

**TEST REPORT**
IEC 60598-2-2**Luminaires****Part 2: Particular requirements**
Section 2: Recessed luminaires

Report Number.....: LCS220324003BS

Date of issue.....: April 18, 2022

Total number of pages.....: 82 pages

Name of Testing Laboratory

preparing the Report.....: Shenzhen Southern LCS Compliance Testing Laboratory Ltd.

Applicant's name.....: Shenzhen Gledopto Co., Ltd.

Address.....: Floor3, Buliding 1, XinWuXia Industrial Park, LongGang Street,
LongGang District, Shenzhen, China**Test specification:**Standard.....: IEC 60598-2-2:2011 used in conjunction with IEC 60598-1:2014,
AMD1:2017

Test procedure.....: Australia Safety

Non-standard test method.....: N/A

Test Report Form No.....: IEC60598_2_2F

Test Report Form(s) Originator.....: Intertek Semko AB

Master TRF.....: Dated 2017-12-21

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Test item description.....:		LED Downlight	
Trade Mark.....:		 GLEDOPTO	
Manufacturer.....:		Shenzhen Gledopto Co., Ltd.	
Address.....:		Floor3, Buliding 1, XinWuXia Industrial Park, LongGang Street, LongGang District, Shenzhen, China	
Model/Type reference.....:		See model list on page 5	
Ratings.....:		220-240V~, 50/60Hz, Class I, ta:25°C, IP54 for parts below the ceiling, IP20 for parts recessed in ceiling, IC-4.	
<input checked="" type="checkbox"/> Testing Laboratory:			
Testing location/ address.....:		Shenzhen Southern LCS Compliance Testing Laboratory Ltd. 101-201, No.39 Building, Xialang Industrial Zone, Heshuikou Community, Matian Street, Guangming District, Shenzhen, China	
Tested by		Yeoh Zhang (Engineer)	
Check by		Torres He (Director)	
Approved by		Jesse Liu (Manager)	
List of Attachments (including a total number of pages in each attachment): Attachment No. 1: Australian and New Zealand deviation of AS/NZS 60598.1:2017+A1:2017+A2:2020. Attachment No. 2: Australian and New Zealand deviation of AS/NZS 60598.2.2:2016+A1:2017. Attachment No. 3: Integral LED module of IEC 62031:2018 Attachment No. 4: Photobiological hazards of IEC TR 62778:2014. Attachment No. 5: Photo documentation.			
Summary of testing:			
Tests performed (name of test and test clause): IEC 60598-2-2:2011 IEC 60598-1:2014+A1:2017 IEC TR 62778:2014 IEC 62031:2018		Testing location: Shenzhen Southern LCS Compliance Testing Laboratory Ltd. 101-201, No.39 Building, Xialang Industrial Zone, Heshuikou Community, Matian Street, Guangming District, Shenzhen, China	
Summary of compliance with National Differences:			
List of countries addressed <input type="checkbox"/> The product fulfils the requirements of New Zealand and Australia differences. AS/NZS 60598.2.2:2016+A1:2017; AS/NZS 60598.1:2017+A1:2017+A2:2020			

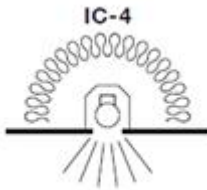


**Copy of marking plate:**

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.

Label located on the product package:

Label located on the lamp surface:



cord wire.

IC-4 label, size at least 25x25mm, located on or near the lamp part or on the lamp

Remarks:

1. Height of the RCM mark at least 3mm, height of letters and numerals at least 2mm.



**Test item particulars..... :****Classification of installation and use.....:** Recessed luminaires**Supply Connection.....:** AU plug and power cord used**Protection Class.....:** Class I**Degree of Protection..... :** IP54 for parts below the ceiling, IP20 for parts recessed in ceiling**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..... :** March 24, 2022**Date (s) of performance of tests..... :** March 24, 2022 to April 18, 2022**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.

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

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

Modified Information

Version	Report No.	Revision Date	Summary
V1.0	LCS220324003BS	/	Original Version

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

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**General product information:**

1. For indoor use only.
2. All models are with the same construction, except LED driver, power wattage, weight, size, LED quantity, and more information see below model list and photo documentation.
3. Unless otherwise specified, below models GL-D-007P and GL-D-005P were chosen as representative models to perform all tests.

Model list

For all models: 100-240V~, 50/60Hz, ta:25°C, Class I for LED driver, Class III for lamp part, IP54 for parts below the ceiling, IP20 for parts recessed in ceiling; CCT:2200K-6500K.

Model No.	Power wattage (W)	LED module input	Size(L*W*H) and weight
GL-D-002P	6	12VDC, 400mA	7.2*7.2*6.5cm, 0.23kg
GL-D-003P	6	15VDC, 350mA	13.8*13.8*6.5cm, 0.374kg
GL-D-004P	9	15VDC, 500mA	13.8*13.8*6.5cm, 0.374kg
GL-D-005P	12	20VDC, 510mA	17.8*17.8*8cm, 0.62kg
GL-D-006P	6	15VDC, 350mA	10.8*10.8*8cm, 0.294kg
GL-D-007P	12	20VDC, 510mA	14*14*9cm, 0.391kg



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IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
2.3 (0)	GENERAL TEST REQUIREMENTS		P
2.3 (0.3)	More sections applicable.....:	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Section/s:	—
2.3 (0.5)	Components	(see Annex 1)	—
2.3 (0.7)	Information for luminaire design in light sources standards		—
2.3 (0.7.2)	Light source safety standard	IEC 62031	—
	Luminaire design in the light source safety standard		P

2.5 (2)	CLASSIFICATION OF LUMINAIRES		P
2.5 (2.2)	Type of protection	Class I	P
2.5 (2.3)	Degree of protection.....:	IP54 for parts below the ceiling, IP20 for parts recessed in ceiling	P
2.5 (2.4)	Luminaire suitable for direct mounting on normally flammable surfaces.....:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	—
2.5 (2.5)	Luminaire for normal use	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	—
	Luminaire for rough service	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—

2.6 (3)	MARKING		P
2.6 (3.2)	Mandatory markings		P
	Position of the marking		P
	Format of symbols/text		P
2.6 (3.3)	Additional information		P
	Language of instructions	English	P
2.6 (3.3.1)	Combination luminaires		N/A
2.6 (3.3.2)	Nominal frequency in Hz	50/60Hz	P
2.6 (3.3.3)	Operating temperature		N/A
2.6 (3.3.4)	Symbol or warning notice		N/A
2.6 (3.3.5)	Wiring diagram		N/A
2.6 (3.3.6)	Special conditions		N/A
2.6 (3.3.7)	Metal halide lamp luminaire – warning		N/A
2.6 (3.3.8)	Limitation for semi-luminaires		N/A
2.6 (3.3.9)	Power factor and supply current		N/A




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IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
2.6 (3.3.10)	Suitability for use indoors		N/A
2.6 (3.3.11)	Luminaires with remote control		N/A
2.6 (3.3.12)	Clip-mounted luminaire – warning		N/A
2.6 (3.3.13)	Specifications of protective shields		N/A
2.6 (3.3.14)	Symbol for nature of supply	 for whole product, --- for lamp part	P
2.6 (3.3.15)	Rated current of socket outlet		N/A
2.6 (3.3.16)	Rough service luminaire		N/A
2.6 (3.3.17)	Mounting instruction for type Y, type Z and some type X attachments	Type Y	P
2.6 (3.3.18)	Non-ordinary luminaires with PVC cable		N/A
2.6 (3.3.19)	Protective conductor current in instruction if applicable		N/A
2.6 (3.3.20)	Provided with information if not intended to be mounted within arm's reach		N/A
2.6 (3.3.21)	Non replaceable and non-user replaceable light sources information provided	Non-user replaceable light sources	P
	Cautionary symbol		N/A
2.6 (3.3.22)	Controllable luminaires, classification of insulation provided		N/A
2.6 (3.4)	Test with water	15s	P
	Test with hexane	15s	P
	Legible after test	Label is legible	P
	Label attached	Label no curling	P

2.7 (4)	CONSTRUCTION		P
2.7 (4.2)	Components replaceable without difficulty		P
2.7 (4.3)	Wireways smooth and free from sharp edges		P
2.7 (4.4)	Lampholders		N/A
2.7 (4.4.1)	Integral lampholder		N/A
2.7 (4.4.2)	Wiring connection		N/A
2.7 (4.4.3)	Lampholder for end-to-end mounting		N/A
*2.7 (4.4.4)	Positioning		N/A
	- pressure test (N)	--	—





IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
	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
2.7 (4.4.5)	Peak pulse voltage		N/A
2.7 (4.4.6)	Centre contact		N/A
2.7 (4.4.7)	Parts in rough service luminaires resistant to tracking		N/A
2.7 (4.4.8)	Lamp connectors		N/A
2.7 (4.4.9)	Caps and bases correctly used		N/A
2.7 (4.4.10)	Light source for lampholder or connection according IEC 60061 not connected another way		N/A
2.7 (4.5)	Starter holders		N/A
	Starter holder in luminaires other than class II		N/A
	Starter holder class II construction		N/A
2.7 (4.6)	Terminal blocks		N/A
	Tails		N/A
	Unsecured blocks		N/A
2.7 (4.7)	Terminals and supply connections		P
2.7 (4.7.1)	Contact to metal parts		P
2.7 (4.7.2)	Test 8 mm live conductor		N/A
	Test 8 mm earth conductor		N/A
2.7 (4.7.3)	Terminals for supply conductors		P
2.7 (4.7.3.1)	Welded method and material		N/A
	- stranded or solid conductor		N/A
	- spot welding		N/A
	- welding between wires		N/A
	- Type Z attachment		N/A
	- mechanical test according to 15.6.2		N/A
	- electrical test according to 15.6.3		N/A
	- heat test according to 15.6.3.2.3 and 15.6.3.2.4		N/A



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IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
2.7 (4.7.4)	Terminals other than supply connection		N/A
2.7 (4.7.5)	Heat-resistant wiring/sleeves		N/A
2.7 (4.7.6)	Multi-pole plug		N/A
	- test at 30 N		N/A
2.7 (4.8)	Switches		N/A
	- adequate rating		N/A
	- adequate fixing		N/A
	- polarized supply		N/A
	- compliance with IEC 61058-1 for electronic switches		N/A
2.7 (4.9)	Insulating lining and sleeves		N/A
2.7 (4.9.1)	Retainment		N/A
	Method of fixing.....:		N/A
2.7 (4.9.2)	Insulated linings and sleeves:		N/A
	Resistant to a temperature > 20 °C to the wire temperature or		N/A
	a) & c) Insulation resistance and electric strength		N/A
	b) Ageing test. Temperature (°C).....:		N/A
2.7 (4.10)	Double or reinforced insulation		P
2.7 (4.10.1)	No contact, mounting surface – accessible metal parts – wiring of basic insulation	For whole product	P
	Safe installation fixed luminaires		P
	Capacitors and switches		N/A
	Interference suppression capacitors according to IEC 60384-14		N/A
2.7 (4.10.2)	Assembly gaps:		N/A
	- not coincidental		N/A
	- no straight access with test probe		N/A
2.7 (4.10.3)	Retainment of insulation:		P
	- fixed		P
	- unable to be replaced; luminaire inoperative		P
	- sleeves retained in position		N/A
	- lining in lampholder		N/A





IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
2.7 (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	No such capacitor used	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
2.7 (4.11)	Electrical connections and current-carrying parts		P
2.7 (4.11.1)	Contact pressure		P
2.7 (4.11.2)	Screws:		N/A
	- self-tapping screws		N/A
	- thread-cutting screws		N/A
2.7 (4.11.3)	Screw locking:		N/A
	- spring washer		N/A
	- rivets		N/A
2.7 (4.11.4)	Material of current-carrying parts		P
2.7 (4.11.5)	No contact to wood or mounting surface		P
2.7 (4.11.6)	Electro-mechanical contact systems		N/A
2.7 (4.12)	Screws and connections (mechanical) and glands		P
2.7 (4.12.1)	Screws not made of soft metal		P
	Screws of insulating material		N/A
	Torque test: torque (Nm); part.....:	Screw fixed the LED PCB: 0.5Nm	P
	Torque test: torque (Nm); part.....:	Screw fixed cord anchorage: 0.5Nm	P
	Torque test: torque (Nm); part.....:	--	N/A
	Torque test: torque (Nm); part.....:	--	N/A
2.7 (4.12.2)	Screws with diameter < 3 mm screwed into metal		P
2.7 (4.12.4)	Locked connections:		N/A
	- fixed arms; torque (Nm).....:	--	N/A
	- lampholder; torque (Nm).....:	--	N/A
	- push-button switches; torque 0,8 Nm.....:	--	N/A
2.7 (4.12.5)	Screwed glands; force (Nm).....:	--	N/A
2.7 (4.13)	Mechanical strength		P





IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
2.7 (4.13.1)	Impact tests:		P
	- fragile parts; energy (Nm)..... :	--	N/A
	- other parts; energy (Nm)..... :	For all enclosure and lamp cover: 0.35 Nm	P
	1) live parts		P
	2) linings		N/A
	3) protection		P
	4) covers		P
2.7 (4.13.3)	Straight test finger	30N	P
2.7 (4.13.4)	Rough service luminaires		N/A
	- IP54 or higher		N/A
	a) fixed		N/A
	b) hand-held		N/A
	c) delivered with a stand		N/A
	d) for temporary installations and suitable for mounting on a stand		N/A
2.7 (4.13.6)	Tumbling barrel		N/A
2.7 (4.14)	Suspensions, fixings and means of adjusting		P
2.7 (4.14.1)	Mechanical load:		P
	A) four times the weight	Max. 0.62kg x 4 for model GL-D-005P	P
	B) torque 2,5 Nm		N/A
	C) bracket arm; bending moment (Nm)..... :	--	N/A
	D) load track-mounted luminaires		N/A
	E) clip-mounted luminaires, glass-shelve. Thickness (mm)	--	N/A
	Metal rod. diameter (mm)	--	N/A
	Fixed luminaire or independent control gear without fixing devices		N/A
2.7 (4.14.2)	Load to flexible cables		N/A
	Mass (kg)		—
	Stress in conductors (N/mm ²)	--	N/A
	Mass (kg) of semi-luminaire	--	N/A
	Bending moment (Nm) of semi-luminaire	--	N/A





IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
2.7 (4.14.3)	Adjusting devices:		N/A
	- flexing test; number of cycles..... :		N/A
	- strands broken..... :		N/A
	- electric strength test afterwards		N/A
2.7 (4.14.4)	Telescopic tubes: cords not fixed to tube; no strain on conductors		N/A
2.7 (4.14.5)	Guide pulleys		N/A
2.7 (4.14.6)	Strain on socket-outlets		N/A
2.7 (4.15)	Flammable materials		P
	- glow-wire test 650°C..... :	See Test Table 2.16 (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
2.7 (4.15.2)	Luminaires made of thermoplastic material with lamp control gear		N/A
	a) construction		N/A
	b) temperature sensing control		N/A
	c) surface temperature		N/A
2.7 (4.16)	Luminaires for mounting on normally flammable surfaces		P
	No lamp control gear..... :	--	N/A
2.7 (4.16.1)	Lamp control gear spacing:		N/A
	- spacing 35 mm		N/A
	- spacing 10 mm		N/A
2.7 (4.16.2)	Thermal protection:		N/A
	- in lamp control gear		N/A
	- external		N/A
	- fixed position		N/A
	- temperature marked lamp control gear		N/A
2.7 (4.16.3)	Design to satisfy the test of 12.6	(see clause 12.6)	N/A
2.7 (4.17)	Drain holes		N/A



