

TEST REPORT



Product name: Fixed Luminaires For LED Modules

Model and Specification: See model list

Applicant: Zhongshan Zhaoliang Lighting Co., Ltd.

Factory: Zhongshan Zhaoliang Lighting Co., Ltd.

Guangdong Tsaint Hi-tech Co., Ltd.

**TEST REPORT
EN IEC 60598-2-1****Luminaires****Part 2: Particular requirements****Section 1: Fixed general purpose luminaires****Report Number.....:** TSGK-2023-3747-S**Date of issue.....:** October 19, 2023**Total number of pages.....** 60 pages**Name of Testing Laboratory
preparing the Report.....:** Guangdong Tsaint Hi-tech Co., Ltd.
-1/F, 1/F, Property 1, area B, No.10, Lelin Road, Tongyi Industrial Park,
Guzhen, Zhongshan, Guangdong, China**Applicant's name.....:** Zhongshan Zhaoliang Lighting Co., Ltd.
Address.....: 7/F, No. 30 Qingji Street, Tiebian Village, Henglan Town, Zhongshan
City, China**Test specification:****Standard.....:** EN IEC 60598-1:2021
EN IEC 60598-2-1:2021
EN IEC 62031: 2020/A11:2021**Test procedure.....:** --**Non-standard test method.....:** N/A**Test Report Form No.....:** --**Test Report Form(s) Originator.....:** Tsaint Hi-tech**Master TRF.....:** --**General disclaimer:**

The test results presented in this report relate only to the object tested.

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Test item description.....	Fixed Luminaires For LED Modules
Trade Mark.....	/
Manufacturer.....	Same as applicant
Model/Type reference.....	See model list
Ratings.....	220-240 V~; 50/60 Hz; Class I; IP20, ta: 40°C non-user replaceable light sources; Suitable for direct mounting on normally flammable surfaces; More information see 'General product information'.

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

- test report (from page 1 to 54)

Attachment 1: LED modules for general lighting - Safety specifications of EN IEC 62031:2020/A11:2021 (from page 47 to 54)

- Product photos (from page 55 to 60)

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

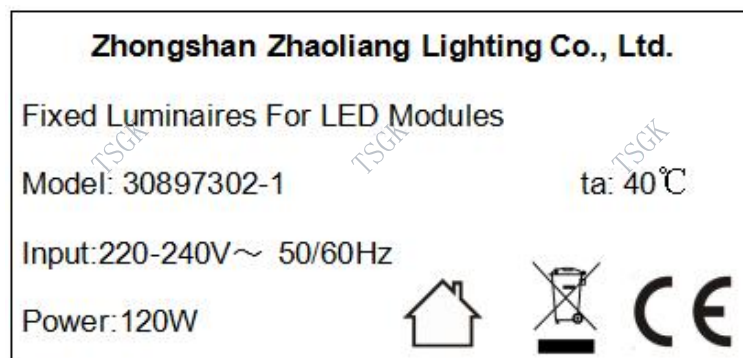
1. Model 30897302-1 was selected to do the full test.
Additional tests were carried out on model 30897302-2.

Testing location:

Guangdong Tsaint Hi-tech Co.,Ltd.
-1/F, 1/F, Property 1, area B, No.10, Lelin Road,
Tongyi Industrial Park, Guzhen, Zhongshan,
Guangdong, China

Copy of marking plate:

The artwork below may be only a draft. The marking plate of others (models) are identical with model 30897302-1, except with different model number and power.



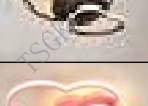
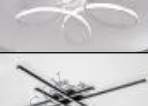
Located on enclosure

Remark:

1. The mark as above is the minimum requirements required by the safety standard. For the final production, the additional marks which do not give rise to misunderstanding may be added.
2. The height of letters and numerals shall be not less than 2 mm.
3. The height of graphical symbols shall not be less than 5 mm except WEEE symbol is 7 mm.

Test item particulars..... :	
Classification of installation and use..... :	Class I fixed luminaires for indoor use only
Supply Connection..... :	Terminals/Connecting leads (tails)
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..... :	September 25, 2023
Date (s) of performance of tests..... :	September 25, 2023 to October 17, 2023
Tested by (name + signature)..... : Tian Luo (Editor)	
Compiled by (name + signature)..... : Lan Jile (Supervisor)	
Approved by (name + signature)..... : Fuyu Jiang (Manager) <i>Fuyu Jiang</i>	
General remarks:	
"(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report. Throughout this report a ☐ comma / ☒ point is used as the decimal separator. Clause numbers between brackets refer to clauses in EN IEC 60598-1.	
Name and address of factory (ies)..... :	Same as applicant
General product information:	
1. All models are class I fixed luminaire for indoor use only.	

Model list

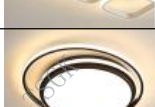
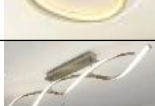
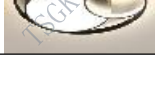
NO.	Photo	Model NO.	Power
1		30746901	39W
2		30746903	39W
3		30746905	39W
4		30746913	39W
5		30746914	39W
6		30746915	39W
7		30765302	75W
8		30765303	75W
9		30765304	75W
10		30765305	75W
11		30849610	41W
12		30849611	57W
13		30894902	36W
14		30894903	48W
15		30894904	32W
16		30895301	42W
17		30895302	50W
18		30895303	29W
19		30895304	30W

NO.	Photo	Model NO.	Power
20		30895305	30W
21		30895307	36W
22		30895308	50W
23		30895311	50W
24		30895312	50W
25		30895314	36W
26		30897201	54W
27		30897202	52W
28		30897203	52W
29		30897205	47W
30		30897206	47W
31		30897207	37W
32		30897208	54W
33		30897209	54W
34		30897210	47W
35		30897212	36W
36		30897218	36W
37		30897301	40W

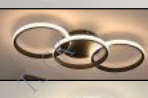
NO.	Photo	Model NO.	Power
38		30897302	40W
39		30897303	22W
40		30897304	36W
41		30897305	36W
42		30897306	36W
43		30897307	22W
44		30897308	32W
45		30897309	30W
46		30897310	30W
47		30897311	36W
48		30907903	31W
49		30908203	40W
50		30908211	45W
51		30908212	45W
52		30910901	72W
53		30910902	84W
54		30910903	38W

NO.	Photo	Model NO.	Power
55		30910904	36W
56		30910905	116W
57		30910906	46W
58		30910907	116W
59		30910908	72W
60		30910909	38W
61		30910910	64W
62		30910911	64W
63		30910912	64W
64		30910913	64W
65		30910914	54W
66		30910915	54W
67		30910916	54W
68		30910918	36W
69		30910919	36W
70		30911801	29W
71		30914701	23W
72		30914703	30W
73		30914704	27W
74		30914708	30W
75		30914709	30W

