



TEST REPORT
IEC 60598-2-5
Luminaires
Part 2-5: Particular requirements-
Floodlights

Report Number: 68.140.26.02441.01
Date of issue: 2026-04-22
Total number of pages: 53 (not including attachments)

Name of CB Testing Laboratory preparing the Report.....: TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch

Applicant's name.....: AOK Industrial Company Limited
Address: 1/F of 1#Building, East Block of 3/F of Building 1, And 2/F of Building 4, ST George's Science and Technology Industrial Park, Northside of Xinyu Road, Xiangshan Community, Xinqiao Street Baoan District, 518000 Shenzhen, Guangdong, PEOPLE'S REPUBLIC OF CHINA

Test specification:

Standard: IEC 60598-2-5:2015 used in conjunction with IEC 60598-1:2024
Test procedure: CE_LVD
Non-standard test method: N/A

TRF template used: IECEE OD-2020-F1:2024, Ed.1.7

Test Report Form No......: IEC60598_2_5H

Test Report Form(s) Originator: Intertek Semko AB

Master TRF: Dated 2025-09-04

Copyright © 2025 IEC System of Conformity Assessment Schemes for Electrotechnical Equipment and Components (IECEE System). All rights reserved.

This publication may be reproduced in whole or in part for non-commercial purposes if the IECEE is acknowledged as copyright owner and source of the material. IECEE takes no responsibility for and will not assume liability for damages resulting from the reader's interpretation of the reproduced material due to its placement and context.

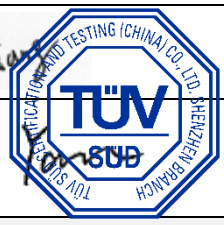
This report is not valid as a CB Test Report unless signed by an approved IECEE Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

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

Test item description	Flood lights (LED Flood Light)
Trade Mark(s)	
Manufacturer	Same as applicant
Model/Type reference	AOK-ZWFLC(M)-NV-A5-BB-XXYY-BN-P; AOK-ZWFLC(L)-NV-A5-BB-XXYY-BN-P; AOK-ZWFLC(XL)-NV-A5-BB-XXYY-BN-P; AOK-ZWFLC(M)-NV-L5-BB-XXYY-BN-P; AOK-ZWFLC(L)-NV-L5-BB-XXYY-BN-P; AOK-ZWFLC(XL)-NV-L5-BB-XXYY-BN-P; AOK-ZWFLC(M)-NV-L3-BB-XXYY-BN-P; AOK-ZWFLC(L)-NV-L3-BB-XXYY-BN-P ; ('Z' stands for Rated Power, can be 20-500, in steps of 1W, e.g. 20=20W, 500=500W; 'BB' stands for whether with Zhaga socket & sealing cap, can be 00 and SN, 00= without Zhaga socket & sealing cap, SN= with Zhaga socket & sealing cap; 'XX' stands for CCT of LED, can be 27, 30, 40, 50, 57 and 65, 27=2700K, 30=3000K, 40=4000K, 50=5000K, 57=5700K, 65=6500K; 'YY' stands for CRI (color rendering index), can be 70 and 80, 70=Ra: 70, 80=Ra: 80; 'P' stands for internal code, can be A, B, C)
Ratings	Rated Voltage: 120-277VAC Rated Frequency: 50/60Hz Rated Power: See 'General product information' for details Protection Class: I Degree of Protection: IP66 Blue Light Hazard Group: BLH-B ta: 50°C

Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):		
☒	Testing Laboratory:	TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch
Testing location/ address		Building 12 & 13, Zhiheng Wisdomland Business Park, Guankou Erlu, Nantou, Nanshan District, Shenzhen, Guangdong 518052, China
Tested by (name, function, signature)		Jared Jiang Project Handler
Approved by (name, function, signature) ..		Sunny Yan Designated Reviewer
		
☐	Testing procedure: CTF Stage 1:	
Testing location/ address		
Tested by (name, function, signature)		
Approved by (name, function, signature) ..		
☐	Testing procedure: CTF Stage 2:	
Testing location/ address		
Tested by (name + signature).....		
Witnessed by (name, function, signature) . :		
Approved by (name, function, signature) .. :		
☐	Testing procedure: CTF Stage 3:	
☐	Testing procedure: CTF Stage 4:	
Testing location/ address		
Tested by (name, function, signature)		
Witnessed by (name, function, signature) . :		
Approved by (name, function, signature) .. :		
Supervised by (name, function, signature) :		

List of Attachments (including a total number of pages in each attachment):**Attachment No.1:**

1 page of test report for EU Group Differences and National differences for EN IEC 60598-1:2024+A11:2024;

Attachment No.2:

19 pages of test report for IEC 62031:2018;

1 page of test report for EU Group Differences and National differences for EN IEC 62031:2020+A11:2021 (for LED module);

Attachment No.3:

8 pages of test report for IEC 62471-7:2023 (for Retinal blue light hazard);

Attachment No.4:

16 pages of test report for IEC 62493:2015; IEC 62493:2015/AMD1:2022 (for EMF);

Attachment No.5:

13 pages of photo documentation.

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

All applicable tests as described in the compliance checklist were performed at AOK-500WFLC(L)-NV-A5-SN-6570-BN-B.

Testing location:

Building 12 & 13, Zhiheng Wisdomland Business Park, Guankou Erlu, Nantou, Nanshan District, Shenzhen, Guangdong 518052, China

Summary of compliance with National Differences

IECEE Member countries that are also CENELEC members

Compliance with Group Differences evaluated ☒ **yes** ☐ **No** ☐ N/A

IECEE Member countries with published National Differences which were evaluated: N/A

IECEE Member countries that did not publish any National Differences: N/A

To support compliance with published National Differences, attach a compilation of relevant ND and/or GD TRFs to the CB Test Report

Use of uncertainty of measurement for decisions on conformity (decision rule):

☒ No decision rule is specified by the IEC standard, when comparing the measurement result with the applicable limit according to the specification in that standard. The decisions on conformity are made without applying the measurement uncertainty ("simple acceptance" decision rule, previously known as "accuracy method").

☐ Other: ... (to be specified, for example when required by the standard or client, or if national accreditation requirements apply)

Information on uncertainty of measurement:

The uncertainties of measurement are calculated by the laboratory based on application of criteria given by OD-5014 for test equipment and application of test methods, decision sheets and operational procedures of IECEE.

IEC Guide 115 provides guidance on the application of measurement uncertainty principles and applying the decision rule when reporting test results within IECEE scheme, noting that the reporting of the measurement uncertainty for measurements is not necessary unless required by the test standard or customer.

Calculations leading to the reported values are on file with the NCB and testing laboratory that conducted the testing.

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.

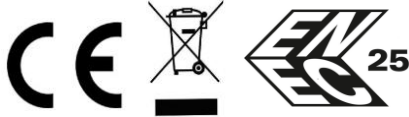
Representative model: AOK-500WFLC(L)-NV-A5-SN-6570-BN-B

LED Flood Light

AOK-500WFLC(L)-NV-A5-SN-6570-BN-B

120-277V~ 50/60Hz; 500W

CCT: 6500K ta:50°C IP66 IK08



AOK Industrial Company Limited

1/F of 1#Building, East Block of 3/F of Building 1, And 2/F of Building 4, ST George's Science and Technology Industrial Park, Northside of Xinyu Road, Xiangshan Community, Xinqiao Street Baoan District, 518000 Shenzhen, Guangdong, PEOPLE'S REPUBLIC OF CHINA

Main label, sticking on external metal surface.



(Caution, risk of electric shock, the height of the symbol at least 15mm)

Sub-label sticking on glass cover.

Remark:

- The labels for other models are as the above label except that the model number, CCT and rated power are different.
- The height of CE mark at least 5mm, height of WEEE mark at least 7mm, height of letters and numerals at least 2mm, height of other marks at least 5mm.

Test item particulars	LED Flood Light
Classification of installation and use	Fixed for indoor and outdoor use
Supply Connection.....	Supply cord with or without waterproof terminal block
Protection Class	I
Degree of Protection	IP66
ta.....	50°C
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.....	See below
Date of receipt of test item	2026-03-04
Date (s) of performance of tests	2026-03-04 to 2026-04-22
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.	
Name and address of factory (ies)	Same as applicant

General product information and other remarks:

The manufacturer/ Importer has to ensure the appliance placing on the EU market conforms to the applicable EU directives which provide the affixing of the CE marking, such as LVD, EMC, RoHS, ErP, and so on.

According to the EU directives which have been aligned with EU NLF (new legislative framework), both of manufacturer and importer's name and address shall be affixed on the product or, where that is not possible, on its packaging or in a document accompanying the product before the product is placed on the EU market.

EU Group Differences and National differences: EN 60598-2-5:2015; EN IEC 60598-1:2024+A11:2024; EN 62493:2015+A1:2022

The products covered in this report are Class I LED Flood Light, equipped with non-user replaceable light source is for indoor and outdoor use.

The clamp for locking metal enclosure cannot be opened by a single action with one hand.

The maximum mounting height is 50m.

The terminal block on supply cord is optional.

There are four constructions for all models as below:

For models BB=00	Construction 1	without Zhaga socket & sealing cap
For models BB=SN	Construction 2	with Zhaga socket & sealing cap (Top enclosure)
	Construction 3	with Zhaga socket & sealing cap (Bottom enclosure)
	Construction 4	with Zhaga socket & sealing cap (Top enclosure and Bottom enclosure)

Products with Zhaga socket & sealing cap covered by this report are the luminaires up to the socket. Device connected to the socket may affect the compliance of the full system and are not covered by this report.

Model list for luminaire:

Model No.	'Z' can be 20 to 500 which stands for Rated Power 20W to 500W, in steps of 1W	Rated Power (W)	LED driver		LED type	Size (mm)	Weight (kg)	Max. projected area (m ²)
AOK-ZWFLC(M)-NV-A5-BB-XXYY-BN-P	Z=20 to 50	20-50	SS-80NH-V300BHB	SS-80NH-V300F	TYF 5050	409*245*58	3,4	0,100
	Z=51 to 100	51-100	SS-100NH-V300BHB	SS-100NH-V300F				
	Z=101 to 150	101-150	SS-150NH-V300BHB	SS-150NH-V300F				
	Z=151 to 200	151-200	SS-200NH-V300BHB	SS-200NH-V300F				
	Z=201 to 240	201-240	SS-240NH-V300BHB	SS-240NH-V300F				
AOK-ZWFLC(L)-NV-A5-BB-XXYY-BN-P	Z=101 to 150	101-150	SS-150NH-V300BHB	SS-150NH-V300F		480*295*58	5,2	0,142
	Z=151 to 200	151-200	SS-200NH-V300BHB	SS-200NH-V300F				
	Z=201 to 240	201-240	SS-240NH-V300BHB	SS-240NH-V300F				

	Z=241 to 300	241-300	SS-320NH-V300BHB	SS-320NH-V300F						
	Z=301 to 400	301-400	SS-200NH-V300BHB*2	SS-200NH-V300F*2						
	Z=401 to 500	401-500	SS-320NH-V300BHB*2	SS-320NH-V300F*2						
AOK-ZWFLC(XL)-NV-A5-BB-XXYY-BN-P	Z=241 to 300	241-300	SS-320NH-V300BHB	SS-320NH-V300F	590*347*70	7,5	0,205			
	Z=301 to 400	301-400	SS-200NH-V300BHB*2	SS-200NH-V300F*2						
	Z=401 to 500	401-500	SS-320NH-V300BHB*2	SS-320NH-V300F*2						
AOK-ZWFLC(M)-NV-L5-BB-XXYY-BN-P	Z=20 to 50	20-50	SS-80NH-V300BHB	SS-80NH-V300F	Lumileds 5050	409*245*58	3,4	0,100		
	Z=51 to 100	51-100	SS-100NH-V300BHB	SS-100NH-V300F						
	Z=101 to 150	101-150	SS-150NH-V300BHB	SS-150NH-V300F						
	Z=151 to 200	151-200	SS-200NH-V300BHB	SS-200NH-V300F						
	Z=201 to 240	201-240	SS-240NH-V300BHB	SS-240NH-V300F						
AOK-ZWFLC(L)-NV-L5-BB-XXYY-BN-P	Z=101 to 150	101-150	SS-150NH-V300BHB	SS-150NH-V300F		480*295*58	5,2	0,142		
	Z=151 to 200	151-200	SS-200NH-V300BHB	SS-200NH-V300F						
	Z=201 to 240	201-240	SS-240NH-V300BHB	SS-240NH-V300F						
	Z=241 to 300	241-300	SS-320NH-V300BHB	SS-320NH-V300F						
	Z=301 to 400	301-400	SS-200NH-V300BHB*2	SS-200NH-V300F*2						
	Z=401 to 500	401-500	SS-320NH-V300BHB*2	SS-320NH-V300F*2						
AOK-ZWFLC(XL)-NV-L5-BB-XXYY-BN-P	Z=241 to 300	241-300	SS-320NH-V300BHB	SS-320NH-V300F		590*347*70	7,5	0,205		
	Z=301 to 400	301-400	SS-200NH-V300BHB*2	SS-200NH-V300F*2						
	Z=401 to 500	401-500	SS-320NH-V300BHB*2	SS-320NH-V300F*2						
AOK-ZWFLC(M)-NV-L3-BB-XXYY-BN-P	Z=20 to 50	20-50	SS-80NH-V300BHB	SS-80NH-V300F	Lumileds 3030 2D	409*245*58	3,4	0,100		
	Z=51 to 100	51-100	SS-100NH-V300BHB	SS-100NH-V300F						
	Z=101 to 150	101-150	SS-150NH-V300BHB	SS-150NH-V300F						
	Z=151 to 200	151-200	SS-200NH-V300BHB	SS-200NH-V300F						
	Z=201 to 240	201-240	SS-240NH-V300BHB	SS-240NH-V300F						
AOK-ZWFLC(L)-NV-L3-BB-XXYY-BN-P	Z=101 to 150	101-150	SS-150NH-V300BHB	SS-150NH-V300F		480*295*58	5,2	0,142		
	Z=151 to 200	151-200	SS-200NH-V300BHB	SS-200NH-V300F						
	Z=201 to 240	201-240	SS-240NH-V300BHB	SS-240NH-V300F						

Remark 1:

'Z' stands for Rated Power, can be 20-500, in steps of 1W, e.g. 20=20W, 500=500W;

'BB' stands for whether with Zhaga socket & sealing cap, can be 00 and SN, 00= without Zhaga socket & sealing cap, SN= with Zhaga socket & sealing cap;

'XX' stands for CCT of LED, can be 27, 30, 40, 50, 57 and 65, 27=2700K, 30=3000K, 40=4000K, 50=5000K, 57=5700K, 65=6500K;

'YY' stands for CRI (color rendering index), can be 70 and 80, 70=Ra: 70, 80=Ra: 80;

'P' stands for internal code, can be A, B, C

Remark 2: LED types TYF 5050, Lumileds 5050 and Lumileds 3030 2D stand for different LED type; TYF 5050=TS1-H50YL-0801BB, Lumileds 5050=L150-AAAA50BBCCCCC, Lumileds 3030 2D=L130-AABB003000C2D

Driver model list:

Model No.	Manufacturer/trademark	Technical data				Mark(s) of conformity ¹⁾
		Rated input	Rated output	ta; tc (°C)	Remark	
SS-80NH-V300BHB	Shenzhen Sosen Electronics Co., Ltd.	100-277VAC; 50/60Hz; Max.1,0A	180-300VDC; 0,1-0,4A; U _{out} :350VDC; P _{rated} :80W	50(100-200V~), 60(200-277V~); 90	CC; Built-in; Auto-wound;	TÜV SÜD (ENEC) U6 083805 0266*
SS-100NH-V300BHB	Shenzhen Sosen Electronics Co., Ltd.	100-277VAC; 50/60Hz; Max.1,2A	180-300VDC; 0,125-0,5A; U _{out} :350VDC; P _{rated} :100W	50(100-200V~), 60(200-277V~); 90	CC; Built-in; Auto-wound;	TÜV SÜD (ENEC) U6 083805 0266*
SS-150NH-V300BHB	Shenzhen Sosen Electronics Co., Ltd.	100-277VAC; 50/60Hz; Max.1,8A	180-300VDC; 0,19-0,75A; U _{out} :350VDC; P _{rated} :150W	50(100-200V~), 60(200-277V~); 90	CC; Built-in; Auto-wound;	TÜV SÜD (ENEC) U6 083805 0266*
SS-200NH-V300BHB	Shenzhen Sosen Electronics Co., Ltd.	100-277VAC; 50/60Hz; Max.2,4A	180-300VDC; 0,25-1,0A; U _{out} :350VDC; P _{rated} :200W	50(100-200V~), 60(200-277V~); 90	CC; Built-in; Auto-wound;	TÜV SÜD (ENEC) U6 083805 0266*
SS-240NH-V300BHB	Shenzhen Sosen Electronics Co., Ltd.	100-277VAC; 50/60Hz; Max.2,9A	180-300VDC; 0,3-1,2A; U _{out} :350VDC; P _{rated} :240W	50(100-200V~), 60(200-277V~); 90	CC; Built-in; Auto-wound;	TÜV SÜD (ENEC) U6 083805 0266*
SS-320NH-V300BHB	Shenzhen Sosen Electronics Co., Ltd.	100-277VAC; 50/60Hz; Max.3,8A	180-300VDC; 0,4-1,5A; U _{out} :350VDC; P _{rated} :320W	50(100-200V~), 60(200-277V~); 90	CC; Built-in; Auto-wound;	TÜV SÜD (ENEC) U6 083805 0266*
- Reinforced insulation was provided between input circuit/output circuit and dimming circuit; - No insulation was provided between input circuit and output circuit. - SS-80NH-V300BHB and SS-100NH-V300BHB have the same construction and PCB layout.						
SS-80NH-V300F	Shenzhen Sosen Electronics Co., Ltd.	100-277VAC; 50/60Hz; Max.1,0A	180-300VDC; 0,1-0,4A; U _{out} :370VDC; P _{rated} :80W	50(100-200V~), 60(200-277V~); 90	CC; Built-in; Auto-wound;	TÜV SÜD (ENEC) U6 083805 0250*

SS-100NH-V300F	Shenzhen Sosen Electronics Co., Ltd.	100-277VAC; 50/60Hz; Max.1,2A	180-300VDC; 0,125-0,5A; U _{out} :370VDC; P _{rated} :100W	50(100-200V~), 60(200-277V~); 90	CC; Built-in; Auto-wound;	TÜV SÜD (ENEC) U6 083805 0250*
SS-150NH-V300F	Shenzhen Sosen Electronics Co., Ltd.	100-277VAC; 50/60Hz; Max.1,8A	180-300VDC; 0,19-0,75A; U _{out} :370VDC; P _{rated} :150W	50(100-200V~), 60(200-277V~); 90	CC; Built-in; Auto-wound;	TÜV SÜD (ENEC) U6 083805 0250*
SS-200NH-V300F	Shenzhen Sosen Electronics Co., Ltd.	100-277VAC; 50/60Hz; Max.2,4A	180-300VDC; 0,25-1,0A; U _{out} :370VDC; P _{rated} :200W	50(100-200V~), 60(200-277V~); 90	CC; Built-in; Auto-wound;	TÜV SÜD (ENEC) U6 083805 0250*
SS-240NH-V300F	Shenzhen Sosen Electronics Co., Ltd.	100-277VAC; 50/60Hz; Max.2,9A	180-300VDC; 0,3-1,2A; U _{out} :370VDC; P _{rated} :240W	50(100-200V~), 60(200-277V~); 90	CC; Built-in; Auto-wound;	TÜV SÜD (ENEC) U6 083805 0250*
SS-320NH-V300F	Shenzhen Sosen Electronics Co., Ltd.	100-277VAC; 50/60Hz; Max.3,8A	180-300VDC; 0,38-1,5A; U _{out} :370VDC; P _{rated} :320W	50(100-200V~), 60(200-277V~); 90	CC; Built-in; Auto-wound;	TÜV SÜD (ENEC) U6 083805 0250*
- Basic insulation was provided between input circuit/output circuit and dimming circuit; - No insulation was provided between input circuit and output circuit. - SS-80NH-V300F and SS-100NH-V300F have the same construction and PCB layout.						

All models have similar construction except for above difference.

Models AOK-500WFLC(L)-NV-A5-SN-6570-BN-B, AOK-500WFLC(L)-NV-L5-SN-6570-BN-B and AOK-240WFLC(M)-NV-L3-SN-6570-BN-B were chosen as representative models to perform Retinal blue light hazard test;

Unless otherwise specified, model AOK-500WFLC(L)-NV-A5-SN-6570-BN-B (Construction 4: with Zhaga socket & sealing cap (Top enclosure and Bottom enclosure)) was chosen as representative model to perform all other tests.