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IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
	Clearance at least 5 mm		N/A
2.7 (4.18)	Resistance to corrosion		P
2.7 (4.18.1)	- rust-resistance		N/A
2.7 (4.18.2)	- season cracking in copper		P
2.7 (4.18.3)	- corrosion of aluminium		N/A
2.7 (4.19)	Igniters compatible with ballast		N/A
2.7 (4.20)	Rough service vibration		N/A
2.7 (4.21)	Protective shield		N/A
2.7 (4.21.1)	Shield fitted if tungsten halogen lamps or metal halide lamps	No such lamps used	N/A
	Shield of glass if tungsten halogen lamps		N/A
2.7 (4.21.2)	Particles from a shattering lamp not impair safety		N/A
2.7 (4.21.3)	No direct path		N/A
2.7 (4.21.4)	Impact test on shield		N/A
	Glow-wire test on lamp compartment.....:	See Test Table 2.16 (13.3.2)	N/A
2.7 (4.22)	Attachments to lamps not cause overheating or damage		N/A
2.7 (4.23)	Semi-luminaires comply Class II		N/A
2.7 (4.24)	Photobiological hazards		P
2.7 (4.24.1)	No excessive UV radiation if tungsten halogen lamps and metal halide lamps (Annex P)	Not designed for such lamps	N/A
2.7 (4.24.2)	Retinal blue light hazard		
	Class of risk group assessed according to IEC/TR 62778	RG0	
	Luminaires with E_{thr} :		N/A
	a) Fixed luminaires		N/A
	- distance x m, borderline between RG1 and RG2...:		N/A
	- marking and instruction according 3.2.23		N/A
	b) Portable and handheld luminaires		N/A
	- marking according 3.2.23 if RG1 exceeded at 200 mm according to IEC/TR 62778		N/A
	Portable luminaires for children IEC 60598-2-10 and Mains socket outlet nightlights IEC 60598-2-12 not exceed RG1 at 200 mm according to IEC/62778		N/A





IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
2.7 (4.25)	Mechanical hazard		P
	No sharp point or edges		P
2.7 (4.26)	Short-circuit protection		N/A
2.7 (4.26.1)	Adequate means of uninsulated accessible SELV parts		N/A
2.7 (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
2.7 (4.27)	Terminal blocks with integrated screwless earthing contacts		N/A
	Test according Annex V	No such terminal	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
2.7 (4.28)	Fixing of thermal sensing control		N/A
	Not plug-in or easily replaceable type	No thermal sensing control	N/A
	Reliably kept in position		N/A
	No adhesive fixing if UV radiations from a lamp can degrade the fixing		N/A
	Not outside the luminaire enclosure		N/A
	Test of adhesive fixing:		N/A
	Max. temperature on adhesive material (°C) : --		—
	100 cycles between t min and t max		N/A
	Temperature sensing control still in position		N/A
2.7 (4.29)	Luminaires with non-replaceable light source		N/A
	Not possible to replace light source		N/A
	Live part not accessible after parts have been opened by hand or tools		N/A
2.7 (4.30)	Luminaires with non-user replaceable light source		P
	If protective cover provide protection against electric shock and marked with “caution, electric shock risk” symbol:		N/A





IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
	Minimum two fixing means		P
2.7 (4.31)	Insulation between circuits		P
	Circuits insulated from LV supply fulfil requirements according 4.31.1 – 4.31.3		P
	Controllable luminaires requiring same level of insulation for all components, the insulation between control terminals and LV supply fulfil requirements according 4.31.1 – 4.31.3		N/A
2.7 (4.31.1)	SELV circuits		P
	Used SELV source		P
	Voltage \leq ELV		P
	Insulating of SELV circuits from LV supply		P
	Insulating of SELV circuits from other non SELV circuits		P
	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
2.7 (4.31.2)	FELV circuits		N/A
	Used FELV source		N/A
	Voltage \leq ELV		N/A
	Insulating of FELV circuits from LV supply		N/A
	FELV circuits insulated from accessible parts according Table X.1		N/A
	Plugs not able to 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





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Clause	Requirement + Test	Result - Remark	Verdict
2.7 (4.31.3)	Other circuits		N/A
	Other circuits insulated from accessible parts according Table X.1		N/A
	Class II construction with equipotential bonding for protection against indirect contacts with live parts:		N/A
	- conductive parts are connected together		N/A
	- test according 7.2.3		N/A
	- conductive part not cause an electric shock in case of an insulation fault		N/A
	- equipotential bonding in master/slave applications		N/A
	- master luminaire provided with terminal for accessible conductive parts of slave luminaires		N/A
	- slave luminaire constructed as class I		N/A
2.7 (4.32)	Overvoltage protective devices		N/A
	Comply with IEC 61643-11		N/A
	External to controlgear and connected to earth:		N/A
	- only in fixed luminaires		N/A
	- only connected to protective earth		N/A

2.8 (11)	CREEPAGE DISTANCES AND CLEARANCES		P
2.8 (11.2.1)	Impulse withstand category (Normal category II)	Category II <input checked="" type="checkbox"/> Category III <input type="checkbox"/>	—
	Category III according Annex U		N/A
	Protected against pollution, reduced creepage and clearance according Annex P of IEC 61347-1		N/A
2.8 (11.2.2)	Creepage distances for frequency up to 30 kHz	See Test Table 2.8 (11.2) I	P
	Creepage distances for frequency over 30 kHz:		N/A
	- Controlgear marked with \hat{U}_{OUT} and f_{UOUT} according IEC 61347-1, clause 7.1, item w	See Test Table 2.8 (11.2) II	N/A
	- Requirements according IEC 60664-4 for controlgear not covered by IEC 61347	See Test Table 2.8 (11.2) II	N/A
2.8 (11.2.3)	Clearances for frequency up to 30 kHz	See Test Table 2.8 (11.2) I	P
	Clearances distances for frequency over 30 kHz:		N/A
	- Controlgear marked with U_P	See Test Table 2.8 (11.2) II	N/A
	- Requirements according IEC 60664-4 for controlgear not covered by IEC 61347	See Test Table 2.8 (11.2) II	N/A





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Clause	Requirement + Test	Result - Remark	Verdict

2.9 (7)	PROVISION FOR EARTHING		P
2.9 (7.2.1 + 7.2.3)	Accessible metal parts		P
	Metal parts in contact with supporting surface		P
	Resistance < 0,5 Ω.....:	0.024Ω	P
	Self-tapping screws used		N/A
	Thread-forming screws		N/A
	Thread-forming screw used in a grove		N/A
	Earth makes contact first		P
	Terminal blocks with integrated screwless earthing contacts tested according Annex V		N/A
	Protective earthing of the luminaire not via built-in control gear		N/A
2.9 (7.2.2 + 7.2.3)	Earth continuity in joints, etc.		N/A
2.9 (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
2.9 (7.2.5)	Earth terminal integral part of connector socket		N/A
2.9 (7.2.6)	Earth terminal adjacent to mains terminals		N/A
2.9 (7.2.7)	Electrolytic corrosion of the earth terminal		N/A
2.9 (7.2.8)	Material of earth terminal		P
	Contact surface bare metal		P
2.9 (7.2.10)	Class II luminaire for looping-in		N/A
	Double or reinforced insulation to functional earth		N/A
2.9 (7.2.11)	Earthing core coloured green-yellow		P
	Length of earth conductor		P

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





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Clause	Requirement + Test	Result - Remark	Verdict
2.10 (15)	SCREWLESS TERMINALS AND ELECTRICAL CONNECTIONS		N/A
	Separately approved; component list.....:	(see Annex 1)	N/A
	Part of the luminaire.....:	soldered connection	N/A
2.11 (5)	EXTERNAL AND INTERNAL WIRING		P
2.11 (5.2)	Supply connection and external wiring		P
2.11 (5.2.1)	Means of connection.....:	AU plug and power cord used	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
2.11 (5.2.2)	Type of cable.....:	See annex 1	N/A
	Nominal cross-sectional area (mm ²).....:	See annex 1	N/A
	Cables equal to IEC 60227 or IEC 60245		N/A
2.11 (5.2.3)	Type of attachment, X, Y or Z	Type Y	P
2.11 (5.2.5)	Type Z not connected to screws		N/A
2.11 (5.2.6)	Cable entries:		P
	- suitable for introduction		P
	- adequate degree of protection		P
2.11 (5.2.7)	Cable entries through rigid material have rounded edges		N/A
2.11 (5.2.8)	Insulating bushings:		N/A
	- suitably fixed		N/A
	- material in bushings		N/A
	- material not likely to deteriorate		N/A
	- tubes or guards made of insulating material		N/A
2.11 (5.2.9)	Locking of screwed bushings		N/A
2.11 (5.2.10)	Cord anchorage:		P
	- covering protected from abrasion		P
	- clear how to be effective		P
	- no mechanical or thermal stress		P
	- no tying of cables into knots etc.		P
	- insulating material or lining		P





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Clause	Requirement + Test	Result - Remark	Verdict
2.11 (5.2.10.1)	Cord anchorage for type X attachment:		N/A
	a) at least one part fixed		N/A
	b) types of cable		N/A
	c) no damaging of the cable		N/A
	d) whole cable can be mounted		N/A
	e) no touching of clamping screws		N/A
	f) metal screw not directly on cable		N/A
	g) replacement without special tool		N/A
	Glands not used as anchorage		N/A
	Labyrinth type anchorages		N/A
2.11 (5.2.10.2)	Adequate cord anchorage for type Y and type Z attachment	Type Y	P
2.11 (5.2.10.3)	Tests:		P
	- impossible to push cable; unsafe		P
	- pull test: 25 times; pull (N)..... :	60N	P
	- torque test: torque (Nm)..... :	0.25Nm for LED driver input wires; 0.15Nm for LED module input wires;	P
	- displacement ≤ 2 mm	Max. 1.4mm	P
	- no movement of conductors		P
	- no damage of cable or cord		P
	- function independent of electrical connection		P
2.11 (5.2.11)	External wiring passing into luminaire		N/A
2.11 (5.2.12)	Looping-in terminals		N/A
2.11 (5.2.13)	Wire ends not tinned		N/A
	Wire ends tinned: no cold flow		N/A
2.11 (5.2.14)	Mains plug same protection		N/A
	Class III luminaire plug		N/A





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Clause	Requirement + Test	Result - Remark	Verdict
	No unsafe compatibility		N/A
2.11 (5.2.16)	Appliance inlets (IEC 60320)		N/A
	Installation couplers (IEC 61535)		N/A
	Other appliance inlet or connector according relevant IEC standard		N/A
2.11 (5.2.17)	No standardized interconnecting cables properly assembled		N/A
2.11 (5.2.18)	Used plug in accordance with		P
	- IEC 60083		N/A
	- other standard		P
2.11 (5.3)	Internal wiring		P
2.11 (5.3.1)	Internal wiring of suitable size and type		P
	Through wiring		N/A
	- not delivered/ mounting instruction		N/A
	- factory assembled		N/A
	- socket outlet loaded (A)..... : --		N/A
	- temperatures..... : (see Annex 2)		N/A
	Green- yellow for earth only		N/A
2.11 (5.3.1.1)	Internal wiring connected directly to fixed wiring		P
	Cross-sectional area (mm ²)..... : See annex 1		P
	Insulation thickness		P
	Extra insulation added where necessary		N/A
2.11 (5.3.1.2)	Internal wiring connected to fixed wiring via internal current-limiting device		P
	Adequate cross-sectional area and insulation thickness		P
2.11 (5.3.1.3)	Double or reinforced insulation for class II	For whole product	N/A
2.11 (5.3.1.4)	Conductors without insulation		N/A
2.11 (5.3.1.5)	SELV current-carrying parts	For lamp part	P





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Clause	Requirement + Test	Result - Remark	Verdict
2.11 (5.3.1.6)	Insulation thickness other than PVC or rubber		N/A
2.11 (5.3.2)	Sharp edges etc.		P
	No moving parts of switches etc.		N/A
	Joints, raising/lowering devices		N/A
	Telescopic tubes etc.		N/A
	No twisting over 360°		P
2.11 (5.3.3)	Insulating bushings:		N/A
	- suitable fixed		N/A
	- material in bushings		N/A
	- material not likely to deteriorate		N/A
	- cables with protective sheath		N/A
2.11 (5.3.4)	Joints and junctions effectively insulated		N/A
2.11 (5.3.5)	Strain on internal wiring		N/A
2.11 (5.3.6)	Wire carriers		N/A
2.11 (5.3.7)	Wire ends not tinned		P
	Wire ends tinned: no cold flow		N/A
2.11 (5.4)	Test to determine suitability of conductors having a reduced cross-sectional area		N/A
	Under test the temperature of the luminaire wiring insulation not exceed the limits stated in Table 12.2	(see Annex 2)	N/A
	No damage to luminaire wiring after test		N/A

2.12 (8)	PROTECTION AGAINST ELECTRIC SHOCK		P
2.12 (8.2.1)	Live parts not accessible		P
	Basic insulated parts not used on the outer surface without appropriate protection		P
	Basic insulated parts not accessible with standard test finger on portable, settable and adjustable luminaires		N/A
	Basic insulated parts not accessible with Ø 50 mm probe from outside, other types of luminaires		P
	Lamp and starterholders in portable and adjustable luminaires comply with double or reinforced insulation requirements		N/A





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Clause	Requirement + Test	Result - Remark	Verdict
	Basic insulation only accessible under lamp or starter replacement		N/A
	Protection in any position		P
	Double-ended tungsten filament lamp		N/A
	Insulation lacquer not reliable		N/A
	Double-ended high pressure discharge lamp		N/A
	Relevant warning according to 3.2.18 fitted to the luminaire		N/A
2.12 (8.2.2)	Portable luminaire adjusted in most unfavourable position		N/A
2.12 (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
2.12 (8.2.3.b)	BC lampholder of metal in class I luminaires shall be earthed		N/A
2.12 (8.2.3.c)	SELV circuits with exposed current carrying parts:		N/A
	Ordinary luminaire:		N/A
	- voltage under load (V).....:		N/A
	- no-load voltage (V).....:	--	N/A
	- touch current if applicable (mA)	--	N/A
	One conductive part insulated if required		N/A
	Other than ordinary luminaire:		N/A
	- nominal voltage (V)	-	N/A
	Class III luminaire only for connection to SELV		N/A
	Class III luminaire not provided with means for protective earthing		N/A
2.12 (8.2.4)	Portable luminaire have protection independent of supporting surface		N/A
2.12 (8.2.5)	Compliance with the standard test finger or relevant probe		P





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Clause	Requirement + Test	Result - Remark	Verdict
2.12 (8.2.6)	Covers reliably secured		P
2.12 (8.2.7)	Luminaire other than below with capacitor > 0,5 μ F not exceed 50 V 1 min after disconnection		N/A
	Portable luminaire with capacitor > 0,1 μ F (0.25) not exceed 34 V 1 s after disconnection		N/A
	Other luminaires with capacitor > 0,1 μ F (0.25) with plug and track adaptors not exceed 60 V 5 s after disconnection	4V	P
2.12 (-)	Parts within the ceiling space provide same degree of protection against electric shock as parts below the ceiling space		P

