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TESTING
CNAS L6214

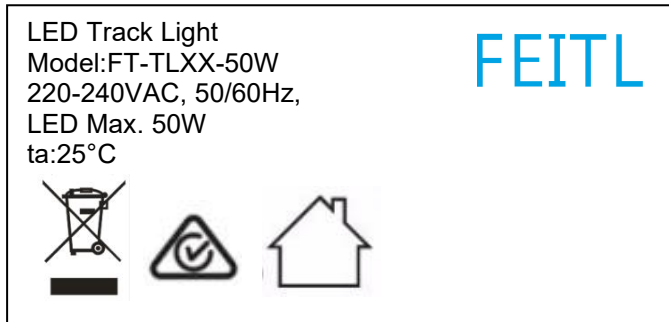


TEST REPORT IEC 60598-2-1 Luminaires Part 2: Particular requirements Section 1: Fixed general purpose luminaires	
Report Number.....: S01A24070545L00101 Date of issue.....: 2024-10-09 Total number of pages.....: 66 pages	
Name of Testing Laboratory preparing the Report.....: Guangdong GTG Testing Technology Co., Ltd.	
Applicant's name.....: Dongguan Fitlight Lighting Co., Ltd. Address.....: 10th floor, building C1, Songhu Zhigu building, No. 9, Yanhe South Road, Liaobu Town, Dongguan City, Guangdong Province, China.	
Test specification: Standard.....: IEC 60598-2-1:1979, AMD1:1987 used in conjunction with IEC 60598-1:2014, AMD1:2017 Test procedure.....: Type test Non-standard test method.....: N/A	
Test Report Form No.....: 01-L-S001-1A Test Report Form(s) Originator.....: GTG Master TRF.....: Dated 2024-01-19	
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☒ Testing Laboratory:	Guangdong GTG Testing Technology Co., Ltd.
Testing location/ address.....:	1-2/F., Building A, and 1/F., Building B, No.11, & Room 102, Unit 1, and Room 101, Unit 2, Building 1, No.9, Zonghu 2nd Road, Songshan Lake High-Tech Industrial Development Zone, Dongguan, Guangdong, China
Tested by (name, function, signature).....:	Justin Yuan Reviewer
Reviewed by (name, function, signature).....:	George Liang Project handler
Approved by (name, function, signature).....:	Louis Lu Authorized Signatory

Test item description.....:	LED Track Light
Trade Mark.....:	FEITL
Manufacturer.....:	Same as applicant
Address.....:	Same as applicant
Model/Type reference.....:	See model list
Ratings.....:	220-240V~, 50/60Hz, Class I, IP20, ta:25°C, other detail see 'General product information'
List of Attachments (including a total number of pages in each attachment):	
Attachment 1: ☒ Test report for Australia and New Zealand national differences for AS/NZS 60598.1:2017+A1:2017+A2:2020 and AS/NZS 60598.2.1:2014+A1:2016+A2:2019; Attachment 2: Test report for LED module for IEC 62031:2018; Attachment 3: Test report for blue light risk for IEC TR 62778:2014; Attachment 4: Photo	
Summary of testing:	
Tests performed (name of test and test clause): IEC 60598-2-1:1979 IEC 60598-2-1:1979, AMD1:1987 IEC 60598-1:2014 IEC 60598-1:2014, AMD1:2017 AS/NZS 60598.1:2017+A1:2017+A2:2020 AS/NZS 60598.2.1:2014+A1:2016+A2:2019 IEC 62031:2018 IEC TR 62778:2014	Testing location: Guangdong GTG Testing Technology Co., Ltd. 1-2/F., Building A, and 1/F., Building B, No.11, & Room 102, Unit 1, and Room 101 Unit 2, Building 1, No.9, Zongbu 2nd Road, Songshan Lake High-Tech Industrial Development Zone, Dongguan, Guangdong, China

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.

Main label

On the luminaries surface

Remarks:

Height of marks at least 5mm, height of letters and numerals at least 2mm.

The marking label for other model is same as above, except the product name; model No and power.

Test item particulars..... :			
Classification of installation and use..... : Fixed general purpose luminaires			
Supply Connection..... : Track connector			
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..... : 2024-08-19			
Date (s) of performance of tests..... : 2024-08-19 to 2024-09-09			
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 between brackets refer to clauses in IEC/EN 60598-1. Throughout this report a ☐ comma / ☒ point is used as the decimal separator.			
Manufacturer's Declaration per sub-clause 4.2.5 of IEC 60598-1:			
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:			
- Fixed general purpose luminaires. - The construction and electrical principle of all models are similar, only the LED driver and power are different. - Unless otherwise specified, the model FT-TLXX-50W was chosen as representative model to perform all test. - Only the most unfavorable results are recorded in this report.			
Model list:			
Model	Power (W)	LED	LED driver
FT-TLXX-7W	7	2520	LF-GIR009YS0135H
FT-TLXX-10W	10	2520	LF-GIR009YS0250H
FT-TLXX-15W	15	2520	LF-GIR013YS0350H
FT-TLXX-20W	20	2520	LF-GIR024YS0550H
FT-TLXX-25W	25	2520	LF-GIR024YS0600H
FT-TLXX-30W	30	2520	LF-GIR030YS0700H
FT-TLXX-35W	35	2520	LF-GIR040YS0800H
FT-TLXX-40W	40	2520	LF-GIR040YS1000H
FT-TLXX-45W	45	2520	LF-GIR040YS1050H
FT-TLXX-50W	50	2520	LF-GIR050YS1200H

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.2 (0)	GENERAL TEST REQUIREMENTS		P
1.2 (0.3)	More sections applicable.....:	Yes ☐ No ☒ Section/s:	—
1.2 (0.5)	Components	(see Annex 1)	—
1.2 (0.7)	Information for luminaire design in light sources standards		—
1.2 (0.7.2)	Light source safety standard	IEC 62031	—
	Luminaire design in the light source safety standard		P

1.4 (2)	CLASSIFICATION OF LUMINAIRES		P
1.4 (2.2)	Type of protection	Class I	P
1.4 (2.3)	Degree of protection.....:	IP20	—
1.4 (2.4)	Luminaire suitable for direct mounting on normally flammable surfaces.....:	Yes ☒ No ☐	—
1.4 (2.5)	Luminaire for normal use	Yes ☒ No ☐	—
	Luminaire for rough service	Yes ☐ No ☒	—

1.5 (3)	MARKING		P
1.5 (3.2)	Mandatory markings		P
	Position of the marking		P
	Format of symbols/text		P
1.5 (3.3)	Additional information		P
	Language of instructions	English	P
1.5 (3.3.1)	Combination luminaires		N/A
1.5 (3.3.2)	Nominal frequency in Hz	50/60Hz	P
1.5 (3.3.3)	Operating temperature		N/A
1.5 (3.3.5)	Wiring diagram		N/A
1.5 (3.3.6)	Special conditions		N/A
1.5 (3.3.7)	Metal halide lamp luminaire – warning		N/A
1.5 (3.3.8)	Limitation for semi-luminaires		N/A
1.5 (3.3.9)	Power factor and supply current		N/A
1.5 (3.3.10)	Suitability for use indoors		N/A
1.5 (3.3.11)	Luminaires with remote control		N/A
1.5 (3.3.12)	Clip-mounted luminaire – warning		N/A
1.5 (3.3.13)	Specifications of protective shields		N/A
1.5 (3.3.14)	Symbol for nature of supply		P
1.5 (3.3.15)	Rated current of socket outlet		N/A
1.5 (3.3.16)	Rough service luminaire		N/A
1.5 (3.3.17)	Mounting instruction for type Y, type Z and some type X attachments		N/A

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.5 (3.3.18)	Non-ordinary luminaires with PVC cable		N/A
1.5 (3.3.19)	Protective conductor current in instruction if applicable		N/A
1.5 (3.3.20)	Provided with information if not intended to be mounted within arm's reach		N/A
1.5 (3.3.21)	Non replaceable and non-user replaceable light sources information provided	Non-user replaceable	P
1.5 (3.3.22)	Controllable luminaires, classification of insulation provided		N/A
1.5 (3.3.23)	Luminaire without controlgear provided with necessary information for selection of appropriate component		N/A
1.5 (3.3.24)	If not supplied with terminal block, information on the packaging		N/A
1.5 (3.4)	Test with water		P
	Test with hexane		P
	Legible after test		P
	Label attached		P

1.6 (4)	CONSTRUCTION		P
1.6 (4.2)	Components replaceable without difficulty		N/A
1.6 (4.3)	Wireways smooth and free from sharp edges		P
1.6 (4.4)	Lampholders		N/A
1.6 (4.4.1)	Integral lampholder		N/A
1.6 (4.4.2)	Wiring connection		N/A
1.6 (4.4.3)	Lampholder for end-to-end mounting		N/A
1.6 (4.4.4)	Positioning		N/A
	- pressure test (N)		—
	After test the lampholder comply with relevant standard sheets and show no damage		N/A
	After test on single-capped lampholder the lampholder have not moved from its position and show no permanent deformation		N/A
	- bending test (N)		—
	After test the lampholder have not moved from its position and show no permanent deformation		N/A
1.6 (4.4.5)	Peak pulse voltage		N/A
1.6 (4.4.6)	Centre contact		N/A
1.6 (4.4.7)	Parts in rough service luminaires resistant to tracking		N/A
1.6 (4.4.8)	Lamp connectors		N/A
1.6 (4.4.9)	Caps and bases correctly used		N/A

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.6 (4.4.10)	Light source for lampholder or connection according IEC 60061 not connected another way		N/A
1.6 (4.5)	Starter holders		N/A
	Starter holder in luminaires other than class II		N/A
	Starter holder class II construction		N/A
1.6 (4.6)	Terminal blocks		P
	Tails		N/A
	Unsecured blocks		N/A
1.6 (4.7)	Terminals and supply connections		P
1.6 (4.7.1)	Contact to metal parts		N/A
1.6 (4.7.2)	Test 8 mm live conductor		N/A
	Test 8 mm earth conductor		N/A
1.6 (4.7.3)	Terminals for supply conductors		N/A
1.6 (4.7.3.1)	Welded method and material		N/A
	- stranded or solid conductor		N/A
	- spot welding		N/A
	- welding between wires		N/A
	- Type Z attachment		N/A
	- mechanical test according to 15.6.2		N/A
	- electrical test according to 15.6.3		N/A
	- heat test according to 15.6.3.2.3 and 15.6.3.2.4		N/A
1.6 (4.7.4)	Terminals other than supply connection		P
1.6 (4.7.5)	Heat-resistant wiring/sleeves		P
1.6 (4.7.6)	Multi-pole plug		N/A
	- test at 30 N		N/A
1.6 (4.8)	Switches		N/A
	- adequate rating		N/A
	- adequate fixing		N/A
	- polarized supply		N/A
	- compliance with IEC 61058-1 for electronic switches		N/A
1.6 (4.9)	Insulating lining and sleeves		N/A
1.6 (4.9.1)	Retainment		N/A
	Method of fixing.....:		N/A
1.6 (4.9.2)	Insulated linings and sleeves:		N/A
	Resistant to a temperature > 20 °C to the wire temperature or		N/A
	a) & c) Insulation resistance and electric strength		N/A
	b) Ageing test. Temperature (°C).....:		N/A

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.6 (4.10)	Double or reinforced insulation		N/A
1.6 (4.10.1)	No contact, mounting surface – accessible metal parts – wiring of basic insulation		N/A
	Safe installation fixed luminaires		N/A
	Capacitors and switches		N/A
	Interference suppression capacitors according to IEC 60384-14		N/A
1.6 (4.10.2)	Assembly gaps:		N/A
	- not coincidental		N/A
	- no straight access with test probe		N/A
1.6 (4.10.3)	Retainment of insulation:		N/A
	- fixed		N/A
	- unable to be replaced; luminaire inoperative		N/A
	- sleeves retained in position		N/A
	- lining in lampholder		N/A
1.6 (4.10.4)	Protective impedance device		N/A
	Double or reinforced insulation bridged by appropriate and at least two resistors or two Y2 capacitors or one Y1 capacitor		N/A
	Y1 or Y2 capacitors comply with IEC 60384-14		N/A
	Resistors comply with test (a) in 14.1 of IEC 60065		N/A
1.6 (4.11)	Electrical connections and current-carrying parts		P
1.6 (4.11.1)	Contact pressure		P
1.6 (4.11.2)	Screws:		N/A
	- self-tapping screws		N/A
	- thread-cutting screws		N/A
1.6 (4.11.3)	Screw locking:		P
	- spring washer		P
	- rivets		N/A
1.6 (4.11.4)	Material of current-carrying parts		P
1.6 (4.11.5)	No contact to wood or mounting surface		P
1.6 (4.11.6)	Electro-mechanical contact systems		P
1.6 (4.12)	Screws and connections (mechanical) and glands		P
1.6 (4.12.1)	Screws not made of soft metal		P
	Screws of insulating material		N/A
	Torque test: torque (Nm); part.....:		N/A
	Torque test: torque (Nm); part.....:	Screws of earth terminal: 0.4Nm	P

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Torque test: torque (Nm); part..... :	Screws of metal enclosure: 0.5Nm	P
	Torque test: torque (Nm); part..... :	Screws of fixed LED module: 0.5Nm	P
1.6 (4.12.2)	Screws with diameter < 3 mm screwed into metal		P
1.6 (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
1.6 (4.12.5)	Screwed glands; force (Nm)..... :		N/A
1.6 (4.13)	Mechanical strength		P
1.6 (4.13.1)	Impact tests:		P
	- fragile parts; energy (Nm)..... :		N/A
	- other parts; energy (Nm)..... :	All enclosure: 0.35Nm	P
	1) live parts		P
	2) linings		N/A
	3) protection		P
	4) covers		P
1.6 (4.13.2)	Metal parts have adequate mechanical strength		P
1.6 (4.13.3)	Straight test finger		P
1.6 (4.13.4)	Rough service luminaires		N/A
	- IP54 or higher		N/A
	a) fixed		N/A
	b) hand-held		N/A
	c) delivered with a stand		N/A
	d) for temporary installations and suitable for mounting on a stand		N/A
1.6 (4.13.6)	Tumbling barrel		N/A
1.6 (4.14)	Suspensions, fixings and means of adjusting		P
1.6 (4.14.1)	Mechanical load:		P
	A) four times the weight		P
	B) torque 2,5 Nm		N/A
	C) bracket arm; bending moment (Nm)..... :		N/A
	D) load track-mounted luminaires		P
	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