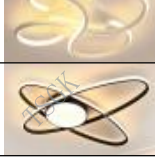
NO.	Photo	Model NO.	Power
76		30914710	52W
77		30914711	52W
78		30914712	52W
79		30914713	68W
80		30914714	68W
81		30914715	68W
82		30914716	33W
83		30914717	33W
84		30915902	32W
85		30915903	30W
86		30916402	30W
87		30916403	24W
88		30916405	24W
89		30916408	30W
90		30916409	30W
91		30916410	30W
92		30916604	42W
93		30916903	32W
94		30916904	32W
95		30916905	28W
96		30916906	28W
97		30916907	28W

NO.	Photo	Model NO.	Power
98		30916908	28W
99		30916910	42W
100		30917401	40W
101		30919401	40W
102		30919402	40W
103		30919403	40W
104		30919404	40W
105		30919405	40W
106		30919406	40W
107		30921201	46W
108		30921202	37W
109		30923006	45W
110		30923801	50W
111		30923802	50W
112		30923803	45W
113		30923804	36W
114		30923805	36W

NO.	Photo	Model NO.	Power
115		30923806	36W
116		30923807	36W
117		30924101	28W
118		30924102	28W
119		30924103	28W
120		30924301	44W
121		30924302	44W
122		30925201	28W
123		30925202	28W
124		30925203	28W
125		30925204	28W
126		30925205	28W
127		30925206	28W
128		30925207	28W
129		30925208	28W
130		30925209	36W

NO.	Photo	Model NO.	Power
131		30925210	36W
132		30925213	36W
133		30925214	36W
134		30929001	38W
135		30929201	20W
136		30929301	58W
137		30929302	82W
138		30929303	82W
139		30929304	32W
140		30931401	32W
141		30932201	48W
142		30932202	48W
143		30932701	32W
144		30932702	32W
145		30932703	32W
146		30932704	32W
147		30932705	32W
148		30932706	32W

NO.	Photo	Model NO.	Power
149		30932707	32W
150		30932708	32W
151		30934001	32W
152		30934501	42W
153		30934502	22W
154		30934503	22W
155		30934801	45W
156		30934802	45W
157		30935501	36W
158		30935502	36W
159		30935503	36W
160		30935504	36W
161		30935505	36W

NO.	Photo	Model NO.	Power
162		30935506	36W
163		30935507	49W
164		30935508	49W
165		30935509	49W
166		30935510	49W
167		30935511	49W
168		30935512	49W
169		30936301	24W
170		30936302	29W
171		30936401	39W
172		30936402	39W
173		50204702	42W
174		50206402	32W

NO.	Photo	Model NO.	Power
175		50206405	32W
176		50209602	45W
177		30897302-2	30W
178		30897302-1	120W

EN IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.4 (0)	GENERAL TEST REQUIREMENTS		—
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	EN IEC 62031	—
	Luminaire design in the light source safety standard	Yes	—

1.5 (2)	CLASSIFICATION OF LUMINAIRES		—
1.5 (2.2)	Type of protection	Class I	—
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	50/60 Hz	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		N/A
1.6 (3.3.10)	Suitability for use indoors		P
1.6 (3.3.11)	Luminaires with remote control		N/A
1.6 (3.3.12)	Clip-mounted luminaire – warning		N/A
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

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Clause	Requirement + Test	Result - Remark	Verdict
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		N/A
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 light sources	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)	Lampholders		N/A
1.7 (4.4.1)	Integral lampholder		N/A
1.7 (4.4.2)	Wiring connection		N/A
1.7 (4.4.3)	Lampholder for end-to-end mounting		N/A
1.7 (4.4.4)	Positioning		N/A
	- pressure test (N)		—
	After test the lampholder comply with relevant standard sheets and show no damage		N/A
	After test on single-capped lampholder the lampholder have not moved from its position and show no permanent deformation		N/A

EN IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	- bending test (N)		—
	After test the lampholder have 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 lampholder 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	For model 30897302-2	P
	Tails		P
	Unsecured blocks		N/A
1.7 (4.7)	Terminals and supply connections	For model 30897302-1	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
	- 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		P
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

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Clause	Requirement + Test	Result - Remark	Verdict
	- 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.....: As integral part		P
1.7 (4.9.2)	Insulated linings and sleeves:		P
	Resistant to a temperature > 20 °C to the wire temperature or		N/A
	a) & c) Insulation resistance and electric strength		P
	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 lampholder		N/A
1.7 (4.10.4)	Protective impedance device		N/A
	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:		P
	- self-tapping screws		P
	- thread-cutting screws		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
1.7 (4.11.3)	Screw locking:		P
	- spring washer		P
	- 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..... :	30897302-2: Earthing nuts; 2.50 Nm	P
	Torque test: torque (Nm); part..... :	30897302-1: Screw fixed LED module, LED driver, terminals; 0.50Nm	P
	Torque test: torque (Nm); part..... :	30897302-1: Screw fixed earthing: 0.50Nm	P
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
	- lampholder; 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
	- fragile parts; energy (Nm)..... :		N/A
	- other parts; energy (Nm)..... :	Enclosure: 0.35 Nm;	P
	1) live parts		P
	2) linings	For model 30897302-1	P
	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

EN IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	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	30897302-1: Max. 15.44kg(4 × Max. 3.86 kg) 30897302-2: Max. 2.0kg(4 × Max. 0.50 kg)	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		N/A
	Mass (kg) :		—
	Stress in conductors (N/mm ²) :		N/A
	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
	- 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)	N/A
	- 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

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Clause	Requirement + Test	Result - Remark	Verdict
	- 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
1.7 (4.18)	Resistance to corrosion		N/A
1.7 (4.18.1)	- rust-resistance		N/A
1.7 (4.18.2)	- season cracking in copper		N/A
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

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Clause	Requirement + Test	Result - Remark	Verdict
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		N/A
	Class of risk group assessed according to IEC/TR 62778	RG1	—
	Luminaires with E_{thr} :		N/A
	a) Fixed luminaires		N/A
	- distance x m, borderline between RG1 and RG2...		N/A
	- marking and instruction according 3.2.23		N/A
	b) Portable and handheld luminaires		N/A
	- marking according 3.2.23 if RG1 exceeded at 200 mm according to IEC/TR 62778		N/A
	Portable luminaires for children IEC 60598-2-10 and Mains socket outlet nightlights IEC 60598-2-12 not exceed RG1 at 200 mm according to IEC/62778		N/A
1.7 (4.25)	Mechanical hazard		P
	No sharp point or edges		P
1.7 (4.26)	Short-circuit protection		N/A
1.7 (4.26.1)	Adequate means of uninsulated accessible SELV 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 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

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Clause	Requirement + Test	Result - Remark	Verdict
	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		N/A
1.7 (4.31)	Insulation between circuits		P
	Circuits insulated from LV supply fulfil requirements according 4.31.1 – 4.31.3		P
	Controllable luminaires requiring same level of insulation for all components, the insulation between control terminals and LV supply fulfil requirements according 4.31.1 – 4.31.3		N/A
1.7 (4.31.1)	SELV or PELV circuits		P
	Used SELV or PELV source		P
	Voltage ≤ ELV		P
	PELV circuit shall have one pole connected to functional earth		N/A
	The connection between PELV and earth shall comply with functional earth		N/A
	Insulating of SELV or PELV circuits from LV supply		P
	Insulating of SELV or PELV circuits from other non SELV circuits		N/A
	Insulating of SELV or PELV circuits from FELV		N/A
	Insulating of SELV or PELV circuits from other SELV or PELV circuits		N/A
	SELV or PELV circuits insulated from accessible parts according Table X.1		P
	Plugs not able to make any electrical contact socket-outlets of other voltage systems		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	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 $\leq$ 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 does not 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
	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
1.6 (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

