TEST REPORT

IEC 60598-2-2

Part 2: Particular requirements

Section Two – Recessed luminaires

IEC 61347-2-13

Part 2: Particular requirements

Section thirteen – Particular requirements for d.c or a.c supplied electronic controlgear for LED modules

IEC 62031

LED modules for general lighting –Safety specifications

Report No.....:	PT191127007S
Tested by (printed name and signature) .....:	Alex.fu
Approved by (printed name and signature) .....:	Christ.du
Date of issue .....:	Dec.10, 2019
Testing Laboratory.....:	DongGuan Precise Testing Service Co., Ltd.
Address.....:	Building D, Baoding Technology Park, Guangming Road 2, Guangming Community, Dongcheng District, Dongguan, Guangdong, China
Applicant's name.....:	La Luce di Marletta SNC
Address.....:	Floor 6,NO 1.,Huatai east Road,Caosan Industrial Park,Guzhen Town,Zhongshan City,Guangdong Province.
Test specification:	—
Standard.....:	IEC 60598-2-2: 2011 used in conjunction with IEC 60598-1:2014 with Australian Deviation AS/NZS 60598.1:2013. IEC 61347-2-13:2014 used in conjunction with IEC 61347-1:2007+A1:2010+A2:2012 with Australian Deviation AS/NZS 61347.1:2002,AS/NZS IEC 61347.2.13:2013 IEC 62031:2008;
Test procedure.....:	IEC+SAA deviation
Non-standard test method.....:	N/A
Test Report Form No.....:	AS/NZS 60598-2-2:2001
Test item description.....:	LED DOWNLIGHT
Trademark.....:	LA LUCE
Manufacturer.....:	La Luce di Marletta SNC
Address .....::	Floor 6,NO 1.,Huatai east Road,Caosan Industrial Park,Guzhen Town,Zhongshan City,Guangdong Province.
Model/Type reference :	LL-DL03
Model difference.....:	See below model difference

Ratings.....:	200-240V~, 50/60Hz,0.25A, 18W

Test item particulars..... :	Recessed mounted LED luminaire
Possible test case verdicts:	
- test case does not apply to the test object..... :	N (not applicable)
- test object does meet the requirement..... :	P (Pass)
- test object does not meet the requirement..... :	F (Fail)
Testing	
Date of receipt of test item..... :	Nov.27, 2019
Date (s) of performance of tests..... :	Until Dec. 10, 2019
General remarks:	
The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory. "(see Enclosure #)" refers to additional information appended to the report. "(see appended table)" refers to a table appended to the report. List of test equipment must be kept on file and available for review. Throughout this report a comma (point) is used as the decimal separator. The requiremnets of IEC 61347-2-13&61347-1 are included in IEC 62031(safety of the LED module) . So the same Clauses between them are omitted in this report.	

General product information:

This appliance is a kind of LED Recessed luminaires. There are two types of LED downlight,dimmable and non-dimmable.

All tests are conducted on the model:LL-DL03-18W .Difference tests are added on model:LL-DL03-18W.All test results comply with the requirement of relevant standard.

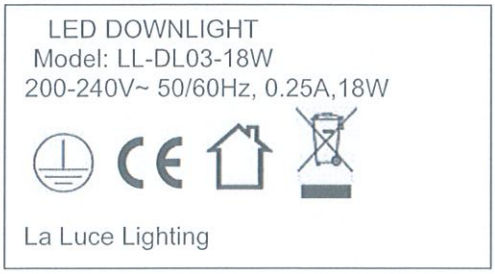
Serial models are LL-DL01-XX and LL-DL03-XX.In which "X"(6-30) denote power,"Y"(2700-6000) denote color-temperture,

Model name	Rating	Wattage	Dimension(mm)	Model of driver used	Output current of driver(mA)	Output voltage of driver(V)
LL-DL01-6W	200-240V~, 50/60Hz,0.06A	6W	Φ80*H45mm	CertaDrive 13W	300mA	DC30-60V
LL-DL01-10W	200-240V~, 50/60Hz,0.11A	10W	Φ 110*H55mm	CertaDrive 18W	300mA	DC50-60V
LL-DL01-18W	200-240V~, 50/60Hz,0.16A	18W	Φ 140*H65mm	CertaDrive 18W	300mA	DC50-60V
LL-DL03-6W	200-240V~, 50/60Hz,0.25A	6W	Φ 190*H70mm	CertaDrive 13W	300mA	DC30-60V
LL-DL03-10W	200-240V~, 50/60Hz,0.11A	10W	Φ 110*H55mm	CertaDrive 18W	300mA	DC50-60V
LL-DL03-18W	200-240V~, 50/60Hz,0.16A	18W	Φ 164*H80mm	CertaDrive 18W	300mA	DC50-60V
LL-DL03-24W	200-240V~, 50/60Hz,0.25A	24W	Φ 190*H70mm	CertaDrive 30W	300mA	DC50-60V

water number,See model differences for details.

Copy of marking plate:

For model LL-DL03-18W-830-65-WH, example label showing below:



List of Attachments:

Attachment No. 1: Test report for AS/NZS 60598-1:2013, Australia and New Zealand deviations to IEC 60598-2014.

Attachment No. 2: Australia and New Nealand deviations according to AS/NZS 61347.1:2002 and AS/NZS IEC 61347.2.13:2013 compared to IEC 61347-1:2007+A1:2010+A2:2012 and IEC 61347-2-13:2014;

Appendix 1: Photographs of the items tested.

IEC 60598-2-2			
Clause	Requirement – Test	Result	Verdict
1.1 (0)	**SCOPE**		**P**
1.2 (0.1)	Information for luminaire design concerned .....:	Standard Yes ☒ No ☐	—
1.2 (0.3)	More sections applicable.....:	Yes ☐ No ☒	—
1.4 (2)	**CLASSIFICATION**		**P**
1.4 (2.2)	Type of protection.....:	Class I	—
2.4 (2.3)	Degree of protection.....:	IP65	—
2.4 (2.4)	Luminaire only suitable for non-combustible surfaces .....:	Yes ☐ No ☒	—
	Luminaire suitable for normally flammable surfaces.....:	Yes ☒ No ☐	—
	Luminaire suitable to be covered by insulating materials .....:	Yes ☐ No ☒	—
2.4 (2.5)	Luminaire for normal use .....:	Yes ☒ No ☐	—
	Luminaire for rough service .....:	Yes ☐ No ☒	—
2.5 (3)	**MARKING**		**P**
2.5.1 (-)	Warning notice, if not suitable for insulating ceiling	Warning In manufacturer's instruction: Under no circumstances, be covered with insulating material or similar materials	P
2.5 (3.2)	Mandatory markings		P
	Position of the marking	On the outside of main body	P
	Format of symbols/text	Symbols: 5.0 mm min; Letter: 2.0 mm min.	P
1.5 (3.2.1)	Mark of origin	See rating marking	P
1.5 (3.2.2)	Rated voltage	See rating marking	P
1.5 (3.2.3)	The rated maximum ambient temperature		P
1.5 (3.2.4)	Symbol of class II luminaries	See rating marking	P
1.5 (3.2.5)	Symbol of class III luminaries		N
1.5 (3.2.6)	IP number	IP65	P
1.5 (3.2.7)	Model number or type reference	See rating marking	P
1.5 (3.2.8)	Rated wattage	See rating marking	P
1.5 (3.2.9)	The symbol for mounting on flammable surface		N
	The symbol not suitable for direct mounting on flammable surface		N
1.5 (3.2.10)	Information concerning special lamps	No special lamp used	N

IEC 60598-2-2			
Clause	Requirement – Test	Result	Verdict
1.5 (3.2.11)	Cool beam lamp		N
1.5 (3.2.12)	Marking on terminations		P
1.5 (3.2.13)	Minimum distance from lighted object		N
1.5 (3.2.14)	Symbol for rough service luminaire		N
1.5 (3.2.15)	Symbol for using with bowl mirror lamps		N
1.5 (3.2.16)	Symbol for replacing the cracked protective shield		N
1.5 (3.2.17)	The maximum number of luminaries for looping-in		N
1.5 (3.2.18)	A warning symbol for luminaries with ignitor for using with double-ended high pressure discharge lamps		N
1.5 (3.2.19)	Symbol of self-shield tungsten halogen lamps or self-shielded metal halide lamps		N
1.5 (3.2.20)	The means of adjustment where not obvious, needs to be identified		N
1.5 (3.2.21)	The symbol for not suitable for covering with thermally insulated material		N
1.5 (3.2.22)	Symbol for luminaires with internal replaceable fuses		N
2.5 (3.3)	Additional information		P
	Language of instructions	English	P
2.5 (3.3.1)	Combination luminaires		N
2.5 (3.3.2)	Nominal frequency in Hz	50/60	N
2.5 (3.3.3)	Operating temperatures		N
2.5 (3.3.4)	Symbol or warning notice		N
2.5 (3.3.5)	Wiring diagram		N
2.5 (3.3.6)	Special conditions		N
2.5 (3.3.7)	Metal halide lamp luminaire – warning		N
2.5 (3.3.8)	Limitation for semi-luminaires		N
2.5 (3.3.9)	Power factor and supply current		N
2.5 (3.3.10)	Suitability for use indoor	Indoor use only	P
2.5 (3.3.11)	Luminaires with remote control		N
2.5 (3.3.12)	Clip-mounted luminaire-warning		N
2.5 (3.3.13)	Specifications of protective shields		N
2.5 (3.3.14)	Symbol for nature of supply		N
2.5 (3.3.15)	Rated current of socket outlet	No socket outlet	N
2.5 (3.3.16)	Rough service luminaire		P
2.5 (3.3.17)	Mounting instruction for type Y, type Z and some type X attachments	Type Y	P
2.5 (3.3.18)	Non-ordinary luminaires with PVC cable	Ordinary luminaires	N

IEC 60598-2-2			
Clause	Requirement – Test	Result	Verdict
2.5 (3.3.19)	Protective conductor current in instruction if applicable		N
2.5 (3.3.20)	Provided with information if not intended to be mounted within arms reach		N
2.5 (3.3.101)	Adequate warning on the package (EN)		P
2.5 (3.4)	Test with water	15s with water	P
	Test with hexane	15s with hexane	P
	Legible after test	Yes	P
	Label attached	Label cannot be easily removable and show no curling	P