2.13 (12)	ENDURANCE TEST AND THERMAL TEST		P
2.13 (-)	If IP > IP 20 relevant test of (12.4), (12.5) and (12.6) after (9.2) before (9.3) specified in 2.14		—
2.13 (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)	—
2.13 (12.3)	Endurance test:		P
	a) mounting- position.....	Mounted in a cavity as instructed in user manual	—
	b) test temperature (°C).....	(ta: 25°C) +10°C	—
	c) total duration (h).....	240h	—
	d) supply voltage (V).....	264V	—
	d) if not equipped with controlgear, constant voltage/current (V) or (A)	--	—
	e) luminaire ceases to operate		—
2.13 (12.3.2)	After endurance test:		P
	- no part unserviceable		P
	- luminaire not unsafe		P
	- no damage to track system		N/A
	- marking legible		P
	- no cracks, deformation etc.		P
2.13 (12.4)	Thermal test (normal operation)	(see Annex 2)	P





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Clause	Requirement + Test	Result - Remark	Verdict
2.13 (12.5)	Thermal test (abnormal operation)		N/A
2.13 (12.6)	Thermal test (failed lamp control gear condition):		N/A
2.13 (12.6.1)	Through wiring or looping-in wiring loaded by a current of (A)	--	—
	- case of abnormal conditions.....	--	—
	- electronic lamp control gear		
	- 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
2.13 (12.6.2)	Temperature sensing control		N/A
	- case of abnormal conditions.....	--	—
	- thermal link		N/A
	- manual reset cut-out		N/A
	- auto reset cut-out		N/A
	- measured mounting surface temperature (°C).....	--	N/A
	- track-mounted luminaires		N/A
2.13 (12.7)	Thermal test (failed lamp control gear in plastic luminaires):		N/A
2.13 (12.7.1)	Luminaire without temperature sensing control		N/A
2.13 (12.7.1.1)	Luminaire with fluorescent lamp ≤ 70W		N/A
	Test method 12.7.1.1 or Annex W	--	—
	Test according to 12.7.1.1:		N/A
	- case of abnormal conditions.....	--	—
	- Ballast failure at supply voltage (V)	--	—
	- Components retained in place after the test		N/A
	- Test with standard test finger after the test		N/A
	Test according to Annex W:		N/A
	- case of abnormal conditions.....	--	—
	- measured winding temperature (°C): at 1,1 Un.....	--	—





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Clause	Requirement + Test	Result - Remark	Verdict
	- measured temperature of fixing point/exposed part (°C): at 1,1 Un.....:	--	—
	- calculated temperature of fixing point/exposed part (°C).....:	--	—
	Ball-pressure test.....:	See Table 2.16 (13.2.1)	N/A
2.13 (12.7.1.2)	Luminaire with discharge lamp, fluorescent lamp > 70W, transformer > 10 VA		N/A
	- case of abnormal conditions.....:	--	—
	- measured winding temperature (°C): at 1,1 Un.....:	--	—
	- measured temperature of fixing point/exposed part (°C): at 1,1 Un.....:	--	—
	- calculated temperature of fixing point/exposed part (°C).....:	--	—
	Ball-pressure test.....:	See Table 2.16 (13.2.1)	N/A
2.13 (12.7.1.3)	Luminaire with short circuit proof transformers ≤ 10 VA		N/A
	- case of abnormal conditions.....:	--	—
	- Components retained in place after the test		N/A
	- Test with standard test finger after the test		N/A
2.13 (12.7.2)	Luminaire with temperature sensing control		N/A
	- thermal link.....:	Yes <input type="checkbox"/> No <input type="checkbox"/>	—
	- manual reset cut-out.....:	Yes <input type="checkbox"/> No <input type="checkbox"/>	—
	- auto reset cut-out.....:	Yes <input type="checkbox"/> No <input type="checkbox"/>	—
	- case of abnormal conditions.....:	--	—
	- highest measured temperature of fixing point/exposed part (°C):.....:	--	—
	Ball-pressure test.....:	See Table 2.16 (13.2.1)	N/A
2.13.1 (-)	Wiring, for connection to the supply, not reach unsafe temperature		P
	- measured temperature of the cable (°C)	See Annex 2	P

2.14 (9)	RESISTANCE TO DUST AND MOISTURE	P
2.14 (-)	If IP > IP 20 the order of tests as specified in clause 2.13	P
2.14 (9.2)	Tests for ingress of dust, solid objects and moisture:	P





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Clause	Requirement + Test	Result - Remark	Verdict
	- classification according to IP.....:	IP54 for parts below the ceiling, IP20 for parts recessed in ceiling	—
	- mounting position during test.....:	According to manual	—
	- fixing screws tightened; torque (Nm).....:	--	—
	- tests according to clauses.....:	Clauses 9.2.0 and 9.2.5	—
	- electric strength test afterwards		P
	a) no deposit in dust-proof luminaire		P
	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		P
	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		N/A
2.14 (9.3)	Humidity test 48 h	25°C, 93%RH	P

2.15 (10)	INSULATION RESISTANCE AND ELECTRIC STRENGTH		P
2.15 (10.2.1)	Insulation resistance test		P
	Cable or cord covered by metal foil or replaced by a metal rod of mm Ø		—
	Insulation resistance (MΩ).....:		—
	SELV		P
	- between current-carrying parts of different polarity:	>100MΩ	P





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Clause	Requirement + Test	Result - Remark	Verdict
	- between current-carrying parts and mounting surface..... :	>100MΩ	P
	- between current-carrying parts and metal parts of the luminaire..... :	--	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
	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
	- 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
2.15 (10.2.2)	Electric strength test		P
	Dummy lamp		N/A
	Luminaires with ignitors after 24 h test		N/A
	Luminaires with manual ignitors		N/A
	Test voltage (V)..... :	See below	P
	SELV		P
	- between current-carrying parts of different polarity:	500V	P
	- between current-carrying parts and mounting surface..... :	500V	P
	- between current-carrying parts and metal parts of the luminaire..... :	--	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
	Other than SELV		P
	- between live parts of different polarity..... :	1480V	P





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Clause	Requirement + Test	Result - Remark	Verdict
	- between live parts and mounting surface.....:	1480V	P
	- between live parts and metal parts.....:	1480V	P
	- between live parts of different polarity through action of a switch.....:	--	N/A
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts.....:	--	N/A
	- Insulation bushings as described in Section 5		N/A
2.15 (10.3)	Touch current or protective conductor current (mA):	Protective conductor current: 0.045 mA	P

2.16 (13)	RESISTANCE TO HEAT, FIRE AND TRACKING		P
2.16 (13.2.1)	Ball-pressure test.....:	See Test Table 2.16 (13.2.1)	P
2.16 (13.3.1)	Needle-flame test (10 s).....:	See Test Table 2.16 (13.3.1)	N/A
2.16 (13.3.2)	Glow-wire test (650°C).....:	See Test Table 2.16 (13.3.2)	P
2.16 (13.4)	Proof tracking test (IEC 60112).....:	See Test Table 2.16 (13.4)	P

2.8 (11.2)	TABLE I: Creepage distances and clearances						P
	Minimum distances (mm) for a.c. up to 30 kHz sinusoidal voltages						P
	Applicable part of IEC 60598-1 Table 11.1.A*, 11.1.B* and 11.2*						P
	Insulation type **	Measured clearance	Required		Measured creepage	Required	
			clearance	*Table		creepage	*Table
Distance 1:	--	See below	--	Table 11.1.B	See below	--	Table 11.1.A
Working voltage (V)..... :					U _{out} =20VDC		—
PTI..... :					< 600 ☒ ≥ 600 ☐		—
Pulse voltage or U _P if applicable (kV) :					--		—
Supplementary information:							
Remark: Approved independent SELV LED driver used. Max. output voltage of LED driver is 20VDC.							

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



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Clause	Requirement + Test	Result - Remark	Verdict
2.16 (13.2.1)	TABLE: Ball Pressure Test of Thermoplastics		P
Allowed impression diameter (mm)		2,0mm	—
Object/ Part No./ Material	Manufacturer/ trademark	Test temperature (°C)	Impression diameter (mm)
Lamp cover (lens)	See Annex 1	75	1.0
DC connector	See annex 1	125	1.4
Supplementary information:--			

2.16 (13.3.1)	TABLE: Needle-flame test (IEC 60695-11-5)				P
Object/ Part No./ Material	Manufacturer/ trademark	Duration of application of test flame (ta); (s)	Ignition of specified layer Yes/No	Duration of burning (tb) (s)	Verdict
DC connector	See annex 1	30s	No	0	P
Supplementary information:--					

2.16 (13.3.2)	TABLE: Glow-wire test (IEC 60695-2-11)				P
Glow wire temperature		750°C or 650°C			—
Object/ Part No./ Material	Manufacturer/ trademark	Duration of application of test flame (ta); (s)	Ignition of specified layer Yes/No	Duration of burning (tb) (s)	Verdict
Lamp cover (lens) (650°C)	See Annex 1	30s	No	0s	P
Plastic enclosure of LED driver (650°C)	--	30s	No	0s	P
PCB of LED driver (750°C)	--	30s	No	0s	P
Bobbin of LED driver (750°C)	--	30s	No	0s	P
X-capacitor of LED driver (750°C)	--	30s	No	0s	P
DC connector (750°C)	--	30s	No	0s	P
Any flame or glowing of the sample extinguished within 30 s of withdrawing the glow-wire, and any burning or molten drop did not ignite the underlying parts (Yes/No).....					Yes
Supplementary information:--					





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

2.16 (13.4)	TABLE: Proof tracking test (IEC 60112)				P
Test voltage PTI :		175 V			—
Object/ Part No./ Material	Manufacturer/ trademark	Withstand 50 drops without failure on three places or on three specimens			Verdict
Lamp cover (lens)	See Annex 1	Yes	Yes	Yes	P
Supplementary information:--					





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

ANNEX 1	TABLE: Critical components information					P
Object / part No.	Code	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹⁾
AU plug	B	ZHONGSHAN JINKAIRUI Electronics Co Ltd	JKR-307	250V, 10A	AS/NZS 3112	SAA130025E A
Power cord	B	ZHONGSHAN JINKAIRUI Electronics Co Ltd	H05RR-F	3x0.75mm ²	AS/NZS 60227.5	SAA212485
DC connector	B	Zhongshan Jinkairui Electrical co.,Ltd	6P-US	PC	IEC 60598-1/-2-2 AS/NZS 60598.1/-2.2	Test with appliance
Output wire	B	ZhongShanShi Hongpai Dianxian Zhipin Limited company	2464	300V, 24AWG, 80°C	--	UL E508352
Alt.	D	Various	2464	300V, 24AWG, 80°C	--	UL
LED driver	B	Shenzhen Gledopto Co., Ltd.	GLEED-12W-20V	Input: 100-240VAC, 50/60Hz, 0.23A; Output: 20VDC, 510mA, 12W; Class I, IP20, ta=45°C, tc=90°C, Independent SELV constant current and constant voltage, IC classification	IEC 61347-1/-2-13 AS/NZS 61347.1 AS 61347.2.13	LCS report No.: LCS22032400 2BS
LED driver	B	Shenzhen Gledopto Co., Ltd.	GLEED-9W-15V	Input: 100-240VAC, 50/60Hz, 0.18A; Output: 15VDC, 500mA, 9W; Class I, IP20, ta=45°C, tc=90°C, Independent SELV constant current and constant voltage, IC classification	IEC 61347-1/-2-13 AS/NZS 61347.1 AS 61347.2.13	LCS report No.: LCS22032400 2BS
LED driver	B	Shenzhen Gledopto Co., Ltd.	GLEED-6W-15V	Input: 100-240VAC,	IEC 61347-1/-2-13	LCS report No.:



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IEC 60598-2-2						
Clause	Requirement + Test			Result - Remark		Verdict
				50/60Hz, 0.13A; Output: 15VDC, 350mA, 6W; Class I, IP20, ta=45°C, tc=90°C, Independent SELV constant current and constant voltage, IC classification	AS/NZS 61347.1 AS 61347.2.13	LCS22032400 2BS
LED driver	B	Shenzhen Gledopto Co., Ltd.	GLED-6W- 12V	Input: 100- 240VAC, 50/60Hz, 0.13A; Output: 12VDC, 400mA, 6W; Class I, IP20, ta=45°C, tc=90°C, Independent SELV constant current and constant voltage, IC classification	IEC 61347-1/-2- 13 AS/NZS 61347.1 AS 61347.2.13	LCS report No.: LCS22032400 2BS
Internal wire for LED driver output	B	ZhongShanShi Hongpai Dianxian Zhipin Limited company	2464	300V, 24AWG, 80°C;	--	UL E508352
Alt.	D	Various	2464	300V, 24AWG, 80°C;	--	UL
LED	B	SHENZHEN GLORY SKY OPTOELECTRONIC CO . LTD	GS022835H 2A6-S	IF=60MA, VF=2.8V, CCT=2700- 6000K, 120 °	IEC TR 62778	Test with appliance
LED PCB	B	SHENZHEN JINMEIHUI ELECTRONIC TECHNOLOGY CO LTD	JMH -AL01	V-0, 130°C	--	UL E476789
Lamp cover (lens)	B	jiangmengshixinjingyazh u	Φ 225mm*22m m	PP	IEC 60598-1/-2- 2 AS/NZS 60598.1/2.2	Test 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



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

ANNEX 2	TABLE: Temperature measurements, thermal tests of Section 12		P
	Type reference.....:	GL-D-005P	—
	Lamp used.....:	Integral LED	—
	Lamp control gear used.....:	Use with approved independent SELV LED driver	—
	Mounting position of luminaire.....:	Recessed mounting: detail see below note.	—
	Supply wattage (W).....:	11.5	—
	Supply current (A).....:	0.103	—
	Calculated power factor.....:	0.439	—
	Table: measured temperatures corrected for $t_a = 25\text{ }^{\circ}\text{C}$:		P
	- abnormal operating mode.....:	--	—
	- test 1: rated voltage.....:	--	—
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage.....:	1.06x240V=254.4V;	—
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage.....:	--	—
	- test 4: 1,06 times rated voltage or 1,05 times rated wattage.....:	--	—
	Through wiring or looping-in wiring loaded by a current of A during the test	--	—

Temperature measurements, ($^{\circ}\text{C}$)						
Part	Clause 12.4 – normal			Clause 12.5 – abnormal		
	test 1	test 2	limit	test 4	test	limit
Lamp top	--	63.4	90	--	--	--
Lamp side	--	61.2	90	--	--	--
tc of LED driver	--	66.9	80	--	--	--
LED PCB	--	67.4	130	--	--	--
Lens Inside	--	58.8	Material test	--	--	--
Lens outside	--	53.3	90	--	--	--
Mounting surface	--	42.9	90	--	--	--





IEC 60598-2-2						
Clause	Requirement + Test			Result - Remark		Verdict
Ambient	--	25.0	--	--	--	--
<p>Note:</p> <p>Test condition:</p> <p>The luminaire under test is placed in the centre of the test box as shown in Figure ZA1. Thermal insulation is then added to the test box to completely fill the test box. The insulation is pushed around the luminaire to form a close fit to the sides and top of the luminaire without compression. The type of thermal insulation is formed insulation where 200 mm is equivalent to an RI 4.0 classification in accordance with AS/NZS 4859.1.</p> <p>Remark:</p> <p>1. Between the test lamp and the LED driver at the distance of 50mm, and the LED driver do not cover thermal insulation.</p> <p>2. The highest temperature point found by the 1.0 mm probe.</p>						

ANNEX 2	TABLE: Temperature measurements, thermal tests of Section 12		P
	Type reference.....:	GL-D-007P	—
	Lamp used.....:	Integral LED	—
	Lamp control gear used.....:	Use with approved independent SELV LED driver	—
	Mounting position of luminaire.....:	Recessed mounting: detail see below note.	—
	Supply wattage (W).....:	11.1	—
	Supply current (A).....:	0.101	—
	Calculated power factor.....:	0.432	—
	Table: measured temperatures corrected for $t_a = 25\text{ }^{\circ}\text{C}$:		P
	- abnormal operating mode.....:	--	—
	- test 1: rated voltage.....:	--	—
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage.....:	1.06x240V=254.4V;	—
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage.....:	--	—
	- test 4: 1,06 times rated voltage or 1,05 times rated wattage.....:	--	—
	Through wiring or looping-in wiring loaded by a current of A during the test	--	—
Temperature measurements, ($^{\circ}\text{C}$)			
Part	Clause 12.4 – normal		Clause 12.5 – abnormal





IEC 60598-2-2						
Clause	Requirement + Test			Result - Remark		Verdict
	test 1	test 2	limit	test 4	test	limit
Lamp top	--	79.6	90	--	--	--
Lamp side	--	76.3	90	--	--	--
tc of LED driver	--	85.2	90	--	--	--
LED PCB	--	101.6	130	--	--	--
Lens Inside	--	86.2	Material test	--	--	--
Lens outside	--	82.5	90	--	--	--
Mounting surface	--	55.8	90	--	--	--
Ambient	--	25.0	--	--	--	--
<p>Note:</p> <p>Test condition:</p> <p>The luminaire under test is placed in the centre of the test box as shown in Figure ZA1. Thermal insulation is then added to the test box to completely fill the test box. The insulation is pushed around the luminaire to form a close fit to the sides and top of the luminaire without compression. The type of thermal insulation is formed insulation where 200 mm is equivalent to an RI 4.0 classification in accordance with AS/NZS 4859.1.</p> <p>Remark:</p> <ol style="list-style-type: none">Between the test lamp and the LED driver at the distance of 50mm, and the LED driver do not cover thermal insulation.The highest temperature point found by the 1.0 mm probe.						