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Clause	Requirement + Test	Result - Remark	Verdict
1.6 (4.34)	Electromagnetic fields (EMF)		P
	No harmful electromagnetic fields	The products are deemed to be in compliance with the EMF requirement in EN 62493	P
1.6 (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
1.6 (4.36)	Track-mounted luminaires		N/A
	Test in accordance with Annex A of IEC60570:2003/AMD2:2019		N/A

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 1.7 (11.2) I	P
	Creepage distances for frequency over 30 kHz:		N/A
	- Controlgear marked with $\hat{U}_{OUT}$ and f_{OUT} according IEC 61347-1, clause 7.1, item w	See Test Table 1.7 (11.2) II	N/A
	- Requirements according IEC 60664-4 for controlgear not covered by IEC 61347	See Test Table 1.7 (11.2) II	N/A
1.8 (11.2.3)	Clearances for frequency up to 30 kHz	See Test Table 1.7 (11.2) I	P
	Clearances distances for frequency over 30 kHz:		N/A
	- Controlgear marked with U_P	See Test Table 1.7 (11.2) II	N/A
	- Requirements according IEC 60664-4 for controlgear not covered by IEC 61347	See Test Table 1.7 (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 $< 0,5 \Omega$:	Max. 0.045Ω	P

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Clause	Requirement + Test	Result - Remark	Verdict
	Self-tapping screws used		N/A
	Thread-forming screws		P
	Thread-forming screw used in a groove		N/A
	Protective earth makes contact first		N/A
	Terminal blocks with integrated screwless earthing contacts tested according Annex V		N/A
	Protective earthing of the luminaire not via built-in control gear		N/A
1.9 (7.2.2 + 7.2.3)	Protective earth continuity in joints, etc.		N/A
1.9 (7.2.4)	Locking of clamping means		P
	Compliance with 4.7.3		P
1.9 (7.2.5)	Earth terminal integral part of connector socket		N/A
1.9 (7.2.6)	Earth terminal adjacent to mains terminals		N/A
1.9 (7.2.7)	Electrolytic corrosion of the earth terminal		N/A
1.9 (7.2.8)	Material of 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		N/A
	Length of earth conductor		N/A
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.....:	30897302-1: Terminals 30897302-2: Connecting lead (tails)	P

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Clause	Requirement + Test	Result - Remark	Verdict
	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	N/A
	Nominal cross-sectional area (mm ²)..... :	See annex 1	N/A
	Cables equal to IEC 60227 or IEC 60245		N/A
1.11 (5.2.3)	Type of attachment, X, Y or Z		N/A
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
	- adequate degree of protection		P
1.11 (5.2.7)	Cable entries through rigid material have rounded edges		P
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:		N/A
	- covering protected from abrasion		N/A
	- clear how to be effective		N/A
	- no mechanical or thermal stress		N/A
	- no tying of cables into knots etc.		N/A
	- insulating material or lining		N/A
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

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Clause	Requirement + Test	Result - Remark	Verdict
	Labyrinth type anchorages		N/A
1.11 (5.2.10.2)	Adequate cord anchorage for type Y and type Z attachment		N/A
1.11 (5.2.10.3)	Tests:		N/A
	- impossible to push cable; unsafe		N/A
	- pull test: 25 times; pull (N)..... :		N/A
	- torque test: torque (Nm)..... :		N/A
	- displacement ≤ 2 mm		N/A
	- no movement of conductors		N/A
	- no damage of cable or cord		N/A
	- function independent of electrical connection		N/A
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 ≤ 25 V RMS/60V DC		N/A
	- Ordinary Class III luminaire supplied with PELV ≤ 12 V RMS/30V DC		N/A
	- Other than ordinary Class III luminaire supplied with voltage ≤ 12 V RMS/30V DC		N/A
	Pull test of 30N		N/A
1.11 (5.2.11)	External wiring passing into luminaire		N/A
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
	Other appliance inlet or connector according relevant IEC standard		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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
1.11 (5.3)	Internal wiring		P
1.11 (5.3.1)	Internal wiring of suitable size and type	(see Annex 1)	P
	Through wiring		N/A
	- not delivered/ mounting instruction		N/A
	- factory assembled		N/A
	- socket outlet loaded (A)..... :		N/A
	- temperatures..... :	(see Annex 2)	N/A
	Green- yellow for earth only		P
1.11 (5.3.1.1)	Internal wiring connected directly to fixed wiring		P
	Cross-sectional area (mm²)..... :	(see Annex 1)	P
	Insulation thickness (mm) :	(see Annex 1)	P
	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

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Clause	Requirement + Test	Result - Remark	Verdict
	- 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
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		P
	Under test the temperature of the luminaire wiring insulation not exceed the limits stated in Table 12.2	(see Annex 2)	P
	No damage to luminaire wiring after test		P
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		P
	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 during starter or lamp replacement		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- basic insulation not accessible other than during starter or lamp replacement		N/A
	- glass protective shields not used as supplementary insulation		N/A
1.12 (8.2.3.b)	BC lampholder of metal in class I luminaires shall be earthed		N/A
2.12 (8.2.3.c)	SELV circuits with exposed current carrying parts:		N/A
	Ordinary luminaire:		N/A
	- voltage under load (V).....:		N/A
	- no-load voltage (V).....:		N/A
	- touch current if applicable (mA)		N/A
	One conductive part insulated if required		N/A
	Other than ordinary luminaire:		N/A
	- nominal voltage (V)		N/A
	Class III luminaire only for connection to SELV		N/A
	Class III luminaire not provided with means for protective earthing		N/A
2.12 (8.2.3.d)	PELV circuit may have exposed current carrying parts under the following conditions:		N/A
	For ordinary luminaires voltage not exceed 12 VRMS or 30VDC (under load and no load)		N/A
	For other than ordinary, voltage nor exceed 12 VRMS or 30VDC (under load and no load)		N/A
	If voltage exceed, only the earthed pole may be accessible, other pole shall be insulated accordance with 10.2.2		N/A
	Class III luminaires are accepted by connection to SELV source or PELV source		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 μ F not exceed 50 V 1 min after disconnection	Approved LED driver	N/A
	Portable luminaire with capacitor > 0,1 μ F (0.25) not exceed 34 V 1 s after disconnection		N/A
	Other luminaires with capacitor > 0,1 μ F (0.25) with plug and track adaptors not exceed 60 V 5 s after disconnection		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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)	—
	Controlgear 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).....	50 °C	—
	c) total duration (h).....	240 h	—
	d) supply voltage (V).....	1.1Un; 264 V	—
	d) if not equipped with controlgear, 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
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		—

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Clause	Requirement + Test	Result - Remark	Verdict
	- 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).....		—
	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.....		—