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict
5.2 (4)	GENERAL TEST REQUIREMENTS		—
5.2 (4.1.2)	More parts of IEC 60598-2 series applicable	Yes ☐ No ☒	—
	Part(s).....		—
5.2 (4.2)	Batteries or EDLCs operated luminaire	(see ANNEX 5)	N/A
5.2 (4.3)	Components	(see ANNEX 1)	—
5.2 (4.4)	Information for luminaire design in light sources standards		—
5.2 (4.4.2)	Light source and/or controlgear safety standard	IEC/EN IEC 62031	—
	Luminaire design in the light source and/or controlgear safety standard		P

5.4 (5)	CLASSIFICATION OF LUMINAIRES		—
5.4 (5.2)	Type of protection	Class I	P
5.4 (5.3)	Degree of protection.....	IP66	—
5.4 (5.4)	Luminaire suitable for direct mounting on normally flammable surfaces	Yes ☒ No ☐	—
5.4 (5.5)	Luminaire for normal use	Yes ☒ No ☐	—
	Luminaire for rough service	Yes ☐ No ☒	—

5.5 (6)	MARKING		—
5.5 (6.1)	Language of instructions	English	P
5.5 (6.2)	Marking on luminaire		P
	Position of the marking		P
	Format of symbols/text		P
5.5 (6.3)	Information on luminaire		P
5.5 (6.4)	Additional information		P
5.5 (6.4.2)	Combination luminaires		N/A
5.5 (6.4.3)	Rated frequency in Hz	50/60Hz	P
5.5 (6.4.4)	Operating temperature		N/A
5.5 (6.4.5)	Wiring diagram		N/A
5.5 (6.4.6)	Special conditions		N/A
5.5 (6.4.7)	Metal halide lamp luminaire – warning		N/A
5.5 (6.4.8)	Limitation for semi-luminaires		N/A
5.5 (6.4.9)	Power factor and supply current		N/A
5.5 (6.4.10)	Luminaires using remote controlgear		N/A

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict
5.5 (6.4.11)	Clip-mounted luminaire – warning		N/A
5.5 (6.4.12)	Specifications of protective shields		N/A
5.5 (6.4.13)	Rough service luminaire		N/A
5.5 (6.4.14)	Mounting instruction for type Y, type Z and some type X attachments	Type Y	P
5.5 (6.4.15)	Non-ordinary luminaires with PVC cable		N/A
5.5 (6.4.16)	Protective conductor current in instruction if applicable		N/A
5.5 (6.4.17)	Provided with information if not intended to be mounted within arm's reach		N/A
5.5 (6.4.18)	Non replaceable and non-user replaceable light sources information provided	Non-user replaceable lighting source	P
5.5 (6.4.19)	Controllable luminaires, classification of insulation provided		P
5.5 (6.4.20)	Luminaires without controlgear provided with necessary information for selection of appropriate component		N/A
5.5 (6.4.21)	If not supplied with terminal block, information on the packaging	for models without terminal block on supply cord	P
5.5 (6.4.22)	Luminaires employing light sources emitting UV on mains wiring, information provided		N/A
5.5 (6.4.23)	Wall mounted luminaire using external flexible cable or cord longer than 0.3 m, information provided		P
5.5 (6.4.24)	Information for replacement or non-replacement of controlgear provided		P
	a) Non-serviceable controlgear		N/A
	b) Non-user serviceable controlgear		P
	c) Serviceable controlgear		N/A
5.5 (6.5)	Test of marking		P
	Test with water	15s	P
	Test with hexane	15s	P
	Legible after test		P
	Label attached		P
5.5 (-)	Additional information if applicable		P
	a) Operation position		P
	b) Weight and dimensions		P

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict
	c) Maximum protected area		P
	d) Limitation of use indoors and/or outdoor	For indoor and outdoor use	P
	e) Maximum mounting height if ≤ 5 m		N/A

5.6 (7)	CONSTRUCTION		—
5.6 (7.2)	Components replaceable or serviceable without difficulty		P
5.6 (7.3)	Wireways smooth and free from sharp edges		P
5.6 (7.4)	Lamp holders		N/A
5.6 (7.4.1)	Integral lamp holder		N/A
5.6 (7.4.2)	Wiring connection		N/A
5.6 (7.4.3)	Lamp holder for end-to-end mounting		N/A
5.6 (7.4.4)	Positioning		N/A
	- pressure test (N)		—
	After test the lamp holder comply with relevant standard sheets and show no damage		N/A
	After test on single-capped lamp holder the lamp holder has not moved from its position and show no permanent deformation		N/A
	- bending test (N)		—
	After test the lamp holder has not moved from its position and show no permanent deformation		N/A
5.6 (7.4.5)	Peak pulse voltage		N/A
5.6 (7.4.6)	Centre contact		N/A
5.6 (7.4.7)	Parts in rough service luminaires resistant to tracking		N/A
5.6 (7.4.8)	Lamp connectors		N/A
5.6 (7.4.9)	Caps and bases correctly used		N/A
5.6 (7.4.10)	Light source for lamp holder or connection according to IEC 60061 not connected another way		N/A
5.6 (7.5)	Starter holders		N/A
	Starter holder in luminaires other than class II		N/A
	Starter holder class II construction		N/A
5.6 (7.6)	Terminal blocks		P
	Connecting leads (tails)		N/A
	Unsecured blocks		P
5.6 (7.7)	Terminals and supply connections		P
5.6 (7.7.1)	Contact to metal parts		P

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict
5.6 (7.7.2)	Test 8 mm hazardous live conductor		P
	Test 8 mm earth conductor		P
5.6 (7.7.3)	Terminals for supply conductors		P
5.6 (7.7.4)	Welded method and material		N/A
	- stranded or solid conductor		N/A
	- spot welding		N/A
	- type Y and Z attachment		N/A
	- mechanical test according to 17.5.2		N/A
	- electrical test according to 17.5.3		N/A
	- heat test according to 17.5.3.3.4 and 17.5.3.3.5		N/A
5.6 (7.7.5)	Terminals other than supply connection		P
5.6 (7.7.6)	Heat-resistant wiring/sleeves		N/A
5.6 (7.7.7)	Multi-pole plug		N/A
	- test at 30 N		N/A
5.6 (7.8)	Switches		N/A
	- adequate rating		N/A
	- adequate fixing		N/A
	- polarized supply		N/A
	- compliance with IEC 61058-1-1 or IEC 60669-1 for mechanical switches		N/A
	- compliance with IEC 61058-1-2 or IEC 60669-1 for electronic switches		N/A
	- compliance with IEC 61058-2-1 for cord switches		N/A
5.6 (7.9)	Insulating lining and sleeves		N/A
5.6 (7.9.1)	Retainment		N/A
	Method of fixing.....:		N/A
5.6 (7.9.2)	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
5.6 (7.10)	Double or reinforced insulation		P
5.6 (7.10.1)	No contact, mounting surface – accessible metal parts –basic insulation		N/A
	Safe installation fixed luminaires		N/A
	Capacitors and switches		N/A

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict
5.6 (7.10.2)	Assembly gaps:		N/A
	- not coincidental		N/A
	- no straight access with test probe		N/A
5.6 (7.10.3)	Retention of insulation:		P
	- fixed		N/A
	- unable to be replaced; luminaire inoperative	For glass cover	P
	- sleeves retained in position		N/A
	- lining in lamp holder		N/A
5.6 (7.10.4)	Protective impedance device:		N/A
	Basic or supplementary insulation bridged by resistor(s) or appropriate capacitor		N/A
	Double or reinforced insulation bridged by at least two separate resistors in series or appropriate capacitor(s)		N/A
	Capacitors comply with IEC 60384-14		N/A
	Resistors comply with IEC 62368-1:2018, Clause G.10.		N/A
5.6 (7.11)	Electrical connections and current-carrying parts		P
5.6 (7.11.1)	Contact pressure		P
5.6 (7.11.2)	Screws:		N/A
	- self-tapping screws		N/A
	- thread-cutting screws		N/A
5.6 (7.11.3)	Screw locking:		N/A
	- spring washer		N/A
	- rivets		N/A
5.6 (7.11.4)	Material of current-carrying parts		P
	FELV, SELV or PELV supplying circuits:		N/A
	- load less than 15 W		N/A
	- load (including short-circuit) not higher than 2 A		N/A
5.6 (7.11.5)	No contact to wood or mounting surface		P
5.6 (7.11.6)	Electro-mechanical contact systems		N/A
5.6 (7.12)	Screws and connections (mechanical) and glands		P
5.6 (7.12.1)	Screws not made of soft metal		P
	Screws of insulating material		N/A
	Torque test: torque (Nm); part	Screws for fixing metal bracket; 8,0Nm	P
	Torque test: torque (Nm); part	Screws for fixing earthing, LED driver, SPD; 1,2Nm	P

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict
	Torque test: torque (Nm); part	Screws for fixing input terminal block, glass cover, LED lens, reflector; 0,5Nm	P
5.6 (7.12.2)	Screws with diameter < 3 mm screwed into metal		N/A
5.6 (7.12.3)	Locked connections:		N/A
	- fixed arms; torque (Nm)		N/A
	- lamp holder; torque (Nm).....		N/A
	- push-button switches; torque 0,8 Nm		N/A
5.6 (7.12.4)	Screwed glands; force (Nm)	Metal gland: 6,25Nm	P
5.6 (7.13)	Mechanical strength		P
5.6 (7.13.1)	Impact tests:		P
	- fragile parts; energy (Nm)		N/A
	- other parts; energy (Nm).....	Sealing cap, metal enclosure, glass cover; 0,7Nm	P
	1) live parts		P
	2) linings		N/A
	3) protection		P
	4) covers		P
5.6 (7.13.2)	Metal parts have adequate mechanical strength		P
5.6 (7.13.3)	Test with straight unjointed test finger		P
5.6 (7.13.4)	Tumbling barrel		N/A
5.6 (7.14)	Suspensions, fixings and means of adjusting		P
5.6 (7.14.1)	Mechanical load:		P
	A) four times the weight		P
	B) torque 2,5 Nm		P
	C) bracket arm; bending moment (Nm)	2,5	P
	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 controlgear without fixing devices		N/A
	Magnets not used as the primary fixing		N/A
5.6 (7.14.2)	Load to flexible cables:		N/A
	Mass (kg)		—
	Stress in conductors (N/mm ²)		N/A
	Special cable or cord, force applied (N).....		N/A

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict
	Mass (kg) of semi-luminaire		N/A
	Bending moment (Nm) of semi-luminaire		N/A
5.6 (7.14.3)	Adjusting devices:		P
	- flexing test; number of cycles	45 cycles	P
	- strands broken	No strands broken	P
	- insulation resistance and electric strength tests afterwards		P
5.6 (7.14.4)	Telescopic tubes: cords not fixed to tube; no strain on conductors		N/A
5.6 (7.14.5)	Guide pulleys		N/A
5.6 (7.14.6)	Strain on socket-outlets		N/A
5.6 (7.15)	Flammable materials		P
	- glow-wire test 650°C	See Test Table 5.15 (15.3.3)	P
	- spacing ≥ 30 mm		N/A
	- screen withstanding test of 15.3.2		N/A
	- screen dimensions		N/A
	- no fiercely burning material		P
	- thermal protection		N/A
	- electronic circuits exempted		N/A
5.6 (7.15.2)	Luminaires made of thermoplastic material with controlgear:		N/A
	a) construction		N/A
	b) temperature sensing control		N/A
	c) surface temperature		N/A
5.6 (7.16)	Luminaires for mounting on normally flammable surfaces		N/A
5.6 (7.16.1)	No controlgear	(compliance with Clause 14)	N/A
	Provided with adaptor for a track meet the requirements for direct mounting on normally flammable surfaces		N/A
5.6 (7.16.2)	Controlgear spacing:		N/A
	- spacing 35 mm		N/A
	- spacing 10 mm		N/A
5.6 (7.16.3)	Thermal protection:		N/A
	- in controlgear		N/A
	- external		N/A
	- fixed position		N/A
	- temperature marked controlgear		N/A

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict
5.6 (7.16.4)	Design to satisfy the test of 14.6	(see 14.6)	N/A
5.6 (7.17)	Drain holes		N/A
	Clearance at least 5 mm		N/A
5.6 (7.18)	Resistance to corrosion		P
5.6 (7.18.1)	- rust-resistance		N/A
5.6 (7.18.2)	- season cracking in copper		N/A
5.6 (7.18.3)	- corrosion of aluminium		P
5.6 (7.19)	Igniters compatible with ballast		N/A
5.6 (7.20)	Rough service luminaires		N/A
5.6 (7.20.1)	Resistance to vibrations		N/A
5.6 (7.20.2)	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
5.6 (7.21)	Protective shield		N/A
5.6 (7.21.1)	Shield fitted if tungsten halogen lamps or metal halide lamps		N/A
	Shield of glass if tungsten halogen lamps		N/A
5.6 (7.21.2)	Particles from a shattering lamp not impair safety		N/A
5.6 (7.21.3)	No direct path		N/A
5.6 (7.21.4)	Impact test on shield		N/A
	Glow-wire test on lamp compartment	See Test Table 5.15 (15.3.3)	N/A
5.6 (7.22)	Attachments to lamps		N/A
	Attachments to lamps do not cause overheating or damage		N/A
5.6 (7.23)	Semi-luminaires		N/A
	Semi-luminaires comply Class II		N/A
5.6 (7.24)	Photobiological hazards		P
5.6 (7.24.1)	Actinic UV hazards for skin and eye 200 nm to 400 nm)		N/A
	No excessive UV radiation: luminaires used with:		N/A
	- self-shielded lamps or light sources having a UV emission $\leq 2 \text{ mW} \cdot \text{klm}^{-1}$		N/A
	- light sources emitting $\leq 6 \text{ mW} \cdot \text{klm}^{-1}$ and having a glass cover		N/A

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict
	- light sources emitting $> 6 \text{ mW} \cdot \text{klm}^{-1}$, compliance with Annex M		N/A
5.6 (7.24.2)	UV-A hazard for the eye lens (315 nm to 400 nm)		N/A
	No excessive UV-A radiation		N/A
5.6 (7.24.3)	Retinal blue light hazard		P
5.6 (7.24.3.2)	Luminaire assessment according to IEC 62471-7:2023		P
	Luminaire application group.....: ☐ BLH-A ☒ BLH-B ☐ BLH-C		—
	Blue light radiance emission limit not exceeded for application group at applicable assessment distance		P
	Increased assessment distance for fixed luminaire based on luminaire application applied		N/A
	Assessment distance used (m).....:		—
	Information according to clause 6.3.22 a) provided		N/A
	Luminaire assessment based on light source data		N/A
	Light source application group: ☐ BLH-A ☐ BLH-B ☐ BLH-C		—
	Data in accordance with luminaire application group emission limit		N/A
5.6 (7.24.3.3)	Luminaire assessment according to IEC TR 62778:2014		N/A
	Class of risk group assessed according to IEC TR 62778		—
	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 6.3.22		N/A
	b) Portable and handheld luminaires		N/A
	- marking according 6.3.22 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 TR 62778		N/A
5.6 (7.24.4)	Retinal thermal hazard (380 nm to 1400 nm)		N/A
	Not exceeding retinal thermal radiance limits		N/A
5.6 (7.24.5)	Infrared hazard for the eye (780 nm to 3000 nm)		N/A

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict
	Not exceeding limits for IR radiation		N/A
5.6 (7.24.6)	Thermal hazard for the skin (380 nm to 3000 nm)		N/A
	Not exceeding exposure limit		—
5.6 (7.25)	Mechanical hazard		P
	No sharp point or edges		P
5.6 (7.26)	Short-circuit protection		N/A
5.6 (7.26.1)	Means preventing impairing of safety of uninsulated accessible SELV / PELV parts		N/A
	Short-circuit test with test chain according 7.26.2:		N/A
	Supply source ES1 PSE		N/A
	Test chain does not melt through		N/A
	Test sample does not exceed values of Table 21 and 22		N/A
5.6 (7.27)	Terminal blocks with integrated screwless protective earthing contacts		N/A
	Test according to Annex R		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
5.6 (7.28)	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 light source 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):		—
	100 cycles between t min and t max		N/A
	Temperature sensing control still in position		N/A
5.6 (7.29)	Luminaires with non-replaceable light source		N/A
	Not possible to replace light source		N/A
	Hazardous live part not accessible after parts have been opened by hand or tools		N/A
5.6 (7.30)	Luminaires with non-user replaceable light source and non-user serviceable components		P

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict
	If protective cover provide protection against electric shock and marked with "caution, electric shock risk" symbol:		P
	At least one fixing means requiring use of tool		P
5.6 (7.31)	Insulation between circuits		P
5.6 (7.31.1)	Circuits insulated from mains supply fulfil requirements according 7.31.2 – 7.31.4		P
	Controllable luminaires requiring same level of insulation for all components, the insulation between control terminals and mains supply fulfil requirements according 7.31.2 – 7.31.4		P
5.6 (7.31.2)	SELV or PELV circuits		P
	Used SELV/PELV source	For dimming circuits of LED drivers with the suffix 'V300BHB'	P
	Voltage $\leq$ ELV		P
	PELV connected to earth		N/A
	Insulation of SELV/PELV circuits from mains supply		P
	Insulation of SELV/PELV circuits from other non SELV/PELV circuits		P
	Insulation of SELV/PELV circuits from FELV		N/A
	Insulation of SELV/PELV circuits from other SELV/PELV circuits		N/A
	SELV/PELV circuits insulated from accessible parts according Table T.1		P
	Plugs not able to make any electrical contact with socket-outlets of other voltage systems		N/A
	Socket outlets do not admit plugs of other voltage systems		N/A
	Plugs and socket-outlets do not have protective conductor contact		N/A
5.6 (7.31.3)	FELV circuits		P
	Used FELV source	For dimming circuits of LED drivers with the suffix 'V300F'	P
	Voltage $\leq$ ELV		P
	Insulating of FELV circuits from mains supply		P
	FELV circuits insulated from accessible parts according Table T.1		P
	Plugs not able to make any electrical contact with socket-outlets of other voltage systems		N/A
	Socket outlets do not admit plugs of other voltage systems		N/A

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict
	Socket-outlets have protective conductor contact		N/A
5.6 (7.31.4)	Other circuits		P
	Other circuits insulated from accessible conductive parts according Table T.1	For output circuits	P
	Class II construction with equipotential bonding for protection against indirect contacts with hazardous live parts:		N/A
	- conductive parts are connected together		N/A
	- test according 9.2.3		N/A
	- conductive part does not cause electric shock in case of insulation fault		N/A
	- equipotential bonding used in applications when one or more luminaires supplied by another		N/A
	- supplying luminaire provided with terminal for accessible conductive parts of other luminaires		N/A
	- other luminaire constructed as class I		N/A
5.6 (7.31.5)	Additional requirements for luminaires using controllable controlgear providing SELV output(s)		N/A
	Insulation between SELV output(s) of controlgear and control port meets requirements of IEC 61347-1 for interconnected controlgear		N/A
5.6 (7.32)	Overvoltage protective devices external to controlgear		P
5.6 (7.32.1)	SPDs comply with requirements in 7.32.2		P
	SPCs comply with requirements in 7.32.3		N/A
	SPDs requiring connection to earth:		P
	- only used in fixed luminaires		P
	- only connected to protective earth		P
5.6 (7.32.2)	Surge protective devices (SPDs)		P
	Compliance with IEC 61643-11		P
	Rated ambient temperature verified according to test in 14.4		P
5.6 (7.32.3)	Surge protective components (SPCs)		N/A
5.6 (7.32.3.1)	Only connected across the mains (L to L or L to N)		N/A
	Compliance with IEC 61051-2:2021 or IEC 61643-331:2020		N/A
	Compliance with requirements in 7.32.3.2 – 7.32.3.6		N/A
5.6 (7.32.3.2)	Climatic conditions		N/A
	Climatic conditions according to:		N/A

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict
	- Option A		N/A
	- Option B		N/A
5.6 (7.32.3.3)	Maximum continuous voltage		N/A
	At least 1.25 times rated voltage of luminaire / upper voltage of rated voltage range		N/A
5.6 (7.32.3.4)	Surge capability		N/A
	Mains supply voltage (V).....:		—
5.6 (7.32.3.5)	SPC resistance to fire		N/A
	Needle flame test	See Test Table 5.15 (15.3.2)	N/A
5.6 (7.32.3.6)	SPC overload test		N/A
5.6 (7.33)	Luminaire powered via information technology communication cabling		N/A
	Requirements for Class III luminaire		N/A
	Rated voltage does not exceed maximum voltage of used connector		N/A
	Luminaire does not create any hazard from overvoltage	(see Annex 2)	N/A
5.6 (7.34)	Electromagnetic fields (EMF)		P
	No harmful electromagnetic fields		P
5.6 (7.35)	Protection against moving fan blades		N/A
	Test with a standard test finger		N/A
	Test with test probe acc. to Figure 13 (IEC 61032) for portable luminaire		N/A
	Blades rounded with radius ≥ 0.5 mm and:		N/A
	-hardness less than D60 Shore		N/A
	-peripheral speed less than 15 m/s		N/A
	-input power of fan ≤ 2 W at rated voltage		N/A
5.6 (7.36)	Track-mounted luminaires		N/A
	Test in accordance with Annex A of IEC 60570:2003/AMD2:2019		N/A
5.6.1 (-)	At least IPX3 if for outdoor use	IP66	P
5.6.2 (-)	Lamp holder brackets and lamp supports		N/A
5.6.3 (-)	Adjusting means		N/A
5.6.4 (-)	Controlling components		N/A
5.6.5 (-)	Fixing device		P