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.6 (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
1.6 (4.14.3)	Adjusting devices:		P
	- flexing test; number of cycles.....	150	P
	- strands broken.....	0	P
	- electric strength test afterwards		P
1.6 (4.14.4)	Telescopic tubes: cords not fixed to tube; no strain on conductors		N/A
1.6 (4.14.5)	Guide pulleys		N/A
1.6 (4.14.6)	Strain on socket-outlets		N/A
1.6 (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
1.6 (4.15.2)	Luminaires made of thermoplastic material with lamp control gear		N/A
	a) construction		N/A
	b) temperature sensing control		N/A
	c) surface temperature		N/A
1.6 (4.16)	Luminaires for mounting on normally flammable surfaces		P
	No lamp control gear.....	(compliance with Section 12)	N/A
	Provided with adaptor for a track meet the requirements for direct mounting on normally flammable surfaces		N/A
1.6 (4.16.1)	Lamp control gear spacing:		N/A
	- spacing 35 mm		N/A
	- spacing 10 mm		N/A
1.6 (4.16.2)	Thermal protection:		N/A
	- in lamp control gear		N/A
	- external		N/A
	- fixed position		N/A
	- temperature marked lamp control gear		N/A
1.6 (4.16.3)	Design to satisfy the test of 12.6	(see clause 12.6)	N/A

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.6 (4.17)	Drain holes		N/A
	Clearance at least 5 mm		N/A
1.6 (4.18)	Resistance to corrosion		N/A
1.6 (4.18.1)	- rust-resistance		N/A
1.6 (4.18.2)	- season cracking in copper		N/A
1.6 (4.18.3)	- corrosion of aluminium		N/A
1.6 (4.19)	Igniters compatible with ballast		N/A
1.6 (4.20)	Rough service vibration		N/A
1.6 (4.21)	Protective shield		N/A
1.6 (4.21.1)	Shield fitted if tungsten halogen lamps or metal halide lamps		N/A
	Shield of glass if tungsten halogen lamps		N/A
1.6 (4.21.2)	Particles from a shattering lamp not impair safety		N/A
1.6 (4.21.3)	No direct path		N/A
1.6 (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
1.6 (4.22)	Attachments to lamps not cause overheating or damage		N/A
1.6 (4.23)	Semi-luminaires comply Class II		N/A
1.6 (4.24)	Photobiological hazards		P
1.6 (4.24.1)	No excessive UV radiation if tungsten halogen lamps and metal halide lamps (Annex P)		N/A
1.6 (4.24.2)	Retinal blue light hazard		P
	Class of risk group assessed according to IEC/TR 62778	RG1	—
	Luminaires with E_{thr} :		N/A
	a) Fixed luminaires		N/A
	- distance x m, borderline between RG1 and RG2....:		N/A
	- marking and instruction according 3.2.23		N/A
	b) Portable and handheld luminaires		N/A
	- marking according 3.2.23 if RG1 exceeded at 200 mm according to IEC/TR 62778		N/A
	Portable luminaires for children IEC 60598-2-10 and Mains socket outlet nightlights IEC 60598-2-12 not exceed RG1 at 200 mm according to IEC/62778		N/A
1.6 (4.25)	Mechanical hazard		P
	No sharp point or edges		P
1.6 (4.26)	Short-circuit protection		N/A
1.6 (4.26.1)	Adequate means of uninsulated accessible SELV parts		N/A

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.6 (4.26.2)	Short-circuit test with test chain according 4.26.3		N/A
	Test chain not melt through		N/A
	Test sample not exceed values of Table 12.1 and 12.2		N/A
1.6 (4.27)	Terminal blocks with integrated screwless earthing contacts		N/A
	Test according Annex V		N/A
	Pull test of terminal fixing (20 N)		N/A
	After test, resistance < 0,05 Ω		N/A
	Pull test of mechanical connection (50 N)		N/A
	After test, resistance < 0,05 Ω		N/A
	Voltage drop test, resistance < 0,05 Ω		N/A
1.6 (4.28)	Fixing of thermal sensing control		N/A
	Not plug-in or easily replaceable type		N/A
	Reliably kept in position		N/A
	No adhesive fixing if UV radiations from a lamp can degrade the fixing		N/A
	Not outside the luminaire enclosure		N/A
	Test of adhesive fixing:		N/A
	Max. temperature on adhesive material ($^{\circ}\text{C}$) :		—
	100 cycles between t min and t max		N/A
	Temperature sensing control still in position		N/A
1.6 (4.29)	Luminaires with non-replaceable light source		N/A
	Not possible to replace light source		N/A
	Live part not accessible after parts have been opened by hand or tools		N/A
1.6 (4.30)	Luminaires with non-user replaceable light source		P
	If protective cover provide protection against electric shock and marked with “caution, electric shock risk” symbol:		N/A
	Minimum two fixing means		N/A
1.6 (4.31)	Insulation between circuits		P
	Circuits insulated from LV supply fulfil requirements according 4.31.1 – 4.31.3		P
	Controllable luminaires requiring same level of insulation for all components, the insulation between control terminals and LV supply fulfil requirements according 4.31.1 – 4.31.3		N/A
1.6 (4.31.1)	SELV circuits		P
	Used SELV source		P
	Voltage $\leq$ ELV		P
	Insulating of SELV circuits from LV supply		P

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Insulating of SELV circuits from other non SELV circuits		N/A
	Insulating of SELV circuits from FELV		N/A
	Insulating of SELV circuits from other SELV circuits		N/A
	SELV circuits insulated from accessible parts according Table X.1		P
	Plugs not able to enter socket-outlets of other voltage systems		N/A
	Socket outlets does not admit plugs of other voltage systems		N/A
	Plugs and socket-outlets does not have protective conductor contact		N/A
1.6 (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 enter socket-outlets of other voltage systems		N/A
	Socket outlets does not admit plugs of other voltage systems		N/A
	Socket-outlets does not have protective conductor contact		N/A
1.6 (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
1.6 (4.32)	Overvoltage protective devices		N/A
	Comply with IEC 61643-11		N/A
	External to controlgear and connected to earth:		N/A
	- only in fixed luminaires		N/A
	- only connected to protective earth		N/A

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

1.7 (11)	CREEPAGE DISTANCES AND CLEARANCES		P
1.7 (11.2.1)	Impulse withstand category (Normal category II)	Category II ☒ Category III ☐	—
	Category III according Annex U		N/A
	Protected against pollution, reduced creepage and clearance according Annex P of IEC 61347-1		N/A
1.7 (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_{UOUT} 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
1.7 (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

1.8 (7)	PROVISION FOR EARTHING		P
1.8 (7.2.1 + 7.2.3)	Accessible metal parts		P
	Metal parts in contact with supporting surface		P
	Resistance < 0,5 Ω:	Max. 0.024 Ω	P
	Self-tapping screws used		N/A
	Thread-forming screws		N/A
	Thread-forming screw used in a groove		N/A
	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		P
1.8 (7.2.2 + 7.2.3)	Earth continuity in joints, etc.		N/A
1.8 (7.2.4)	Locking of clamping means		P
	Compliance with 4.7.3		P
	Terminal blocks with integrated screwless earthing contacts tested according Annex V		N/A
1.8 (7.2.5)	Earth terminal integral part of connector socket		N/A
1.8 (7.2.6)	Earth terminal adjacent to mains terminals		P
1.8 (7.2.7)	Electrolytic corrosion of the earth terminal		P
1.8 (7.2.8)	Material of earth terminal		P

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Clause	Requirement + Test	Result - Remark	Verdict
	Contact surface bare metal		P
1.8 (7.2.10)	Class II luminaire for looping-in		N/A
	Double or reinforced insulation to functional earth		N/A
1.8 (7.2.11)	Earthing core coloured green-yellow		P
	Length of earth conductor		P

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

1.9 (15)	SCREWLESS TERMINALS AND ELECTRICAL CONNECTIONS		N/A
	Separately approved; component list.....:	(see Annex 1)	N/A
	Part of the luminaire.....:	(see Annex 4)	N/A

1.10 (5)	EXTERNAL AND INTERNAL WIRING		P
1.10 (5.2)	Supply connection and external wiring		P
1.10 (5.2.1)	Means of connection.....:	Track connector	P
	Outdoor luminaire has not PVC insulated external wiring if not class III or SELV ≤ 25 V a.c./60 V d.c. or protected from outdoor environment		N/A
1.10 (5.2.2)	Type of cable.....:		N/A
	Nominal cross-sectional area (mm ²).....:		N/A
	Cables equal to IEC 60227 or IEC 60245		N/A
1.10 (5.2.3)	Type of attachment, X, Y or Z		N/A
1.10 (5.2.5)	Type Z not connected to screws		N/A
1.10 (5.2.6)	Cable entries:		N/A
	- suitable for introduction		N/A
	- adequate degree of protection		N/A
1.10 (5.2.7)	Cable entries through rigid material have rounded edges		N/A
1.10 (5.2.8)	Insulating bushings:		N/A
	- suitably fixed		N/A
	- material in bushings		N/A
	- material not likely to deteriorate		N/A
	- tubes or guards made of insulating material		N/A
1.10 (5.2.9)	Locking of screwed bushings		N/A
1.10 (5.2.10)	Cord anchorage:		N/A
	- covering protected from abrasion		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- 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
1.10 (5.2.10.1)	Cord anchorage for type X attachment:		N/A
	a) at least one part fixed		N/A
	b) types of cable		N/A
	c) no damaging of the cable		N/A
	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
1.10 (5.2.10.2)	Adequate cord anchorage for type Y and type Z attachment		N/A
1.10 (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
1.10 (5.2.11)	External wiring passing into luminaire		N/A
1.10 (5.2.12)	Looping-in terminals		N/A
1.10 (5.2.13)	Wire ends not tinned		N/A
	Wire ends tinned: no cold flow		N/A
1.10 (5.2.14)	Mains plug same protection		N/A
	Class III luminaire plug		N/A
	No unsafe compatibility		N/A
1.10 (5.2.16)	Appliance inlets (IEC 60320)		N/A
	Installation couplers (IEC 61535)		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Other appliance inlet or connector according relevant IEC standard		N/A
1.10 (5.2.17)	No standardized interconnecting cables properly assembled		N/A
1.10 (5.2.18)	Used plug in accordance with		N/A
	- IEC 60083		N/A
	- other standard		N/A
1.10 (5.3)	Internal wiring		P
1.10 (5.3.1)	Internal wiring of suitable size and type		P
	Through wiring		N/A
	- not delivered/ mounting instruction		N/A
	- factory assembled		N/A
	- socket outlet loaded (A)..... :		N/A
	- temperatures..... :	(see Annex 2)	N/A
	Green- yellow for earth only		P
1.10 (5.3.1.1)	Internal wiring connected directly to fixed wiring		P
	Cross-sectional area (mm ²)..... :	(See Annex 1)	P
	Insulation thickness (mm) :		P
	Extra insulation added where necessary		N/A
1.10 (5.3.1.2)	Internal wiring connected to fixed wiring via internal current-limiting device		P
	Cross-sectional area (mm ²)..... :	(See Annex 1)	P
1.10 (5.3.1.3)	Double or reinforced insulation for class II		P
1.10 (5.3.1.4)	Conductors without insulation		N/A
1.10 (5.3.1.5)	SELV current-carrying parts		P
1.10 (5.3.1.6)	Insulation thickness other than PVC or rubber		N/A
1.10 (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
1.10 (5.3.3)	Insulating bushings:		N/A
	- suitable fixed		N/A
	- material in bushings		N/A
	- material not likely to deteriorate		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- cables with protective sheath		N/A
1.10 (5.3.4)	Joints and junctions effectively insulated		N/A
1.10 (5.3.5)	Strain on internal wiring		N/A
1.10 (5.3.6)	Wire carriers		N/A
1.10 (5.3.7)	Wire ends not tinned		N/A
	Wire ends tinned: no cold flow		P
1.10 (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

1.11 (8)	PROTECTION AGAINST ELECTRIC SHOCK		P
1.11 (8.2.1)	Live parts not accessible		P
	Basic insulated parts not used on the outer surface without appropriate protection		P
	Basic insulated parts not accessible with standard test finger on portable, settable and adjustable luminaires		N/A
	Basic insulated parts not accessible with Ø 50 mm probe from outside, other types of luminaires		P
	Lamp and starterholders in portable and adjustable luminaires comply with double or reinforced insulation requirements		N/A
	Basic insulation only accessible under lamp or starter replacement		P
	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
1.11 (8.2.2)	Portable luminaire adjusted in most unfavourable position		N/A
1.11 (8.2.3.a)	Class II luminaire:		N/A
	- basic insulated metal parts not accessible during starter or lamp replacement		N/A
	- basic insulation not accessible other than during starter or lamp replacement		N/A
	- glass protective shields not used as supplementary insulation		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
1.11 (8.2.3.b)	BC lampholder of metal in class I luminaires shall be earthed		N/A
1.11 (8.2.3.c)	SELV circuits with exposed current carrying parts:		N/A
	Ordinary luminaire:		N/A
	- voltage under load (V).....:		N/A
	- no-load voltage (V).....:		N/A
	- touch current if applicable (mA)		N/A
	One conductive part insulated if required		N/A
	Other than ordinary luminaire:		N/A
	- nominal voltage (V)		N/A
	Class III luminaire only for connection to SELV		N/A
	Class III luminaire not provided with means for protective earthing		N/A
1.11 (8.2.4)	Portable luminaire has protection independent of supporting surface		N/A
1.11 (8.2.5)	Compliance with the standard test finger or relevant probe		P
1.11 (8.2.6)	Covers reliably secured		P
1.11 (8.2.7)	Luminaire other than below with capacitor > 0,5 μ F not exceed 50 V 1 min after disconnection		P
	Portable luminaire with capacitor > 0,1 μ F (0.25) not exceed 34 V 1 s after disconnection		N/A
	Other luminaires with capacitor > 0,1 μ F (0.25) with plug and track adaptors not exceed 60 V 5 s after disconnection		N/A

1.12 (12)	ENDURANCE TEST AND THERMAL TEST		P
1.12 (-)	If IP > IP 20 relevant test of (12.4), (12.5) and (12.6) after (9.2) before (9.3) specified in 1.13		—
1.12 (12.2)	Selection of lamps and ballasts		—
	Lamp used according Annex B	(Lamp used see Annex 2)	—
	Controlgear if separate and not supplied	(Controlgear used see Annex 2)	—
1.12 (12.3)	Endurance test		P
	a) mounting- position	As normal used	—
	b) test temperature (°C).....	35°C	—
	c) total duration (h)	240h	—
	d) supply voltage (V).....	1.1Un	—
	d) if not equipped with controlgear, constant voltage/current (V) or (A)	--	—
	e) luminaire ceases to operate		—