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Clause	Requirement + Test	Result - Remark	Verdict
	- 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		N/A
1.14 (9.2)	Tests for ingress of dust, solid objects and moisture:		P
	- classification according to IP.....: IP20		—
	- mounting position during test.....: As normal used		—
	- 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
	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

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Clause	Requirement + Test	Result - Remark	Verdict
	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	25 °C, 93% RH	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).....:		—
	SELV/PELV:		P
	- between current-carrying parts of different polarity:		N/A
	- between current-carrying parts and mounting surface.....:	>100 MΩ	P
	- between current-carrying parts and metal parts of the luminaire.....:	>100 MΩ	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.....:		N/A
	- between live parts and mounting surface.....:	>100 MΩ	P
	- between live parts and metal parts.....:	>100 MΩ	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).....:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	SELV/PELV:		P
	- between current-carrying parts of different polarity:		N/A
	- between current-carrying parts and mounting surface.....:	500V	P
	- between current-carrying parts and metal parts of the luminaire.....:	500V	P
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts.....:		N/A
	- Insulation bushings as described in Section 5		N/A
	Other than SELV/PELV:		P
	- between live parts of different polarity.....:		N/A
	- between live parts and mounting surface.....:	1480V	P
	- between live parts and metal parts.....:	1480V (for model 30897302-1) 1480V/2960V (for model 30897302-2)	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).....:	Max. 0.146 mA	P
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)	N/A
1.16 (13.4)	Proof tracking test (IEC 60112).....:	See Test Table 1.16 (13.4)	N/A

EN IEC 60598-2-1							
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	Approved LED driver	1.5	11.1.B	Approved LED driver	2.5	11.1.A
Working voltage (V)..... :					Max. 240 V		—
PTI..... :					< 600 ☒ ≥ 600 ☐		—
Pulse voltage or U_P if applicable (kV)					—		—
Supplementary information: Live parts of different polarity							
Distance 2:	B	Approved LED driver	1.5	11.1.B	Approved LED driver	2.5	11.1.A
Working voltage (V)..... :					Max. 240 V		—
PTI..... :					< 600 ☒ ≥ 600 ☐		—
Pulse voltage or U_P if applicable (kV)					—		—
Supplementary information: Between live part and accessible parts							
Distance 3:	—	—	—	—	—	—	—
Working voltage (V)..... :					—		—
PTI..... :					< 600 ☐ ≥ 600 ☐		—
Pulse voltage or U_P if applicable (kV)					—		—
Supplementary information: —							

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

EN IEC 60598-2-1							
Clause	Requirement + Test				Result - Remark		Verdict
1.8 (11.2)	TABLE II: Creepage distances and clearances						N/A
Minimum distances (mm) for a.c. higher than 30 kHz sinusoidal voltages							
Applicable part of IEC 61347-1 Table 7 and 8* or IEC 60664-4 Table 1 and 2							
Distances	Insulation type **	Measured clearance	Required		Measured creepage	Required	
			clearance	*Table		creepage	*Table
Distance 1:	--	--	--	--	--	--	--
Working voltage (V)..... :					--	—	
Frequency if applicable (kHz)..... :					--	—	
PTI..... :					< 600 ☐	≥ 600 ☐	—
Peak value of the working voltage $\hat{U}_{out}$ if applicable (kV)..... :					--	—	
Supplementary information: --							
Distance 2:	--	--	--	--	--	--	--
Working voltage (V)..... :					--	—	
Frequency if applicable (kHz)..... :					--	—	
PTI..... :					< 600 ☐	≥ 600 ☐	—
Peak value of the working voltage $\hat{U}_{out}$ if applicable (kV)..... :					--	—	
Supplementary information: --							
Distance 3:	--	--	--	--	--	--	--
Working voltage (V)..... :					--	—	
Frequency if applicable (kHz)..... :					--	—	
PTI..... :					< 600 ☐	≥ 600 ☐	—
Peak value of the working voltage $\hat{U}_{out}$ if applicable (kV)..... :					--	—	
Supplementary information: --							

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

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

1.16 (13.2.1)	TABLE: Ball Pressure Test of Thermoplastics			P
Allowed impression diameter (mm):		2mm		—
Object/ Part No./ Material	Manufacturer/ trademark	Test temperature (°C)	Impression diameter (mm)	
Terminals	See Annex 1	125°C	1.2mm	
Supplementary information: —				

1.16 (13.3.1)	TABLE: Needle-flame test (IEC 60695-11-5)				P
Object/ Part No./ Material	Manufacturer/ trademark	Duration of application of test flame (ta); (s)	Ignition of specified layer Yes/No	Duration of burning (tb) (s)	Verdict
Closed-end connector	See Annex 1	10s	No	3s	P
Terminals	See Annex 1	10s	No	2s	P
Supplementary information: —					

1.16 (13.3.2)	TABLE: Glow-wire test (IEC 60695-2-11)				N/A
Glow wire temperature :		650°C			—
Object/ Part No./ Material	Manufacturer/ trademark		Ignition of specified layer Yes/No	Duration of burning (tb) (s)	Verdict
—	—		—	—	—
Supplementary information: —					

1.16 (13.4)	TABLE: Proof tracking test (IEC 60112)				N/A
Test voltage PTI		175 V	—		
Object/ Part No./ Material	Manufacturer/ trademark	Withstand 50 drops without failure on three places or on three specimens			Verdict
—	—	—	—	—	—
Supplementary information: —					

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

ANNEX 1		TABLE: Critical components information					P
Object / part No.	Code	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹⁾	
LED driver	A	Lifud Technology Co., Ltd.	LF-GIF040YA(H)0900H	Input: 220-240V~, 50/60Hz, Max.0.35A; PF: 0.9 Output: 33-40V---, Uout: 55V---, I rated: 900mA(CC); P rated: 36W ta: 50°C, tc: 90°C Constant current type, Independent Type, SELV	EN 61347-1 EN 61347-2-13	TUV SUD No. N8A 004006 0058 Rev.01	
		Lifud Technology Co., Ltd.	LF-GIF030YA(H)0750H	Input: 220-240V~, 50/60Hz, Max.0.25A; PF: 0.9 Output: 33-40V---, Uout: 55V---, I rated: 750mA(CC); P rated: 30W ta: 50°C, tc: 80°C Constant current type, Independent Type, SELV			
Terminals	C	Heavy Power Co., Ltd.	PA9	450V, T110	EN 60998-2-1 EN 60998-1	VDE 40016425	
Input wire of LED driver	B	Zhongshan Henglan Boyi Electrical Appliance Factory	H03VVH2-F	2×0.5...0.75mm ²	EN 50525-2-11	VDE 40036714	
Alternative	D	Zhongshan Henglan Boyi Electrical Appliance Factory	H05V-K	1×0.5...0.75mm ²	EN 50525-2-31	VDE 40036731	
Earthing wire	B	Zhongshan Henglan Boyi Electrical Appliance Factory	H03VH7-H	1×0.5...0.75mm ²	DIN VDE 0281-8	VDE 40027126	

