 5.3.1.1 and clause 7		N/A
- (9.5.2)	Earthing of the lamp compartments powered via the independent lamp controlgear		N/A
	Test with a current of 25 A between input and output earth terminals; measured resistance (Ω) between earthing terminal and each of the accessible metal parts at ≥ 10 A according 7.2.3 of IEC 60598-1: < 0,5 Ω .....:		N/A
	Output earthing terminal marked as in 7.1 t) of IEC 61347-1		N/A

10 (10)	PROTECTION AGAINST ACCIDENTAL CONTACT WITH LIVE PARTS		N/A
- (10.1)	Controlgear protected against accidental contact with live parts		N/A
- (A2)	The current flowing between the part concerned and earth is measured and does not exceed 0,7 mA (peak) or 2 mA d.c. .....:		N/A
- (A2)	For frequencies above 1 kHz, the current does not exceed 0,7 mA (peak) multiplied by the value of the frequency in kilohertz or 70 mA (peak) .....:		N/A
- (A3)	The voltage between the part concerned and any accessible part is measured and does not exceed 34 V (peak).....:		N/A
- (10.1)	Lacquer or enamel not used for protection or insulation		N/A
	Adequate mechanical strength on parts providing protection		N/A
- (10.2)	Capacitors > 0,5 μF: voltage after 1 min (V): < 50 V .....:		N/A
- (10.3)	Controlgear providing SELV		N/A
	Accessible conductive parts are insulated from live parts by double or reinforced insulation in SELV controlgear		N/A

Attachment 2	Tests according to IEC 62031:2008+A1:2012+A2:2014, EN62031:2008+A1:2013+A2:2015		
Clause	Requirement + Test	Result - Remark	Verdict
	No connection between output circuit and the body or protective earthing circuit		N/A
	No possibility of connection between output circuit and the body or protective earthing circuit through other conductive parts		N/A
	SELV outputs separated by at least basic insulation		N/A
	ELV conductive parts insulated as live parts		N/A
	Tests according Annex L of IEC 61347-1		N/A
- (10.4)	Accessible conductive parts in SELV circuits		N/A
	Output voltage under load ≤ 25 V r.m.s. or ≤ 60 V d.c.		N/A
	If output voltage > 25 V r.m.s. or > 60 V d.c.; No load output ≤ 35 V peak or ≤ 60 V d.c and touch current does not exceed 0,7 mA (peak) or 2 mA d.c. .....:		N/A
	One conductive part is insulated if output voltage or current exceeding the values above and withstand test voltage 500 V		N/A
	Double or reinforced insulation bridged by appropriate and at least two resistors or two Y2 capacitors or one Y1 capacitor		N/A
	Y1 or Y2 capacitors comply with IEC 60384-14		N/A
	Resistors comply with test (a) in 14.1 of IEC 60065		N/A
11 (11)	**MOISTURE RESISTANCE AND INSULATION**		**P**
	After storage 48 h at 91- 95% relative humidity and 20- 30 °C measuring of insulation resistance with d.c. 500 V (MΩ):		P
	For basic insulation ≥ 2 MΩ .....:	See IEC 60598-2-1 section	P
	For double or reinforced insulation ≥ 4 MΩ .....:		N/A
	Between primary and secondary circuits in controlgear providing SELV, values in Annex L in IEC 61347-1		N/A
12 (12)	**ELECTRIC STRENGTH**		**P**
	Immediately after clause 11 electric strength test for 1 min		P
	Basic insulation for SELV, test voltage 500 V		N/A
	Working voltage ≤ 50 V, test voltage 500 V		N/A
	Working voltage > 50 V ≤ 1000 V, test voltage (V):		P
	Basic insulation, 2U + 1000 V	L&N	P

