APPLICATION FOR LOW VOLTAGE DIRECTIVE
On Behalf of
AOK LED Light Company Limited
LED Sport Light
Model: See page 2

Prepared For : **AOK LED Light Company Limited**

East suite (2/F, Plant 4, St George·s Science and Technology Industrial Park), 3/F, Building 1, St George·s Science and Technology Industrial Park, North side of Xinyu Road, Xinqiao Street, Bao·an District, Shenzhen, Guangdong, China

Prepared By : **Shenzhen Anbotek Compliance Laboratory Limited**

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Date of Test: **Jul. 19, 2018 to Jul. 30, 2018**

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Report Number: **SZALS180719001-01**

TEST REPORT
IEC 60598- 2-5
Part 2: Particular requirements: Section Five – Floodlights

Report

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Compiled by:	Dear Luo
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Testing laboratory

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Testing location:	Same as above

Applicant

Name:	AOK LED Light Company Limited
Address:	East suite (2/F, Plant 4, St George's Science and Technology Industrial Park), 3/F, Building 1, St George's Science and Technology Industrial Park, North side of Xinyu Road, Xinqiao Street, Bao'an District, Shenzhen, Guangdong, China

Test specification

Standard:	IEC 60598-2-5:2015 used in conjunction with IEC 60598-1:2014
Procedure deviation:	N.A.
Non-standard test method:	N.A.

Test item Description

Product name:	LED Sport Light
Trademark:	AOK Quality, Honesty, Service and Innovation
Manufacturer:	Same as applicant
Address:	Same as applicant
Factory:	Same as applicant
Address:	Same as applicant
Model and/or type reference:	See the following rating details
Rating(s):	AC100-277V, 50/60Hz, AOK-300WoF-NV-XX-XX-XXXX-BN: 300W, AOK-400WoF-NV-XX-XX-XXXX-BN: 400W, AOK-460WoF-NV-XX-XX-XXXX-BN: 460W, AOK-300WoFH-NV-XX-XX-XXXX-BN, AOK-400WoFH-NV-XX-XX-XXXX-BN, AOK-460WoFH- NV-XX-XX-XXXX-BN oF=Represents product series W Represents input wattage, which can be 460, followed by WoD XX Represents input voltage, which can be as following: NV - 100-277 Vac

	XX Can be “X5” or “L3” to represent brands of LED XX Represents Motions Sensor, which be as following: 00 - No sensor provided, or PH - Plug-In photocontrol provided SN-with sensor XXXX Can be any numbers to represents color temperature and color rendering index BN Can be any letter or number to represents beam angles.

Test item particulars	
Classification of installation anduse .....:	LED Sport Light
Supply connection .....:	Non-detachable power cord without plug
Protection class..... :	Class I
Degree of protection .....:	IP66
Test case verdicts	
Test case does not apply to the test object .....:	N(.A.)
Test item does meet the requirement .....:	P(ass)
Test item does not meet the requirement .....:	F(ail)
Testing	
Date of receipt of test item.....:	Jul. 19, 2018
Date(s) of performance of test .....:	Jul. 19, 2018 to Jul. 30, 2018

General remarks

This report shall not be reproduced except in full without the written approval of the testing laboratory.
The test results presented in this report relate only to the item tested.
Clause numbers between brackets refer to clauses in EN 60598- 1.
"(see remark #)" refers to a remark appended to the report.
"(see Annex #)" refers to an annex appended to the report.
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.

Summary of testing
Tests performed
- EN 60598-1:2015
- EN 60598-2-5:2015
- EN 62031:2008+A1:2013+A2:2015
- EN 62471:2008
- EN 62493:2015

The submitted samples were found to comply with the above specification.

List of Attachments

Attachment 1: Test report of EN 62031:2008+A1:2013+A2:2015
Attachment 2: Test report of EN 62471:2008
Attachment 3: Test report of EN 62493:2015
Attachment 4: European differences according to EN 60598-2-5:2015
Attachment 5: Photo documentation

Copy of marking plate

AOK LED Light Company Limited
LED Sport Light
Model No.: AOK-460WoF-NV-L5-PH-5770-30-A
Rating: 100-277V~, 50/60Hz, 460W Max, 5.1A
CCT: 5700K ta:50℃

IP66

Beam Angle: 30°
SUITABLE FOR WET LOCATIONS
NO USER SERVICEABLE PARTS INSIDE
Product Date: 08/02/2018
MADE IN CHINA
Do not disassemble if non-professional

Location: Sticking on the enclosure.

Remark: height of WEEE symbol at least 7mm; height of other symbols at least 5mm, height of letters and numbers at least 2mm.Rating labels for other models are same except the model name and rating.

General product information

LED Sport Light for indoor and outdoor use. Class I, IP66.

Model list:

AOK-300WoF-NV-XX-XX-XXXX-BN: 300W, AOK-400WoF-NV-XX-XX-XXXX-BN: 400W, AOK-460WoF-NV-XX-XX-XXXX-BN: 460W, AOK-300WoFH-NV-XX-XX-XXXX-BN, AOK-400WoFH-NV-XX-XX-XXXX-BN, AOK-460WoFH- NV-XX-XX-XXXX-BN

oF=Represents product series

W Represents input wattage, which can be 460, followed by WoD

XX Represents input voltage, which can be as following:

NV - 100-277 Vac

XX Can be “X5” or “L3” to represent brands of LED

XX Represents Motions Sensor, which be as following:

00 - No sensor provided, or

PH - Plug-In photocontrol provided

SN-with sensor

XXXX Can be any numbers to represents color temperature and color rendering index

BN Can be any letter or number to represents beam angles.

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict
5.4 (0+2)	**CLASSIFICATION OF LUMINAIRES**		—
5.4 (0.1)	Information for luminaire design considered.....:	Yes ☒ No ☐ Lamp standard:	—
5.4 (0.3)	More sections applicable.....:	Yes ☐ No ☒ Section/s:	—
5.4 (2.2)	Type of protection .....:	Class I	P
5.4 (2.3)	Degree of protection.....:	IP66	P
5.4 (2.4)	Luminaire suitable for direct mounting on normally flammable surfaces.....:	Yes ☒ No ☐	—
5.4 (2.5)	Luminaire for normal use .....:	Yes ☒ No ☐	—
	Luminaire for rough service .....:	Yes ☐ No ☒	—

5.5 (3)	**MARKING**		—
5.5 (3.2)	Mandatory markings		P
	Position of the marking		P
	Format of symbols/text		P
5.5 (3.3)	Additional information		P
	Language of instructions	English	P
5.5 (3.3.1)	Combination luminaires		N
5.5 (3.3.2)	Nominal frequency in Hz	50/60Hz	P
5.5 (3.3.3)	Operating temperature		N
5.5 (3.3.4)	Symbol or warning notice		N
5.5 (3.3.5)	Wiring diagram		N
5.5 (3.3.6)	Special conditions		N
5.5 (3.3.7)	Metal halide lamp luminaire – warning		N
5.5 (3.3.8)	Limitation for semi-luminaires		N
5.5 (3.3.9)	Power factor and supply current		N
5.5 (3.3.10)	Suitability for use indoors		N
5.5 (3.3.11)	Luminaires with remote control		N
5.5 (3.3.12)	Clip-mounted luminaire – warning		N
5.5 (3.3.13)	Specifications of protective shields		N
5.5 (3.3.14)	Symbol for nature of supply	~	P
5.5 (3.3.15)	Rated current of socket outlet		N
5.5 (3.3.16)	Rough service luminaire		N
5.5 (3.3.17)	Mounting instruction for type Y, type Z and some type X attachments	Type Y	P
5.5 (3.3.18)	Non-ordinary luminaires with PVC cable		N

