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

Report Number.....:	LCSB070723022S
Date of issue.....:	July 31, 2023
Total number of pages.....:	82 pages
Name of Testing Laboratory preparing the Report.....:	**Shenzhen Southern LCS Compliance Testing Laboratory Ltd.**
Applicant's name.....:	**V-TAC EXPORTS LIMITED**
Address.....:	ROOM 301, KAM ON BUILDING, 176A QUEENS ROAD CENTRAL, CENTRAL, HONGKONG
Test specification:	
Standard.....:	IEC 60598-2-1:2020 used in conjunction with IEC 60598-1:2020
Test procedure.....:	CE-LVD
Non-standard test method.....:	N/A
TRF template used.....:	IECEE OD-2020-F1:2021, Ed.1.4
Test Report Form No.....:	IEC60598_2_1I
Test Report Form(s) Originator.....:	Intertek Semko AB
Master TRF.....:	Dated 2022-04-14

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

Test item description.....:	LED PENDANT
Trade Mark.....:	N/A
Manufacturer.....:	V-TAC EXPORTS LIMITED
Address.....:	ROOM 301, KAM ON BUILDING, 176A QUEENS ROAD CENTRAL, CENTRAL, HONGKONG
Model/Type reference.....:	See model list on page 6~7
Ratings.....:	See model list on page 6~7

☒	**Testing Laboratory:**		
Testing location/ address.....:	Shenzhen Southern LCS Compliance Testing Laboratory Ltd. 101-201, No.39 Building, Xialang Industrial Zone, Heshuikou Community, Matian Street, Guangming District, Shenzhen, China		
Tested by.....:	Lisa Zeng (Engineer)		
Check by.....:	Torres He (Director)		
Approved by.....:	Jesse Liu (Manager)		

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

Attachment No. 1: European group differences and national differences according to EN IEC 60598-2-1:2021 used in conjunction with EN IEC 60598-1:2021+A11:2022

Attachment No. 2: 2 pages of report IEC/EN IEC 62031.

Attachment No. 3: 1 pages of report IEC TR 62778.

Attachment No. 4: 23 pages of report IEC/EN 61347-2-13.

Attachment No. 5: 5 pages of photo documentation.

Summary of testing:

Tests performed (name of test and test clause):	**Testing location:**
IEC 60598-2-1:2020 IEC 60598-1:2020 IEC TR 62778: 2014 IEC 62031:2018 IEC 62493:2015 IEC 61347-2-13:2014+A1:2016 IEC 61347-1:2015+A1:2017	Shenzhen Southern LCS Compliance Testing Laboratory Ltd. 101-201, No.39 Building, Xialang Industrial Zone, Heshuikou Community, Matian Street, Guangming District, Shenzhen, China

Summary of compliance with National Differences:

List of countries addressed

European Group differences

☒ The product fulfils the requirements of

EN IEC 60598-2-1:2021; EN IEC 60598-1:2021+A11:2022; EN 62493:2015; EN IEC 62031:2020+A11:2021; EN 61347-1:2015+A1:2021; EN 61347-2-13:2014+A1:2017

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.

LED PENDANT
Model: VT-101-2D
230V~, 50Hz, 113W

V-TAC EXPORTS LIMITED
Importer: xxxxxxxx
Address: xxxxxxxx
MADE IN CHINA

Remarks:

1. Representative markings of VT-101-2D, markings of all models are identical except for the model name and rating.
2. Height of CE mark at least 5mm, height of WEEE symbol should not less than 7mm, height of other marks at least 5mm, height of letters and numerals at least 2mm.

Test item particulars..... :	
Classification of installation and use.....:	Fixed general purpose luminaires
Supply Connection.....:	Terminal block
Protection Class.....:	Class I
Degree of Protection.....:	IP20
Possible test case verdicts:	
- test case does not apply to the test object.....:	N/A
- test object does meet the requirement.....:	P (Pass)
- test object does not meet the requirement.....:	F (Fail)
Testing.....:	
Date of receipt of test item.....:	February 07, 2023
Date (s) of performance of tests.....:	February 07, 2023 - April 20, 2023
General remarks:	

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

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

Clause numbers with "*" were not within the scope of CNAS recognition.

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

The general information of applicant and manufacturer (such as the name and address), product name, model/type reference, trademark and other similar information contained in this report are all provided by the applicant, the laboratory is not responsible for verifying its authenticity.

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

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.

Modified Information

Version	Report No.	Revision Date	Summary
V1.0	LCSB020723016S	/	Original Version
V1.0	LCSB070723022S	2023-07-31	Replacement of applicant, manufacturer and models

Declared by applicant, applicant and manufacturer change from
"Name: Dasher Lighting Technology Co., Ltd."
"Address: No.9 Yongxing north RD., Henglan Town, Zhongshan City, Guangdong Province 528400, China"
to
"Name: V-TAC EXPORTS LIMITED"
"Address: ROOM 301, KAM ON BUILDING, 176A QUEENS ROAD CENTRAL, CENTRAL, HONGKONG"

See page 6~7 for model list.

Note: Original Test Report "LCSB020723016S" dated May 09, 2023. This revised test report is based on the test raw-data of original test report, after information review and verification, no additional tests were considered necessary.

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

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

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

Name and address of factory (ies)..... : Same as manufacturer

General product information:

- All models have similar structure except power and LED driver.
- Unless otherwise specified, the model VT-101-2D was chosen as representative model to perform all test and partial tests are subjected to model VT-7914, VT-7925.

Model List:

Model	Rating	LED driver
VT-101-2D	230V~, 50Hz, 113W	0001008(X3); test with appliance
VT-82-3D	230V~, 50Hz, 86W	0001008(X2); test with appliance
VT-7925	230V~, 50Hz, 50W	LS-50-1200 TRIAC LI
VT-7914	230V~, 50Hz, 48W	LS-50-1200 TRIAC LI
VT-7769 VT-7768 VT-7788 VT-7765 VT-7906 VT-7917	230V~, 50Hz, 12W	LS-12-300 SI ECO
VT-7755 VT-7793 VT-7760 VT-7762 VT-7758 VT-7908 VT-7909 VT-7911 VT-7916 VT-7919 VT-7920 VT-7921 VT-7923 VT-7924 VT-7925 VT-7926	230V~, 50Hz, 48W	LS-50-1200 TRIAC LI
VT-7757 VT-7915 VT-7927 VT-7761 VT-7907	230V~, 50Hz, 38W	LS-40-950 LI ECO LS-40-950 LI EXC
VT-7792 VT-7769 VT-7763	230V~, 50Hz, 20W	LS-21-500 SI ECO
VT-7790 VT-7789 VT-7791 VT-7782 VT-7784 VT-7785	230V~, 50Hz, 24W	LS-21-600 SI ECO
VT-7758 VT-7764 VT-7756	230V~, 50Hz, 43W	LS-40-1050 TRIAC LI
VT-7767 VT-7787 VT-7781 VT-7786	230V~, 50Hz, 14W	LS-12-350 SI ECO

VT-7779		
VT-7766	230V~, 50Hz, 30W	LS-40-750 LI ECO LS-40-750 LI EXC
VT-WXYZ VT-GB-LC VT-AEF-SQ W=0,1,2.....9,X=0,1,2.....9,Y=0,1,2.....9,Z=0,1,2.....9 G=0,1,2.....9,B=0,1,2.....9, L=0,1,2.....9, C=A,B,C.....Z,A=0,1,2.....9, E=0,1,2.....9 F=,1,2...,9,S=0,1,2,....9 , Q=A,B,C,....Z. VT-WXYZ,VT-GB-LC,VT-AEF-SQ stands for pendant lamp and ceiling lamp,VT stands for company brand. WXYZ, GB,LC,AEF,SQ stands for item number.		

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.4 (0)	**GENERAL TEST REQUIREMENTS**		**P**
1.4 (0.3)	More sections applicable.....:	Yes ☐ No ☒ Section/s:	—
1.4 (0.5)	Components	(see Annex 1)	—
1.4 (0.7)	**Information for luminaire design in light sources standards**		—
1.4 (0.7.2)	Light source safety standard ..... :	IEC/EN IEC 62031	—
	Luminaire design in the light source safety standard		P
1.5 (2)	**CLASSIFICATION OF LUMINAIRES**		**P**
1.5 (2.2)	Type of protection .....:	Class I	P
1.5 (2.3)	Degree of protection.....:	IP20	—
1.5 (2.4)	Luminaire suitable for direct mounting on normally flammable surfaces..... :	Yes ☒ No ☐	—
1.5 (2.5)	Luminaire for normal use ..... :	Yes ☒ No ☐	—
	Luminaire for rough service ..... :	Yes ☐ No ☒	—
1.6 (3)	**MARKING**		**P**
1.6 (3.2)	Mandatory markings		P
	Position of the marking		P
	Format of symbols/text		P
1.6 (3.3)	Additional information		P
	Language of instructions	English	P
1.6 (3.3.1)	Combination luminaires		N/A
1.6 (3.3.2)	Nominal frequency in Hz	50Hz	P
1.6 (3.3.3)	Operating temperature		N/A
1.6 (3.3.5)	Wiring diagram		N/A
1.6 (3.3.6)	Special conditions		N/A
1.6 (3.3.7)	Metal halide lamp luminaire – warning		N/A
1.6 (3.3.8)	Limitation for semi-luminaires		N/A
1.6 (3.3.9)	Power factor and supply current		P
1.6 (3.3.10)	Suitability for use indoors		N/A
1.6 (3.3.11)	Luminaires with remote control		N/A
1.6 (3.3.12)	Clip-mounted luminaire – warning		N/A

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.6 (3.3.13)	Specifications of protective shields		N/A
1.6 (3.3.14)	Symbol for nature of supply	~	P
1.6 (3.3.15)	Rated current of socket outlet		N/A
1.6 (3.3.16)	Rough service luminaire		N/A
1.6 (3.3.17)	Mounting instruction for type Y, type Z and some type X attachments	Type Y for input wire of LED module	P
1.6 (3.3.18)	Non-ordinary luminaires with PVC cable		N/A
1.6 (3.3.19)	Protective conductor current in instruction if applicable		N/A
1.6 (3.3.20)	Provided with information if not intended to be mounted within arm's reach		N/A
1.6 (3.3.21)	Non replaceable and non-user replaceable light sources information provided	Non-user replaceable	P
1.6 (3.3.22)	Controllable luminaires, classification of insulation provided		N/A
1.6 (3.3.23)	Luminaires without control gear provided with necessary information for selection of appropriate component		N/A
1.6 (3.3.24)	If not supplied with terminal block, information on the packaging		N/A
1.6 (3.3.25)	Luminaires employing light sources emitting UV on mains wiring, information provided		N/A
1.6 (3.3.26)	Wall mounted luminaire using external flexible cable or cord longer than 0.3 m, information provided		N/A
1.6 (3.4)	Test with water		P
	Test with hexane		P
	Legible after test		P
	Label attached		P
1.7 (4)	**CONSTRUCTION**		**P**
1.7 (4.2)	Components replaceable without difficulty		P
1.7 (4.3)	Wireways smooth and free from sharp edges		P
1.7 (4.4)	**Lamp holders**		N/A
1.7 (4.4.1)	Integral lamp holder		N/A
1.7 (4.4.2)	Wiring connection		N/A
1.7 (4.4.3)	Lamp holder for end-to-end mounting		N/A

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.7 (4.4.4)	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
1.7 (4.4.5)	Peak pulse voltage		N/A
1.7 (4.4.6)	Centre contact		N/A
1.7 (4.4.7)	Parts in rough service luminaires resistant to tracking		N/A
1.7 (4.4.8)	Lamp connectors		N/A
1.7 (4.4.9)	Caps and bases correctly used		N/A
1.7 (4.4.10)	Light source for lamp holder or connection according IEC 60061 not connected another way		N/A
1.7 (4.5)	**Starter holders**		**N/A**
	Starter holder in luminaires other than class II		N/A
	Starter holder class II construction		N/A
1.7 (4.6)	**Terminal blocks**		**N/A**
	Tails		N/A
	Unsecured blocks		N/A
1.7 (4.7)	**Terminals and supply connections**		**P**
1.7 (4.7.1)	Contact to metal parts		P
1.7 (4.7.2)	Test 8 mm live conductor		P
	Test 8 mm earth conductor		P
1.7 (4.7.3)	Terminals for supply conductors		P
1.7 (4.7.3.1)	Welded method and material		N/A
	- stranded or solid conductor		N/A
	- spot welding		N/A
	- welding between wires		N/A
	- Type Z attachment		N/A
	- mechanical test according to 15.6.2		N/A

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	- electrical test according to 15.6.3		N/A
	- heat test according to 15.6.3.2.3 and 15.6.3.2.4		N/A
1.7 (4.7.4)	Terminals other than supply connection		N/A
1.7 (4.7.5)	Heat-resistant wiring/sleeves		N/A
1.7 (4.7.6)	Multi-pole plug		N/A
	- test at 30 N		N/A
1.7 (4.8)	**Switches**		N/A
	- adequate rating		N/A
	- adequate fixing		N/A
	- polarized supply		N/A
	- compliance with IEC 61058-1 for electronic switches		N/A
1.7 (4.9)	**Insulating lining and sleeves**		P
1.7 (4.9.1)	Retainment		P
	Method of fixing.....:		P
1.7 (4.9.2)	Insulated linings and sleeves:		N/A
	Resistant to a temperature > 20 °C to the wire temperature or		N/A
	a) & c) Insulation resistance and electric strength		N/A
	b) Ageing test. Temperature (°C).....:		N/A
1.7 (4.10)	**Double or reinforced insulation**		N/A
1.7 (4.10.1)	No contact, mounting surface – accessible metal parts – wiring of basic insulation		N/A
	Safe installation fixed luminaires		N/A
	Capacitors and switches		N/A
1.7 (4.10.2)	Assembly gaps:		N/A
	- not coincidental		N/A
	- no straight access with test probe		N/A
1.7 (4.10.3)	Retainment of insulation:		N/A
	- fixed		N/A
	- unable to be replaced; luminaire inoperative		N/A
	- sleeves retained in position		N/A
	- lining in lamp holder		N/A
1.7 (4.10.4)	Protective impedance device		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Basic and 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 test (a) in 14.2 of IEC 60065		N/A
1.7 (4.11)	**Electrical connections and current-carrying parts**		**P**
1.7 (4.11.1)	Contact pressure		P
1.7 (4.11.2)	Screws:		N/A
	- self-tapping screws		N/A
	- thread-cutting screws		N/A
1.7 (4.11.3)	Screw locking:		N/A
	- spring washer		N/A
	- rivets		N/A
1.7 (4.11.4)	Material of current-carrying parts		P
1.7 (4.11.5)	No contact to wood or mounting surface		P
1.7 (4.11.6)	Electro-mechanical contact systems		N/A
1.7 (4.12)	**Screws and connections (mechanical) and glands**		**P**
1.7 (4.12.1)	Screws not made of soft metal		P
	Screws of insulating material		N/A
	Torque test: torque (Nm); part.....:	Fixed mounting bracket : 0,6Nm	P
	Torque test: torque (Nm); part.....:		N/A
	Torque test: torque (Nm); part.....:		N/A
1.7 (4.12.2)	Screws with diameter < 3 mm screwed into metal		N/A
1.7 (4.12.4)	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
1.7 (4.12.5)	Screwed glands; force (Nm)..... :		N/A
1.7 (4.13)	**Mechanical strength**		**P**
1.7 (4.13.1)	Impact tests:		P