Attachment 2	Tests according to IEC 62031:2008+A1:2012+A2:2014, EN62031:2008+A1:2013+A2:2015		
Clause	Requirement + Test	Result - Remark	Verdict
	Supplementary insulation, 2U + 1000 V		N/A
	Double or reinforced insulation, 4U + 2000 V		N/A
	No flashover or breakdown		P
	Solid or thin sheet insulation for double or reinforced insulation fulfil the requirements in Annex N in IEC 61347-1		N/A
13 (14)	**FAULT CONDITIONS**		**P**
- (14)	When operated under fault conditions the controlgear:		P
	- does not emit flames or molten material		P
	- does not produce flammable gases		P
	- protection against accidental contact not impaired		P
	Thermally protected controlgear does not exceed the marked temperature value		N/A
	Fault conditions: capacitors, resistors or inductors without proof of compliance with relevant specifications have been short-circuited or disconnected	(see appended table)	P
- (14.1)	Short-circuit of creepage distances and clearances if less than specified in clause 16 in Part 1 (except between live parts and accessible metal parts)	(see appended table)	P
	Creepage distances on printed boards less than specified in clause 16 in Part 1 provided with coating according to IEC 60664-3		N/A
- (14.2)	Short-circuit or interruption of semiconductor devices	(see appended table)	P
- (14.3)	Short-circuit across insulation consisting of lacquer, enamel or textile	(see appended table)	N/A
- (14.4)	Short-circuit across electrolytic capacitors	(see appended table)	P
- (14.5)	After the tests has been carried out on three samples:		P
	The insulation resistance ≥ 1 MΩ ..... :		P
	No flammable gases		P
	No accessible parts have become live		P
	During the tests, a five-layer tissue paper, where the test specimen is wrapped, does not ignite		P
- (14.6)	Relevant fault condition tests with high-power supply		P
13.2	**Overpower condition**		**P**
	Module withstands overpower condition >15 min.		P
	Module with automatic protective device or power limiter, test performed 15 min. at limit.		P

Attachment 2	Tests according to IEC 62031:2008+A1:2012+A2:2014, EN62031:2008+A1:2013+A2:2015		
Clause	Requirement + Test	Result - Remark	Verdict
	No fire, smoke or flammable gas is produced		P
	Molten material does not ignite tissue paper, spread below the module		P
15	**CONSTRUCTION**		**P**
	Wood, cotton, silk, paper and similar fibrous material not used as insulation		P
16 (16)	**CREEPAGE DISTANCES AND CLEARANCES**		**P**
- (16)	Creepage and distances and clearances in compliance with IEC 61347-1	(see appended table)	P
	Insulating lining of metallic enclosures		N/A
	Basic insulation on printed boards tested according to clause 14		P
	Distances subjected to both sinusoidal voltage as non-sinusoidal pulses not less than value in Table 16		N/A
	Creepage distances not less than minimum clearance		P
16 (-)	Conductive accessible parts in compliance with applicable parts of IEC 60598-1		N/A
17 (17)	**SCREWS, CURRENT-CARRYING PARTS AND CONNECTIONS**		**P**
	Cl. 17 refer to Cl. 17 of IEC 61347-1 which refer to Cl. 4.11 and 4.12 of IEC 60598-1 (clause numbers between parentheses refer to IEC 60598-1)		—
(4.11)	**Electrical connections**		**P**
(4.11.1)	Contact pressure		N/A
(4.11.2)	Screws:		N/A
	- self-tapping screws		N/A
	- thread- cutting screws		N/A
(4.11.3)	Screw locking:		N/A
	- spring washer		N/A
	- rivets		N/A
(4.11.4)	Material of current-carrying parts		P
(4.11.5)	No contact to wood or mounting surface		N/A
(4.11.6)	Electro-mechanical contact systems		N/A
(4.12)	**Mechanical connections and glands**		N/A
(4.12.1)	Screws not made of soft metal		N/A
	Screws of insulating material		N/A

Attachment 2	Tests according to IEC 62031:2008+A1:2012+A2:2014, EN62031:2008+A1:2013+A2:2015		
Clause	Requirement + Test	Result - Remark	Verdict
	Torque test: torque (Nm); part.....:		N/A
	Torque test: torque (Nm); part.....:		N/A
	Torque test: torque (Nm); part.....:		N/A
(4.12.2)	Screws with diameter < 3 mm screwed into metal		N/A
(4.12.4)	Locked connections:		N/A
	- fixed arms; torque (Nm)..... :		N/A
	- lampholder; torque (Nm).....:		N/A
	- push-button switches; torque 0,8 Nm.....:		N/A
(4.12.5)	Screwed glands; force (Nm).....:		N/A
18 (18)	**RESISTANCE TO HEAT, FIRE AND TRACKING**		N/A
- (18.1)	Ball-pressure test ..... :	See Test Table 18 (18.1)	N/A
- (18.2)	Test of printed boards .....:	See Test Table 18 (18.2)	N/A
- (18.3)	Glow- wire test (650°C) .....:	See Test Table 18 (18.3)	N/A
- (18.4)	Needle-flame test (10 s) .....:	See Test Table 18 (18.4)	N/A
- (18.5)	Proof tracking test ..... :	See Test Table 18 (18.5)	N/A
19 (19)	**RESISTANCE TO CORROSION**		N/A
	- test according 4.18.1 of IEC 60598-1		N/A
	- adequate varnish on the outer surface		N/A
20	**INFORMATION FOR LUMINAIRE DESIGN**		N/A
	Information in Annex D (informative)		N/A
21	**HEAT MANAGEMENT**		N/A
21.1	**General**		N/A
	Exchangeability is safeguarded by cap or base		N/A
21.2	**Heat-conducting foil and paste**		N/A
	Heat-conducting foil delivered with the module if necessary		N/A
22	**PHOTOBIOLOGICAL SAFETY**		**P**
22.1	**UV radiation**		N/A
	Luminous radiation not exceed 2mW/klm		N/A
22.2	**Blue light hazard**		**P**
	Assessed according to IEC TR 62778		P