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict
	Wind force test		P
5.6.6 (-)	Locking of angular adjustment		P
5.6.7 (-)	Vibration resistance		P
5.6.8 (-)	Requirement on glass cover if mounting height > 5 m		P
	Method of protection	Glass cover use of high impact resistant glass	—

5.7 (13)	CREEPAGE DISTANCES AND CLEARANCES		—
5.7 (13.2.1)	Impulse withstand category (Normal category II)	Category II ☒ Category III ☐	—
	Category III according to Annex Q		N/A
	Protected against pollution, reduced creepage and clearance according Annex P of IEC 61347-1:2015		N/A
5.7 (13.2.2)	Creepage distances for frequency up to 30 kHz	See Test Table 5.7 (13) I	P
	Creepage distances for frequency over 30 kHz:		N/A
	- Controlgear marked with $\hat{U}_{OUT}$ and f_{UOUT} according to IEC 61347-1:2015, clause 7.1, item w	See Test Table 5.7 (13) II	N/A
	- Requirements according to IEC 60664-4 for controlgear not covered by IEC 61347	See Test Table 5.7 (13) II	N/A
5.7 (13.2.3)	Clearances for frequency up to 30 kHz	See Test Table 5.7 (13) I	P
	Clearances distances for frequency over 30 kHz:		N/A
	- Controlgear marked with U_P	See Test Table 5.7 (13) II	N/A
	- Requirements according to IEC 60664-4 for controlgear not covered by IEC 61347	See Test Table 5.7 (13) II	N/A

5.8 (9)	PROVISION FOR EARTHING		—
5.8 (9.2.1 + 9.2.3)	Accessible metal parts		P
	Metal parts in contact with supporting surface		P
	Resistance < 0,5 Ω	Max.0,027 Ω	P
	Self-tapping screws used		N/A
	Thread-forming screws		N/A
	Thread-forming screw used in a groove		N/A
	Protective earth makes contact first		N/A
	Terminal blocks with integrated screwless protective earthing contacts tested according to Annex R		N/A
	Protective earthing of the luminaire not via built-in controlgear		P

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict
5.8 (9.2.2 + 9.2.3)	Protective earth continuity in joints, etc.		P
5.8 (9.2.4)	Locking of clamping means		P
	Compliance with 7.7.3		P
5.8 (9.2.5)	Protective earth terminal integral part of connector socket		N/A
5.8 (9.2.6)	Protective earth terminal adjacent to mains terminals		P
5.8 (9.2.7)	Electrolytic corrosion of the protective earth terminal		P
5.8 (9.2.8)	Material of protective earth terminal		P
	Contact surface bare metal		P
5.8 (9.2.10)	Class II luminaire for looping-in or through wiring		N/A
	Double or reinforced insulation to functional earth		N/A
5.8 (9.2.11)	Protective earthing core coloured green-yellow		P
	Length of protective earthing conductor		P
5.8 (9.2.12)	PELV circuit connected to protective earth for functional purpose		N/A

5.9 (16)	SCREW TERMINALS		—
	Separately approved; component list	(See Annex 1)	N/A
	Part of the luminaire	(See Annex 3)	N/A

5.9 (17)	SCREWLESS TERMINALS AND ELECTRICAL CONNECTIONS		—
	Separately approved; component list	(See Annex 1)	P
	Part of the luminaire.....	(See Annex 4)	P

5.10 (8)	EXTERNAL AND INTERNAL WIRING		—
5.10 (8.2)	Supply connection and external wiring		P
5.10 (8.2.1)	Means of connection	Supply cord with or without waterproof terminal block	P
	Outdoor luminaire without PVC insulated external wiring unless Class III or SELV/PELV circuits ≤ 25 V AC or 60 V DC or 25 V peak interrupted DC voltage with frequency 10Hz -200 Hz or protected from outdoor environment		N/A
5.10 (8.2.2)	Type of cable.....	See annex 1	P
	Nominal cross-sectional area (mm ²).....	See annex 1	P

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict
	Cables equal to IEC 60227 or IEC 60245		P
5.10 (8.2.3)	Type of attachment, X, Y or Z	Type Y	P
5.10 (8.2.5)	Type Z not connected to screws		N/A
5.10 (8.2.6)	Cable entries:		P
	- suitable for introduction		P
	- adequate degree of protection		P
5.10 (8.2.7)	Cable entries through rigid material have rounded edges		P
5.10 (8.2.8)	Insulating bushings:		P
	- suitably fixed		P
	- material in bushings		P
	- material not likely to deteriorate		P
	- tubes or guards made of insulating material		N/A
5.10 (8.2.9)	Locking of screwed bushings		N/A
5.10 (8.2.10)	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
5.10 (8.2.10.2)	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
	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

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict
5.10 (8.2.10.3)	Adequate cord anchorage for type Y and type Z attachment	Type Y	P
5.10 (8.2.10.4)	Tests:		P
	- impossible to push cable; unsafe		P
	- pull test: 25 times; pull (N) : 60N		P
	- torque test: torque (Nm)..... : 0,25		P
	- displacement ≤ 2 mm		P
	- no movement of conductors		P
	- no damage of cable or cord		P
	- function independent of electrical connection		P
5.10 (8.2.10.5)	Luminaire with/ designed for use with supply cord with maximum current of 2A:		N/A
	- Ordinary Class III luminaire supplied with SELV ≤ 25 V RMS or 60 V DC		N/A
	- Ordinary Class III luminaire supplied with PELV ≤ 12 V RMS or 30 V DC		N/A
	- Other than ordinary Class III luminaire supplied with voltage ≤ 12 V RMS or 30 V DC		N/A
	Pull test of 30 N		N/A
5.10 (8.2.11)	External wiring passing into luminaire		P
5.10 (8.2.12)	Looping-in terminals		N/A
5.10 (8.2.13)	Wire ends not tinned		P
	Wire ends tinned: no cold flow		P
5.10 (8.2.14)	Mains plug same protection		N/A
	Class III luminaire plug		N/A
	No unsafe compatibility		N/A
5.10 (8.2.15)	Connectors for Class III luminaires (IEC 60603 or IEC 62680)		N/A
5.10 (8.2.16)	Appliance inlets (IEC 60320)		N/A
	Installation couplers (IEC 61535)		N/A
	Appliance inlet or connector systems (IEC 61984)		N/A
5.10 (8.2.17)	No standardized interconnecting cables properly assembled		N/A

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict
5.10 (8.2.18)	Used plug in accordance with:		N/A
	- IEC 60083		N/A
	- other standard		N/A
5.10 (8.3)	Internal wiring		P
5.10 (8.3.1.1)	Internal wiring of suitable size and type		P
	Through wiring:		N/A
	- not delivered/ mounting instruction		N/A
	- factory assembled		N/A
	Green-yellow for protective earth only		P
5.10 (8.3.1.2)	Internal wiring connected directly to fixed wiring:		P
	Cross-sectional area (mm ²) :	See annex 1	P
	Insulation thickness (mm):	Approved cable and wire	P
	Extra insulation added where necessary		N/A
5.10 (8.3.1.3)	Internal wiring connected to fixed wiring via internal current-limiting device:		P
	Cross-sectional area (mm ²):	See annex 1	P
5.10 (8.3.1.4)	Double or reinforced insulation for class II		N/A
5.10 (8.3.1.5)	Conductors without insulation		N/A
5.10 (8.3.1.6)	SELV/PELV current-carrying parts		P
5.10 (8.3.1.7)	Insulation thickness other than PVC or rubber		N/A
5.10 (8.3.2)	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
5.10 (8.3.3)	Insulating bushings:		N/A
	- suitable fixed		N/A
	- material in bushings		N/A
	- material not likely to deteriorate		N/A

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict
	- cables with protective sheath		N/A
5.10 (8.3.4)	Joints and junctions effectively insulated		N/A
5.10 (8.3.5)	Strain on internal wiring		N/A
5.10 (8.3.6)	Wire carriers		N/A
5.10 (8.3.7)	Wire ends not tinned		P
	Wire ends tinned: no cold flow		P
5.10 (8.4)	Test to determine suitability of conductors having a reduced cross-sectional area		N/A
	Under test the temperature of the luminaire wiring insulation does not exceed the limits stated in Table 22		N/A
	No damage to luminaire wiring after test		N/A

5.11 (10)	PROTECTION AGAINST ELECTRIC SHOCK		—
5.11 (10.2.1)	Hazardous 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		N/A
	Lamp and starter holders in portable, settable and adjustable luminaires comply with double or reinforced insulation requirements		N/A
	Basic insulation only accessible under light source/ starter replacement or for accessing serviceable components		N/A
	Protection in any position		P
	Double-ended tungsten filament lamp or equivalent lamps		N/A
	Insulation lacquer not reliable		N/A
	Double-ended high-pressure discharge lamp		N/A
	Relevant warning according to 6.3.18 fitted to the luminaire		N/A
5.11 (10.2.2)	Portable luminaire adjusted in most unfavourable position		N/A

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict
5.11 (10.2.3.a)	Class II luminaire:		N/A
	- basic insulated metal parts not accessible		N/A
	- required insulation from hazardous live parts in compliance with Table T.1		N/A
	- glass protective shields not used as supplementary insulation		N/A
5.11 (10.2.3.b)	BC lamp holder of metal in class I luminaires shall be connected to protective earth		N/A
5.11 (10.2.3.c)	SELV circuits with exposed current carrying parts:		N/A
	Ordinary luminaire:		N/A
	- voltage under load/ no-load AC (V)		N/A
	- voltage under load/ no-load DC (V).....		N/A
	- interrupted DC 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
	- voltage under load/ no-load AC (V)		N/A
	- voltage under load/ no-load DC (V).....		N/A
	- Interrupted DC ($f < 10\text{Hz}$ or $f > 200\text{Hz}$) (mA).....		N/A
	- Interrupted DC ($10\text{Hz} \leq f \leq 200\text{Hz}$) (mA).....		N/A
	Class III luminaire only for connection to SELV/PELV		N/A
5.11 (10.2.3.d)	PELV circuits with exposed current carrying parts:		N/A
	Ordinary luminaire:		N/A
	- voltage under load/ no-load AC (V)		N/A
	- voltage under load/ no-load DC (V).....		N/A
	Other than ordinary luminaire:		N/A
	- voltage under load/ no-load AC (V)		N/A
	- voltage under load/ no-load DC (V).....		N/A
	One pole insulated if required		N/A
5.11 (10.2.4)	Portable luminaire has protection independent of mounting surface		N/A
5.11 (10.2.5)	Compliance with the standard test finger or relevant probe		P
5.11 (10.2.6)	Covers reliably secured		P

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict
5.11 (10.2.7)	Luminaire other than below with capacitor > 0,5 μ F does not exceed 50 V, 1 min after disconnection		P
	Portable luminaire with capacitor > 0,1 μ F (0.25) not exceed 34 V, 1 s after disconnection		N/A
	Other luminaires with capacitor > 0,1 μ F (0.25) with plug and track adaptors do not exceed 60 V, 5 s after disconnection		N/A

5.12 (14)	ENDURANCE TEST AND THERMAL TEST		—
5.12 (-)	If IP > IP 20 relevant test of (14.4), (14.5), (14.6) and (14.7) after (11.2) before (11.3) specified in 5.13		—
5.12 (14.2)	Selection of lamps and controlgear		—
	Lamp used according to Annex B	(Lamp used see Annex 2)	—
	Controlgear if separate and not supplied	(Controlgear used see Annex 2)	—
5.12 (14.3)	Endurance test		P
5.12 (14.3.2)	a) mounting-position	As normal used	—
	b) test temperature (°C)	60	—
	c) total duration (h)	240	—
	d) supply voltage (V)	304,7	—
	d) if not equipped with control gear, constant voltage/current (V) or (A)	--	—
	d) Class III luminaires powered via information technology communication cable:		N/A
	- voltage under normal operation (V).....		—
	- voltage under abnormal operation (V).....		—
	e) luminaire ceases to operate		—
	f) luminaire with constant light output function		N/A
5.12 (14.3.3)	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
5.12 (14.4)	Thermal test (normal operation)	(see Annex 2)	P
5.12 (14.5)	Thermal test (abnormal operation)	(see Annex 2)	P
5.12 (14.6)	Thermal test (failed windings in controlgear):		N/A

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict
5.12 (14.6.2)	Through wiring or looping-in wiring loaded by a current of (A)		—
	- case of abnormal conditions		—
	- electronic controlgear		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
5.12 (14.6.3)	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
5.12 (14.7)	Thermal test in regard to fault conditions in controlgear or electronic devices incorporated in thermoplastic luminaires		N/A
5.12 (14.7.2)	Luminaire without temperature sensing control		N/A
5.12 (14.7.2.1)	Luminaire with fluorescent lamp ≤ 70W:		N/A
	Test method 14.7.1.1 or Annex S		—
	Test according to 14.7.1.1:		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 S:		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 5.15 (15.2.2)	N/A

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict
5.12 (14.7.2.2)	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 5.15 (15.2.2)	N/A
5.12 (14.7.2.3)	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
5.12 (14.7.3)	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 5.15 (15.2.2)	N/A
5.12.1 (-)	Reduction 10°C of measured temperature if for outdoor use		—
5.12.2 (-)	Glass covers used within the thermal limits declared by the glass manufacturer		P

5.13 (11)	RESISTANCE TO DUST, SOLID OBJECTS AND MOISTURE		—
5.13.1 (-)	If IP > IP 20 the order of tests as specified in clause 5.12		P
5.13 (11.2.1)	Tests for ingress of dust, solid objects and moisture:		P
	- classification according to IP	IP66	—
	- mounting position during test	As in normal used	—
	- fixing screws tightened; torque (Nm)	2/3x6,25Nm for metal gland; 2/3x0,5Nm for fixing lamp cover	—
	- tests according to clauses	Clause 11.2.3 and 11.2.9	—
	- electric strength test afterwards		P

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict
	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, pressure watertight, high pressure and temperature water jet-proof or high pressure and cold-water jet-proof 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
5.13 (11.3)	Humidity test 48 h	25°C; 93%R.H.	P

5.14 (12)	INSULATION RESISTANCE AND ELECTRIC STRENGTH, TOUCH CURRENT AND PROTECTIVE CONDUCTOR CURRENT		—
5.14 (12.2.2)	Insulation resistance test		P
	Cable or cord covered by metal foil or replaced by a metal rod of mm Ø	Metal foil	—
	Insulation resistance (MΩ):		P
	SELV/PELV:		P
	- between current-carrying parts of different polarity :		N/A
	- between current-carrying parts and mounting surface	100MΩ (required: 1MΩ)	P
	- between current-carrying parts and metal parts of the luminaire.....	100MΩ (required: 1MΩ)	P
	- 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 Clause 8		N/A
	Other than SELV/PELV:		P
	- between hazardous live parts of different polarity . :		N/A
	- between hazardous live parts and mounting surface :	100MΩ (required: 2MΩ)	P

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict
	- between hazardous live parts and metal parts :	Class I construction: 100M Ω (required: 2M Ω); Class II construction: 100M Ω (required: 4M Ω)	P
	- between hazardous 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..... :	100M Ω (required: 2M Ω)	P
	- Insulation bushings as described in Clause 8 :		N/A
5.14 (12.2.3)	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):		N/A
	SELV/PELV:		P
	- between current-carrying parts of different polarity :		N/A
	- between current-carrying parts and mounting surface :	500V	P
	- between current-carrying parts and metal parts of the luminaire..... :	500V	P
	- 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 Clause 8 :		N/A
	Other than SELV/PELV:		P
	- between hazardous live parts of different polarity . :		N/A
	- between hazardous live parts and mounting surface :	Between input and mounting surface: Max.1554V;	P
	- between hazardous live parts and metal parts :	Class I construction: Between input and metal enclosure: Max.1554V; Between input of LED module and metal enclosure: Max.1740V; Class II construction: Between input of LED module and glass cover: Max.3480V	P
	- between hazardous live parts of different polarity through action of a switch :		N/A

IEC 60598-2-5			
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..... :	1554V	P
	- Insulation bushings as described in Clause 8 :		N/A
5.14 (12.3)	Touch current, protective conductor current and electric burn		P
5.14 (12.3)	Touch current (mA)..... :	Max.0,02mA (limit: 0,7mA)	P
	Protective conductor current (mA)..... :	Max.0,72mA (limit: 3,5mA)	P

5.15 (15)	RESISTANCE TO HEAT, FIRE AND TRACKING		—
5.15 (15.2.2)	Ball-pressure test :	See Test Table 5.15 (15.2.2)	P
5.15 (15.3.2)	Needle-flame test (10 s)..... :	See Test Table 5.15 (15.3.2)	P
5.15 (15.3.3)	Glow-wire test (650°C)..... :	See Test Table 5.15 (15.3.3)	N/A
5.15 (15.4.2)	Proof tracking test (IEC 60112)..... :	See Test Table 5.15 (15.4.2)	P

5.7 (13)	TABLE I: Creepage distances and clearances						P
	Minimum distances (mm) for AC up to 30 kHz sinusoidal voltages						P
	Applicable part of IEC 60598-1 Table 18*, 19* and 20*						P
	Insulation type **	Measured clearance	Required		Measured creepage	Required	
			clearance	*Table		creepage	*Table
Distance 1:	R	>10	3,0	19	>10	5,54	18
Distance 2:	B	6,20	1,5	19	6,20	2,77	18
Distance 3:	S	7,96	1,5	19	7,96	2,77	18
Distance 4:	B	5,11	3,0	19	5,11	3,70	18
Working voltage (V)					See below		—
PTI					< 600 ☒ ≥ 600 ☐		—
Pulse voltage or U_P if applicable (kV)					--		—
Supplementary information: Min. values were recorded.							
Approved LED driver used.							
Distance 1: Between live parts (Terminal block on supply cord) and accessible parts (Max.277VAC);							
Distance 2: Between live parts (Input terminal block) and metal enclosure (Max.277VAC);							
Distance 3: Between basic insulation wire and current-carrying part of zhaga socket. (Max.277VAC);							
Distance 4: Between current carrying parts of LED module and metal enclosure (Max.370VDC);							

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

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict

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

5.15 (15.2.2)	TABLE: Ball Pressure Test of Thermoplastics				P
Allowed impression diameter (mm) :			≤2 mm		—
Object/ Part No./ Material	Manufacturer/ trademark		Test temperature (°C)	Impression diameter (mm)	
Zhaga socket	Zhejiang Long-join Electronics Co.,Ltd.		125,0	1,1	
Supplementary information: --					

5.15 (15.3.2)	TABLE: Needle-flame test				P
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
Zhaga socket	Zhejiang Long-join Electronics Co.,Ltd.	10	No	0	Pass
Supplementary information: --					

5.15 (15.3.3)	TABLE: Resistance to heat and fire - Glow wire tests						P
Object/ Part No./ Material	Manufacturer/ trademark	GWT (°C) : 650			Ignition of specified layer	Verdict	
		t _E (s)	t _I (s)	t _R (s)	Yes/No		

IEC 60598-2-5						
Clause	Requirement + Test			Result - Remark		Verdict
LED lens	IDEMITSU KOSAN CO LTD	0	0	0	No	Pass
LED lens	Formosa Idemitsu Petrochemical Corp	0	0	0	No	Pass
Reflector	TEIJIN POLYCARBONATE CHINA LTD	0	0	0	No	Pass
Sealing cap (Zhaga)	AOK Industrial company Ltd.	0	0	0	No	Pass
Supplementary information: --						

5.15 (15.4.2)	TABLE: Proof tracking test				P
Test voltage PTI		175 V			—
Object/ Part No./ Material	Manufacturer/ trademark	Withstand 50 drops without failure on three places or on three specimens			Verdict
Zhaga socket	Zhejiang Long-join Electronics Co.,Ltd.	Yes	Yes	Yes	Pass
Supplementary information: --					

ANNEX 1	TABLE: Critical components information					P
Object / part No.	Code	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹⁾
LED driver	B	See 'General product information' for details	See 'General product information' for details	See 'General product information' for details	IEC/EN 61347-1 IEC/EN 61347-2-13	See 'General product information' for details
Supply cord	B	Ningbo Liansheng Wire & Cable Co., Ltd.	H05RN-F; H07RN-F	3x1,0mm ²	DIN EN 50525-2-21	VDE 40033764*
Alt.	B	Dongguan Wandu Cable Co.,Ltd.	H05RN-F; H07RN-F	3x1,0mm ²	DIN EN 50525-2-21	VDE 40052148*
Alt.	B	Zhejiang Jinniu Cable Co., Ltd	H05RN-F; H07RN-F	3x1,0mm ²	DIN EN 50525-2-21	VDE 40028195*
Alt.	B	Zhongshancity Defang Wire & Cable Co.,Ltd	H05RN-F; H07RN-F	3x1,0mm ²	DIN EN 50525-2-21	VDE 40049745*
Alt.	B	Foshan Defang Cable Co., Ltd.	H05RN-F; H07RN-F	3x1,0mm ²	DIN EN 50525-2-21	VDE 40054523*