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

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

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



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





IEC 60598-2-2											
Clause	Requirement + Test					Result - Remark					Verdict
(15.6.3.1) (15.6.3.2)	TABLE: Contact resistance test / Heating tests										N/A
	Voltage drop (mV) after 1 h										—
terminal	1	2	3	4	5	6	7	8	9	10	
voltage drop (mV)											
	Voltage drop of two inseparable joints										
	Voltage drop after 10th alt. 25th cycle										
	Max. allowed voltage drop (mV).....:										—
terminal	1	2	3	4	5	6	7	8	9	10	
voltage drop (mV)											
	Voltage drop after 50th alt. 100th cycle										
	Max. allowed voltage drop (mV).....:										—
terminal	1	2	3	4	5	6	7	8	9	10	
voltage drop (mV)											
	Continued ageing: voltage drop after 10th alt. 25th cycle										
	Max. allowed voltage drop (mV).....:										—
terminal	1	2	3	4	5	6	7	8	9	10	
voltage drop (mV)											
	Continued ageing: voltage drop after 50th alt. 100th cycle										
	Max. allowed voltage drop (mV).....:										—
terminal	1	2	3	4	5	6	7	8	9	10	
voltage drop (mV)											
Supplementary information:--											



**Attachment No.1****AS/NZS 60598.1:2017+A1:2017+A2:2020**

Clause	Requirement + Test	Result - Remark	Verdict
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APPENDIX ZZ**VARIATIONS TO IEC 60598-1, Ed. 8.0 (2014) FOR AUSTRALIA AND NEW ZEALAND**

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
	NOTE Portable rechargeable battery operated luminaires should comply with Annex B, ‘Appliances powered by rechargeable batteries’ of AS/NZS 60335.1, Household and similar electrical appliances—Safety, Part 1: General requirements (IEC 60335-1 ED. 5, MOD). In addition, portable, rechargeable, battery-operated luminaires with lithium ion batteries should have overvoltage protection.		—
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 240V for single-phase equipment and 415 V for three-phase equipment.		P
0.5	Add: Relevant Australian/New Zealand Standard replaces the IEC Standard unless otherwise specified.		P
0.5.101	Add: Capacitors		N/A
	Capacitors shall be of a type to ensure that any capacitor failure results in a failsafe outcome.		N/A





Attachment No.1

AS/NZS 60598.1:2017+A1:2017+A2:2020

Clause	Requirement + Test	Result - Remark	Verdict
	Capacitors (other than those incorporated in control gear that comply with there levant standard) shall comply with one of the following: - 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.		N/A
	In addition, capacitors shall have a minimum voltage rating of 250 V at a temperature rating of 100 °C or 280 V at a temperature rating of 85 °C.		N/A
0.5.102	Add: Control gear		P
	Power supplies shall comply with the relevant part 2 of the AS/NZS 61558series.		N/A
	Control gear shall comply with the relevant part 2 of the AS/NZS 61347series.		P
	Battery chargers used for lighting other than emergency lighting shall comply with AS/NZS 60335.2.29.		N/A
	Sensor switches and similar control circuits, including those incorporated in other equipment, are considered electronic switches (see Clause 4.8).		N/A

2	CLASSIFICATION OF LUMINAIRES	N/A
2.2	Class 0 luminaires are not permitted in Australia or New Zealand.	—

3	MARKING	P
3.1	In Australia and New Zealand, instructions and other texts required by this Standard shall at least be written in English.	P
3.2	Delete the second paragraph beginning with 'Marking may be on ballast provided...'. 	P




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Attachment No.1

AS/NZS 60598.1:2017+A1:2017+A2:2020

Clause	Requirement + Test	Result - Remark	Verdict
Table 3.1	Move item 3.2.21 from the second column to the third column. 3.2.21 The relevant symbol for luminaires not suitable for covering with thermally insulating material		N/A
3.2.3	The rated maximum ambient temperature t_a. (see Figure 1).		P
3.2.12	Add: 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".		N/A
3.2.23	Add: 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
3.3.7	Delete Clause and replace with: 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 10 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
3.3.18	Delete the text ' , i.e. for indoor use only'.		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.		N/A
3.3.21	Delete the text 'Caution, risk of electric shock' and the symbol.		P
3.3.101	The instructions shall contain details of the components in the luminaire that require replacement as part of a maintenance program.		N/A





Attachment No.1

AS/NZS 60598.1:2017+A1:2017+A2:2020

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
	The safety warnings are not required where these batteries are not intended to be replaced or are only accessible after damaging the equipment.		—
	The safety warnings: – 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
3.3.103	Luminaires intended to be fixed to the wall and are supplied with a plug and a cord are 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	Delete the first paragraph and replace with the following: 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 there placement of replaceable light sources or starters.		P



**Attachment No.1****AS/NZS 60598.1:2017+A1:2017+A2:2020**

Clause	Requirement + Test	Result - Remark	Verdict
4.8	Add: Switches shall comply with AS/NZS 3133, the AS/NZS 60669 series or AS/NZS 61058.1. Switches that indicate an off position shall have contacts with an air break and comply with AS/NZS 3133, AS/NZS 60669.1 or AS/NZS 61058.1.		N/A
	Electronic switches, when incorporated in or supplied with the luminaire, shall comply with the requirements of AS/NZS 60669.2.1 or IEC 61058-1 classified for 10,000 operating cycles		N/A
4.10.4	Delete the last sentence and replace with the following:: 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	Add: A fixed socket-outlet complying with AS/NZS 3112 or AS/NZS 60884.1 is used for the test.		N/A
4.32	Delete the text and replace with the following:		—
4.32.1	General		N/A
	To limit the effects of lightning surges and other transient overvoltages, overvoltage protective devices may be used in luminaires and they can be either <input type="checkbox"/> Surge protective devices (SPDs), or <input type="checkbox"/> Surge protective components (SPCs).		N/A
4.32.2	Surge protective devices (SPDs)		N/A
	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.		N/A
4.32.3	Surge protective components (SPCs)		N/A
	SPCs that are external to controlgear shall comply with the requirements of AS/NZS 3100 for varistors.		N/A



**Attachment No.1****AS/NZS 60598.1:2017+A1:2017+A2:2020**

Clause	Requirement + Test	Result - Remark	Verdict
(3.16)	Metal Oxide Varistors incorporated in accessories		N/A
	(a) MOVs shall comply with IEC 61051-2.		N/A
	(b) MOVs shall have a maximum continuous voltage rating of: - at least 1.25 times the rated voltage of the accessory or - at least 1.25 times the upper voltage of the rated voltage range.		N/A
	(c) The body of any MOV shall have a flammability category of V-0 or better according to AS/NZS 60695.11.10.		N/A
	(d) Accessories shall be protected against sudden failure of MOVs. Protection shall be provided by: - a 10 A maximum rated fuse of adequate breaking capacity, or equivalent, connected in series with the MOV; or - another protective device, provided that the combination complies with a limited shortcircuit test, with the MOV shorted out. The accessory shall be tested in accordance with 9.3.1 of IEC 60127-1, Method A, for breaking capacity of 1500 A. The test result shall be assessed against the criteria of clause 8.15.10.		N/A
	(e) Accessories shall be protected against gradual failure of MOVs. Compliance is checked by the test of clause 8.15.9.		N/A
(8.15.9)	Equipment incorporating Metal Oxide Varistors (MOVs)		N/A
4.101.1	Small batteries		N/A
	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
	Compliance is checked by inspection and by the following test:		—



**Attachment No.1****AS/NZS 60598.1:2017+A1:2017+A2:2020**

Clause	Requirement + Test	Result - Remark	Verdict
	A force is applied without jerks for 10 s in the most unfavourable direction to parts likely to be weak. The force is as follows: – push force, 50 N; – pull force; 30 N; – if the shape of the part is such that the fingertips cannot easily slip off, 50 N; – if the projection of the part that is gripped is less than 10 mm in the direction of removal, 30 N. 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 10 N. The fingernail is then slid sideways with a force of 10 N 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 10 N and is then pulled for 10 s by means of the loop with a force of 30 N 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: – 2 Nm, for major dimensions up to 50 mm. – 4 Nm, for major dimensions over 50 mm. 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 10 mm, the torque is reduced by 50 %.....:	4 Nm	N/A
4.101.1 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.		
	Compliance is checked by inspection and by the following test:		—
	A force of 20 N is applied to the screw or similar fastener without jerks for a duration of 10 s in any direction.		N/A

5	EXTERNAL AND INTERNAL WIRING	P
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**Attachment No.1****AS/NZS 60598.1:2017+A1:2017+A2:2020**

Clause	Requirement + Test	Result - Remark	Verdict
5.2.1	<p>First paragraph replaced by:</p> <p>Luminaires shall be provided with only one of the following means of connection and isolation to the supply.</p> <p>Fixed luminaires:</p> <ul style="list-style-type: none">– device for the connection of luminaires;– terminals;– plug for engagement with socket-outlets;– connecting leads (tails) in accordance with Clause 4.6 requirements;– supply cord;– supply cord and plug;– adapter for engagement with supply tracks;– appliance inlet;– installation coupler;– luminaire coupler. <p>Portable luminaires:</p> <ul style="list-style-type: none">– supply cord with plug;– appliance inlet;– inlet plug complying with AS/NZS 3120. <p>Track-mounted luminaires:</p> <ul style="list-style-type: none">— adaptor;— connector.	AU plug and power cord used	P
	Delete the second and third paragraph.		—
	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 the relevant 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. For other than portable luminaires a plug is not required if the luminaire has markings and instructions in accordance with Clause 3.2.12.		P
	The plug portion of a luminaire with integral pins shall comply with there levant requirements of AS/NZS 3112.		N/A
	NOTE 4 PVC-insulated connection cords should not be used with outdoor luminaires in cold alpine locations.		—



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Clause	Requirement + Test	Result - Remark	Verdict
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5.2.2	<p>First paragraph replaced by:</p> <p>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.</p>		P																												
<p>Table 5.1 — Supply cord</p> <table><tr><th>Luminaire</th><th>Rubber</th><th>PVC</th><th>No insulation</th></tr><tr><td>Ordinary class I luminaires</td><td>60245 IEC 51S °</td><td>60227 IEC 52 °</td><td></td></tr><tr><td>Ordinary class II luminaires</td><td>60245 IEC 53 °</td><td>60227 IEC 52 °</td><td></td></tr><tr><td>Luminaires which are other than ordinary class I and II</td><td>60245 IEC 57 °</td><td>60227 IEC 53 °^{ac}</td><td></td></tr><tr><td>Portable rough service luminaires</td><td>60245 IEC 66 °</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>Un-insulated conductor^b</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>Unsheathed basic insulated conductor</td><td></td><td></td></tr></table> <p>^a For indoor use only.</p> <p>^b AS/NZS 3000 may restrict the use of un-insulated conductors in certain special installations.</p> <p>^c For supply voltages greater than 250 V, higher voltage grade cables and cords than those given in the above table may be necessary.</p>				Luminaire	Rubber	PVC	No insulation	Ordinary class I luminaires	60245 IEC 51S °	60227 IEC 52 °		Ordinary class II luminaires	60245 IEC 53 °	60227 IEC 52 °		Luminaires which are other than ordinary class I and II	60245 IEC 57 °	60227 IEC 53 ° ^{ac}		Portable rough service luminaires	60245 IEC 66 °	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.)			Un-insulated conductor ^b	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		
Luminaire	Rubber	PVC	No insulation																												
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Portable rough service luminaires	60245 IEC 66 °	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.)			Un-insulated conductor ^b																												
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																														
<p>Third paragraph replaced by:</p> <p>To provide adequate mechanical strength, the nominal cross-sectional area of the conductors shall be not less than:</p> <ul style="list-style-type: none">— 0,75 mm²;— 1,0 mm² for portable rough service luminaires.																															