Attachment 2	Tests according to IEC 62031:2008+A1:2012+A2:2014, EN62031:2008+A1:2013+A2:2015		
Clause	Requirement + Test	Result - Remark	Verdict

22.3	**Infrared radiation**		N/A
	Requirements for infrared radiation when required		N/A

A	**ANNEX A - TESTS**		**P**
	All tests performed in accordance with the advice given in Annex H of IEC 61347-1, if applicable		P

13(14)	**TABLE: tests of fault conditions**		
Part	Simulated fault	Result	Hazard
For model SL-200W(test voltage：240V) Note:the test that caused fusing resistor opened was repeated for 10 times and attained the same test results.			
BD1(Pin2-Pin4)	Short circuit	fuse opened immediately, no flame, no smoke, no flammable gas;1s	~~YES~~/NO
C11	Short circuit	fuse opened immediately, no flame, no smoke, no flammable gas;1s	~~YES~~/NO
Rj3	Short circuit	No change	~~YES~~/NO
RA2	Short circuit	No change	~~YES~~/NO
C9	Short circuit	Unit shutdown immediately. no flame, no smoke, no flammable gas; Before P:204,6W; I:0,87A;After P:192,3W; I:0,804A;10min	~~YES~~/NO
R10	Short circuit	No change	~~YES~~/NO
U1(1-16)	Short circuit	Fuse opened immediately, no flame, no smoke, no flammable gas; 1s	~~YES~~/NO
U1(7-8)	Short circuit	fuse opened immediately, no flame, no smoke, no flammable gas;1s	~~YES~~/NO
U1(7-16)	Short circuit	Fuse opened immediately, no flame, no smoke, no flammable gas; 1s	~~YES~~/NO
For model SL-150W (test voltage：240V)			
BD1(Pin2-Pin4)	Short circuit	fuse opened immediately, no flame, no smoke, no flammable gas;1s	~~YES~~/NO
C11	Short circuit	no flame, no smoke, no flammable gas, LEDs broken;1s	~~YES~~/NO
Rj3	Short circuit	No change	~~YES~~/NO
RA1	Short circuit	No change	~~YES~~/NO

Attachment 2	Tests according to IEC 62031:2008+A1:2012+A2:2014, EN62031:2008+A1:2013+A2:2015		
Clause	Requirement + Test	Result - Remark	Verdict

C9	Short circuit	Unit shutdown immediately. no flame, no smoke, no flammable gas; Before P:144,9W; I:0,604A;After P:134,6W; I:0,563A;10min	~~YES~~/NO
R10	Short circuit	No change	~~YES~~/NO
U1(1-16)	Short circuit	Fuse opened immediately, no flame, no smoke, no flammable gas; 1s	~~YES~~/NO
U1(7-8)	Short circuit	fuse opened immediately, no flame, no smoke, no flammable gas;1s	~~YES~~/NO
U1(7-16)	Short circuit	Fuse opened immediately, no flame, no smoke, no flammable gas; 1s	~~YES~~/NO
For model SL-100W(test voltage：240V) Note:the test that caused fusing resistor opened was repeated for 10 times and attained the same test results.			
BD1(Pin2-Pin4)	Short circuit	fuse opened immediately, no flame, no smoke, no flammable gas;1s	~~YES~~/NO
C11	Short circuit	no flame, no smoke, no flammable gas, LEDs broken;1s	~~YES~~/NO
R03	Short circuit	No change	~~YES~~/NO
Ra	Short circuit	No change	~~YES~~/NO
C3	Short circuit	Unit shutdown immediately. no flame, no smoke, no flammable gas; Before P:96,7W; I:0,406A;After P:87,8W; I:0,367A;10min	~~YES~~/NO
Rs3	Short circuit	No change	~~YES~~/NO
U1(1-16)	Short circuit	Fuse opened immediately, no flame, no smoke, no flammable gas; 1s	~~YES~~/NO
U1(7-8)	Short circuit	fuse opened immediately, no flame, no smoke, no flammable gas;1s	~~YES~~/NO
U1(7-16)	Short circuit	Fuse opened immediately, no flame, no smoke, no flammable gas; 1s	~~YES~~/NO