IEC 60598-2-5						
Clause	Requirement + Test			Result - Remark		Verdict
Alt.	B	Guangdong Rifeng Electrical Cable Co., Ltd.	H05RN-F; H07RN-F	3x1,0mm ²	DIN EN 50525-2-21	VDE 40015999*
Alt.	D	Interchangeable	H05RN-F; H07RN-F	3x1,0mm ²	DIN EN 50525-2-21	VDE*
Terminal block on supply cord (optional)	B	Runsen Electronic Technology (Jiangmen) Co., LTD	M685 series	450V; 32A; 0,5-4,0mm ² ; 105°C; IP68 (With 20 metres water column for 150 hours)	IEC/EN 60998-1 IEC/EN 60998-2-1	DEKRA (ENEC) 35-117084*
			M684 series	450V; 24A; 0,5-2,5mm ² ; 105°C; IP68 (With 20 metres water column for 150 hours)		
			M683 series; M682 series	450V; 17,5A; 0,5-1,5mm ² ; 105°C; IP68 (With 20 metres water column for 150 hours)		
Quick-connect terminal	B	WAGO GmbH & Co. KG	221 series	450V; 32A; 0,2-4mm ² ; 85°C	IEC/EN 60998-2-2	DEKRA (ENEC) 71-168264*
Input terminal block	B	Guangdong Ojun Technology Co., Ltd.	OJ-821 series; OJ-831 series; OJ-841 series; OJ-851 series	450V; 24A; 0,5-2,5mm ² ; 110°C	IEC/EN 60998-1 IEC/EN 60998-2-1	DEKRA (ENEC) 35-111909*
Alt.	B	WAGO GmbH & Co. KG	222 series	400V; 32A; 0,2-4mm ² ; 105°C	IEC/EN 60998-2-2	UL ENEC-01360-M1*
Surge Protective Device (SPD)	B	Shenzhen Zhongyuan Technology Co., Ltd.	ZYS-P10WD	Un:100-277Vac; Fn:50/60Hz; In:5kA Uoc: 10kV; Up:1,5kV; -40°C to +85°C; IP67; Lead wire: 1672; 16AWG; 105°C; Double insulation	IEC/EN 61643-11	TÜV Rheinland HU-004562*

IEC 60598-2-5						
Clause	Requirement + Test			Result - Remark		Verdict
Alt.	B	Shenzhen Zhongyuan Technology Co.,Ltd.	ZYS-P20WD	Un:100-277Vac; Fn:50/60Hz; In: 10kA Uoc: 20kV; Up:1,8Kv; -40°C to +85°C; IP67; Lead wire: 1672; 16AWG; 105°C; Double insulation	IEC/EN 61643-11	TÜV Rheinland HU-004562*
Earthing wire/ Lead wire connected zhaga socket/ Input wire of LED driver	B	DONGGUAN WENCHANG ELECTRONIC CO LTD	1015	16...20AWG; 600V; 105°C	UL 758 + IEC/EN 60598-2-5 IEC/EN IEC 60598-1	UL E214500*+ Tested with appliance#
Alt.	B	SHENZHEN CITY DE XING LONG ELECTRIC CO LTD	1015	16...20AWG; 600V; 105°C	UL 758 + IEC/EN 60598-2-5 IEC/EN IEC 60598-1	UL E328945* + Tested with appliance#
Alt.	B	Zhongshan City Dingxiang Electrical Co Ltd	1015	16...20AWG; 600V; 105°C	UL 758 + IEC/EN 60598-2-5 IEC/EN IEC 60598-1	UL E354487* + Tested with appliance#
Alt.	B	DONGGUAN ZHIHE ELECTRICAL CABLE TECH CO LTD	1332	16...20AWG; 300V; 200°C	UL 758 + IEC/EN 60598-2-5 IEC/EN IEC 60598-1	UL E258239*+ Tested with appliance#
Alt.	B	SHENZHEN CITY DE XING LONG ELECTRIC CO LTD	1332	16...20AWG; 300V; 200°C	UL 758 + IEC/EN 60598-2-5 IEC/EN IEC 60598-1	UL E328945* + Tested with appliance#
Alt.	B	Zhongshan City Dingxiang Electrical Co Ltd	1332	16...20AWG; 300V; 200°C	UL 758 + IEC/EN 60598-2-5 IEC/EN IEC 60598-1	UL E354487* + Tested with appliance#
Alt.	B	DONGGUAN KANGBORUI ELECTRONIC CO LTD	1332	16...20AWG; 300V; 200°C	UL 758 + IEC/EN 60598-2-5 IEC/EN IEC 60598-1	UL E506961*+ Tested with appliance#
Alt.	D	Interchangeable	1015	16...20AWG; 600V; 105°C	UL 758	UL*

IEC 60598-2-5						
Clause	Requirement + Test			Result - Remark		Verdict
Alt.	D	Interchangeable	1332	16...20AWG; 300V; 200°C	UL 758	UL*
Input wire of LED module	B	DONGGUAN WENCHANG ELECTRONIC CO LTD	1015	16...20AWG; 600V; 105°C	UL 758 + IEC/EN 60598-2-5 IEC/EN IEC 60598-1	UL E214500*+ Tested with appliance#
Alt.	B	SHENZHEN CITY DE XING LONG ELECTRIC CO LTD	1015	16...20AWG; 600V; 105°C	UL 758 + IEC/EN 60598-2-5 IEC/EN IEC 60598-1	UL E328945* + Tested with appliance#
Alt.	B	Zhongshan City Dingxiang Electrical Co Ltd	1015	16...20AWG; 600V; 105°C	UL 758 + IEC/EN 60598-2-5 IEC/EN IEC 60598-1	UL E354487* + Tested with appliance#
Alt.	D	Interchangeable	1015	16...20AWG; 600V; 105°C	UL 758	UL*
LED module PCB	B	SHENZHEN MINGSIHAI ELECTRONIC TECHNOLOGY CO LTD	MSH-L1 (ASP 1)	V-0; 130°C	UL 796+ IEC/EN 60598-2-5 IEC/EN IEC 60598-1	UL E495831*+ Tested with appliance#
Alt.	B	Lianmeng Electronics Huiyang Co Ltd	LM-6	V-0; 130°C	UL 796+ IEC/EN 60598-2-5 IEC/EN IEC 60598-1	UL E469262*+ Tested with appliance#
Alt.	B	Shenzhen Shengdafeng Electronic Technology Co Ltd	SDF-L	V-0; 130°C	UL 796+ IEC/EN 60598-2-5 IEC/EN IEC 60598-1	UL E502850*+ Tested with appliance#
Alt.	B	Shenzhen Mingyu Circuit Co., Ltd	MY-L	V-0; 130°C	UL 796+ IEC/EN 60598-2-5 IEC/EN IEC 60598-1	UL E503093*+ Tested with appliance#
Alt.	B	Shenzhen Xinlongye Electronic Technology Co Ltd	XLY-01	V-0; 130°C	UL 796+ IEC/EN 60598-2-5 IEC/EN IEC 60598-1	UL E496651*+ Tested with appliance#
Alt.	D	Interchangeable	Interchangeable	V-0; 130°C	UL 796	UL

IEC 60598-2-5						
Clause	Requirement + Test			Result - Remark		Verdict
Terminal on LED module PCB	B	TYCO ELECTRONICS CORP	2834167-3	Screwless type; 370V; 10A; 105°C	IEC/EN 60598-2-5 IEC/EN IEC 60598-1	Tested with appliance#
LED (TYF 5050)	B	Shenzhen Tongyifang Optoelectronic Technology Co., Ltd.	TS1-H50YL-0801BB	V _F : 22,0-24,0V; I _F : Max.125mA; CCT:2700-6500K	IEC/EN IEC 62471-7	Tested with appliance
LED (Lumileds 5050)	B	LUMILEDS	L150-AAAA50BBC CCCC	V _F : 23,5-26,5V; I _F : Max.240mA; CCT:2700-6500K	IEC/EN IEC 62471-7	Tested with appliance
LED (Lumileds 3030 2D)	B	LUMILEDS	L130-AABB003000 C2D	V _F : 5,8-6,6V; I _F : Max.240mA; CCT:2700-6500K	IEC/EN IEC 62471-7	Tested with appliance
LED lens	B	IDEMITSU KOSAN CO LTD	LEV2200KL(f1)	PC; HB; 125°C	UL 94 + IEC/EN 60598-2-5 IEC/EN IEC 60598-1	UL E48268*+ Tested with appliance#
Alt.	B	Formosa Idemitsu Petrochemical Corp	LEV2200KL(f1)	PC; HB; 125°C	UL 94 + IEC/EN 60598-2-5 IEC/EN IEC 60598-1	UL E238753*+ Tested with appliance#
Reflector	B	TEIJIN POLYCARBON ATE CHINA LTD	L-1250(##)(f2)(r2)	PC; V-2; 115°C	UL 94 + IEC/EN 60598-2-5 IEC/EN IEC 60598-1	UL E245526*+ Tested with appliance#
Glass cover	B	AOK Industrial company Ltd.	Glass	T=4mm/ 5mm; -40°C to 250°C; ΔT: 150°C	IEC/EN 60598-2-5 IEC/EN IEC 60598-1	Tested with appliance#
Zhaga socket	B	Zhejiang Long-join Electronics Co.,Ltd.	JL-700	30VDC; 1,5A; -40°C to 70°C	IEC/EN 61984 IEC/EN 60598-2-5 IEC/EN IEC 60598-1	DEKRA (CB) NL-81766*+ Tested with appliance#
Alt.	B	Guangdong Ojun Technology Co., Ltd.	OJ-M716 series	30VDC; 1,5A; -40°C to 70°C; IP66	IEC/EN 61984	DEKRA 35-136956* (CB) NL-105930*
Sealing cap (Zhaga)	B	AOK Industrial company Ltd.	--	PC	IEC/EN 60598-2-5 IEC/EN IEC 60598-1	Tested with appliance#

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict

Supplementary information:

¹⁾ Provided evidence ensures the agreed level of compliance. See OD-CB2039.

* License available upon request.

Please refer TRF for the test standard publication year.

The codes above have the following meaning:

- A - The component is replaceable with another one, also certified, with equivalent characteristics
- B - The component is replaceable if authorised by the test house
- C - Integrated component tested together with the appliance
- D - Alternative component

ANNEX 2	TABLE: Thermal tests of Section 14		P
	Type reference	AOK-500WFLC(L)-NV-A5-SN-6570-BN-B	—
	Light source used	LED	—
	Controlgear used	SS-320NH-V300BHB (2pcs)	—
	Battery/EDLC used	--	—
	Mounting position of luminaire	As in normal use	—
	Supply wattage (W)	522,2W [100V] 493,3W [240V]	—
	Supply current (A)	4,244A [100V] 1,833A [240V]	—
	Temperatures in test 1 - 4 below are corrected for ta (°C)	50°C	—
	- abnormal operating mode	LED driver output shorted circuit, output shutdown immediately, the temperature rise of components are lower than temperature rise of components at normal heating test	—
5.12 (14.4)	- test 1: rated voltage	120V; 277V	—
	- test 2: 1,06 times rated voltage, or 1,05 times rated wattage or 1,1 times constant voltage/current	1,06 x 120V=127,2V; 1,06 x 277V=293,62V	—
	- 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	--	—
5.12 (14.5)	- test 4: 1,1 times rated voltage, or 1,05 times rated wattage or 1,1 times constant voltage/current or 130/150% of rated input voltage	304,7V	—
Temperature measurements (°C)			

IEC 60598-2-5

Clause	Requirement + Test	Result - Remark	Verdict
--------	--------------------	-----------------	---------

Part	Ambient	Sub-cl. 14.4 – normal				Sub-cl. 14.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
Terminal block on supply cord	50,0	--	56,9	--	105	--	--
Supply cord	50,0	--	76,4	--	90	--	--
Input terminal block	50,0	--	75,9	--	105	--	--
Lead wire of SPD	50,0	--	71,6	--	105	--	--
Ambient of SPD	50,0	--	57,9	--	85	--	--
SPD body	50,0	--	76,1	--	Ref.	--	--
Quick-connect terminal	50,0	--	57,5	--	85	--	--
Lead wire of zhaga socket	50,0	--	58,3	--	105	--	--
Zhaga socket body	50,0	--	57,1	--	Ref.	--	--
Input wire of LED driver	50,0	--	79,8	--	105	--	--
Tc of LED driver SS-320NH-V300BHB	50,0	82,3	--	--	90	--	--
Input wire of LED module PCB	50,0	--	92,2	--	105	--	--
SMD terminal on LED module PCB	50,0	--	94,8	--	Ref.	--	--
LED module PCB	50,0	--	112,0	--	130	--	--
LED lens	50,0	--	118,9	--	Ref.	--	--
Reflector	50,0	--	101,7	--	Ref.	--	--
Glass cover inside	50,0	--	94,2	--	250	--	--
Metal enclosure	50,0	--	76,0	--	Ref.	--	--
Mounting surface	50,0	--	71,7	--	90	--	--
Supplementary information: Max. temperatures were recorded.							

Type reference	1) AOK-100WFLC(M)-NV-A5-SN-6570-BN-B; 2) AOK-100WFLC(M)-NV-A5-SN-6570-BN-B; 3) AOK-150WFLC(M)-NV-A5-SN-6570-BN-B; 4) AOK-150WFLC(M)-NV-A5-SN-6570-BN-B; 5) AOK-240WFLC(M)-NV-L3-SN-6570-BN-B; 6) AOK-240WFLC(M)-NV-A5-SN-6570-BN-B;	—
----------------------	--	---

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict
		7) AOK-400WFLC(L)-NV-A5-SN-6570-BN-B; 8) AOK-400WFLC(L)-NV-A5-SN-6570-BN-B; 9) AOK-500WFLC(L)-NV-L5-SN-6570-BN-B;	
	Light source used	LED	—
	Controlgear used.....	1) SS-100NH-V300BHB; 2) SS-100NH-V300F; 3) SS-150NH-V300BHB; 4) SS-150NH-V300F; 5) SS-240NH-V300BHB; 6) SS-240NH-V300F; 7) SS-200NH-V300BHB (2pcs); 8) SS-200NH-V300F (2pcs); 9) SS-320NH-V300F (2pcs);	—
	Battery/EDLC used	--	—
	Mounting position of luminaire	As in normal use	—
	Supply wattage (W)	1) 105,4W [120V] 101,3W [277V]; 2) 98,8W [120V] 100,1W [277V]; 3) 159,5W [120V] 151,4W [277V]; 4) 147,5W [120V] 151,1W [277V]; 5) 250,2W [120V] 238,1W [277V]; 6) 231,2W [120V] 236,6W [277V]; 7) 394,7W [120V] 398,4W [277V]; 8) 386,3W [120V] 392,7W [277V]; 9) 461,6W [120V] 492,5W [277V];	—
	Supply current (A)	1) 0,873A [120V] 0,401A [277V]; 2) 0,820A [120V] 0,394A [277V]; 3) 1,325A [120V] 0,571A [277V];	—

IEC 60598-2-5							
Clause	Requirement + Test				Result - Remark		Verdict
					4) 1,221A [120V] 0,571A [277V]; 5) 2,079A [120V] 0,892A [277V]; 6) 1,922A [120V] 0,886A [277V]; 7) 3,274A [120V] 1,431A [277V]; 8) 3,531A [120V] 1,472A [277V]; 9) 3,835A [120V] 1,854A [277V];		
	Temperatures in test 1 - 4 below are corrected for ta (°C)				50,0°C		—
	- abnormal operating mode				LED driver output shorted circuit, output shutdown immediately, the temperature rise of components are lower than temperature rise of components at normal heating test		—
5.12 (14.4)	- test 1: rated voltage				120V; 277V		—
	- test 2: 1,06 times rated voltage, or 1,05 times rated wattage or 1,1 times constant voltage/current				--		—
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage				--		—
	Through wiring or looping-in wiring loaded by a current of A during the test				--		—
5.12 (14.5)	- test 4: 1,1 times rated voltage, or 1,05 times rated wattage or 1,1 times constant voltage/current or 130/150% of rated input voltage				304,7V		—
Temperature measurements (°C)							
Part	Ambient	Sub-cl. 14.4 – normal				Sub-cl. 14.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
Tc of LED driver SS-100NH- V300BHB	50,0	72,3	--	--	90	--	--
Tc of LED driver SS-100NH- V300F	50,0	72,6	--	--	90	--	--
Tc of LED driver SS-150NH- V300BHB	50,0	75,5	--	--	90	--	--
Tc of LED driver SS-150NH- V300F	50,0	74,8	--	--	90	--	--

IEC 60598-2-5								
Clause	Requirement + Test				Result - Remark			Verdict
Tc of LED driver SS-240NH-V300BHB	50,0	79,5	--	--	90	--	--	--
Tc of LED driver SS-240NH-V300F	50,0	80,2	--	--	90	--	--	--
Tc of LED driver SS-200NH-V300BHB	50,0	78,7	--	--	90	--	--	--
Tc of LED driver SS-200NH-V300F	50,0	77,4	--	--	90	--	--	--
Tc of LED driver SS-320NH-V300F	50,0	82,1	--	--	90	--	--	--
Supplementary information: Max. temperatures were recorded.								

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict
ANNEX 3	Screw terminals (part of the luminaire)		—
(16)	SCREW TERMINALS		N/A
(16.2)	Type of terminal		—
	Rated current (A).....		—
(16.2.2.2)	One or more conductors		N/A
(16.2.2.3)	Special preparation		N/A
(16.2.2.4)	Terminal size		N/A
	Cross-sectional area (mm ²).....		—
(16.2.3)	Conductor space (mm).....		N/A
(16.3)	Mechanical requirements and tests		N/A
(16.3.1)	Minimum distance		N/A
(16.3.2)	Cannot slip out		N/A
(16.3.3)	Special preparation		N/A
(16.3.4)	Nominal diameter of thread (metric ISO thread)	M	N/A
	External wiring		N/A
	No soft metal		N/A
(16.3.5)	Corrosion		N/A
(16.3.6)	Nominal diameter of thread (mm)		N/A
	Torque (Nm).....		N/A
(16.3.7)	Between metal surfaces		N/A
	Lug terminal		N/A
	Mantle terminal		N/A
	Pull test; pull (N).....		N/A
(16.3.8)	Without undue damage		N/A

IEC 60598-2-5			
Clause	Requirement + Test		Verdict
ANNEX 4	Screwless terminals (part of the luminaire)		—
(17)	SCREWLESS TERMINALS		P
(17.2)	Type of terminal	Terminal block on LED module PCB	—
	Rated current (A).....	<6A (Tested with appliance)	—
(17.2.1)	Material		P
(17.2.2)	Clamping		P
(17.2.3)	Stop		P
(17.2.4)	Unprepared conductors		N/A
(17.2.5)	Pressure on insulating material		P
(17.2.6)	Clear connection method		P
(17.2.7)	Clamping independently		N/A
(17.2.8)	Fixed in position		P
(17.2.10)	Conductor size		N/A
	Type of conductor		N/A
(17.4)	Terminals and connections for internal wiring		P
(17.4.1)	Mechanical tests		P
(17.4.1.2.1)	Pull test spring-type terminals (4 N, 4 samples)	4N	P
(17.4.1.2.3)	Pull test pin or tab terminals (4 N, 4 samples)		N/A
	Insertion force not exceeding 50 N		N/A
(17.4.1.3)	Permanent connections: pull-off test (20 N)		N/A
(17.4.2)	Electrical tests		P
	Voltage drop (mV) after 1 h (4 samples).....	Max. 6,8mV	P
	Voltage drop of two inseparable joints		P
	Number of cycles:	25 cycles	—
	Voltage drop (mV) after 10th alt. 25th cycle (4 samples)	Max. 7,9mV	P
	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
(17.5)	Terminals and connections for external wiring		N/A
(17.5.1)	Conductors		N/A

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict
	Terminal size and rating		N/A
17.5.2	Mechanical tests		N/A
(17.5.2.2)	Pull test spring-type terminals or welded connections (4 samples); pull (N)		N/A
(17.5.2.3)	Pull test pin or tab terminals (4 samples); pull (N)		N/A
(17.5.3)	Electrical tests		N/A
	Tests according 17.5.3.2 + 17.5.3.3 in IEC 60598-1		N/A

(17.5.3.2) (17.5.3.3)	TABLE: Contact resistance test / Heating tests										—
	Voltage drop (mV) after 1 h										—
terminal	1	2	3	4	5	6	7	8	9	10	
voltage drop (mV)	--	--	--	--	--	--	--	--	--	--	
	Voltage drop of two inseparable joints										N/A
	Voltage drop after 10th alt. 25th cycle										N/A
	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										N/A
	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										N/A
	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										N/A
	Max. allowed voltage drop (mV) :					--					—
terminal	1	2	3	4	5	6	7	8	9	10	
voltage drop (mV)	--	--	--	--	--	--	--	--	--	--	
Supplementary information: --											