**Attachment No.1****AS/NZS 60598.1:2017+A1:2017+A2:2020**

Clause	Requirement + Test	Result - Remark	Verdict
5.2.16	Add: 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. Luminaires incorporating installation couplers may have means to allow further luminaires to be connected by cascading provided the through wiring is rated for the current rating of the installation coupler.		N/A
5.2.18	Replaced by: 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.		P
5.3.1	Third paragraph replaced 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
	NOTE 3 Internal wires of other colours are not precluded from making protective earthing connections		—
5.3.1.3	Replaced by: 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
7	PROVISION FOR EARTHING		P
7.2.11	Third paragraph replaced 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 No.1****AS/NZS 60598.1:2017+A1:2017+A2:2020**

Clause	Requirement + Test	Result - Remark	Verdict
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8	PROTECTION AGAINST ELECTRIC SHOCK		P
8.2.1	<p>First two paragraphs including Note 1 replace by following:</p> <p>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 user cleaning or maintenance, or for replacement of lamps, replaceable light sources or (replaceable) starters, even if the operation cannot be achieved by hand.</p> <p>This does not apply to the non-current-carrying parts of caps which comply with the relevant IEC safety standard.</p>		P
	Covers that can be removed by hand shall be removed.		—
9	RESISTANCE TO DUST, SOLID OBJECTS AND MOISTURE		N/A
9.2	<p>Add after NOTE 1:</p> <p>NOTE 101 A designation of IPX7 or IPX8 is considered unsuitable for exposure to waterjets (designated 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
10.2	<p>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:</p> <p>(a) Shunt-connected capacitors.</p> <p>(b) Capacitors between live parts and the body.</p> <p>(c) Protective impedance device.</p> <p>(d) Chokes or transformers connected between live parts.</p> <p>(e) Overvoltage protective devices in accordance with 4.32 of this Standard.</p> <p>(f) Controlgear that conforms with the relevant requirements of IEC 61347 series.</p>		—



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AS/NZS 60598.1:2017+A1:2017+A2:2020

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

12	ENDURANCE TEST AND THERMAL TEST		P
Table 12.1	First column, first row, the text replaced by : 'Case (of control gear , capacitor, starting device, electronic ballast or convertor, etc.)'		—
	Add: NOTE 101 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 h. This t-life is often marked as ta and is the temperature of the air in the vicinity of the component and is not related to the luminaire ta. As such, luminaire manufacturers should measure air temperature in the vicinity of such components, within the luminaire, as even those complying with their tc point measurements can still fail prematurely if t-life is exceeded.		—
13.3	Resistance to flame and ignition		P
	Parts of non-metallic material shall be resistant to flame and ignition		P
	For materials other than ceramic, compliance is checked by the tests of 13.3.1 and 13.3.2, and 13.3.3 as appropriate.		P
	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		P
	This Clause applies to all parts, including components, even if they have been tested to their own IEC or equivalent standard		P



**Attachment No.1****AS/NZS 60598.1:2017+A1:2017+A2:2020**

Clause	Requirement + Test	Result - Remark	Verdict
13.3.1	Parts of non-metallic material supporting connections that could become an ignition source, and parts of non-metallic material within a distance of 3 mm of such connections, shall withstand the glow wire test		P
	Welded connections, soldered connections on printed circuit boards and other connections carrying less than 0.2 A during normal operation are not considered to be an ignition source.		P
	The glow wire is heated to 750 °C and applied to one test sample for 30 s	See IEC 60598-2-2 report	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.		P
	The glow wire is heated to 650 °C and applied to one test sample for 30 s	See IEC 60598-2-2 report	P
13.3.3	During the application of the glow wire test of Clause 13.3.1 and 13.3.2, if a flame is produced that persists for longer than 2 s, the luminaire is further tested as follows: The needle-flame is applied to one test sample for 30 s.		N/A
	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.		N/A
	Parts shielded by a barrier that meets the needle-flame test of AS/NZS 60695.11.5 are not tested.		N/A
	The needle-flame test is not carried out on parts that are made of material classified as V-0 or V-1 according to IEC 60695-11-10. The sample of material submitted to the test of IEC 60695-11-10 shall be no thicker than the relevant part.		N/A



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**Attachment No.2****AS/NZS 60598.2.2:2016+A1:2017**

Clause	Requirement + Test	Result - Remark	Verdict
	Variations to IEC 60598-2-2, ed. 3.0 (2011) for Australia and New Zealand (AS/NZS 60598.2.2:2016+A1:2017)		P
2.1	At the end of 2.1, add the following text:		P
	This part also specifies the safety requirements for recessed luminaires to provide adequate protection in respect of the fire risk associated with the combination of recessed luminaires with flammable building elements, flammable debris and building insulation.		P
	This Standard is to be read in conjunction with AS/NZS 60598.1.		P
	Luminaires within the scope of IEC 60598-2-13, Luminaires, Part 2-13: Particular requirements—Ground recessed luminaires, are excluded from this Standard.		N/A
2.2	Add the following new normative references:		P
	AS 60529, Degrees of protection provided by enclosures (IP Code)	IP54 for parts below the ceiling, IP20 for parts recessed in ceiling	P
	AS/NZS 4859.1, Materials for the thermal insulation of buildings — General criteria and technical provisions		N/A
	AS/NZS 61347 (all parts), Lamp controlgear		P
	IEC 60730-1, Automatic electrical controls — Part 1: General requirements		N/A
	IEC 60730-2 (all parts), Automatic electrical controls for household and similar use		N/A
	IEC 61032, Protection of persons and equipment by enclosures — Probes for verification		N/A
	IEC 62733, Programmable components in electronic lamp controlgear — General and safety requirements		N/A
2.3	Delete existing text and replace with the following:		P
	The provisions of Section 0 of AS/NZS 60598.1 apply.		P
	The tests specified in each appropriate section of	IC-4	P



**Attachment No.2****AS/NZS 60598.2.2:2016+A1:2017**

Clause	Requirement + Test	Result - Remark	Verdict
	AS/NZS 60598.1 shall be carried out in the order listed in this part for all luminaires other than those with an IP rating greater than IP2X and those classified as CA90, CA135, IC and IC-4.		
	For luminaires with an IP classification greater than IP2X, and those classified as CA90, CA135, IC and IC-4, the tests specified in each appropriate section of AS/NZS 60598.1 shall be carried out in the order listed in this part, except for the tests listed in Table ZZ1, which shall be performed in the order listed in Table ZZ1.	IC-4	P
2.4	Classification of luminaires		P
2.4.101	Non-IC luminaire		N/A
2.4.102	Do-not-cover luminaire		N/A
2.4.103.1	CA90 luminaire		N/A
2.4.103.2	CA135 luminaire (New Zealand only)		N/A
2.4.104.1	IC luminaire		N/A
2.4.104.2	IC-4 luminaire	IC-4	P
2.4.105	Outside surface of the luminaire		P
2.4.106	Limited access		N/A
	Part accessible to a 5.6 mm diameter probe are not permitted to have surface temperatures exceeding 90 °C under normal operating conditions, excluding the access face.		N/A
2.4.107	Some access		N/A
	Parts accessible to a 50 mm diameter probe are not permitted to have surface temperatures exceeding 135 °C in normal operation, excluding the access face.		N/A
2.4.108	Restricted access		P
	Parts accessible to an AS 60529 IP4X probe are not permitted to have surface temperatures exceeding 90 °C in normal operation, including the access face.		P
2.4.109	Recessed luminaire		P



**Attachment No.2****AS/NZS 60598.2.2:2016+A1:2017**

Clause	Requirement + Test	Result - Remark	Verdict
	A luminaire designed to be recessed into a ceiling, wall, floor or similar surface with an access face which, when installed on a mounting surface, emits light into one area, while the body of the luminaire is located in a separate area on the other side of the mounting surface to the access face. Includes a light source and any components of the luminaire required for the luminaire to operate.	Recessed into a ceiling	P
2.5.101	General		P
2.5.102	Australian classifications		P
	a). Non-IC		N/A
	b). Do-not-cover		N/A
	c). CA90		N/A
	d). IC		N/A
	e). IC-4	IC-4	P
2.5.103	New Zealand classifications		P
	a). Non-IC		N/A
	b). Do-not-cover		N/A
	c). CA90		N/A
	d). CA135		N/A
	e). IC		N/A
	f). IC-4	IC-4	P
2.6.101	General		P
2.6.102	Luminaire symbol marking		P
	Non-IC mark		N/A
	Do-not-cover mark		N/A
	CA90 mark		N/A
	CA135 mark		N/A
	IC mark		N/A
	IC-4 mark	IC-4	P
2.6.103	Location and durability of marking		P
	a) legible, durable and visible when the luminaire is installed and viewed from		P





Attachment No.2

AS/NZS 60598.2.2:2016+A1:2017

Clause	Requirement + Test	Result - Remark	Verdict
	behind; b) a minimum size of 25 mm × 25 mm; and c) permanently marked on the luminaire or on a durable swing tag permanently connected to the luminaire. The marking shall comply with the durability test requirements of AS/NZS 60598.1.		
2.6.104	Additional information to be supplied with the luminaire		P
2.6.104.1	General		P
	All recessed luminaires shall be supplied with installation instructions containing the following information: a) The minimum clearance distance from the top of the luminaire to any normally flammable building element. b) The minimum clearance distance from the top of the luminaire to any building insulation. c) The minimum clearance distance from the side of the luminaire to any normally flammable building element. d) The minimum clearance distance from the side of the luminaire to any building insulation.	See use manual	P
	In the section of the instructions where the minimum clearance distances are stated, the following warning shall be included: WARNING — RISK OF OVERHEATING OR FIRE IF THE CLEARANCE DISTANCES ARE COMPROMISED.		P
	Luminaires with classification CA135 shall have the additional following warning included: WARNING — RISK OF FIRE: THIS LUMINAIRE CANNOT BE INSTALLED ABUTTING THERMAL INSULATION OR OTHER BUILDING ELEMENTS THAT ARE NOT SUITABLE FOR EXPOSURE TO CONSTANT TEMPERATURES OF 135 °C.		N/A
2.6.104.2	Additional warning		N/A
2.6.104.2.1	General		N/A
2.6.104.2.2	Australia additional warning		N/A
	Non-IC luminaires shall be supplied with installation instructions containing the following warning:		N/A



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AS/NZS 60598.2.2:2016+A1:2017

Clause	Requirement + Test	Result - Remark	Verdict
	WARNING — THIS LUMINAIRE IS NOT SUITABLE FOR INSTALLATION IN LOCATIONS WHERE THERMAL INSULATION IS PRESENT, OR MAY REASONABLY BE EXPECTED TO BE INSTALLED IN THE FUTURE, OR WHERE THERE IS A LIKELIHOOD OF OTHER COMBUSTIBLE MATERIAL, E.G. LEAVES OR VERMIN DEBRIS, ETC. COLLECTING ON OR AROUND THE LUMINAIRE. IT IS NOT SUITABLE FOR DOMESTIC INSTALLATIONS OR INSTALLATION IN RESIDENTIAL AREAS OF NON-DOMESTIC INSTALLATIONS (RESIDENTIAL INSTITUTIONS, HOTELS, BOARDING HOUSES, HOSPITALS, ACCOMMODATION HOUSES, MOTELS, HOSTELS AND THE LIKE).		
2.6.204.2.3	New Zealand additional warning		N/A
	Non-IC luminaires and Do-Not-Cover luminaires shall be supplied with installation instructions containing the following warning: WARNING — THIS LUMINAIRE IS NOT SUITABLE FOR INSTALLATION IN LOCATIONS WHERE THERMAL INSULATION IS PRESENT, OR MAY REASONABLY BE EXPECTED TO BE INSTALLED IN THE FUTURE, OR WHERE THERE IS A LIKELIHOOD OF OTHER COMBUSTIBLE MATERIAL, E.G. LEAVES OR VERMIN DEBRIS, ETC. COLLECTING ON OR AROUND THE LUMINAIRE. IT IS NOT SUITABLE FOR DOMESTIC INSTALLATIONS OR INSTALLATION IN RESIDENTIAL AREAS OF NON-DOMESTIC INSTALLATIONS (RESIDENTIAL INSTITUTIONS, HOTELS, BOARDING HOUSES, HOSPITALS, ACCOMMODATION HOUSES, MOTELS, HOSTELS AND THE LIKE).		N/A
2.6.105	Luminaires intended for use with independent controlgear		P
2.6.106	Compliance		P
	Compliance with Clauses 2.6.101 to 2.6.105 is checked by inspection and the relevant tests of AS/NZS 60598.1.		P
2.7.101	General		N/A
2.7.102	Thermal protection devices		N/A
2.7.103	Electronic controls		N/A
	The operation, or malfunction, of electronic controls that are used to regulate the operation of the light		N/A



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**Attachment No.2****AS/NZS 60598.2.2:2016+A1:2017**

Clause	Requirement + Test	Result - Remark	Verdict
	source to enable the luminaire to comply with requirements of this Standard (either during normal or abnormal operation) shall not result in a safety hazard.		
2.7.104	Controlgear		P
	All controlgear (including controlgear that is a component part and all independent controlgear) that is supplied with, or specified in, the instructions supplied with the luminaire for use with the luminaire shall be assessed with the luminaire to this Standard and shall, in addition, comply with the appropriate part of the AS/NZS 61347 series.		P
2.13.101	General		P
	a) For Non-IC and Do-not-cover luminaires, the requirements of Clauses 12.4 and 12.5 of AS/NZS 60598.1 are modified by Clause 2.13.102.		N/A
	b) For CA90 and CA135 luminaires, the requirements of Clauses 12.4 and 12.5 of AS/NZS 60598.1 are modified by Clause 2.13.103.		N/A
	c) For IC and IC-4 luminaires, the requirements of Clauses 12.4 and 12.5 of AS/NZS 60598.1 are modified by Clause 2.13.104.	IC-4	P
2.13.102	Thermal tests for Non-IC and Do-not-cover luminaires		N/A
2.13.102.1	Normal operation test for Non-IC and Do-not-cover luminaires		N/A
	Non-IC and Do-not-cover luminaires shall be tested in accordance with the requirements of Paragraph ZA3 in Appendix ZA.		N/A
2.13.102.2	Abnormal operation test for Do-not-cover luminaires		N/A
	Do-not-cover luminaires shall be tested in accordance with the requirements of Paragraph ZA5.		N/A
2.13.103	Thermal tests for CA90 and CA135 luminaires		N/A
2.13.103.1	Normal operation test for CA90 and CA135 luminaires		N/A
	CA90 and CA135 luminaires shall be tested in accordance with the requirements of Paragraph ZA4.	See table Annex ZA4	N/A
2.13.103.2	Abnormal operation test for CA90 and CA135 luminaires		N/A





Attachment No.2

AS/NZS 60598.2.2:2016+A1:2017

Clause	Requirement + Test	Result - Remark	Verdict
	CA90 and CA135 luminaires shall be tested in accordance with the requirements of Paragraph ZA5.	See table Annex ZA5	N/A
	a) 90 °C on the luminaire mounting surface;		N/A
	b) for CA90 luminaires—130 °C on the outside surface of the luminaire accessible to the relevant test probe of Clause 2.14		N/A
	c) for CA135 luminaires—150 °C on the outside surface of the luminaire accessible to the relevant test probe of Clause 2.14.		N/A
2.13.104	Thermal tests for IC and IC-4 luminaires	IC-4	P
	IC and IC-4 luminaires shall be tested in accordance with the requirements of Paragraph ZA6.		P
	a) 90 °C on the luminaire mounting surface;		P
	b) 90 °C on the outside surface of the luminaire accessible to the relevant test probe of Clause 2.14		P
	c) for other parts, the appropriate values given in Tables 12.1 and 12.2 of AS/NZS 60598.1.		P
2.14.101	General		N/A
2.14.102	Ingress test for CA90 and IC luminaires		N/A
	Solid foreign objects shall have limited access to the hot surfaces of CA90 and IC luminaires.		N/A
	Test probe 19 of IEC 61032 shall be applied without appreciable force to all external surfaces and any opening of the luminaire. Test probe 19 shall not be applied to the access face.		N/A
	The 5.6 mm diameter of the probe shall not enter into an area where the temperature of any surface (including parts of the luminaire or the lamp) exceeds the temperature limit for 'mounting surface: normally flammable surface' of AS/NZS 60598.1, when the surface is measured while the luminaire is operated in accordance with the thermal test conditions of Paragraph ZA4 for CA90 luminaires and Paragraph ZA6 for IC luminaires.	See table Annex ZA4	N/A
2.14.103	Ingress test for CA135 luminaires—New Zealand only		N/A
2.14.103.1	Solid foreign objects shall have some access to the hot surfaces of		N/A



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**Attachment No.2****AS/NZS 60598.2.2:2016+A1:2017**

Clause	Requirement + Test	Result - Remark	Verdict
	CA135 luminaires.		
2.14.103.2	Test probe 1 of IEC 61032 shall be applied without appreciable force to all external surfaces and any opening of the luminaire. Test probe 1 is not applied to the access face.		N/A
	The 50 mm diameter of the probe shall not enter into an area where the temperature of any surface (including parts of the luminaire or the lamp) exceeds a value of 135 °C, when the surface is measured while the luminaire is operated in accordance with the thermal test conditions of Paragraph ZA4.		N/A
2.14.103.3	The total area of all openings in the luminaire body that allows airflow through the luminaire (i.e. airflow between the ceiling/wall space and the illuminated area), excluding openings in the access face, shall be no more than 5 % of the area of the opening in the mounting surface (opening in mounting surface as required by the manufacturer to insert the luminaire).		N/A
2.14.104	Ingress test for IC-4 luminaires		P
	Solid foreign objects shall have restricted access to the hot surfaces of IC-4 luminaires and restricted access to the open area that allows airflow through the luminaire (i.e. between the area that the body of the luminaire is located in and the area that the light source illuminates)		P
	The IP4X probes of AS 60529 shall be applied to the complete luminaire and any opening of the luminaire including the access face.		P
	The IP4X probes of AS 60529 shall be applied without appreciable force and shall not enter any area of the luminaire where the temperature of any surface (including parts of the luminaire or the lamp) exceeds the temperature limit for 'mounting surface: normally flammable surface' of AS/NZS 60598.1, when the surface is measured while the luminaire is operated in accordance with the thermal test conditions of Paragraph ZA6.	See table Annex ZA6	P
	With the luminaire installed in accordance with the manufacturer's instructions, the IP4X probes of AS 60529 shall not be able to pass from the illuminated		P