For model SL-50W(test voltage：240V) Note:the test that caused fusing resistor opened was repeated for 10 times and attained the same test results.			
DB1(Pin2-Pin4)	Short circuit	fuse opened immediately, no flame, no smoke, no flammable gas;1s	~~YES~~/NO
C16	Short circuit	no flame, no smoke, no flammable gas, LEDs broken;1s	~~YES~~/NO

Attachment 2	Tests according to IEC 62031:2008+A1:2012+A2:2014, EN62031:2008+A1:2013+A2:2015		
Clause	Requirement + Test	Result - Remark	Verdict

R08	Short circuit	No change	~~YES~~/NO
Ra	Short circuit	No change	~~YES~~/NO
C3	Short circuit	Unit shutdown immediately. no flame, no smoke, no flammable gas; Before P:46,8W; I:0,196A;After P:38,7W; I:0,161A;10min	~~YES~~/NO
Rs3	Short circuit	No change	~~YES~~/NO
U1(1-16)	Short circuit	Fuse opened immediately, no flame, no smoke, no flammable gas; 1s	~~YES~~/NO
U1(7-8)	Short circuit	fuse opened immediately, no flame, no smoke, no flammable gas;1s	~~YES~~/NO
U1(7-16)	Short circuit	Fuse opened immediately, no flame, no smoke, no flammable gas; 1s	~~YES~~/NO

Attachment 2	Tests according to IEC 62031:2008+A1:2012+A2:2014, EN62031:2008+A1:2013+A2:2015		
Clause	Requirement + Test	Result - Remark	Verdict

16 (16)	TABLE: clearance and creepage distance measurements (mm)							P
Applicable part of IEC 61347-1 Table 7 – 11*								
Distances	**Insulation type ****	**Measured clearance**	**Required**		**Measured creepage**	**Required**		
			clearance	***Table**		**creepage**	***Table**	
Distance 1:	B	2,63	1,5	2,63	11.1B	2,5	11.1A	
Working voltage (V) ..... :					AC 220-240V			—
Frequency if applicable (kHz) ..... :					/			—
PTI ..... :					< 600 ☒ ≥ 600 ☐			—
Peak value of the working voltage $\hat{U}_{out}$ if applicable (kV) ..... :					/			—
Pulse voltage if applicable (kV) ..... :					/			—
Supplementary information:Live parts (L-N)of different polarity								
Distance 2:	B	3,42	1,5	11.1B	3,42	2,5	11.1A	
Working voltage (V) ..... :					AC 220-240V			—
Frequency if applicable (kHz) ..... :					/			—
PTI ..... :					< 600 ☐ ≥ 600 ☐			—
Peak value of the working voltage $\hat{U}_{out}$ if applicable (kV) ..... :					/			—
Pulse voltage if applicable (kV) ..... :					/			—
Supplementary information:Live parts (pcb) to accessible metal parts								

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

Attachment 2	Tests according to IEC 62031:2008+A1:2012+A2:2014, EN62031:2008+A1:2013+A2:2015		
Clause	Requirement + Test	Result - Remark	Verdict

18 (18.1)	TABLE: Ball Pressure Test of Thermoplastics			P
Allowed impression diameter (mm) .....:				—
Object/ Part No./ Material	Manufacturer/ trademark	Test temperature (°C)	Impression diameter (mm)	
LED cover	See Annex 1	108	1,1	
Supplementary information:				

18 (18.2)	TABLE: Test of printed boards				N/A
Object/ Part No./ Material	Manufacturer/ trademark	Duration of application of test flame (s)	Ignition of specified layer Yes/No	Duration of burning (s)	Verdict
--	--	--	--	--	--
Supplementary information:					

18 (18.3)	TABLE: Glow-wire test				P
Glow wire temperature .....:	650°C				—
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
LED cover	See Annex 1	No	0	P	
Any flame or glowing of the sample extinguished within 30 s of withdrawing the glow-wire, and any burning or molten drop did not ignite the underlying parts (Yes/No).....:					
Supplementary information:					

18 (18.4)	TABLE: Needle-flame test				N/A
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:					

Attachment 2	Tests according to IEC 62031:2008+A1:2012+A2:2014, EN62031:2008+A1:2013+A2:2015		
Clause	Requirement + Test	Result - Remark	Verdict

18 (18.5)	TABLE: Proof tracking test				N/A
Test voltage PTI ..... :		175 V			—
Object/ Part No./ Material	Manufacturer/ trademark	Withstand 50 drops without failure on three places or on three specimens			Verdict
--	--	--	--	--	--
Supplementary information:					