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict
5.5 (3.3.19)	Protective conductor current in instruction if applicable		N
5.5 (3.3.20)	Provided with information if not intended to be mounted within arm's reach		N
5.5 (3.3.21)	Non replaceable and non-user replaceable light sources information provided	Non-user replaceable light sources	P
	Cautionary symbol		P
5.5 (3.3.22)	Controllable luminaires, insulation		N
5.5 (3.4)	Test with water	Rubbed lightly for 15 s	P
	Test with hexane	For a further 15 s	P
	Legible after test		P
	Label attached		P
5.5 (-)	Additional necessary marking		P
	Operation position		P
	Weight and dimensions		P
	Maximum protected area		P
	Range of mounting heights		P
	Suitability for indoor use		P
5.6 (4)	**CONSTRUCTION**		—
5.6 (4.2)	Components replaceable without difficulty		N
5.6 (4.3)	Wireways smooth and free from sharp edges		P
5.6 (4.4)	Lampholders		N
5.6 (4.4.1)	Integral lampholder		N
5.6 (4.4.2)	Wiring connection		N
5.6 (4.4.3)	Lampholder for end- to- end mounting		N
5.6 (4.4.4)	Positioning		N
	- pressure test (N) .....:		—
	After test the lampholder comply with relevant standard sheets and show no damage		N
	After test on single-capped lampholder the lampholder have not moved from its position and show no permanent deformation		N
	- bending test (Nm) .....:		—
	After test the lampholder have not moved from its position and show no permanent deformation		N
5.6 (4.4.5)	Peak pulse voltage		N
5.6 (4.4.6)	Centre contact		N

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict
5.6 (4.4.7)	Parts in rough service luminaires resistant to tracking		N
5.6 (4.4.8)	Lamp connectors		N
5.6 (4.4.9)	Caps and bases correctly used		N
5.6 (4.4.10)	Light source for lampholder or connection according IEC 60061 not connected another way		N
5.6 (4.5)	Starter holders		N
	Starter holder in luminaires other than class II		N
	Starter holder class II construction		N
5.6 (4.6)	Terminal blocks		P
	Tails		P
	Unsecured blocks		P
5.6 (4.7)	Terminals and supply connections		P
5.6 (4.7.1)	Contact to metal parts		P
5.6 (4.7.2)	Test 8 mm live conductor		P
	Test 8 mm earth conductor		P
5.6 (4.7.3)	Terminals for supply conductors		P
5.6 (4.7.3.1)	Welded connections:		N
	- stranded or solid conductor		N
	- spot welding		N
	- welding between wires		N
	- Type Z attachment		N
	- mechanical test according to 15.8.2		N
	- electrical test according to 15.9		N
	- heat test according to 15.9.2.3 and 15.9.2.4		N
5.6 (4.7.4)	Terminals other than supply connection		P
5.6 (4.7.5)	Heat-resistant wiring/sleeves		N
5.6 (4.7.6)	Multi-pole plug		N
	- test at 30 N		N
5.6 (4.8)	Switches:		N
	- adequate rating		N
	- adequate fixing		N
	- polarized supply		N
	- compliance with IEC 61058-1 for electronic switches		N
5.6 (4.9)	Insulating lining and sleeves		N
5.6 (4.9.1)	Retainment		N
	Method of fixing.....:		—

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict
5.6 (4.9.2)	Insulated linings and sleeves		N
	Resistant to a temperature > 20 °C to the wire temperature or		N
	a) & c) Insulation resistance and electric strength		N
	b) Ageing test. Temperature (°C).....:		N
5.6 (4.10)	Double or reinforced insulation		N
5.6 (4.10.1)	No contact, mounting surface – accessible metal parts – wiring of basic insulation		N
	Safe installation fixed luminaires		N
	Capacitors and switches		N
	Interference suppression capacitors according to IEC 60384-14		N
5.6 (4.10.2)	Assembly gaps:		N
	- not coincidental		N
	- no straight access with test probe		N
5.6 (4.10.3)	Retainment of insulation:		N
	- fixed		N
	- unable to be replaced; luminaire inoperative		N
	- sleeves retained in position		N
	- lining in lampholder		N
5.6 (4.11)	Electrical connections and current-carrying parts		P
5.6 (4.11.1)	Contact pressure		P
5.6 (4.11.2)	Screws:		P
	- self-tapping screws		P
	- thread- cutting screws		N
5.6 (4.11.3)	Screw locking:		N
	- spring washer		N
	- rivets		N
5.6 (4.11.4)	Material of current-carrying parts		P
5.6 (4.11.5)	No contact to wood or mounting surface		P
5.6 (4.11.6)	Electro-mechanical contact systems		N
5.6 (4.12)	Screws and connections (mechanical) and glands		P
5.6 (4.12.1)	Screws not made of soft metal		P
	Screws of insulating material		N
	Torque test: torque (Nm); part.....:	Fixed metal housing screws: 2,0Nm	P

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict
	Torque test: torque (Nm); part.....:	Fixed plastic cover screws:0,5Nm	P
	Torque test: torque (Nm); part.....:		N
5.6 (4.12.2)	Screws with diameter < 3 mm screwed into metal		N
5.6 (4.12.4)	Locked connections:		N
	- fixed arms; torque (Nm)..... :		N
	- lampholder; torque (Nm)..... :		N
	- push-button switches; torque 0,8 Nm..... :		N
5.6 (4.12.5)	Screwed glands; force (Nm)..... :	Metal glands for supply cord; 7.5Nm	P
5.6 (4.13)	Mechanical strength		P
5.6 (4.13.1)	Impact tests:		P
	- fragile parts; energy (Nm)..... :		N
	- other parts; energy (Nm)..... :	0.7Nm	P
	1) live parts		P
	2) linings		N
	3) protection		P
	4) covers		P
5.6 (4.13.3)	Straight test finger		P
5.6 (4.13.4)	Rough service luminaires		N
	- IP54 or higher		N
	a) fixed		N
	b) hand-held		N
	c) delivered with a stand		N
	d) for temporary installations and suitable for mounting on a stand		N
5.6 (4.13.6)	Tumbling barrel		N
5.6 (4.14)	Suspensions, fixings and means of adjusting		P
5.6 (4.14.1)	Mechanical load:		P
	A) four times the weight		P
	B) torque 2,5 Nm		P
	C) bracket arm; bending moment (Nm)..... :		N
	D) load track- mounted luminaires		N
	E) clip-mounted luminaires, glass-shelve. Thickness (mm) ..... :		N
	Metal rod. diameter (mm) .....:		N
	Fixed luminaire or independent control gear without fixing devices		N