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict

ANNEX 5	Battery/EDLC-operated luminaires		—
(Annex W)	Battery/EDLC-operated luminaires		N/A
(W.3)	Marking		N/A
(W.3.2)	Luminaires with replaceable battery		N/A
	Relevant information and warnings provided		N/A
(W.3.3)	Coin and button batteries		N/A
	Relevant information, warnings and marking provided		N/A
(W.3.4)	Other standardized batteries		N/A
	Compartment and polarity correctly marked		N/A
	Compartment marked with the shape of the batteries		N/A
(W.3.5)	Luminaires with non-standardized replaceable rechargeable battery		N/A
	Relevant information, warnings and marking provided		N/A
(W.3.6)	Luminaires with non-user replaceable battery/EDLC		N/A
	Relevant information, warnings and marking provided		N/A
(W.3.7)	Luminaires with non-replaceable battery/EDLC		N/A
	Relevant information, warnings and marking provided		N/A
(W.3.8)	Luminaires supplied by external dedicated power supply units		N/A
	Relevant information, warnings and marking provided		N/A
(W.3.9)	Rechargeable luminaires other than ordinary		N/A
	Relevant information provided		N/A
(W.3.10)	Conditions for charging		N/A
	Relevant information provided		N/A
(W.4)	Construction		N/A
(W.4.1)	Luminaires with a replaceable battery/EDLC, the compartment is designed to reduce the possibility of children removing the battery:		—
	- tool required		N/A
	- two independent and simultaneous movements required		N/A
	Luminaires with a non-replaceable battery/EDLC, no access to the battery or EDLC		N/A
	No recharging function for luminaires intended for non-rechargeable and rechargeable batteries		N/A
(W.4.2)	Small batteries		N/A
	Batteries that fit within the small parts cylinder not removable without a tool		N/A

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict
	Parts that fit within the small parts cylinder not removable without a tool		N/A
	Battery compartment has adequate mechanical strength		N/A
(W.4.3)	Battery compartment fasteners for small batteries and other standardized batteries		N/A
	Screws or fasteners are captive		N/A
(W.4.4)	Battery/EDLC chargers incorporated in luminaires		N/A
	Electronic circuits used in battery or EDLC chargers comply with IEC 61347-2-11		N/A
	Battery or EDLC charger considered a controlgear and comply with		N/A
(W.4.5)	Short-circuit protection		N/A
	The luminaire is operated under the following fault conditions:		—
	- cord short-circuited		N/A
	- battery terminals short-circuited		N/A
	- simultaneously accessible charging terminal short-circuited		N/A
	Appliance does not emit flames, molten metal, or ignitable gas		N/A
	No explosion or ignition of the battery		N/A
	Venting of the cells		N/A
(W.4.6)	Electrical parameters of batteries operation		N/A
(W.4.6.2)	Normal charging of lithium-ion systems		N/A
	Specified operating region for charging not exceeded		N/A
	- min. temperature (°C)		—
	- max. temperature (°C)		—
	Imbalanced battery		N/A
(W.4.7)	Protection against overpressure for Li-ion batteries used in luminaires		N/A
	The battery enclosure or compartment withstands the pressure generated when a cell vents during failure:		N/A
	- capacity of the single Li-ion cell (Ah)		—
	a) area of the unobstructed openings (mm ²)		N/A
	b) volume of air injected (ml).....		N/A
(W.4.8)	Protection against the consequence of failure of cells or EDLCs		N/A
	Vents of cells not obstructed		N/A
	Space provided to allow EDLC expansion		N/A

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict
(W.5)	Protection against electric shock		N/A
	Hazardous live parts not accessible when the luminaire is opened for replacing batteries		N/A
	Protective cover provided		N/A
(W.6)	Endurance test and thermal test		N/A
(W.6.1)	Endurance test		N/A
	Luminaires with charging function:	Yes ☐ No ☐	—
	c) total duration (h)		—
	d) supply voltage (V)		—
(W.6.2)	Thermal test (normal operation)	(see Annex 2)	N/A
(W.6.3)	Thermal test (abnormal operation)	(see Annex 2)	N/A
(W.6.4)	Lithium-ion charging systems – Fault conditions		N/A
	a) electronic components in the charging system of the luminaire subjected to the fault condition test according to IEC 61347-1:2015, Clause 14		N/A
	b) series configured battery charged with a deliberate imbalance		N/A
	c) one cell shorted		N/A
	No explosion during the test		N/A
	No charring or burning of the gauze or tissue paper		N/A
	No evidence of damage to any cell vent		N/A
	Upper limit charging voltage not exceeded		N/A
	Charging system permanently disabled		N/A
	Hazardous live parts shall not become accessible		N/A
(W.6.4)	TABLE: Lithium-ion charging systems – Fault conditions		—
Part	Simulated fault		Hazard
--	--		YES/NO

Attachment No. 1

Page 1 of 1

Report No.: 68.140.26.02441.01

ATTACHMENT to IEC 60598-1:2024			
IEC 60598-1:2024 EUROPEAN GROUP DIFFERENCES AND EUROPEAN NATIONAL DIFFERENCES Luminaires Part 1: General requirements and tests			
Differences according to : EN IEC 60598-1:2024 + A11:2024			
TRF template used : IECEE OD-2020-F2:2025, Ed. 2.1			
Attachment Form No. : EU_GD_IEC60598-1_2024A			
Attachment Originator : UL Solutions (Demko)			
Master Attachment..... : Dated 2025-10-30			
Copyright © 2025 IEC System of Conformity Assessment Schemes for Electrotechnical Equipment and Components (IECEE System), Geneva, Switzerland. All rights reserved.			
Clause	Requirement + Test	Result - Remark	Verdict
	CENELEC COMMON MODIFICATIONS		—
8	EXTERNAL AND INTERNAL WIRING		—
8.2.2	Cables equal to EN 50525 series		P
	Paragraph 2 deleted		P
	Replace table 11 – Supply cord		P
14	ENDURANCE TESTS AND THERMAL TESTS		—
14.4.3 c)	Thermal test (normal operation) see footnote c to table 22 relating to unsleeved fixed wiring		P
	ANNEX ZB, SPECIAL NATIONAL CONDITIONS		—
6.4	DK: power supply cords of class I luminaires with label		N/A
8.2.1	CY, DK, FI, UK: type of plug		N/A
8.2.18	DK: socket-outlets		N/A
	ANNEX ZC, NATIONAL DEVIATIONS		—
7 & 8	FR: Shuttered socket-outlets 10/16A		N/A
	FR: Safety requirements for high buildings <i>(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)</i> 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
	UK: Requirements according to United Kingdom Building Regulation		N/A

Attachment No. 2

Page 1 of 19

		
TEST REPORT IEC 62031 LED modules for general lighting – Safety specifications		
Report Number: 68.140.26.02441.01 Date of issue: See main report of IEC 60598-2-5 Total number of pages: 19		
Name of Testing Laboratory preparing the Report: TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch		
Applicant's name: See main report of IEC 60598-2-5 Address: See main report of IEC 60598-2-5		
Test specification: Standard: IEC 62031:2018 Test procedure: See main report of IEC 60598-2-5 Non-standard test method: N/A		
Test Report Form No.: IEC62031F Test Report Form(s) Originator: Intertek Semko AB Master TRF: 2018-06-14 Copyright © 2018 IEC System of Conformity Assessment Schemes for Electrotechnical Equipment and Components (IECEE System). All rights reserved. This publication may be reproduced in whole or in part for non-commercial purposes as long as the IECEE is acknowledged as copyright owner and source of the material. IECEE takes no responsibility for and will not assume liability for damages resulting from the reader's interpretation of the reproduced material due to its placement and context. 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.		

Attachment No. 2

Page 2 of 19

Report No.: 68.140.26.02441.01

Test item description :	LED module	
Trade Mark :	See main report of IEC 60598-2-5	
Manufacturer	See main report of IEC 60598-2-5	
Model/Type reference	See main report of IEC 60598-2-5	
Ratings	See main report of IEC 60598-2-5	
Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):		
☒ Testing Laboratory:	TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch	
Testing location/ address :	Building 12 & 13, Zhiheng Wisdomland Business Park, Guankou Erlu, Nantou, Nanshan District, Shenzhen, Guangdong 518052, China	
Tested by (name, function, signature) :	See main report of IEC 60598-2-5	
Approved by (name, function, signature) ... :	See main report of IEC 60598-2-5	
Testing procedure: CTF Stage 1:		
☐ Testing procedure: CTF Stage 1:		
Testing location/ address :		
Tested by (name, function, signature) :		
Approved by (name, function, signature) ... :		
Testing procedure: CTF Stage 2:		
☐ Testing procedure: CTF Stage 2:		
Testing location/ address :		
Tested by (name + signature)		
Witnessed by (name, function, signature) . :		
Approved by (name, function, signature) ... :		
Testing procedure: CTF Stage 3:		
☐ Testing procedure: CTF Stage 3:		
Testing procedure: CTF Stage 4:		
☐ Testing procedure: CTF Stage 4:		
Testing location/ address :		
Tested by (name, function, signature) :		
Witnessed by (name, function, signature) . :		
Approved by (name, function, signature) ... :		
Supervised by (name, function, signature) :		

Attachment No. 2

Page 3 of 19

Report No.: 68.140.26.02441.01

List of Attachments (including a total number of pages in each attachment): See main report of IEC 60598-2-5	
Summary of testing:	
Tests performed (name of test and test clause): See main report of IEC 60598-2-5	Testing location: Building 12 & 13, Zhiheng Wisdomland Business Park, Guankou Erlu, Nantou, Nanshan District, Shenzhen, Guangdong 518052, China
Summary of compliance with National Differences: See main report of IEC 60598-2-5	

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. --

Attachment No. 2

Page 4 of 19

Report No.: 68.140.26.02441.01

Test item particulars: LED module
Classification of installation and use: Integral module
Supply Connection: Terminal
.....: --
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: See main report of IEC 60598-2-5
Date of receipt of test item: See main report of IEC 60598-2-5
Date (s) of performance of tests: See main report of IEC 60598-2-5
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 61347-1
Name and address of factory (ies): See main report of IEC 60598-2-5
General product information: The integral module is used in product and tested with the product.

Attachment No. 2

Page 5 of 19

Report No.: 68.140.26.02441.01

IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict
4	GENERAL REQUIREMENTS		—
4.2	Classification		
	Built-in module : Yes ☐ No ☒		—
	Independent module..... : Yes ☐ No ☒		—
	Integral module : Yes ☒ No ☐		—
4.6	Independent modules comply with requirements in IEC 60598-1:2014/AMD1:2017		N/A
4.8	Modules with integrated controlgear providing SELV comply with requirements according to IEC 61347-1:2015/AMD1:2017 clause L.5 to L.11.	(see Annex 1)	N/A
6	MARKING		—
6.2	Contents of marking for built-in and for independent LED 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) rated power		N/A
	e) indication of connections, wiring diagram		N/A
	f) value of t_c and place on the module		N/A
	g) E_{thr} 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
6.3	Location of marking for built-in LED modules		N/A
	- marking of a) and b) in 6.2 on the modules		N/A
	- marking of other applicable items in 6.2 on the modules or in data sheet, leaflet or website		N/A
6.4	Location of marking for independent LED modules		N/A
	- marking of a), b), c) and f) in 6.2 on the modules		N/A
	- marking of other applicable items in 6.2 on the modules or in data sheet, leaflet or website		N/A
6.5	Marking of integral LED modules		N/A

Attachment No. 2

Page 6 of 19

Report No.: 68.140.26.02441.01

IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict
	- information in 6.2 a) to g) in data sheet, leaflet or website		N/A
6.6	Durable and legibility of marking		N/A
	- marking on the LED module legible after test with water		N/A
	- marking not on the LED module legible		N/A
7	TERMINALS		—
7.1	Integral terminals		P
	Screw terminals comply with section 14 of IEC 60598-1	(see Annex 3)	N/A
	Screwless terminals comply with section 15 of IEC 60598-1	(see Annex 4)	P
7.2	Terminals other than integral terminals		N/A
	Separately approved; component list	(see Annex 2)	N/A
	Ratings suit the conditions		N/A
	Satisfy additional relevant requirements of this standard		N/A
8 (9)	EARTHING		—
- (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
	Test according 7.2.3 of IEC 60598-1		N/A
- (9.2)	Provision for functional earthing		N/A
	Comply with clause 8 and 9.1		N/A
	Functional earth insulated from live parts by double or reinforced insulation		N/A

Attachment No. 2

Page 7 of 19

Report No.: 68.140.26.02441.01

IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict
- (9.3)	Lamp controlgear with conductors for protective earthing by tracks on printed circuit 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: $< 0,5 \Omega$		N/A
- (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 mm ² 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: $< 0,5 \Omega$		N/A
	Output earthing terminal marked as in 7.1 t) of IEC 61347-1		N/A
9 (10)	PROTECTION AGAINST ACCIDENTAL CONTACT WITH LIVE PARTS		—
- (10.1)	Controlgear protected against accidental contact with live parts	Rely on luminaire enclosure providing protection against live parts	P
- (A2)	Voltage measured with 50 k Ω	(see Annex A)	N/A
- (A3)	Voltage > 35 V peak or > 60 V d.c. or protective impedance device	(see Annex A)	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 $> 0,5 \mu\text{F}$: voltage after 1 min (V): < 50 V		N/A
- (10.3)	Controlgear providing SELV		N/A

Attachment No. 2

Page 8 of 19

Report No.: 68.140.26.02441.01

IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict
	Accessible conductive parts are insulated from live parts by double or reinforced insulation in SELV controlgear		N/A
	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 from earth 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
10 (11)	MOISTURE RESISTANCE AND INSULATION		—
	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 :	100 MΩ	P
	For double or reinforced insulation ≥ 4 MΩ :	100 MΩ	P
	Between primary and secondary circuits in controlgear providing SELV, values in Annex L in IEC 61347-1		N/A
11 (12)	ELECTRIC STRENGTH		—
	Immediately after clause 11 electric strength test for 1 min		P
	Basic insulation for SELV, test voltage 500 V		N/A

Attachment No. 2

Page 9 of 19

Report No.: 68.140.26.02441.01

IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict
	Working voltage ≤ 50 V, test voltage 500 V		N/A
	Working voltage > 50 V ≤ 1000 V, test voltage (V):		N/A
	Basic insulation, $2U + 1000$ V	1740V	P
	Supplementary insulation, $2U + 1000$ V		N/A
	Double or reinforced insulation, $4U + 2000$ V	3480V	P
	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

12 (14)	FAULT CONDITIONS		—
- (14.1)	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		N/A
	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)	N/A
- (14.2)	Short-circuit of creepage distances and clearances if less than specified in clause 16 in Part 1 (after any reduction in 14.2 - 14.5)	(see appended table)	N/A
- (14.3)	Short-circuit or interruption of semiconductor devices	(see appended table)	P
- (14.4)	Short-circuit across insulation consisting of lacquer, enamel or textile	(see appended table)	N/A
- (14.5)	Short-circuit across electrolytic capacitors	(see appended table)	N/A
	Short-circuit or interruption of SPDs	(see appended table)	N/A
- (14.6)	After the tests has been carried out on three samples:		P
	The insulation resistance ≥ 1 M Ω	100 M Ω	P
	No flammable gases		P
	No accessible parts have become live		N/A
	During the tests, a five-layer tissue paper, where the test specimen is wrapped, does not ignite		P
- (14.7)	Relevant fault condition tests with high-power a.c. supply and in turn to a d.c. supply		—
12.2	Overpower condition		P

Attachment No. 2

Page 10 of 19

Report No.: 68.140.26.02441.01

IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict
	Module withstands overpower condition >15 min.		P
	Module with automatic protective device or power limiter, test performed 15 min. at limit.		N/A
	No fire, smoke or flammable gas is produced		P
	Molten material does not ignite tissue paper, spread below the module		P
14 (15)	CONSTRUCTION		—
- (15.1)	Wood, cotton, silk, paper and similar fibrous material		P
	Wood, cotton, silk, paper and similar fibrous material not used as insulation		P
- (15.2)	Printed circuits		P
	Printed circuits used as internal connections complies with clause 14		P
15 (16)	CREEPAGE DISTANCES AND CLEARANCES		—
- (16.1)	General		P
	Creepage distances and clearances according to 16.2 and 16.3		P
	Controlgears providing SELV comply with additional requirements in Annex L		N/A
	Insulating lining of metallic enclosures		N/A
	Controlgear protected against pollution comply with Annex P		N/A
- (16.2)	Creepage distances		P
- (16.2.2)	Minimum creepage distances for working voltages		P
	Creepage distances according to Table 7	(see appended table)	P
- (16.2.3)	Creepage distances for working voltages with frequencies above 30 kHz		N/A
	Creepage distances according to Table 8	(see appended table)	N/A
- (16.3)	Clearances		P
- (16.3.2)	Clearances for working voltages		P
	Clearances distances according to Table 9	(see appended table)	P
- (16.3.3)	Clearances for ignition voltages and working voltages with higher frequencies		N/A
	Clearances distances for basic or supplementary insulation according to Table 10		N/A
	Clearances distances for reinforced insulation according to Table 11		N/A

Attachment No. 2

Page 11 of 19

Report No.: 68.140.26.02441.01

IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict
16 (17)	SCREWS, CURRENT-CARRYING PARTS AND CONNECTIONS		—
	Screws, current-carrying parts and connections in compliance with IEC 60598-1 (clause numbers between parentheses refer to IEC 60598-1)		—
(4.11)	Electrical connections		P
(4.11.1)	Contact pressure		P
(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		P
(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
	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
17 (18)	RESISTANCE TO HEAT, FIRE AND TRACKING		—
- (18.1)	Ball-pressure test	See Test Table 17 (18.1)	N/A
- (18.2)	Test of printed boards	See Test Table 17 (18.2)	N/A
- (18.3)	Glow-wire test (650°C)	See Test Table 17 (18.3)	N/A
- (18.4)	Needle-flame test (10 s)	See Test Table 17 (18.4)	N/A
- (18.5)	Proof tracking test	See Test Table 17 (18.5)	N/A

Attachment No. 2

Page 12 of 19

Report No.: 68.140.26.02441.01

IEC 62031							
Clause		Requirement + Test			Result - Remark		Verdict
18		RESISTANCE TO CORROSION					—
		Comply with requirements according 4.18 of IEC 60598-1					N/A
20		HEAT MANAGEMENT					—
20.1		General					N/A
		Fulfil clause 20 if replaceable LED module and when heat conducting thermal interface is needed.					N/A
20.2		Thermal interface material					N/A
		Thermal interface material delivered with the module if necessary					N/A
20.3		Heat protection					N/A
		Not impair safety when operated under poor heat-conduction conditions according Annex D					N/A
22		PHOTOBIOLOGICAL SAFETY					—
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			IEC 62471-7 was evaluate according to IEC 60598-1:2024 and comply with the requirement		P
22.3		Infrared radiation					N/A
		Requirements for infrared radiation when required					N/A
A		ANNEX A - TESTS					—
		All tests performed in accordance with the advice given in Annex H of IEC 61347-1, if applicable					P
12 (14)		TABLE: tests of fault conditions					P
Part		Simulated fault					Hazard
LED1 (+/-)		Short-circuited; The LED shut down, recoverable					NO
LED1 (+/-)		Open-circuited; One group LED shut down, recoverable					NO
15 (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

Attachment No. 2

Page 13 of 19

Report No.: 68.140.26.02441.01

IEC 62031							
Clause	Requirement + Test				Result - Remark		Verdict
Distance 1:	--	--	--	--	--	--	--
Working voltage (V).....:					--		—
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: see main report of IEC 60598-2-5							

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

17 (18.1)	TABLE: Ball Pressure Test of Thermoplastics			N/A
Allowed impression diameter (mm) :		2mm		—
Object/ Part No./ Material	Manufacturer/ trademark	Test temperature (°C)	Impression diameter (mm)	
--	--	--	--	
Supplementary information: --				

17 (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: --					

17 (18.3)	TABLE: Glow-wire test				N/A
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
--	--	--	--	--	--
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: --					

17 (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

Attachment No. 2

Page 14 of 19

Report No.: 68.140.26.02441.01

IEC 62031					
Clause	Requirement + Test			Result - Remark	Verdict
--	--	--	--	--	--
Supplementary information: --					

17 (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: --					

(A)	ANNEX A - TEST TO ESTABLISH WHETHER A CONDUCTIVE PART IS A LIVE PART WHICH MAY CAUSE AN ELECTRIC SHOCK			—
(A.1)	Comply with A.2 or A.3			N/A
(A.2)	Voltage ≤ 35 V peak or ≤ 60 V d.c			N/A
(A.3)	If voltage measured according Clause A.2 exceeds the limit value; touch current does not exceed 0,7 mA (peak) or 2 mA d.c.			N/A
	Comply with Annex G.2 of IEC 60598-1			N/A