ANNEX 1	SELV-operated LED modules		N/A
	Cl. 5.5 refer to ANNEX I of IEC 61347-2-13 which refer to ANNEX L of IEC 61347-1 (clause numbers between parentheses refer to ANNEX L of IEC 61347-1)		—
(L.3)	**Classification**		N/A
	Class I	Yes ☐ No ☐	—
	Class II	Yes ☐ No ☐	—
	Class III	Yes ☐ No ☐	—
	non-inherently short circuit proof controlgear	Yes ☐ No ☐	—
	inherently short circuit proof controlgear	Yes ☐ No ☐	—
	fail safe controlgear	Yes ☐ No ☐	—
	non-short-circuit proof controlgear	Yes ☐ No ☐	—
(L.4)	**Marking**		N/A
	Adequate symbols are used		N/A
(L.5)	**Protection against electric shock**		N/A
	Comply with 9.2 of IEC 61558-1		N/A
(L.6)	**Heating**		N/A
	No excessive temperatures in normal use		N/A
	Value if capacitor tc marked .....:		—
	Winding insulation classified as Class .....:		—
	Comply with tests of clause 14 of IEC 61558-1 with adjustments		N/A
(L.7)	**Short-circuit and overload protection**		N/A
	Comply with tests of clause 15 of IEC 61558-1 with adjustments		N/A
(L.8)	**Insulation resistance and electric strength**		N/A
(L.8.1)	Conditioned 48 h between 91 % and 95 %		N/A
(L.8.2)	Insulation resistance		N/A

Attachment 2	Tests according to IEC 62031:2008+A1:2012+A2:2014, EN62031:2008+A1:2013+A2:2015		
Clause	Requirement + Test	Result - Remark	Verdict
	Between input- and output circuits not less than 5 MΩ .....:		**N/A**
	Between metal parts of class II convertors which are separated from live parts by basic insulation only and the body not less than 5 MΩ ..... :		**N/A**
	Between metal foil in contact with the inner and outer surfaces of enclosures of insulating material not less than 2 MΩ .....:		**N/A**
(L.8.3)	Electric strength		**N/A**
	1) Between live parts of input circuits and live parts of output circuits .....:		**N/A**
	2) Over basic or supplementary insulation between:		**N/A**
	a) live parts having different polarity ..... :		**N/A**
	b) live parts and body if intended to be connected to protective earth .....:		**N/A**
	c) accessible metal parts and a metal rod of the same diameter as the flexible cable or cord ..... :		**N/A**
	d) live parts and an intermediate metal part ..... :		**N/A**
	e) intermediate metal parts and the body .....:		**N/A**
	f) each input circuit and all other input circuits ..... :		**N/A**
	3) Over reinforced insulation between the body and live parts ..... :		**N/A**
(L.9)	**Construction**		**N/A**
(L.9.1)	Transformer comply with 19.12 of IEC 61558-1 and 19 of IEC 61558-2-6		**N/A**
	HF transformer comply with 19 of IEC 61558-2-16		**N/A**
(L.10)	**Components**		**N/A**
	Protective devices comply with 20.6 – 20.11 of IEC 61558-1		**N/A**
(L.11)	**Creepage distances, clearances and distances through insulation**		**N/A**
	Creepage distances and clearances not less than in Clause 16		**N/A**
	Distance through insulation according Table L.5 in IEC 61347-1		**N/A**
	1) Basic distance through insulation		**N/A**
	Required distance (mm) .....:		—
	Measured (mm) ..... :		**N/A**
	Supplementary information		—
	2) Supplementary distance through insulation		**N/A**

Attachment 2	Tests according to IEC 62031:2008+A1:2012+A2:2014, EN62031:2008+A1:2013+A2:2015		
Clause	Requirement + Test	Result - Remark	Verdict
	Required distance (mm) .....:		—
	Measured (mm) ..... :		**N/A**
	Supplementary information		—
	3) Reinforced distance through insulation		**N/A**
	Required distance (mm) .....:		—
	Measured (mm) ..... :		**N/A**
	Supplementary information		—

Attachment 3	**Photobiological safety of lamps and lamp systems were accrording to standard EN 62471: 2008 and IEC 62471:2006**