2.6 (4)	**CONSTRUCTION**		**P**
2.6 (4.2)	Components replaceable without difficulty	LED lamp, no lamp replacement	N
2.6 (4.3)	Wireways smooth and free from sharp edges		P
2.6 (4.4)	Lampholders		N
2.6 (4.4.1)	Integral lampholder	No lampholder	N
2.6 (4.4.2)	Wiring connection		N
2.6 (4.4.3)	Lampholder for end-to-end mounting		N
2.6 (4.4.4)	Positioning		N
	- pressure test (N)....:		N
	- bending test (Nm)....:		N
2.6 (4.4.5)	Peak pulse voltage		N
2.6 (4.4.6)	Centre contact		N
2.6 (4.4.7)	Parts in rough service luminaires resistant to tracking	Not rough service luminaires	N
2.6 (4.4.8)	Lamp connectors	No lamp connector used	N
2.6 (4.4.9)	Caps and bases correctly used	No such caps used	N
2.6 (4.5)	Starter holders		N
	Starter holders in luminaires other than class II		N
	Starter holder class II construction		N
2.6 (4.6)	Terminal blocks		N
	Tails		N
	Unsecured blocks		N
2.6 (4.7)	Terminals and supply connections		N
2.6 (4.7.1)	Contact to metal parts		N
2.6 (4.7.2)	Test 8 mm live conductor		N
	Test 8 mm earth conductor		N
2.6 (4.7.3)	Terminals for supply conductors		N

IEC 60598-2-2			
Clause	Requirement – Test	Result	Verdict
2.6 (4.7.3.1)	Welded connections:		P
	- stranded or solid conductor		N
	- spot welding		P
	- welding between wires		N
	- Type Z attachment		N
	- mechanical test according to 15.8.2		N
	- electrical test according to 15.9		N
	- heat test according to 15.9.2.3 and 15.9.2.4		N
2.6 (4.7.4)	Terminals other than supply connection		N
2.6 (4.7.5)	Heat-resistant wiring/sleeves		N
2.6 (4.7.6)	Multi-pole plug	No multi-pole plug	N
	- test at 30 N		N
2.6 (4.8)	Switches:		N
	- adequate rating	No switch	N
	- adequate fixing		N
	- polarized supply		N
2.6 (4.9)	Insulating lining and sleeves		N
2.6 (4.9.1)	Retainment		N
	Method of fixing.....:	Fixed to length	N
2.6 (4.9.2)	Insulated linings and sleeves		N
	a) & c) Insulation resistance and electric strength		N
	b) Ageing test. Temperature (°C) .....:	(see ANNEX 2)	N
2.6 (4.10)	Insulation of Class II luminaires		N
2.6 (4.10.1)	No contact, mounting surface - accessible metal parts - wiring of basic insulation		N
	Safe installation fixed luminaires		N
	Capacitors and switches		N
	Interference suppression capacitors according to IEC 60384-14		N
2.6 (4.10.2)	Assembly gaps:		P
	- not coincidental		N
	- no straight access with test probe		N
2.6 (4.10.3)	Retainment of insulation:		P
	- fixed		P
	- unable to be replaced; luminaire inoperative		P
	- sleeves retained in position		P
	- lining in lampholder		N
2.6 (4.11)	Electrical connections		P

IEC 60598-2-2			
Clause	Requirement – Test	Result	Verdict
2.6 (4.11.1)	Contact pressure		P
2.6 (4.11.2)	Screws:		P
	- self-tapping screws	Self-tapping screws not used	N
	- thread-cutting screws		P
	- at least two self-tapping screws		N
2.6 (4.11.3)	Screw locking:		P
	- spring washer		P
	- rivets		N
2.6 (4.11.4)	Material of current-carrying parts	>50% copper	P
2.6 (4.11.5)	No contact to wood	No wood	N
2.6 (4.11.6)	Electro-mechanical contact systems	No such systems	N
2.6 (4.12)	Mechanical connections and glands		--
2.6 (4.12.1)	Screws not made of soft metal		P
	Screws of insulating material		N
	Torque test: torque (Nm); part.....:	2.93mm, 0.5Nm	P
	Torque test: torque (Nm); part.....:		N
	Torque test: torque (Nm); part.....:		N
2.6 (4.12.2)	Screws with diameter < 3 mm screwed into metal		P
2.6 (4.12.4)	Locked connections:		—
	- fixed arms; torque (Nm).....:		N
	- lampholder; torque (Nm).....:	No Edison screw lampholder	N
	- push-button switches; torque 0,8 Nm.....:	No push-button switches	N
2.6 (4.12.5)	Screwed glands; force (N).....:		N
2.6 (4.13)	Mechanical strength		—
2.6 (4.13.1)	Impact tests:		P
2.6.1 (-)	- recessed parts providing protection against electric shock; energy (Nm).....:	0.35Nm	P
	- other recessed parts; energy (Nm).....:		N
2.6 (4.13.1)	- fragile parts; energy (Nm).....:	0.2Nm for translucent cover	P
	- other parts; energy (Nm).....:	0.35Nm for other parts	P
	1) live parts	not accessible	P
	2) linings		P
	3) protection	Remain accordance against ingress of dust, sold objects and moisture classification	P
	4) covers		P
2.6 (4.13.3)	Straight test finger	30N	P
2.6 (4.13.4)	Rough service luminaires		—

IEC 60598-2-2			
Clause	Requirement – Test	Result	Verdict
	- IP54 or higher	Not rough service luminaires	N
	a) fixed		N
	b) hand-held		N
	c) delivered with a stand		N
	d) for temporary installations and suitable for mounting on a stand		N
2.6 (4.13.6)	Tumbling barrel		N
2.6 (4.14)	Suspensions and adjusting devices		N
2.6 (4.14.1)	Mechanical load:		N
	A) four times the weight		N
	B) torque 2,5 Nm ..... :		N
	C) bracket arm; bending moment (Nm)..... :		N
	D) load track-mounted luminaires		N
	E) clip-mounted luminaires, glass-shelve. Thickness (mm)..... :		N
	metal rod. Diameter (mm)..... :		N
	Fixed luminaire or independent control gear without fixing devices		N
2.6 (4.14.2)	Load to flexible cables		—
	Mass (kg)..... :		N
	Stress in conductors (N/mm²)..... :		N
	Semi-luminaires - mass (kg)..... :		N
	Semi-luminaires - bending moment (Nm)..... :		N
2.6 (4.14.3)	Adjusting devices:		—
	- flexing test; number of cycles..... :		N
	- strands broken		N
	- electric strength test afterwards		N
2.6 (4.14.4)	Telescopic tubes: cords not fixed to tube; no strain on conductors	Telescopic tubes not provided	N
2.6 (4.14.5)	Guide pulleys	No guide pulleys	N
2.6 (4.14.6)	Strain on socket-outlets	Not direct plug-in type	N
2.6 (4.15)	Flammable materials:		P
	- glow-wire test 850 °C	Translucent cover	P
	- spacing ≥ 30 mm		N
	- screen withstanding test of 13.3.1		N
	- screen dimensions		N
	- no fiercely burning material		N
	- thermal protection		N
	- electronic circuits exempted		N

IEC 60598-2-2			
Clause	Requirement – Test	Result	Verdict
1.6 (4.15.2)	Luminaires made of thermoplastic material with lamp control gear		—
	a) construction	No such luminaires	N
	b) temperature sensing control		N
	c) surface temperature		N
2.6 (4.16)	Luminaires for mounting on normal flammable surface		P
	No lamp control gear	(compliance with Section 12)	N
2.6 (4.16.1)	Lamp control gear spacing:		N
	- spacing 35 mm		N
	- spacing 10 mm		N
2.6 (4.16.2)	Thermal protection:		—
	- in lamp control gear	No thermal protection	N
	- external		N
	- fixed position		N
	- temperature marked lamp control gear		N
2.6 (4.16.3)	Design for satisfy the test of 12.6	(see 12.6)	N
2.6 (4.17)	Drain holes	No drain holes	N
	Clearance at least 5 mm		N
2.6 (4.18)	Resistance to corrosion:		—
2.6 (4.18.1)	- rust- resistance	Aluminum use for enclosure	P
2.6 (4.18.2)	- season cracking in copper	No rolled copper used	N
2.6 (4.18.3)	- corrosion of aluminium		N
2.6 (4.19)	Ignitors compatible with ballast		N
2.6 (4.20)	Rough service vibration	Not rough service used	N
2.6 (4.21)	Protective shield:		—
2.6 (4.21.1)	Shield fitted	Not tungsten halogen lamp	N
2.6 (4.21.2)	Particles from a shattering lamp not impair safety		N
2.6 (4.21.3)	No direct path		N
2.6 (4.21.4)	Impact test on shield		N
	Glow-wire test on lamp compartment		N
2.6 (4.22)	Attachments to lamps	No attachments	N
2.6 (4.23)	Semi-luminaires comply class II		N
2.6 (4.24)	UV radiation, metal halide lamps		N
2.6 (4.25)	No sharp point or edges		P
2.6 (4.26)	Short-circuit protection:		—
2.6 (4.26.1)	Uninsulated accessible SELV parts		N
2.6 (4.26.2)	Short-circuit test		N
2.6 (4.26.3)	Test chain according to Figure 29		N

IEC 60598-2-2			
Clause	Requirement – Test	Result	Verdict
2.7 (11)	**CREEPAGE DISTANCES AND CLEARANCES**		**P**
	Working voltage (V)..... :	200-240V	—
	Voltage form	Sinusoidal ☐ Non-sinusoidal ☒	— —
	PTI	1)< 600 ☒ 2)≥ 600 ☐	—
	Rated pulse voltage (kV).....		—
	(1) Current-carrying parts of different polarity: cr (mm); cl (mm)..... :	Cl=5.5mm, 1.5mm required for Cl Cr>5.5mm, 2.5mm required for Cr	P
	(2) Current-carrying parts and accessible parts: cr (mm); cl (mm)..... :	Cl>1.5mm, 1.5mm required for Cl Cr>2.5mm, 2.5mm required for Cr	P
	(3) Parts becoming live due to breakdown of basic insulation and metal parts: cr (mm); cl (mm)..... :		N
	(4) Outer surface of cable where it is clamped and metal parts: cr (mm); cl (mm)..... :		N
	(5) Not used		—
	(6) Current-carrying parts and supporting surface: cr (mm); cl (mm)..... :	Cl>3mm, 3.0mm required for Cl Cr>5mm, 5.0mm required for Cr	P

2.8 (7)	**PROVISION FOR EARTHING**		**N**
2.8 (7.2.1 + 7.2.3)	Accessible metal parts		N
	Metal parts in contact with supporting surface		N
	Resistance < 0,5 Ω		N
	Two self-tapping screws used		N
	Thread-forming screws		N
	Thread-forming screw used in a grove		N
	Earth makes contact first		N
2.8 (7.2.2 + 7.2.3)	Earth continuity in joints etc.		N
2.8 (7.2.4)	Locking of clamping means		N
	Compliance with 4.7.3		N
2.8 (7.2.5)	Earth terminal integral part of connector socket		N
2.8 (7.2.6)	Earth terminal adjacent to mains terminals		N