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict
5.6 (4.14.2)	Load to flexible cables		N
	Mass (kg) ..... :		—
	Stress in conductors (N/mm²) ..... :		N
	Mass (kg) of semi-luminaire ..... :		—
	Bending moment (Nm) of semi-luminaire ..... :		N
5.6 (4.14.3)	Adjusting devices:		P
	- flexing test; number of cycles..... :	45	P
	- strands broken..... :		N
	- electric strength test afterwards		P
5.6 (4.14.4)	Telescopic tubes: cords not fixed to tube; no strain on conductors		N
5.6 (4.14.5)	Guide pulleys		N
5.6 (4.14.6)	Strain on socket-outlets		N
5.6 (4.15)	Flammable materials:		N
	- glow- wire test 650°C..... :	See Test Table 5.15 (13.3.2)	P
	- spacing ≥30 mm		P
	- screen withstanding test of 13.3.1		N
	- screen dimensions		N
	- no fiercely burning material		P
	- thermal protection		N
	- electronic circuits exempted		N
5.6 (4.15.2)	Luminaires made of thermoplastic material with lamp control gear		N
	a) construction		N
	b) temperature sensing control		N
	c) surface temperature		N
5.6 (4.16)	Luminaires for mounting on normally flammable surfaces		N
	No lamp control gear..... :	(compliance with Section 12)	N
5.6 (4.16.1)	Lamp control gear spacing:		N
	- spacing 35 mm		N
	- spacing 10 mm		N
5.6 (4.16.2)	Thermal protection:		N
	- in lamp control gear		N
	- external		N
	- fixed position		N
	- temperature marked lamp control gear		N
5.6 (4.16.3)	Design to satisfy the test of 12.6	(see clause 12.6)	N

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict
5.6 (4.17)	Drain holes		N
	Clearance at least 5 mm		N
5.6 (4.18)	Resistance to corrosion:		N
5.6 (4.18.1)	- rust- resistance		N
5.6 (4.18.2)	- season cracking in copper		N
5.6 (4.18.3)	- corrosion of aluminium		N
5.6 (4.19)	Igniters compatible with ballast		N
5.6 (4.20)	Rough service vibration		N
5.6 (4.21)	Protective shield:		N
5.6 (4.21.1)	Shield fitted if tungsten halogen lamps or metal halide lamps		N
	Shield of glass if tungsten halogen lamps		N
5.6 (4.21.2)	Particles from a shattering lamp not impair safety		N
5.6 (4.21.3)	No direct path		N
5.6 (4.21.4)	Impact test on shield		N
	Glow-wire test on lamp compartment.....:	See Test Table 5.15 (13.3.2)	N
5.6 (4.22)	Attachments to lamps		N
5.6 (4.23)	Semi-luminaires comply Class II		N
5.6 (4.24.1)	No excessive UV radiation if tungsten halogen lamps and metal halide lamps (Annex P)		N
5.6 (4.24.2)	Retinal blue light hazard		N
	Luminaires with E_{thr}		N
	a) Fixed luminaires		N
	- distance x m, borderline between RG1 and RG2 .. :	RG1	N
	- marking and instruction according 3.2.23		N
	b) Portable and handheld luminaires		N
	- marking according 3.2.23 if RG1 exceeded at 200 mm according to IEC/TR 62778		N
	Portable luminaires for children IEC 60598-2-10 and Mains socket outlet nightlights IEC 60598-2-12 not exceed RG1 at 200 mm according to IEC/62778		N
5.6 (4.25)	Mechanical hazard		P
	No sharp point or edges		P
5.6 (4.26)	Short-circuit protection:		N
5.6 (4.26.1)	Adequate means of uninsulated accessible SELV parts		N
5.6 (4.26.2)	Short-circuit test with test chain according 4.26.3		N
	Test chain not melt through		N

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict
	Test sample not exceed values of Table 12.1 and 12.2		N
5.6 (4.27)	Terminal blocks with integrated screwlessearthing contacts		N
	Test according Annex V		N
	Pull test of terminal fixing (20 N)		N
	After test, resistance < 0,05 Ω		N
	Pull test of mechanical connection (50 N)		N
	After test, resistance < 0,05 Ω		N
	Voltage drop test, resistance < 0,05 Ω		N
5.6 (4.28)	Fixing of thermal sensing control		N
	Not plug-in or easily replaceable type		N
	Reliably kept in position		N
	No adhesive fixing if UV radiations from a lamp can degrade the fixing		N
	Not outside the luminaire enclosure		N
	Test of adhesive fixing:		N
	Max. temperature on adhesive material (°C) ..... :		N
	100 cycles between t min and t max		N
	Temperature sensing control still in position		N
5.6 (4.29)	Luminaires with non-replaceable light source		N
	Not possible to replace light source		N
	Live part not accessible after parts have been opened by hand or tools		N
5.6 (4.30)	Luminaires with non-user replaceable light source		P
	If protective cover provide protection against electric shock and marked with “caution, electric shock risk” symbol:		N
	Minimum two fixing means		N
5.6 (4.31)	Insulation between circuits		P
	Circuits insulated from LV supply fulfil requirements according 4.31.1 – 4.31.3		P
	Controllable luminaires requiring same level of insulation for all components, the insulation between control terminals and LV supply fulfil requirements according 4.31.1 – 4.31.3		N
5.6 (4.31.1)	SELV circuits		P
	Used SELV source		P
	Voltage ≤ ELV		P
	Insulating of SELV circuits from LV supply		P

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict
	Insulating of SELV circuits from other non SELV circuits		P
	Insulating of SELV circuits from FELV		N
	Insulating of SELV circuits from other SELV circuits		N
	SELV circuits insulated from accessible parts according Table X.1		P
	Plugs not able to enter socket-outlets of other voltage systems		N
	Socket outlets does not admit plugs of other voltage systems		N
	Plugs and socket-outlets does not have protective conductor contact		N
5.6 (4.31.2)	FELV circuits		N
	Used FELV source		N
	Voltage ≤ ELV		N
	Insulating of FELV circuits from LV supply		N
	FELV circuits insulated from accessible parts according Table X.1		N
	Plugs not able to enter socket-outlets of other voltage systems		N
	Socket outlets does not admit plugs of other voltage systems		N
	Socket-outlets does not have protective conductor contact		N
5.6 (4.31.3)	Other circuits		N
	Other circuits insulated from accessible parts according Table X.1		N
	Class II construction with equipotential bonding for protection against indirect contacts with live parts:		N
	- conductive parts are connected together		N
	- test according 7.2.3 of above		N
	- conductive part not cause an electric shock in case of an insulation fault		N
	- equipotential bonding in master/slave applications		N
	- master luminaire provided with terminal for accessible conductive parts of slave luminaires		N
	- slave luminaire constructed as class I		N
5.6 (4.32)	Overvoltage protective devices		N
	Comply with IEC 61643-11		N
	External to control gear and connected to earth:		N
	- only in fixed luminaires		N