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Clause	Requirement + Test			Result - Remark		Verdict
Output wire of LED driver	C	Tongxiang Yisheng Electric Co.,Ltd.	1015	20AWG, 105°C,	--	Test with appliance and UL E255495
Alternative	D	Zhongshan Henglan Boyi Electrical Appliance Factory	H05V-K	1×0.5...0.75mm ²	EN 50525-2-31	VDE 40036731
LED lead wire	C	Dong guan Chuang Xu Wire Co.Ltd	2468	24AWG, 80°C	--	UL E483471
Alternative	D	Zhongshan Henglan Boyi Electrical Appliance Factory	H05V-K	1×0.5...0.75mm ²	EN 50525-2-31	VDE 40036731
LED package	C	CreeLED, Inc	2835	3V, 150mA, 9V, 80mA CCT: Max.6500K	EN IEC 62031; IEC/TR 62778	Test with the appliance
LED PCB	C	QUZHOU TIANYING Electronics Co.,Ltd	TY-CH03	130°C, V-0	EN IEC 60598-1 EN IEC 60598-2-1	Test with Appliance and UL E482814
	C	Jingdezhen Hongyi Electronics Co.,Ltd	HY-3	130°C, V-0	EN IEC 60598-1 EN IEC 60598-2-1	Test with Appliance and UL E348413
Closed-end connector	C	HEAVY POWER CO LTD	CE1,CE1X,CE2,CE2X,CE3X,CE5 CE5X	150°C	EN IEC 60598-1 EN IEC 60598-2-1	Test with appliance and UL E113650
Heat-shrinkable tube	C	SHENZHEN WOER HEAT-SHRINKABLE MATERIAL CO LTD	RSFR-H	600 V; 125 ° C VW-1	EN IEC 60598-1 EN IEC 60598-2-1	Test with the appliance and UL E203950
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						

EN IEC 60598-2-1							
Clause	Requirement + Test				Result - Remark		Verdict
ANNEX 2	TABLE: Thermal tests of Section 12						P
	Type reference.....:	30897302-1				—	
	Lamp used.....:	LED module				—	
	Lamp control gear used.....:	LED driver				—	
	Mounting position of luminaire.....:	As normal use				—	
	Supply wattage (W).....:	130.6 W				—	
	Supply current (A).....:	0.561 A				—	
	Temperatures in test 1 - 4 below are corrected for t_a (°C)	40 °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	1.06 x 240 V = 254.4 V				—	
	- 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
Test wire	40	—	44.5	—	90	—	—
Terminals	40	—	44.8	—	110	—	—
Closed-end connector	40	—	51.2	—	150	—	—
tc	40	—	83.6	—	90	—	—
LED lead wire	40	—	62.7	—	90	—	—
LED PCB	40	—	80.2	—	130	—	—
Mounting surface	40	—	57.5	—	90	—	—
Lighted object (0.1 m)	40	—	43.4	—	90	—	—

EN IEC 60598-2-1							
Clause	Requirement + Test				Result - Remark		Verdict
ANNEX 2	TABLE: Thermal tests of Section 12						P
	Type reference.....:	30897302-2				—	
	Lamp used.....:	LED module				—	
	Lamp control gear used.....:	LED driver				—	
	Mounting position of luminaire.....:	As normal use				—	
	Supply wattage (W).....:	28.68 W				—	
	Supply current (A).....:	0.123 A				—	
	Temperatures in test 1 - 4 below are corrected for ta (°C)	40 °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	1.06 x 240 V = 254.4 V				—	
	- 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
Test wire	40	—	44.0	—	90	—	—
Input wire of LED driver	40	—	53.2	—	90	—	—
tc	40	—	71.8	—	80	—	—
Output wire of LED driver	40	—	61.4	—	105	—	—
Closed-end connector	40	—	49.6	—	150	—	—
LED lead wire	40	—	68.3	—	80	—	—
LED PCB	40	—	74.2	—	130	—	—
Mounting surface	40	—	61.9	—	90	—	—
Lighted object (0.1 m)	40	—	44.3	—	90	—	—

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Clause	Requirement + Test	Result - Remark	Verdict
ANNEX 3	Screw terminals (part of the luminaire)		N/A
(14)	SCREW TERMINALS		N/A
(14.2)	Type of terminal..... :		—
	Rated current (A)..... :		—
(14.3.2.1)	One or more conductors		N/A
(14.3.2.2)	Special preparation		N/A
(14.3.2.3)	Terminal size		N/A
	Cross-sectional area (mm ²)..... :		—
(14.3.3)	Conductor space (mm)..... :		N/A
(14.4)	Mechanical tests		N/A
(14.4.1)	Minimum distance		N/A
(14.4.2)	Cannot slip out		N/A
(14.4.3)	Special preparation		N/A
(14.4.4)	Nominal diameter of thread (metric ISO thread)..... :		N/A
	External wiring		N/A
	No soft metal		N/A
(14.4.5)	Corrosion		N/A
(14.4.6)	Nominal diameter of thread (mm)..... :		N/A
	Torque (Nm)..... :		N/A
(14.4.7)	Between metal surfaces		N/A
	Lug terminal		N/A
	Mantle terminal		N/A
	Pull test; pull (N)..... :		N/A
(14.4.8)	Without undue damage		N/A

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

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

EN IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict

Attachment 1: LED modules for general lighting – Safety specifications of EN IEC 62031:2020/A11:2021			
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4	GENERAL REQUIREMENTS		—
4.2	Classification		—
	Built-in module	Yes ☐ No ☒	—
	Independent module.....	Yes ☐ No ☒	—
	Integral module	Yes ☒ No ☐	—
4.6	Independent modules comply with requirements in IEC 60598-1:2014/AMD1:2017		N/A
4.8	Modules with integrated controlgear providing SELV comply with requirements according to IEC 61347-1:2015/AMD1:2017 clause L.5 to L.11.	(see Annex 1)	N/A

6	MARKING		N/A
6.2	Contents of marking for built-in and for independent LED modules		N/A
	a) mark of origin		N/A
	b) model number, type reference		N/A
	c1) constant voltage module; rated supply voltage and supply frequency		N/A
	c2) constant current module; rated supply current and supply frequency		N/A
	d) rated power		N/A
	e) indication of connections, wiring diagram		N/A
	f) value of t_c and place on the module		N/A
	g) E_{thr} if required		N/A
	h) symbol for built-in modules		N/A
	i) heat transfer temperature t_d		N/A
	j) power for heat-conduction P_d		N/A
	k) working voltage for insulation		N/A
6.3	Location of marking for built-in LED modules		N/A
	- marking of a) and b) in 6.2 on the modules		N/A
	- marking of other applicable items in 6.2 on the modules or in data sheet, leaflet or website		N/A
6.4	Location of marking for independent LED modules		N/A
	- marking of a), b), c) and f) in 6.2 on the modules		N/A
	- marking of other applicable items in 6.2 on the modules or in data sheet, leaflet or website		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
6.5	Marking of integral LED modules		N/A
	- information in 6.2 a) to g) in data sheet, leaflet or website		N/A
6.6	Durable and legibility of marking		N/A
	- marking on the LED module legible after test with water		N/A
	- marking not on the LED module legible		N/A
7	TERMINALS		N/A
7.1	Integral terminals		N/A
	Screw terminals comply with section 14 of IEC 60598-1	(see Annex 3)	N/A
	Screwless terminals comply with section 15 of IEC 60598-1	(see Annex 4)	N/A
7.2	Terminals other than integral terminals		N/A
	Separately approved; component list	(see Annex 2)	N/A
	Ratings suit the conditions		N/A
	Satisfy additional relevant requirements of this standard		N/A
8 (9)	EARTHING		N/A
- (9.1)	Provisions for protective earthing		N/A
	Terminal complying with clause 8		N/A
	Locked against loosening and not possible to loosen by hand		N/A
	Not possible to loosen clamping means unintentionally on screwless terminals		N/A
	Earthing via means of fixing		N/A
	Earthing terminal only used for the earthing of the control gear		N/A
	All parts of material minimizing the danger of electrolytic corrosion		N/A
	Made of brass or equivalent material		N/A
	Contact surface bare metal		N/A
	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