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Clause	Requirement + Test	Result - Remark	Verdict
1.12 (12.3.2)	After endurance test:		P
	- no part unserviceable		P
	- luminaire not unsafe		P
	- no damage to track system		N/A
	- marking legible		P
	- no cracks, deformation etc.		P
1.12 (12.4)	Thermal test (normal operation)	(see Annex 2)	P
1.12 (12.5)	Thermal test (abnormal operation)	(see Annex 2)	P
1.12 (12.6)	Thermal test (failed lamp control gear condition):		N/A
1.12 (12.6.1)	Through wiring or looping-in wiring loaded by a current of (A)		—
	- case of abnormal conditions.....		—
	- electronic lamp control gear		N/A
	- measured winding temperature (°C): at 1,1 Un		—
	- measured mounting surface temperature (°C) at 1,1 Un		N/A
	- calculated mounting surface temperature (°C)		N/A
	- track-mounted luminaires		N/A
1.12 (12.6.2)	Temperature sensing control		N/A
	- case of abnormal conditions.....		—
	- thermal link		N/A
	- manual reset cut-out		N/A
	- auto reset cut-out		N/A
	- measured mounting surface temperature (°C)		N/A
	- track-mounted luminaires		N/A
1.12 (12.7)	Thermal test (failed lamp control gear in plastic luminaires):		N/A
1.12 (12.7.1)	Luminaire without temperature sensing control		N/A
1.12 (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

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Clause	Requirement + Test	Result - Remark	Verdict
	- 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
1.12 (12.7.1.2)	Luminaire with discharge lamp, fluorescent lamp > 70W, transformer > 10 VA		N/A
	- case of abnormal conditions.....:		—
	- measured winding temperature (°C): at 1,1 Un.....:		—
	- measured temperature of fixing point/exposed part (°C): at 1,1 Un.....:		—
	- calculated temperature of fixing point/exposed part (°C).....:		—
	Ball-pressure test.....:	See Test Table 1.15 (13.2.1)	N/A
1.12 (12.7.1.3)	Luminaire with short circuit proof transformers ≤ 10 VA		N/A
	- case of abnormal conditions.....:		—
	- Components retained in place after the test		N/A
	- Test with standard test finger after the test		N/A
1.12 (12.7.2)	Luminaire with temperature sensing control		N/A
	- thermal link.....:	Yes ☐ No ☐	—
	- manual reset cut-out.....:	Yes ☐ No ☐	—
	- auto reset cut-out.....:	Yes ☐ No ☐	—
	- case of abnormal conditions.....:		—
	- highest measured temperature of fixing point/ exposed part (°C):.....:		—
	Ball-pressure test.....:	See Test Table 1.15 (13.2.1)	N/A

1.13 (9)	RESISTANCE TO DUST AND MOISTURE		P
1.13 (-)	If IP > IP 20 the order of tests as specified in clause 1.12		P
1.13 (9.2)	Tests for ingress of dust, solid objects and moisture:		P
	- classification according to IP.....:	IP20	—
	- mounting position during test.....:	As in normal operation	—
	- fixing screws tightened; torque (Nm).....:	--	—
	- tests according to clauses.....:	9.2.0	—
	- electric strength test afterwards		P

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Clause	Requirement + Test	Result - Remark	Verdict
	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 or pressure watertight 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		P
1.13 (9.3)	Humidity test 48 h	25°C, 93%RH	P

1.14 (10)	INSULATION RESISTANCE AND ELECTRIC STRENGTH		P
1.14 (10.2.1)	Insulation resistance test		P
	Cable or cord covered by metal foil or replaced by a metal rod of mm Ø		—
	Insulation resistance (MΩ)..... :		—
	SELV		P
	- between current-carrying parts of different polarity:		N/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		P
	- between live parts of different polarity..... :	>100MΩ	P
	- between live parts and mounting surface..... :	>100MΩ	P
	- between live parts and metal parts..... :	>100MΩ	P
	- Live parts (L/N) to lamp cover & plastic enclosure		N/A
	- between live parts of different polarity through action of a switch..... :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts..... :		N/A
	- Insulation bushings as described in Section 5 :		N/A
1.14 (10.2.2)	Electric strength test		P
	Dummy lamp		N/A
	Luminaires with ignitors after 24 h test		N/A
	Luminaires with manual ignitors		N/A
	Test voltage (V)..... :	240	P
	SELV		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		P
	- between live parts of different polarity..... :	1480V	P
	- between live parts and mounting surface..... :	1480V	P
	- between live parts and metal parts..... :	1480V	P
	- Live parts (L/N) to lamp cover & plastic enclosure		N/A
	- 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
1.14 (10.3)	Touch current or protective conductor current (mA):	Protective conductor current: 0.273mA(limit:3.5mA)	P

1.15 (13)	RESISTANCE TO HEAT, FIRE AND TRACKING		P
1.15 (13.2.1)	Ball-pressure test..... :	See Test Table 1.15 (13.2.1)	P
1.15 (13.3.1)	Needle-flame test (10 s)..... :	See Test Table 1.15 (13.3.1)	P
1.15 (13.3.2)	Glow-wire test (650°C)..... :	See Test Table 1.15 (13.3.2)	N/A
1.15 (13.4)	Proof tracking test (IEC 60112)..... :	See Test Table 1.15 (13.4)	N/A

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Clause	Requirement + Test	Result - Remark	Verdict

1.7 (11.2)	TABLE I: Creepage distances and clearances							P
	Minimum distances (mm) for a.c. up to 30 kHz sinusoidal voltages							P
	Applicable part of IEC 60598-1 Table 11.1.A*, 11.1.B* and 11.2*							P
	Insulation type **	Measured clearance	Required		Measured creepage	Required		
			clearance	*Table		creepage	*Table	
Distance 1:								
Working voltage (V)..... :					240VAC		—	
PTI..... :					< 600 ☒ ≥ 600 ☐		—	
Pulse voltage or U_P if applicable (kV) :					--		—	
Supplementary information:								
a. Approved SELV LED drivers are used								
No value was specified for working voltage below 60VDC as the electric strength test voltage of 500V is considered sufficient.								

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

1.7 (11.2)	TABLE II: Creepage distances and clearances						N/A
Minimum distances (mm) for a.c. higher than 30 kHz sinusoidal voltages							
Applicable part of IEC 61347-1 Table 7 and 8* or IEC 60664-4 Table 1 and 2							
Distances	Insulation type **	Measured clearance	Required		Measured creepage	Required	
			clearance	*Table		creepage	*Table
Distance 1:							
Working voltage (V)..... :							—
Frequency if applicable (kHz)..... :							—
PTI..... :					< 600 ☐ ≥ 600 ☐		—
Peak value of the working voltage $\hat{U}_{out}$ if applicable (kV) :							—
Supplementary information:							
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 ☐		—

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Clause	Requirement + Test	Result - Remark	Verdict
Peak value of the working voltage $\hat{U}_{out}$ if applicable (kV)			—
Supplementary information:			

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

1.15 (13.2.1)	TABLE: Ball Pressure Test of Thermoplastics			P
Allowed impression diameter (mm):		2		—
Object/ Part No./ Material	Manufacturer/ trademark	Test temperature (°C)	Impression diameter (mm)	
Fixed LED plastic	See Annex 1	125	0.8	
Supplementary information:				

1.15 (13.3.1)	TABLE: Needle-flame test (IEC 60695-11-5)				P
Object/ Part No./ Material	Manufacturer/ trademark	Duration of application of test flame (ta); (s)	Ignition of specified layer Yes/No	Duration of burning (tb) (s)	Verdict
Fixed LED plastic	See Annex 1	10	No	0	P
Supplementary information:					

1.15 (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:					

1.15 (13.4)	TABLE: Proof tracking test (IEC 60112)				N/A
Test voltage PTI		175 V			—
Object/ Part No./ Material	Manufacturer/ trademark	Withstand 50 drops without failure on three places or on three specimens			Verdict
Supplementary information:					

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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 conformity ¹⁾	
Track head	B	JBD LIGHTING HARDWARE ACCESSORIES LIMITED	JB-301	220-240V, 50/60Hz, 5A	IEC 60570, IEC 60598-1	TST2023056 0022-1SC	
LED driver input wire	B	Ningbo Qiaopu Electric Co Ltd	H03VVH2-F	250V, 7.5A, 2x0.75mm ²	AS/NZS 3191 AS 3191	NSW18298	
LED driver	B	Lifud technologies co.,Ltd	LF-GIF050YS1200H	Input: 220-240V~, 50/60Hz, 0.4A Output: CC 30-40VDC, 1.2A, Max. 55V Max. 48W ta/tc: 45/90°C SELV, ClassII, Independent	AS 61347.2.13 AS/NZS 61347.1	GMA-513616-EA	
LED driver	B	Lifud technologies co.,Ltd	LF-GIR009YS0135H	Input: 220-240V~, 50/60Hz, Max0.1A Output: CC 25-42VDC, 135mA, Max: 63V Max: 5.67W ta/tc: 50/75°C SELV, ClassII, Independent	AS 61347.2.13 AS/NZS 61347.1	GMA-501114-EA	
LED driver	B	Lifud technologies co.,Ltd	LF-GIR009YS0250H	Input: 220-240V~, 50/60Hz, Max0.1A Output: CC 25-36VDC, 250mA, Max: 80V Max: 9W ta/tc: 50/80°C SELV, ClassII, Independent	AS 61347.2.13 AS/NZS 61347.1	GMA-501114-EA	
LED driver	B	Lifud technologies co.,Ltd	LF-GIR013YS0350H	Input: 220-240V~, 50/60Hz, Max0.15A Output: CC 25-38VDC, 350mA, Max: 80V Max: 13.3W ta/tc: 50/85°C SELV, ClassII, Independent	AS 61347.2.13 AS/NZS 61347.1	GMA-501114-EA	

IEC 60598-2-1						
Clause	Requirement + Test			Result - Remark		Verdict
LED driver	B	Lifud technologies co.,Ltd	LF-GIR024YS0550H	Input: 220-240V~, 50/60Hz, Max0.25A Output: CC 25-42VDC, 550mA, Max:63V Max:23.1W ta/tc: 50/90°C SELV, ClassII, Independent	AS 61347.2.13 AS/NZS 61347.1	GMA-514911-EA
LED driver	B	Lifud technologies co.,Ltd	LF-GIR024YS0600H	Input: 220-240V~, 50/60Hz, Max0.25A Output: CC 25-39VDC, 600mA, Max:63V Max:23.4W ta/tc: 50/90°C SELV, ClassII, Independent	AS 61347.2.13 AS/NZS 61347.1	GMA-514911-EA
LED driver	B	Lifud technologies co.,Ltd	LF-GIR030YS0700H	Input: 220-240V~, 50/60Hz, Max0.2A Output: CC 33-40VDC, 700mA, Max:55V Max:28W ta/tc: 45/90°C SELV, ClassII, Independent	AS 61347.2.13 AS/NZS 61347.1	GMA-514911-EA
LED driver	B	Lifud technologies co.,Ltd	LF-GIR040YS0800H	Input: 220-240V~, 50/60Hz, Max0.28A Output: CC 33-40VDC, 800mA, Max:55V Max:32W ta/tc: 45/90°C SELV, ClassII, Independent	AS 61347.2.13 AS/NZS 61347.1	GMA-514911-EA
LED driver	B	Lifud technologies co.,Ltd	LF-GIR040YS1000H	Input: 220-240V~, 50/60Hz, Max0.28A Output: CC 33-40VDC, 1000mA, Max:55V Max:40W ta/tc: 45/90°C SELV, ClassII, Independent	AS 61347.2.13 AS/NZS 61347.1	GMA-514911-EA
LED driver	B	Lifud technologies co.,Ltd	LF-GIR040YS1050H	Input: 220-240V~, 50/60Hz, Max0.28A Output: CC 33-40VDC, 1050mA, Max:55V mAX:42W ta/tc: 45/90°C SELV, ClassII, Independent	AS 61347.2.13 AS/NZS 61347.1	GMA-514911-EA

IEC 60598-2-1						
Clause	Requirement + Test			Result - Remark		Verdict
LED driver output wire	B	Dongguan Nistar Transmitting Technology Co. Inc.	3289	300/500V, 180°C, 1*0.3mm ²	DIN 57250	VDE 131366
Earth wire		Dongguan Nistar Transmitting Technology Co. Inc.	YY-101	0.5mm ²	VDE 0250	VDE 40022722
LED	B	Shenzhen GOYM OPTOELECTRONICS TECHNOLOGY CO.,Ltd	2520	IF=12000mA VF=32-34.8V CCT=3000K	IEC TR 62778	Tested with appliance
LED board	B	Goldenmax International Technology (Hangzhou) Ltd	DL-C3	V-0, 130°C, Metal	--	UL E134893
Fixed LED plastic	B	Guangzhou Etendue Optical Design co.,Ltd	--	PC	IEC 60598-2-1 IEC 60598-1	Tested with appliance
Reflection cup	B	Guangzhou Etendue Optical Design co.,Ltd	--	PMMA	IEC 60598-2-1 IEC 60598-1	Tested with appliance
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						

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

ANNEX 2	TABLE: Thermal tests of Section 12		P
	Type reference.....:	FT-TLXX-50W	—
	Lamp used.....:	LED	—
	Lamp control gear used.....:	LF-GIR050YS1200H	—
	Mounting position of luminaire.....:	See product manual	—
	Supply wattage (W).....:	47.3W	—
	Supply current (A).....:	0.196A	—
	Temperatures in test 1 - 4 below are corrected for t_a (°C)	25°C	—
	- abnormal operating mode.....:	--	—
1.12 (12.4)	- test 1: rated voltage	--	—
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current	1.06 times rated voltage	—
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage.....:	--	—
	Through wiring or looping-in wiring loaded by a current of A during the test	--	—
1.12 (12.5)	- test 4: 1,1 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current.....:	1.1 times rated voltage	—

Temperature measurements (°C)

Part	Ambient	Cl. 12.4 – normal				Cl. 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
Input wire of LED driver	25.0	--	55.1	--	90	--	--
T _c of LED driver	25.0	--	59.3	--	90	--	--
Output wire of LED driver	25.0	--	41.4	--	180	--	--
Lead wire of LED PCB	25.0	--	73.5	--	180	--	--
LED PCB	25.0	--	85.9	--	130	--	--
Glass cover	25.0	--	51.8	--	Ref.	--	--
Mounting surface	25.0	--	38.2	--	90	--	--
Illuminated surface (0.1m)	25.0	--	44.5	--	90	--	--
Tracking adaptor	25.0	--	35.1	--	90	--	--

Supplementary information: Short circuit output of LED driver, LED driver shut down immediately, the temperature was less than temperature under normal operation, so no temperature was recorded.