**Attachment No.2****AS/NZS 60598.2.2:2016+A1:2017**

Clause	Requirement + Test	Result - Remark	Verdict
	area into the area where the body of the luminaire is situated.		
APPENDIX ZA	THERMAL TEST PROCEDURES FOR RECESSED LUMINAIRES		P
APPENDIX ZB	EXAMPLES OF METHODS SATISFYING THE REQUIREMENTS FOR THE SUPPLY OF INFORMATION ON MINIMUM CLEARANCE DISTANCES		P
APPENDIX ZC	EXAMPLES OF RECESSED LUMINAIRES	FIGURE ZC3 RECESSED LUMINAIRE WITH SUPPLIED COMPONENT PART CONTROLGEAR CONNECTED BY INTERCONNECTING CORD TO LIGHT SOURCE	P
Annex ZA6	Test procedure for normal operation—IC-4 luminaires Remark: see Annex 2 of IEC 60598-2-2 part.		P



**Attachment No.3**

IEC 62031:2018			
Clause	Requirement + Test	Result - Remark	Verdict
	Tests according to IEC 62031: 2018		
12 (14)	FAULT CONDITIONS		N/A
- (14.1)	When operated under fault conditions the controlgear:		N/A
	- does not emit flames or molten material		N/A
	- does not produce flammable gases		N/A
	- protection against accidental contact not impaired		N/A
	Thermally protected controlgear does not exceed the marked temperature value		N/A
	Fault conditions: capacitors, resistors or inductors without proof of compliance with relevant specifications have been short-circuited or disconnected	(see appended table)	N/A
- (14.2)	Short-circuit of creepage distances and clearances if less than specified in clause 16 in Part 1 (after any reduction in 14.2 - 14.5)	(see appended table)	N/A
- (14.3)	Short-circuit or interruption of semiconductor devices	(see appended table)	N/A
- (14.4)	Short-circuit across insulation consisting of lacquer, enamel or textile	(see appended table)	N/A
- (14.5)	Short-circuit across electrolytic capacitors	(see appended table)	N/A
	Short-circuit or interruption of SPDs	(see appended table)	N/A
- (14.6)	After the tests has been carried out on three samples:		N/A
	The insulation resistance $\geq 1 \text{ M}\Omega$		N/A
	No flammable gases		N/A
	No accessible parts have become live		N/A
	During the tests, a five-layer tissue paper, where the test specimen is wrapped, does not ignite		N/A
- (14.7)	Relevant fault condition tests with high-power a.c. supply and in turn to a d.c. supply		—
12.2	Overpower condition		P
	Module withstands overpower condition >15 min.		P
	Module with automatic protective device or power limiter, test performed 15 min. at limit.		N/A
	No fire, smoke or flammable gas is produced		P
	Molten material does not ignite tissue paper, spread below the module		P





Attachment No.4

IEC TR 62778:2014

Clause	Requirement + Test			Result - Remark	Verdict
	Spectroradiometric measurement (IEC TR 62778:2014)				--
	Measurement performed on:		Luminaire		--
	Model number.....:		GL-D-007P		--
	Test voltage (V).....:		240V~		--
	Test current (mA).....:		--		--
	Test frequency (Hz)..... :		50		--
	Ambient, t (°C).....:		25.0		--
	Measurement distance..... :		<input checked="" type="checkbox"/> 20 cm <input type="checkbox"/> ... cm		--
	Source size:		<input checked="" type="checkbox"/> Non-small <input type="checkbox"/> Small : mm		--
	Field of view :		<input type="checkbox"/> 100 mrad <input checked="" type="checkbox"/> 11 mrad <input type="checkbox"/> 1,7 mrad (for small sources)		--
Item		Symb ol	Units	Result	Risk Group
Correlated colour temperature		CCT	K	--	--
x/y colour coordinates		--	--	--	--
Blue light hazard radiance		L _B	W/(m²•sr¹)	65	<input checked="" type="checkbox"/> RG0: <100 <input type="checkbox"/> RG1: <10000 <input type="checkbox"/> RG2: <4000000
Blue light hazard irradiance		E _B	W/m²	--	--
Luminance		L	cd/m²	4.510e+005	--
Illuminance		E	lx	--	--
Supplementary information:--					





Attachment No.5

Photo Documentation

Model: GL-D-002P



Photo 1

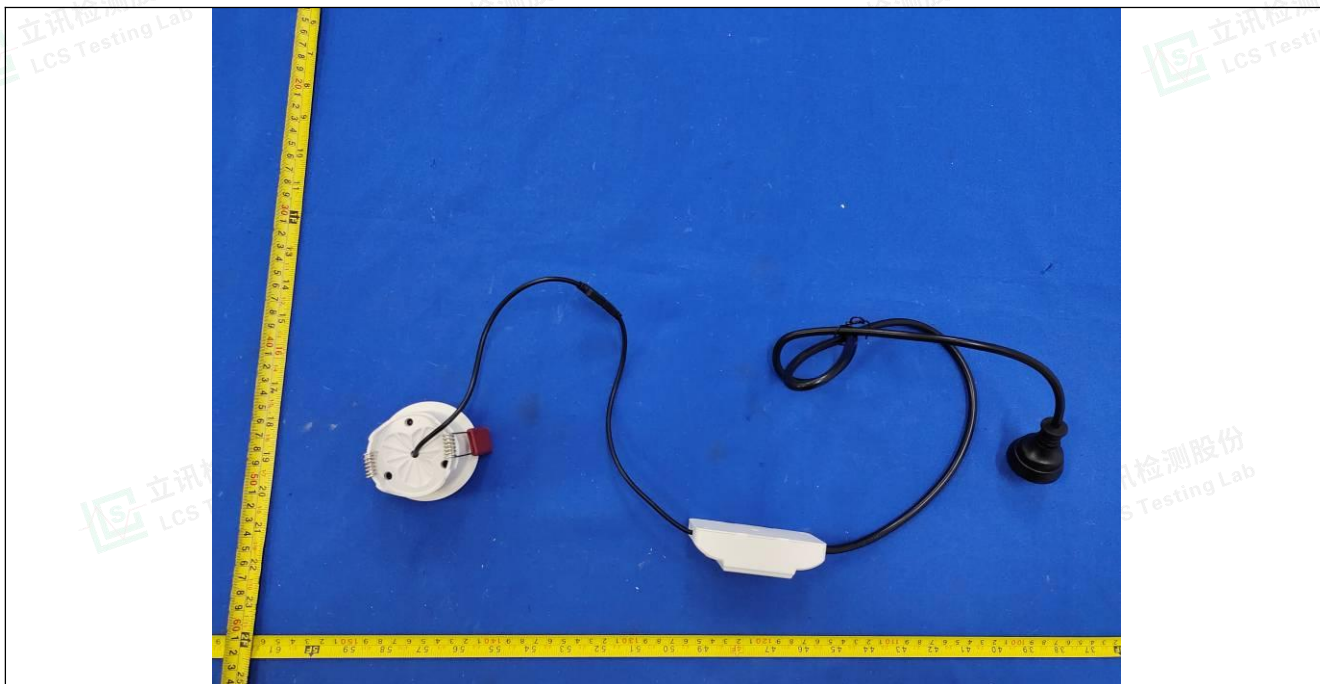


Photo 2



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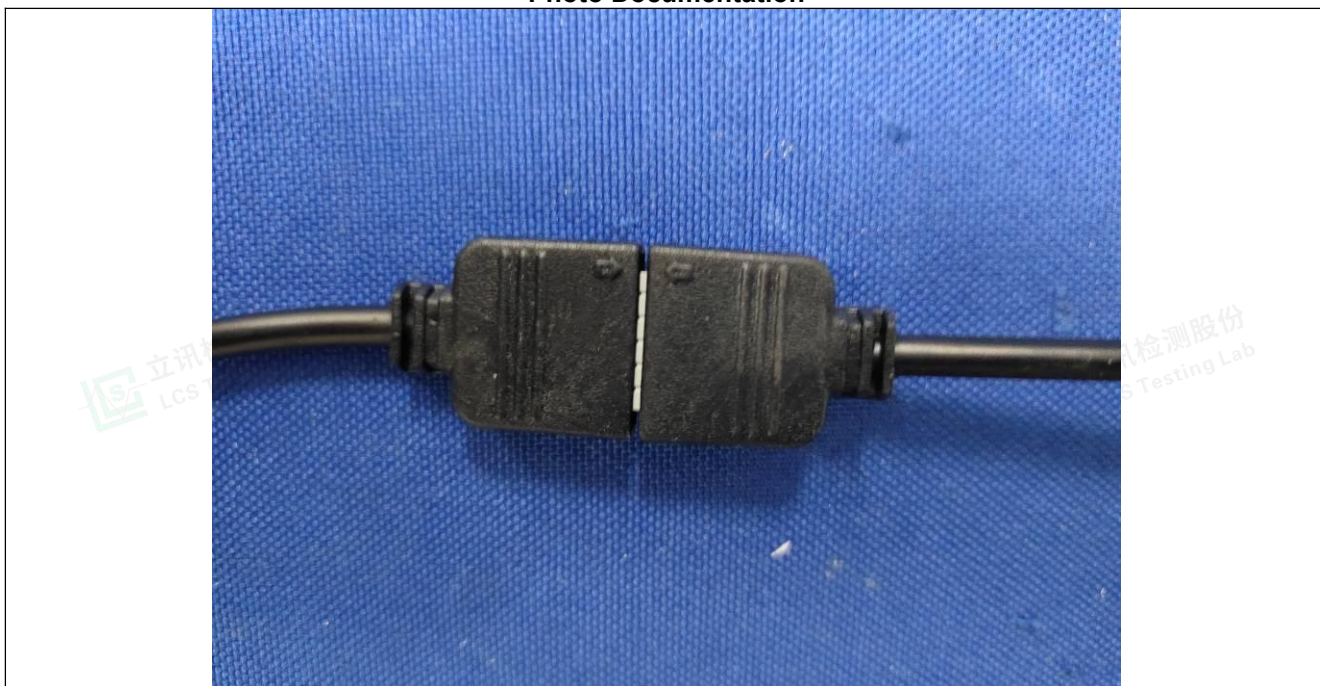