ANNEX 1	LED MODULES WITH INTEGRAL CONTROLGEAR PROVIDING SELV			—
(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
	Between input- and output circuits not less than 5 M Ω			N/A

Attachment No. 2

Page 15 of 19

Report No.: 68.140.26.02441.01

IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict
	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
	Required distance (mm)		—
	Measured (mm)		N/A

Attachment No. 2

Page 16 of 19

Report No.: 68.140.26.02441.01

IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict
	Supplementary information		—
	3) Reinforced distance through insulation		N/A
	Required distance (mm)		—
	Measured (mm)		N/A
	Supplementary information		—

ANNEX 2		TABLE: Critical components information					P
Object / part No.	Code	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹⁾	
Description:		See Annex 1 of main report of IEC 60598-2-5					
Supplementary information:							
1) Provided evidence ensures the agreed level of compliance. See OD-CB2039.							
The codes above have the following meaning:							
A - The component is replaceable with another one, also certified, with equivalent characteristics							
B - The component is replaceable if authorised by the test house							
C - Integrated component tested together with the appliance							
D - Alternative component							

Attachment No. 2

Page 17 of 19

Report No.: 68.140.26.02441.01

IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict
ANNEX 3	Screw terminals (part of the luminaire)		N/A
(14)	SCREW TERMINALS		—
(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 (mm ²)..... :		—
(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

Attachment No. 2

Page 18 of 19

Report No.: 68.140.26.02441.01

IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict
ANNEX 4	Screwless terminals (part of the luminaire)		P
(15)	SCREWLESS TERMINALS		—
(15.2)	Type of terminal..... :	Terminal block on LED module PCB	—
	Rated current (A)..... :	<6A (Tested with appliance)	—
(15.3.1)	Material		P
(15.3.2)	Clamping		P
(15.3.3)	Stop		P
(15.3.4)	Unprepared conductors		N/A
(15.3.5)	Pressure on insulating material		P
(15.3.6)	Clear connection method		P
(15.3.7)	Clamping independently		N/A
(15.3.8)	Fixed in position		P
(15.3.10)	Conductor size		N/A
	Type of conductor		N/A
(15.5.1)	Terminals internal wiring		P
(15.5.1.1)	Pull test spring-type terminals (4 N, 4 samples)	4N	P
(15.5.1.2)	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		P
	Voltage drop (mV) after 1 h (4 samples)	Max. 6,8mV	P
	Voltage drop of two inseparable joints		P
	Number of cycles:	25 cycles	—
	Voltage drop (mV) after 10th alt. 25th cycle (4 samples)..... :	Max. 7,9mV	P
	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		N/A

Attachment No. 2

Page 19 of 19

Report No.: 68.140.26.02441.01

IEC 62031			
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										N/A
	Voltage drop after 10th alt. 25th cycle										N/A
	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										N/A
	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										N/A
	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										N/A
	Max. allowed voltage drop (mV) :					--					—
terminal	1	2	3	4	5	6	7	8	9	10	
voltage drop (mV)	--	--	--	--	--	--	--	--	--	--	
Supplementary information: --											

Attachment No. 2

Page 1 of 1

Report No.: 68.140.26.02441.01

IEC62031F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
ATTACHMENT TO TEST REPORT IEC 62031:2018 EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES (LED modules for general lighting - Safety specifications)			
Differences according to: EN IEC 62031: 2020 + A11: 2021			
TRF template used: IECEE OD-2020-F2:2022, Ed. 1.2			
Attachment Form No.: EU_GD_IEC62031F			
Attachment Originator: UL Solutions (Demko)			
Master Attachment: Dated 2022-09-30			
Copyright © 2022 IEC System for Conformity Testing and Certification of Electrical Equipment (IECEE), Geneva, Switzerland. All rights reserved.			
	CENELEC COMMON MODIFICATIONS (EN)		
	No Common modifications		P
ZA	ANNEX ZA, NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATIONS		P
ZZ	ANNEX ZZ, RELATIONSHIP BETWEEN THIS EUROPEAN STANDARD AND THE SAFETY OBJECTIVES OF DIRECTIVE 2014/35/EU [2014 OJ L96] AIMED TO BE COVERED		P

Attachment No. 3

Page 1 of 8

		
TEST REPORT IEC 62471-7 Photobiological safety of lamps and lamp systems - Part 7: Light sources and luminaires primarily emitting visible radiation		
Report Number.: 68.140.26.02441.01 Date of issue: See main report of IEC 60598-2-5 Total number of pages: 8		
Name of Testing Laboratory preparing the Report: TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch		
Applicant's name: See main report of IEC 60598-2-5 Address: See main report of IEC 60598-2-5		
Test specification: Standard: IEC 62471-7:2023 Test procedure: See main report of IEC 60598-2-5 Non-standard test method: N/A		
TRF template used: IECEE OD-2020-F1:2023, Ed.1.6 Test Report Form No.: IEC62471_7B Test Report Form(s) Originator: DEKRA Certification B.V. Master TRF: Dated 2024-10-18 Copyright © 2024 IECEE System of Conformity Assessment Schemes for Electrotechnical Equipment and Components (IECEE System). All rights reserved. This publication may be reproduced in whole or in part for non-commercial purposes as long as the IECEE is acknowledged as copyright owner and source of the material. IECEE takes no responsibility for and will not assume liability for damages resulting from the reader's interpretation of the reproduced material due to its placement and context. This report is not valid as a CB Test Report unless signed by an approved IECEE 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 NCB. The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report.		

Attachment No. 3

Page 2 of 8

Report No.: 68.140.26.02441.01

Test item description	See main report of IEC 60598-2-5	
Trademark(s)	See main report of IEC 60598-2-5	
Manufacturer	See main report of IEC 60598-2-5	
Model/Type reference	See main report of IEC 60598-2-5	
Ratings	See main report of IEC 60598-2-5	
Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):		
☒ Testing Laboratory:	TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch	
Testing location/ address	Building 12 & 13, Zhiheng Wisdomland Business Park, Guankou Erlu, Nantou, Nanshan District, Shenzhen, Guangdong 518052, China	
Tested by (name, function, signature)	See main report of IEC 60598-2-5	
Approved by (name, function, signature) ...	See main report of IEC 60598-2-5	
Testing procedure: CTF Stage 1:		
Testing location/ address		
Tested by (name, function, signature)		
Approved by (name, function, signature) ...		
Testing procedure: CTF Stage 2:		
Testing location/ address		
Tested by (name + signature)		
Witnessed by (name, function, signature) .:		
Approved by (name, function, signature) ...		
Testing procedure: CTF Stage 3:		
Testing procedure: CTF Stage 4:		
Testing location/ address		
Tested by (name, function, signature)		
Witnessed by (name, function, signature) .:		
Approved by (name, function, signature) ...		
Supervised by (name, function, signature) :		

Attachment No. 3

Page 3 of 8

Report No.: 68.140.26.02441.01

List of Attachments (including a total number of pages in each attachment): See main report of IEC 60598-2-5	
Summary of testing:	
Tests performed (name of test, test clause and date test performed): See main report of IEC 60598-2-5	Testing location: (CBTL, SPTL, CTF, Subcontractor) Building 12 & 13, Zhiheng Wisdomland Business Park, Guankou Erlu, Nantou, Nanshan District, Shenzhen, Guangdong 518052, China
Summary of compliance with National Differences IECEE Member countries that are also CENELEC members Compliance with Group Differences evaluated ☐ yes ☐ No ☒ N/A IECEE Member countries with published National Differences which were evaluated: IECEE Member countries that did not publish any National Differences: To support compliance with published National Differences, attach a compilation of relevant ND and/or GD TRFs to the CB Test Report	
Use of uncertainty of measurement for decisions on conformity (decision rule) : ☒ No decision rule is specified by the IEC standard, when comparing the measurement result with the applicable limit according to the specification in that standard. The decisions on conformity are made without applying the measurement uncertainty ("simple acceptance" decision rule, previously known as "accuracy method"). ☐ Other: ... (to be specified, for example when required by the standard or client, or if national accreditation requirements apply) Information on uncertainty of measurement: The uncertainties of measurement are calculated by the laboratory based on application of criteria given by OD-5014 for test equipment and application of test methods, decision sheets and operational procedures of IECEE. IEC Guide 115 provides guidance on the application of measurement uncertainty principles and applying the decision rule when reporting test results within IECEE scheme, noting that the reporting of the measurement uncertainty for measurements is not necessary unless required by the test standard or customer. Calculations leading to the reported values are on file with the NCB and testing laboratory that conducted the testing.	

Attachment No. 3

Page 4 of 8

Report No.: 68.140.26.02441.01

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.

See main report of IEC 60598-2-5

Attachment No. 3

Page 5 of 8

Report No.: 68.140.26.02441.01

Test item particulars	See main report of IEC 60598-2-5
Classification of installation and use	See main report of IEC 60598-2-5
Supply Connection	See main report of IEC 60598-2-5
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	See main report of IEC 60598-2-5
Date of receipt of test item	See main report of IEC 60598-2-5
Date (s) of performance of tests	See main report of IEC 60598-2-5
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.	
Name and address of factory (ies)	See main report of IEC 60598-2-5
General product information and other remarks: See main report of IEC 60598-2-5	

Attachment No. 3

Page 6 of 8

Report No.: 68.140.26.02441.01

IEC 62471-7			
Clause	Requirement + Test	Result - Remark	Verdict
4	OPTICAL RADIATION HAZARDS OF LIGHT SOURCES AND LUMINAIRES		P
	Measurements are carried out in accordance with IEC 62471:2006 unless otherwise specified in this document		P
	For light sources with pulse width modulation (PWM), emission levels of continuous light (continuous wave (CW)) are applied.		N/A
	For luminaires with adjustable beam angle the most severe condition is selected for each assessment.		P
	The evaluation of a luminaire is understood to mean the evaluation of a luminaire with the intended normal use of the specified light sources or with the light sources installed. For the selection of light sources IEC 60598-1:2020, Annex B is used.		P
5	ACTINIC UV HAZARDS EXPOSURE FOR SKIN AND EYE (200 NM TO 400 NM)		N/A
5.2	Actinic UV assessment for light sources		N/A
	Calculated value of $K_{S,v}$ based on irradiance measurements specified in IEC 62471		N/A
	Light sources classification according one of the following ranges..... : a) $K_{S,v} \leq 2 \text{ mW} \cdot \text{klm}^{-1}$ b) $2 \text{ mW} \cdot \text{klm}^{-1} < K_{S,v} \leq 6 \text{ mW} \cdot \text{klm}^{-1}$ c) $K_{S,v} > 6 \text{ mW} \cdot \text{klm}^{-1}$		—
5.3	Actinic UV assessment for luminaires		N/A
	The ultraviolet hazard efficacy of luminous radiation $K_{S,v}$ of luminaires does not exceed $2 \text{ mW} \cdot \text{klm}^{-1}$.		N/A
	The luminaire operate with light sources whose evaluation has resulted in a value $K_{S,v}$ of $\leq 2 \text{ mW} \cdot \text{klm}^{-1}$		N/A
	The luminaires operates with light sources whose evaluation has resulted in a value $2 \text{ mW} \cdot \text{klm}^{-1} < K_{S,v} \leq 6 \text{ mW} \cdot \text{klm}^{-1}$ and is provided with a protective shield		N/A
	The luminaire operates with light sources whose evaluations have resulted in a value exceeding $K_{S,v} = 6 \text{ mW} \cdot \text{klm}^{-1}$ and is provided with a protective shield or front glass		N/A
	The luminaires does not generate an actinic UV irradiance E_s higher than $0,001 \text{ W} \cdot \text{m}^{-2}$ when assessed in accordance with IEC 62471:2006 at 200 mm distance		N/A
6	UV-A HAZARD ASSESSMENT FOR THE EYE LENS (315 NM TO 400 NM)		N/A
6.2	UV-A light source and luminaire assessment		N/A

Attachment No. 3

Page 7 of 8

Report No.: 68.140.26.02441.01

IEC 62471-7			
Clause	Requirement + Test	Result - Remark	Verdict
	For light sources and luminaires for general lighting, no intentional UV-A is added to the visible light		N/A
	For light sources and luminaires where UV-A is intentionally added to the visible light, the calculated value of $K_{UV-A,v}$ does not exceed $20 \text{ W} \cdot \text{klm}^{-1}$		N/A
	The luminaire does not generate an irradiance E_{UV-A} higher than $10 \text{ W} \cdot \text{m}^{-2}$ when assessed in accordance with IEC 62471:2006 at 200 mm distance		N/A
7	RETINAL BLUE LIGHT HAZARD ASSESSMENT (300 NM TO 700 NM)		P
7.2	Blue light hazard assessment for light sources		N/A
	Light source are evaluated according to the methodology described in IEC 62471 and provided for an assessment distance of 200 mm and FOV of 1,7 mrad		N/A
	The light sources are operated and evaluated under conditions with the highest luminous flux		N/A
	Alternative the lamp is assessed with a FOV of 11 mrad at 200 mm distance		N/A
	The technical documentation of the light sources indicates one of the following:		N/A
	– The maximum blue light hazard radiance measured under the above conditions		N/A
	– The corresponding application group for the luminaires according to Table 2		N/A
7.3	Blue light hazard assessment for luminaires		P
	Luminaire application group	flood lighting	—
	Assessment distance.....	1000mm	—
	Measured emission level	1) AOK-500WFLC(L)-NV-A5-SN-6570-BN-B: $3376 \text{ W} \cdot \text{m}^{-2} \cdot \text{sr}^{-1}$ 2) AOK-500WFLC(L)-NV-L5-SN-6570-BN-B: $3251 \text{ W} \cdot \text{m}^{-2} \cdot \text{sr}^{-1}$ 3) AOK-240WFLC(M)-NV-L3-SN-6570-BN-B: $197,2 \text{ W} \cdot \text{m}^{-2} \cdot \text{sr}^{-1}$ (limit: $100000 \text{ W} \cdot \text{m}^{-2} \cdot \text{sr}^{-1}$)	—
	Application group of classified light source	BLH-B	—
	For application group BLH-D: Distance at which at least the emission level of BLH-C is observed	N/A	—

Attachment No. 3

Page 8 of 8

Report No.: 68.140.26.02441.01

IEC 62471-7			
Clause	Requirement + Test	Result - Remark	Verdict
	Luminaire complies with the emission limits given in Table 2 relevant to that application group		P
8	RETINAL THERMAL HAZARD ASSESSMENT (380 NM TO 1 400 NM)		N/A
8.2	Retinal thermal hazard for light source assessment		N/A
	For light sources not exceeding a retinal thermal radiance L_R of $280\,000\text{ W} \cdot \text{m}^{-2} \cdot \text{sr}^{-1}$; no retinal thermal hazard		N/A
	For white light sources if the blue light hazard radiance L_B is lower than $100\,000\text{ W} \cdot \text{m}^{-2} \cdot \text{sr}^{-1}$; no retinal thermal hazard		N/A
	For light sources exceeding a retinal thermal radiance L_R of $280\,000\text{ W} \cdot \text{m}^{-2} \cdot \text{sr}^{-1}$. L_R of the light source provided for an assessment distance of 200 mm and a FOV of 1,7 mrad :		—
8.3	Retinal thermal hazard assessment for luminaire		N/A
	Luminaire with light source with L_R smaller than $280\,000\text{ W} \cdot \text{m}^{-2} \cdot \text{sr}^{-1}$ or a white light source where the blue light hazard radiance L_B is lower than $100\,000\text{ W} \cdot \text{m}^{-2} \cdot \text{sr}^{-1}$; no retinal thermal hazard		N/A
	Luminaire with light source with L_R exceeding $280\,000\text{ W} \cdot \text{m}^{-2} \cdot \text{sr}^{-1}$ measured retinal thermal radiance is lower than the relevant emission limits according IEC 62471-5 at an assessment distance of 1 000 mm; no retinal thermal hazard		N/A
	In case the emission limits at 1 000 mm are exceeded, the measured or calculated distance beyond which the retinal thermal radiance L_R is below the emission limit :		—
9	INFRARED HAZARD ASSESSMENT FOR THE EYE (780 NM TO 3 000 NM)		N/A
9.2	Light source and luminaire assessment		N/A
	For light sources and luminaires, no intentional IR radiation is added to the visible light		N/A
	For light sources and luminaires where IR radiation is intentionally added to the visible light, the calculated value of $K_{R,V}$ does not exceed $200\text{ W} \cdot \text{klm}^{-1}$		N/A

Attachment No. 4

Page 1 of 16



TEST REPORT IEC 62493 Assessment of lighting equipment related to human exposure to electromagnetic fields		
Report Number	68.140.26.02441.01	
Date of issue	See main report of IEC 60598-2-5	
Total number of pages	16	
Name of Testing Laboratory preparing the Report	TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch	
Applicant's name	See main report of IEC 60598-2-5	
Address	See main report of IEC 60598-2-5	
Test specification:		
TRF template used:	IECEE OD-2020-F7:2020; ed. 2.1	
Standards	IEC 62493:2015, IEC 62493:2015/AMD1:2022	
Test procedure	See main report of IEC 60598-2-5	
Test Report Form No.	IEC62493C	
Test Report Form(s) Originator	UL Solutions (US)	
Master TRF	Dated 2023-02-16	
Copyright © 2023 IEC System of Conformity Assessment Schemes for Electrotechnical Equipment and Components (IECEE System). All rights reserved. This publication may be reproduced in whole or in part for non-commercial purposes as long as the IECEE is acknowledged as copyright owner and source of the material. IECEE takes no responsibility for and will not assume liability for damages resulting from the reader's interpretation of the reproduced material due to its placement and context. 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 NCB. The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report.		

Attachment No. 4

Page 2 of 16

Report No.: 68.140.26.02441.01

Test item description	See main report of IEC 60598-2-5	
Trademark or brand name.....	See main report of IEC 60598-2-5	
Manufacturer.....	See main report of IEC 60598-2-5	
Model/Type reference(s).....	See main report of IEC 60598-2-5	
Ratings	See main report of IEC 60598-2-5	
Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):		
☒ Testing Laboratory:	TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch	
Testing location/ address.....	Building 12 & 13, Zhiheng Wisdomland Business Park, Guankou Erlu, Nantou, Nanshan District, Shenzhen, Guangdong 518052, China	
Tested by (name, function, signature)	See main report of IEC 60598-2-5	
Approved by (name, function, signature) ...	See main report of IEC 60598-2-5	
☐ Testing procedure: CTF Stage 1:		
Testing location/ address.....		
Tested by (name, function, signature)		
Approved by (name, function, signature) ...		
☐ Testing procedure: CTF Stage 2:		
Testing location/ address.....		
Tested by (name + signature)		
Witnessed by (name, function, signature)...		
Approved by (name, function, signature) ...		
☐ Testing procedure: CTF Stage 3:		
☐ Testing procedure: CTF Stage 4:		
Testing location/ address.....		
Tested by (name, function, signature)		
Witnessed by (name, function, signature)...		
Approved by (name, function, signature) ...		
Supervised by (name, function, signature) :		

Attachment No. 4

Page 3 of 16

Report No.: 68.140.26.02441.01

List of Attachments (including a total number of pages in each attachment):

--

Summary of testing

Tests performed (name of test, test Clause and date test performed):

See main report of IEC 60598-2-5

Testing location:

Building 12 & 13, Zhiheng Wisdomland Business Park, Guankou Erlu, Nantou, Nanshan District, Shenzhen, Guangdong 518052, China

Summary of compliance with National Differences

Country code**National differences standard**

See main report of IEC 60598-2-5

Use of uncertainty of measurement for decisions on conformity (decision rule) :

☒ No decision rule is specified by the IEC standard, when comparing the measurement result with the applicable limit according to the specification in that standard. The decisions on conformity are made without applying the measurement uncertainty ("simple acceptance" decision rule, previously known as "accuracy method").

☐ Other:... (to be specified, for example when required by the standard or client).

Information on uncertainty of measurement:

The uncertainties of measurement are calculated by the laboratory based on application of criteria given by OD-5014 for test equipment and application of test methods, decision sheets and operational procedures of IECEE.

IEC Guide 115 provides guidance on the application of measurement uncertainty principles and applying the decision rule when reporting test results within IECEE scheme, noting that the reporting of the measurement uncertainty for measurements is not necessary unless required by the test standard or customer.

Calculations leading to the reported values are on file with the NCB and testing laboratory that conducted the testing.