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Clause	Requirement + Test	Result - Remark	Verdict
	- fragile parts; energy (Nm)..... :		N/A
	- other parts; energy (Nm)..... :	0,35Nm, no damage	P
	1) live parts		P
	2) linings		N/A
	3) protection		P
	4) covers		P
1.7 (4.13.2)	Metal parts have adequate mechanical strength		P
1.7 (4.13.3)	Straight test finger		P
1.7 (4.13.4)	Rough service luminaires		N/A
	- IP54 or higher		N/A
	a) fixed		N/A
	b) hand-held		N/A
	c) delivered with a stand		N/A
	d) for temporary installations and suitable for mounting on a stand		N/A
1.7 (4.13.6)	Tumbling barrel		N/A
1.7 (4.14)	**Suspensions, fixings and means of adjusting**		**P**
1.7 (4.14.1)	Mechanical load:		P*
	A) four times the weight	4 x Max.3,07kg	P
	B) torque 2,5 Nm		N/A
	C) bracket arm; bending moment (Nm)..... :		N/A
	D) load track- mounted luminaires		N/A
	E) clip-mounted luminaires, glass-shelve. Thickness (mm) ..... :		N/A
	Metal rod. diameter (mm) .....:		N/A
	Fixed luminaire or independent control gear without fixing devices		N/A
1.7 (4.14.2)	Load to flexible cables		P
	Mass (kg) ..... :	Max.2,58kg	—
	Stress in conductors (N/mm²) .....:	7,9N/mm²	P
	Mass (kg) of semi-luminaire .....:		N/A
	Bending moment (Nm) of semi-luminaire .....:		N/A
1.7 (4.14.3)	Adjusting devices:		N/A
	- flexing test; number of cycles..... :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- strands broken..... :		N/A
	- electric strength test afterwards		N/A
1.7 (4.14.4)	Telescopic tubes: cords not fixed to tube; no strain on conductors		N/A
1.7 (4.14.5)	Guide pulleys		N/A
1.7 (4.14.6)	Strain on socket-outlets		N/A
1.7 (4.15)	**Flammable materials**		**P**
	- glow-wire test 650°C..... :	See Test Table 1.15 (13.3.2)	P
	- spacing ≥30 mm		N/A
	- screen withstanding test of 13.3.1		N/A
	- screen dimensions		N/A
	- no fiercely burning material		P
	- thermal protection		N/A
	- electronic circuits exempted		N/A
1.7 (4.15.2)	Luminaires made of thermoplastic material with lamp control gear		N/A
	a) construction		N/A
	b) temperature sensing control		N/A
	c) surface temperature		N/A
1.7 (4.16)	**Luminaires for mounting on normally flammable surfaces**		**P**
	No lamp control gear.....:	(compliance with Section 12)	N/A
	Provided with adaptor for a track meet the requirements for direct mounting on normally flammable surfaces		N/A
1.7 (4.16.1)	Lamp control gear spacing:		N/A
	- spacing 35 mm		N/A
	- spacing 10 mm		N/A
1.7 (4.16.2)	Thermal protection:		N/A
	- in lamp control gear		N/A
	- external		N/A
	- fixed position		N/A
	- temperature marked lamp control gear		N/A
1.7 (4.16.3)	Design to satisfy the test of 12.6	(see clause 12.6)	N/A
1.7 (4.17)	**Drain holes**		**N/A**
	Clearance at least 5 mm		N/A

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.7 (4.18)	**Resistance to corrosion**		P
1.7 (4.18.1)	- rust- resistance		N/A
1.7 (4.18.2)	- season cracking in copper		P
1.7 (4.18.3)	- corrosion of aluminium		N/A
1.7 (4.19)	Ignitors compatible with ballast		N/A
1.7 (4.20)	Rough service vibration		N/A
1.7 (4.21)	**Protective shield**		**N/A**
1.7 (4.21.1)	Shield fitted if tungsten halogen lamps or metal halide lamps		N/A
	Shield of glass if tungsten halogen lamps		N/A
1.7 (4.21.2)	Particles from a shattering lamp not impair safety		N/A
1.7 (4.21.3)	No direct path		N/A
1.7 (4.21.4)	Impact test on shield		N/A
	Glow-wire test on lamp compartment.....:	See Test Table 1.15 (13.3.2)	N/A
1.7 (4.22)	Attachments to lamps not cause overheating or damage		N/A
1.7 (4.23)	Semi-luminaires comply Class II		N/A
1.7 (4.24)	**Photobiological hazards**		**P**
1.7 (4.24.1)	No excessive UV radiation if tungsten halogen lamps and metal halide lamps (Annex P)		N/A
1.7 (4.24.2)	Retinal blue light hazard		P
	Class of risk group assessed according to IEC/TR 62778 .....:	RG0	—
	Luminaires with E_{thr} :		N/A
	a) Fixed luminaires		N/A
	- distance x m, borderline between RG1 and RG2... :		N/A
	- marking and instruction according 3.2.23		N/A
	b) Portable and handheld luminaires		N/A
	- marking according 3.2.23 if RG1 exceeded at 200 mm according to IEC/TR 62778		N/A
	Portable luminaires for children IEC 60598-2-10 and Mains socket outlet nightlights IEC 60598-2-12 not exceed RG1 at 200 mm according to IEC/62778		N/A
1.7 (4.25)	**Mechanical hazard**		**P**
	No sharp point or edges		P

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.7 (4.26)	**Short-circuit protection**		**N/A**
1.7 (4.26.1)	Adequate means of uninsulated accessible SELV / PELV parts		N/A
1.7 (4.26.2)	Short-circuit test with test chain according 4.26.3:		N/A
	Supply source ES1 PSE		N/A
	Test chain not melt through		N/A
	Test sample not exceed values of Table 12.1 and 12.2		N/A
1.7 (4.27)	**Terminal blocks with integrated screwless protective earthing contacts**		**N/A**
	Test according Annex V		N/A
	Pull test of terminal fixing (20 N)		N/A
	After test, resistance < 0,05 Ω		N/A
	Pull test of mechanical connection (50 N)		N/A
	After test, resistance < 0,05 Ω		N/A
	Voltage drop test, resistance < 0,05 Ω		N/A
1.7 (4.28)	**Fixing of thermal sensing control**		**N/A**
	Not plug-in or easily replaceable type		N/A
	Reliably kept in position		N/A
	No adhesive fixing if UV radiations from a lamp can degrade the fixing		N/A
	Not outside the luminaire enclosure		N/A
	Test of adhesive fixing:		N/A
	Max. temperature on adhesive material (°C) .....:		—
	100 cycles between t min and t max		N/A
	Temperature sensing control still in position		N/A
1.7 (4.29)	**Luminaires with non-replaceable light source**		**N/A**
	Not possible to replace light source		N/A
	Live part not accessible after parts have been opened by hand or tools		N/A
1.7 (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/A
	At least one fixing means requiring use of tool		P
1.7 (4.31)	**Insulation between circuits**		**P**

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Clause	Requirement + Test	Result - Remark	Verdict
	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/A
1.7 (4.31.1)	SELV or PELV circuits		P
	Used SELV/PELV source		P
	Voltage ≤ ELV		P
	Insulating of SELV/PELV circuits from LV supply		P
	Insulating of SELV/PELV circuits from other non SELV/PELV circuits		N/A
	Insulating of SELV/PELV circuits from FELV		N/A
	Insulating of SELV/PELV circuits from other SELV/PELV circuits		N/A
	SELV/PELV circuits insulated from accessible parts according Table X.1		P
	Plugs not able to make any electrical contact with socket-outlets of other voltage systems		N/A
	Socket outlets does not admit plugs of other voltage systems		N/A
	Plugs and socket-outlets does not have protective conductor contact		N/A
1.7 (4.31.2)	FELV circuits		N/A
	Used FELV source		N/A
	Voltage ≤ ELV		N/A
	Insulating of FELV circuits from LV supply		N/A
	FELV circuits insulated from accessible parts according Table X.1		N/A
	Plugs not able to make any electrical contact with socket-outlets of other voltage systems		N/A
	Socket outlets does not admit plugs of other voltage systems		N/A
	Socket-outlets have protective conductor contact		N/A
1.7 (4.31.3)	Other circuits		N/A
	Other circuits insulated from accessible parts according Table X.1		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Class II construction with equipotential bonding for protection against indirect contacts with live parts:		N/A
	- conductive parts are connected together		N/A
	- test according 7.2.3		N/A
	- conductive part not cause an electric shock in case of an insulation fault		N/A
	- equipotential bonding in master/slave applications		N/A
	- master luminaire provided with terminal for accessible conductive parts of slave luminaires		N/A
	- slave luminaire constructed as class I		N/A
1.7 (4.32)	**Overvoltage protective devices**		**N/A**
	Comply with IEC 61643-11		N/A
	External to controlgear and connected to earth:		N/A
	- only in fixed luminaires		N/A
	- only connected to protective earth		N/A
1.7 (4.33)	**Luminaire powered via information technology communication cabling**		**N/A**
	Requirements for Class III luminaire		N/A
	Rated voltage within the range of ES1 and does not exceed maximum voltage of used connector		N/A
	Luminaire does not create any hazard from overvoltage	(see Annex 2)	N/A
1.7 (4.34)	**Electromagnetic fields (EMF)**		**P**
	No harmful electromagnetic fields		P
1.7 (4.35)	**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
1.7 (4.36)	**Track-mounted luminaires**		**N/A**
	Test in accordance with Annex A of IEC60570:2003/AMD2:2019		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
1.8 (11)	**CREEPAGE DISTANCES AND CLEARANCES**		**P**
1.8 (11.2.1)	Impulse withstand category (Normal category II)	Category II ☒ Category III ☐	—
	Category III according Annex U		N/A
	Protected against pollution, reduced creepage and clearance according Annex P of IEC 61347-1		N/A
1.8 (11.2.2)	Creepage distances for frequency up to 30 kHz	See Test Table 1.8 (11.2) I	P
	Creepage distances for frequency over 30 kHz:		N/A
	- Controlgear marked with $\hat{U}_{OUT}$ and f_{UOUT} according IEC 61347-1, clause 7.1, item w	See Test Table 1.8 (11.2) II	N/A
	- Requirements according IEC 60664-4 for controlgear not covered by IEC 61347	See Test Table 1.8 (11.2) II	N/A
1.8 (11.2.3)	Clearances for frequency up to 30 kHz	See Test Table 1.8 (11.2) I	P
	Clearances distances for frequency over 30 kHz:		N/A
	- Controlgear marked with U_P	See Test Table 1.8 (11.2) II	N/A
	- Requirements according IEC 60664-4 for controlgear not covered by IEC 61347	See Test Table 1.8 (11.2) II	N/A
1.9 (7)	**PROVISION FOR EARTHING**		**P**
1.9 (7.2.1 + 7.2.3)	Accessible metal parts		P*
	Metal parts in contact with supporting surface		P
	Resistance < 0,5 Ω.....:	0,026Ω	P
	Self-tapping screws used		N/A
	Thread-forming screws		N/A
	Thread-forming screw used in a grove		N/A
	Protective earth makes contact first		P
	Terminal blocks with integrated screwless protective earthing contacts tested according Annex V		N/A
	Protective earthing of the luminaire not via built-in control gear		P
1.9 (7.2.2 + 7.2.3)	Protective earth continuity in joints, etc.		P
1.9 (7.2.4)	Locking of clamping means		P
	Compliance with 4.7.3		P
1.9 (7.2.5)	Protective earth terminal integral part of connector socket		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
1.9 (7.2.6)	Protective earth terminal adjacent to mains terminals		P
1.9 (7.2.7)	Electrolytic corrosion of the protective earth terminal		P
1.9 (7.2.8)	Material of protective earth terminal		P
	Contact surface bare metal		P
1.9 (7.2.10)	Class II luminaire for looping-in		N/A
	Double or reinforced insulation to functional earth		N/A
1.9 (7.2.11)	Protective earthing core coloured green-yellow		P
	Length of protective earthing conductor		P
1.9 (7.2.12)	PELV circuit connected to protective earth for functional purpose		N/A
1.10 (14)	**SCREW TERMINALS**		**P**
	Separately approved; component list	(see Annex 1)	P
	Part of the luminaire	(see Annex 3)	N/A
1.10 (15)	**SCREWLESS TERMINALS AND ELECTRICAL CONNECTIONS**		**P**
	Separately approved; component list.....:	(see Annex 1)	P
	Part of the luminaire.....:	(see Annex 4)	N/A
1.11 (5)	**EXTERNAL AND INTERNAL WIRING**		**P**
1.11 (5.2)	**Supply connection and external wiring**		**P**
1.11 (5.2.1)	Means of connection.....:	Terminal block	P
	Outdoor luminaire has not PVC insulated external wiring if not Class III or SELV/PELV circuits ≤ 25 V AC/60 V DC/25 V peak interrupted DC voltage with frequency 10Hz -200 Hz or protected from outdoor environment		N/A
1.11 (5.2.2)	Type of cable.....:	See Annex 1	P
	Nominal cross-sectional area (mm²)..... :	0,4mm² for input wire of LED module	P
	Cables equal to IEC 60227 or IEC 60245		N/A
1.11 (5.2.3)	Type of attachment, X, Y or Z		P
1.11 (5.2.5)	Type Z not connected to screws		N/A
1.11 (5.2.6)	Cable entries:		P
	- suitable for introduction		P

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Clause	Requirement + Test	Result - Remark	Verdict
	- adequate degree of protection		P
1.11 (5.2.7)	Cable entries through rigid material have rounded edges		N/A
1.11 (5.2.8)	Insulating bushings:		N/A
	- suitably fixed		N/A
	- material in bushings		N/A
	- material not likely to deteriorate		N/A
	- tubes or guards made of insulating material		N/A
1.11 (5.2.9)	Locking of screwed bushings		N/A
1.11 (5.2.10)	Cord anchorage:		P
	- covering protected from abrasion		P
	- clear how to be effective		P
	- no mechanical or thermal stress		P
	- no tying of cables into knots etc.		P
	- insulating material or lining		N/A
1.11 (5.2.10.1)	Cord anchorage for type X attachment:		N/A
	a) at least one part fixed		N/A
	b) types of cable		N/A
	c) no damaging of the cable		N/A
	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
1.11 (5.2.10.2)	Adequate cord anchorage for type Y and type Z attachment		P
1.11 (5.2.10.3)	Tests:		P
	- impossible to push cable; unsafe		P
	- pull test: 25 times; pull (N)..... :	30N	P
	- torque test: torque (Nm)..... :	0,08Nm	P