Table 6.1(A)	Emission limits for risk groups of continuous wave lamps (based on EU Directive 2006/25/EC)								P
Risk	Action spectrum	Symbol	Units	Exempt		Low risk		Mod risk	
				Limit	Result	Limit	Result	Limit	Result
Actinic UV	$S_{UV}(\lambda)$	E_s	$W•m^{-2}$	0,001	4,064E-08	0,003	-	0,03	-
Near UV	-	E_{UVA}	$W•m^{-2}$	0,33	8,845E-04	33	-	100	-
Blue light	$B(\lambda)$	L_B	$W•m^{-2}•sr^{-1}$	100	7,113E+01	10000	-	4000000	-
Blue light, small source	$B(\lambda)$	E_B	$W•m^{-2}$	-	-	-	-	-	-
Retinal thermal	$R(\lambda)$	L_R	$W•m^{-2}•sr^{-1}$	5,142E+05	2,353E+03	5,142E+05	-	1,304E+06	-
Retinal thermal weak visual stimulus**	$R(\lambda)$	L_{IR}	$W•m^{-2}•sr^{-1}$	1,102E+04	0,000E+00	1,102E+04	-	1,102E+05	-
IR radiation, eye	-	E_{IR}	$W•m^{-2}$	100	0,000E+00	570	-	3200	-

* Small source defined as one with $\alpha < 0.011$ radian. Averaging field at 10000s is 1.1 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

SL-200W, Measure distance 2,36m, α=54,45mrad （Exempt ）

Attachment 3	**Photobiological safety of lamps and lamp systems were accrording to standard EN 62471: 2008 and IEC 62471:2006**

Table 6.1(B)	Emission limits for risk groups of continuous wave lamps									P
Risk	Action spectrum	Symbol	Units	Exempt		Low risk		Mod risk		
				Limit	Result	Limit	Result	Limit	Result	
Actinic UV	$S_{UV}(\lambda)$	E_s	$W•m^{-2}$	0,001	4,064E-08	0,003	-	0,03	-	
Near UV	-	E_{UVA}	$W•m^{-2}$	10	8,845E-04	33	-	100	-	
Blue light	$B(\lambda)$	L_B	$W•m^{-2}•sr^{-1}$	100	7,136E+01	10000	-	4000000	-	
Blue light, small source	$B(\lambda)$	E_B	$W•m^{-2}$	-	-	-	-	-	-	
Retinal thermal	$R(\lambda)$	L_R	$W•m^{-2}•sr^{-1}$	5,142E+05	2,302E+03	5,142E+05	-	1,304E+06	-	
Retinal thermal weak visual stimulus**	$R(\lambda)$	L_{IR}	$W•m^{-2}•sr^{-1}$	1,102E+04	0,000E+00	1,102E+04	-	1,102E+05	-	
IR radiation, eye	-	E_{IR}	$W•m^{-2}$	100	0,000E+00	570	-	3200	-	

* Small source defined as one with $\alpha < 0.011$ radian. Averaging field at 10000s is 1.1 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

SL-200W, Measure distance 2,36m, α=54,45mrad （Exempt ）

Attachment 4	Assessment of blue light hazard to light sources and luminaires according to standard IEC TR 62778:2014

	TABLE: Spectroradiometric masurement		P
	Measurement performed on:	☐ LED package ☐ LED module ☐ Lamp ☒ Luminaire	
	Model number .....:	SL-200W	
	LED model.....:	HL-AS-2835D1W-2C-S1-08-PCT-HR3	
	Test voltage (V)..... :	AC 240V	
	Test current (mA) ..... :	861mA	
	Test frequency (Hz).....:	50Hz	
	Ambient, t (° °C) .....:	24,5	
	Measurement distance .....:	☒ 20 cm ☐ cm	
	Source size.....:	☒ Non-small ☐ Small : .... mm	
	Field of view..... :	☐ 100 mrad ☒ 11 mrad ☐ 1,7 mrad (for small sources)	

Item	Symbol	Units	Results	Remark
Correlated colour temperature	CCT	K	6278K	/
x/y colour coordinates	/	/	/	/
Blue light hazard radiance	Lb (11mrad)	W • m-2 • sr-1	578,9	Low Risk
Blue light hazard irradiance	E B	W/m 2	/	/
Luminance	L	cd/m 2	/	/
Illuminance	E	lx	/	/
Supplementary information:				