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Clause	Requirement + Test	Result - Remark	Verdict
- (9.3)	Lamp controlgear with conductors for protective earthing by tracks on printed circuit board		N/A
	Test with a current of 25 A between earthing terminal and each of the accessible metal parts; measured resistance (Ω) at ≥ 10 A according 7.2.3 of IEC 60598-1: $< 0,5 \Omega$		N/A
- (9.4)	Earthing of built-in lamp controlgear		N/A
	Earth by means of fixing to earthed metal of luminaire in compliance of 7.2 of IEC 60598-1		N/A
	Earthing terminal only for earthing the built-in controlgear		N/A
- (9.5)	Earthing via independent controlgear		N/A
- (9.5.1)	Earth connection to other equipment		N/A
	Looping or through connection, conductor min. 1,5 mm ² and of copper or equivalent		N/A
	Protective earthing wires in line with 5.3.1.1 and clause 7		N/A
- (9.5.2)	Earthing of the lamp compartments powered via the independent lamp controlgear		N/A
	Test with a current of 25 A between input and output earth terminals; measured resistance (Ω) between earthing terminal and each of the accessible metal parts at ≥ 10 A according 7.2.3 of IEC 60598-1: $< 0,5 \Omega$		N/A
	Output earthing terminal marked as in 7.1 t) of IEC 61347-1		N/A
9 (10)	PROTECTION AGAINST ACCIDENTAL CONTACT WITH LIVE PARTS		N/A
- (10.1)	Controlgear protected against accidental contact with live parts		N/A
- (A2)	Voltage measured with 50 k Ω	(see Annex A)	N/A
- (A3)	Voltage > 35 V peak or > 60 V d.c. or protective impedance device	(see Annex A)	N/A
- (10.1)	Lacquer or enamel not used for protection or insulation		N/A
	Adequate mechanical strength on parts providing protection		N/A
- (10.2)	Capacitors $> 0,5 \mu\text{F}$: voltage after 1 min (V): < 50 V		N/A
- (10.3)	Controlgear providing SELV		N/A
	Accessible conductive parts are insulated from live parts by double or reinforced insulation in SELV controlgear		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	No connection between output circuit and the body or protective earthing circuit		N/A
	No possibility of connection between output circuit and the body or protective earthing circuit through other conductive parts		N/A
	SELV outputs separated from earth by at least basic insulation		N/A
	ELV conductive parts insulated as live parts		N/A
	Tests according Annex L of IEC 61347-1		N/A
- (10.4)	Accessible conductive parts in SELV circuits		N/A
	Output voltage under load ≤ 25 V r.m.s. or ≤ 60 V d.c.		N/A
	If output voltage > 25 V r.m.s. or > 60 V d.c.; No load output ≤ 35 V peak or ≤ 60 V d.c and touch current does not exceed 0,7 mA (peak) or 2 mA d.c. :		N/A
	One conductive part is insulated if output voltage or current exceeding the values above and withstand test voltage 500 V		N/A
	Double or reinforced insulation bridged by appropriate and at least two resistors or two Y2 capacitors or one Y1 capacitor		N/A
	Y1 or Y2 capacitors comply with IEC 60384-14		N/A
	Resistors comply with test (a) in 14.1 of IEC 60065		N/A
10 (11)	MOISTURE RESISTANCE AND INSULATION		P
	After storage 48 h at 91-95% relative humidity and 20-30 °C measuring of insulation resistance with d.c. 500 V (M Ω):		P
	For basic insulation ≥ 2 M Ω :	100 M Ω > 2 M Ω	P
	For double or reinforced insulation ≥ 4 M Ω :		N/A
	Between primary and secondary circuits in controlgear providing SELV, values in Annex L in IEC 61347-1		N/A
11 (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):		N/A
	Basic insulation, 2U + 1000 V		N/A

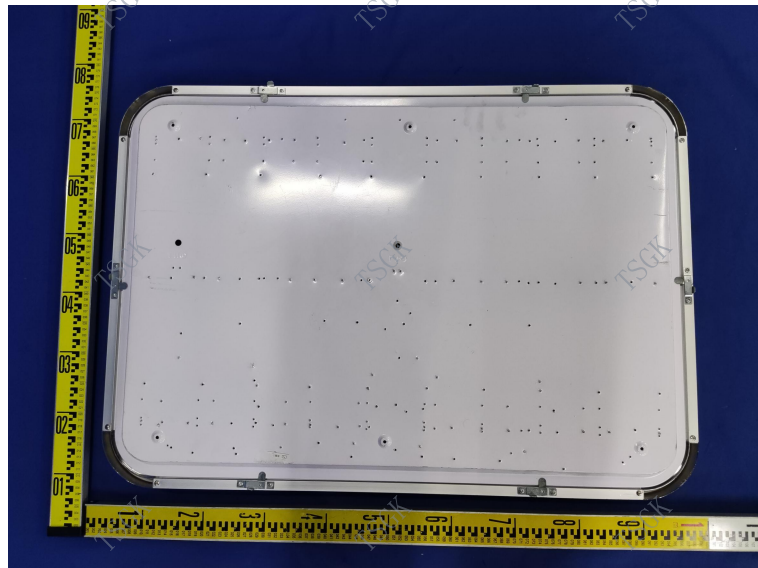
EN IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict
	Supplementary insulation, 2U + 1000 V		N/A
	Double or reinforced insulation, 4U + 2000 V		N/A
	No flashover or breakdown		P
	Solid or thin sheet insulation for double or reinforced insulation fulfil the requirements in Annex N in IEC 61347-1		N/A
12 (14)	FAULT CONDITIONS		P
- (14.1)	When operated under fault conditions the controlgear:		N/A
	- does not emit flames or molten material		N/A
	- does not produce flammable gases		N/A
	- protection against accidental contact not impaired		N/A
	Thermally protected controlgear does not exceed the marked temperature value		N/A
	Fault conditions: capacitors, resistors or inductors without proof of compliance with relevant specifications have been short-circuited or disconnected	(see appended table)	N/A
- (14.2)	Short-circuit of creepage distances and clearances if less than specified in clause 16 in Part 1 (after any reduction in 14.2 - 14.5)	(see appended table)	N/A
- (14.3)	Short-circuit or interruption of semiconductor devices	(see appended table)	N/A
- (14.4)	Short-circuit across insulation consisting of lacquer, enamel or textile	(see appended table)	N/A
- (14.5)	Short-circuit across electrolytic capacitors	(see appended table)	N/A
	Short-circuit or interruption of SPDs	(see appended table)	N/A
- (14.6)	After the tests has been carried out on three samples:		N/A
	The insulation resistance $\geq 1 \text{ M}\Omega$		N/A
	No flammable gases		N/A
	No accessible parts have become live		N/A
	During the tests, a five-layer tissue paper, where the test specimen is wrapped, does not ignite		N/A
- (14.7)	Relevant fault condition tests with high-power a.c. supply and in turn to a d.c. supply		—
12.2	Overpower condition		P
	Module withstands overpower condition >15 min.		P
	Module with automatic protective device or power limiter, test performed 15 min. at limit.		N/A
	No fire, smoke or flammable gas is produced		P