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict
	- only connected to protective earth		N
5.6.1 (-)	At least IPX3 if for outdoor use		P
5.6.2 (-)	Lampholder brackets and lamp supports		N
5.6.3 (-)	Adjusting means		N
5.6.4 (-)	Controlling components		N
5.6.5 (-)	Fixing device		P
	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 .....:		—
5.7 (11)	**CREEPAGE DISTANCES AND CLEARANCES**		—
5.7 (11.2)	Creepage distances and clearances.....:	See Table 5.7 (11.2)	P
	Impulse withstand category (Normal category II) (Category III Annex U, Table U.1)	Category II ☒ Category III ☐	—
5.8 (7)	**PROVISION FOR EARTHING**		—
5.8 (7.2.1 + 7.2.3)	Accessible metal parts		P
	Metal parts in contact with supporting surface		P
	Resistance < 0,5 Ω.....:	0.027Ω	P
	Self-tapping screws used		N
	Thread-forming screws		N
	Thread-forming screw used in a grove		P
	Earth makes contact first		P
	Terminal blocks with integrated screwlessearthing contacts tested according Annex V		N
	Built-in control gear		N
5.8 (7.2.2 + 7.2.3)	Earth continuity in joints, etc.		N
4.8 (7.2.4)	Locking of clamping means		P
	Compliance with 4.7.3		P
	Terminal blocks with integrated screwlessearthing contacts tested according Annex V		N
5.8 (7.2.5)	Earth terminal integral part of connector socket		N
5.8 (7.2.6)	Earth terminal adjacent to mains terminals		P

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict
5.8 (7.2.7)	Electrolytic corrosion of the earth terminal		P
5.8 (7.2.8)	Material of earth terminal		P
	Contact surface bare metal		P
5.8 (7.2.10)	Class II luminaire for looping-in		N
	Double or reinforced insulation to functional earth		N
5.8 (7.2.11)	Earthing core coloured green-yellow		P
	Length of earth conductor		P
5.9 (14)	**SCREW TERMINALS**		—
	Separately approved; component list.....:	(see Annex 1)	P
	Part of the luminaire.....:	(see Annex 3)	N
5.9 (15)	**SCREWLESS TERMINALS AND ELECTRICAL CONNECTIONS**		—
	Separately approved; component list.....:	(see Annex 1)	N
	Part of the luminaire.....:	(see Annex 3)	N
5.10 (5)	**EXTERNAL AND INTERNAL WIRING**		—
5.10 (5.2)	Supply connection and external wiring		P
5.10 (5.2.1)	Means of connection.....:	Non-detachable power cord without plug	P
	Outdoor luminaire has not PVC insulated external wiring if not class III or SELV ≤ 25 V a.c./60 V d.c. or protected from outdoor environment		N
5.10 (5.2.2)	Type of cable.....:	SOOW	P
	Nominal cross-sectional area (mm²)..... :	18AWG	P
	Cables equal to IEC 60227 or IEC 60245	IEC 60245	P
5.10 (5.2.3)	Type of attachment, X, Y or Z	Type Y	P
5.10 (5.2.5)	Type Z not connected to screws		N
5.10 (5.2.6)	Cable entries:		P
	- suitable for introduction		P
	- adequate degree of protection		P
5.10 (5.2.7)	Cable entries through rigid material have rounded edges		P
5.10 (5.2.8)	Insulating bushings:		N
	- suitably fixed		N
	- material in bushings		N
	- material not likely to deteriorate		N

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Clause	Requirement + Test	Result - Remark	Verdict
	- tubes or guards made of insulating material		N
5.10 (5.2.9)	Locking of screwed bushings		N
5.10 (5.2.10)	Cord anchorage:		P
	- covering protected from abrasion		N
	- clear how to be effective		P
	- no mechanical or thermal stress		P
	- no tying of cables into knots etc.		P
	- insulating material or lining		N
5.10 (5.2.10.1)	Cord anchorage for type X attachment:		N
	a) at least one part fixed		N
	b) types of cable		N
	c) no damaging of the cable		N
	d) whole cable can be mounted		N
	e) no touching of clamping screws		N
	f) metal screw not directly on cable		N
	g) replacement without special tool		N
	Glands not used as anchorage		N
	Labyrinth type anchorages		N
5.10 (5.2.10.2)	Adequate cord anchorage for type Y and type Z attachment		P
5.10 (5.2.10.3)	Tests:		P
	- impossible to push cable; unsafe		P
	- pull test: 25 times; pull (N)..... :	60N	P
	- torque test: torque (Nm)..... :	0.25Nm	P
	- displacement ≤ 2 mm	0.5mm	P
	- no movement of conductors		P
	- no damage of cable or cord		P
5.10 (5.2.11)	External wiring passing into luminaire		P
5.10 (5.2.12)	Looping- in terminals		N
5.10 (5.2.13)	Wire ends not tinned		N
	Wire ends tinned: no cold flow		P
5.10 (5.2.14)	Mains plug same protection		N

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Clause	Requirement + Test	Result - Remark	Verdict
	Class III luminaire plug		N
	No unsafe compatibility		N
5.10 (5.2.16)	Appliance inlets (IEC 60320)		N
	Installation couplers (IEC 61535)		N
	Other appliance inlet or connector		N
	Relevant IEC standard		N
5.10 (5.2.17)	No standardized interconnecting cables properly assembled		N
1.10 (5.2.18)	Used plug in accordance with		N
	- IEC 60083		N
	- other standard		N
5.10 (5.3)	Internal wiring		P
5.10 (5.3.1)	Internal wiring of suitable size and type		P
	Through wiring		N
	- not delivered/ mounting instruction		N
	- factory assembled		N
	- socket outlet loaded (A)..... :		N
	- temperatures.....:	(see Annex 2)	N
	Green- yellow for earth only		P
5.10 (5.3.1.1)	Internal wiring connected directly to fixed wiring		P
	Cross-sectional area (mm²)..... :		P
	Insulation thickness		P
	Extra insulation added where necessary		N
5.10 (5.3.1.2)	Internal wiring connected to fixed wiring via internal current-limiting device		P
	Adequate cross-sectional area and insulation thickness		P
5.10 (5.3.1.3)	Double or reinforced insulation for class II		N
5.10 (5.3.1.4)	Conductors without insulation		N
5.10 (5.3.1.5)	SELV current-carrying parts		P
5.10 (5.3.1.6)	Insulation thickness other than PVC or rubber		N
5.10 (5.3.2)	Sharp edges etc.		P

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Clause	Requirement + Test	Result - Remark	Verdict
	No moving parts of switches etc.		N
	Joints, raising/lowering devices		N
	Telescopic tubes etc.		N
	No twisting over 360°		P
5.10 (5.3.3)	Insulating bushings:		N
	- suitable fixed		N
	- material in bushings		N
	- material not likely to deteriorate		N
	- cables with protective sheath		N
5.10 (5.3.4)	Joints and junctions effectively insulated		N
5.10 (5.3.5)	Strain on internal wiring		N
5.10 (5.3.6)	Wire carriers		N
5.10 (5.3.7)	Wire ends not tinned		N
	Wire ends tinned: no cold flow		P
5.11 (8)	**PROTECTION AGAINST ELECTRIC SHOCK**		—
5.11 (8.2.1)	Live parts not accessible		P
	Basic insulated parts not used on the outer surface without appropriate protection		P
	Basic insulated parts not accessible with standard test finger on portable, settable and adjustable luminaires		N
	Basic insulated parts not accessible with Ø 50 mm probe from outside, other types of luminaires		P
	Lampholder and starterholders in portable and adjustable luminaires comply with double or reinforced insulation requirements		N
	Basic insulation only accessible under lamp or starter replacement		N
	Protection in any position		P
	Double-ended tungsten filament lamp		N
	Insulation lacquer not reliable		N
	Double-ended high pressure discharge lamp		N
	Relevant warning according to 3.2.18 fitted to the luminaire		N
5.11 (8.2.2)	Portable luminaire adjusted in most unfavourable position		N
5.11 (8.2.3.a)	Class II luminaire:		N