Attachment 5	Photo document

Photo 1

Whole view of model SL-200W, SL-150W, SL-100W, SL-50W

Photo 2

Whole view of model SL-200W

Attachment 5	Photo document

Photo 3

Back view of model SL-200W

Photo4

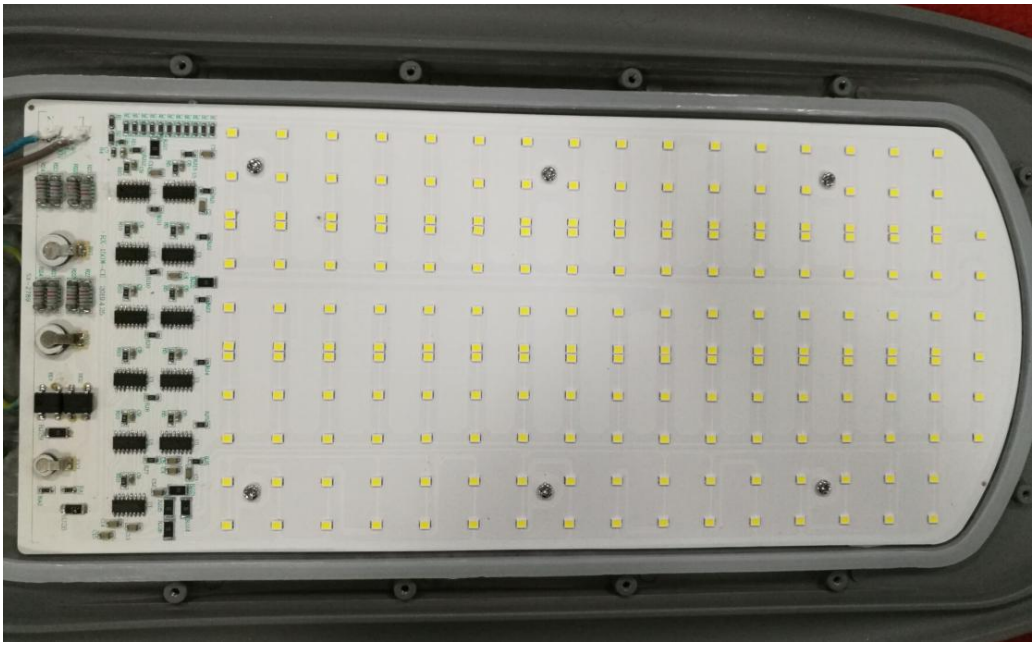
Internal view for model: SL-200W(also represents other models)