IEC 60598-2-1			
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)..... :	M	N/A
	External wiring		N/A
	No soft metal		N/A
(14.4.5)	Corrosion		N/A
(14.4.6)	Nominal diameter of thread (mm)..... :		N/A
	Torque (Nm)..... :		N/A
(14.4.7)	Between metal surfaces		N/A
	Lug terminal		N/A
	Mantle terminal		N/A
	Pull test; pull (N)..... :		N/A
(14.4.8)	Without undue damage		N/A

IEC 60598-2-1			
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
15.6.2	Mechanical tests		N/A
(15.6.2.1)	Pull test spring-type terminals or welded connections (4 samples); pull (N)		N/A

IEC 60598-2-1											
Clause	Requirement + Test					Result - Remark				Verdict	
(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)										N/A	
	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)										N/A	
	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	
	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)										N/A	
	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	
										N/A	
Supplementary information:											

Attachment 1 AS/NZS 60598.1 and AS/NZS 60598.2.1			
Clause	Requirement + Test	Result - Remark	Verdict
Australia National differences (AS/NZS 60598.1:2017+A1:2017+A2:2020, AS/NZS 60598.2.1:2014+A1:2016+A2:2019)			
VARIATIONS to IEC 60598-1:2014			
(0)	GENERAL INTRODUCTION		P
0.1	Add: Where the term “lamp” is used in this Standard, it is taken to include electric light sources. LED light sources are subject to the same test parameters as “other discharge lamps”.		P
0.4.2	Add: In Australia, for equipment, other than class III equipment, that is intended for connection to the supply mains and not marked with: — a rated voltage of at least 240 V for single-phase equipment or a rated voltage of at least 415 V for three-phase equipment; or — a rated voltage range that includes 240 V for single-phase equipment and 415 V for three-phase equipment, the rated voltage is equal to 240 V for single-phase equipment and 415 V for three-phase equipment, and the upper limit of the voltage range is equal to 240 V for single-phase equipment and 415 V for three-phase equipment.	220-240 VAC	P
0.5	Add: Relevant Australian/New Zealand Standard replaces the IEC Standard unless otherwise specified.		P
0.5.101	Add: Capacitors Capacitors shall be of a type to ensure that any capacitor failure results in a failsafe outcome (i.e. the capacitor type will fail in the open-circuit mode only and is protected against fire or shock hazard). --Capacitors likely to be permanently subjected to the supply voltage, used for radio interference suppression or for voltage dividing shall comply with IEC 60384-14. --other Capacitors shall be not less than type B capacitors with metal body and break action protection in accordance with IEC 61048 and IEC 61049. A Capacitor complying with EIA-456-A, metallized film dielectric Capacitors for alternating current applications, shall comply with IEC 61049 and IEC 61048: 2006 excluding the endurance test of 18.1.1. Note Capacitors of class S2 (formerly referred to as P2) of IEC 60252 (all parts) do not meet the safety requirements of a type B Capacitors. In addition, Capacitors shall have a minimum voltage rating of 250V at a temperature rating of 100°C or 280V at a temperature rating of 85°C.		N/A

Attachment 1
AS/NZS 60598.1 and AS/NZS 60598.2.1

Clause	Requirement + Test	Result - Remark	Verdict
0.5.102	Add: Control gear --Power supplies shall comply with the relevant part 2 of the AS/NZS 61558 series. --Control gear shall comply with the relevant part 2 of the AS/NZS 61347 series. --Battery chargers used for lighting other than emergency lighting shall comply with the relevant part 2 of the AS/NZS 60335.2.29. Sensor switches and similar control circuits, including those incorporated in other equipment, are considered electronic switches (see clause 4.8).		N/A
0.5.2A	Deleted		--
1.2.101	After clause 1.2.91, add the following definition:		N/A
1.2.101	installation coupler connecting device consisting of an installation female connector and an installation male connector provided with retaining means for permanent connection not intended to be engaged or disengaged under load nor to be engaged or disengaged other than during first installation, during maintenance of the wiring system or during re-configuration of the wiring system		N/A
1.2.103	installation male connector load side portion of an installation coupler which contains the male contacts		N/A
1.2.104	installation female connector supply side portion of an installation coupler which contains the female contacts		N/A
1.2.105	installation coupler system family of installation couplers consisting of one or more installation female connectors compatible by mechanical coding features with one or more installation male connectors, with the same ratings produced according to the specification of one manufacturer		N/A
(2)	CLASSIFICATION OF LUMINAIRES		P
(2.2)	At the end of Clause , insert the following paragraph: Class 0 luminaires are not allowed in Australia or New Zealand.	Class I	P
(3)	MARKING		P
3.1	After the first paragraph, insert the following text: In Australia and New Zealand, instructions and other texts required by this standard shall at least be written in English. Compliance is checked by inspection		P
3.2	Delete the second paragraph beginning with ' Marking may be on ballast provided...'		N/A
Table 3.1	1. second column , second row, delete Item 3.2.21 2. Third column, second row, add the following new item: 3.2.21 The relevant symbol for luminaires not suitable for covering with thermally insulating material		N/A

Attachment 1
AS/NZS 60598.1 and AS/NZS 60598.2.1

Clause	Requirement + Test	Result - Remark	Verdict
3.2.3	Deleted the text ‘, if other than 25°C ‘.		P
3.2.12	At the end of the clause, insert the following text: In Australia, luminaires for household use and similar with supply cords which are not fitted with a plug shall be marked with a cord tag with the symbol for “must be installed by a licensed electrician”.(Refer to Figure ZZ1).  FIGURE ZZ1 MUST BE INSTALLED BY A LICENSED ELECTRICIAN		N/A
3.3.19	Delete the text and replace with the following Note: NOTE In Australia and New Zealand, there is no allowance for a protective conductor current greater than 10 mA.		P
3.2.23	The additional information shall include the symbol “Do not stare at the operating light source “(see figure 1) along with an explanation of the symbol. 		N/A
3.3	Deleted		--
3.3.7	Replace by: Luminaires for use with metal halide lamps shall be provided with instructions that state the substance of the following: To avoid potential unsafe lamp failure, the luminaire shall be switched off for at least 30 minutes at least once a week. In addition, the luminaire shall be operated: — complete with its protective shield; or — with a double jacketed lamp.		N/A
(3.3.10)	Delete Clause 3.3.10.		--
3.3.18	Deleted the text ‘, i.e. for indoor use only ‘.		N/A
3.3.21	Delete the text ‘Caution, risk of electric shock’ and the symbol.		N/A
(3.3.21)	After clause 3.3.22, add new clauses 3.3.101 and 3.3.102 as follow:		N/A
3.3.101	The instructions shall contain details of components in the luminaire that require replacement as part of a maintenance program.		N/A

Attachment 1
AS/NZS 60598.1 and AS/NZS 60598.2.1

Clause	Requirement + Test	Result - Remark	Verdict
3.3.102	The instructions for luminaires, including for remotes or other accessories containing coin/button cell batteries and batteries designated R1, shall include the safety warnings below.		N/A
	Equipment containing one or more coin/button cell/R1 batteries shall have the safety warnings in the instructions accompanying the equipment.		N/A
	The safety warnings shall be as follows: – CAUTION: Do not ingest battery—Chemical burn hazard [or equivalent wording]. – [The remote control supplied with] this product contains a coin/button cell battery. If the coin/button cell battery is swallowed, it can cause severe internal burns in just 2 hours and can lead to death. – Keep new and used batteries away from children. – If the battery compartment does not close securely, stop using the product and keep it away from children. – If you think batteries might have been swallowed or placed inside any part of the body, seek immediate medical attention.		N/A
	NOTE 1 Coin/button cell batteries are small, single cell devices having a diameter greater than their height. NOTE 2 Battery designations are specified in IEC 60086-2.		N/A
3.3.103	Add: Luminaires intended to be fixed to the wall and are supplied with a plug and a cord shall be supplied with a cord tag with the substance of the following wording: WARNING: THE FLEXIBLE WIRING CONNECTED TO THIS LUMINAIRE SHALL BE EFFECTIVELY FIXED TO THE WALL. NOTE The warning is intended to prevent strangulation and shock hazard to children		N/A

(4)	CONSTRUCTION		P
4.7.2	First paragraph replaced by: Terminals shall be located or shielded in such a way that, if a wire of a stranded conductor escapes from a terminal when the conductors are fitted, there is no risk of contact between live parts and metal parts that can be touched with the standard test finger, nor shall it be possible to touch a live free wire with the standard test finger when the luminaire is fully assembled for use or open for the replacement of replaceable light sources or starters		P
(4.8)	Add the following paragraph after the third paragraph: Switches that indicate an off position shall have contacts with an air break and comply with AS/NZS 3133 or AS/NZS 61058.1.		N/A
	Fourth paragraph delete the text ' IEC 61058-1' replaced by: AS/NZS 60669.2.1 or IEC 61058-1 classified for 10,000 operating cycles.		N/A

Attachment 1
AS/NZS 60598.1 and AS/NZS 60598.2.1

Clause	Requirement + Test	Result - Remark	Verdict
4.10.4	First paragraph delete the last sentence and replaced by: If the working voltage does not exceed the rated voltage of the capacitor, accessible conductive parts separated from live parts by double or reinforced insulation, as above, may be bridged by a single Y1 capacitor with qualification approval as specified in IEC 60384-14.		N/A
4.14.6	Insert: A fixed socket-outlet complying with AS/NZS 3112 or AS/NZS 60884.1 is used for the following test.		N/A
4.32	Delete the text of the variation to Clause 4.32 and replace with the following:		N/A
4.32.1	To limit the effects of lightning surges and other transient overvoltages, overvoltage protective devices may be used in luminaires and they can be either Surge protective devices (SPDs) or surge protective components (SPCs). NOTE: Examples of SPCs are varistors (MOVs) and gas discharge tubes (GDTs). SPCs may be integrated with thermal protection devices, such as thermal fuses or PTCs, in the same package. SPDs will utilize SPCs and are a complete assembly.		N/A
4.32.2	SPDs shall comply with IEC 61643-11. SPDs that are external to controlgear and connected to earth shall be used only in fixed luminaires and shall be connected only to a protective earth.		--
4.32.3	SPCs that are external to controlgear shall comply with the requirements of AS/NZS 3100 for varistors.		--
4.101	Add: battery		N/A
4.101.1	Small batteries		N/A
	In Clause 4.101.1, delete first three paragraphs and replace with the following text: Button cells and batteries designated R1 shall not be removable without the aid of a tool unless the cover of their compartment can only be opened after at least two independent movements have been applied simultaneously. Refer to AS/NZS 60335.1 :2011 Clause 22.54. NOTE: Batteries are specified in IEC 60086-2		N/A

Attachment 1
AS/NZS 60598.1 and AS/NZS 60598.2.1

Clause	Requirement + Test	Result - Remark	Verdict
	A force is applied without jerks for 10s in most unfavourable direction to parts likely to be weak. The force is as follows: --push force, 50N -- pull force, 30N --if the shape of the part is such that the fingertips cannot easily slip off, 50N -- if the projection of the part that is gripped is less than 10mm in the direction of removal, 30N The push force is applied by test probe 11 of IEC 61032. The pull force is applied by a suitable means, such as a suction cup, so that the test results are not affected. While the force is being applied, the test fingernail of figure 7 of AS/NZS 60335.1 is inserted in any aperture or joint with a force of 10N. The test fingernail is then slid sideways with a force of 10N but is not twisted or used as a lever.		N/A
	If the shape of the part is such that an axial pull is unlikely, the pull force is not applied but the test fingernail is inserted in any aperture or joint with a force of 10N and is then pulled for 10s by means of the loop with a force of 30N in the direction of removal.		N/A
	If the part is likely to be twisted, the following torque is applied at the same time as the pull or push force : --2Nm, for major dimensions up to 50mm --4Nm, for major dimensions over 50mm This torque is also applied when the test fingernail is pulled by means of the loop. If the projection of the part that is gripped is less than 10mm, the torque is reduced by 50%.		N/A
4.101.2	Battery compartment fasteners		N/A
	If screws or similar fasteners are used to secure a door or cover providing access to the battery compartment, the screw or similar fastener shall be captive to ensure that it remains with the door, cover or equipment. A force of 20N is applied to the screw or similar fastener without jerks for a duration of 10s in any direction.		N/A

(7)	PROVISION FOR EARTHING		P
(7.2.11)	Delete the third paragraph and replace with the following: All conductors, whether internal or external, coloured green, yellow or green/yellow combination, shall only be connected to an earthing terminal.		P

Attachment 1
AS/NZS 60598.1 and AS/NZS 60598.2.1

Clause	Requirement + Test	Result - Remark	Verdict
(5)	EXTERNAL AND INTERNAL WIRING		P
(5.2.1)	Delete the first paragraph and replace with the following: Luminaires shall be provided with only one of the following means of connection and isolation to the supply. Fixed luminaires: -- device for the connection of luminaires; -- terminals; plug for engagement with socket-outlets; -- connecting lead (tails); -- supply cord and plug; -- adapter for engagement with supply tracks; -- appliance inlet; -- installation coupler; -- luminaire coupler; Portable luminaires: -- supply cord with plug; -- appliance inlet. Track-mounted luminaires: -- adaptor; -- connector.	Track connector	P
	Delete the second and third paragraph.		--
	Add the following text after Note 3: In Australia, non-portable luminaires with a supply cord shall be fitted with a plug complying with AS/NZS 3112 or a coupler complying with its standard, except where the luminaire has markings and instructions that comply with Clause 3.2.12, in which case, a plug or coupler is not required. However, for other than portable luminaires a plug is not required if the luminaire has markings and instructions in accordance with Clause 3.2.12. The plug portion of a luminaire with integral pins shall comply with the relevant requirements of AS/NZS 3112. NOTE PVC-insulated connection cords should not be used with outdoor luminaires in cold alpine locations.		N/A
(5.2.2)	Delete the first paragraph and replace with the following: Supply cords used as a means of connection to the supply, when supplied by the luminaire manufacturer, shall be at least equal in their mechanical and electrical properties to those specified in IEC 60227 and IEC 60245, as indicated in Table 5.1, or AS/NZS 3191, and shall be capable of withstanding, without deterioration, the highest temperature to which they may be exposed under normal conditions of use.		N/A