Photo 3



Photo 4





Attachment No.5

Photo Documentation



Photo 5

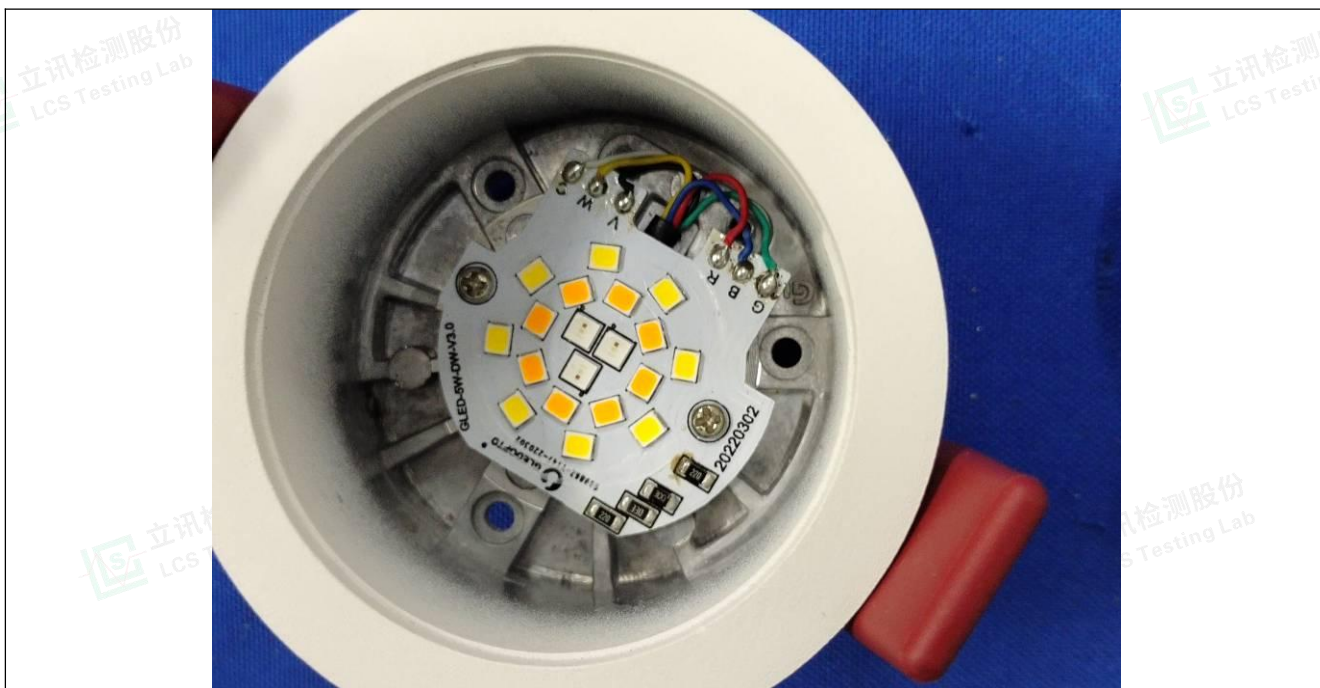


Photo 6



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Model: GL-D-003P



Photo 7

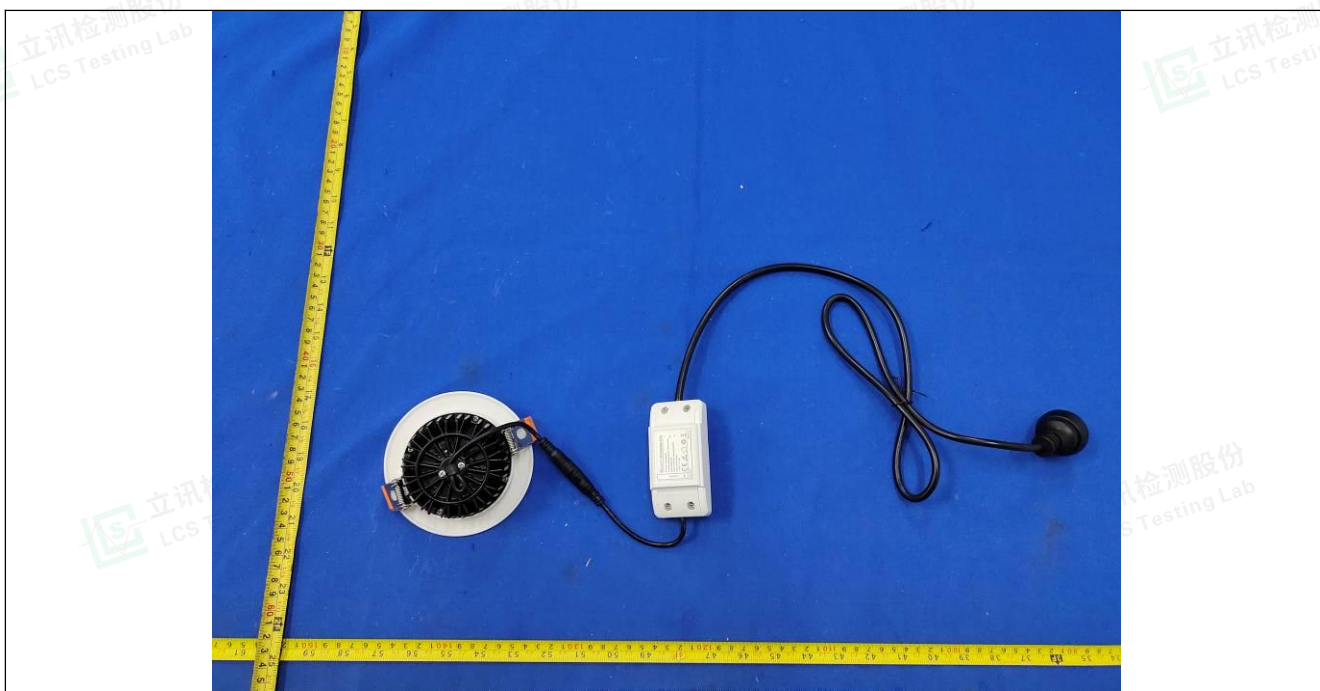


Photo 8



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Photo 9



Photo 10



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Photo 11

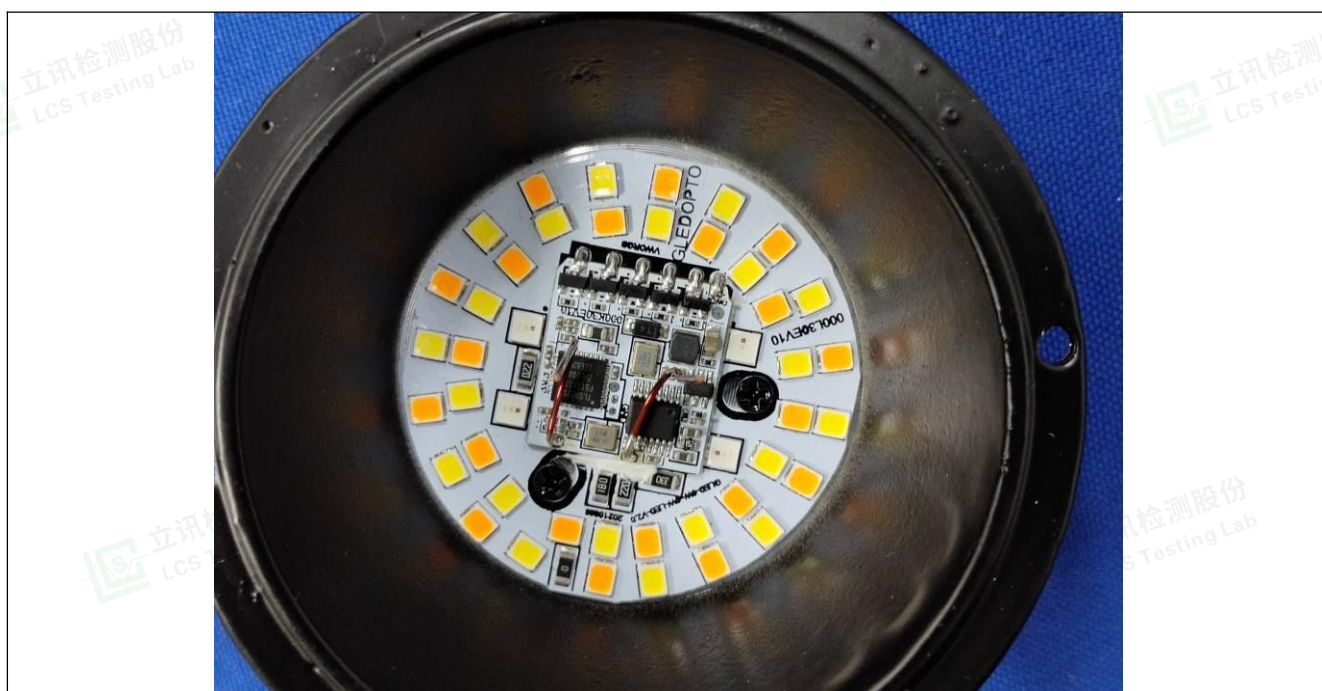


Photo 12





Attachment No.5

Photo Documentation

Model: GL-D-004P



Photo 13

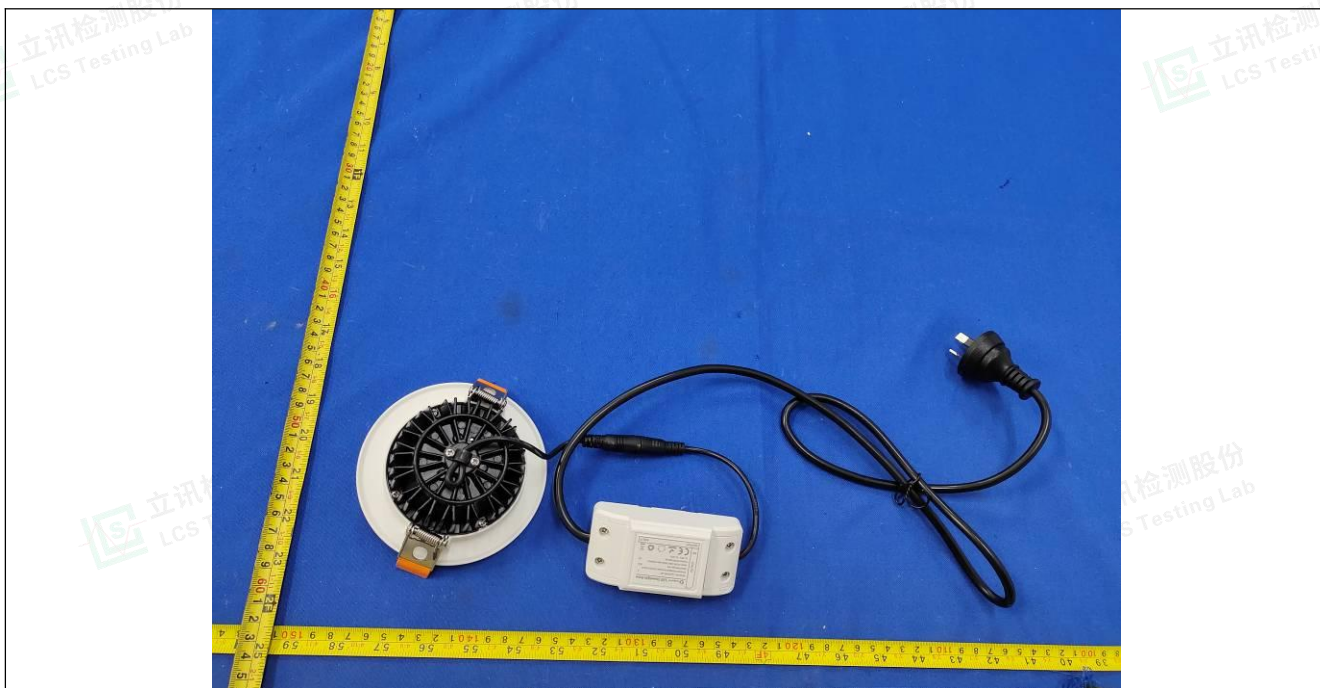


Photo 14



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Photo 15

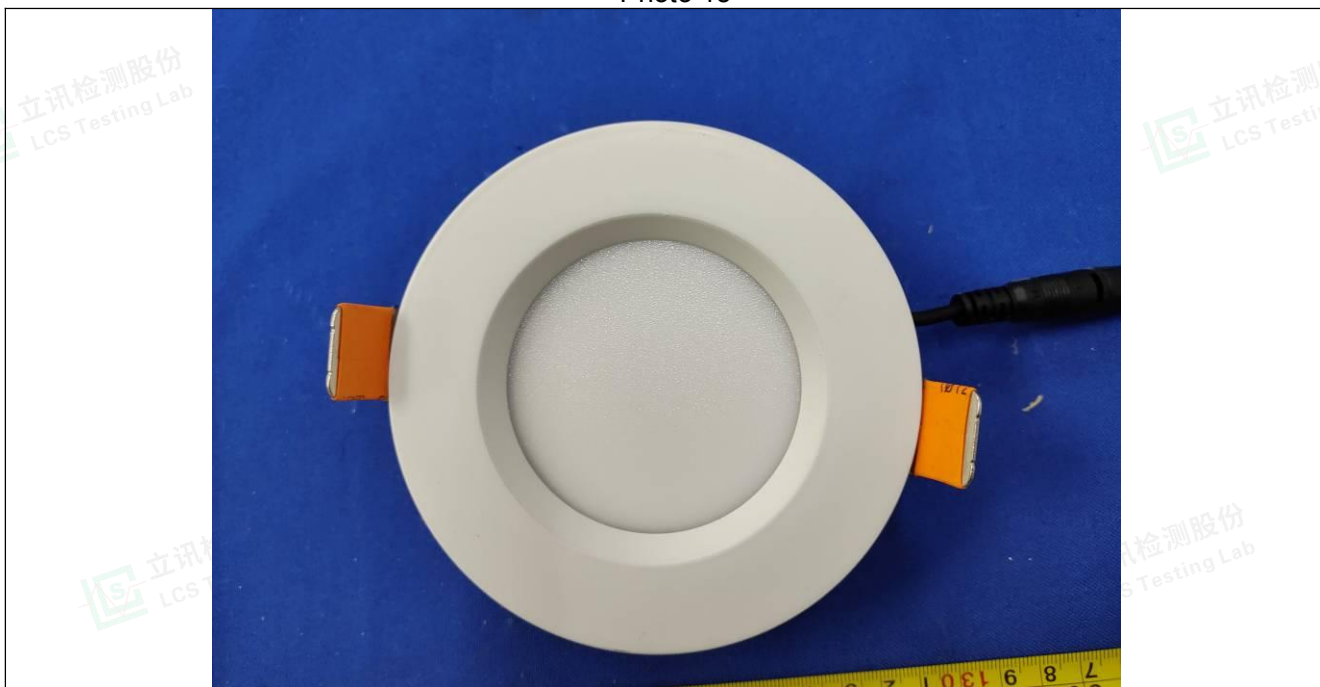


Photo 16



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Photo 17

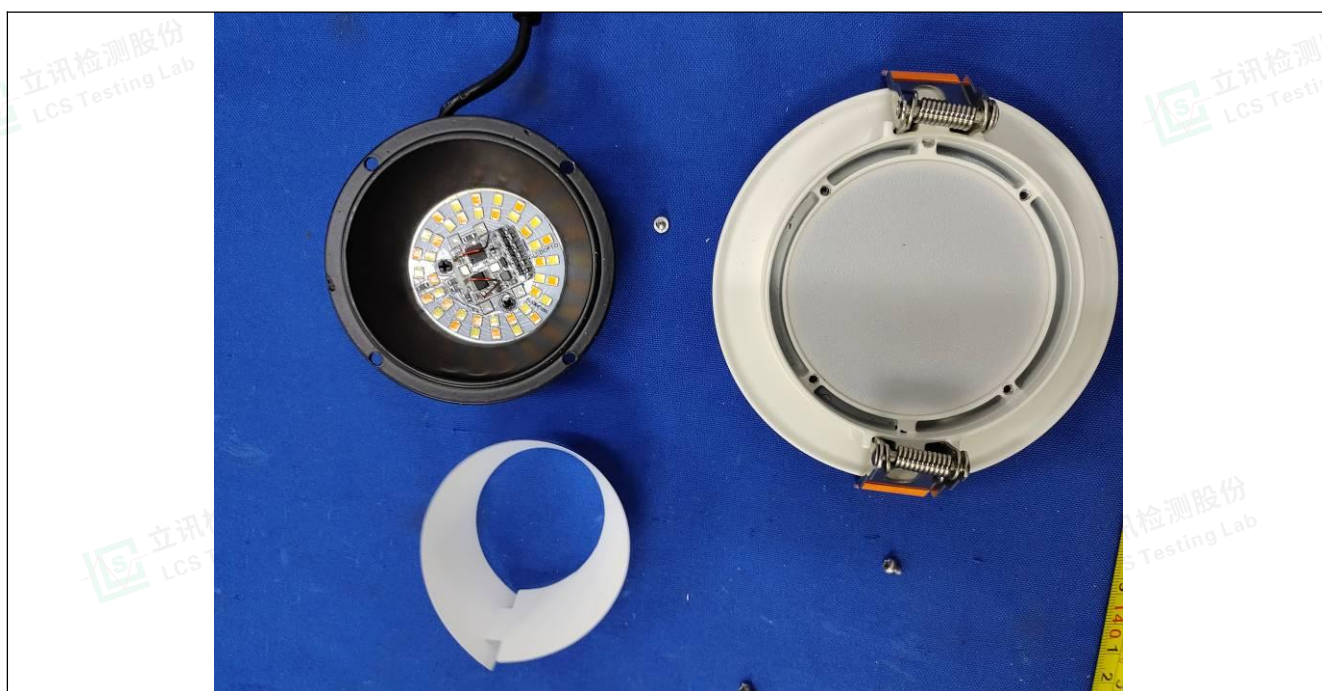


Photo 18





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Photo 19

Model: GL-D-005P



Photo 20



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Photo 21

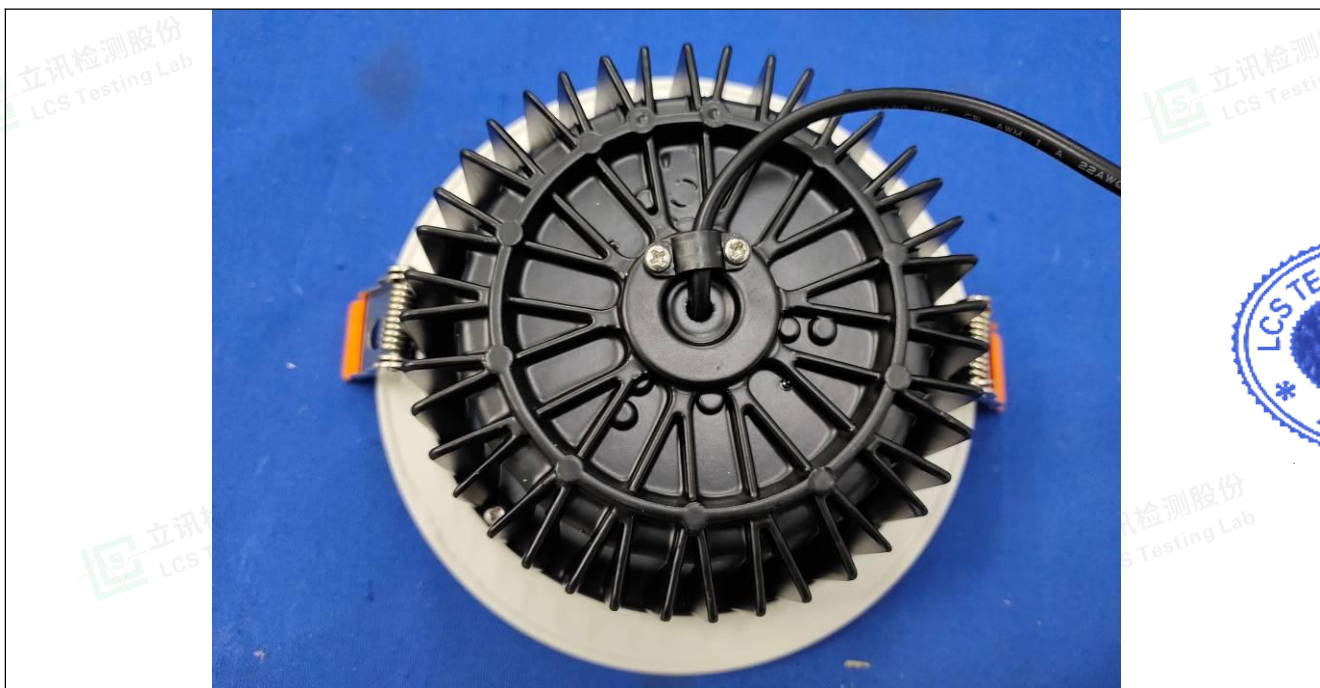


Photo 22