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Clause	Requirement + Test	Result - Remark	Verdict
	- basic insulated metal parts not accessible during starter or lamp replacement		N
	- basic insulation not accessible other than during starter or lamp replacement		N
	- glass protective shields not used as supplementary insulation		N
5.11 (8.2.3.b)	BC lampholder of metal in class I luminaires shall be earthed		N
5.11 (8.2.3.c)	SELV circuits with exposed current carrying parts:		N
	Ordinary luminaire:		N
	- voltage under load (V)..... :		N
	- touch current ..... :		N
	- no-load voltage..... :		N
	Other than ordinary luminaire:		N
	- nominal voltage ..... :		N
	Class III luminaire only for connection to SELV		N
	Class III luminaire not provided with means for protective earthing		N
5.11 (8.2.4)	Portable luminaire have protection independent of supporting surface		N
5.11 (8.2.5)	Compliance with the standard test finger or relevant probe		P
5.11 (8.2.6)	Covers reliably secured		P
5.11 (8.2.7)	Discharging of capacitors ≥ 0,5 μF	Approved LED driver	P
	Portable plug connected luminaire with capacitor		N
	Other plug connected luminaire with capacitor		N
	Discharge device on or within capacitor		N
	Discharge device mounted separately		N

5.12 (12)	**ENDURANCE TEST AND THERMAL TEST**		—
	If IP > IP 20 relevant test of (12.4), (12.5), (12.6) and 12.7 after (9.2) before (9.3) specified in 5.13		P
5.12 (12.3)	Endurance test:		P
	- mounting- position..... :	As in normal use	—
	- test temperature (°C)..... :	60°C	—
	- total duration (h)..... :	240h	—
	- supply voltage: Un factor; calculated voltage (V)... :	1,1x277V=304.7V	—
	- lamp used..... :		—

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Clause	Requirement + Test	Result - Remark	Verdict
5.12 (12.3.2)	After endurance test:		P
	- no part unserviceable		P
	- luminaire not unsafe		P
	- no damage to track system		N
	- marking legible		P
	- no cracks, deformation etc.		P
5.12 (12.4)	Thermal test (normal operation)	(see Annex 2)	P
5.12 (12.5)	Thermal test (abnormal operation)	(see Annex 2)	N
5.12 (12.6)	Thermal test (failed lamp control gear condition):		N
5.12 (12.6.1)	Through wiring or looping-in wiring loaded by a current of (A) ..... :		—
	- case of abnormal conditions.....:		—
	- electronic lamp control gear		N
	- measured winding temperature (°C): at 1,1 Un ....:		—
	- measured mounting surface temperature (°C) at 1,1 Un.....:		N
	- calculated mounting surface temperature (°C) .....:		N
	- track-mounted luminaires		N
5.12 (12.6.2)	Temperature sensing control		N
	- case of abnormal conditions.....:		—
	- thermal link		N
	- manual reset cut-out		N
	- auto reset cut-out		N
	- measured mounting surface temperature (°C).....:		N
	- track-mounted luminaires		N
5.12 (12.7)	Thermal test (failed lamp control gear in plastic luminaires):		N
5.12 (12.7.1)	Luminaire without temperature sensing control		N
5.12 (12.7.1.1)	Luminaire with fluorescent lamp ≤ 70W		N
	Test method 12.7.1.1 or Annex W .....:		—
	Test according to 12.7.1.1:		N
	- case of abnormal conditions.....:		—
	- Ballast failure at supply voltage (V) .....:		—
	- Components retained in place after the test		N
	- Test with standard test finger after the test		N

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Clause	Requirement + Test	Result - Remark	Verdict
	Test according to Annex W:		N
	- 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 Table 5.15 (13.2.1)	N
5.12 (12.7.1.2)	Luminaire with discharge lamp, fluorescent lamp > 70W, transformer > 10 VA		N
	- 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 Table 5.15 (13.2.1)	N
5.12 (12.7.1.3)	Luminaire with short circuit proof transformers ≤ 10 VA		N
	- case of abnormal conditions.....:		—
	- Components retained in place after the test		N
	- Test with standard test finger after the test		N
5.12 (12.7.2)	Luminaire with temperature sensing control		N
	- 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 Table 5.15 (13.2.1)	N
5.12.1 (-)	Reduction 10 °C of measured temperatures if for outdoor use		N
5.12.2 (-)	Glass covers used within the thermal limits		N

5.13 (9)	**RESISTANCE TO DUST, SOLID OBJECTS AND MOISTURE**	—
5.13 (-)	If IP > IP 20 the order of tests as specified in clause 5.12	P
5.13 (9.2)	Tests for ingress of dust, solid objects and moisture:	—

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Clause	Requirement + Test	Result - Remark	Verdict
	- classification according to IP..... :	IP66	—
	- mounting position during test.....:	As in normal use	—
	- fixing screws tightened; torque (Nm).....:	--	—
	- tests according to clauses.....:	Clause 9.2.2&Clause 9.2.6	—
	- electric strength test afterwards		P
	a) no deposit in dust-proof luminaire		N
	b) no talcum in dust- tight luminaire		P
	c) no trace of water on current-carrying parts or SELV parts or where it could become a hazard		P
	d) i) For luminaires without drain holes – no water entry		P
	d) ii) For luminaires with drain holes – no hazardous water entry		N
	e) no water in watertight luminaire		P
	f) no contact with live parts (IP 2X)		N
	f) no entry into enclosure (IP 3X and IP 4X)		N
	f) no contact with live parts (IP3X and IP4X)		N
	g) no trace of water on part of lamp requiring protection from splashing water		P
	h) no damage of protective shield or glass envelope		P
5.13 (9.3)	Humidity test 48 h	25°C; 93% R.H.	P

5.14 (10)	**INSULATION RESISTANCE AND ELECTRIC STRENGTH**		—
5.14 (10.2.1)	Insulation resistance test		P
	Cable or cord covered by metal foil or replaced by a metal rod of mm Ø .....:		—
	Insulation resistance (MΩ):		—
	SELV		P
	- between current-carrying parts of different polarity:		N
	- between current-carrying parts and mounting surface.....:	100MΩ	P
	- between current-carrying parts and metal parts of the luminaire.....:	100MΩ	P
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts..... :		N
	- Insulation bushings as described in Section 5 .....:		N
	Other than SELV		P