IEC 60598-2-2			
Clause	Requirement – Test	Result	Verdict
2.8 (7.2.7)	Electrolytic corrosion of the earth terminal		N
2.8 (7.2.8)	Material of earth terminal		N
	Contact surface bare metal		N
2.8 (7.2.10)	Class II luminaire for looping-in		N
	Double or reinforced insulation to functional earth		N
2.8 (7.2.11)	Earthing core coloured green-yellow		N
	Length of earth conductor		N
2.9 (14)	**SCREW TERMINALS**		**P**
	Separately approved; component list	(see Annex 1)	P
	Part of the luminaire	(see Annex 3)	N
2.9 (15)	**SCREWLESS TERMINALS**		**N**
	Separately approved; component list	(see Annex 1)	N
	Part of the luminaire	(see Annex 4)	N
2.10 (5)	**EXTERNAL AND INTERNAL WIRING**		**P**
2.10 (5.2)	Supply connection and external wiring		P
2.10 (5.2.1)	Means of connection.....:	Supply cord & plug	P
	Connecting leads (EN)		P
	- without a means for connection to the supply		P
	- terminal block specified		N
	- relevant information provided		N
	- compliance with 4.6, 4.7.1, 4.7.2, 4.10.1, 11.2, 12 and 13.2 of Part 1		N
2.10 (5.2.2)	Type of cable.....:	H03VVH2-F	P
	Cables equal to HD21 S2 or HD22 S2 (EN)		P
	Nominal cross-sectional area (mm²).....:	2 x 0.5 mm²	P
2.10 (5.2.3)	Type of attachment, X, Y or Z	Type Y	P
2.10 (5.2.5)	Type Z not connected to screws		N
2.10 (5.2.6)	Cable entries:		P
	- suitable for introduction		P
	- adequate degree of protection		P
2.10 (5.2.7)	Cable entries through rigid material have rounded edges		P
2.10 (5.2.8)	Insulating bushings:		N
	- suitably fixed		N
	- material in bushings		N

IEC 60598-2-2			
Clause	Requirement – Test	Result	Verdict
	- material not likely to deteriorate		N
	- tubes or guards made of insulating material		N
2.10 (5.2.9)	Locking of screwed bushings		N
2.10 (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
2.10 (5.2.10.1)	Cord anchorage for type X attachment:		N
	a) at least one part fixed		N
	b) types of cable		N
	c) no damaging of the cable		N
	d) whole cable can be mounted		N
	e) no touching of clamping screws		N
	f) metal screw not directly on cable		N
	g) replacement without special tool		N
	Glands not used as anchorage		N
	Labyrinth type anchorages		N
2.10 (5.2.10.2)	Adequate cord anchorage for type Y and type Z attachment		P
2.10 (5.2.10.3)	Tests:		P
	- impossible to push cable; unsafe		P
	- pull test: 25 times; pull (N)..... :	60N	P
	- torque test: torque (Nm)..... :	0.25Nm	P
	- displacement ≤ 2 mm	<1.0mm	P
	- no movement of conductors		P
	- no damage of cable or cord		P
2.10 (5.2.11)	External wiring passing into luminaire		P
2.10 (5.2.12)	Looping-in terminals		N
2.10 (5.2.13)	Wire ends not tinned		P
	Wire ends tinned: no cold flow		N
2.10 (5.2.14)	Mains plug same protection		N
	Class III luminaire plug		N
2.10 (5.2.15)	Colour code low voltage (EN)		N
2.10 (5.2.16)	Appliance inlets (IEC 60320)		N

IEC 60598-2-2			
Clause	Requirement – Test	Result	Verdict
	Appliance couplers of class II type		N
2.10 (5.2.17)	Non standardized interconnecting cables properly assembled		N
2.10 (5.2.18)	Used plug in accordance with:		N
	- IEC 60083		N
	- other standard		N
2.10 (5.3)	Internal wiring		P
2.10 (5.3.1)	Internal wiring of suitable size and type	Suitable size and type	P
	Through wiring		N
	- not delivered/ mounting instruction		N
	- factory assembled		N
	- socket outlet loaded (A)..... :		N
	- temperatures..... :	(see Annex 2)	N
	Green- yellow for earth only		P
2.10 (5.3.1.1)	Internal wiring connected directly to fixed wiring		P
	Cross-sectional area (mm²)..... :	See ANNEX 1	P
	Insulation thickness	>0.5mm	P
	Extra insulation added where necessary		N
2.10 (5.3.1.2)	Internal wiring connected to fixed wiring via internal current-limiting device		P
	Adequate cross-sectional area and insulation thickness		P
2.10 (5.3.1.3)	Double or reinforced insulation for class II		N
2.10 (5.3.1.4)	Conductors without insulation		N
2.10 (5.3.1.5)	SELV current-carrying parts		N
2.10 (5.3.1.6)	Insulation thickness other than PVC or rubber		N
2.10 (5.3.2)	Sharp edges etc.	No sharp edges	P
	No moving parts of switches etc.	No switch	P
	Joints, raising/lowering devices	No such devices	P
	Telescopic tubes etc.		N
	No twisting over 360°		N
2.10 (5.3.3)	Insulating bushings:		N
	- suitable fixed		N
	- material in bushings		N
	- material not likely to deteriorate		N

IEC 60598-2-2			
Clause	Requirement – Test	Result	Verdict
	- cables with protective sheath		N
2.10 (5.3.4)	Joints and junctions effectively insulated	No joints	N
2.10 (5.3.5)	Strain on internal wiring		N
2.10 (5.3.6)	Wire carriers	Not adjustable luminaire	N
2.10 (5.3.7)	Wire ends not tinned		N
	Wire ends tinned: no cold flow		P
2.11 (8)	**PROTECTION AGAINST ELECTRIC SHOCK**		**P**
2.11 (8.2.1)	Live parts not accessible		P
	Basic insulated parts not used on the outer surface without appropriate protection		P
	Protection in any position		P
	Double-ended tungsten filament lamp	No double-ended tungsten filament lamp used	N
	Insulation lacquer not reliable	No insulation lacquer used	N
	Double-ended high pressure discharge lamp	No double-ended high pressure discharge lamp	N
	Relevant warning according to 3.2.18 fitted to the luminaire		N
2.11 (8.2.2)	Portable luminaire adjusted in most unfavourable position	Fixed luminaire not applicable the clause	N
2.11 (8.2.3)	Class II luminaire:		N
	- basic insulated metal parts not accessible during starter or lamp replacement		N
	- glass protective shields not used as supplementary insulation		N
	Class I luminaire with BC lampholder		N
	Class III luminaires may have exposed current carrying parts in the SELV circuit under the following conditions		N
	- The voltage under load does not exceed 25V r.m.s or 60V ripple-free d.c. and where the voltage exceeds 25V r.m.s. or 60V d.c., the touch current does not exceed: - for a.c.: 0.7mA (Peak) - for d.c. : 2.0mA		N
	- The no-load voltage does not exceed 35 peak or 60V Ripple-free d.c.		N
	The nominal voltage does not exceed 12V r.m.s. or 30V ripple-free d.c.		N
2.11 (8.2.4)	Portable luminaire:		N

IEC 60598-2-2			
Clause	Requirement – Test	Result	Verdict
	- protection independent of supporting surface	Fixed luminaires	N
	- terminal block completely covered		N
2.11 (8.2.5)	Compliance with the standard test finger or relevant probe		N
2.11 (8.2.6)	Covers reliably secured		P
2.11 (8.2.7)	Discharging of capacitors ≥ 0,5 μF	No capacitors	N
	Portable plug connected luminaire with capacitor		N
	Other plug connected luminaire with capacitor		N
	Discharge device on or within capacitor		N
	Discharge device mounted separately		N

2.12 (12)	**ENDURANCE TEST AND THERMAL TEST**		**P**
2.12.1(-)	Wiring temperature test:		P
	The supply using the cable provided with the luminaire		P
	Instruction sheet		N
	Otherwise p.v.c		N
2.12 (12.3)	Endurance test:		P
	- mounting- position.....:	Recessed mounted	—
	- test temperature (°C).....:	35°C	—
	- total duration (h).....:	240	—
	- supply voltage: Un factor; calculated voltage (V)	1.1x240V=264.4V	—
	- lamp used.....:	LED modules	—
2.12 (12.3.2)	After endurance test:		—
	- no part unserviceable		P
	- luminaire not unsafe		P
	- no damage to track system		N
	- marking legible		P
	- no cracks, deformation etc.		P
2.12 (12.4)	Thermal test (normal operation)	(see Annex 2)	P
2.12 (12.5)	Thermal test (abnormal operation)	(see Annex 2)	P
2.12 (12.6)	Thermal test (failed lamp control gear condition)		N
2.12 (12.6.1)	Through wiring or looping-in wiring loaded by a current of (A) ..... :		—
	- case of abnormal conditions.....:		—
	- electronic lamp control gear		N
	- measured winding temperature (°C): at 1,1 Un..:		—

IEC 60598-2-2			
Clause	Requirement – Test	Result	Verdict
	- measured mounting surface temperature (°C): at 1,1 Un:		N
	- calculated mounting surface temperature (°C)...:		N
	- track-mounted luminaires		N
2.12 (12.6.2)	Temperature sensing control		N
	- case of abnormal conditions.....:	No temperature sensing control	—
	- thermal link		N
	- manual reset cut-out		N
	- auto reset cut-out		N
	- measured mounting surface temperature (°C): .:		N
	- track-mounted luminaires		N
2.12 (12.7)	Thermal test (failed lamp control gear in plastic luminaires):		N
2.12 (12.7.1)	Through wiring or looping-in wiring loaded by a current of (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.....:		N
	- calculated temperature of fixing point/ exposed part (°C).....:		N
2.12 (12.7.2)	Temperature sensing control		—
	- thermal link		N
	- manual reset cut-out		N
	- auto reset cut-out		N
	- measured temperature of fixing point/ exposed part (°C) .....:		N

2.13 (9)	RESISTANCE TO DUST, SOLID OBJECTS AND MOISTURE		P
2.13 (9.2)	Tests for ingress of dust, solid objects and moisture:		P
	- classification according to IP.....:	IP20	—
	- mounting position during test.....:	Luminaires is mounted and wired as in normal use and placed in the most unfavourable position	—
	- fixing screws tightened; torque (Nm).....:	Two thirds of that specified in table 4	—
	- tests according to clauses.....:	9.2.0	—
	- electric strength test afterwards	See 10.2.2	P
	a) no deposit in dust-proof luminaire		P

IEC 60598-2-2			
Clause	Requirement – Test	Result	Verdict
	b) no talcum in dust- tight luminaire	Not dust-tight luminaire	N
	c) no trace of water on current-carrying parts or where it could become a hazard		N
	d) i) For luminaires without drain holes – no water entry		N
	d) ii) For luminaires with drain holes – no hazardous water entry		N
	e) no water in watertight luminaire		N
	f) no contact with live parts (IP 2X)	No contact with live parts	P
	f) no entry into enclosure (IP 3X and IP 4X)		N
	f) no contact with live parts (IP 3X and IP 4X)		N
2.13 (9.3)	Humidity test 48 h	48h, 25℃, 93%	P