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Clause	Requirement + Test	Result - Remark	Verdict
	- displacement ≤ 2 mm	0,6mm	P
	- no movement of conductors		P
	- no damage of cable or cord		P
	- function independent of electrical connection		P
1.11 (5.2.10.4)	Luminaire with/designed for use with supply cord with maximum current of 2A:		N/A
	- Ordinary Class III luminaire supplied with SELV ≤ 25V RMS/60V DC		N/A
	- Ordinary Class III luminaire supplied with PELV ≤12V RMS/30V DC		N/A
	- Other than ordinary Class III luminaire supplied with voltage ≤12V RMS/30V DC		N/A
	Pull test of 30N		N/A
1.11 (5.2.11)	External wiring passing into luminaire		P
1.11 (5.2.12)	Looping-in terminals		N/A
1.11 (5.2.13)	Wire ends not tinned		N/A
	Wire ends tinned: no cold flow		N/A
1.11 (5.2.14)	Mains plug same protection		N/A
	Class III luminaire plug		N/A
	No unsafe compatibility		N/A
1.11 (5.2.15)	Connectors for Class III luminaires (IEC 60603 or IEC 62680)		N/A
1.11 (5.2.16)	Appliance inlets (IEC 60320)		N/A
	Installation couplers (IEC 61535)		N/A
	Appliance inlet or connector systems (IEC 61984)		N/A
1.11 (5.2.17)	No standardized interconnecting cables properly assembled		N/A
1.11 (5.2.18)	Used plug in accordance with		N/A
	- IEC 60083		N/A
	- other standard		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
1.11 (5.3)	**Internal wiring**		**P**
1.11 (5.3.1)	Internal wiring of suitable size and type		P
	Through wiring		N/A
	- not delivered/ mounting instruction		N/A
	- factory assembled		N/A
	- socket outlet loaded (A)..... :		N/A
	- temperatures.....:	(see Annex 2)	N/A
	Green- yellow for protective earth only		P
1.11 (5.3.1.1)	Internal wiring connected directly to fixed wiring		N/A
	Cross-sectional area (mm²)..... :		N/A
	Insulation thickness (mm) ..... :		N/A
	Extra insulation added where necessary		N/A
1.11 (5.3.1.2)	Internal wiring connected to fixed wiring via internal current-limiting device		P
	Cross-sectional area (mm²)..... :	See Annex 1	P
1.11 (5.3.1.3)	Double or reinforced insulation for class II		N/A
1.11 (5.3.1.4)	Conductors without insulation		N/A
1.11 (5.3.1.5)	SELV/PELV current-carrying parts		P
1.11 (5.3.1.6)	Insulation thickness other than PVC or rubber		N/A
1.11 (5.3.2)	Sharp edges etc.		P
	No moving parts of switches etc.		N/A
	Joints, raising/lowering devices		N/A
	Telescopic tubes etc.		N/A
	No twisting over 360°		P
1.11 (5.3.3)	Insulating bushings:		N/A
	- suitable fixed		N/A
	- material in bushings		N/A
	- material not likely to deteriorate		N/A
	- cables with protective sheath		N/A
1.11 (5.3.4)	Joints and junctions effectively insulated		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
1.11 (5.3.5)	Strain on internal wiring		N/A
1.11 (5.3.6)	Wire carriers		N/A
1.11 (5.3.7)	Wire ends not tinned		P
	Wire ends tinned: no cold flow		N/A
1.11 (5.4)	**Test to determine suitability of conductors having a reduced cross-sectional area**		**N/A**
	Under test the temperature of the luminaire wiring insulation not exceed the limits stated in Table 12.2	(see Annex 2)	N/A
	No damage to luminaire wiring after test		N/A
1.12 (8)	**PROTECTION AGAINST ELECTRIC SHOCK**		**P**
1.12 (8.2.1)	Live parts not accessible		P
	Basic insulated parts not used on the outer surface without appropriate protection		P
	Basic insulated parts not accessible with standard test finger on portable, settable and adjustable luminaires		N/A
	Basic insulated parts not accessible with Ø 50 mm probe from outside, other types of luminaires		P
	Lamp and starter holders in portable and adjustable luminaires comply with double or reinforced insulation requirements		N/A
	Basic insulation only accessible under lamp or starter replacement		N/A
	Protection in any position		P
	Double-ended tungsten filament lamp		N/A
	Insulation lacquer not reliable		N/A
	Double-ended high-pressure discharge lamp		N/A
	Relevant warning according to 3.2.18 fitted to the luminaire		N/A
1.12 (8.2.2)	Portable luminaire adjusted in most unfavourable position		N/A
1.12 (8.2.3.a)	Class II luminaire:		N/A
	- basic insulated metal parts not accessible		N/A
	- required insulation from live parts in compliance with Table X.1		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- glass protective shields not used as supplementary insulation		N/A
1.12 (8.2.3.b)	BC lamp holder of metal in class I luminaires shall be connected to protective earth		N/A
1.12 (8.2.3.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 voltage (V) ……..:		N/A
	Class III luminaire only for connection to SELV/PELV		N/A
1.12 (8.2.3.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
1.12 (8.2.4)	Portable luminaire has protection independent of supporting surface		N/A
1.12 (8.2.5)	Compliance with the standard test finger or relevant probe		P
1.12 (8.2.6)	Covers reliably secured		P
1.12 (8.2.7)	Luminaire other than below with capacitor > 0,5 µF not exceed 50 V 1 min after disconnection	0V	P
	Portable luminaire with capacitor > 0,1 µF (0.25) not exceed 34 V 1 s after disconnection		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Other luminaires with capacitor > 0,1 μF (0.25) with plug and track adaptors not exceed 60 V 5 s after disconnection		N/A
1.13 (12)	**ENDURANCE TEST AND THERMAL TEST**		P
1.13 (-)	If IP > IP 20 relevant test of (12.4), (12.5), (12.6) and (12.7) after (9.2) before (9.3) as specified in 1.14		—
1.13 (12.2)	**Selection of lamps and ballasts**		—
	Lamp used according Annex B	(Lamp used see Annex 2)	—
	Control gear if separate and not supplied	(Control gear used see Annex 2)	—
1.13 (12.3)	**Endurance test**		**P**
	a) mounting- position .....:	As normal used	—
	b) test temperature (°C).....:	25°C+10°C	—
	c) total duration (h) .....:	240h	—
	d) supply voltage (V).....:	1,1x230V	—
	d) if not equipped with control gear, constant voltage/current (V) or (A) .....:		—
1.13 (12.3.1d)	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
1.13 (12.3.2)	After endurance test:		P
	- no part unserviceable		P
	- luminaire not unsafe		P
	- no damage to track system		N/A
	- marking legible		P
	- no cracks, deformation etc.		P
1.13 (12.4)	**Thermal test (normal operation)**	(see Annex 2)	P
1.13 (12.5)	**Thermal test (abnormal operation)**	(see Annex 2)	N/A
1.13 (12.6)	**Thermal test (failed lamp control gear condition):**		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
1.13 (12.6.1)	Through wiring or looping-in wiring loaded by a current of (A) ..... :		—
	- case of abnormal conditions..... :		—
	- electronic lamp control gear		N/A
	- measured winding temperature (°C): at 1,1 Un .....:		—
	- measured mounting surface temperature (°C) at 1,1 Un ..... :		N/A
	- calculated mounting surface temperature (°C) .....:		N/A
	- track-mounted luminaires		N/A
1.13 (12.6.2)	Temperature sensing control		N/A
	- case of abnormal conditions..... :		—
	- thermal link		N/A
	- manual reset cut-out		N/A
	- auto reset cut-out		N/A
	- measured mounting surface temperature (°C) ..... :		N/A
	- track-mounted luminaires		N/A
1.13 (12.7)	**Thermal test (failed lamp control gear in plastic luminaires):**		**N/A**
1.13 (12.7.1)	Luminaire without temperature sensing control		N/A
1.13 (12.7.1.1)	Luminaire with fluorescent lamp ≤ 70W		N/A
	Test method 12.7.1.1 or Annex W ..... :		—
	Test according to 12.7.1.1:		N/A
	- case of abnormal conditions..... :		—
	- Ballast failure at supply voltage (V) ..... :		—
	- Components retained in place after the test		N/A
	- Test with standard test finger after the test		N/A
	Test according to Annex W:		N/A
	- 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)..... :		—

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Clause	Requirement + Test	Result - Remark	Verdict
	Ball-pressure test.....:	See Test Table 1.15 (13.2.1)	N/A
1.13 (12.7.1.2)	Luminaire with discharge lamp, fluorescent lamp > 70W, transformer > 10 VA		N/A
	- case of abnormal conditions.....:		—
	- measured winding temperature (°C): at 1,1 Un.....:		—
	- measured temperature of fixing point/exposed part (°C): at 1,1 Un.....:		—
	- calculated temperature of fixing point/exposed part (°C).....:		—
	Ball-pressure test.....:	See Test Table 1.15 (13.2.1)	N/A
1.13 (12.7.1.3)	Luminaire with short circuit proof transformers ≤ 10 VA		N/A
	- case of abnormal conditions.....:		—
	- Components retained in place after the test		N/A
	- Test with standard test finger after the test		N/A
1.13 (12.7.2)	Luminaire with temperature sensing control		N/A
	- thermal link.....:	Yes ☐ No ☐	—
	- manual reset cut-out.....:	Yes ☐ No ☐	—
	- auto reset cut-out.....:	Yes ☐ No ☐	—
	- case of abnormal conditions.....:		—
	- highest measured temperature of fixing point/ exposed part (°C):.....:		—
	Ball-pressure test:.....:	See Test Table 1.15 (13.2.1)	N/A

1.14 (9)	**RESISTANCE TO DUST AND MOISTURE**		**P**
1.14 (-)	If IP > IP 20 the order of tests as specified in clause 1.12		P
1.14 (9.2)	Tests for ingress of dust, solid objects and moisture:		P
	- classification according to IP.....:	IP20	—
	- mounting position during test.....:	According to manual	—
	- fixing screws tightened; torque (Nm).....:	--	—
	- tests according to clauses.....:	Clause 9.2.0	—
	- electric strength test afterwards		P
	a) no deposit in dust-proof luminaire		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	b) no talcum in dust- tight luminaire		N/A
	c) no trace of water on current-carrying parts or on insulation where it could become a hazard		N/A
	c.1) For luminaires without drain holes – no water entry		N/A
	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)		P
	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		N/A
1.14 (9.3)	Humidity test 48 h		P
1.15 (10)	**INSULATION RESISTANCE AND ELECTRIC STRENGTH**		P
1.15 (10.2.1)	Insulation resistance test		P
	Cable or cord covered by metal foil or replaced by a metal rod of mm Ø .....:		—
	Insulation resistance (MΩ):		P
	SELV/PELV:		P
	- between current-carrying parts of different polarity:		N/A
	- 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/A
	- Insulation bushings as described in Section 5 ..... :		N/A
	Other than SELV/PELV:		P
	- between live parts of different polarity..... :	>100MΩ	P

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Clause	Requirement + Test	Result - Remark	Verdict
	- 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/A
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts.....:		N/A
	- Insulation bushings as described in Section 5 .....:		N/A
1.15 (10.2.2)	Electric strength test		P
	Dummy lamp		N/A
	Luminaires with ignitors after 24 h test		N/A
	Luminaires with manual ignitors		N/A
	Test voltage (V):		P
	SELV/PELV:		P
	- between current-carrying parts of different polarity:		N/A
	- between current-carrying parts and mounting surface.....:	500Vac, no breakdown	P
	- between current-carrying parts and metal parts of the luminaire.....:	500Vac, no breakdown	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 Section 5 .....:		N/A
	Other than SELV/PELV:		P
	- between live parts of different polarity.....:	1460Vac, no breakdown	P
	- between live parts and mounting surface.....:	1460Vac, no breakdown	P
	- between live parts and metal parts.....:	1460Vac, no breakdown	P
	- between live parts of different polarity through action of a switch.....:		N/A
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts.....:		N/A
	- Insulation bushings as described in Section 5 .....:		N/A
1.15 (10.3)	Touch current (mA).....:		N/A
	Protective conductor current (mA).....:	0,16mA; limit: 3,5mA	P

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Clause	Requirement + Test	Result - Remark	Verdict

1.16 (13)	**RESISTANCE TO HEAT, FIRE AND TRACKING**		P
1.16 (13.2.1)	Ball-pressure test..... :	See Test Table 1.16 (13.2.1)	P
1.16 (13.3.1)	Needle-flame test (10 s).....:	See Test Table 1.16 (13.3.1)	P
1.16 (13.3.2)	Glow- wire test (650°C).....:	See Test Table 1.16 (13.3.2)	P
1.16 (13.4)	Proof tracking test (IEC 60112).....:	See Test Table 1.16 (13.4)	N/A

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Clause	Requirement + Test	Result - Remark	Verdict

1.8 (11.2)	**TABLE I: Creepage distances and clearances**							**P**
	Minimum distances (mm) for a.c. up to 30 kHz sinusoidal voltages							**P**
	Applicable part of IEC 60598-1 Table 11.1.A*, 11.1.B* and 11.2*							**P**
	Insulation type **	**Measured clearance**	**Required**		**Measured creepage**	**Required**		
			clearance	***Table**		**creepage**	***Table**	
Distance 1:	B	3,0	1,5	Table 11.1.B	3,0	2,5	Table 11.1.A	
Distance 2:	B	3,9	1,5	Table 11.1.B	3,9	2,5	Table 11.1.A	
Distance 3:	B	3,9	1,5	Table 11.1.B	3,9	2,5	Table 11.1.A	
Working voltage (V)..... :					230V			—
PTI..... :					< 600 ☒ ≥ 600 ☐			—
Pulse voltage or U_P if applicable (kV) ..... :					--			—
Supplementary information: Distance 1: Between current-carrying parts of different polarity. Distance 2: Between current-carrying parts and accessible parts. Distance 3: Between current-carrying parts and mounting surface.								

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

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Clause	Requirement + Test	Result - Remark	Verdict

1.16 (13.2.1)	TABLE: Ball Pressure Test of Thermoplastics		P
Allowed impression diameter (mm) .....:		2	—
Object/ Part No./ Material	Manufacturer/ trademark	Test temperature (°C)	Impression diameter (mm)
LED cover	See Annex 1	75°C	0,9mm
LED PCB	See Annex 1	125°C	1,1mm
Closed-end connector	See Annex 1	125°C	1,0mm
Plastic enclosure of LED driver	See Annex 1	91°C	1,0mm
Driver PCB	See Annex 1	125°C	0,7mm
Bobbin	See Annex 1	125°C	0,8mm
Supplementary information:			

1.16 (13.3.1)	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
Driver PCB	See Annex 1	10s	No	0s	P
Bobbin	See Annex 1	10s	No	0s	P
LED PCB	See Annex 1	10s	No	0s	P
Closed-end connector	See Annex 1	10s	No	0s	P
Supplementary information:					

1.16 (13.3.2)	TABLE: Resistance to heat and fire - Glow wire tests				P
Object/ Part No./ Material	**Manufacturer/ trademark**	**GWT (°C) : 650**			**Verdict**
		t_E (s)	**t_i (s)**	**t_R (s)**	
LED cover	See Annex 1	0s	0s	0s	P
Plastic enclosure of LED driver	See Annex 1	0s	0s	0s	P
Ignition of the specified layer placed underneath the test specimen (Yes/No).....:					No
Supplementary information:					

1.16 (13.4)	TABLE: Proof tracking test	N/A

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Clause	Requirement + Test	Result - Remark	Verdict

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					--
Object / part No.	**Code**	**Manufacturer/ trademark**	**Type / model**	**Technical data**	**Standard**	**Mark(s) of conformity1)**
Terminal block	B	SHENZHEN GREENWAY ELECTRONIC CO.,LTD	MK1282	250VAC; 10A; 1,5mm^2 ; IP20; 100°C	EN 60998-1 EN 60998-2-1	TUV SUD ENEC U6 17 04 90250 012
Alt.	D	Foshan shunde jinjin electic appliances Co., LTD	KZ8-500	450V, T110, 1.0-2.5mm^2	EN 60998-1 EN 60998-2-1	VDE 40018824
Alt.	D	Foshan Ojun Electronic Technology Co.,LTD	OJ-3318	AC 250V, 17.5A	EN 60998-1 EN 60998-2-1	ENEC 2171288.02
Alt.	D	Guangdong Ojun Technology Co., Ltd.	OJ-321 8 OJ-331 8 OJ-331 9	250V, IP20	EN 60998-1 EN 60998-2-1	35-111864
Earthing wire	D	Zhongshan Guangli Electrical Appliance Co.,Ltd.	H05V-K	1 X 0.75mm^2	EN 50525-2-31	VDE 40050026
Alt.	D	Zhongshan City Jingquan Lighting Co., Ltd.	H05V-K	1 X 0.75mm^2	EN 50525-2-31	VDE 40049512
Alt.	D	Da Zheng Wire& Cable MFG、Ltd	H05V-U H05V-K	1 X 0.75mm^2	EN 50525-2-31	VDE 40034301
Alt.	D	Zhongshan Henglan Boyi Electrical Appliance Co.,Ltd.	H05V-K	1 X 0.75mm^2	EN 50525-2-31	VDE 40036731
Alt.	D	Zhongshan Jiadan Cable Co., Ltd.	H05V-K	1 X 0.75mm^2	EN 50525-2-31	VDE 40055451
LED cover	C	Cixi Lamptetias Optoelectronice Co., Ltd.	3855-B	PC, V-0	--	Tested with appliance
LED PCB	C	HUIZHOU CHUANLIAN ELECTRONIC TECHNOLOGY CO LTD	CL-Y	Single layer V-0; 105°C	--	UL E362158
LED	C	EVERLIGHT ELECTRONICS CO., LTD	2835	VF=18V, IF=120mA	IEC TR 62778	Tested with appliance
Closed-end connector	C	Heavy Power Co., Ltd	CE2; CE5	600VAC; 150°C	--	UL E113650
Heat-shrinkable tube	C	Foshan Dongying Hot Shrink Material Co Ltd	DY-HFT	600V, 125°C	--	UL E487049