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Clause	Requirement + Test	Result - Remark	Verdict
	- between live parts of different polarity..... :		N
	- between live parts and mounting surface.....:	100MΩ	P
	- between live parts and metal parts.....:	100MΩ	P
	- between live parts of different polarity through action of a switch..... :		N
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts..... :		N
	- Insulation bushings as described in Section 5 .....:		N
5.14 (10.2.2)	Electric strength test		P
	Dummy lamp		N
	Luminaires with ignitors after 24 h test		N
	Luminaires with manual ignitors		N
	Test voltage (V):		—
	SELV		P
	- between current-carrying parts of different polarity:		N
	- 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
	- Insulation bushings as described in Section 5 ..... :		N
	Other than SELV		P
	- between live parts of different polarity..... :		N
	- between live parts and mounting surface.....:	1544V	P
	- between live parts and metal parts.....:	1544V	P
	- between live parts of different polarity through action of a switch..... :		N
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts..... :		N
	- Insulation bushings as described in Section 5 ..... :		N
5.14 (10.3)	Touch current or protective conductor current (mA).:	Max.0.54mA<3.5mA	P

5.15 (13)	**RESISTANCE TO HEAT, FIRE AND TRACKING**		—
5.15 (13.2.1)	Ball-pressure test..... :	See Test Table 5.15 (13.2.1)	P

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Clause	Requirement + Test	Result - Remark	Verdict
5.15 (13.3.1)	Needle-flame test (10 s).....:	See Test Table 5.15 (13.3.1)	P
5.15 (13.3.2)	Glow-wire test (650°C).....:	See Test Table 5.15 (13.3.2)	P
5.15 (13.4.1)	Proof tracking test (IEC 60112).....:		N

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Clause	Requirement + Test	Result - Remark	Verdict

5.7 (11.2)	**TABLES: Creepage distances and clearances**	P
Table 11.1	**Minimum distances (mm) for a.c. (50/60 Hz) sinusoidal voltages**	P

RMS working voltage (V) not exceeding	50	150	250	500	750	1000
Creepage distances						
Required basic insulation, PTI ≥ 600	0,6	0,8	1,5	3	4	5,5
Measured	--	--	--	--	--	--
Required basic insulation, PTI < 600	1,2	1,6	2,5	5	8	10
Measured	--	--	--	--	--	--
Required supplementary insulation PTI ≥ 600	-	0,8	1,5	3	4	5,5
Measured	--	--	--	--	--	--
Required supplementary insulation PTI < 600	-	1,6	2,5	5	8	10
Measured	--	--	--	--	--	--
Required reinforced insulation	-	3,2	5	6	8	11
Measured	--	--	--	--	--	--
Clearances						
Required basic insulation	0,2	0,8	1,5	3	4	5,5
Measured	--	--	--	--	--	--
Required supplementary insulation	-	0,8	1,5	3	4	5,5
Measured	--	--	--	--	--	--
Required reinforced insulation	-	1,6	3	6	8	11
Measured	--	--	--	--	--	--

Table 11.2	**Minimum distances (mm) for non-sinusoidal pulse voltages**						
Rated pulse voltage (peak kV)	2,0	2,5	3,0	4,0	5,0	6,0	8,0
Required clearances	1,0	1,5	2	3	4	5,5	8
Measured	--	--	--	--	--	--	--
Rated pulse voltage (peak kV)	10	12	15	20	25	30	40
Required clearances	11	14	18	25	33	40	60
Measured	--	--	--	--	--	--	--
Rated pulse voltage (peak kV)	50	60	80	100	-	-	-
Required clearances	75	90	130	170	-	-	-
Measured	--	--	--	--	--	--	--

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Clause	Requirement + Test	Result - Remark	Verdict

5.15 (13.2.1)	**TABLE: Ball Pressure Test of Thermoplastics**	P

Allowed impression diameter (mm) .....:	2mm	—

Object/ Part No./ Material	Manufacturer/ trademark	Test temperature (°C)	Impression diameter (mm)
AC terminal	See annex 1	125	1,08
Plastic cover	See annex 1	101	0,94
Supplementary information:--			

5.15 (13.3.1)	**TABLE: Needle-flame test (IEC 60695-11-5)**	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
AC terminal	See annex 1	10s	No	0s	Pass
Supplementary information:--					

5.15 (13.3.2)	**TABLE: Glow-wire test (IEC 60695-2-11)**	P

Glow wire temperature .....:	650°C	—

Object/ Part No./ Material	Manufacturer/ trademark	Duration of application of test flame (ta); (s)	Ignition of specified layer Yes/No	Duration of burning (tb) (s)	Verdict
Plastic cover	See annex 1	30s	No	0s	Pass
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~~).....:					Yes
Supplementary information: --					

5.15 (13.4)	**TABLE: Proof tracking test (IEC 60112)**	N

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: --					

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Clause	Requirement + Test	Result - Remark	Verdict

ANNEX 1	TABLE: Critical components information				P
Object / part No.	**Manufacturer/ trademark**	**Type / model**	**Technical data**	**Standard**	**Mark(s) of conformity[1)]**
LED driver	MEAN WELL ENTERPRISES CO LTD	HLG-480H-48B	IINPUT: AC100-240V, 50/60Hz OUTPUT: 48Vdc; 10A	--	CE
PCB of LED module	SHENZHEN KAICHANGHONG CIRCUIT CO LTD	HX001	V-0, 125℃	--	UL E488718
Input power cord	NINGBO JINTING NUCLEAR CABLE CO LTD	SOOW	18AWG, 105℃, 600V	--	UL E323736
Internal ground wire	SHEN ZHEN HENGDIAN ELECTRIC CO LTD	1015	8 AWG	UL 758	UL E252861
Plastic cover	IDEMITSU KOSAN CO LTD	LEV2200KL	V-2, 130℃	--	UL E48268
AC terminal	Heavy Power Co., Ltd.	PA9	450V	EN 60998-2-1 EN 60998-1	VDE 40016425

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

ANNEX 2	**TABLE: Temperature measurements, thermal tests of Section 12**		P
	Type reference.....:	AOK-460WoF-NV-XX-XX-XXXX-BN	—
	Lamp used.....:	LED	—
	Lamp control gear used.....:	--	—
	Mounting position of luminaire.....:	As in normal use	—
	Supply wattage (W).....:	407	—
	Supply current (A)..... :	1.467	—
	Calculated power factor.....:	0.948	—
	Table: measured temperatures corrected for ta =50 °C:		P
	- abnormal operating mode.....:	--	—
	- test 1: rated voltage..... :	--	—
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage.....:	1,06x277V=293.6V	—
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage..... :	--	—
	- test 4: 1,1 times rated voltage or 1,05 times rated wattage.....:	--	—
	Through wiring or looping-in wiring loaded by a current of A during the test .....:	--	—

Temperature measurements, (°C)

Part	Clause 12.4 – normal					Clause 12.5 – abnormal	
	Test 1	test 2	test 3	test 3	limit	test 4	limit
Power cord	--	60.2	--	--	105	--	--
tc of LED driver	--	81.8	--	--	85	--	--
Output wire of LED driver		79.9			105		
AC terminal		73.6			Ref.		
PCB of LED module	--	76.8	--	--	125	--	--
Plastic cover	--	71.1	--	--	130	--	--
Metal enclosure	--	82.0	--	--	Ref.	--	--
Mounting surface	--	56.5	--	--	90	--	--
Supplementary information:							