2.14 (10)	**INSULATION RESISTANCE AND ELECTRIC STRENGTH**		**P**
2.14 (10.2.1)	Insulation resistance test		**P**
	Cable or cord covered by metal foil or replaced by a metal rod of mm Ø .....:		—
	Insulation resistance (MΩ):		—
	SELV:		N
	- between current-carrying parts of different polarity.....:		N
	- between current-carrying parts and mounting surface.....:		N
	- between current-carrying parts and metal parts of the luminaire.....:		N
	Between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts .....:		N
	Insulating bushing as described in section 5 .....:		N
	Other than SELV:		P
	- between live parts of different polarity.....:	>100M	P
	- between live parts and mounting surface.....:	>100M	P
	- between live parts and metal parts.....:	>100M	P
	- between live parts of different polarity through action of a switch.....:		N
	Between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts .....:		N
	Insulating bushing as described in section 5 .....:		N
2.14 (10.2.2)	Electric strength test		**P**

IEC 60598-2-2			
Clause	Requirement – Test	Result	Verdict
	Dummy lamp	No such lamp	N
	Luminaires with ignitors after 24 h test	No ignitors	N
	Luminaires with manual ignitors	No manual ignitors	N
	Test voltage (V):		--
	SELV:		N
	- between current-carrying parts of different polarity.....:		N
	- between current-carrying parts and mounting surface.....:		N
	- between current-carrying parts and metal parts of the luminaire.....:		N
	Between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts .....:		N
	Insulating bushing as described in section 5 .....:		N
	Other than SELV:		P
	- between live parts of different polarity.....:	1480V/1min, no broken	P
	- between live parts and mounting surface.....:	2960V/1min, no broken	P
	- between live parts and metal parts.....:	1480V/1min, no broken	P
	- between live parts and plastic cover.....:	2960V/1min, no broken	P
	- between live parts of different polarity through action of a switch.....:		N
	Between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts .....:		N
	Insulating bushing as described in section 5 .....:	1500V	P
2.14 (10.3.1)	Leakage current (mA).....	Max. 0.1mA	P

2.15 (13)	**RESISTANCE TO HEAT, FIRE AND TRACKING**		**P**
2.15 (13.2.1)	Ball-pressure test:		P
	- part tested; temperature (°C).....:	Enclosure plastic: 85°C, 1.0mm	P
	- part tested; temperature (°C).....:	PCB: 125°C, 1.6mm	P
2.15 (13.3.1)	Needle flame test (10 s):		P
	- part tested; temperature (°C).....:	PCB	P
	- part tested; temperature (°C).....:		N
	- part tested; temperature (°C).....:		N
2.15 (13.3.2)	Glow-wire test (850°C):		P
	- part tested.....:	Enclosure plastic	P

IEC 60598-2-2			
Clause	Requirement – Test	Result	Verdict
2.15 (13.4.1)	Tracking test: part tested..... :	Ordinary luminaries	N

IEC 60598-2-2			
Clause	Requirement – Test	Result	Verdict

	ANNEX 1: components					P
object/part No.	code	manufacturer/ trademark	type/model	technical data	standard	mark(s) of conformity
Power cord	A	NINGBO QIAOPU ELECTRIC CO.,LTD	H03VVH2-F	2 x 0.5mm²	AS/NZS 3191: 2003	Fair Trading N18298
AC Plug	A	NINGBO QIAOPU ELECTRIC CO.,LTD	D05A	7.5A,250V	AS/NZS 3112: 2011	ESO120303
Internal wire	A	NIZING ELECTRIC CO.,LTD	UL1015	0.3mm², 300V, 105℃, VW-1	EN 60598-2-2; EN 60598-1	Tested with appliance
LED Package	A	Shenzhen XuYu Optoelectronics Co.,Ltd	XUYUSMD 5730	260mA,Vf:3-5V	EN 60598-2-2; EN 60598-1	Tested with appliance
Plastic Enclosure	A	SABIC INNOVATIVE PLASTICS JAPAN L L C	C2950 (GG) (C)	V-0, 1.5mm	EN 60598-2-2; EN 60598-1	Test with the appliance/ UL E207780
LED PCB	A	SHENZHEN MEILAITE TECHNOLOGY CO LTD	MLT-L	V-0, 120℃	EN 60598-2-2; EN 60598-1	Test with the appliance/ UL E366055
LED driver for B0104-24-6000-3-Z,B0104-24-6000-1-Z	A	La Luce Lighting	CertaDrive 18W	Input:AC200-240V, 0.25A,18W Output:DC50-60V,350mA	EN 61347-2-13; EN 61347-1	Test with the appliance

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

	ANNEX 2: temperature measurements, thermal tests of Section 12		P
	Type reference..... :	LL-DL03-18W-830-65-WH	—
	Lamp used..... :	LED lamp	—
	Lamp control gear used..... :	--	—
	Mounting position of luminaire..... :	Recessed mounting	—

IEC 60598-2-2			
Clause	Requirement – Test	Result	Verdict
	Supply wattage (W)..... :	For model LL-DL03-18W-830-WH,18.7W.	—
	Supply current (A)..... :	0.073A	—
	Calculated power factor..... :	--	—
	Table: measured temperatures corrected for ta = 25 °C:		P
	- abnormal operating mode..... :	--	—
	- test 1: rated voltage..... :	--	—
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage..... :	254.4V	—
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage..... :	--	—
	- test 4: 1,1 times rated voltage or 1,05 times rated wattage..... :	--	—
	Through wiring or lopping-in wiring loaded by a current of (A) during the tests..... :	--	—

Model: LL-DL03-18W-830-65-WH						
temperature (°C) of part	clause 12.4 - normal				clause 12.5 - abnormal	
	test 1	test 2	test 3	limits	test 4	limit
Internal wire, near LED	-	71.5	-	105	-	-
Power cord	-	67.0	-	90	-	-
Translucent cover	-	47.9	-	90	-	-
LED PCB	-	70.8	-	120	-	-
Outside dissipated metal	-	68.1	-	Ref.	-	-
Lighting objects	-	49.6	-	90	-	-
Mounting surface	-	47.1	-	90	-	-
Model: B0104-24-6000-1-Z						
Internal wire, near LED	-	68.7	-	105	-	-
Power cord	-	54.6	-	90	-	-
Translucent cover	-	45.3	-	90	-	-
LED PCB	-	68.7	-	120	-	-
Outside dissipated metal	-	66.5	-	Ref.	-	-
Lighting objects	-	58.3	-	90	-	-
Mounting surface	-	47.5	-	90	-	-

IEC 60598-2-2			
Clause	Requirement – Test	Result	Verdict
	ANNEX 3: screw terminals (part of the luminaire)		**N**
(14)	**SCREW TERMINALS**		**N**
(14.2)	Type of terminal..... :		—
	Rated current (A)..... :		—
(14.3.2.1)	One or more conductors		N
(14.3.2.2)	Special preparation		N
(14.3.2.3)	Terminal size		N
	Cross-sectional area (mm^2)..... :		N
(14.3.3)	Conductor space (mm)..... :		N
(14.4)	Mechanical tests		N
(14.4.1)	Minimum distance		N
(14.4.2)	Cannot slip out		N
(14.4.3)	Special preparation		N
(14.4.4)	Nominal diameter of thread (metric ISO thread)...:		N
	External wiring		N
	No soft metal		N
(14.4.5)	Corrosion		N
(14.4.6)	Nominal diameter of thread (mm)..... :		N
	Torque (Nm)..... :		N
(14.4.7)	Between metal surfaces		N
	Lug terminal		N
	Mantle terminal		N
	Pull test; pull (N)..... :		N
(14.4.8)	Without undue damage		N

IEC 60598-2-2			
Clause	Requirement – Test	Result	Verdict
	ANNEX 4: screwless terminals (part of the luminaire)		**N**
(15)	**SCREWLESS TERMINALS**		**N**
(15.2)	Type of terminal..... :	No such parts	—
	Rated current (A)..... :		—
(15.3.1)	Material		N
(15.3.2)	Clamping		N
(15.3.3)	Stop		N
(15.3.4)	Unprepared conductors		N
(15.3.5)	Pressure on insulating material		N
(15.3.6)	Clear connection method		N
(15.3.7)	Clamping independently		N
(15.3.8)	Fixed in position		N
(15.3.10)	Conductor size		N
	Type of conductor		N
(15.5.1)	Terminals internal wiring		N
(15.5.1.1)	Pull test spring-type terminals (4 N, 4 samples)		N
(15.5.1.2)	Pull test pin or tab terminals (4 N, 4 samples)		N
	Insertion force not exceeding 50 N		N
(15.5.2)	Permanent connections: pull-off test (20 N)		N
(15.6)	Electrical tests		N
	Voltage drop (mV) after 1 h (4 samples)..... :		N
	Voltage drop of two inseparable joints		N
	Number of cycles..... :		—
	Voltage drop (mV) after 10th alt. 25th cycle (4 samples)..... :		N
	Voltage drop (mV) after 50th alt. 100th cycle (4 samples)..... :		N
	After ageing, voltage drop (mV) after 10th alt. 25th cycle (4 samples)..... :		N
	After ageing, voltage drop (mV) after 50th alt. 100th cycle (4 samples)..... :		N
(15.7)	Terminals external wiring		N
	Terminal size and rating		N
(15.8.1)	Pull test spring-type terminals or weded connections (4 samples); pull (N) ..... :		N
	Pull test pin or tab terminals (4 samples); pull (N) ..... :		N
(15.9)	Contact resistance test		N

IEC 60598-2-2			
Clause	Requirement – Test	Result	Verdict

	Voltage drop (mV) after 1 h									N
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										
	Voltage drop of two inseparable joints									N
	Voltage drop after 10th alt. 25th cycle									N
	Max. allowed voltage drop (mV)..... :									—
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										
	Voltage drop after 50th alt. 100th cycle									N
	Max. allowed voltage drop (mV)..... :									—
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										
	Continued ageing: voltage drop after 10th alt. 25th cycle									N
	Max. allowed voltage drop (mV)..... :									—
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										
	Continued ageing: voltage drop after 50th alt. 100th cycle									N
	Max. allowed voltage drop (mV)..... :									—
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										

IEC 62031			
Clause	Requirement – Test	Result	Verdict
4	**GENERAL REQUIREMENTS**		P
4.4	Integral modules treated as part of luminaires defined in clause 0.5 of IEC 60598-1	Integral module	—
4.5	Independent modules complies with requirements in IEC 60598-1		—
5	**GENERAL TEST REQUIREMENTS**		N
5.5	SELV-operated LED modules comply with Annex I of IEC 61347-2-13	LED module is considered as live parts.	—
6	**CLASSIFICATION**		P
	Built-in module	Yes ☐ No ☒	—
	Independent module.....	Yes ☐ No ☒	—
	Integral module	Yes ☒ No ☐	—
	For Integral module; Note to 1.2.1 in IEC 60598-1 applies.		P
7	MARKING	Not applicable to integral LED module	N
7.1	Mandatory markings:		N
	- mark of origin		N
	- model number, type reference ..... :		N
	- rated supply voltage (V) ..... :		N
	- rated supply current (A) ..... :		N
	- rated input power (V) ..... :		N
	- nominal power		N
	- indication of connections, wiring diagram		N
	- value of t_c		N
	- eye protection		N
	- marking of built-in modules only		N
7.2	- location of marking		N
7.3	Marking durable and legible		N
	Rubbing 15 s water, marking legible		N