Attachment No. 4

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.
See main report of IEC 60598-2-5	

Attachment No. 4

Page 5 of 16

Report No.: 68.140.26.02441.01

Possible test case verdicts:	
- test case does not apply to the test item .:	N/A (Not Applicable)
- test item does meet the requirement	P (Pass)
- test item does not meet the requirement .:	F (Fail)
Date of receipt of test item	See main report of IEC 60598-2-5
Date (s) of performance of tests	See main report of IEC 60598-2-5
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. Note: Throughout this TRF, numerical data taken from IEC standards are using a comma as the decimal separator. Throughout this report, the term "Test item" is used over terms such as Test object, EUT or DUT.	
Name and address of factory (ies)	See main report of IEC 60598-2-5
General product information (GPI) and other remarks: See main report of IEC 60598-2-5	

Table of Contents:	
1	General description of test item 7
1.1	Photo(s) of the test item 7
1.2	Test item(s) 8
1.3	Port(s)..... 8
1.4	Power rating(s)..... 9
1.5	Additional parameters 9
1.6	Operating mode(s) 10
1.7	Auxiliary equipment..... 10
1.8	Documents as provided by the applicant 11
1.9	Modifications to the test item during testing 11
2	Verdict summary section 11
2.1	Test setups..... 12
3	Limits 13
3.1	General..... 13
4.2	Unintentional radiating part of lighting equipment..... 13
4.2.2	Lighting equipment deemed to comply with the Van der Hoofden test without testing 13
4.2.3	Application of limits 13
5.6	Measurement uncertainty..... 14
5.8	Decision rule 14
6.2	Operating Conditions 15
7	Assessment procedure intentional radiators 16
7.2	Low-power exclusion method 16
7.3	Application of the EMF product standard for body worn-equipment..... 16
7.4	Application of the EMF product standard for base stations 16
7.5	Application of another EMF standard..... 16
8	List of test equipment 16

1 General description of test item

Note: The information in this section has been provided by the applicant.

1.1 Photo(s) of the test item

Photo 1.1.1	see attachment No. 5

Photo 1.1.2	see attachment No. 5

Attachment No. 4

Page 8 of 16

Report No.: 68.140.26.02441.01

1.2 Test item(s)

No.	Test item name	Unique identification / type / description	Extent of test
1		<i>All models</i>	<i>No tested</i>
2			
3			
4			
5			
6			
7			
8			
Engineering statement for untested variants / product family:			
Supplementary information: --			

1.3 Port(s)

No.	Port Name	Type	Cable		
			Specified length in m	Attached during test	Shielded
1	Enclosure	Enclosure	-	-	-
2				☐	☐
3				☐	☐
4				☐	☐
5				☐	☐
6				☐	☐
7				☐	☐
8				☐	☐
9				☐	☐
10				☐	☐
Supplementary information: --					

1.4 Power rating(s)

Power supply type..... :	☒	AC, 1 phase
	☐	AC, 2 phases
	☐	AC, 3 phases
	☒	Neutral
	☒	Protective Earth
	☐	DC
	☐	Battery, not rechargeable in the device
	☐	Battery, rechargeable in the device
Rated voltage	See main report of IEC 60598-2-5	
Rated frequency	See main report of IEC 60598-2-5	
Rated power	See main report of IEC 60598-2-5	

1.5 Additional parameters

Protection class	See main report of IEC 60598-2-5	
Clock frequencies	N/A	
Other parameters	N/A	
Software version	N/A	
Hardware version	N/A	
Dimensions (W x H x D)....	See main report of IEC 60598-2-5	
Mounting position	☐	Table-top equipment
	☐	Wall/Ceiling mounted equipment
	☐	Floor standing equipment
	☐	Hand-held equipment
	☒	Other: fixing mounted flood light

Attachment No. 4

Page 10 of 16

Report No.: 68.140.26.02441.01

1.6 Operating mode(s)

No.	Abbreviation	Detailed description of the operating mode	Used for testing	
			Emission	Immunity
1			☐	☐
2			☐	☐
3			☐	☐
4			☐	☐
5			☐	☐
6			☐	☐
7			☐	☐
8			☐	☐
Supplementary information: --				

1.7 Auxiliary equipment

Advice to the TRF User: Include accessories which are not to be considered test items.

No.	Aux Item Name	Type and description	Manufacturer (if not the same)
1			
2			
3			
4			
5			
6			
7			
8			
Supplementary information: --			

Attachment No. 4

Page 11 of 16

Report No.: 68.140.26.02441.01

1.8 Documents as provided by the applicant

No.	Document ref.	Type and description	Doc date
1		See main report of IEC 60598-2-5	
2			
3			
4			
5			
6			
7			
8			
Supplementary information: --			

1.9 Modifications to the test item during testing

☐	No modifications done during testing	
☐	Modifications done during testing (see details below)	
No.	Description of modification (if any)	Date of modification
1		
2		
3		
Supplementary information: --		

2 Verdict summary section

Rationale for verdicts, including N/A (Not Applicable), are listed on each test sheet.
If applicable test was not performed then CB Test Certificate cannot be issued.

Table/ Clause	Requirement – Test case	Basic standard	Verdict
6.6	Calculation of the results	IEC 62493: 2022	N/A
7.2	Low-power exclusion method	IEC 62493: 2022	N/A
7.3	Application of the EMF product standard for body worn-equipment	IEC 62209-2: 2010	N/A
7.4	Application of the EMF product standard for base stations	IEC 62232: 2011	N/A
7.5	Application of another EMF standard	IEC 62311: 2007	N/A
Supplementary information (e.g. detailed information to verdicts):			

2.1 Test setups

Figure 2.1.1:	Test setup 1
	

Figure 2.1.2:	Test setup 2
	

3 Limits

3.1 General

Devices must either be inherently compliant in 4.2.2 or comply with Van der Hoofden test limit in 4.2.3 and pass assessment procedure for intentional radiators in 4.3

4.2 Unintentional radiating part of lighting equipment

4.2.2 Lighting equipment deemed to comply with the Van der Hoofden test without testing

Name	See main report of IEC 60598-2-5
Date	See main report of IEC 60598-2-5
Rationale for verdict N/A	Considering submitted samples were LED-light-source technology, they were found to comply with the requirement of IEC 62493:2015, IEC 62493:2015/AMD1:2022 and EN 62493:2015+A1:2022 without test.

Lighting equipment is deemed to comply with the requirements of this standard without testing if it fulfils one of the following inherent-compliance conditions:	☐	electronic controlgear
	☐	incandescent-lamp technology
	☒	LED-light-source technology
	☐	OLED-light-source technology
	☐	high-pressure discharge lamp LED-light-source technologies
	☐	low-pressure discharge lamp technologies with exposure distance ≥ 50 cm
	☐	independent auxiliary
Supplementary information	--	

4.2.3 Application of limits

Name	N/A
Date	N/A
Rationale for verdict N/A	N/A

☐	Lighting equipment does not inherently comply with the Van der Hoofden test without testing but the compliance factor F is ≤ 1
Supplementary information	

5.6 Measurement uncertainty

Where relevant, the following measurement instrumentation uncertainty levels have been estimated for tests performed on the apparatus:

Type of disturbance / Test method	Calculated expanded uncertainty U_{Lab}	U_{basic}
Van der Hoofden Test		30%

5.8 Decision rule

If the uncertainty calculated with the instrumentation actually used for the test (U_{Lab}) is less than or equal to the uncertainty given in 5.6 (U_{basic}) then:

- compliance is deemed if the measurement result does not exceed the applicable limit;
- non-compliance is deemed to occur if the measurement result exceeds the applicable limit.

If the uncertainty calculated with the instrumentation used for the test () is higher than the uncertainty given in 5.6 (U_{basic}) then:

- compliance is deemed to occur if the measurement result, increased by ($U_{\text{Lab}} - U_{\text{basic}}$), does not exceed the applicable limit.
- non-compliance is deemed to occur if the measurement result, increased by ($U_{\text{Lab}} - U_{\text{basic}}$), exceeds the applicable limit.

6.2 Operating Conditions

Name	
Date	
Rationale for verdict N/A	

Test location (stand)		
Stabilization Time	☐	15 minutes for low-pressure discharge lamps
	☐	30 minutes for all other discharge lamps
	☐	Other (minutes):
Operating Conditions:	☐	Specified by the manufacturer (ref. cl. 1.6)
	☐	Multiple lamp lighting equipment with all lamps operated simultaneously
	☐	Self-contained emergency lighting operated from mains
	☐	Lighting equipment with light regulation measured at the minimum and maximum limit of light regulation.
Measurement Distance		
Supplementary information		

Photo 6.2.1	Test Setup – Van der Hoofden

Test results for Induced internal electric field	
Test item no(s) ref. cl. 1.2	
Operating mode no(s) ref. cl. 1.6 :	
Test setup no(s) ref. cl. 3.2	

7 Assessment procedure intentional radiators

Name	
Date	
Rationale for verdict N/A	

7.2 Low-power exclusion method

Input $P_{\text{int,rad}}$		
Exclusion level P_{max}		
Input power $P_{\text{int,rad}} < \text{exclusion level } P_{\text{max}}$	☐	Yes
	☐	No
Supplementary information		

7.3 Application of the EMF product standard for body worn-equipment

If low-power exclusion is not met and exposure distance ≤ 0.05 m, does device comply with IEC 62209-2	☐	Yes
	☐	No
Supplementary information		

7.4 Application of the EMF product standard for base stations

If low-power exclusion is not met and intentional radiator is a base station, does device comply with IEC 62232	☐	Yes
	☐	No
Supplementary information		

7.5 Application of another EMF standard

If low-power exclusion is not met and intentional radiator is not considered as body-worn equipment or base station equipment, does device comply with IEC 62311	☐	Yes
	☐	No
Supplementary information		

8 List of test equipment

Reference to test stand or test name (ID):			
Equipment ID	Equipment description	Last Calibration date	Calibration due date
--	--	--	--

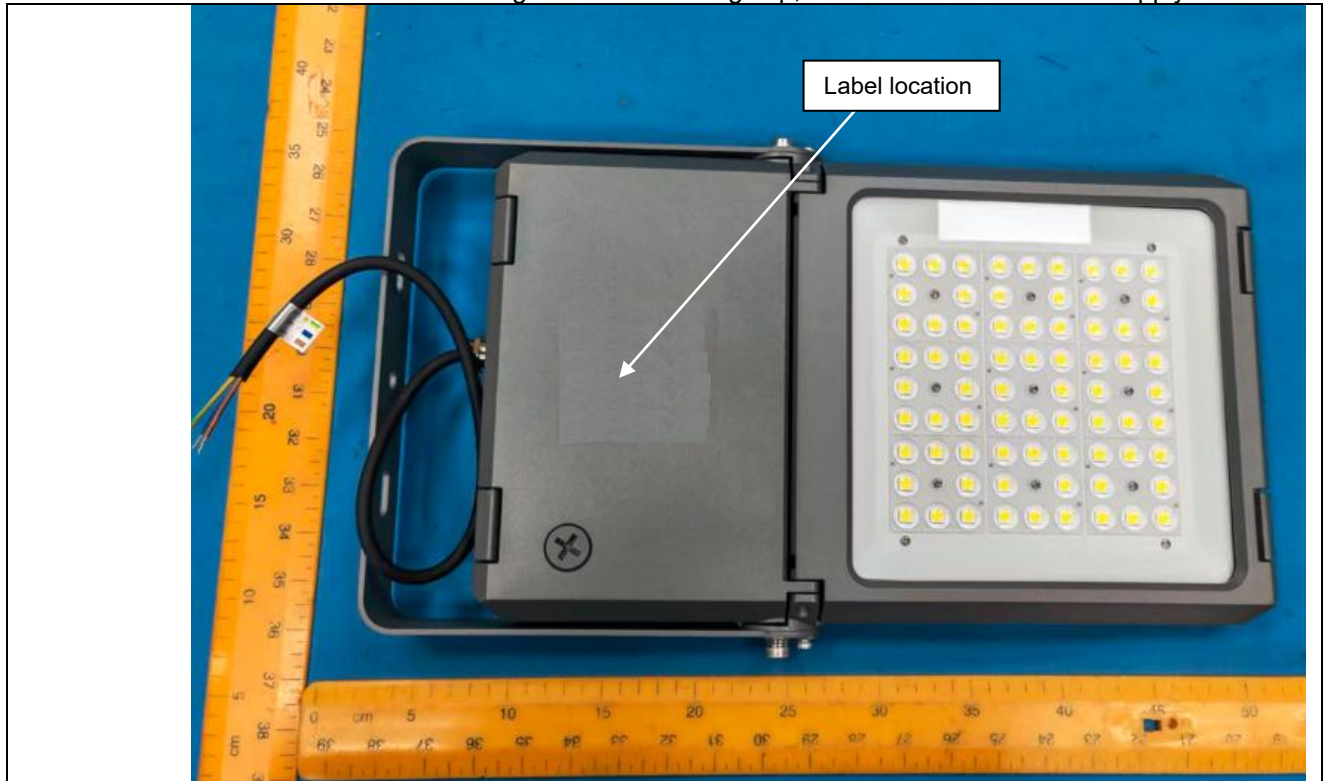
Attachment No. 5

Photo documentation

Page 1 of 13

Report No.: 68.140.26.02441.01

Details of: Front view for AOK-100WFLC(M)-NV-A5-00-5070-BN-B (Representative model)
Construction 1: without Zhaga socket & sealing cap; without terminal block on supply cord



Details of: Back view for AOK-100WFLC(M)-NV-A5-00-5070-BN-B (Representative model)
Construction 1: without Zhaga socket & sealing cap; without terminal block on supply cord



Attachment No. 5

Photo documentation

Page 2 of 13

Report No.: 68.140.26.02441.01

Details of: Front view for AOK-240WFLC(L)-NV-A5-00-5070-BN-B (Representative model)
Construction 1: without Zhaga socket & sealing cap; without terminal block on supply cord



Details of: Back view for AOK-240WFLC(L)-NV-A5-00-5070-BN-B (Representative model)
Construction 1: without Zhaga socket & sealing cap; without terminal block on supply cord



Attachment No. 5

Photo documentation

Page 3 of 13

Report No.: 68.140.26.02441.01

Details of: Front view for AOK-500WFLC(XL)-NV-A5-SN-5070-BN-B (Representative model)
Construction 4: with Zhaga socket & sealing cap (Top enclosure and Bottom enclosure);
with terminal block on supply cord



Details of: Back view for AOK-500WFLC(XL)-NV-A5-SN-5070-BN-B (Representative model)
Construction 4: with Zhaga socket & sealing cap (Top enclosure and Bottom enclosure);
with terminal block on supply cord



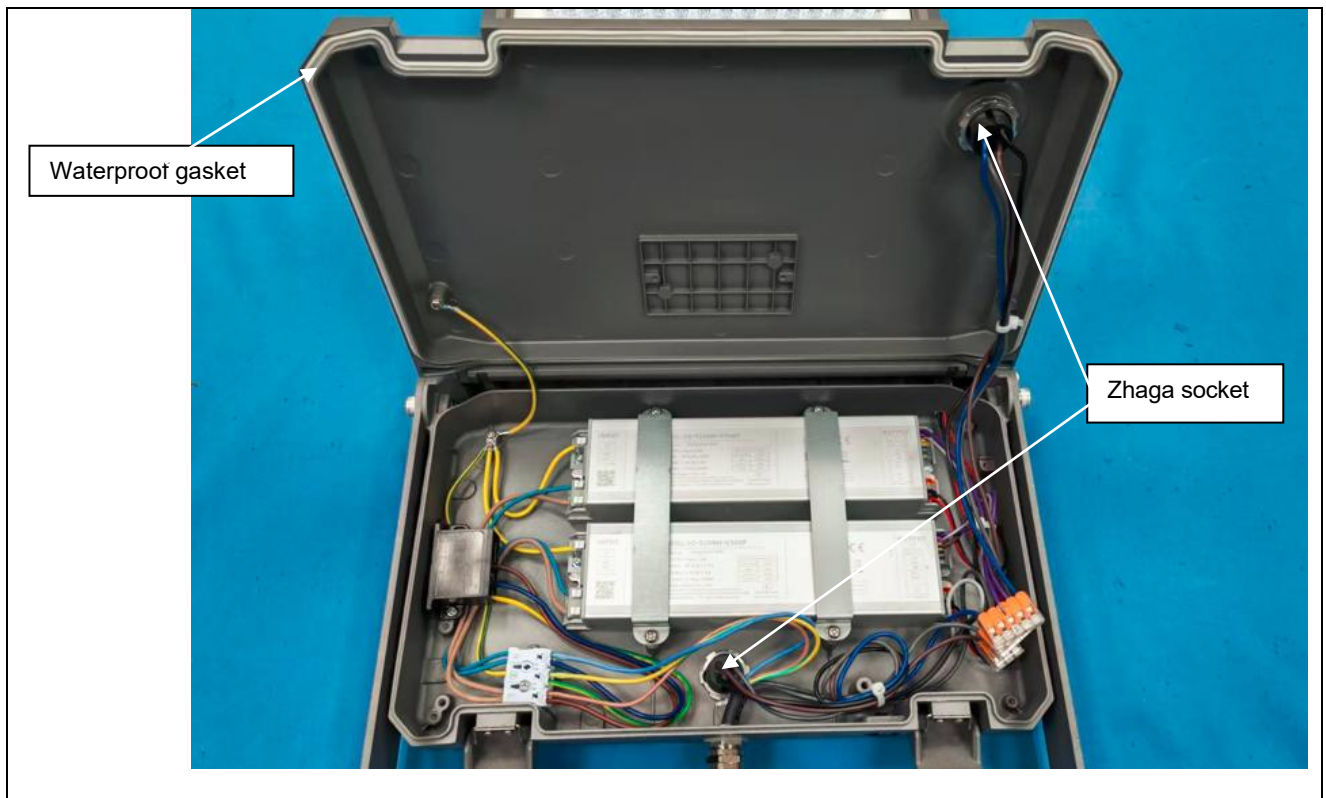
Attachment No. 5

Photo documentation

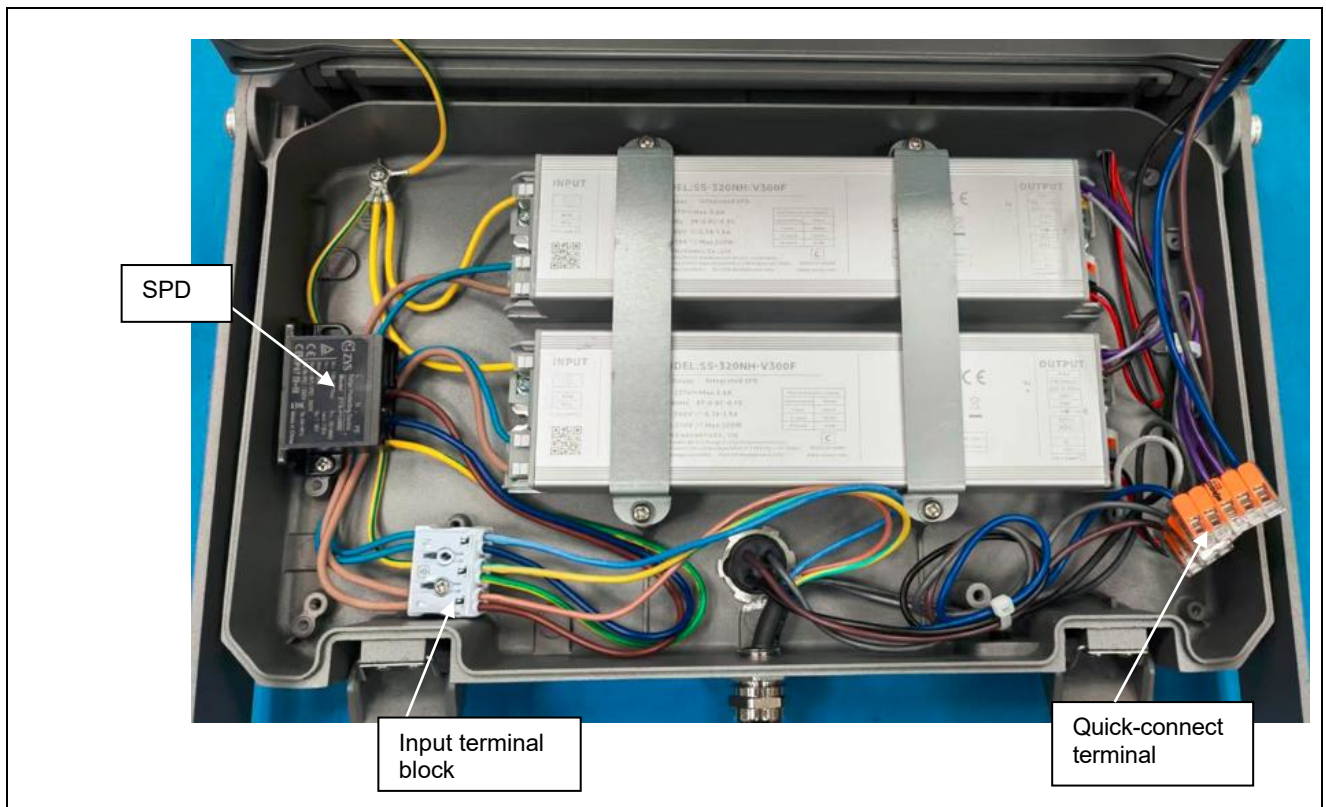
Page 4 of 13

Report No.: 68.140.26.02441.01

Details of: Internal view for AOK-500WFLC(XL)-NV-A5-SN-5070-BN-B (Representative model)