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

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

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

(15.6.2.1)	Pull test spring-type terminals or welded connections (4 samples); pull (N) .....:		N
(15.6.2.2)	Pull test pin or tab terminals (4 samples); pull (N) .....:		N
	Pull test pin or tab terminals (4 samples); pull (N) .....:		N
(15.6.3)	Electrical tests		N
	Tests according 15.6.3.1 + 15.6.3.2 in IEC 60598-1		N
(15.6.3.1) (15.6.3.2)	**TABLE: Contact resistance test / Heating tests**		N
	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
	Voltage drop after 10th alt. 25th cycle									N
	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
	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
	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
	Max. allowed voltage drop (mV).....:									—
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)	--	--	--	--	--	--	--	--	--	--

Supplementary information:--

Attachment 1: Test report of EN 62031			
Clause	Requirement – Test	Result	Verdict
4	**GENERAL REQUIREMENTS**		—
4.4	Integral modules tested assembled in the luminaire		P
4.5	Independent modules complies with requirements in IEC 60598-1		N
5	**GENERAL TEST REQUIREMENTS**		—
5.5	SELV-operated LED modules comply with Annex I of IEC 61347-2-13	(see Annex 1)	N
	General conditions for tests in Annex A	(see Annex A)	P
6	**CLASSIFICATION**		—
	Built-in module ..... :	Yes ☐ No ☒	—
	Independent module..... :	Yes ☐ No ☒	—
	Integral module ..... :	Yes ☒ No ☐	—
	For Integral module; Note to 1.2.1 in IEC 60598-1 applies.		—
7	**MARKING**		—
	Requirements not applicable to the evaluated product.		N
8	**TERMINALS**		—
	Screw terminals according section 14 of IEC 60598-1:		N
	Separately approved; component list	(see Annex 2)	N
	Part of the luminaire	(see Annex 3)	N
	Screwless terminals according section 15 of IEC 60598-1:		N
	Separately approved; component list	(see Annex 2)	N
	Part of the luminaire	(see Annex 4)	N
	Connectors according IEC 60838-2-2:		N
	Separately approved; component list	(see Annex 2)	N
9 (9)	**PROVISION FOR PROTECTIVE EARTHING**		—
	Requirements not applicable to the evaluated product.		N
10 (10)	**PROTECTION AGAINST ACCIDENTAL CONTACT WITH LIVE PARTS**		—
	Requirements not applicable to the evaluated product.		N

Attachment 1: Test report of EN 62031			
Clause	Requirement – Test	Result	Verdict
11 (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 .....:	100MΩ	P
	For double or reinforced insulation ≥ 4 MΩ .....:		N
	Between primary and secondary circuits in controlgear providing SELV, values in Annex L in IEC 61347-1		N
12 (12)	**ELECTRIC STRENGTH**		—
	Immediately after clause 11 electric strength test for 1 min		P
	Basic insulation for SELV, test voltage 500 V		P
	Working voltage ≤ 50 V, test voltage 500 V		N
	Working voltage > 50 V ≤ 1000 V, test voltage (V):		N
	Basic insulation, 2U + 1000 V		N
	Supplementary insulation, 2U + 1000 V		N
	Double or reinforced insulation, 4U + 2000 V		N
	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
13 (14)	**FAULT CONDITIONS**		—
- (14)	When operated under fault conditions the controlgear:		N
	- does not emit flames or molten material		N
	- does not produce flammable gases		N
	- protection against accidental contact not impaired		N
	Thermally protected controlgear does not exceed the marked temperature value		N
	Fault conditions: capacitors, resistors or inductors without proof of compliance with relevant specifications have been short-circuited or disconnected	(see appended table)	N
- (14.1)	Short-circuit of creepage distances and clearances if less than specified in clause 16 in Part 1 (except between live parts and accessible metal parts)	(see appended table)	N

Attachment 1: Test report of EN 62031			
Clause	Requirement – Test	Result	Verdict
	Creepage distances on printed boards less than specified in clause 16 in Part 1 provided with coating according to IEC 60664- 3		N
- (14.2)	Short-circuit or interruption of semiconductor devices	(see appended table)	N
- (14.3)	Short-circuit across insulation consisting of lacquer, enamel or textile	(see appended table)	N
- (14.4)	Short-circuit across electrolytic capacitors	(see appended table)	N
- (14.5)	After the tests has been carried out on three samples:		N
	The insulation resistance ≥ 1 MΩ ..... :		N
	No flammable gases		N
	No accessible parts have become live		N
	During the tests, a five-layer tissue paper, where the test specimen is wrapped, does not ignite		N
- (14.6)	Relevant fault condition tests with high-power supply		N
13.2	**Overpower condition**		P
	Module withstands overpower condition >15 min.		P
	Module with automatic protective device or power limiter, test performed 15 min. at limit.		N
	No fire, smoke or flammable gas is produced		P
	Molten material does not ignite tissue paper, spread below the module		P
15	**CONSTRUCTION**		—
	Wood, cotton, silk, paper and similar fibrous material not used as insulation		P
16 (16)	**CREEPAGE DISTANCES AND CLEARANCES**		—
- (16)	Creepage and distances and clearances in compliance with IEC 61347-1		P
	Insulating lining of metallic enclosures		P
	Basic insulation on printed boards tested according to clause 14		P
	Distances subjected to both sinusoidal voltage as non-sinusoidal pulses not less than value in Table 16		P
	Creepage distances not less than minimum clearance		P
16 (-)	Conductive accessible parts in compliance with applicable parts of IEC 60598-1		N

Attachment 1: Test report of EN 62031			
Clause	Requirement – Test	Result	Verdict
17 (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)		P
18 (18)	**RESISTANCE TO HEAT, FIRE AND TRACKING**		—
- (18.1)	Ball-pressure test.....:	See Test Table 18 (18.1)	N
- (18.3)	Glow- wire test (650°C) .....:	See Test Table 18 (18.3)	N
- (18.4)	Needle-flame test (10 s) .....:	See Test Table 18 (18.4)	N
- (18.5)	Proof tracking test .....:	See Test Table 18 (18.5)	N
19 (19)	**RESISTANCE TO CORROSION**		—
	- test according 4.18.1 of IEC 60598-1		N
	- adequate varnish on the outer surface		N
20	**INFORMATION FOR LUMINAIRE DESIGN**		—
	Information in Annex D (informative)		—
21	**HEAT MANAGEMENT**		—
21.1	**General**		N
	Exchangeability is safeguarded by cap or base		N
21.2	**Heat-conducting foil and paste**		N
	Heat-conducting foil delivered with the module if necessary		N
22	**PHOTOBIOLOGICAL SAFETY**		—
22.1	**UV radiation**		N
	Luminous radiation not exceed 2mW/klm		N
22.2	**Blue light hazard**		P
	Assessed according to IEC TR 62778		P
22.3	**Infrared radiation**		N
	Requirements for infrared radiation when required		N
A	**ANNEX A - TESTS**		—
	All tests performed in accordance with the advice given in Annex H of IEC 61347-1, if applicable		P
	ANNEX 1 - SELV-operated LED modules		—
	SELV-operated LED modules in compliance with Annex I of IEC 61347-2-13		N

Attachment 2: Test report of EN 62471			
Clause	Requirement + Test	Result – Remark	Verdict