IEC 62031			
Clause	Requirement – Test	Result	Verdict
8	**SCREW TERMINALS**		N
	Compliance with section 14 of IEC 60598-1		N
	SCREWLESS TERMINALS		N
	Compliance with section 15 of IEC 60598-1		N
	CONNECTORS		N
	Compliance with IEC 60838-2-2		N
9	**PROVISION FOR PROTECTIVE EARTHING**		P
	External metal parts connected to the earth terminal:		P
	- compliance with 7.2.1 in IEC 60598-1		P
	Test with a current of 10 A between earthing terminal and each of the accessible metal parts; measured resistance (Ω): < 0,5 Ω		P
	Protective earth, symbol		P
	Terminal complying with clause 8 in Part 1		N
	Locked against loosening and not possible to loosen by hand		P
	Not possible to loosen clamping means unintentionally on screwless terminals		N
	Earthing via means of fixing		N
	Earthing terminal only used for the earthing of the control gear		N
	All parts of material minimizing the danger of electrolytic corrosion		P
	Made of brass or equivalent material		P
	Contact surface bare metal		P
	Conductors by tracks on printed circuit boards:		N
	- a.c. current of 25 A for 1 min between earthing terminal and accessible metal parts		P
	- compliance with clause 7.2.1 in IEC 60598-1		P

IEC 62031			
Clause	Requirement – Test	Result	Verdict
8 (10)	**PROTECTION AGAINST ACCIDENTAL CONTACT WITH LIVE PARTS**		P
	Protection against accidental contact with live parts in compliance with IEC 61347-1		P
- (10.1)	Controlgear protected against accidental contact with live parts		N
- (A1)	Current measured according to IEC 60990, figure 4 and clause 7.1: max. 0,7 mA (peak) or 2,0 mA d.c., for f ≥ 1000 Hz max. 70 mA		N
- (A2)	Voltage at 50 kΩ (V): max. 34 V (peak)		N
	Lacquer or enamel not used for protection or insulation		N
	Adequate mechanical strength on parts providing protection		N
- (10.2)	Capacitors > 0,5 µF: voltage after 1 min (V): < 50 V		N
8.1 (-)	SELV-equivalent controlgear accessible parts are insulated from live parts by double or reinforced insulation according 8.6 and 13.1 in IEC 60065		N
8.2 (-)	Exposed terminals of SELV or SELV-equivalent controlgear are allowed if: - the rated or maximum output voltage does not exceeding 25 V r.m.s. - the no-load output voltage does not exceed 30 V r.m.s. or 33 √2 V peak		N
	Insulated terminals if rated output voltage >25 V		N
	One capacitor Y1 or two capacitors Y2 of the same values used in series between SELV or SELV-equivalent output and primary circuits - Capacitor complying with IEC 60384-14 - Other components bridging the separating transformer complying with EN 60065, clause 14		N

11	MOISTURE RESISTANCE AND INSULATION		P
	Protection against moisture and insulation in compliance with Clause 11, IEC 61347-1		P
	After storage 48 h at 91-95% relative humidity and 20-30 °C measuring of insulation resistance with d.c. 500 V (MΩ): ≥ 2 MΩ	> 10 MΩ	P

IEC 62031			
Clause	Requirement – Test	Result	Verdict
	Adequate insulation between input and output terminals not bounded together in SELV-equivalent controlgear		N
	For double or reinforced insulation the resistance exceeds 4 MΩ		N
12	**ELECTRIC STRENGTH**		P
	Electric strength in compliance with Clause 12 of IEC 61347-1		P
	Immediately after clause 11 electric strength test for 1 min		P
	Working voltage ≤ 42 V, test voltage 500 V		N
	Working voltage > 42 V, test voltage (V): 2U + 1000 V .....:	See IEC60598-1	P
	Reinforced insulation, test voltage (V): .....:		N
	No flashover or breakdown		P
	Windings in separating transformers in SELV-equivalent control gear according to 14.3.2 of EN 60065		N
13	**FAULT CONDITIONS**		P
13.1	In compliance with IEC 61347-1		P
	When operated under fault conditions the LED-module:		P
	- does not emit flames or molten material		P
	- does not produce flammable gases		P
	- protection against accidental contact not impaired		P
	Thermally protected controlgear does not exceed the marked temperature value		N
	Fault conditions: capacitors, resistors or inductors without proof of compliance with relevant specifications have been short-circuited or disconnected		N
- (14.1)	Short-circuit of creepage distances and clearances if less than specified in clause 16 in Part 1 (except between live parts and accessible metal parts)		P
	Distances on printed boards provided with		N

IEC 62031			
Clause	Requirement – Test	Result	Verdict
	coating according to IEC 60664-3		
- (14.2)	Short-circuit or interruption of semiconductor devices		P
- (14.3)	Short-circuit across insulation consisting of lacquer, enamel or textile		N
- (14.4)	Short-circuit across electrolytic capacitors		N
- (14.5)	During the tests, a five-layer tissue paper, where the test specimen is wrapped, does not ignite		P
	After the tests the insulation resistance with d.c. 500 V (MΩ) are ≥ 1 MΩ	> 10 MΩ	P
	Temperature declared thermally protected LED-modules fulfil the requirements in Annex C of IEC 61437-1		N
13.2	Module withstands overpower condition >15 min.		P
	Module with automatic protective device or power limiter, test performed 15 min. at limit.		N
	During the tests, tissue paper, spread below module, does not ignite		P

15	CONSTRUCTION		P
	Wood, cotton, silk, paper and similar fibrous material not used as insulation		P

16	CREEPAGE DISTANCES AND CLEARANCES		P
	Creepage and distances and clearances in compliance with IEC 60598-1		P
	Class of protection ..... :	Class II	—
	Working voltage (V) ..... :		—
	Voltage form ..... :	Sinusoidal	—
	PTI ..... :	< 600	—
	Rated pulse voltage (kV) ..... :		—
	(1) Live parts of different polarity: cr (mm); cl (mm) ..... :	See IEC60589-1	P

IEC 62031			
Clause	Requirement – Test	Result	Verdict
	(2) Live parts and accessible parts: cr (mm); cl (mm) ..... :	See IEC60589-1	P
	(3) Parts becoming live: cr (mm); cl (mm) .....:		N
	(4) Outer surface of cable: cr (mm); cl (mm) ..... :		N
	(5) Live parts of switches: cr (mm); cl (mm) ..... :		N
	(6) Live parts and supporting surface: cr (mm); cl (mm) ..... :	See IEC60589-1	P

17 (17)	SCREWS, CURRENT-CARRYING PARTS AND CONNECTIONS		P
(4.11)	Electrical connections:		P
(4.11.1)	Contact pressure		P
(4.11.2)	Screws:		N
	- self-tapping screws		N
	- thread-cutting screws		N
	- at least two self-tapping screws		N
(4.11.3)	Screw locking:		N
	- spring washer		N
	- rivets		N
(4.11.4)	Material of current-carrying parts	Copper	P
(4.11.5)	No contact to wood		P
(4.12)	Mechanical connections and glands:		N
(4.12.1)	Mechanical stress		P
	Screws not made of soft metal		N
	Screws of insulating material		N
	Torque test: part; torque (Nm) .....:		N
	Torque test: part; torque (Nm) .....:		N
	Torque test: part; torque (Nm) .....:		N
(4.12.2)	Screw diameter < 3 mm screwed into metal		N
(4.12.3)	Void		—
(4.12.4)	Locked connections		N
(4.12.5)	Screwed glands: force (N) .....:		N

IEC 62031			
Clause	Requirement – Test	Result	Verdict
18 (18)	**RESISTANCE TO HEAT, FIRE AND TRACKING**		P
	Resistance to Heat, Fire and Tracking in compliance with IEC 61347-1		P
(18.1)	Parts of insulating material retaining live parts in position, ball-pressure test:		P
	- part; test temperature (°C)	See IEC60598-1	P
	- part; test temperature (°C)		N
(18.2)	Printed boards in accordance with IEC 60249-1, 4.3		N
(18.3)	External parts of insulating material preventing electric shock glow-wire test 850 °C	See IEC60598-1	P
(18.4)	Parts of insulating material retaining live parts in position, needle-flame test 10 s:		N
	- flame extinguished within 30 s		N
	- no flaming drops igniting tissue paper		N
(18.5)	Tracking test		N
19	**RESISTANCE TO CORROSION**		P
	Resistance to corrosion in compliance with IEC 61347-1		P
	Rust protection:		P
	- test according 4.18.1 of IEC 60598-1		P
	- adequate varnish on the outer surface		N
A	**ANNEX A - TESTS**		P
	All tests performed in accordance with the advise given in Annex H of IEC 61347-1, if applicable		P
B	**ANNEX B - SELV-operated LED modules**		N
	ANNEX I of IEC 61347-2-13 - PARTICULAR ADDITIONAL REQUIREMENTS FOR INDEPENDENT SELV D.C. OR A.C. SUPPLIED ELECTRONIC STEP-DOWN CONVERTORS FOR FILAMENT LAMPS		N
I.6	**Heating**		P
I.6.1	No excessive temperatures in normal use		P
	Used material classified as Class ..... :	For transformer: class F	—
	Stated value of t_a ..... :	45°C	—

IEC 62031			
Clause	Requirement – Test	Result	Verdict
I.6.2	Temperature rises (Upri: 1.06 time supply rated voltage)		P
	Determined temperature rises in windings: - Primary (K) .....: - Limit max (K) .....: - Secondary (K) .....: - Limit max (K) .....:	(see appended table I.6)	P
	After the test:		P
	- no connections have worked loose		P
	- no reduction of creepage distances and clearances		P
	- no flow of sealing compound		P
	- no operation of protecting devices		P
	- electric strength test between input and output windings	3750V	P
I.6.3	Cycling test (10 cycles):		N/A
I.6.3.1	- heat run at (K) .....:		N/A
I.6.3.2	- moisture treatment 48 h		N/A
I.6.3.3	- vibration test 1 h; 1,5 g		N/A
I.6.3.4	After the tests:		N/A
	- insulation resistance ≥ 2, 4 or 5 MΩ		N/A
	- dielectric strength test for 2 min. at 35 % of specified value in table I.6		N/A
	- Current or the ohmic component does not deviates by more than 30 %		N/A

IEC 62031			
Clause	Requirement – Test	Result	Verdict

I.6 (L.6)	TABLE: Heating - normal operation		P
	ta (°C)..... :	45	—
	Lamp used..... :	LED modules	—
	Mounting position..... :	As in normal use	—
	Test voltage(V)..... :	A: 188V/60Hz; B: 254.4V/50Hz	—

Model A03-003-0260-302	A: (K /°C)	B: (K /°C)	Limit (K /°C)
T1 coil, Class F	132.1	131.6	155
T1 core, Class F	128.9	127.6	155
Tc	74.9	74.8	75
Y capacitor (MOV1), T125	113.2	112.8	125
PCB	122.0	121.6	130
L1, T105	99.6	98.6	105
C2, T105	101.2	99.7	105
U1,125	121.1	120.1	125
Ambient	45.0	45.0	--