Attachment 1
AS/NZS 60598.1 and AS/NZS 60598.2.1

Clause	Requirement + Test	Result - Remark	Verdict																												
	Delete the table 5.1 and replace with the following: Table 5.1 — Supply cord <table border="1"> <thead> <tr> <th>Luminaire</th><th>Rubber</th><th>PVC</th><th>No insulation</th></tr> </thead> <tbody> <tr> <td>Ordinary class I luminaires</td><td>60245 IEC 51S ^a</td><td>60227 IEC 52 ^a</td><td></td></tr> <tr> <td>Ordinary class II luminaires</td><td>60245 IEC 53 ^a</td><td>60227 IEC 52 ^a</td><td></td></tr> <tr> <td>Luminaires which are other than ordinary class I and II</td><td>60245 IEC 57 ^a</td><td>60227 IEC 53 ^{a,b}</td><td></td></tr> <tr> <td>Portable rough service luminaires</td><td>60245 IEC 66 ^a</td><td>PVC insulated and sheathed heavy duty flexible cord</td><td></td></tr> <tr> <td>Class III or with SELV circuits luminaires (up to 25 V a.c./60 V d.c.)</td><td></td><td></td><td>Uninsulated conductor ^a</td></tr> <tr> <td>Class III or with SELV circuits luminaires (above 25 V a.c./60 V d.c.), including 50 V a.c./120 V d.c.</td><td></td><td>Unsheathed basic insulated conductor</td><td></td></tr> </tbody> </table> ^a For indoor use only. ^b AS/NZS 3000 may restrict the use of uninsulated conductors in certain special installations. ^c For supply voltages greater than 250 V, higher voltage grade cables and cords than those given in the above table may be necessary.	Luminaire	Rubber	PVC	No insulation	Ordinary class I luminaires	60245 IEC 51S ^a	60227 IEC 52 ^a		Ordinary class II luminaires	60245 IEC 53 ^a	60227 IEC 52 ^a		Luminaires which are other than ordinary class I and II	60245 IEC 57 ^a	60227 IEC 53 ^{a,b}		Portable rough service luminaires	60245 IEC 66 ^a	PVC insulated and sheathed heavy duty flexible cord		Class III or with SELV circuits luminaires (up to 25 V a.c./60 V d.c.)			Uninsulated conductor ^a	Class III or with SELV circuits luminaires (above 25 V a.c./60 V d.c.), including 50 V a.c./120 V d.c.		Unsheathed basic insulated conductor			N/A
Luminaire	Rubber	PVC	No insulation																												
Ordinary class I luminaires	60245 IEC 51S ^a	60227 IEC 52 ^a																													
Ordinary class II luminaires	60245 IEC 53 ^a	60227 IEC 52 ^a																													
Luminaires which are other than ordinary class I and II	60245 IEC 57 ^a	60227 IEC 53 ^{a,b}																													
Portable rough service luminaires	60245 IEC 66 ^a	PVC insulated and sheathed heavy duty flexible cord																													
Class III or with SELV circuits luminaires (up to 25 V a.c./60 V d.c.)			Uninsulated conductor ^a																												
Class III or with SELV circuits luminaires (above 25 V a.c./60 V d.c.), including 50 V a.c./120 V d.c.		Unsheathed basic insulated conductor																													
	Delete the fourth paragraph and replace with the following: To provide adequate mechanical strength, the nominal cross-sectional area of the conductors shall be not less than: -- 0,75 mm²; -- 1,0 mm² for portable rough service luminaires.		N/A																												
(5.2.16)	Add the following text at the end of Clause 5.2.16: Class II luminaires for fixed wiring incorporating an appliance coupler shall not have means to allow further luminaires to be connected, including looping in by cascading. Luminaire couplers incorporated with the luminaire shall comply with IEC 61995-1.		N/A																												
(5.2.18)	Delete Clause 5.2.18 and replace with the following: 5.2.18 All portable luminaires with a flexible supply cord shall be fitted with a plug complying with AS/NZS 3112. Other luminaires with flexible cords shall be fitted with a plug complying with AS/NZS 3112, unless they have the warning allowed by Clause 3.2.12.		N/A																												
(5.3.1)	Delete the third paragraph and replace with the following: Internal wires coloured green, yellow or green/yellow combination shall be used for making protective earth connections only. Functional earth connections shall not be made by wires coloured green, yellow or green/yellow combination.		P																												
	Add the following new Note: NOTE 3 Internal wires of other colours are not precluded from making protective earthing connections.		P																												

Attachment 1
AS/NZS 60598.1 and AS/NZS 60598.2.1

Clause	Requirement + Test	Result - Remark	Verdict
5.3.1.3	Delete clause and replace with the following: In class II luminaires where the internal wiring has a live conductor and the wiring insulation may touch accessible metal parts under normal operating conditions, the insulation, at least at the places of contact, shall comply with the requirements for double or reinforced insulation, e.g. by applying sheathed cables or sleeves.		N/A

(8)	PROTECTION AGAINST ELECTRIC SHOCK		P
(8.2.1)	Delete the first paragraph and Note 1 and replace with the following: Luminaires shall be so constructed that their live parts and basic insulation are not accessible when the luminaire has been installed and wired as in normal use. Live parts shall not be accessible when the luminaire is opened as necessary for replacing lamps, replaceable light sources or (replaceable) starters, even if the operation cannot be achieved by hand. NOTE Examples of parts with basic insulation are cables intended for internal wiring, controlgear for building-in etc. This does not apply to the non-current -carrying parts of caps which comply with the relevant IEC safety standard. Where a protective cover is used over a non-user-replaceable light source to provide protection against electric shock, and the cover is marked with the "caution, electric shock risk" symbol in accordance with IEC 60417-6042, the cover shall be left in place during the tests and inspections detailed by Section 8 of this Standard. The cover shall be held securely in position by fixings requiring the use of a tool for their removal, and at least two independent fixings shall be used. Delete the ninth paragraph beginning with 'Covers in fixed luminaires that cannot be removed . . . ' and replace with 'Covers that can be removed by hand shall be removed.'		P
9.2	After note 1, insert the following text: Note101: A designation of IPX7 or IPX8 is considered unsuitable for exposure to water jets (designed by IPX5 or IPX6) and may not comply with requirements for second numeral 5 or 6 unless it is dual coded.		P
(10)	INSULATION RESISTANCE AND ELECTRIC STRENGTH, TOUCH CURRENT AND PROTECTIVE CONDUCTOR CURRENT		P

Attachment 1
AS/NZS 60598.1 and AS/NZS 60598.2.1

Clause	Requirement + Test	Result - Remark	Verdict
(10.2)	Add: Delete the fourth paragraph and replace with the following: During these tests, the following components shall be disconnected, so that the test voltages are applied to the insulation of the components, but not to the capacitive, or inductive or other functional elements of these components, as appropriate: (a) Shunt-connected capacitors. (b) Capacitors between live parts and the body. (c) Protective impedance device. (d) Chokes or transformers connected between live parts. (e) Overvoltage protective devices in accordance with 4.32 of this Standard. (f) Controlgear that conforms with the relevant requirements of IEC 61347 series. Delete the seventh paragraph which reads: For fixed Class 1 luminaires, overvoltage protective devices that comply with IEC 61643-11 shall be disconnected from the circuit.		N/A
10.3	Delete the second row beginning with 'Class I luminaires rated up to and including 16 A...'. First column, third row, deletes the word 'Metal'.		P

(12)	ENDURANCE TEST AND THERMAL TEST		N/A
(Table 12.1)	Add the following new Note after Table 12.1: NOTE Luminaire manufacturers should consider the maximum ambient air temperature in the vicinity of components such as starting devices and electronic ballasts or converters. Component performance specifications advise manufacturers to mark or supply life data as maximum ambient air temperature based on 50,000 hrs. This t-life is often marked as t_a and is the temperature of the air in the vicinity of the component and is not related to the luminaire t_a. As such, luminaire manufacturers should measure air temperature in the vicinity of such components, within the luminaire, as even those complying with their t_c point measurements can still fail prematurely if t-life is exceeded.		N/A

(13)	RESISTANCE TO HEAT, FIRE AND TRACKING		P
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Attachment 1
AS/NZS 60598.1 and AS/NZS 60598.2.1

Clause	Requirement + Test	Result - Remark	Verdict
(13.3)	Delete Clause 13.3 and replace with the following: 13.3 Resistance to flame and ignition Parts of non-metallic material shall be resistant to flame and ignition. For materials other than ceramic, compliance is checked by the tests of 13.3.1 and 13.3.2, 13.3.3, as appropriate. This requirement does not apply to decorative trims, knobs, wiring insulation and other parts not likely to be ignited or to propagate flames from inside the luminaire. This Clause applies to all parts, including components, even if they have been tested to their own standard.		P
13.3.1	Parts of non-metallic material supporting connections shall withstand the following test: Parts are subject to a test using a nickel chromium glow-wire. The test apparatus and test procedure shall be those described in AS/NZS 60695.2.10. The glow wire is heated to 750°C and applied to the test sample for 30 s. For all tests, any flame or glowing of the sample shall extinguish within 30 s of withdrawing the glow-wire, and any burning or molten drop shall not ignite a single layer of tissue paper specified in 4.187 of ISO 4046-4: 2002, spread out horizontally 200 mm ± 5 mm below the sample.	Track head, Fixed LED plastic, PCB of LED driver, Bobbin of LED driver, X-cap of LED driver, Terminal of LED driver :750°C, no burning	P
13.3.2	All other parts of non-metallic material which do not support connections that could become an ignition source, but provide protection against electric shock or maintain creepage and clearances, shall withstand the glow wire test. The test apparatus, test procedure and criteria shall be those specified in AS/NZS 60695.2.11. The glow wire is heated to 650 °C and applied to the test sample for 30 s.	Reflection cup: 650°C, no burning	P

Attachment 1
AS/NZS 60598.1 and AS/NZS 60598.2.1

Clause	Requirement + Test	Result - Remark	Verdict
13.3.3	During the application of the 750°C glow wire test of Clause 13.3.1, if a flame is produced that persists for longer than 2 s, the luminaire is further tested as follows: The needle-flame test of AS/NZS 60695.11.5 is applied to non-metallic parts that encroach within the envelope of a vertical cylinder having a diameter of 20 mm and a height of 50 mm above the point of application of the glow wire. The needle flame is applied to the test sample for 30s. Parts shielded by a barrier that meets the needle-flame test of AS/NZS 60695.11.5 are not tested. NOTE This requires the needle flame to be applied to all parts likely to be impinged upon by the glow-wire flame within the hypothetical envelope of a vertical cylinder positioned above the point of application of the glow-wire. This applies to all parts unless there is a barrier that passes the needle-flame test and is within the cylinder and would protect the part from the glow-wire flame. The duration of burning shall not exceed 30 s after removal of the test flame and any burning drop shall not ignite the underlying parts or tissue paper specified in 4.187 of ISO 4046-4: 2002, spread out horizontally 200 mm ± 5 mm below the sample. The needle-flame test is not carried out on parts that are made of material classified as V-0 or V-1 according to AS/NZS 60695.11.10. The sample of material classified in accordance with AS/NZS 60695.11.10 shall be no thicker than the relevant part.		N/A

Attachment 1 AS/NZS 60598.1 and AS/NZS 60598.2.1			
Clause	Requirement + Test	Result - Remark	Verdict
VARIATIONS to IEC 60598-2-1: 1979+A1:1987 AS/NZS 60598.2.1:2014+A1:2016+A2:2019			
ZZ2	Variations		N/A
	Addition: AS/NZS 60598.2.1:2014 Amendment 1 incorporates requirements for double-capped LED lamps and include essential safety requirements for T8 to T5 lamp converters The objective of this revision is to include essential safety requirements for double-capped LED lamps Variations for double-capped LED lamps are provided in Appendix A. Variations for T8 to T5 lamp converters are provided in Appendix B.		N/A
(0.1)	SCOPE AND OBJECT		P
1	Scope This Standard specifies requirements for fixed general purpose luminaires incorporating electric light sources for operation on supply voltages less than 1000V AC RMS or 1500V ripple-free DC (high voltage). It is to be read in conjunction with those sections of AS/NZS 60598.1 to which reference is made. This Standard also specifies requirements for double-capped LED lamps (Appendix A) and T8 to T5 lamp converters (Appendix B). Appendix A is to be read in conjunction with those sections of AS/NZS 60598.1 to which reference is made. Appendix B is to be read in conjunction with those sections of AS/NZS 60598.1 and AS/NZS 61347.2.3 or AS/NZS 61347.1 to which reference is made		P
6 (3)	The provisions of Section 3 of AS/NZS 60598.1 apply LED luminaires with G5 or G13 lampholders shall be marked with the following warning: WARNING: NOT FOR USE WITH ANY FLUORESCENT LAMP—FOR USE ONLY WITH TYPE A LED LAMPS The warning label shall be durable and the font size shall be a minimum of 5 mm for letters and numbers and 5 mm for symbols and shall be visible during lamp replacement		N/A
7(4)	Addition LED luminaires or new luminaires designed for T8 to T5 converters with G5 and G13 lampholders shall include a fuse to protect a fluorescent lamp that is inadvertently installed. Each fuse shall— (a) be of the 250 V HBC type; (b) have a 2 A max. quick-acting type rating; and (c) be used to protect a maximum of two lamps.		N/A
(9)	RESISTANCE TO DUST, SOLID OBJECTS AND MOISTURE		N/A