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Clause	Requirement + Test	Result - Remark	Verdict

Fiberglass tube	C	DONGGUAN DAYONGLAI NEW MATERIAL TECHNOLOGY CO LTD	DYL1500-10000	600V, 200°C	--	UL E499455
Input wire	C	Zhongshan Henglan Boyi Electrical Appliance Co.,Ltd.	H03VV-F	3 X 0.75 mm^2 2 X 0.75 mm^2	EN 50525-2-11	VDE 40036714
Alt.	D	Zhongshan Jiadan Cable Co., Ltd.	H03VV-F H05VV-F	3 X 0.75 mm^2 2 X 0.75 mm^2	EN 50525-2-11	VDE 40055443
Alt.	D	Da Zheng Wire& Cable MFG、Ltd	H03VV-F H05VV-F	3 X 0.75 mm^2 2 X 0.75 mm^2	EN 50525-2-11	VDE 40004765
Alt.	D	JIANGMEN GOMENTECH ELECTRICAL CO.,LTD	H03VV-F H05VV-F	3 X 0.75 mm^2 2 X 0.75 mm^2	EN 50525-2-11	VDE 40018946
Alt.	D	Zhongshan Guangli Electrical Appliance Co.,Ltd.	H03VV-F H05VV-F	3 X 0.75 mm^2 2 X 0.75 mm^2	EN 50525-2-11	VDE 40048913
Output wire of Driver PCB	C	Foshan City Nanhai Tengxiang Wire & Cable Co., Ltd.	--	PVC; thickness: 0,2mm	--	Test with appliance
Plastic enclosure of LED driver	C	TEIJIN LIMITED RESIN AND PLASTIC	LN-2250ZY(#)(f1)	V-0, 115°C	--	UL E50075
Driver PCB	C	WANAN WANGSHUN ELECTRON CO LTD	WS02	V-0; 130°C	--	UL E312055
Input terminal	B	Dong Guan Dieran Electronics Science and Technology Co., Ltd.	DA250	300VAC; 0.2-1.5mm^2; 105°C	EN 60998-1 EN 60998-2-2	VDE 40031801
Output terminal	B	Putian Hanjiang Fucon Electronics Co., Ltd.	CM-250-3.5	450VAC; T120; 0.5-0.75mm2	EN 60998-1 EN 60998-2-2	VDE 40037257
Fuse resistor	B	Shenzhen Great Electronics Co. Ltd.	RXF	3,3Ω; 1W	VDE 0860	VDE 40026608
Varistor	B	Guangxi New Future Information Industry Co., Ltd.	05D471K	Min.320 Vac./415Vdc, 85°C	IEC 61051-1; IEC 61051-2; IEC 61051-2-2	VDE 40030322
Y-capacitor	B	DONG GUAN AJC INDUSTRIAL CO., LTD	JT series	400V, 125°C, 2200pF	IEC/EN 60384-14	VDE 40043090

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Clause	Requirement + Test	Result - Remark	Verdict

Inductor (T1)	C	Shenzhen Xinhong Feida Magnetic Industry Co., Ltd	ED2027	450uh, ED2027(4+2), Class B	--	Test with appliance
-Bobbin	C	SUMITOMO BAKELITE CO LTD	PM-9820	V-0, 150°C	--	UL E41429
-wire	C	Dongguan Xinlong Varnished Wire Co Ltd	xUEW, UEW/130	155°C	--	UL E171082
Transformer (T2)	C	SHENZHEN LUCKY TENDA ELECT RONIC CO,.LTD.	ED2021	Class II	--	Tested with appliance
-Bobbin	C	CHANG CHUN PLASTICS CO LTD	EME-1200	V-0, 130°C	--	UL E59481
-Winding	C	SIHUI HENGHUI ELECTRICAL APPLIANCES CO LTD	UEW/155	155°C	--	UL E337948
Insulating tape	C	DONGGUAN SHIN YAHUA ELECTRONIC MATERIAL CO LTD	PZ* (b)	130°C	--	UL E324093
Triple insulation wire	B	Shanghai Lucky Trade Co., Ltd.	TIW-B	130°C	EN 62368-1	VDE 40023686
Varnish	C	ZHUHAI CHANGXIAN NEW MATERIALS TECHNOLOGY CO LTD	E962	130°C	--	UL E335405
Tube	C	CHANGYUAN ELECTRONICS GROUP CO LTD	CB-TT-L	150V, 200°C	--	UL E180908
LED driver	B	Foshan Eaglerise Power Science & Technology (Shunde) Co., Ltd.	LS-12-300 SI ECO	Input: 220-240V~, 50/60Hz, 0.29A max Output: 8-42Vdc, 300mA, Max.15.6W, Uout: 59Vdc ta:45°C, tc:70°C	EN 61347-1 EN 61347-2-13	CE

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict

LED driver	B	Foshan Eaglerise Power Science & Technology (Shunde) Co., Ltd.	LS-50-1200 TRIAC LI	Input: 220-240V~, 50/60Hz, 0.39A max Output: 27-42Vdc, 1200mA, Max.50.4W, Uout: 55Vdc ta:45°C, tc:85°C	EN 61347-1 EN 61347-2-13	CE
LED driver	B	Foshan Eaglerise Power Science & Technology (Shunde) Co., Ltd.	LS-40-950 LI ECO	Input: 220-240V~, 50/60Hz, 0.27A max Output: 24-42Vdc, 950mA, Max.39.9W, Uout: 50Vdc ta:45°C, tc:80°C	EN 61347-1 EN 61347-2-13	CE
LED driver	B	Foshan Eaglerise Power Science & Technology (Shunde) Co., Ltd.	LS-21-500 SI ECO	Input: 220-240V~, 50/60Hz, 0.3A max Output: 27-42Vdc, 500mA, Max.21W, Uout: 55Vdc ta:45°C, tc:80°C	EN 61347-1 EN 61347-2-13	CE
LED driver	B	Foshan Eaglerise Power Science & Technology (Shunde) Co., Ltd.	LS-21-600 SI ECO	Input: 220-240V~, 50/60Hz, 0.3A max Output: 27-39Vdc, 600mA, Max.23.4W, Uout: 55Vdc ta:45°C, tc:80°C	EN 61347-1 EN 61347-2-13	CE
LED driver	B	Foshan Eaglerise Power Science & Technology (Shunde) Co., Ltd.	LS-40-1050 TRIAC LI	Input: 220-240V~, 50/60Hz, 0.25A max Output: 27-40Vdc, 1050mA, Max.42W, Uout: 53Vdc ta:45°C, tc:75°C	EN 61347-1 EN 61347-2-13	CE

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict

LED driver	B	Foshan Eaglerise Power Science & Technology (Shunde) Co., Ltd.	LS-12-350 SI ECO	Input: 220-240V~, 50/60Hz, 0.2A max Output: 27-40Vdc, 350mA, Max.14W, Uout: 57Vdc ta:45°C, tc:70°C	EN 61347-1 EN 61347-2-13	CE
LED driver	B	Foshan Eaglerise Power Science & Technology (Shunde) Co., Ltd.	LS-40-950 LI EXC	Input: 220-240V~, 50/60Hz, 0.27A max Output: 24-42Vdc, 950mA, Max.39.9W, Uout: 50Vdc ta:45°C, tc:80°C	EN 61347-1 EN 61347-2-13	CE
LED driver	B	Foshan Eaglerise Power Science & Technology (Shunde) Co., Ltd.	LS-40-750 LI EXC	Input: 220-240V~, 50/60Hz, 0.22A max Output: 24-42Vdc, 750mA, Max.30W, Uout: 50Vdc ta:45°C, tc:80°C	EN 61347-1 EN 61347-2-13	CE
LED driver	B	Foshan Eaglerise Power Science & Technology (Shunde) Co., Ltd.	LS-40-750 LI ECO	Input: 220-240V~, 50/60Hz, 0.22A max Output: 24-42Vdc, 750mA, Max.30W, Uout: 50Vdc ta:45°C, tc:80°C	EN 61347-1 EN 61347-2-13	CE

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
All driver models have the same construction and are on the same certificate.

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Clause	Requirement + Test	Result - Remark	Verdict

ANNEX 2	TABLE: Thermal tests of Section 12		P
	Type reference..... :	VT-101-2D	—
	Lamp used..... :	LED module	—
	Lamp control gear used..... :	Integral LED driver	—
	Mounting position of luminaire..... :	See product manual	—
	Supply wattage (W) ..... :	113,4W	—
	Supply current (A) ..... :	0,492A	—
	Calculated power factor..... :	0,945	—
	Temperatures in test 1 - 4 below are corrected for ta (°C) ..... :	25°C	—
	- abnormal operating mode..... :		—
1.13 (12.4)	- test 1: rated voltage ..... :		—
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current ..... :	1,06x230V	—
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage..... :		—
	Through wiring or looping-in wiring loaded by a current of A during the test ..... :		—
1.13 (12.5)	- 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..... :		—

Temperature measurements (°C)

Part	Ambient	Cl. 12.4 – normal				Cl. 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
Terminal block	25	--	36,1	--	100	--	--
Closed-end connector	25	--	39,8	--	150	--	--
LED cover	25	--	45,9	--	Ref.	--	--
LED PCB	25	--	58,7	--	105	--	--
Internal wire near LED	25	--	53,2	--	Ref.	--	--
Plastic enclosure of LED driver	25	--	65,4	--	Ref.	--	--
Driver PCB	25	--	78,5	--	130	--	--
Input wire	25	--	34,7	--	105	--	--
Input terminal	25	--	42,5	--	105	--	--

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Clause	Requirement + Test	Result - Remark	Verdict

Output terminal	25	--	46,8	--	120	--	--
RV1	25	--	72,3	--	85	--	--
CY1	25	--	76,4	--	125	--	--
EC1	25	--	68,4	--	105	--	--
C3	25	--	73,4	--	105	--	--
EC2	25	--	71,8	--	105	--	--
L2	25	--	71,5	--	120	--	--
T1 bobbin	25	--	65,1	--	120	--	--
T1 winding	25	--	68,5	--	120	--	--
T2 bobbin	25	--	82,3	--	130	--	--
T2 winding	25	--	84,7	--	130	--	--
Mounting surface	25	--	29,8	--	90	--	--
Supplementary information:							

ANNEX 2	**TABLE: Thermal tests of Section 12**		P
	Type reference.....:	VT-7914	—
	Lamp used.....:	LED module	—
	Lamp control gear used.....:	LS-50-1200 TRIAC LI	—
	Mounting position of luminaire..... :	See product manual	—
	Supply wattage (W) .....:	47,6W	—
	Supply current (A) .....:	0,19A	—
	Calculated power factor.....:	0,98	—
	Temperatures in test 1 - 4 below are corrected for ta (°C) .....:	25°C	—
	- abnormal operating mode.....:		—
1.13 (12.4)	- test 1: rated voltage .....:		—
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current .....:	1,06x230V	—
	- 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 .....:		—

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Clause	Requirement + Test	Result - Remark	Verdict

1.13 (12.5)	- 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..... :		—

Temperature measurements (°C)

Part	Ambient	Cl. 12.4 – normal				Cl. 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
Terminal block	25	--	34,2	--	110	--	--
tc of LED driver	25	--	58,6	--	85	--	--
Input wire of LED driver	25	--	39,8	--	105	--	--
LED PCB	25	--	53,6	--	130	--	--
Internal wire near LED	25	--	45,3	--	105	--	--
LED cover	25	--	46,7	--	Ref.	--	--
Mounting surface	25	--	28,7	--	90	--	--
Supplementary information:							

ANNEX 2	TABLE: Thermal tests of Section 12		P
	Type reference..... :	VT-7925	—
	Lamp used..... :	LED module	—
	Lamp control gear used..... :	LS-50-1200 TRIAC LI	—
	Mounting position of luminaire..... :	See product manual	—
	Supply wattage (W) ..... :	49,2W	—
	Supply current (A) ..... :	0,2A	—
	Calculated power factor..... :	0,96	—
	Temperatures in test 1 - 4 below are corrected for ta (°C) ..... :	25°C	—
	- abnormal operating mode..... :		—
1.13 (12.4)	- test 1: rated voltage ..... :		—
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current ..... :	1,06x230V	—
	- 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 ..... :		—

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Clause	Requirement + Test	Result - Remark	Verdict

1.13 (12.5)	- 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..... :		—

Temperature measurements (°C)

Part	Ambient	Cl. 12.4 – normal				Cl. 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
Terminal block	25	--	36,8	--	110	--	--
tc of LED driver	25	--	61,2	--	85	--	--
Input wire of LED driver	25	--	40,1	--	105	--	--
LED PCB	25	--	56,9	--	130	--	--
Internal wire near LED	25	--	48,2	--	105	--	--
LED cover	25	--	48,3	--	Ref.	--	--
Mounting surface	25	--	29,9	--	90	--	--
Supplementary information:							

ANNEX 3	**Screw terminals (part of the luminaire)**		N/A
(14)	**SCREW TERMINALS**		N/A
(14.2)	Type of terminal.....:		—
	Rated current (A).....:		—
(14.3.2.1)	One or more conductors		N/A
(14.3.2.2)	Special preparation		N/A
(14.3.2.3)	Terminal size		N/A
	Cross-sectional area (mm²).....:		—
(14.3.3)	Conductor space (mm).....:		N/A
(14.4)	Mechanical tests		N/A
(14.4.1)	Minimum distance		N/A
(14.4.2)	Cannot slip out		N/A
(14.4.3)	Special preparation		N/A
(14.4.4)	Nominal diameter of thread (metric ISO thread)....:	M	N/A
	External wiring		N/A
	No soft metal		N/A
(14.4.5)	Corrosion		N/A
(14.4.6)	Nominal diameter of thread (mm).....:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	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

ANNEX 4	**Screwless terminals (part of the luminaire)**		N/A
(15)	**SCREWLESS TERMINALS**		N/A
(15.2)	Type of terminal.....:		—
	Rated current (A).....:		—
(15.3.1)	Material		N/A
(15.3.2)	Clamping		N/A
(15.3.3)	Stop		N/A
(15.3.4)	Unprepared conductors		N/A
(15.3.5)	Pressure on insulating material		N/A
(15.3.6)	Clear connection method		N/A
(15.3.7)	Clamping independently		N/A
(15.3.8)	Fixed in position		N/A
(15.3.10)	Conductor size		N/A
	Type of conductor		N/A
(15.5)	Terminals and connections for internal wiring		N/A
(15.5.1)	Mechanical tests		N/A
(15.5.1.1.1)	Pull test spring-type terminals (4 N, 4 samples).....:		N/A
(15.5.1.1.2)	Pull test pin or tab terminals (4 N, 4 samples).....:		N/A
	Insertion force not exceeding 50 N		N/A
(15.5.1.2)	Permanent connections: pull-off test (20 N)		N/A
(15.5.2)	Electrical tests		N/A
	Voltage drop (mV) after 1 h (4 samples)..... :		N/A
	Voltage drop of two inseparable joints		N/A
	Number of cycles:		—