Attachment No. 1

APPENDIX ZZ: SPECIAL NATIONAL CONDITIONS VARIATIONS TO IEC 60598-2014 FOR AUSTRALIA AND NEW ZEALAND			
0.1	Add the following text at the end of Clause 0.1: 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". NOTE: It is recommended that portable, rechargeable, battery operated luminaires comply with AS/NZS 60335.1, Annex B. In addition, portable, rechargeable, battery operated luminaires with lithium ion batteries should have overvoltage protection.	LED lamp	P
0.2	Add the following references: AS/NZS 3112, Approval and test specification—plugs and socket-outlets AS/NZS 3133, Approval and test specification—Air-break switches AS/NZS 3191, Electric flexible cords AS/NZS 60695.11.10, Fire hazard testing—Part 11.10: Test flames—50 W horizontal and vertical flame test methods (IEC 60695-11-10:1999, IDT) AS/NZS 61535, Installation couplers intended for permanent connection in fixed installations (IEC 61535, Ed. 1.0 (2009) MOD) IEC 61048, Auxilaries for lamps—Capacitors for use in tubular fluorescent and other discharge lamp circuits—General and safety requirements IEC 61049, Auxilaries for lamps—Capacitors for use in tubular fluorescent and other discharge lamp circuits—Performance requirements IEC 61995-1, Devices for the connection of luminaires for household and similar purposes—Part 1: General	No such components.	N

Attachment No. 1

0.4.2	After the first paragraph, add the following text: In Australia, for equipment, other than class III equipment, that is intended for connection to the supply mains and not marked with: — a rated voltage of at least 240 V for single-phase equipment or a rated voltage of at least 415 V for three-phase equipment; or — a rated voltage range that includes 240 V for single-phase equipment and 415 V for three-phase equipment, the rated voltage is equal to 240 V for single-phase equipment and 415 V for three-phase equipment, and the upper limit of the voltage range is equal to 240 V for single-phase equipment and 415 V for three-phase equipment.	Rated voltage 200-240V~	P
0.5	Add the following paragraph after the title: Throughout this document, where there is a relevant Australian/New Zealand Standard, it replaces the IEC Standard unless otherwise specified.		P
0.5.2A	Add the following new Clause after Clause 0.5.2: Capacitors shall comply with Clause 4.2A.	No such capacitor.	N
1.2	Add the following new definitions after 1.2.86:		--
1.2.87	installation coupler connecting device consisting of an installation female connector and an installation male connector provided with retaining means for permanent connection not intended to be engaged or disengaged under load nor to be engaged or disengaged other than during first installation, during maintenance of the wiring system or during re-configuration of the wiring system	No such components.	N
1.2.88	installation male connector: load side portion of an installation coupler which contains the male contacts	No such components.	N
1.2.89	installation female connector: supply side portion of an installation coupler which contains the female contacts	No such components.	N
1.2.90	installation coupler system: family of installation couplers consisting of one or more installation female connectors compatible by mechanical coding features with one or more installation male connectors, with the same ratings produced according to the specification of one manufacturer	No such components.	N
2.2	Addition: Class 0 Luminaires are not allowed in Australia and New Zealand.	Class II appliance	N

Attachment No. 1

3.2.12	Add the following paragraph after Note 3: 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".  FIGURE ZZ1 MUST BE INSTALLED BY A LICENSED ELECTRICIAN		N
3.3	In Australia and New Zealand, instructions and other texts required by this Standard shall be written in English. Compliance is checked by inspection.	In English	P
3.3.7	Luminaires for use with metal halide lamps shall be provided with instructions that state the substance of the following: To avoid potential unsafe lamp failure, the luminaire shall be switched off for at least 30 minutes at least once a week. In addition, the luminaire shall be operated: — complete with its protective shield; or — with a double jacketed lamp.	Not metal halide lamps used.	N
3.3.21	Addition: The instructions shall contain details related to components in the luminaire that require replacement as part of a maintenance program.	No replacement necessary	N
4.8	Addition: Switches that indicate an off position shall have contacts with an air break and comply with AS/NZS 3133 or AS/NZS 61058.1.	No such components.	N

Attachment No. 1

4.2A	Capacitors shall be of a type to ensure that any capacitor failure results in a failsafe outcome (i.e. the capacitor type will fail in the open-circuit mode only and is protected against fire or shock hazard). Capacitors 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 ANCI/EIA-456-A shall comply with IEC 61049 and IEC 61048:2006 excluding the endurance test of 18.1.1. NOTE Capacitors of Class S2 (formerly referred to as P2) of IEC 60252 (all parts) do not meet the safety requirements of a Type B capacitor. 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. Capacitors likely to be permanently subjected to the supply voltage, and used for radio interference suppression or for voltage dividing, shall comply with IEC 60384-14.	No such components.	N
5.2.1	Luminaires shall be provided with only one of the following means of connection and isolation to the supply.		P
	Fixed luminaires: — device for the connection of luminaires; — terminals; plug for engagement with socket-outlets; — connecting lead (tails); — supply cord and plug; — adapter for engagement with supply tracks; — appliance inlet; — installation coupler; — luminaire coupler;	supply cord and plug	P
	Portable luminaires: — supply cord with plug; — appliance inlet.		N
	Track-mounted luminaires: — adaptor; — connector.		N

Attachment No. 1

	In Australia, non-portable luminaires with a supply cord shall be fitted with a plug complying with AS/NZS 3112 or a coupler complying with its standard, except where the luminaire has markings and instructions that comply with Clause 3.2.12, in which case, a plug or coupler is not required. However, for other than portable luminaires a plug is not required if the luminaire has markings and instructions in accordance with Clause 3.2.12.	No such device.	N
	The plug portion of a luminaire with integral pins shall comply with the relevant requirements of AS/NZS 3112. NOTE 1 Relevant requirements for equipment with integral pins are outlined in AS/NZS 3112. NOTE 2 PVC-insulated connection cords should not be used with outdoor luminaires in cold alpine locations.	No such device.	N
5.2.2	Delete clause and replace with the following:		--
	Supply cords used as a means of connection to the supply, when supplied by the luminaire manufacturer, shall be at least equal in their mechanical and electrical properties to those specified in IEC 60227 and IEC 60245, as indicated in Table 5.1, or AS/NZS 3191, and shall be capable of withstanding, without deterioration, the highest temperature to which they may be exposed under normal conditions of use.		P
	Table 5.1, delete rows 4 and 5 and replace with the following: Luminaires which are other than ordinary Portable rough service luminaires — 60245 IEC 57 — 60227 IEC 53 Portable rough service luminaires — 60245 IEC 66 — PVC insulated and sheathed heavy duty flexible cord		N
	To provide adequate mechanical strength, the nominal cross-sectional area of the conductors shall be not less than: — 0,75 mm^2; — 1,0 mm^2 for portable rough service luminaires.	0.5 mm^2	N
5.2.16	Class II luminaires for fixed wiring incorporating an appliance coupler shall not have means to allow further luminaires to be connected, including looping in by cascading. Luminaire couplers incorporated with the luminaire shall comply with IEC 61995-1.	No such components.	N

Attachment No. 1

5.2.18	All portable luminaires with a flexible supply cord shall be fitted with a plug complying with AS/NZS 3112. Other luminaires with flexible cords shall be fitted with a plug complying with AS/NZS 3112, unless they have the warning allowed by Clause 3.2.12.	No such components.	N
5.2.19	Addition: Installation couplers incorporated within luminaires shall comply with the requirements of AS/NZS 61535.	No such components.	N
	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.	No such components.	N
5.3.1	Internal wires coloured green, yellow or green/yellow combination shall beused for making protective earth connections only. Functional earth connections shall not be made by wires coloured green, yellow orgreen/yellow combination. Add the following new Note: NOTE 3 Internal wires of other colours are not precluded from making protective earthing connections.	Compliance checked.	P
7.2.11	All conductors, whether internal or external, coloured green, yellow or green/yellow combination, shall only be connected to an earthing terminal.	Compliance checked.	P
8.2.1	Luminaires shall be so constructed that their live parts and basic insulation are not accessible when the luminaire has been installed and wired as in normal use. Live parts shall not be accessible when the luminaire is opened as necessary for replacing lamps, replaceable light sources or (replaceable) starters, even if the operation cannot be achieved by hand. NOTE Examples of parts with basic insulation are cables intended for internal wiring, controlgear for building-in etc.	Compliance checked.	P
	This does not apply to the non-current -carrying parts of caps which comply with the relevant IEC safety standard.		N

Attachment No. 1

	Where a protective cover is used over a non-user-replaceable light source to provide protection against electric shock, and the cover is marked with the "caution, electric shock risk" symbol in accordance with IEC 60417-6042, the cover shall be left in place during the tests and inspections detailed by Section 8 of this Standard. The cover shall be held securely in position by fixings requiring the use of a tool for their removal, and at least two independent fixings shall be used.	No protective cover	N
12.1	Add the following new Note after Table 12.1: NOTE Luminaire manufacturers should consider the maximum ambient air temperature in the vicinity of components such as starting devices and electronic ballasts or converters. Component performance specifications advise manufacturers to mark or supply life data as maximum ambient air temperature based on 50,000 hrs. This t-life is often marked as 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.		N
13.3	Parts of non-metallic material shall be resistant to flame and ignition. For materials other than ceramic, compliance is checked by the tests of 13.3.1 and 13.3.2, 13.3.3 and 13.3.4, as appropriate. This requirement does not apply to decorative trims, knobs, wiring insulation and other parts not likely to be ignited or to propagate flames from inside the luminaire. This Clause applies to all parts, including components, even if they have been tested to their own standard.	See below.	P

Attachment No. 1

13.3.1	Parts of non-metallic material supporting connections shall withstand the following test: Parts are subject to a test using a nickel-chromium glow-wire. The test apparatus and test procedure shall be those described in AS/NZS 60695.2.10. The glow wire is heated to 750 °C and applied to the test sample for 30 s. For all tests, any flame or glowing of the sample shall extinguish within 30 s of withdrawing the glow-wire, and any burning or molten drop shall not ignite a single layer of tissue paper specified in 4.187 of ISO 4046-4:2002, spread out horizontally 200 mm ± 5 mm below the sample.	PCB	P
13.3.2	All other parts of non-metallic material shall withstand the following test: Parts are subject to a test using a nickel-chromium glow-wire. The test apparatus and test procedure shall be those described in AS/NZS 60695.2.10. The glow wire is heated to 850 °C and applied to the test sample for 30 s. For all tests, any flame or glowing of the sample shall extinguish within 30 s of withdrawing the glow-wire, and any burning or molten drop shall not ignite a single layer of tissue paper specified in 4.187 of ISO 4046-4:2002, spread out horizontally 200 mm ± 5 mm below the sample.	Translucent cover: 850°C, (Flame extinguished by itself within 30s, no flame and no residue drops on tissue paper.)	P
13.3.3	During the application of the 750 °C glow wire test of Clause 13.3.1, if a flame is produced that persists for longer than 2 s, the luminaire is further tested as follows:		N
	The needle-flame test of AS/NZS 60695.11.5 is applied to non-metallic parts that encroach within the envelope of a vertical cylinder having a diameter of 20 mm and a height of 50 mm above the point of application of the glow wire. The needle flame is applied to the test sample for 30 s.		N
	Parts shielded by a barrier that meets the needle-flame test of AS/NZS 60695.11.5 are not tested.	Metal-Clad type Enclosure	N
	NOTE This requires the needle flame to be applied to all parts likely to be impinged upon by the glow-wire flame within the hypothetical envelope of a vertical cylinder positioned above the point of application of the glow-wire. This applies to all parts unless there is a barrier that passes the needle-flame test and is within the cylinder and would protect the part from the glow-wire flame.		N