Attachment 5	Photo document

Photo 5

Back view of model SL-200W

Photo 6



Internal view for model: SL-150W

Attachment 5	Photo document

Photo 7

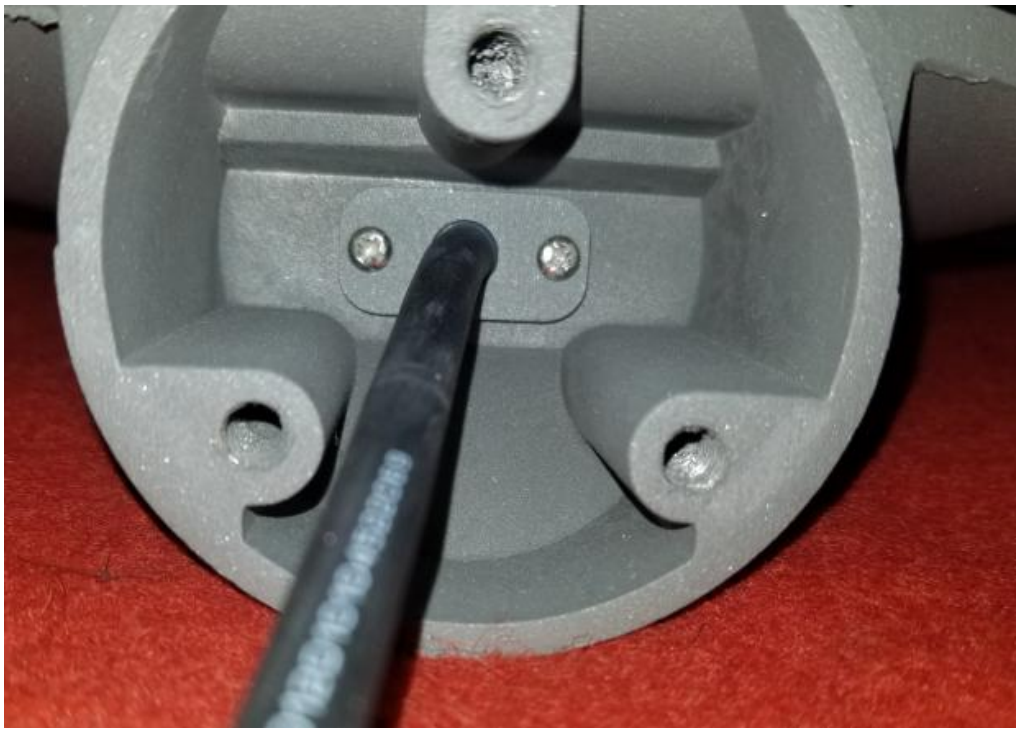
The LED model for model: SL-100W

Photo 8

Internal view for model: SL-50W

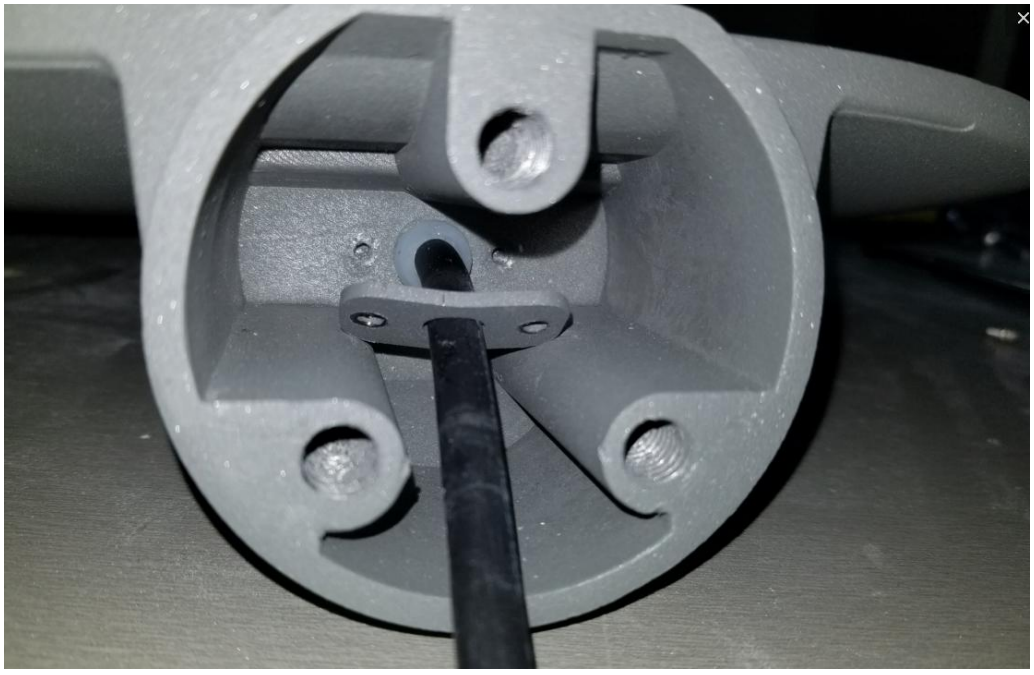
Attachment 5	Photo document

Photo 9



Waterproof device(for all models)

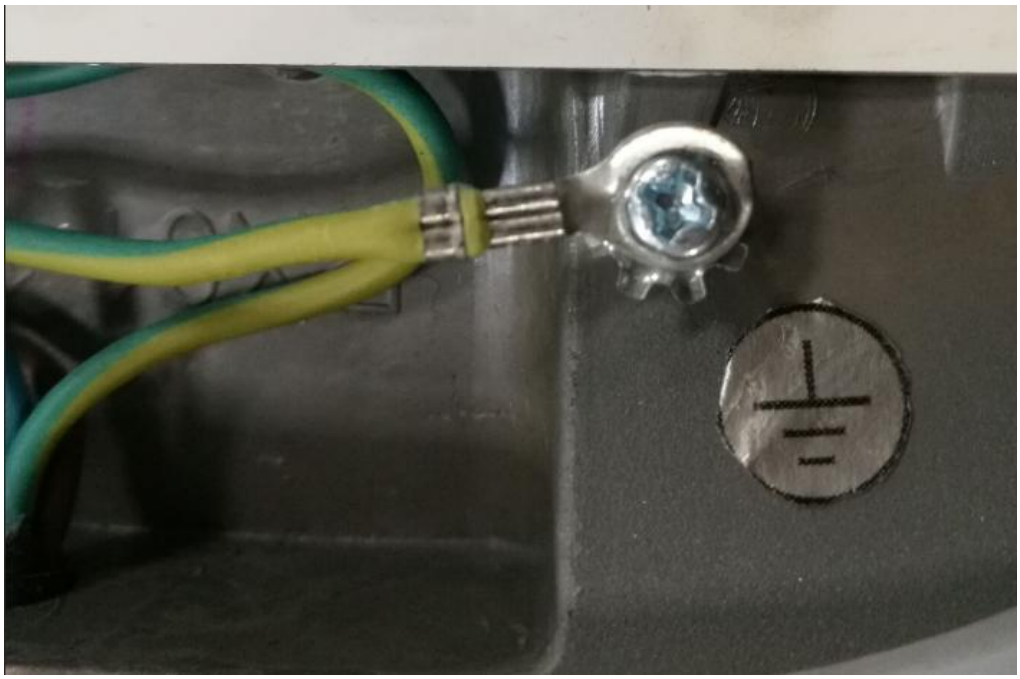
Photo 10



Waterproof device(for all models)

Attachment 5	Photo document

Photo 11



Earth Terminal(for all models)