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Clause	Requirement + Test	Result - Remark	Verdict
	Voltage drop (mV) after 10th alt. 25th cycle (4 samples).....:		N/A
	Voltage drop (mV) after 50th alt. 100th cycle (4 samples).....:		N/A
	After ageing, voltage drop (mV) after 10th alt. 25th cycle (4 samples).....:		N/A
	After ageing, voltage drop (mV) after 50th alt. 100th cycle (4 samples)..... :		N/A
(15.6)	Terminals and connections for external wiring		N/A
(15.6.1)	Conductors		N/A
	Terminal size and rating		N/A
15.6.2	Mechanical tests		N/A
(15.6.2.1)	Pull test spring-type terminals or welded connections (4 samples); pull (N) ..... :		N/A
(15.6.2.2)	Pull test pin or tab terminals (4 samples); pull (N) .....:		N/A
(15.6.3)	Electrical tests		N/A
	Tests according 15.6.3.1 + 15.6.3.2 in IEC 60598-1		N/A

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

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict

terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										
	Continued ageing: voltage drop after 50th alt. 100th cycle									
	Max. allowed voltage drop (mV).....:									—
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										
Supplementary information:										

	ANNEX 5: EMF test result according to IEC/EN 62493		P
4	**LIMITS**		P
4.1	**General**		P
	Comply with Van der Hoofden test limit in 4.2.3 or inherently compliant in 4.2.2 and pass assessment procedure for intentional radiators in 4.3		P
4.2	**Unintentional radiating part of lighting equipment**		P
4.2.2	Lighting equipment deemed to comply with the Van der Hoofden test without testing		P
	1) electronic controlgear	Yes ☐ No ☒	—
	2) incandescent-lamp technology	Yes ☐ No ☒	—
	3) LED-light-source technology	Yes ☒ No ☐	—
	4) OLED-light-source technology	Yes ☐ No ☒	—
	5) high-pressure discharge lamp	Yes ☐ No ☒	—
	6) low-pressure discharge lamp technologies with exposure distance ≥ 50 cm	Yes ☐ No ☒	—
	7) independent auxiliary	Yes ☐ No ☒	—
	Not fulfil any of 1-7 above subject to 4.2.3		—
4.2.3	Applications of limits		N/A
	Not fulfil any of 1-7 in 4.2.2 but the compliance factor *F* is ≤ 1		N/A
4.3	**Intentional radiating part of lighting equipment**		N/A
	Comply with one of methods in Clause 7 if intentional radiator		N/A

6	**MEASUREMENT PROCEDURE FOR THE VAN DER HOOFDEN TEST**	N/A

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict

6.1	**General**		N/A
	Measurements carried out under conditions according Clause 6.1 – 6.6	See Table 6	N/A

7	**ASSESSMENT PROCEDURE INTENTIONAL RADIATORS**		N/A
7.2	**Low-power exclusion method**		N/A
7.2.1	Input $P_{int,rad}$ ..... :		—
	Exclusion level P_{max} ..... :		—
	Input power $P_{int,rad}$ < exclusion level P_{max}		N/A
7.3	**Application of the EMF product standard for body worn-equipment**		N/A
	If not Clause 7.2 is met and expose distance ≤ 0.05 m, comply with IEC 62209-2		N/A
7.4	**Application of the EMF product standard for base stations**		N/A
	If not Clause 7.2 is met and if intentional radiator is base station, comply with IEC 62232		N/A
7.5	**Application of another EMF standard**		N/A
	If not Clause 7.2 is met and if intentional radiator cannot be considered as in Clause 7.3 or 7.4, comply with IEC 62311		N/A

6	**TABLE: Measurement results with Van der Hoofden test head**				N/A
Location of EUT	Test model	Measuring distance	Result(F)	Limit(F)	Verdict
Reference Annex B of IEC/EN 62493:2015	--	--	--	≤1.0	N/A

Attachment No.1

IEC 60598_2_1I-ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT IEC 60598-2-1
EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES

Luminaires

Part 2: Particular requirements

Section 1: Fixed general purpose luminaires

Differences according to..... : EN IEC 60598-2-1:2021 used in conjunction with EN IEC 60598-1:2021+A11:2022

	CENELEC COMMON MODIFICATIONS (EN)	P

1.7 (4)	**CONSTRUCTION**		N/A
1.7 (4.11.6)	Electro-mechanical contact systems		N/A

1.11 (5)	**EXTERNAL AND INTERNAL WIRING**		N/A
1.11 (5.2.2)	Cables equal to EN 50525		N/A
	Replace table 5.1 – Supply cord		N/A

1.13 (12)	**ENDURANCE TESTS AND THERMAL TESTS**		P
1.13 (12.4.2c)	Thermal test (normal operation) see footnote c to table 12.2 relating to unsleeved fixed wiring		P
ZB	**ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)**		N/A
(3.3)	DK: power supply cords of class I luminaires with label		N/A
(4.5.1)	DK: socket- outlets		N/A
(5.2.1)	CY, DK, FI, GB: type of plug		N/A

ZC	**ANNEX ZC, NATIONAL DEVIATIONS (EN)**		N/A
(4 & 5)	FR: Shuttered socket-outlets 10/16A		N/A

Attachment No.1

IEC 60598_2_1I-ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	FR: Safety requirements for high buildings (Decree of 30 December 2011 on safety regulations for the construction of high-rise buildings and their protection against fire and panic risks; Section VIII; Article GH 48, Lighting) Glow-wire test for outer parts of luminaires:		N/A
	- 850°C for luminaires in stairways and horizontal travel paths		N/A
	- 650°C for indoor luminaires		N/A
	GB: Requirements according to United Kingdom Building Regulation		N/A

Attachment No.2

IEC/EN IEC 62031 LED modules for general lighting - Safety specifications			
Clause	Requirement + Test	Result - Remark	Verdict
4.2	Classification		---
	Built-in.....:	Yes ☐ No ☒	—
	Independent.....:	Yes ☐ No ☒	—
	Integral.....:	Yes ☒ No ☐	—
4.6	Independent modules comply with requirements in IEC 60598-1:2020		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		N/A
6.2	Contents of marking for built-in and for independent LED modules		N/A
6.3	Location of marking for built-in LED modules		N/A
6.4	Location of marking for independent LED modules		N/A
6.5	Marking of integral LED modules		P
6.6	Durability and legibility of marking		N/A
7	Terminals		N/A
8 (9)	EARTHING		N/A
9 (10)	Protection against accidental contact with live parts		N/A
10 (11)	Moisture resistance and insulation		P
11 (12)	Electric strength		P
12 (14)	Fault conditions		P
12.1	Fault conditions according to IEC 61347-1, Clause 14		P
12.2	Overpower condition	No damage	P
14 (15)	Construction		P
- (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

Attachment No.2

IEC/EN IEC 62031 LED modules for general lighting - Safety specifications			
Clause	Requirement + Test	Result - Remark	Verdict
15 (16)	Creepage distances and clearances		N/A
16 (17)	Screws, current-carrying parts and connections		N/A
17 (18)	Resistance to heat, fire and tracking		N/A
18	Resistance to corrosion		N/A
20	Heat management		N/A
22	Photobiological safety		P
22.1	UV radiation		N/A
22.2	Blue light hazard		P
	Assessed according to IEC TR 62778		P
22.3	Infrared radiation		N/A

Attachment No.3

IEC TR 62778 Photobiological safety of lamps and lamp systems			
Clause	Requirement + Test	Result - Remark	Verdict

Table 4.6 (4.24)	**Spectroradiometric measurement (IEC TR 62778: 2014)**		--
	Measurement performed on:	**Luminaire**	--
	Model number.....	VT-101-2D	--
	Test voltage (V).....	230V	--
	Test current (mA).....	--	--
	Test frequency (Hz).....	50	--
	Ambient, t (°C).....	25,0	--
	Measurement distance.....	☒ 20 cm ☐ ... cm	--
	Source size	☒ Non-small ☐ Small : .... mm	--
	Field of view	☐ 100 mrad ☒ 11 mrad ☐ 1,7 mrad (for small sources)	--

Item	Symbol	Units	Result	Risk Group
Correlated colour temperature	CCT	K	--	--
x/y colour coordinates	--	--	--	--
Blue light hazard radiance	L_B	$W/(m^2 \cdot sr^1)$	72	☒ RG0: <100 ☐ RG1: <10000 ☐ RG2: <4000000
Blue light hazard irradiance	E_B	W/m^2	--	--
Luminance	L	cd/m^2	--	--
Illuminance	E	lx	--	--
Supplementary information:				

Attachment No.4

IEC 61347-2-13			
Clause	Requirement + Test	Result - Remark	Verdict

4 (4)	**GENERAL REQUIREMENTS**		**P**
- (4)	Insulation materials for double or reinforced insulation according requirements in Annex N of IEC 61347-1	(see Annex N)	N/A
- (4)	Compliance of independent controlgear enclosure with IEC 60598- 1		N/A
- (4)	Built-in electronic controlgear with double or reinforced insulation comply with Annex O of IEC 61347-1	(see Annex O)	N/A
4 (4)	SELV controlgear comply with Annex I of this part 2 and Annex L of IEC 61347-1	(see Annex L)	P
4 (-)	Transformer comply with IEC 61558		P
	Dielectric strength test of insulated winding wires is limited to 3 kV if input voltage ≤ 300 V		P

6 (6)	**CLASSIFICATION**		**P**
	Built-in controlgear ..... :	Yes ☐ No ☒	—
	Independent controlgear..... :	Yes ☐ No ☒	—
	Integral controlgear ..... :	Yes ☒ No ☐	—
6 (-)	Auto-wound controlgear .....:	Yes ☐ No ☒	—
	Separating controlgear .....:	Yes ☐ No ☒	—
	Isolating controlgear ..... :	Yes ☒ No ☐	—
	SELV controlgear .....:	Yes ☒ No ☐	—

7 (7)	**MARKING**		**N/A**
7.1 (7.1)	**Mandatory markings**		N/A
	a) mark of origin		N/A
	b) model number or type reference		N/A
	c) symbol for independent controlgear, if applicable		N/A
	d) correlation between interchangeable parts and controlgear marked		N/A
	e) rated supply voltage (V)		N/A
	supply frequency (Hz)		N/A
	supply current (A)		N/A
	f) earthing symbol		N/A

Attachment No.4

IEC 61347-2-13			
Clause	Requirement + Test	Result - Remark	Verdict
	k) wiring diagram		N/A
	l) value of t_c		N/A
	m) symbol for declared temperature		N/A
	t) LUM earthing symbol		N/A
	u) if not SELV maximum working voltage U_{out} between:		N/A
	- output terminals (V) .....:	--	N/A
	- output terminals and earth (V) .....:	--	N/A
7.1 (-)	Constant voltage type:	Yes ☐ No ☐	—
	- rated output power P_{rated} (W) .....:		N/A
	- rated output voltage U_{rated} (V) .....:		N/A
	Constant current type:	Yes ☐ No ☐	—
	- rated output power P_{rated} (W) .....:		N/A
	- rated output current I_{rated} (A) .....:		N/A
	Indication if for LED modules only		N/A
7.1 (7.2)	Marking durable and legible		N/A
	Rubbing 15 s water, 15 s petroleum; marking legible		N/A
7.2 (7.1)	**Information to be provided, if applicable**		N/A
	h) declaration on protection against accidental contact		N/A
	i) cross-section of conductors (mm²)		N/A
	j) number, type and wattage of lamp(s)		N/A
	s) SELV symbol		N/A
7.2 (-)	- declaration of mains connected windings		N/A

8 (10)	**PROTECTION AGAINST ACCIDENTAL CONTACT WITH LIVE PARTS**		**P**
- (10.1)	Controlgear protected against accidental contact with live parts	Rely on luminaries enclosure	N/A
- (A2)	Voltage measured with 50 kΩ	(see Annex A)	N/A
- (A3)	Voltage > 35 V peak or > 60 V d.c. or protective impendance device	(see Annex A)	N/A
- (10.1)	Lacquer or enamel not used for protection or insulation		N/A

Attachment No.4

IEC 61347-2-13			
Clause	Requirement + Test	Result - Remark	Verdict
	Adequate mechanical strength on parts providing protection		N/A
- (10.2)	Capacitors > 0,5 μF: voltage after 1 min (V): < 50 V ..... :	0V, 1min	P
- (10.3)	**Controlgear providing SELV**		P
	Accessible conductive parts are insulated from live parts by double or reinforced insulation in SELV controlgear		P
	No connection between output circuit and the body or protective earthing circuit		N/A
	No possibility of connection between output circuit and the body or protective earthing circuit through other conductive parts		N/A
	SELV outputs separated by at least basic insulation		P
	ELV conductive parts insulated as live parts		N/A
	Tests according Annex L of IEC 61347-1	(see Annex L)	P
- (10.4)	**Accessible conductive parts in SELV circuits**		P
	Output voltage under load ≤ 25 V r.m.s. or ≤ 60 V d.c.	Max.53Vdc	P
	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		P
	Y1 or Y2 capacitors comply with IEC 60384-14		P
	Resistors comply with test (a) in 14.1 of IEC 60065		N/A

9 (8)	**TERMINALS**		**P**
- (8.1)	**Integral terminals**		P
	Screw terminals according section 14 of IEC 60598-1:		N/A
	Separately approved; component list	(see Annex 1)	N/A

Attachment No.4

IEC 61347-2-13			
Clause	Requirement + Test	Result - Remark	Verdict
	Part of the controlgear	(see Annex 2)	N/A
	Screwless terminals according section 15 of IEC 60598-1:		P
	Separately approved; component list	(see Annex 1)	P
	Part of the controlgear	(see Annex 3)	N/A
- (8.2)	**Terminals other than integral terminals**		N/A
	Comply with relevant IEC standard	(see Annex 1)	N/A
	Suit the conditions		N/A
	Satisfy additional relevant requirements of this standard		N/A
10 (9)	**PROVISION FOR PROTECTIVE EARTHING**		**N/A**
- (9.1)	**Provisions for protective earthing**		N/A
	Terminal complying with clause 8		N/A
	Locked against loosening and not possible to loosen by hand		N/A
	Not possible to loosen clamping means unintentionally on screwless terminals		N/A
	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
- (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 Ω .....:		N/A
- (9.4)	**Earthing of built-in lamp controlgear**		N/A

Attachment No.4

IEC 61347-2-13			
Clause	Requirement + Test	Result - Remark	Verdict
	Earth by means of fixing to earthed metal of luminaire in compliance of 7.2 of IEC 60598-1		N/A
	Earthing terminal only for earthing the built-in controlgear		N/A
- (9.5)	**Earthing via independent controlgear**		N/A
- (9.5.1)	Earth connection to other equipment		N/A
	Looping or through connection, conductor min. 1,5 mm² and of copper or equivalent		N/A
	Protective earthing wires in line with 5.3.1.1 and clause 7		N/A
- (9.5.2)	Earthing of the lamp compartments powered via the independent lamp controlgear		N/A
	Test with a current of 25 A between input and output earth terminals; measured resistance (Ω) between earthing terminal or earthing contact and each of the accessible metal parts at ≥ 10 A according 7.2.3 of IEC 60598-1: < 0,5 Ω .....:		N/A
	Output earthing terminal marked as in 7.1 t) of IEC 61347-1		N/A
11 (11)	**MOISTURE RESISTANCE AND INSULATION**		**P**
	After storage 48 h at 91-95% relative humidity and 20-30 °C measuring of insulation resistance with d.c. 500 V (MΩ):		P
	For basic insulation ≥ 2 MΩ .....:	>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		P
12 (12)	**ELECTRIC STRENGTH**		**P**
	Immediately after clause 11 electric strength test for 1 min		P
	Basic insulation for SELV, test voltage 500 V	500V	P
	Working voltage ≤ 50 V, test voltage 500 V		N/A
	Working voltage > 50 V ≤ 1000 V, test voltage (V):		P
	Basic insulation, 2U + 1000 V	1460V	P