Attachment No. 1

	The duration of burning shall not exceed 30 s after removal of the test flame and any burning drop shall not ignite the underlying parts or tissue paper specified in 4.187 of ISO 4046-4:2002, spread out horizontally 200 mm ± 5 mm below the sample.		N
	The needle-flame test is not carried out on parts that are made of material classified as V-0 or V-1 according to AS/NZS 60695.11.10. The sample of material classified in accordance with AS/NZS 60695.11.10 shall be no thicker than the relevant part.		N
13.3.4	PCBs in luminaires shall be subject to the needle-flame test of AS/NZS 60695.11.5. The needle flame shall be applied for 30 seconds to an edge of the PCB at least 10 mm from a corner. The duration of burning shall not exceed 15 s after removal of the needle flame and any burning droplets shall not ignite the tissue paper placed underneath the PCB. The needle-flame test is not carried out on PCBs made of material that is V-0 rated according to AS/NZS 60695.11.10.		N

Attachment No. 2

	Variations to IEC61347-1:2007+A1:2010+A2:2012 for application in Australia and/or New Zealand(AS/NZS 61347.1:2002)		
Clause	Requirement-Test	Result-Remarks	Verdict
5	For Australia, the rated supply voltage is 230 V/400 V	Rated supply voltage:200-240V	P
	For Australia,the rated test voltage shall be 240 V/415 V	Rated test voltage:240V	P
8	Terminals, cables and cords		-
	Cables and cords shall comply with the relevant requirements of Section 5 of AS/NZS 60598.1.		P
9	Provisions for protective earthing		-
9.1	After the test, the requirements of AS/NZS 60598.1, sub-clause 7.2.3 shall apply.		N/A
18.2	Parts of insulating material shall be resistant to flame and ignition.		P
18.2.1	glow-wire (850 °C).		P
	-part tested	PCB and bobbin of T1,no flame ,no drop	P
	-part not tested		N/A
18.2.2	glow-wire (850 °C).		P
	-part tested	Plastic of enclosure	P
	-part not tested		N/A
18.2.3	Needle flame test(duration of the flame or 30 s).		N/A
	-part tested		N/A
	-part not tested		N/A

Attachment No. 2

	SPECIAL NATIONAL CONDITIONS VARIATIONS TO IEC 61347-2-13 FOR AUSTRALIA AND NEW ZEALAND(AS/NZS IEC 61347.2.13:2013)		
Clause	Requirement - Test	Result - Remarks	Verdict
ZZ	Appendix ZZ: Variations to IEC 61347-2-13:2006 for Australia and New Zealand		—
4	GENERAL REQUIREMENTS		—
	Where the control gear has accessible outputs, the control gear shall be - SELV outputs, and - comply with Annex I	SELV	P
	SELV equivalent is not permitted, where		N/A
	Control gear has accessible outputs		N/A
	Control gear is classified as independent SELV		N/A
8	PROTECTION AGAINST ACCIDENTAL CONTACT WITH LIVE PARTS		—
8.2	Output circuits of SELV control gear with accessible outputs		N/A
	Output voltage under load ≤ 25 V r.m.s. or ≤ 60 V d.c.		N/A
	If output voltage > 25 V r.m.s. or > 60 V d.c.		P
	a) touch current does not exceed 0,7 mA (peak) or 2 mA d.c. ..... :		P
	b) the no load output shall not exceed 33 √2 V peak or 60 V d.c.		P
	The requirements are applicable for each of the rated supply voltages.		N/A
	Control gear with an output greater than the limits above shall have insulated terminals.		N/A
	The touch current is checked by measurement in accordance with Annex G of IEC 60598-1		N/A
	Double or reinforced insulation bridged by appropriate and at least two resistors or two Y2 capacitors or one Y1 capacitor		N/A
	Y1 or Y2 capacitors comply with IEC 60384-14		N/A
	Resistors comply with test (a) in 14.1 of IEC 60065		N/A
9	TERMINALS		N/A
9.1	Direct plug-in control gear		N/A
	Plug-in control gear with pins for direct insertion into a socket-outlet shall comply with Appendix J of AS/NZS 3112:2011.		N/A

Attachment No. 2

	SPECIAL NATIONAL CONDITIONS VARIATIONS TO IEC 61347-2-13 FOR AUSTRALIA AND NEW ZEALAND(AS/NZS IEC 61347.2.13:2013)		
Clause	Requirement - Test	Result - Remarks	Verdict
16.2	Control gear which are of the constant current output type		P
	d) For control gear with SELV output, the LED modules, or equivalent load for which the control gear is designed, shall continue to be connected in series incrementally to the output terminals until the control gear ceases to operate or the output voltage is stabilized.		P
	During the tests under d), the maximum voltage measured on the output terminal shall not exceed the SELV limits of clause 8.		P

Appendix 1
Photo documentation

Photo 1

[√] top
[ ] front
[ ] rear
[ ] right side
[ ] left side
[ ] bottom
[ ] internal

Note: Model LL-DL01-18W-830-65-WH

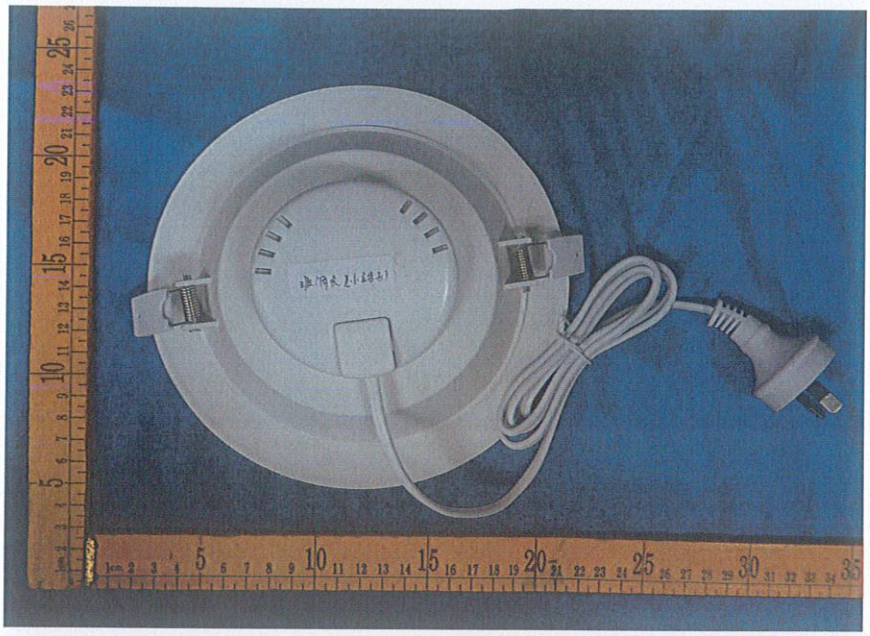


Photo 2

[ ] top
[ ] front
[√] rear
[ ] right side
[ ] left side
[ ] bottom
[ ] internal

Note: Model LL-DL01-18W-830-65-WH

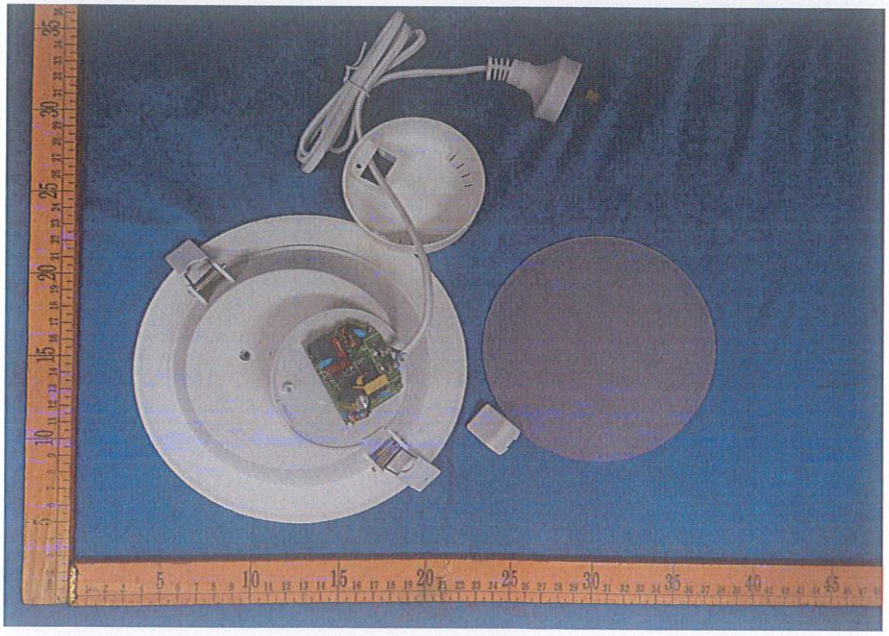


Photo documentation

Photo 3

[ ] top
[ ] front
[ ] rear
[ ] right side
[ ] left side
[ ] bottom
[√] internal

Note: Model LL-DL01-18W-830-65-WH

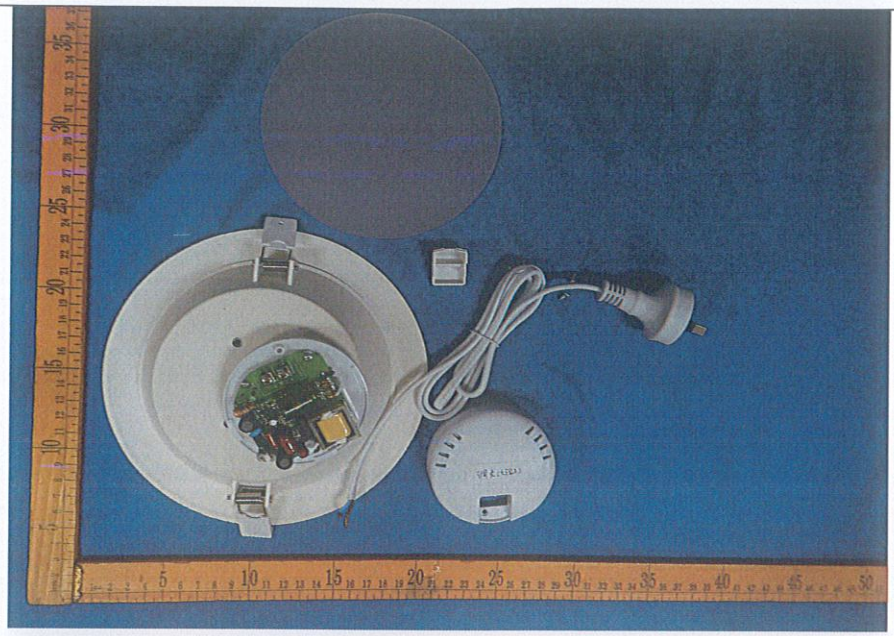


Photo 4

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[ ] rear
[ ] right side
[ ] left side
[ ] bottom
[√] internal(plug)