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Clause	Requirement + Test	Result - Remark	Verdict
	Molten material does not ignite tissue paper, spread below the module		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
15 (16)	CREEPAGE DISTANCES AND CLEARANCES		N/A
- (16.1)	General		N/A
	Creepage distances and clearances according to 16.2 and 16.3		N/A
	Controlgears providing SELV comply with additional requirements in Annex L		N/A
	Insulating lining of metallic enclosures		N/A
	Controlgear protected against pollution comply with Annex P		N/A
- (16.2)	Creepage distances		N/A
- (16.2.2)	Minimum creepage distances for working voltages		N/A
	Creepage distances according to Table 7	(see appended table)	N/A
- (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		N/A
- (16.3.2)	Clearances for working voltages		N/A
	Clearances distances according to Table 9	(see appended table)	N/A
- (16.3.3)	Clearances for ignition voltages and working voltages with higher frequencies		N/A
	Clearances distances for basic or supplementary insulation according to Table 10		N/A
	Clearances distances for reinforced insulation according to Table 11		N/A
16 (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)		—
(4.11)	Electrical connections		P
(4.11.1)	Contact pressure		N/A
(4.11.2)	Screws:		N/A

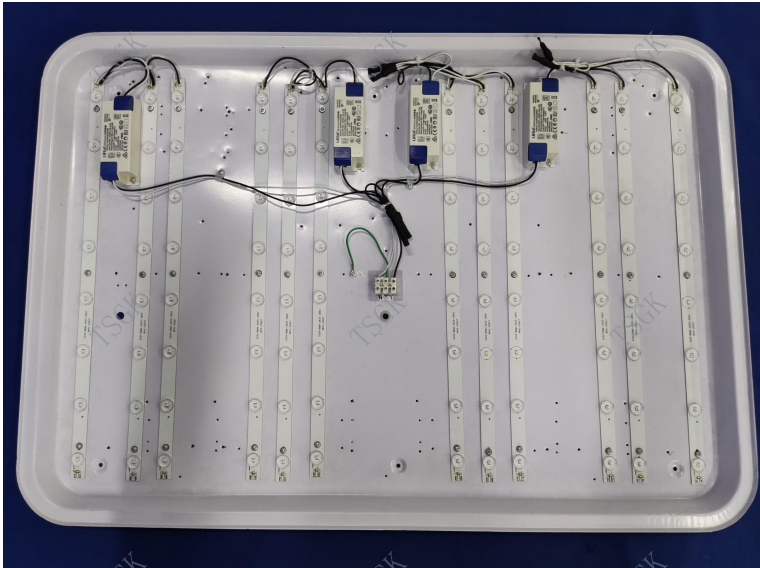
EN IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict
	- self-tapping screws		N/A
	- thread-cutting screws		N/A
(4.11.3)	Screw locking:		N/A
	- spring washer		N/A
	- rivets		N/A
(4.11.4)	Material of current-carrying parts		P
(4.11.5)	No contact to wood or mounting surface		P
(4.11.6)	Electro-mechanical contact systems		N/A
(4.12)	Mechanical connections and glands		N/A
(4.12.1)	Screws not made of soft metal		N/A
	Screws of insulating material		N/A
	Torque test: torque (Nm); part.....:		N/A
	Torque test: torque (Nm); part.....:		N/A
	Torque test: torque (Nm); part.....:		N/A
(4.12.2)	Screws with diameter < 3 mm screwed into metal		N/A
(4.12.4)	Locked connections:		N/A
	- fixed arms; torque (Nm).....:		N/A
	- lampholder; torque (Nm).....:		N/A
	- push-button switches; torque 0,8 Nm.....:		N/A
(4.12.5)	Screwed glands; force (Nm).....:		N/A
17 (18)	RESISTANCE TO HEAT, FIRE AND TRACKING		N/A
- (18.1)	Ball-pressure test	See Test Table 17 (18.1)	N/A
- (18.2)	Test of printed boards	See Test Table 17 (18.2)	N/A
- (18.3)	Glow-wire test (650°C)	See Test Table 17 (18.3)	N/A
- (18.4)	Needle-flame test (10 s)	See Test Table 17 (18.4)	N/A
- (18.5)	Proof tracking test	See Test Table 17 (18.5)	N/A
18	RESISTANCE TO CORROSION		N/A
	Comply with requirements according 4.18 of IEC 60598-1		N/A
20	HEAT MANAGEMENT		N/A
20.1	General		N/A
	Fulfil clause 20 if replaceable LED module and when heat conducting thermal interface is needed.		N/A
20.2	Thermal interface material		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Thermal interface material delivered with the module if necessary		N/A
20.3	Heat protection		N/A
	Not impair safety when operated under poor heat-conduction conditions according Annex D		N/A
22	PHOTOBIOLOGICAL SAFETY		P
22.1	UV radiation		N/A
	Luminous radiation not exceed 2mW/klm		N/A
22.2	Blue light hazard		P
	Assessed according to IEC TR 62778	RG1	P
22.3	Infrared radiation		N/A
	Requirements for infrared radiation when required		N/A
A	ANNEX A - TESTS		N/A
	All tests performed in accordance with the advice given in Annex H of IEC 61347-1, if applicable		N/A