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Photo 23



Photo 24



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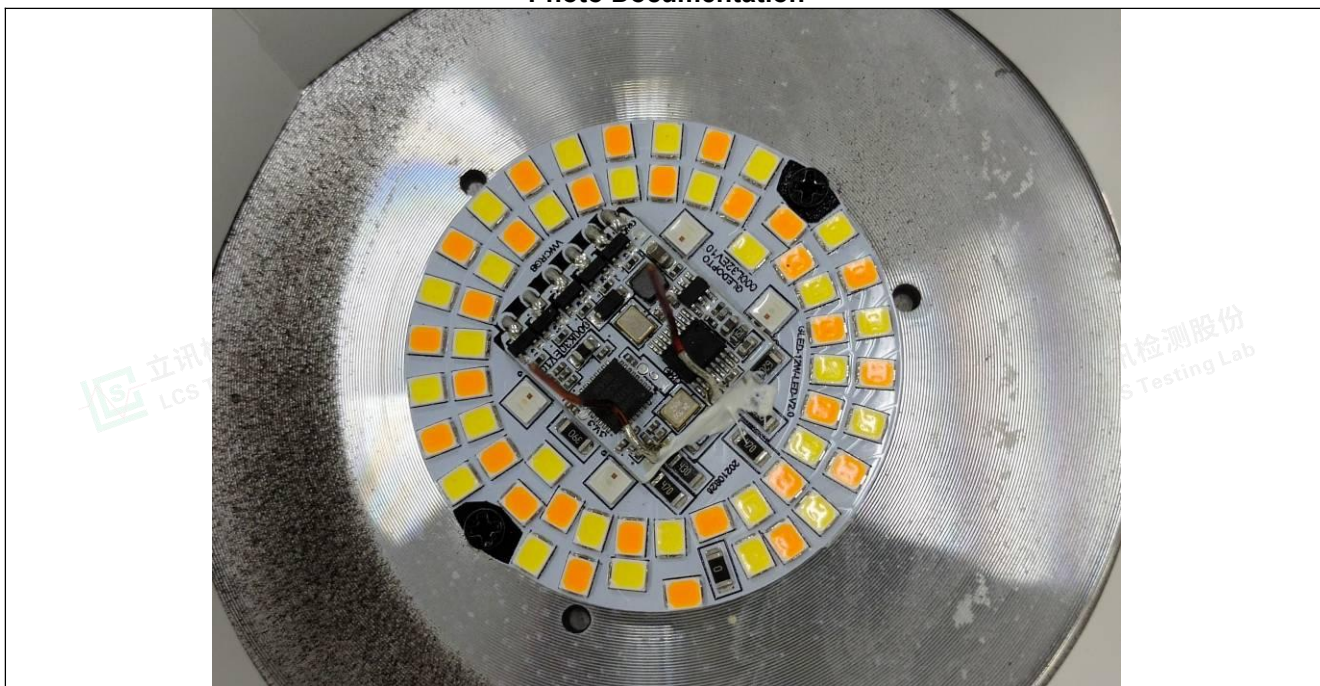


Photo 25

Model: GL-D-006P



Photo 26



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Photo 27



Photo 28



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Photo 30



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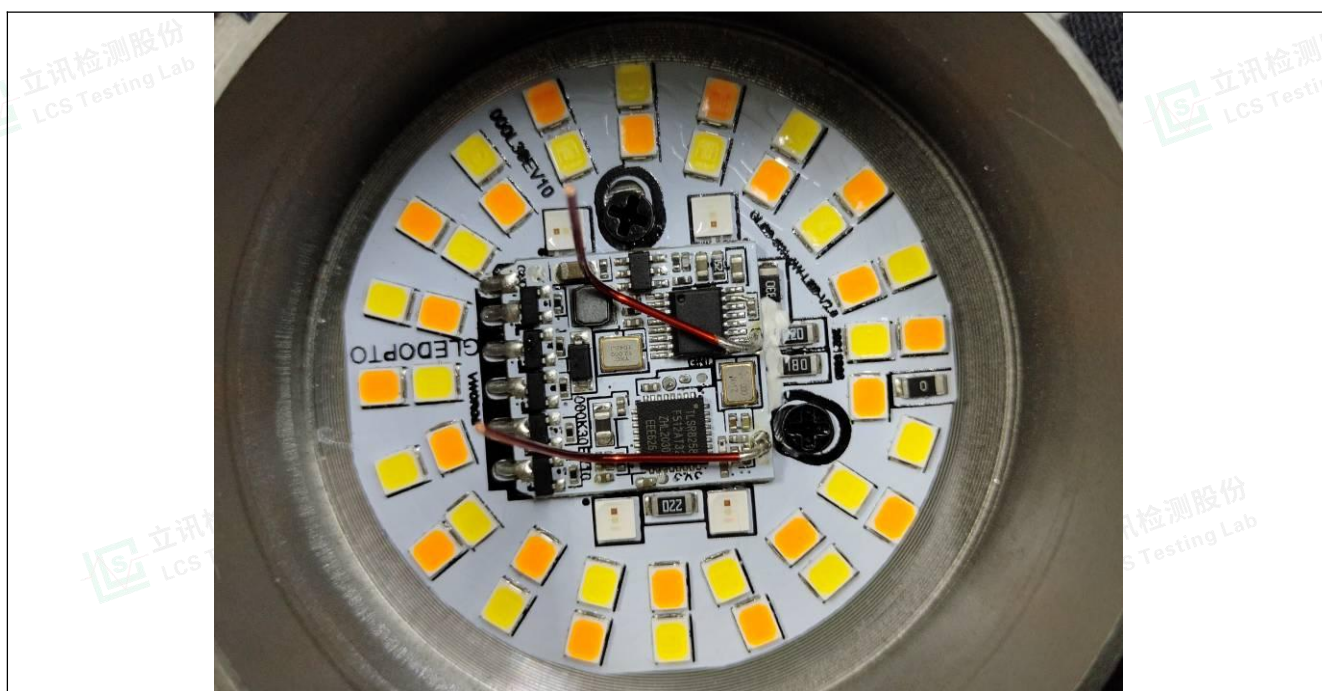


Photo 32





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Photo Documentation

Model: GL-D-007P



Photo 33

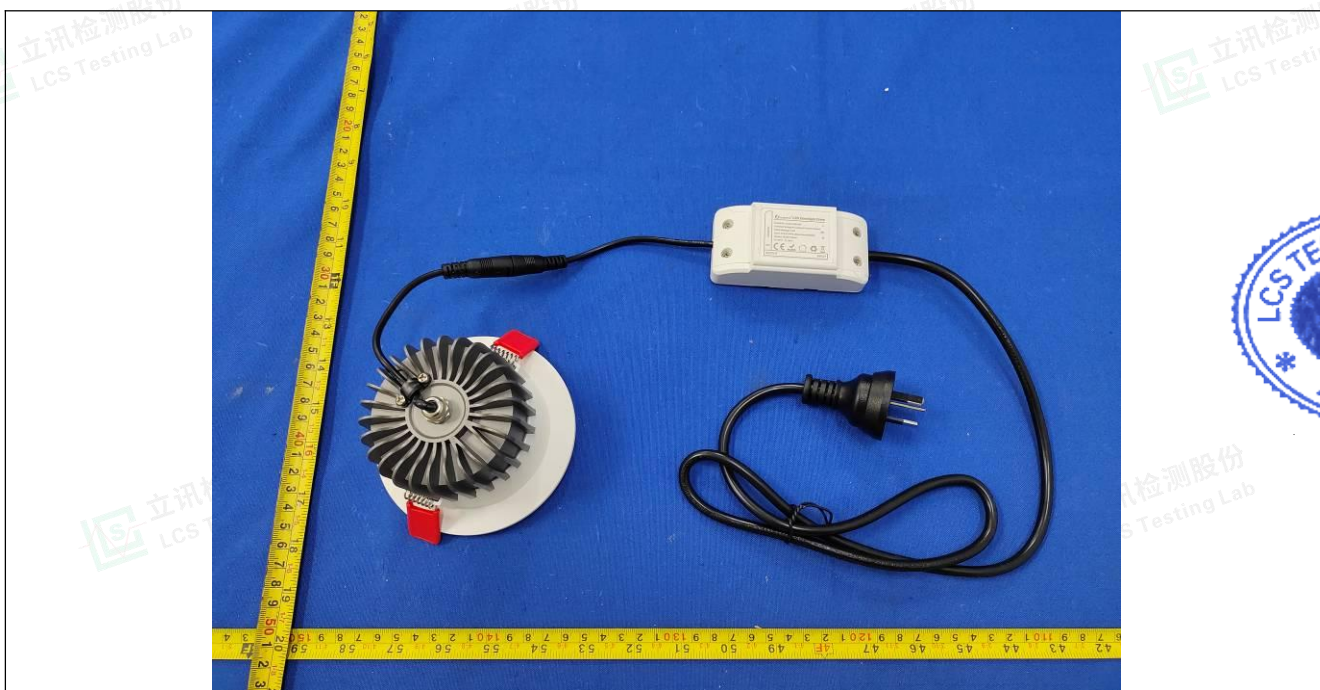


Photo 34



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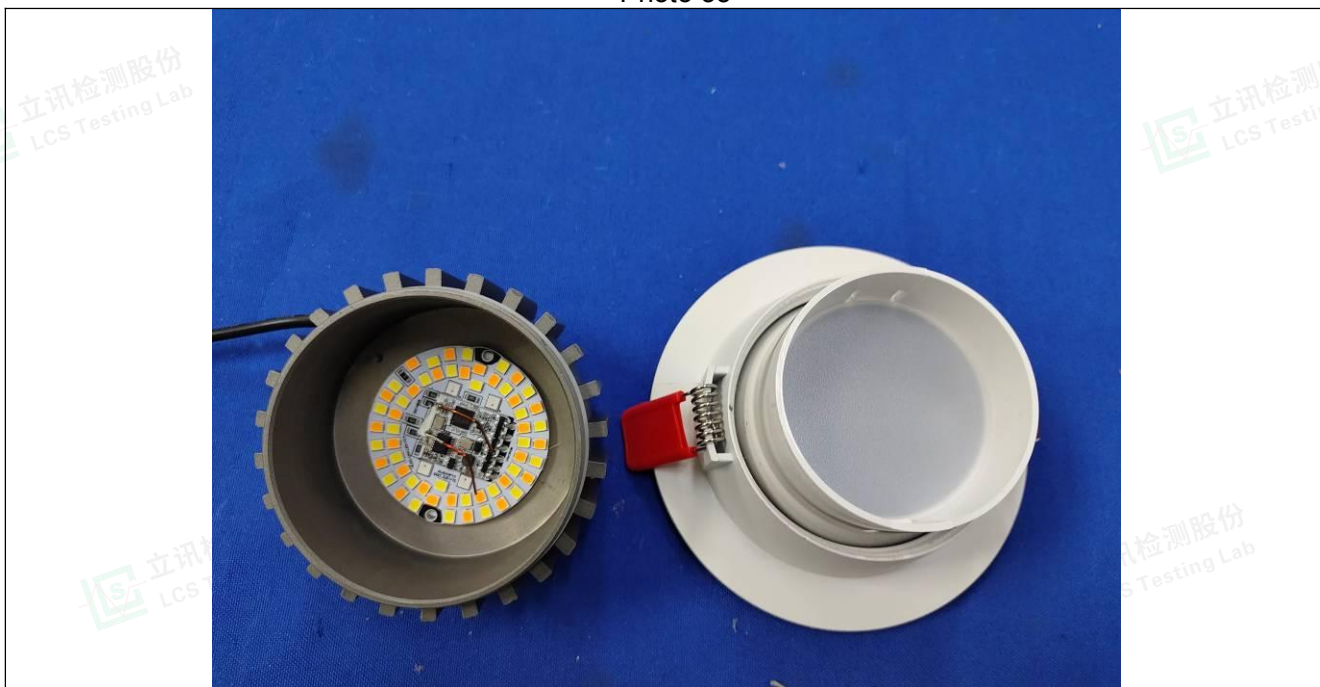


Photo 36





Attachment No.5

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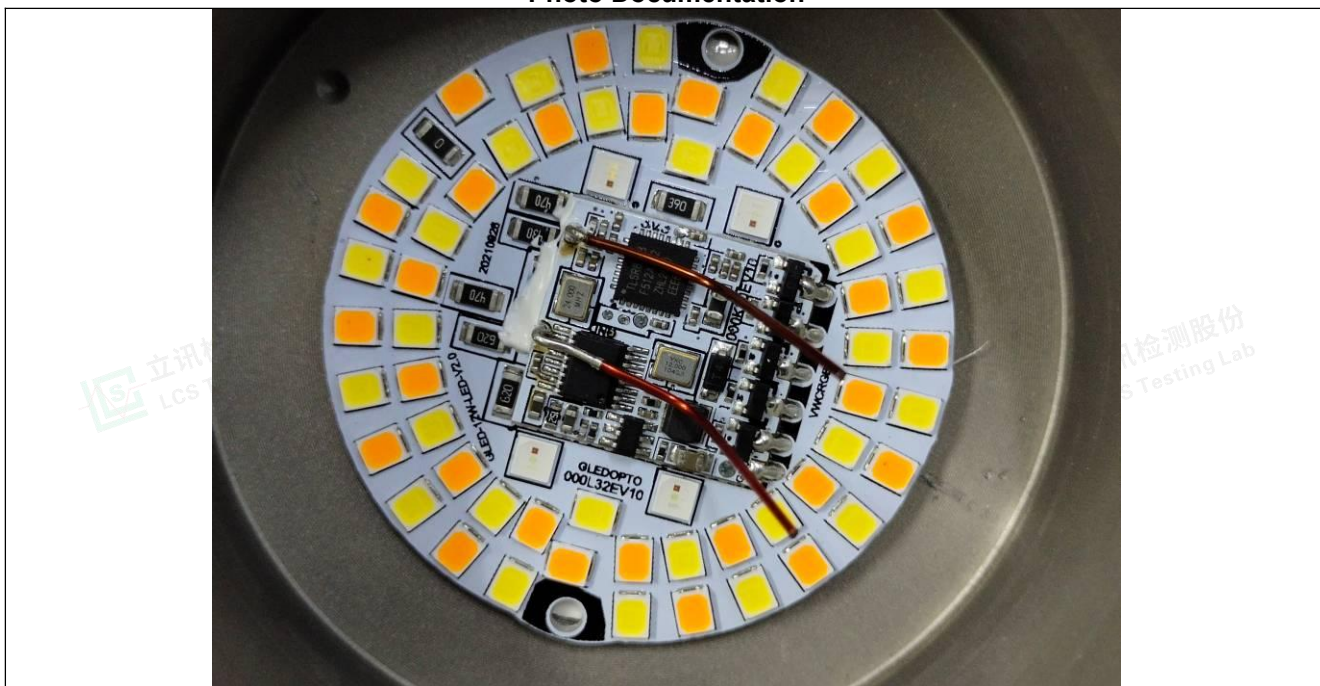


Photo 37



Photo 38





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Photo 39



Photo 40

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



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