Attachment No.4

IEC 61347-2-13			
Clause	Requirement + Test	Result - Remark	Verdict
	Supplementary insulation, 2U + 1000 V		N/A
	Double or reinforced insulation, 4U + 2000 V	2920V	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

14 (14)	**FAULT CONDITIONS**		**P**
- (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		P
	Thermally protected controlgear does not exceed the marked temperature value		N/A
	Fault conditions: capacitors, resistors or inductors without proof of compliance with relevant specifications have been short-circuited or disconnected	(see appended table)	P
- (14.2)	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)	P
- (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)	P
	Short-circuit or interruption of SPDs	(see appended table)	N/A
14 (-)	Reversed voltage polarity if d.c. supplied control gear	(see appended table)	N/A
- (14.6)	After the tests has been carried out on three samples:		P
	The insulation resistance ≥ 1 MΩ ..... :	> 100MΩ	P
	No flammable gases		P
	No accessible parts have become live		P
	During the tests, a five-layer tissue paper, where the test specimen is wrapped, does not ignite		P
- (14.7)	Relevant fault condition tests with high-power supply		—

Attachment No.4

IEC 61347-2-13			
Clause	Requirement + Test	Result - Remark	Verdict
14 (-)	Temperature declared thermally protected lamp controlgear fulfil requirements in Annex C		N/A
15 (-)	**TRANSFORMER HEATING**		**P**
15.1	**General**		**P**
	Transformer comply with clause L.6 and L.7 of IEC 61347-1	See Annex L	P
	Output voltage of SELV controlgear not exceed limits in 10.4 of IEC 61347-1 during the test of 15.1 and 15.2	See Annex L	P
15.2 (-)	**Normal operation**		P
	Comply with clause L.6 of IEC 61347-1	See Annex L	P
15.3 (-)	**Abnormal operation**		P
	Comply with clause L.7 of IEC 61347-1	See Annex L	P
	Double LED modules or equivalent load connected in parallel to the output terminals of constant voltage type		N/A
	Double LED modules or equivalent load connected in series to the output terminals of constant current type		P
15 (-)	During and at the end of the tests no defect impairing safety, nor any smoke or flammable gases produced		P
16 (15)	**CONSTRUCTION**		**P**
- (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
- (15.3)	**Plugs and socket-outlets used in SELV or ELV circuits**		N/A
	No dangerous compatibility between output socket-outlet and a plug for socket-outlets for input circuit in relation to installation rules, voltages and frequencies		N/A
	Plugs and socket-outlets for SELV comply with IEC 60906-3 and IEC 60884-2-4		N/A

Attachment No.4

IEC 61347-2-13			
Clause	Requirement + Test	Result - Remark	Verdict
	Plugs and socket-outlets for SELV ≤ 3 A, ≤ 25 V r.m.s. or ≤ 60 V d.c. and ≤ 72 W comply with IEC 60906-3 and IEC 60884-2-4 or:		N/A
	- plugs not able to enter socket-outlets of other standardised system		N/A
	- socket-outlets not admit plugs of other standardised system		N/A
	- socket-outlets without protective earth		N/A
- (15.4)	**Insulation between circuits and accessible parts**		P
- (15.4.2)	SELV circuits		P
	Source used to supply SELV circuits:		P
	- safety isolating transformer in accordance with relevant part 2 of IEC 61558		N/A
	- controlgear providing SELV in accordance with relevant part 2 of IEC 61347		P
	- another source		N/A
	Voltage in the circuit not higher than ELV		P
	SELV circuits insulated from LV by double or reinforced insulation		P
	SELV circuits insulated from non SELV circuits by double or reinforced insulation		N/A
	SELV circuits insulated from FELV circuits by supplementary insulation		N/A
	SELV circuits insulated from other SELV circuits by basic insulation		N/A
	SELV circuits insulated from accessible conductive parts according Table 6 in 15.4.5		N/A
-(15.4.3)	FELV circuits		N/A
	Source used to supply FELV circuits:		N/A
	- separating transformer in accordance with relevant part 2 of IEC 61558		N/A
	- separating controlgear providing basic insulation between input and output circuits in accordance with relevant part 2 of IEC 61347		N/A
	- another source		N/A

Attachment No.4

IEC 61347-2-13			
Clause	Requirement + Test	Result - Remark	Verdict
	- source in circuits separated by the LV supply by basic insulation		N/A
	Voltage in the circuit not higher than ELV		N/A
	FELV circuits insulated from LV supply by at least basic insulation		N/A
	FELV circuits insulated from other FELV circuits if functional purpose		N/A
	FELV circuits insulated from accessible conductive parts according Table 6 in 15.4.5		N/A
	Plugs and socket-outlets for FELV system comply with:		N/A
	- plugs not able to enter socket-outlets of other voltage systems		N/A
	- socket-outlets not admit plugs of other voltage systems		N/A
	- socket-outlets have a protective conductor contact		N/A
-(15.4.4)	Other circuits		N/A
	Insulation between circuits other than SELV or FELV and accessible conductive parts in according Table 6 in 15.4.5.		N/A
-(15.4.5)	Insulation between circuits and accessible conductive parts		N/A
	Accessible conductive parts shall be insulated from active parts of electric circuit by an insulation according to Table 6		N/A
	Class II construction with equipotential bonding for protection against indirect contacts with live parts:		N/A
	- all conductive parts are connected together		N/A
	- conductive parts are reliably connected together according test of IEC 60598-1 cl. 7.2.3		N/A
	- conductive parts comply with requirements of Annex A in case of insulation fault		N/A
17 (16)	**CREEPAGE DISTANCES AND CLEARANCES**		**P**
- (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		P

Attachment No.4

IEC 61347-2-13			
Clause	Requirement + Test	Result - Remark	Verdict
	Insulating lining of metallic enclosures		N/A
	Controlgear protected against pollution comply with Annex P	(see 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	(see appended table)	N/A
	Clearances distances for reinforced insulation according to Table 11	(see appended table)	N/A
18 (17)	**SCREWS, CURRENT-CARRYING PARTS AND CONNECTIONS**		**P**
	Screws, current-carrying parts and connections in compliance with IEC 60598-1 (clause numbers between parentheses refer to IEC 60598-1)		P
(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

Attachment No.4

IEC 61347-2-13			
Clause	Requirement + Test	Result - Remark	Verdict
(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
19 (18)	**RESISTANCE TO HEAT, FIRE AND TRACKING**		**P**
- (18.1)	Ball-pressure test .....:	See IEC 60598-2-1	P
- (18.2)	Test of printed boards .....:	See Test Table 19 (18.2)	P
- (18.3)	Glow- wire test .....:	See IEC 60598-2-1	P
- (18.4)	Needle flame test .....:	See IEC 60598-2-1	P
- (18.5)	Tracking test .....:	See Test Table 19 (18.5)	N/A
20 (19)	**RESISTANCE TO CORROSION**		**N/A**
	- test according 4.18.1 of IEC 60598-1		N/A
	- adequate varnish on the outer surface		N/A
21 (-)	**MAXIMUM WORKING VOLTAGE (Uout) IN ANY LOAD CONDITION**		**P**
	Not exceed declared maximum working voltage Uout in any load condition		P

19 (18.2)	**TABLE: Test of printed boards**				**P**
Object/ Part No./ Material	Manufacturer/ trademark	Duration of application of test flame (s)	Ignition of specified layer Yes/No	Duration of burning (s)	Verdict
Driver PCB	See Annex 1	30s	No	0s	P
Supplementary information:					

Attachment No.4

IEC 61347-2-13			
Clause	Requirement + Test	Result - Remark	Verdict

(A)	**ANNEX A - TEST TO ESTABLISH WHETHER A CONDUCTIVE PART IS A LIVE PART WHICH MAY CAUSE AN ELECTRIC SHOCK**		**N/A**
(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

(C)	**ANNEX C – PARTICULAR REQUIREMENTS FOR ELECTRONIC LAMP CONTROLGEAR WITH MEANS OF PROTECTION AGAINST OVERHEATING**		**N/A**
(C3)	**GENERAL REQUIREMENTS**		N/A
(C3.1)	Thermal protection means integral with the convertor, protected against mechanical damage		N/A
	Renewable only by means of a tool		N/A
	If function depending on polarity, for cord-connected equipment protection means in both leads		N/A
	Thermal links comply with IEC 60691		N/A
	Electrical controls comply with IEC 60730-2-3		N/A
(C3.2)	No risk of fire by breaking (clause C7)		N/A
(C5)	**CLASSIFICATION**		N/A
	a) automatic resetting type		—
	b) manual resetting type		—
	c) non-renewable, non-resetting type		—
	d) renewable, non-resetting type		—
	e) other type of thermal protection; description ...:		—
(C6)	**MARKING**		N/A
(C6.1)	Symbol for temperature declared thermally protected ballasts		N/A
(C6.2)	Declaration of the type of protection provided		N/A
(C7)	**LIMITATION OF HEATING**		N/A
(C7.1)	**Preselection test:**		N/A

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IEC 61347-2-13			
Clause	Requirement + Test	Result - Remark	Verdict
	Test sample placed for at least 12 h in an oven having temperature (t_c - 5) K		N/A
	No operation of the protection device		N/A
(C7.2)	**Functioning of protection means:**		N/A
	Normal operation of the sample in a test enclosure according to Annex D at an ambient temperature such that (t_c +0; -5) °C is obtained		N/A
	No operation of the protection device		N/A
	Introducing of the most onerous test condition determined during test of clause 14.2 to 14.5		N/A
	Output of windings connected to the mains supply short-circuited, and other part of the controlgear operated under normal conditions		N/A
	Increasing of the current through the windings continuously until operation of the protection means		N/A
	Continuous measuring of the highest surface temperature		N/A
	Ballasts according to C5 a) or C5 e) operated until stable conditions are achieved		N/A
	Automatic-resetting thermal protectors working 3 times		N/A
	Ballasts according to C5 b) working 6 times		N/A
	Ballasts according to C5 c) and C5) d) working once		N/A
	Highest temperature does not exceed the marked value		N/A
	Any overshoot of 10% over the marked value within 15 min		N/A
	After 15 min value not exceed marked value		N/A
(D)	**ANNEX D – REQUIREMENTS FOR CARRY OUT THE HEATING TESTS OF THERMALLY PROTECTED LAMP CONTROLGEAR**		**N/A**
	Tests in C7 performed in accordance with Annex D, if applicable		N/A
(F)	**ANNEX F – DRAUGHT-PROOF ENCOSURE**		**P**
	Draught-proof enclosure in accordance with the description		P

Attachment No.4

IEC 61347-2-13			
Clause	Requirement + Test	Result - Remark	Verdict
	Dimensions of the enclosure		P
	Other design; description		N/A
(H)	**ANNEX H - TESTS**		**P**
	All tests performed in accordance with the advice given in Annex H, if applicable		P
I (L)	**ANNEX I IN THIS PART 2 – PARTICULAR ADDITIONAL REQUIREMENTS FOR SELV D.C. OR A.C. SUPPLIED ELECTRONIC CONTROLGEARS FOR LED MODULES**		**P**
(L.3)	**Classification**		P
	Class I	Yes ☐ No ☐	—
	Class II	Yes ☐ No ☐	—
	Class III	Yes ☐ No ☐	—
	non-inherently short circuit proof controlgear	Yes ☒ No ☐	—
	inherently short circuit proof controlgear	Yes ☐ No ☐	—
	fail safe controlgear	Yes ☐ No ☐	—
	non-short-circuit proof controlgear	Yes ☐ No ☐	—
(L.4)	**Marking**		N/A
	Adequate symbols are used		N/A
(L.5)	**Protection against electric shock**		P
	Comply with clause 9.2 of IEC 61558-1		P
(L.6)	**Heating**		P
	No excessive temperatures in normal use		P
	Value if capacitor t_c marked ..... :	Y capacitor: 125°C Electrolytic capacitor: 105°C	—
	Winding insulation classified as Class ..... :	Class B	—
	Comply with tests of clause 14 of IEC 61558-1 with adjustments		P
(L.7)	**Short-circuit and overload protection**		P
	Comply with tests of clause 15 of IEC 61558-1 with adjustments		P
(L.8)	**Insulation resistance and electric strength**		P

Attachment No.4

IEC 61347-2-13			
Clause	Requirement + Test	Result - Remark	Verdict
(L.8.1)	Conditioned 48 h between 91 % and 95 %		P
(L.8.2)	Insulation resistance		P
	Between input- and output circuits not less than 5 MΩ .....:	>100MΩ	P
	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		P
	1) Between live parts of input circuits and live parts of output circuits .....:	3750V	P
	2) Over basic or supplementary insulation between:		P
	a) live parts having different polarity ..... :	1875V	P
	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**		P
(L.9.1)	Transformer comply with 19.12 of IEC 61558-1 and 19 of IEC 61558-2-6		P
	HF transformer comply with 19 of IEC 61558-2-16		P
(L.10)	**Components**		P
	Protective devices comply with 20.6 – 20.11 of IEC 61558-1		P
(L.11)	**Creepage distances, clearances and distances through insulation**		P
	Creepage distances and clearances not less than in Clause 16		P
	Distance through insulation according Table L.5 in IEC 61347-1		N/A

Attachment No.4

IEC 61347-2-13			
Clause	Requirement + Test	Result - Remark	Verdict
	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
	Supplementary information		—
	3) Reinforced distance through insulation		N/A
	Required distance (mm) .....:		—
	Measured (mm) ..... :		N/A
	Supplementary information		—
J (-)	**ANNEX J IN THIS PART 2 – PARTICULAR ADDITIONAL SAFETY REQUIREMENTS FOR A.C., A.C./D.C. OR D.C. SUPPLIED ELECTRONIC CONTROLGEAR FOR EMERGENCY LIGHTING**		**N/A**
J.1	**General**		N/A
	Intended for centralized emergency power supply	Yes ☐ No ☐	—
J.2	**Marking**		N/A
J.2.1	Mandatory markings		N/A
	a) symbol EL		N/A
	b) rated emergency supply voltage (V)		N/A
J.2.2	Information to be provided if applicable		N/A
	a) Limits of ambient temperature		N/A
	b) Emergency output factor (EOF_X)		N/A
	c) Information if intended for use in luminaires for high-risk task area lighting		N/A
J.3	General notes on tests		N/A
	Length of output cable in tests..... :		N/A
	Load instead of LED lamps/modules..... :		N/A
J.4	Starting conditions		N/A

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IEC 61347-2-13			
Clause	Requirement + Test	Result - Remark	Verdict
	Start rated load in emergency mode without adversely affecting the performance		N/A
J.5	Operating condition		N/A
	Comply with the requirements of 7.2 of IEC 62384 at 90% and 110% of rated emergency supply voltage		N/A
J.6	Emergency supply current		N/A
	Emergency supply current not differ more than ±15 %		N/A
	Supply of low impedance and low inductance		N/A
J.7	EMC immunity		N/A
	Comply with the requirements of IEC 61547		N/A
J.8	Pulse voltage from central battery systems		N/A
	Withstand pulses according Table J.1		N/A
J.9	Tests for abnormal conditions		N/A
	Comply with the requirements of 12 of IEC 62384		N/A
J.10	Comply with the requirements of 13 of IEC 62384		N/A
J.11	Functional safety (EOF_x)		N/A
	Declared emergency output factor (EOF_x) achieved during emergency operation		N/A
(N)	**ANNEX N: REQUIREMENTS FOR INSULATION MATERIALS USED FOR DOUBLE OR REINFORCED INSULATION**		**N/A**
(N.4)	**General requirements**		N/A
(N.4.1)	Material comply with IEC 60085 and IEC 60216 series		N/A
(N.4.2)	**Solid insulation**		N/A
	Electric strength test at least 5 kV or 1,35 x test voltage in Table N.1		N/A
	If not classified according IEC 60085 and IEC 60216 series: Electric strength test increased 10 % to 5,5 kV or 1,5 x test voltage in Table N.1		N/A
(N.4.3)	**Thin sheet insulation**		N/A
(N.4.3.1)	Thickness and composition of thin sheet insulation		N/A
	- Inside the ballast and not subjected to handling or abrasion during the production and during maintenance		N/A