Details of: Internal view for AOK-500WFLC(XL)-NV-A5-SN-5070-BN-B (Representative model)



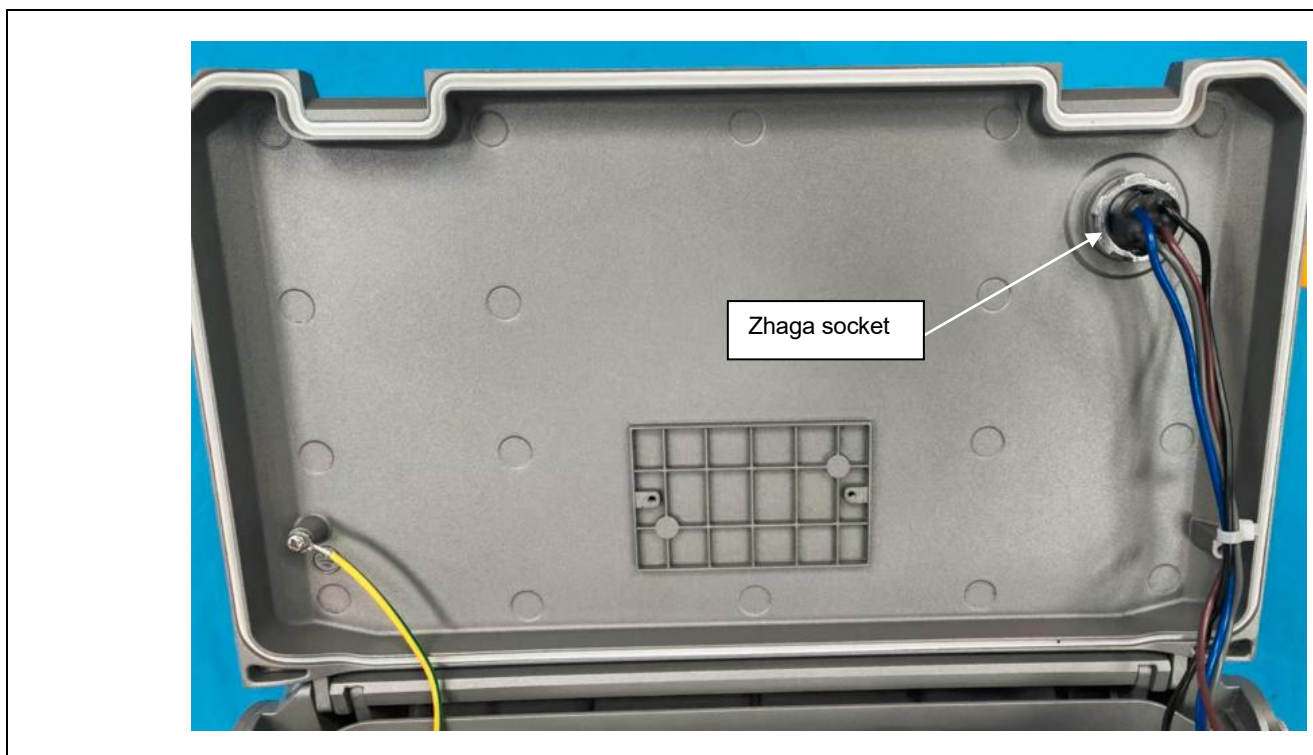
Attachment No. 5

Photo documentation

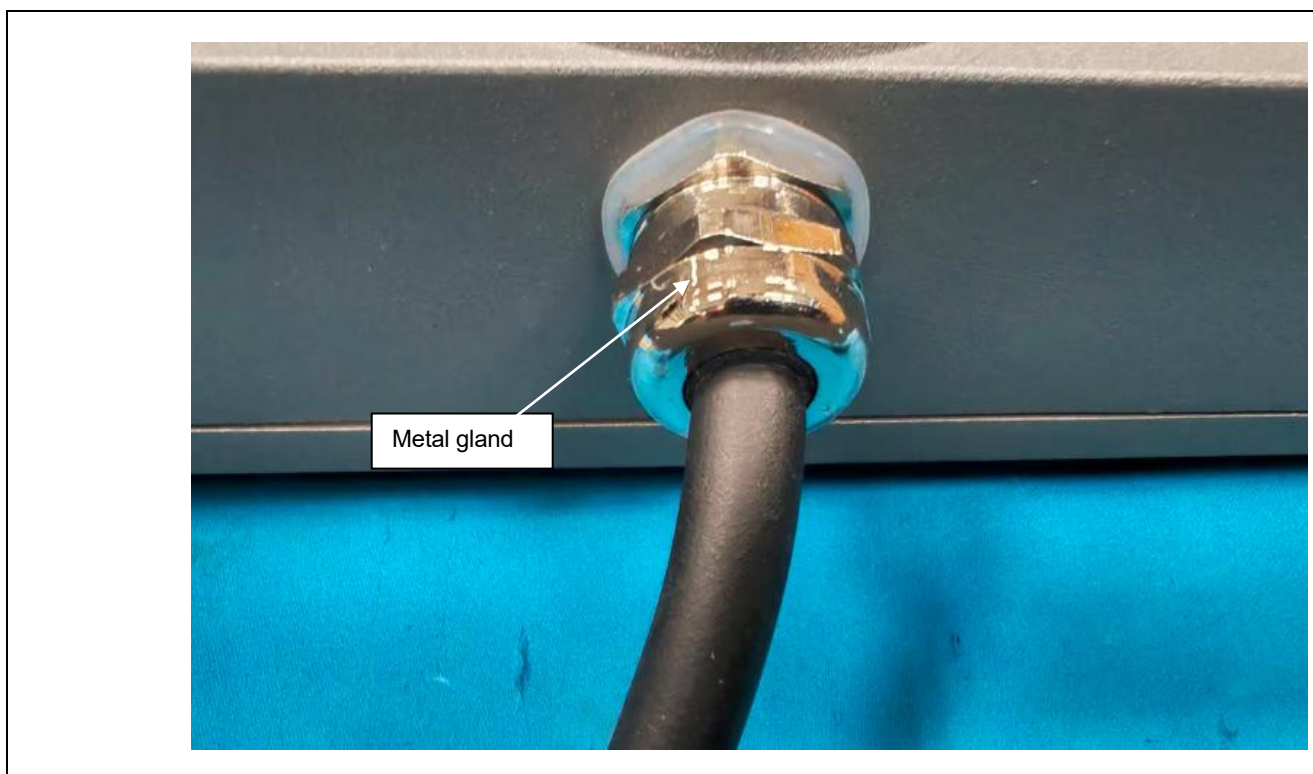
Page 5 of 13

Report No.: 68.140.26.02441.01

Details of: Internal view for AOK-500WFLC(XL)-NV-A5-SN-5070-BN-B (Representative model)



Details of: Cord anchorage view for AOK-500WFLC(XL)-NV-A5-SN-5070-BN-B (Representative model)



Attachment No. 5

Photo documentation

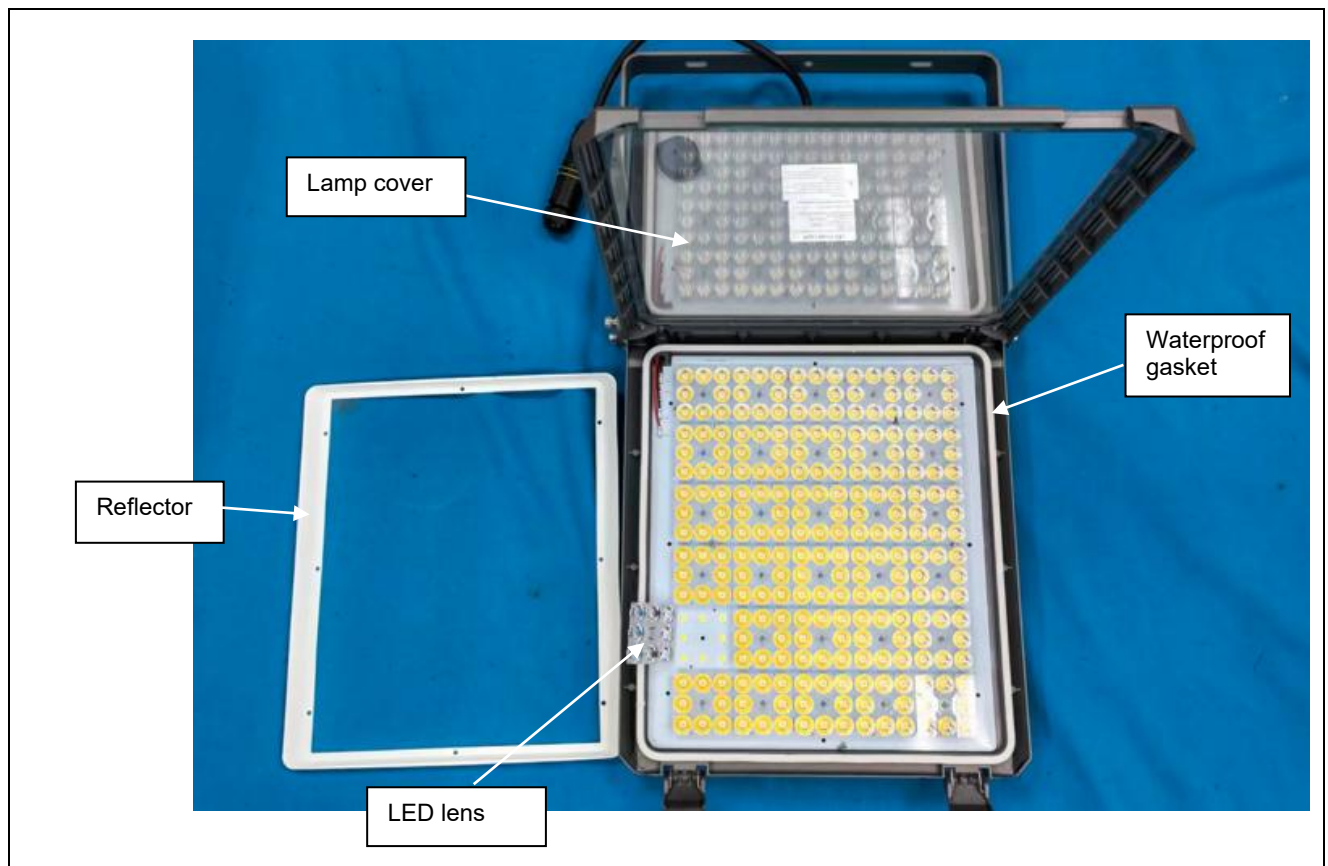
Page 6 of 13

Report No.: 68.140.26.02441.01

Details of: Earthing view for AOK-500WFLC(XL)-NV-A5-SN-5070-BN-B (Representative model)



Details of: Internal view for AOK-500WFLC(XL)-NV-A5-SN-5070-BN-B (Representative model)



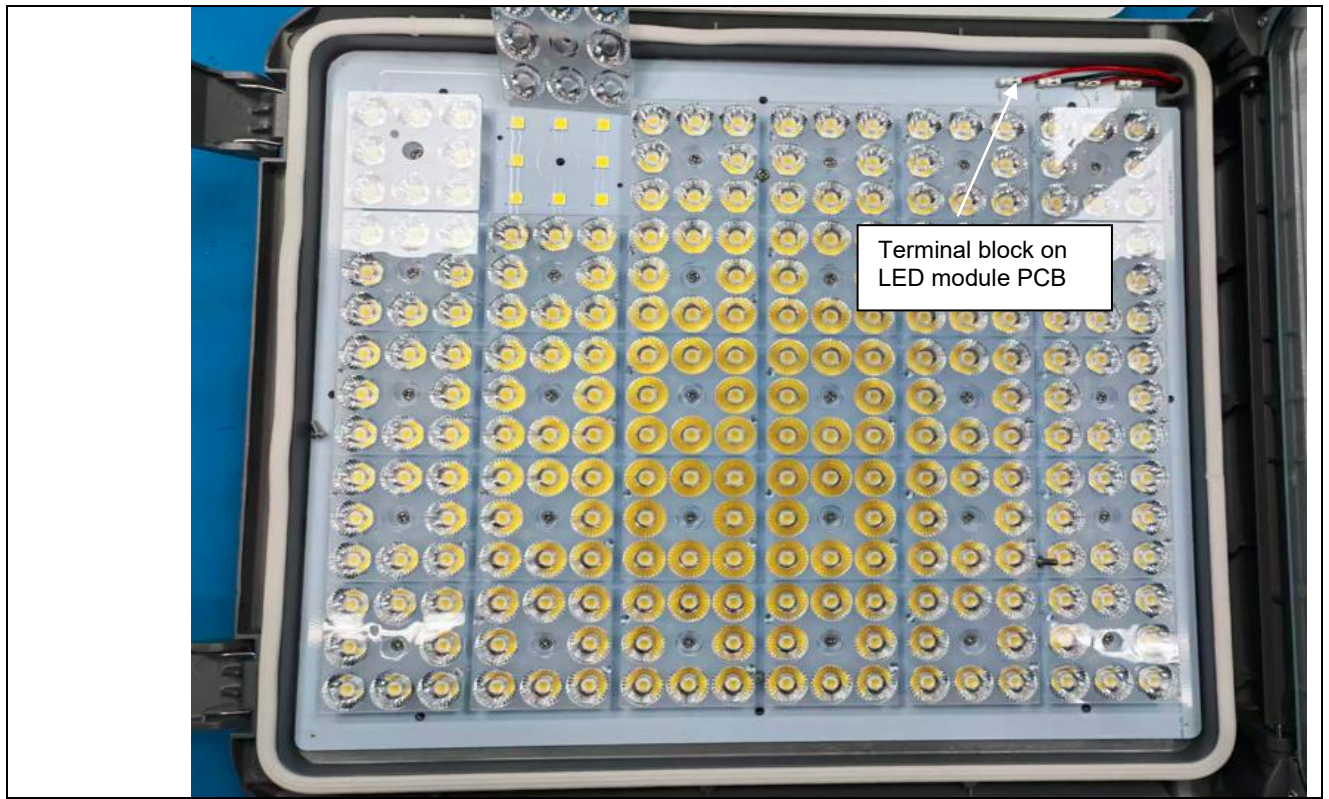
Attachment No. 5

Photo documentation

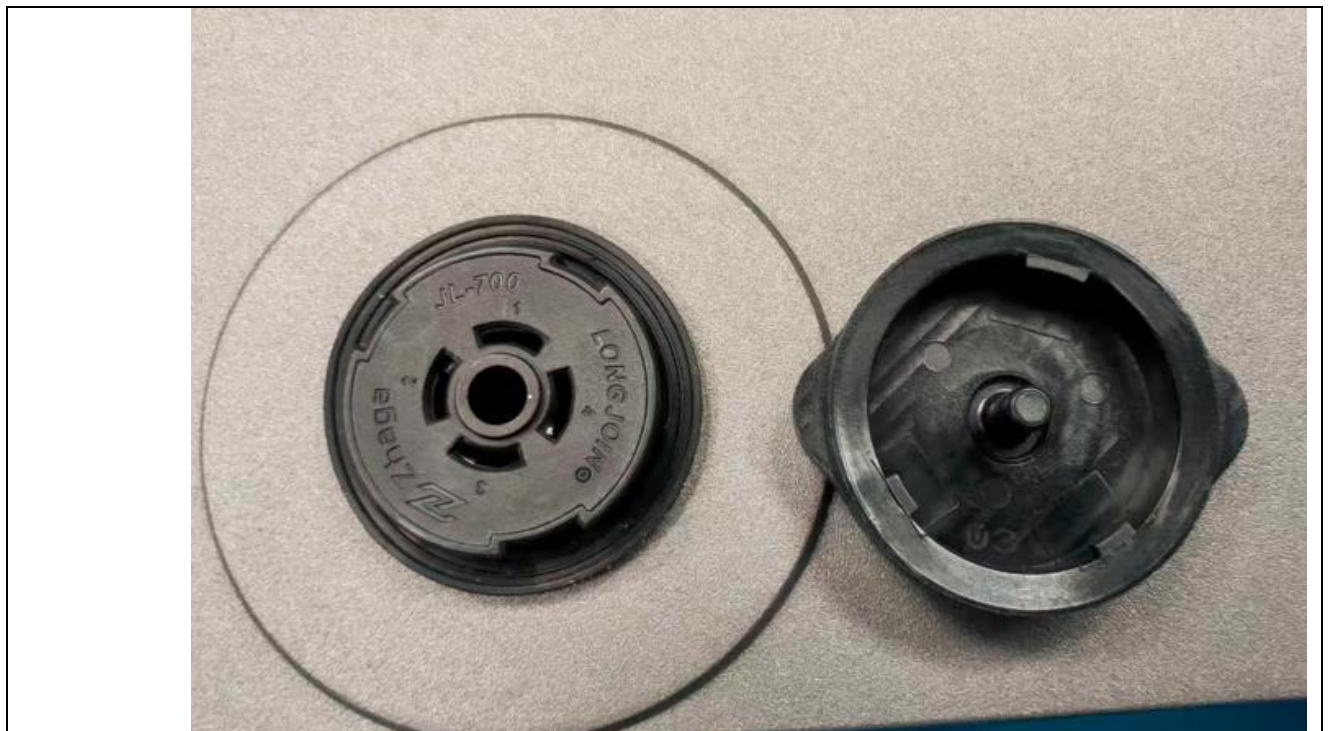
Page 7 of 13

Report No.: 68.140.26.02441.01

Details of: LED module PCB view for AOK-500WFLC(XL)-NV-A5-SN-5070-BN-B (Representative model)



Details of: Zhaga socket & sealing cap view for AOK-500WFLC(XL)-NV-A5-SN-5070-BN-B (Representative model)



Attachment No. 5

Photo documentation

Page 8 of 13

Report No.: 68.140.26.02441.01

Details of: Terminal block on supply cord internal view



Details of: Surge Protective Device (SPD) view



Attachment No. 5

Details of: LED driver view
SS-100NH-V300BHB



Details of: LED driver view
SS-150NH-V300BHB



Attachment No. 5

Photo documentation

Page 10 of 13

Report No.: 68.140.26.02441.01

Details of: LED driver view
SS-200NH-V300BHB



Details of: LED driver view
SS-240NH-V300BHB



Attachment No. 5

Photo documentation

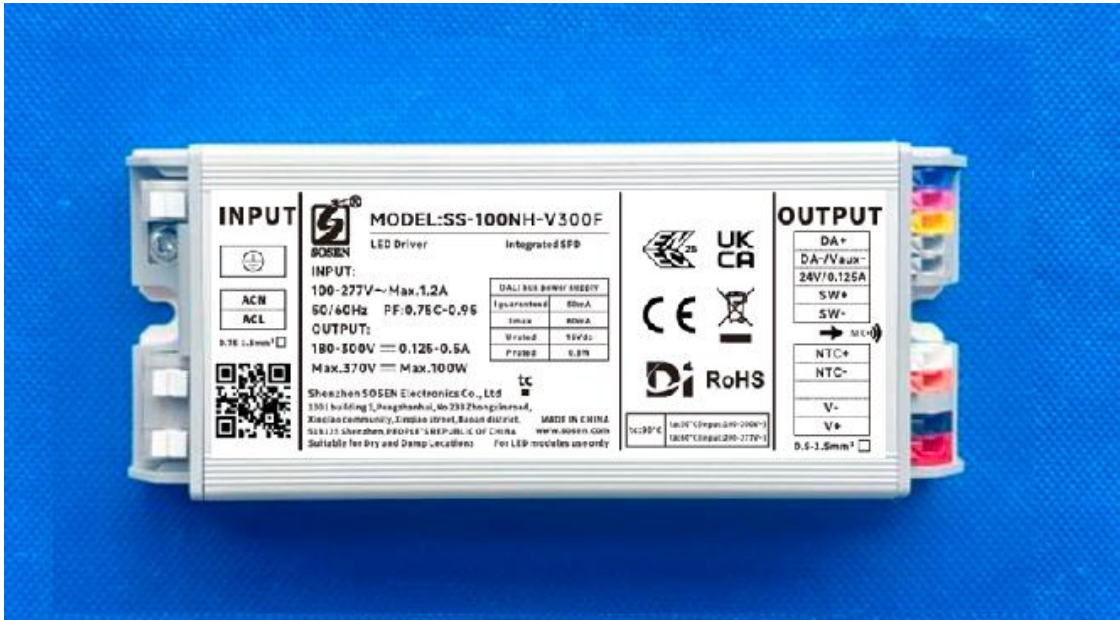
Page 11 of 13

Report No.: 68.140.26.02441.01

Details of: LED driver view
SS-320NH-V300BHB



Details of: LED driver view
SS-100NH-V300F



Attachment No. 5

Photo documentation

Page 12 of 13

Report No.: 68.140.26.02441.01

Details of: LED driver view
SS-150NH-V300F



Details of: LED driver view
SS-200NH-V300F



Attachment No. 5

Photo documentation

Page 13 of 13

Report No.: 68.140.26.02441.01

Details of: LED driver view
SS-240NH-V300F



Details of: LED driver view
SS-320NH-V300F



End of report