Table 6.1	Emission limits for risk groups of continuous wave lamps									P
Risk	Action spectrum	Symbol	Units	Emission Measurement						
				Exempt		Low risk		Mod risk		
				Limit	Result	Limit	Result	Limit	Result	
Actinic UV	$S_{UV}(\lambda)$	E_s	$W \cdot m^{-2}$	0,001	0	—	—	—	—	
Near UV		E_{UVA}	$W \cdot m^{-2}$	0,42	0,10485	—	—	—	—	
Blue light	$B(\lambda)$	L_B	$W \cdot m^{-2} \cdot sr^{-1}$	100	41,3	10500	—	4000000	—	
Blue light, small source	$B(\lambda)$	E_B	$W \cdot m^{-2}$	0,01*	---	1,0	—	400	—	
Retinal thermal	$R(\lambda)$	L_R	$W \cdot m^{-2} \cdot sr^{-1}$	28000/α	806	31000/α	—	71000/α	—	
Retinal thermal, weak visual stimulus**	$R(\lambda)$	L_{IR}	$W \cdot m^{-2} \cdot sr^{-1}$	—		—				
				6000/α 0,011≤ α ≤ 0,1		—				
IR radiation, eye	—	E_{IR}	$W \cdot m^{-2}$	100	1,2364	570	—	3200	—	

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

Attachment 3: Test report of EN 62493			
Clause	Requirement + Test	Result - Remark	Verdict

4.2	**APPLICATION OF LIMITS (Test summary)**		—
	Specific absorption rate (SAR)		—
a)	CISPR 15 clause 4.3.1 Disturbance voltage mains terminals 20 kHz – 30 MHz	*)	P
b)	CISPR 15 clause 4.4 Radiated electromagnetic disturbances 100 kHz – 30 MHz	*)	P
c)	CISPR 15 clause 4.4.2 Radiated electromagnetic disturbances 30 MHz – 300 MHz	*)	P
*)	☒ See separate Test Report for measurements of a), b) and c) above Test Report with Ref. No.: R 011611381E ☐ Only measurement of d) below. See measurement results below. In this case this test report does not show compliance with IEC 62493.		—
	Induced current density		P
d)	Induced current density 20 kHz – 10 MHz	See measurement results below	P
4.2.d	**INDUCED CURRENT DENSITY**		—
	Power supply system utilised:		—
	Voltage.....:	AC 100-277V	—
	Frequency..... :	50/60Hz	—
	Environmental conditions:		—
	Temperature ..... :	25°C	—
	Humidity.....:	52% R.H.	—
	EuT operation mode:		—
	☒ Normal operation		—
	☐ Other operation:		—
4.2.d	**MEASUREMENT RESULTS**		—
	Measuring with “Van der Hoofden” test head		—

Location of EuT	Measuring distance	Result (F)	Limit (F)	Verdict
Front of EuT	30 cm	0,23	0,85	P
Rear of EuT	30 cm	0,26	0,85	P
Side of EuT	30 cm	0,22	0,85	P

Attachment 4: EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES according to EN 60598-2-5:2015 and EN 60598-1:2015			
Clause	Requirement + Test	Result - Remark	Verdict
	CENELEC COMMON MODIFICATIONS (EN)		—
5.5 (3)	**MARKING**		—
5.5 (3.3.101)	For luminaires not supplied with terminal block: Adequate warning on the package		P
5.6 (4)	**CONSTRUCTION**		—
5.6 (4.11.6)	Electro-mechanical contact systems		N
5.10 (5)	**EXTERNAL AND INTERNAL WIRING**		—
5.10 (5.2.1)	Connecting leads		N
	- without a means for connection to the supply		N
	- terminal block specified		N
	- relevant information provided		N
	- compliance with 4.6, 4.7.1, 4.7.2, 4.10.1, 11.2, 12 and 13.2 of Part 1		P
5.10 (5.2.2)	Cables equal to EN 50525		P
	Replace table 5.1 – Supply cord		P
5.12 (12)	**ENDURANCE TESTS AND THERMAL TESTS**		—
5.12 (12.4.2c)	Thermal test (normal operation) see footnote c to table 12.2 relating to unsleeved fixed wiring		P
ZB	**ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)**		—
(3.3)	DK: power supply cords of class I luminaires with label		N
(4.5.1)	DK: socket- outlets		N
(5.2.1)	CY, DK, FI, GB: type of plug		N
ZC	**ANNEX ZC, NATIONAL DEVIATIONS (EN)**		—
(4 & 5)	FR: Shuttered socket-outlets 10/16A		N

Attachment 4: EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES according to EN 60598-2-5:2015 and EN 60598-1:2015			
Clause	Requirement + Test	Result - Remark	Verdict
	FR: Safety requirements for high buildings (Arrêté du 30 décembre 2011 portant règlement de sécurité pour la construction des immeubles de grande hauteur et leur protection contre les risques d'incendie et de panique; Section VIII; Article GH 48, Eclairage) Glow-wire test for outer parts of luminaires:		N
	- 850°C for luminaires in stairways and horizontal travel paths		N
	- 650°C for indoor luminaires		N
	GB: Requirements according to United Kingdom Building Regulation		N

Attachment 5: Photo documentation

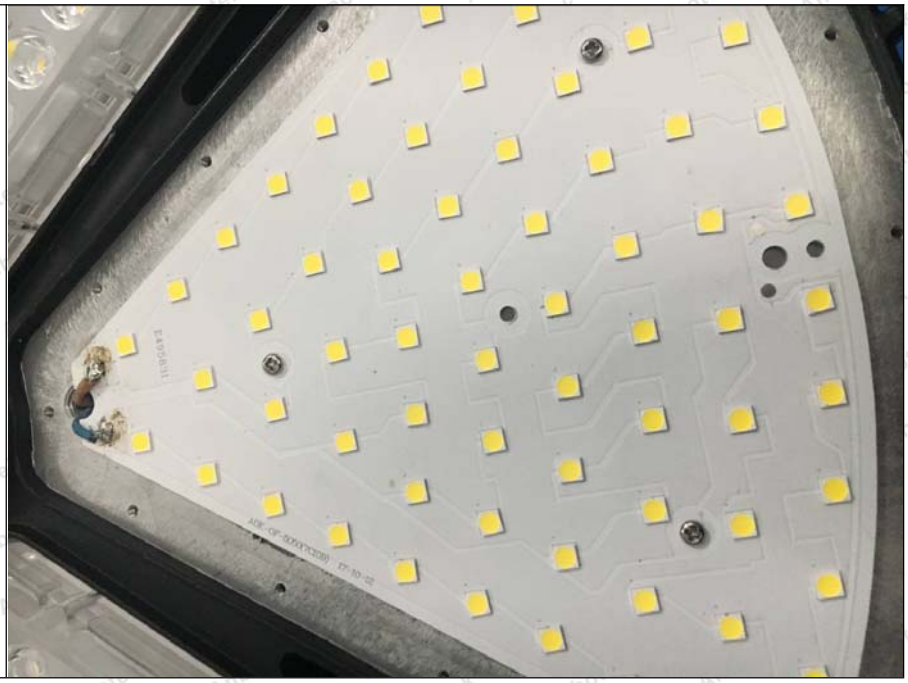
Photo 1	

Photo 2	

Attachment 5: Photo documentation

Photo 3	
Photo 4	

Attachment 5: Photo documentation

Photo 5	

--- End of report ---