Attachment No.4

IEC 61347-2-13			
Clause	Requirement + Test	Result - Remark	Verdict
	- Non-separated layers: Min. 3 layers and fulfil mandrel test of 150N		N/A
	- Separated layers: Min. 2 layers and each layer fulfil mandrel test of 50N		N/A
	- Separated layers (alternative): Min. 3 layers and 2/3 of the layers fulfil mandrel test of 100N		N/A
(N.4.3.2)	Mandrel test (electric strength test during mechanical stress)		N/A
	Electric strength test after mandrel test:		N/A
	- Non-separated layers: min. 5 kV or 1,35 x test voltage in Table N.1		N/A
	- 2/3 of min. 3 separated layers: min. 5 kV or 1,25 x test voltage in Table N.1		N/A
	- one of 2 separated layers: min. 5 kV or 1,25 x test voltage in Table N.1		N/A
	No flashover or breakdown occurred		N/A
(O)	**ANNEX O: ADDITIONAL REQUIREMENTS FOR BUILT-IN ELECTRONIC CONTROLGEAR WITH DOUBLE OR REINFORCED INSULATION**		**N/A**
(O.6)	**Marking**		N/A
	Marking according clause 7 (7)	See clause 7	N/A
	Special symbol		N/A
	Meaning of the special symbol explained in catalogue		N/A
(O.7)	**Protection against accidental contact with live parts**		N/A
	Requirements of clause 8 (10)	See clause 8	N/A
	Test finger not possible to make contact with basic insulated metal parts		N/A
(O.8)	**Terminals**		N/A
	Clause 9 (8)	See clause 9	N/A
(O.9)	**Provision for earthing**		N/A
	Functional earthing terminals comply with clause 9 of part 1		N/A
	No protective earthing terminal		N/A
(O.10)	**Moisture resistance and insulation**		N/A
	Clause 11 (11)	See clause 11	N/A

Attachment No.4

IEC 61347-2-13			
Clause	Requirement + Test	Result - Remark	Verdict
(O.11)	**Electric strength**		N/A
	Clause 12 (12)	See clause 12	N/A
(O.13)	**Fault conditions**		N/A
	Clause 14 (14)	See clause 14	N/A
	End of test, between live part and accessible metal parts or external parts of insulating material in contact with the supporting surface comply with dielectric strength test according clause 12 reduced to 35 % of values according Table 3 in part 1		N/A
	Insulation resistance according to O.10 between live part and accessible metal parts or external parts of insulating material in contact with the supporting surface not less than 4 MΩ		N/A
(O.14)	**Construction**		N/A
	Clause 17 (15)	See clause 17	N/A
	Accessible metal parts insulated from live parts by double or reinforced insulation		N/A
	Live part insulated from supporting surface in contact with external faces by double or reinforced insulation		N/A
(O.15)	**Creepage distances and clearances**		N/A
	Clause 18 (16)	See clause 18	N/A
	Comply with corresponding values for luminaries in IEC 60598-1		N/A
(O.16)	**Screws, current-carrying parts and connections**		N/A
	Clause 19 (17)	See clause 19	N/A
(O.17)	**Resistance to heat and fire**		N/A
	Clause 20 (18)	See clause 20	N/A
(O.18)	**Resistance to corrosion**		N/A
	Clause 21 (19)	See clause 21	N/A

(P)	**Creepage distances and clearances and distance through isolation (DTI) for lamp controlgear which are protected against pollution by the use of coating or potting**	**N/A**
(P.1)	**General**	N/A
	P.2 applies if creepage distances less than the minimum in Table 7 and 8	N/A

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IEC 61347-2-13			
Clause	Requirement + Test	Result - Remark	Verdict
	P.3 applies if clearance less than the minimum in Table 9, 10 and 11		N/A
(P.2)	**Creepage distances**		N/A
(P.2.2)	Minimum creepage distances for working voltages and rated voltages with frequencies up to 30 kHz (Table P.1)		N/A
	Basic or supplementary insulation:		N/A
	Required creepage.....:		—
	Measured.....:		N/A
	Supplementary information		—
	Reinforced insulation:		N/A
	Required creepage.....:		—
	Measured.....:		N/A
	Supplementary information		—
(P.2.3)	Creepage distances for working voltages with frequencies above 30 kHz (Table P.2)		N/A
	Voltage $\hat{U}_{out}$ kV .....:		—
	Frequency.....:		—
	Required distance..... :		—
	Measured.....:		N/A
	Supplementary information		—
(P.2.4)	Compliance with the required creepage distances		N/A
(P.2.4.1)	Compliance in accordance with 16.3.3 and test according P.2.4.2		N/A
(P.2.4.3)	Electrical tests after conditioning		N/A
(P.2.4.3.1)	Insulation resistance and electric strength according Clause 11 and 12		N/A
(P.3)	**Distance through isolation**		N/A
(P.3.4)	Electrical tests after conditioning		N/A
(P.3.4.1)	Insulation resistance and electric strength according Clause 11 and 12		N/A
(P.3.4.2)	Impulse voltage dielectrical test		N/A
	Basic or supplementary insulation:		N/A
	Working/rated voltage .....:		—

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IEC 61347-2-13			
Clause	Requirement + Test	Result - Remark	Verdict
	Impulse voltage.....:		N/A
	Supplementary information		—
	Reinforced insulation:		N/A
	Working/rated voltage .....:		—
	Impulse voltage.....:		N/A
	Supplementary information		—

Attachment No.4

IEC/EN 61347-2-13			
Clause	Requirement + Test	Result - Remark	Verdict

14	TABLE: tests of fault conditions		P
Part	Simulated fault	Test result	Hazard
DB1	s-c	Fuse open, no flame, no flammable gas, no molten parts, no hazard.	NO
EC1	s-c	Fuse open, no flame, no flammable gas, no molten parts, no hazard.	NO
U1	s-c	Fuse open, no flame, no flammable gas, no molten parts, no hazard.	NO
D1	s-c	Fuse open, no flame, no flammable gas, no molten parts, no hazard.	NO
T2	s-c	Shut down, recoverable, no flame, no flammable gas, no molten parts, recoverable, no hazard.	NO
EC2	s-c	Shut down, recoverable, no flame, no flammable gas, no molten parts, recoverable, no hazard.	NO
Output	s-c	Shut down, recoverable, no flame, no flammable gas, no molten parts, recoverable, no hazard.	NO

17 (16)	TABLE: clearance and creepage distance measurements (mm)						P
Applicable part of IEC 61347-1 Table 7 – 11*							
Distances	**Insulation type ****	**Measured clearance**	**Required**		**Measured creepage**	**Required**	
			clearance	***Table**		**creepage**	***Table**
Distance 1:	B	3,2	1,5	Table 7-11	3,2	2,5	Table 7-11
Distance 2:	B	3,0	1,5	Table 7-11	3,0	2,5	Table 7-11
Distance 3:	R	3,9	1,5	Table 7-11	3,9	2,5	Table 7-11
Distance 4	R	6,3	3,0	Table 7-11	6,3	5,0	Table 7-11
Distance 5:	R	6,8	3,0	Table 7-11	6,8	5,0	Table 7-11
Distance 6:	R	6,8	3,0	Table 7-11	6,8	5,0	Table 7-11
Working voltage (V)..... :					230V		—
Frequency if applicable (kHz)..... :					--		—
PTI..... :					< 600 ☒ ≥ 600 ☐		—
Peak value of the working voltage $\hat{U}_{out}$ if applicable (kV) ..... :					--		—
Pulse voltage if applicable (kV) ..... :					--		—

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IEC/EN 61347-2-13			
Clause	Requirement + Test	Result - Remark	Verdict

Supplementary information:
Distance 1: between L/N.
Distance 2: between fuse pins.
Distance 3: between live parts and enclosure.
Distance 4: between Input circuits and output circuits.
Distance 5: Transformer secondary pin to core.
Distance 6: Transformer PRI-SEC.