Attachment 1 AS/NZS 60598.1 and AS/NZS 60598.2.1			
Clause	Requirement + Test	Result - Remark	Verdict
14(9)	The provisions of Section 9 of AS/NZS 60598.1 apply. For luminaires with an IP classification greater than IP20 the order of the tests specified in Section 9 of AS/NZS 60598.1 shall be as specified in Clause 13 of this Standard		N/A
(12)	ENDURANCE TEST AND THERMAL TEST		P
13 (12)	ENDURANCE TESTS AND THERMAL TESTS The provisions of Section 12 of AS/NZS 60598.1 apply. Luminaires with an IP classification greater than IP20 shall be subjected to the relevant tests of Clauses 12.4, 12.5 and 12.6 of Section 12 of AS/NZS 60598.1 after the test(s) of Clause 9.2 but before the test(s) of Clause 9.3 of Section 9 of AS/NZS 60598.1 specified in Clause 14 of this Standard.		P
APPENDIX A	SAFETY REQUIREMENTS FOR DOUBLE-CAPPED LED LAMPS normative		N/A
A1.1	Scope This Appendix specifies the safety and interchangeability requirements of double-capped LED lamps. This includes requirements to show compliance of double-capped LED lamps with— (a) G5 or G13 lamp caps intended for replacing, in existing luminaires, fluorescent lamps with corresponding G5 or G13 caps; (b) other lamp cap types intended for replacing, in existing luminaires, incandescent, tungsten halogen or other lamp types with the corresponding lamp caps; and (c) any lamp cap type, intended for inserting in new luminaires for double-capped lamps in lieu of fluorescent, incandescent, tungsten halogen or other lamp types.		N/A
	This Appendix includes requirements for double capped lamps for retrofit or new luminaires. These lamps may have integral, built-in or independent control gear		N/A
A1.2	Application This Appendix is to be read in conjunction with AS/NZS 60598.1, with all provisions applying unless varied herein. Where the term 'luminaire' is used in AS/NZS 60598.1, it shall be replaced with the term 'lamp'. The tests described in each appropriate section of AS/NZS 60598.1 shall be carried out in the order listed in this Appendix		N/A

Attachment 1 AS/NZS 60598.1 and AS/NZS 60598.2.1			
Clause	Requirement + Test	Result - Remark	Verdict
A1.3	Testing In general, all tests are carried out on each type of lamp or, where a range of similar lamps is involved, for each power in the range or on a representative selection from the range.		N/A
A1.4	Specific requirements of this Appendix A lamp(s) shall be deemed to comply with this Appendix only if it complies with all the appropriate requirements of this Appendix and passes the relevant tests specified herein		N/A
A1.5	Requirements of relevant test specifications Equipment and components incorporated in a lamp that is safety dependant shall comply with the appropriate requirements of any relevant test specification, unless such requirements are varied herein		N/A
A1.6	LED lamp connection types This Appendix applies to all double-capped LED lamps. For double-capped LED lamps with G5 lamp cap and T5 lamp configuration, or G13 lamp caps and T8 lamp configuration, for use as replacement of fluorescent lamps, all Paragraphs of this Appendix apply. NOTE: Standard lamp caps (including G5 and G13) are shown in IEC 60061 and fluorescent lamps (including T5 and T8) are shown in IEC 60081. For double-capped LED lamps with other lamp cap types, or lamp configuration, or alternate supply connections other than the lamp cap, all Paragraphs of this Appendix apply, except for the following: (d) Paragraph A4.2. (e) Paragraphs A5.2(h), A5.2(i), A5.3 and A5.4. (f) Paragraph A6.1(b). (g) Paragraph A7.4. Paragraph A8.		N/A
A3	DEFINITION		N/A
A3.1	For the purposes of this Appendix, the following definition applies: Double-capped LED lamp Tubular LED light source which may be used as a replacement for another type of lamp. NOTE: Typical types of lamps that may be replaced include linear fluorescent lamps		N/A

Attachment 1 AS/NZS 60598.1 and AS/NZS 60598.2.1			
Clause	Requirement + Test	Result - Remark	Verdict
A4	CLASSIFICATION of LAMP(S)		N/A
A4.1	Class Lamps shall be classified in accordance with the provisions of Section 2 of AS/NZS 60598.1. Lamps shall be classified as class II or class III for protection against electric shock. A class III lamp shall have class II construction and comply with all of the requirements for protection against electric shock for a class II lamp at a nominal rating of 240 V a.c.		N/A
A.4.2	Type LED lamps shall be classified as Type A. Type A LED lamps shall be constructed such that one end of the lamp has the lamp cap pins electrically bridged and the other end of the lamp has the line and neutral supply connected to the pins of that lamp cap. NOTE: Lamps formerly referred to as Type B LED lamps, that were constructed such that one end of the lamp has the lamp cap pins electrically isolated from each other and the other end of the lamp has the line and neutral supply connected to the pins of that lamp cap, no longer conform with this Standard		N/A
A5	MARKING		N/A
A5.1	General The Test of Marking of Clause 3.4 of AS/NZS 60598.1 shall be used to determine the durability of the markings specified in A5.2 to A5.4.		N/A
A5.2	Marking on the lamp Lamps shall be clearly and durably marked with the following markings, the size of which shall be a minimum of 2 mm: (a) Mark of origin (this may take the form of a trademark, or be the manufacturer's name or the name of the responsible vendor). (b) Rated supply voltage or voltage range (marked 'V' or 'volts'). (c) Rated wattage (marked 'W' or 'watts'). (d) Rated frequency (marked in 'Hz'). (e) A value for allowable case temperature t_c and a marked point of measurement. (f) Model number. (g) IP rating if greater than IP20. (h) Markings to identify the line and neutral supply connections of the lampholder (i) The lamp type shall be marked with the text 'Type A', as per the appropriate subfigure of Figure A1, to indicate the lamp cap configuration.		N/A

Attachment 1 AS/NZS 60598.1 and AS/NZS 60598.2.1			
Clause	Requirement + Test	Result - Remark	Verdict
	For LED lamps that have lamp caps not on the ends of the lamp, and are only for use with a luminaire that has a means of automatic double pole disconnection operative when the lamp is replaced, the following warning shall be marked on the lamp body: WARNING: This lamp is only for use with a luminaire that has a means of automatic double-pole disconnection operative when the lamp is replaced. NOTE: An example of this type of connection would be a LED lamp with S14 lampholder Connections		N/A
A5.3	Warning label for the luminaire The following warning label shall be supplied with the lamp: WARNING: NOT FOR USE WITH ANY FLUORESCENT LAMP—FOR USE ONLY WITH TYPE A LED LAMPS The warning label shall be durable and the font size shall be a minimum of 5 mm for letters and numbers and 5 mm for symbols. The instructions for the warning label shall state that the installer, when installing the lamp, is to ensure that this label is placed in a prominent position on the luminaire and visible when the lamp is installed		N/A
A5.4	Marking of associated components If lamps need to be used with a component which replaces the starter, the component to replace the starter shall be marked as shown in Figure A2		N/A
A6	INSTRUCTIONS		N/A
A6.1	Information to be supplied with the lamp The following information shall be supplied with the lamp: (a) Special conditions or restrictions to be observed for lamp operation. For example, operation in dimming circuits' high frequency circuits. Where lamps are not suitable for dimming, the following symbol (Figure A3) may be Used. (b) <i>Wiring diagram for converter installation</i> Wiring diagrams for which the converter is suitable shall be provided (c) Information on the specification and compatibility of control gear with which the lamp can be used. (d) The ambient operating temperature range of the lamp if other than 10 to 30°C. (e) The type of lamp it replaces, including lamp length, lamp cap configuration and IP rating		N/A

Attachment 1 AS/NZS 60598.1 and AS/NZS 60598.2.1			
Clause	Requirement + Test	Result - Remark	Verdict
A6.2	Information to be supplied for emergency luminaires If lamps are not suitable for use in emergency luminaires, the instructions shall include the following statement: 'This lamp is not suitable for use in emergency luminaires designed for double-capped fluorescent lamp(s)'. Lamps suitable for use in emergency luminaires shall be marked to identify the specific luminaires that they are suitable for use in.		N/A
A6.3	Information about additional components If lamps need to be used with a component which replaces the starter, the instructions shall indicate the 'type reference' of the component to replace the starter.		N/A
A6.4	Warnings		N/A
	The instructions for lamps intended for use in an existing luminaire that requires modification other than replacement of the lamp or starter shall include the following warnings: WARNING: The manufacturer of the original luminaire will no longer be responsible for the compliance of the modified product. Any modifications made to the original luminaire may alter the safety aspects of the original luminaire; hence compliance assessments of the original luminaire may no longer be applicable to the modified luminaire. WARNING: The supplied warning sticker shall be placed on the luminaire and shall be visible during lamp replacement. WARNING: A fuse shall be used to protect a fluorescent lamp that is inadvertently installed against short circuits. Each fuse shall— (a) be of the 250 V HBC type; (b) have a 2 A max. quick-acting type rating; and (c) be used to protect a maximum of two lamps. NOTE: A quick-acting type fuse is defined in the IEC 60127 series as 'Type F'. The luminaire shall have a fuse replacement rating label. WARNING: The rating of the lamp shall not exceed the maximum wattage of the lamp that it is intended to replace or the total wattage of the replacement lamps shall not exceed the maximum wattage of the luminaire.		N/A

Attachment 1 AS/NZS 60598.1 and AS/NZS 60598.2.1			
Clause	Requirement + Test	Result - Remark	Verdict
	The instructions for lamps intended for use in a new luminaire shall include the following warnings: WARNING: The supplied warning sticker shall be placed on the luminaire and shall be visible during lamp replacement. WARNING: A fuse shall be used to protect a fluorescent lamp that is inadvertently installed against short circuits. Each fuse shall— (a) be of the 250 V HBC type; (b) have a 2 A max. quick-acting type rating; and (c) be used to protect a maximum of two lamps. The luminaire shall have a fuse replacement rating label. WARNING: The rating of the lamp shall not exceed the maximum wattage of the lamp that it is intended to replace or the total wattage of the replacement lamps shall not exceed the maximum wattage of the luminaire. NOTE: Manufacturers should specify minimum requirements for the operations of their lamps, including spacing, enclosure design and temperature limitations.		N/A
A6.5	Additional information Installation instructions shall be provided. The instructions shall give adequate guidance to safely perform the retrofit or modification. Graphical instructions, describing all necessary steps for the replacement of the fluorescent lamp with a lamp, such as replacement of the starter, may be used. The instruction manual shall be written in English and provided with the lamp. If the lamp requires additional mechanical support then instructions for fitting shall be supplied. For eye protection, the appropriate warnings and instructions as indicated in AS/NZS IEC 62471.2, as relevant to the risk type listed in that Standard, shall be placed on the packaging or in the instructions, or on the lamp itself if required by AS/NZS IEC 62471.2 (i.e. high risk group product requirements).		N/A
A7	CONSTRUCTION		N/A
A7.1	General Lamp Replacement Protection against electric shock Corrosion protection Internal Wiring		N/A

Attachment 1 AS/NZS 60598.1 and AS/NZS 60598.2.1			
Clause	Requirement + Test	Result - Remark	Verdict
A7.2	Components that replace the starter a component that replaces the starter, the component shall have an internal 250 V HBC 2 A max. quick-acting fuse. If required, supplied		N/A
A7.3	Emergency lamps Lamps suitable for use in emergency luminaires shall comply with the requirements of AS 2293.3 in that specific luminaire.		N/A
A7.4	Compatibility of electrical supply to the lamp Lamps shall be constructed such that one end of the lamp has the lamp cap pins electrically bridged (Type A) and the other end of the lamp has the line and neutral supply connected to the pins of that lamp cap.		N/A
A8	INTERCHANGEABILITY Interchangeability shall be ensured by the use of lamp caps in accordance with IEC 60061-1 and gauges in accordance with IEC 60061-3.		N/A
A9	MASS The entire mass of a lamp shall not exceed 500 g for a G13-capped lamp or 200 g for a lamp with another type of end cap.		N/A
A10	DIMENSIONS Lamps shall have the dimensions of the corresponding lamps they are replacing in accordance with the relevant data sheets.		N/A
A11	MECHANICAL REQUIREMENTS AND TESTS FOR CAPS		N/A
A11.1	Construction and assembly Caps shall be so constructed and assembled that they remain attached to the tubes during and after operation. Compliance shall be checked		N/A
A11.2	Torque test A torque test shall be applied to the lamp contact pins,		N/A
A11.3	Heat treatment and secure fixing test Lamp caps shall be securely fixed in position and the lamp cap fixing shall not be affected by heat.		N/A
A12	CREEPAGE DISTANCES AND CLEARANCES The provisions of Section 11 of AS/NZS 60598.1 apply.		N/A
A13	PROVISION FOR EARTHING The provisions of Section 7 of AS/NZS 60598.1 are not applicable.		N/A
A14	TERMINALS The provisions of Section 14 and 15 of AS/NZS 60598.1 apply to supply terminals only; they are not applicable to lamp caps.		N/A

Attachment 1 AS/NZS 60598.1 and AS/NZS 60598.2.1			
Clause	Requirement + Test	Result - Remark	Verdict
A15	EXTERNAL AND INTERNAL WIRING The provisions of Section 5 of AS/NZS 60598.1 apply.		N/A
A16	General The provisions of Section 8 of AS/NZS 60598.1 apply along with the following.		N/A
A16.2	Protection against electric shock The lamp shall be so constructed that, without any additional enclosure in the form of a luminaire, no internal metal parts, basic insulated external metal parts (other than caps), or live metal parts of the lamp cap or of the lamp itself are accessible when the lamp is installed in a lampholder in accordance with the relevant IEC lampholder data sheet.		N/A
A16.3	Discharge capacitors Lamps incorporating a capacitor of capacitance exceeding 0.1 μF shall be provided with an internal discharge device, so that 1 s after disconnection the voltage between the pins of the lamp does not exceed 34 V.		N/A
A16.4	Electrical continuity Lamp caps do not ensure the insertion of both ends of the lamp simultaneously; for this reason, there shall be no electrical continuity between the two ends of the lamp during the insertion.		N/A
A17	ENDURANCE TEST AND THERMAL TESTS		N/A
A17.1	General The provisions of Section 12 of AS/NZS 60598.1 apply, together with the requirements of Paragraphs A17.2 to A17.5.		N/A
A17.2	Endurance test The duration of the endurance test of Clause 12.3 of AS/NZS 60598.1 shall be 240 h		N/A
17.3	Thermal test (normal operation) During the thermal test of Clause 12.4 of AS/NZS 60598.1, no accessible surface of the lamp shall exceed 70°C for metallic surfaces or 85°C for non-metallic surfaces.		N/A
17.4	Thermal test compliance The surface temperature of inaccessible parts of the lamp cap shall not exceed 120°C.		N/A
17.5	Thermal test (abnormal operation) for class III lamps Class III lamps shall, in addition, be subject to the abnormal operation test of Clause 12.5 of AS/NZS 60598.1 for a 240 V a.c. rating. The lamp shall not become unsafe during this test.		N/A