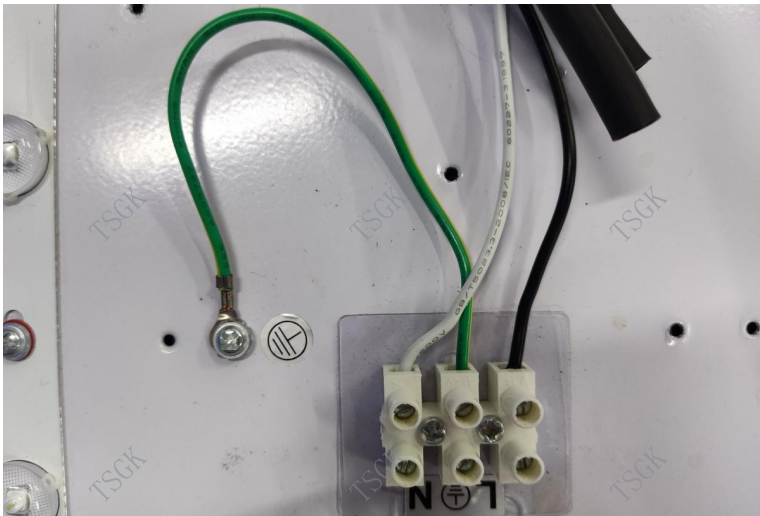
Product photos



Overall view for model 30897302-1



Internal structure for model 30897302-1



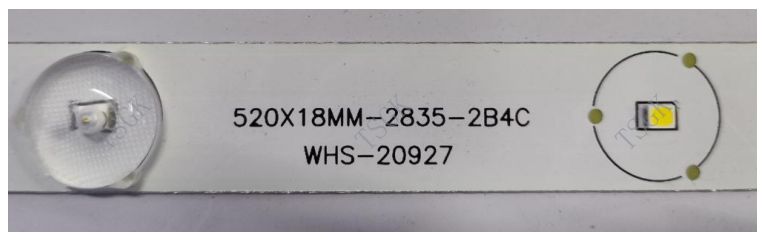
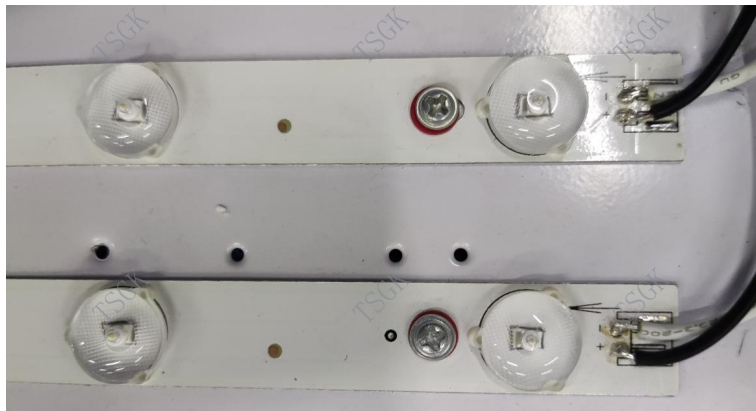
Terminals for model 30897302-1



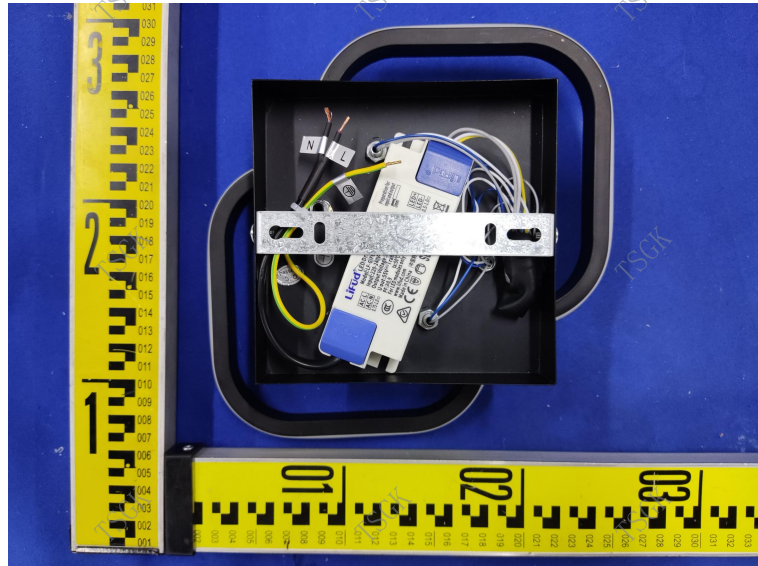
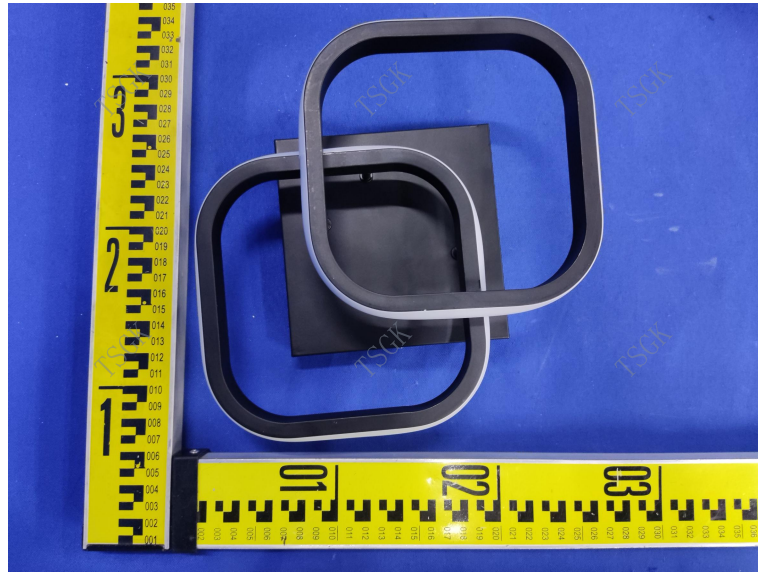
Earthing for model 30897302-1



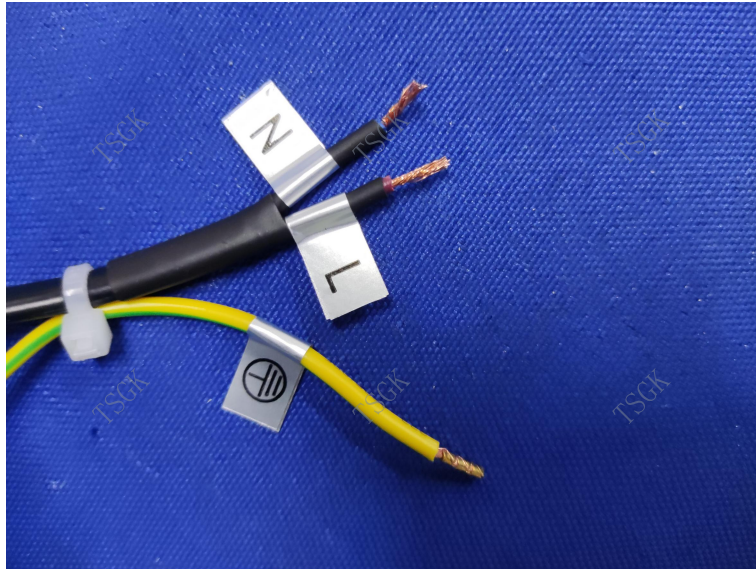
LED driver for model 30897302-1



LED module for model 30897302-1



Overall view for model 30897302-2



Conneting leads for model 30897302-2



Earthing for model 30897302-2



LED driver for model 30897302-2



Internal wiring for model 30897302-2



LED module for model 30897302-2

Declaration

- 1.The test report is invalid without the signatures of Chief Tester, Reviewer and Approver.
- 2.The test report is invalid without the official testing stamp of TSGK.
- 3.The test results presented in this report relate only to the object tested.
- 4.This report cannot be partially copied without permission.
- 5.The test report is invalid if altered.
- 6.Objections to the test report must be submitted to TSGK within 15 days.

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