Attachment No.5

Photo Documentation

Model: DC-LM-0052

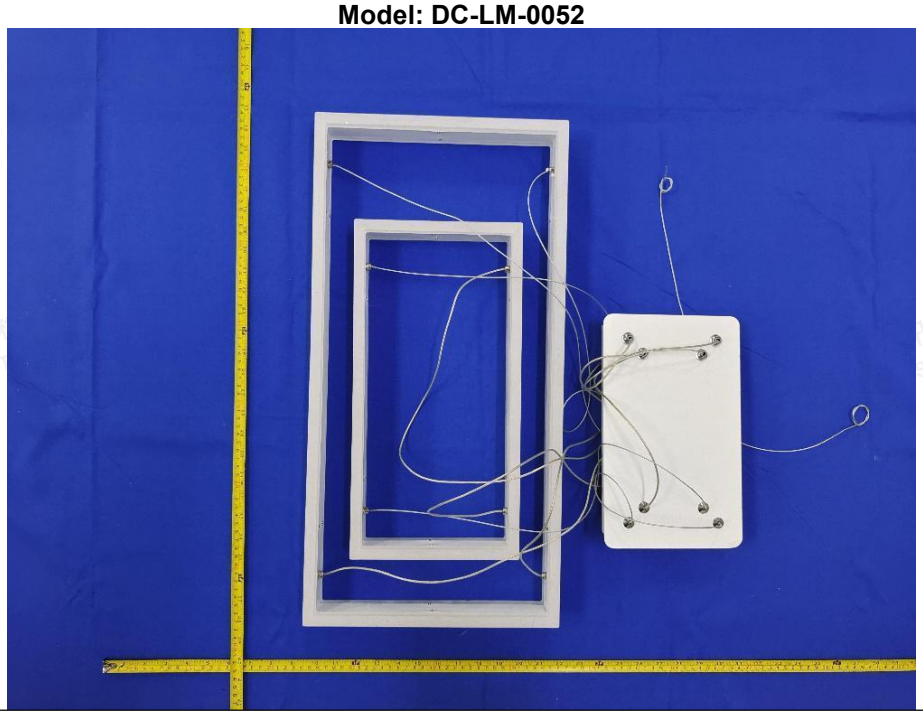

Photo 1

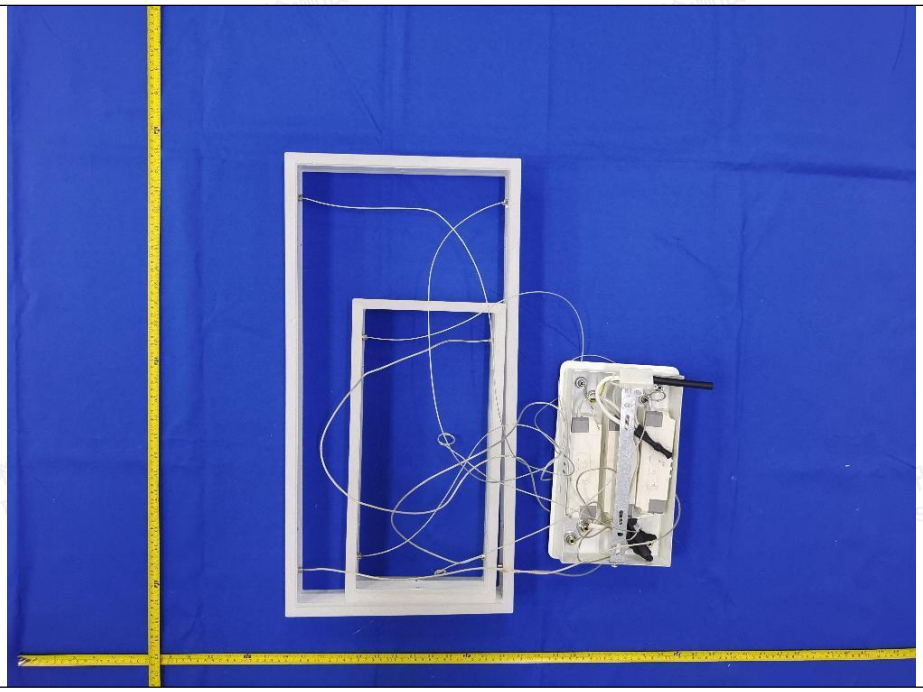

Photo 2

Attachment No.5

Photo Documentation

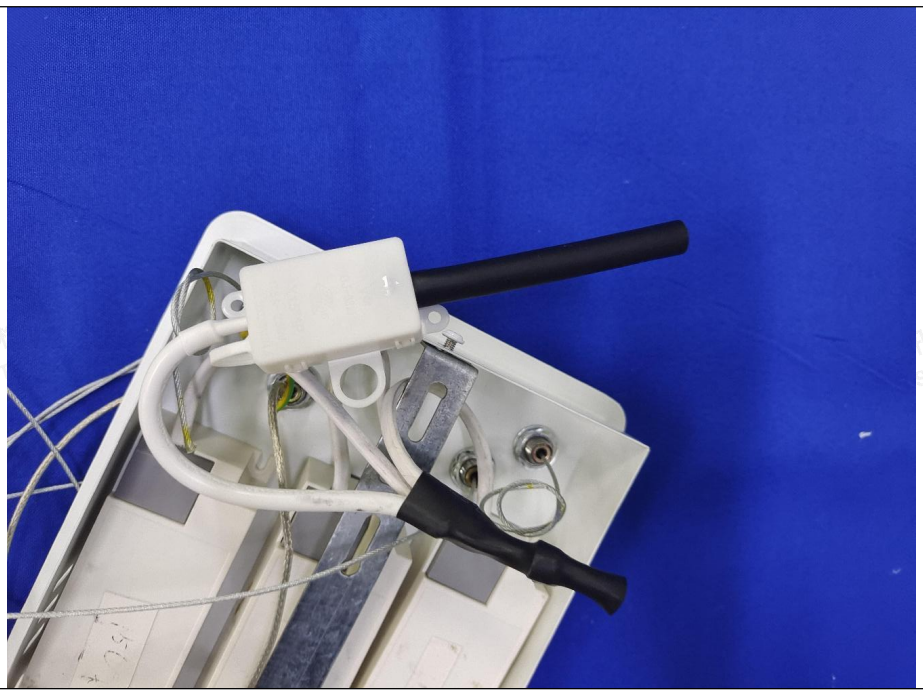

Photo 3

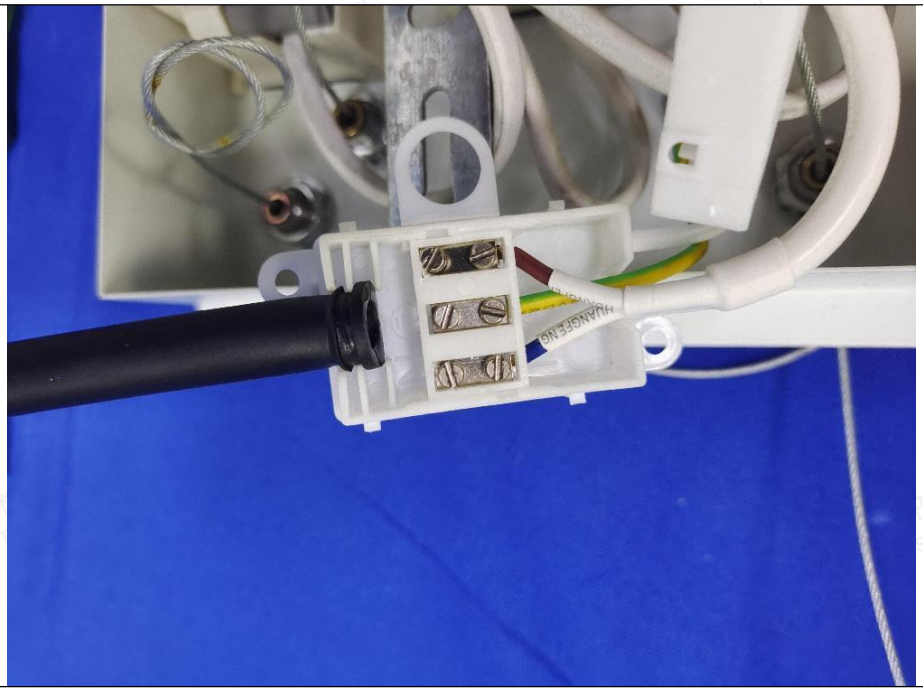

Photo 4

Attachment No.5

Photo Documentation

Photo 5

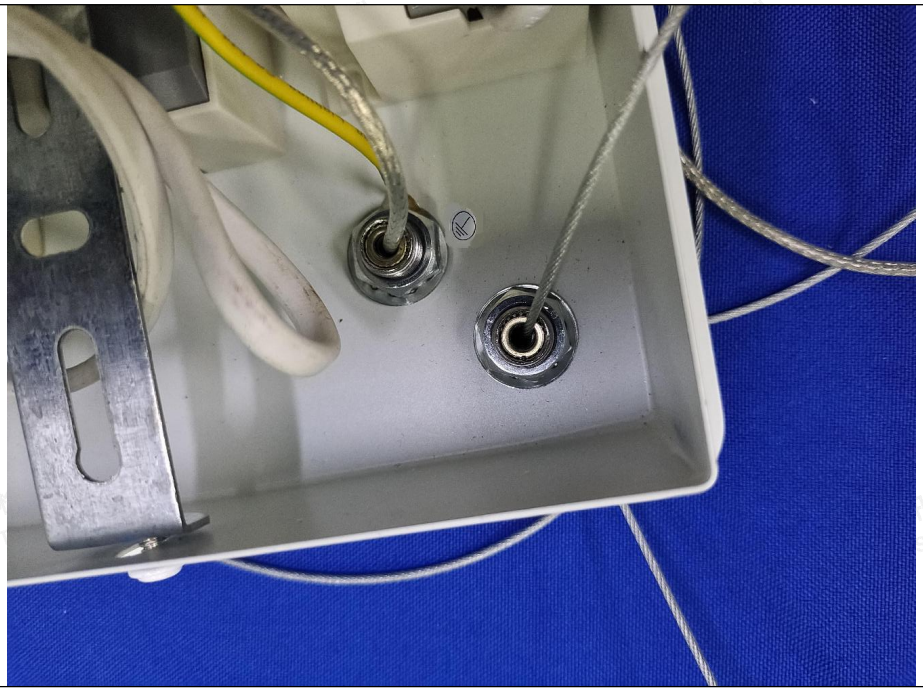

Photo 6

Attachment No.5

Photo Documentation

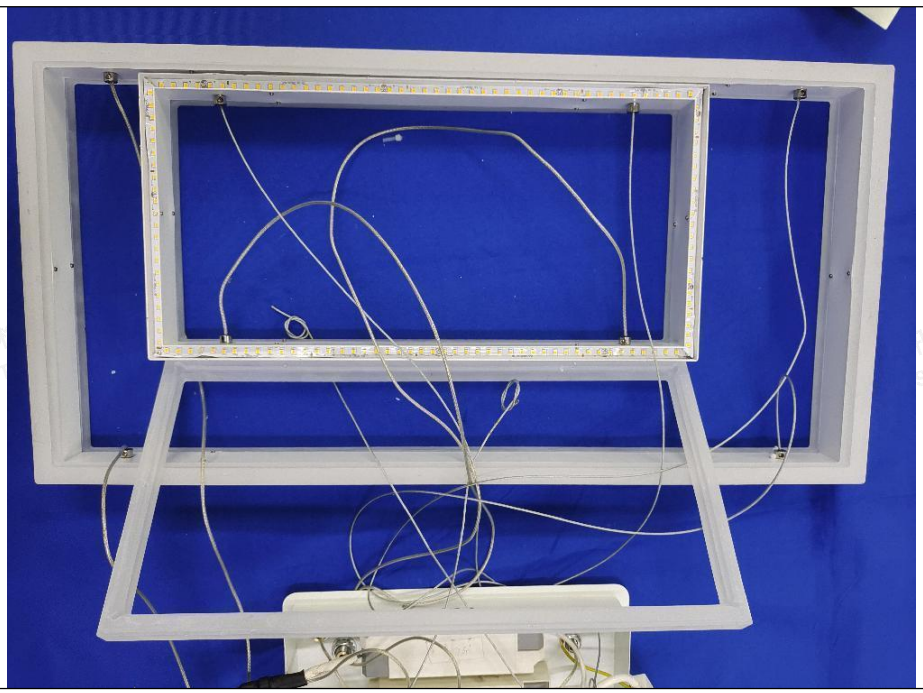

Photo 7

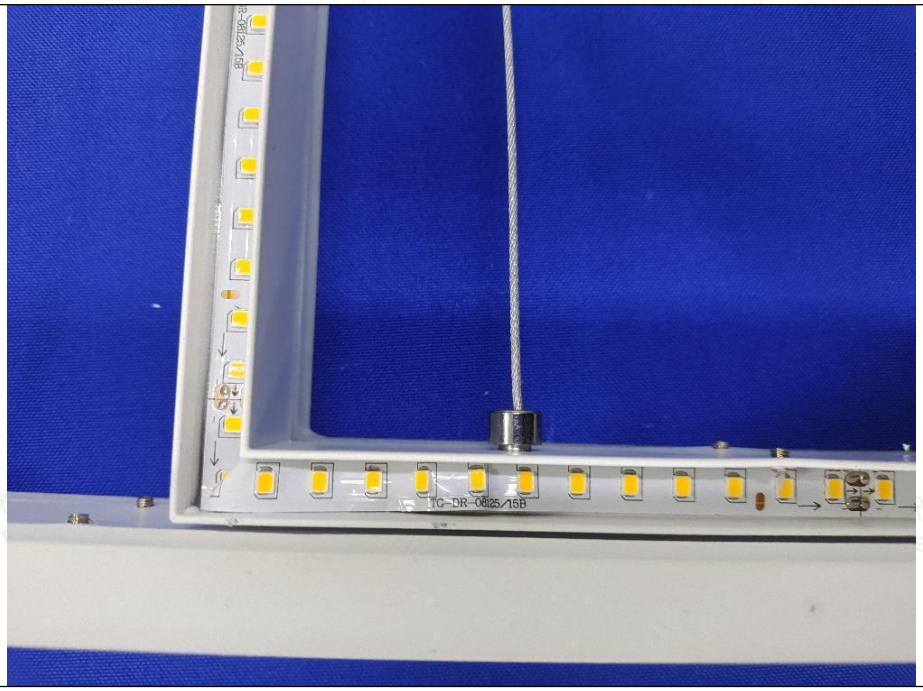

Photo 8

Attachment No.5

Photo Documentation

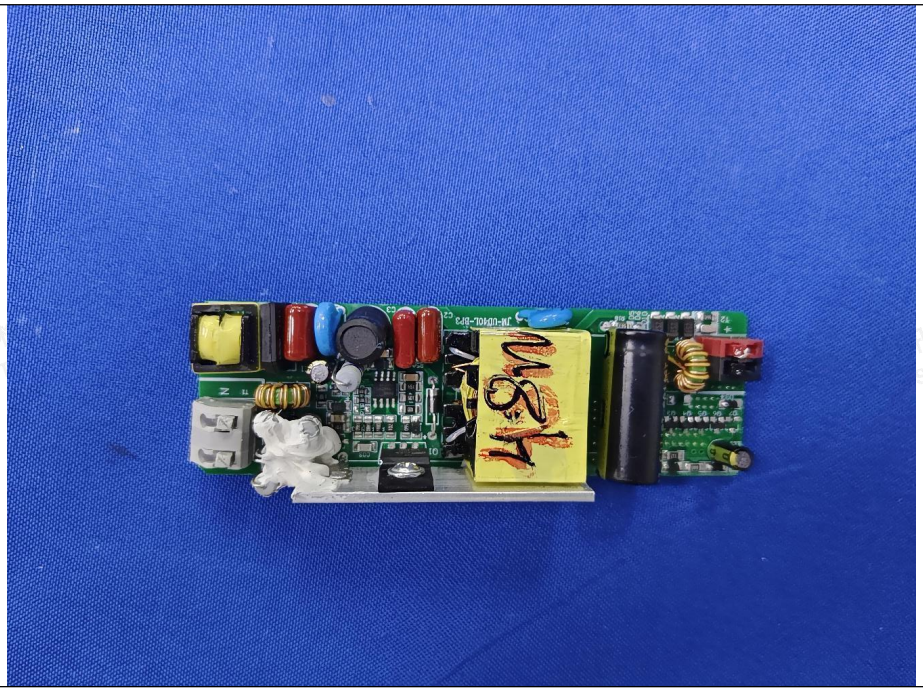

Photo 9

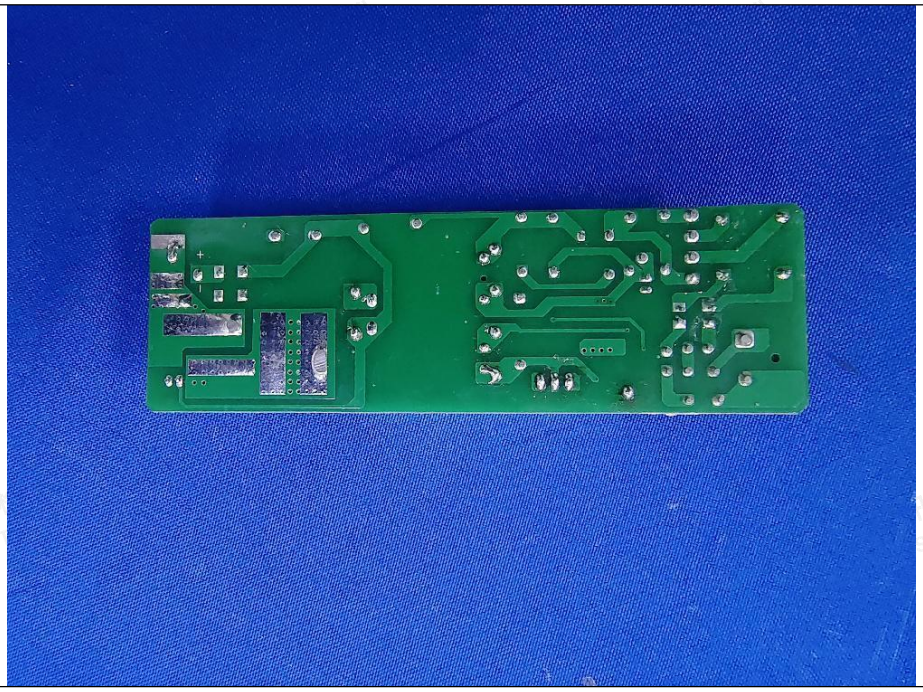

Photo 10

Attachment No.5

Photo Documentation

Model: VT-7914

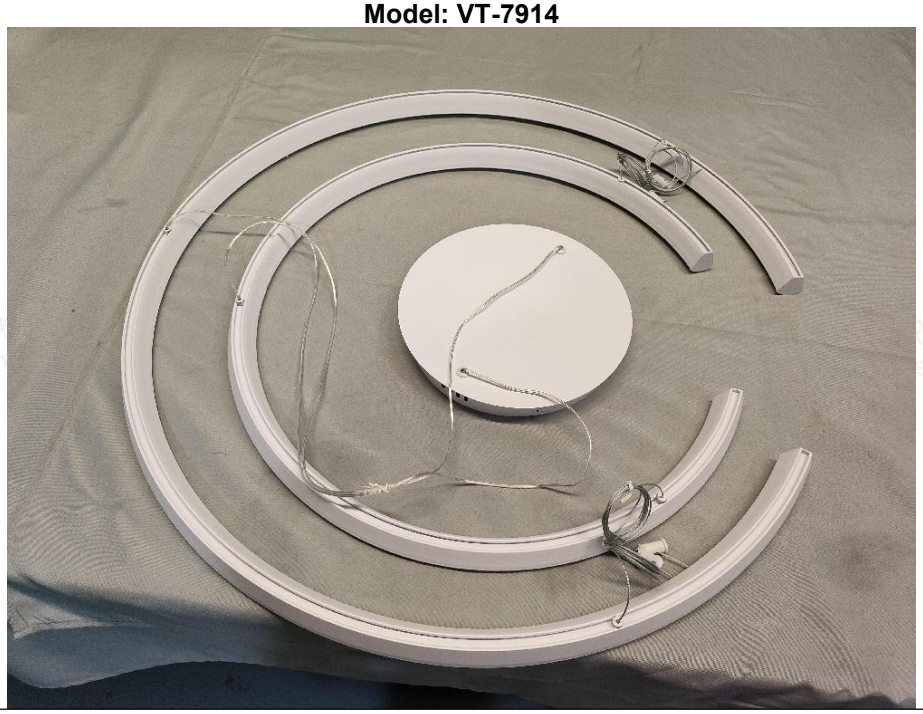

Photo 11

Photo 12

Attachment No.5

Photo Documentation

Model: VT-7925

Photo 13

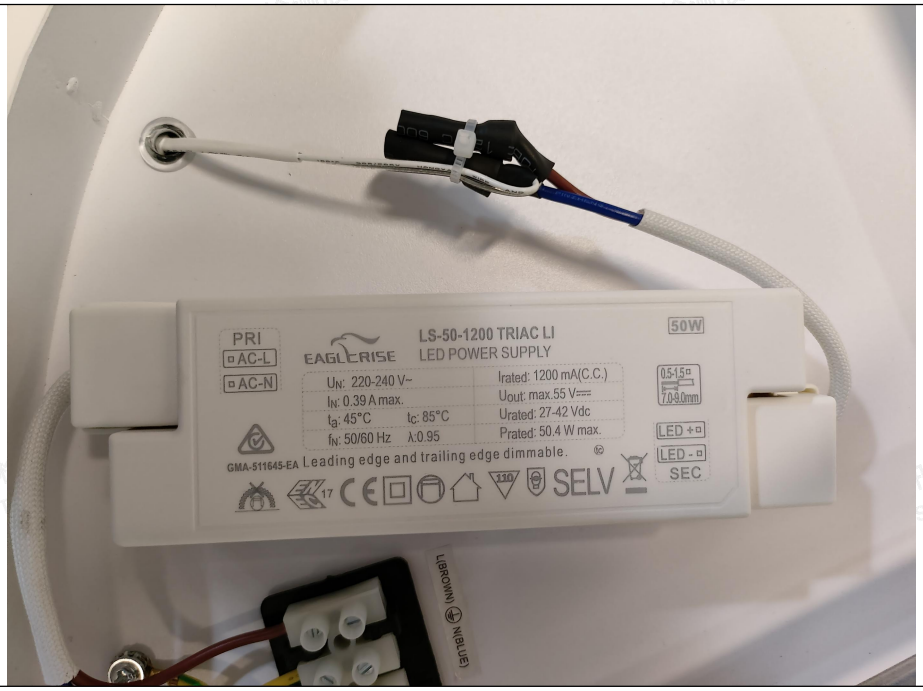

Photo 14

----------End of Test Report----------