Attachment 1 AS/NZS 60598.1 and AS/NZS 60598.2.1			
Clause	Requirement + Test	Result - Remark	Verdict
A18	POWER REQUIREMENT For LED lamps intended to replace fluorescent lamps, the measured power of the combined LED lamp and any associated circuitry shall not be greater than 0.75 times the rated power of the fluorescent lamp being replaced.		N/A
	For LED lamps intended to replace other types of lamps, the measured power of the combined LED lamp and any associated circuitry shall not be greater than 1.0 times the rated power of the lamp being replaced.		N/A
A19	RESISTANCE TO DUST, SOLID OBJECTS AND MOISTURE Where the lamp is marked with an IP rating in accordance with Paragraph A5.2(g), the tests of Section 9 of AS/NZS 60598.1 shall be conducted on the lamp at its marked rating.		N/A
A20	INSULATION RESISTANCE AND ELECTRIC STRENGTH The provisions of Section 10 of AS/NZS 60598.1 apply.		N/A
A21	RESISTANCE TO HEAT, FIRE AND TRACKING The provisions of Section 13 of AS/NZS 60598.1 apply.		N/A
	In addition, double or reinforced insulation material shall be subject to the following needle flame test		N/A
A22	PHOTOBIOLOGICAL HAZARD The lamp shall not exceed the photobiological hazard ratings for Risk Group 1 (low risk), in accordance with Clause 6.1.2 of AS/NZS IEC 62471:2011.		N/A
A23	FAULT CONDITIONS The fault condition requirements of AS/NZS 61347.1 apply, including the following. For single-phase supply mains operated LED lamps, the tests are conducted at— (a) 264 V; and (b) 170 V, or 85 V if the wiring diagrams includes series lamp circuits.		N/A
A24	SURGE TEST A surge generator in according with IEC 61000-4-5 using a 1.2/50 combination wave generator is required. There shall show no risk of fire or electric shock.		N/A
APPENDIX B	SAFETY REQUIREMENTS FOR T8 TO T5 LAMP CONVERTERS (Normative)		N/A
B1.1	Scope of Appendix This Appendix specifies the safety and interchangeability requirements of T8 to T5 lamp converters		N/A
B1.2	The Appendix shall be read in conjunction with AS/NZS 60598.1 and AS/NZS 61347.1, with all provisions applying unless varied herein.		N/A

Attachment 1 AS/NZS 60598.1 and AS/NZS 60598.2.1			
Clause	Requirement + Test	Result - Remark	Verdict
B1.3	Testing In general, all tests are carried out on each type of converter		N/A
B1.4	Specific requirements of this Appendix A converter shall be deemed to comply with this Appendix only if it complies with all the appropriate requirements of this Appendix and passes the relevant tests specified herein.		N/A
B1.5	Requirements of relevant test specifications Equipment and components incorporated in a converter that is safety dependant shall comply with the appropriate requirements of any relevant test specification, unless such requirements are varied herein.		N/A
B3	DEFINITIONS		N/A
B3.1	T8 to T5 (T8–T5) converter A device to support and operate a tubular fluorescent lamp with G5 caps and can be used as a replacement for a tubular fluorescent lamp with G13 caps.		N/A
B4	CLASSIFICATIONS OF CONVERTER(S) Converters shall be classified in accordance with the provisions of Section 2 of AS/NZS 60598.1. Converters shall be classified as class II for protection against electric shock, IP rating and for normal use. Requirements for direct mounting on normally flammable surfaces do not apply. Converters shall be classified as independent control gear in accordance with AS/NZS 61347.1.		N/A
B5	MARKING		N/A
B5.1	General The test of marking of Clause 3.4 of AS/NZS 60598.1 shall be used to determine the durability of the markings specified in Paragraphs A5.2 to A5.4.		N/A

Attachment 1 AS/NZS 60598.1 and AS/NZS 60598.2.1			
Clause	Requirement + Test	Result - Remark	Verdict
B5.2	Marking on the converter Converters shall be clearly and durably marked with the following markings, the size of which shall be a minimum of 2 mm: (a) Mark of origin (this may take the form of a trademark, or be the manufacturer's name or the name of the responsible vendor). (b) Rated voltage range (marked 'V' or 'volts'). (c) Rated wattage (marked 'W' or 'watts'). Both the lamp wattage of the existing lamp and the replacement lamp shall be specified. (d) Rated frequency (marked in 'Hz'). (e) A value for allowable case temperature t_c and a marked point of measurement. (f) Model number. (g) IP rating. (h) Wattage/lamp restriction due to interchangeability shall be specified. For example, 'For use with 28 W HE (high efficiency) T5 lamp only. Not for use with 54 W HO (high output) T5 (same length) lamp'.		N/A
B5.3	Warning label for the luminaire Warning label shall be supplied with the converter: WARNING: : Not for use with any fluorescent lamp without T8–T5 converter installed		N/A
B5.4	Marking of associated components If the converter requires a component which replaces the starter, the component shall be clearly marked.		N/A
B6	INSTRUCTIONS		N/A
B6.1	Information to be supplied with the converter The following information shall be supplied with the converter: (a) Special conditions or restrictions		N/A
	(b) <i>Wiring diagram for converter installation</i>		N/A
	(c) ambient operating temperature range of the lamp,		N/A
	(d) type of lamp it replaces, including lamp length, lamp cap configuration and IP		N/A
B6.2	Information to be supplied for emergency luminaires Instructions shall state converters shall not be used in any lamp position within an emergency luminaire		N/A
B6.3	Information about additional components If the converter requires a component that replaces the starter, the instructions shall indicate the 'type reference' of the component to replace the starter.		N/A

Attachment 1 AS/NZS 60598.1 and AS/NZS 60598.2.1			
Clause	Requirement + Test	Result - Remark	Verdict
B7	CONSTRUCTION		N/A
B7.1	General Converters shall be so designed and constructed that in normal use they function reliably and cause no danger to the user or surroundings., use of tools, protection against electric shock, non-corrosive, internal wiring?		N/A
B7.2	Components that replace the starter If the converter needs to operate in combination with a component that replaces the starter, this component shall be supplied together with the converter. No HBC fuse shall be used (for starter replacement).		N/A
B7.3	Emergency lamps Converters are not suitable for use in emergency luminaires.		N/A
B8	INTERCHANGEABILITY converter shall be interchangeable with both the replaced and new lamp		N/A
B9	MASS entire mass of a converter and lamp combination shall not exceed 500 g.		N/A
B10	DIMENSIONS converter, lamp combination shall have dimensions of the corresponding lamps they are replacing		N/A
B11	MECHANICAL REQUIREMENTS AND TESTS FOR CAPS		N/A
B11.1	Construction and assembly Caps shall be so constructed and assembled that they remain attached to the converter during and after operation		N/A
B11.2	Torque test A torque test shall be applied to the converter contact pins, the sample shall comply with the requirements of Paragraph B16		N/A
B11.3	Heat treatment and secure fixing test Caps shall be securely fixed in position and not be affected by heat		N/A
B12	CREEPAGE DISTANCES AND CLEARANCES The provisions of Section 11 of AS/NZS 60598.1 apply		N/A
B13	PROVISION FOR EARTHING The provisions of Section 7 of AS/NZS 60598.1 are not applicable.		N/A

Attachment 1 AS/NZS 60598.1 and AS/NZS 60598.2.1			
Clause	Requirement + Test	Result - Remark	Verdict
B14	TERMINALS The provisions of Sections 14 and 15 of AS/NZS 60598.1 apply to supply terminals only; they are not applicable to lamp caps.		N/A
B15	EXTERNAL AND INTERNAL WIRING The provisions of Section 5 of AS/NZS 60598.1 apply.		N/A
B16	PROTECTION AGAINST ELECTRIC SHOCK		N/A
B16.1	General The provisions of Section 8 of AS/NZS 60598.1 apply along with the following		N/A
B16.2	Protection against electric shock Accessibility shall be checked with test probe B of IEC 61032		N/A
B16.3	Discharge capacitors Lamps incorporating a capacitor of capacitance exceeding 0.1 μF shall be provided with an internal discharge device		N/A
B17	ENDURANCE TEST AND THERMAL TESTS		N/A
B17.1	General The provisions of endurance and thermal tests of AS/NZS 60598.1 apply, together with the requirements of Paragraphs B17.2 to B17.5.		N/A
B17.2	duration of the endurance test of AS/NZS 60598.1 shall be 240 h		N/A
B17.3	Thermal test (normal operation) During the normal operation thermal test of AS/NZS 60598.1, no accessible surface of the lamp shall exceed 70°C for metallic surfaces or 85°C for non-metallic surfaces. The surface temperature of inaccessible parts of the cap shall not exceed 120°C.		N/A
B17.4	Thermal test (abnormal operation) The requirements of the abnormal operation thermal test of AS/NZS 60598.1 apply		N/A
B17.5	Thermal test—Fault conditions The tests of Clauses 12.6 and 12.7 are not applied.		N/A
B18	POWER REQUIREMENT The measured power of the converter and T5 lamp combination with any associated circuitry shall not be greater than the rated power of the T8 lamp being replaced.		N/A
B19	RESISTANCE TO DUST, SOLID OBJECTS AND MOISTURE The tests of Section 9 of AS/NZS 60598.1 apply.		N/A

Attachment 1 AS/NZS 60598.1 and AS/NZS 60598.2.1			
Clause	Requirement + Test	Result - Remark	Verdict
B20	INSULATION RESISTANCE AND ELECTRIC STRENGTH The provisions of Section 10 of AS/NZS 60598.1 apply		N/A
B21	RESISTANCE TO HEAT, FIRE AND TRACKING The provisions of Section 13 of AS/NZS 60598.1 apply.		N/A
B22	FAULT CONDITIONS The fault condition requirements of AS/NZS 61347.1 apply, including the following. Tests are conducted at— (a) 264 V; and (b) 170 V, or 85 V if the wiring diagrams includes series lamp circuits.		N/A
B23	BEHAVIOUR OF THE CONTROL GEAR AT END OF LAMP LIFE The behaviour of the control gear at end of lamp life requirements of AS/NZS 61347.2.3 apply, except the test voltages applied shall be 264 V and either of: (a) Where the converter is marked as only suitable for use with ferromagnetic control gear and type HE T5 lamps above 14 W 170 V. (b) For other converters, such as 18 W T8 series circuits 85 V.		N/A
B24	SURGE TEST A surge generator in according with IEC 61000-4-5 using a 1.2/50 combination wave generator The sample shall show no risk of fire or electric shock		N/A

Attachment 2
IEC 62031

Clause	Requirement + Test	Result - Remark	Verdict
6	Classification		---
	Built-in.....:		N/A
	Independent.....:		N/A
	Integral.....:		P
7	Marking		N/A
7.1	Mandatory marking for built-in or independent modules		N/A
7.2	Location of marking		N/A
7.3	Durability and legibility of marking		N/A
8	Terminals		N/A
9	Provisions for protective earthing		N/A
10	Protection against accidental contact with live parts		N/A
11	Moisture resistance and insulation		P
12	Electric strength		P
13	Fault conditions		P
13.1	Fault conditions according to IEC 61347-1, Clause 14		P
13.2	Overpower condition	No damage	P
14	Conformity testing during manufacture		N/A
15	Construction		P
	Non Wood, cotton, silk, paper and similar fibrous material used as insulation.		P
16	Creepage distances and clearances		N/A
17	Screws, current-carrying parts and connections		N/A
18	Resistance to heat, fire and tracking		N/A
19	Resistance to corrosion		N/A
20	Information for luminaire design		N/A
21	Heat management		N/A
22	Photobiological safety		P
22.1	UV radiation		N/A
22.2	Blue light hazard		P
22.3	Infrared radiation		N/A
Annex A	Test		--
Annex C	Conformity testing during manufacture		--
Annex D	Information for luminaire design		--

Attachment 3 IEC TR 62778			
Clause	Requirement + Test	Result - Remark	Verdict
7	MEASUREMENT INFORMATION FLOW		P
7.1	Basic flow		P
	'Law of conservation of luminance' applied		P
	Use of only true luminance/radiance values		P
	In case of luminaire: The light source is operated in the luminaire under similar conditions as when tested as a component		P
	In case E_{thr} value for RG2 was established the peak value was derived from angular light distribution		N/A
7.2	Conditions for the radiance measurement		P
	Standard condition applied (200mm distance, 0,011rad field of view)		P
	Non-standard condition applied		N/A
7.3	Special cases (I): Replacement by a lamp or LED module of another type		N/A
	Light source is a white light source		N/A
	Evaluation done based on highest luminance		N/A
	Evaluation done based on CCT value		N/A
7.4	Special cases (II): Arrays and clusters of primary light sources		N/A
	LED package is evaluated as : ☐ RG0 unlimited ☐ RG1 unlimited		N/A
	E_{thr} of LED package applies to array		N/A
8	RISK GROUP CLASSIFICATION		P
	Risk group achieved:		P
	-... Risk Group 0 unlimited		N/A
	-... Risk Group 1 unlimited		P
	- E_{thr} (lx) : Distance to reach RG1..... (m) :		N/A

Attachment 3
IEC TR 62778

Clause	Requirement + Test	Result - Remark	Verdict
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	TABLE: Spectroradiometric measurement				P
	Measurement performed on:		☐ LED package ☐ LED module ☐ Lamp ☒ Luminaire		
	Model number.....:		FT-TLXX-50W		
	Test voltage (V).....:		240V~		—
	Test current (mA)..... :		--		—
	Test frequency (Hz)..... :		50Hz		—
	Ambient, t (°C).....:		25.3°C		—
	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		Symb ol	Units	Result	Remark
Correlated colour temperature		CCT	K	/	/
x/y colour coordinates				/	/
Blue light hazard radiance		L _B	W/(m ² •sr ¹)	3.707e+003	RG1
Blue light hazard irradiance		E _B	W/m ²	1.196e+002	/
Luminance		L	cd/m ²	5.694e+006	/
Illuminance		E	lx	183717	/
Supplementary information:-					

Photo documentation

Details of: Overview for model FT-TLXX-50W

Remark:



Details of: Overview for model FT-TLXX-50W

Remark:

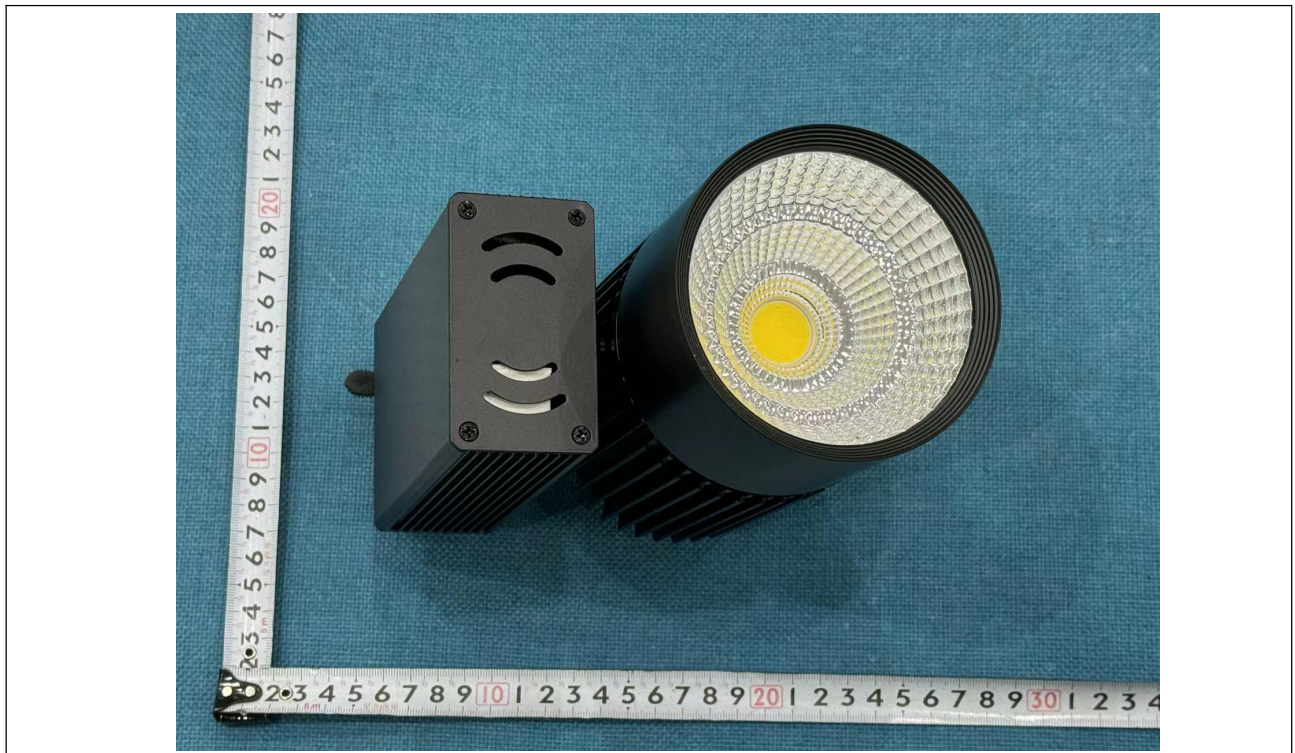
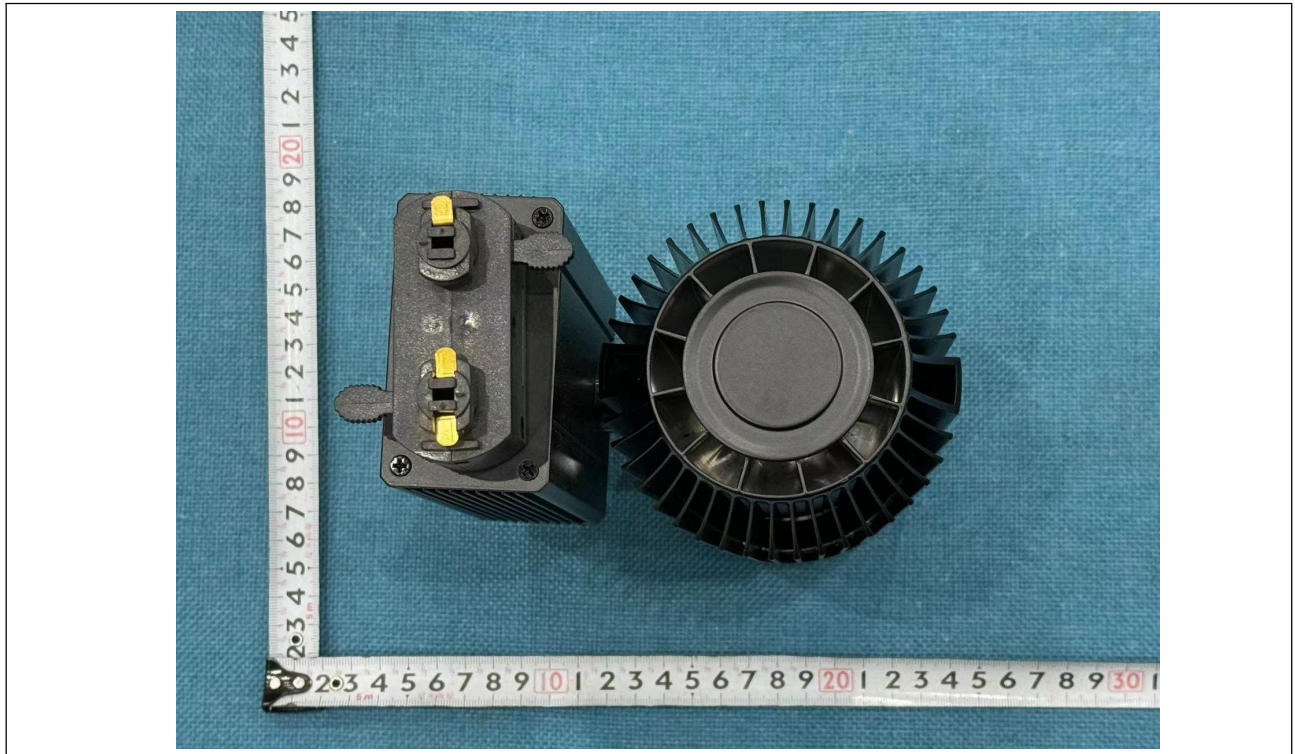


Photo documentation

Details of: Overview for model FT-TLXX-50W

Remark:



Details of: Internal view for model FT-TLXX-50W

Remark:

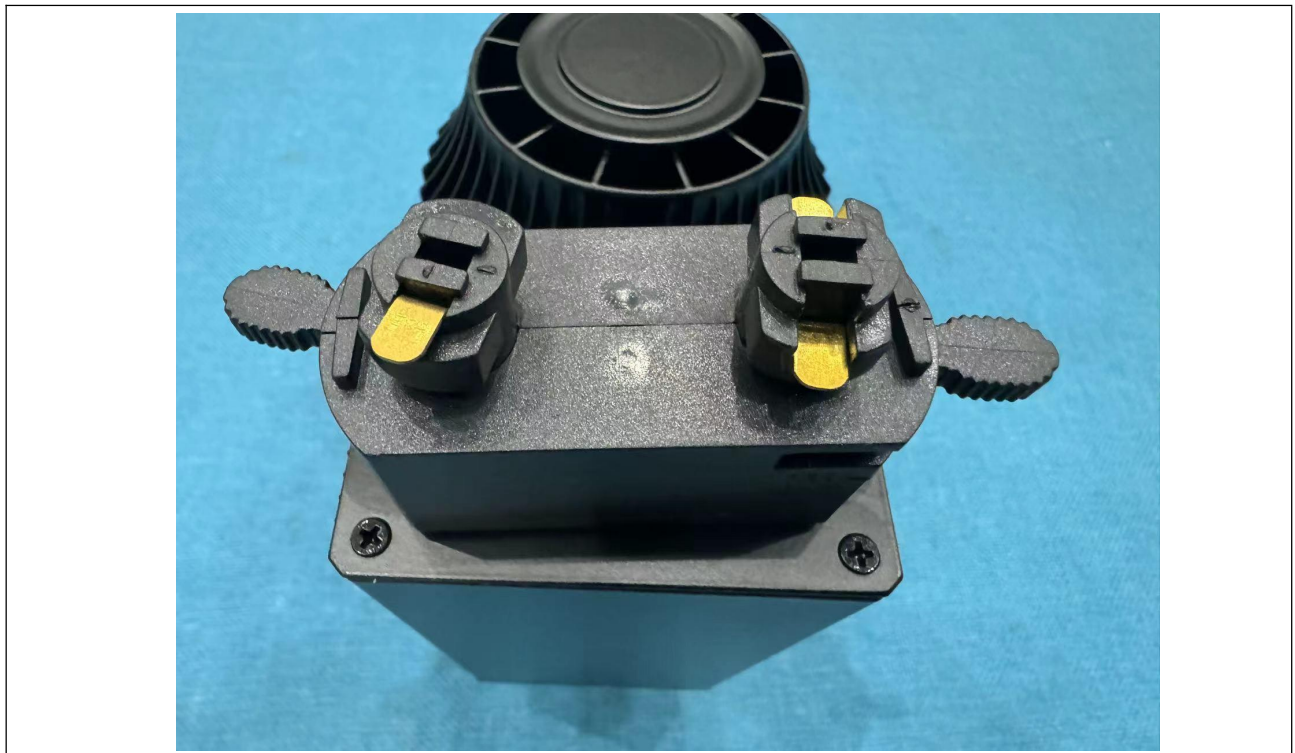
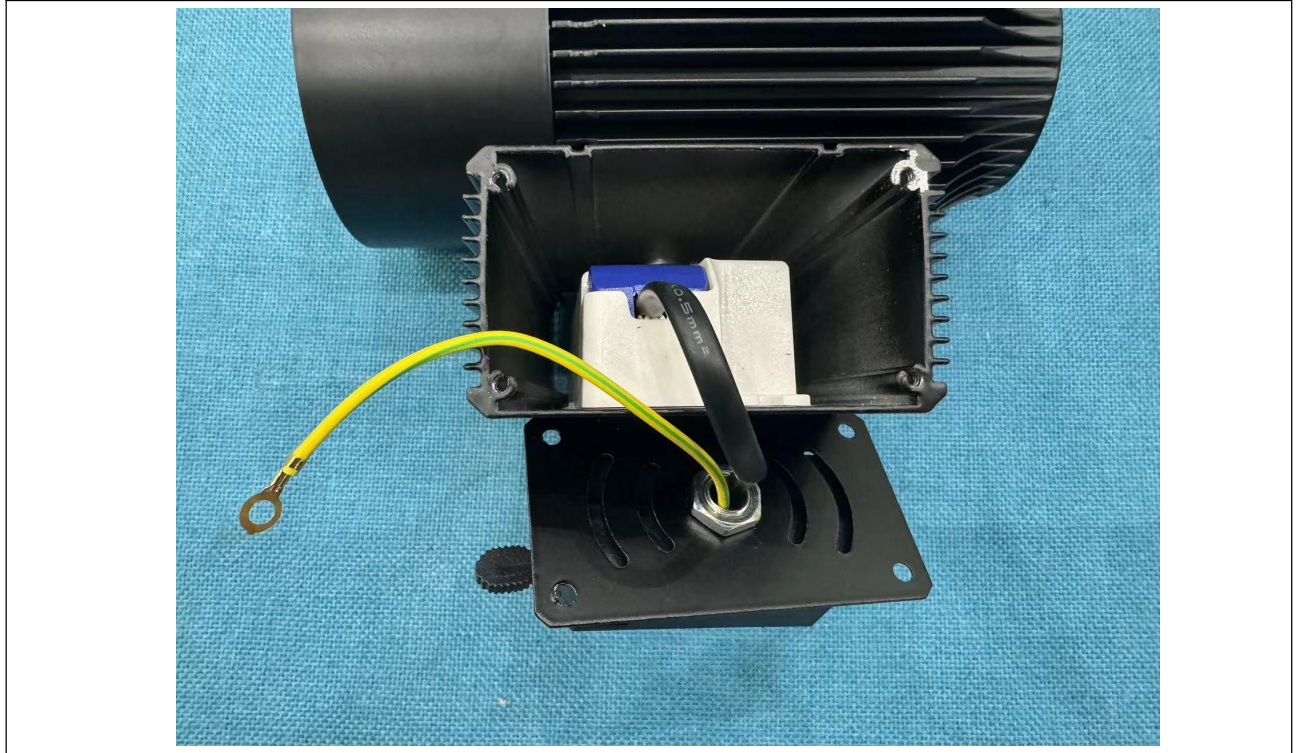


Photo documentation

Details of: Internal view for model FT-TLXX-50W

Remark:



Details of: LED driver view for model FT-TLXX-50W

Remark:



Photo documentation

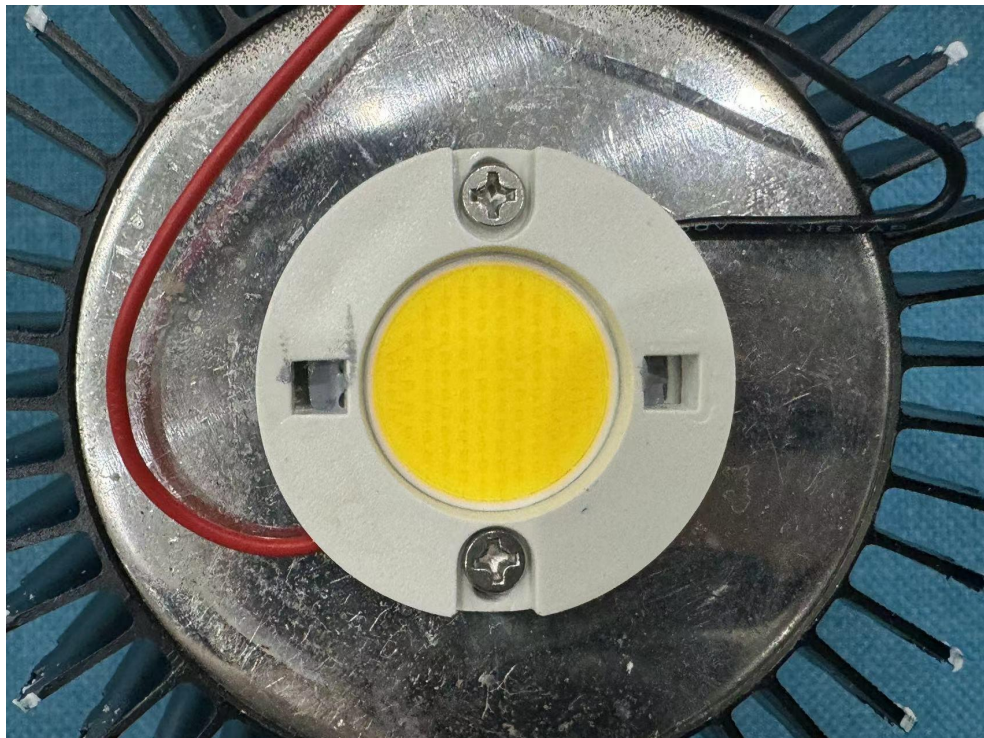
Details of: Internal view for model FT-TLXX-50W

Remark:



Details of: Additional accessories view (optional)

Remark:



---End of Report---