Note: Model LL-DL01-18W-830-65-WH

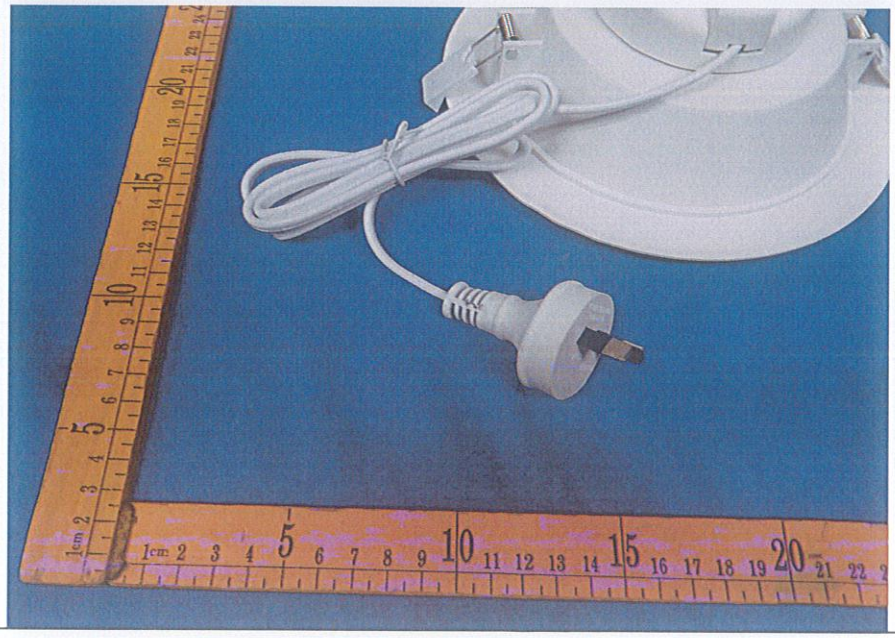


Photo 5

[ ] top
[ ] front
[ ] rear
[ ] right side
[ ] left side
[ ] bottom
[√] internal(LED modules)

Note: Model LL-DL01-18W-830-65-WH

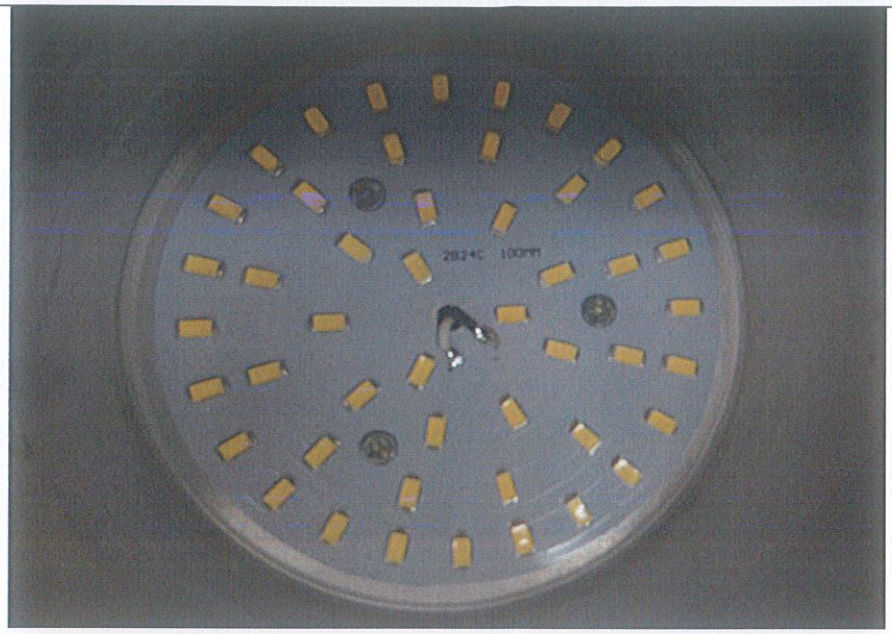


Photo 6

[√] top
[ ] front
[ ] rear
[ ] right side
[ ] left side
[ ] bottom
[ ] internal

Note: Model LL-DL01-18W-830-65-WH

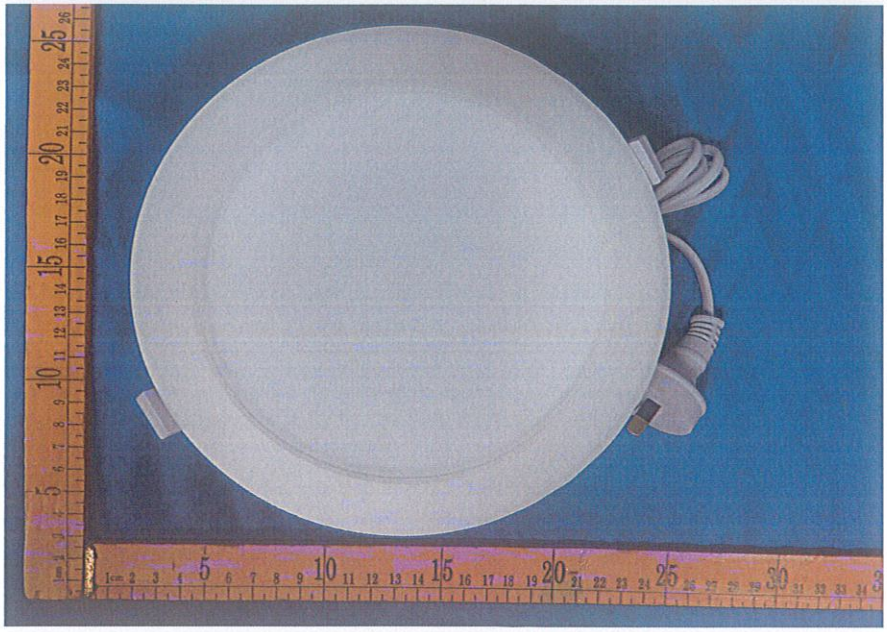


Photo 7

[ ] top
[ ] front
[√] rear
[ ] right side
[ ] left side
[ ] bottom
[ ] internal

Note: Model LL-DL03-18W-830-65-WH

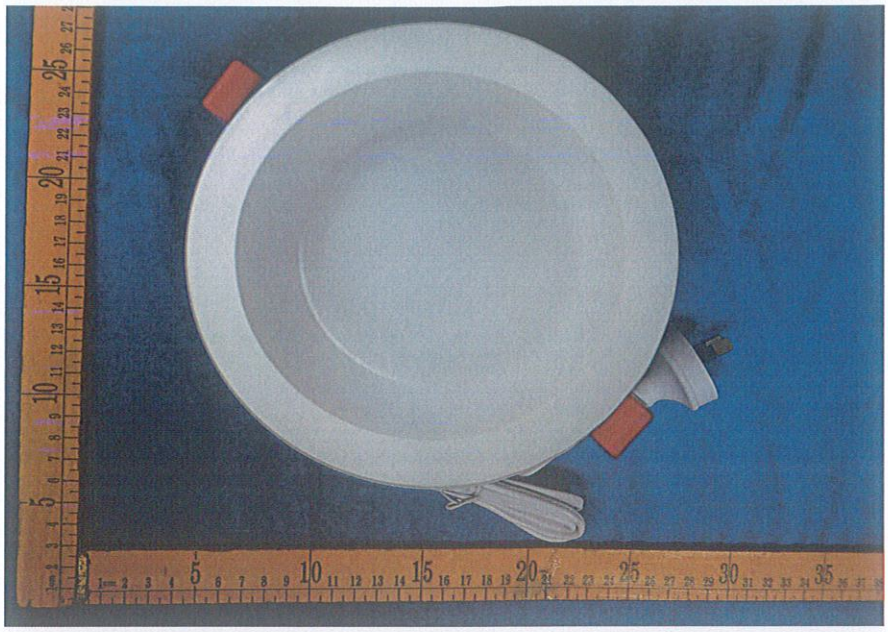


Photo 8

[ ] top
[ ] front
[ ] rear
[ ] right side
[ ] left side
[ ] bottom
[√] internal

Note: Model LL-DL03-18W-830-65-WH

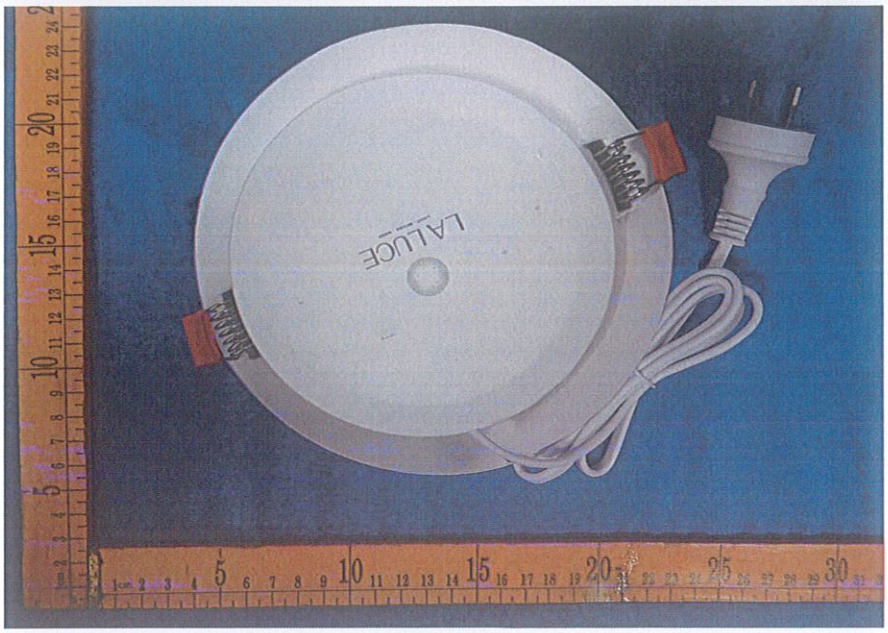


Photo 9

[ ] top
[ ] front
[ ] rear
[ ] right side
[ ] left side
[ ] bottom
[√] internal (plug)

Note: Model LL-DL03-18W-830-65-WH

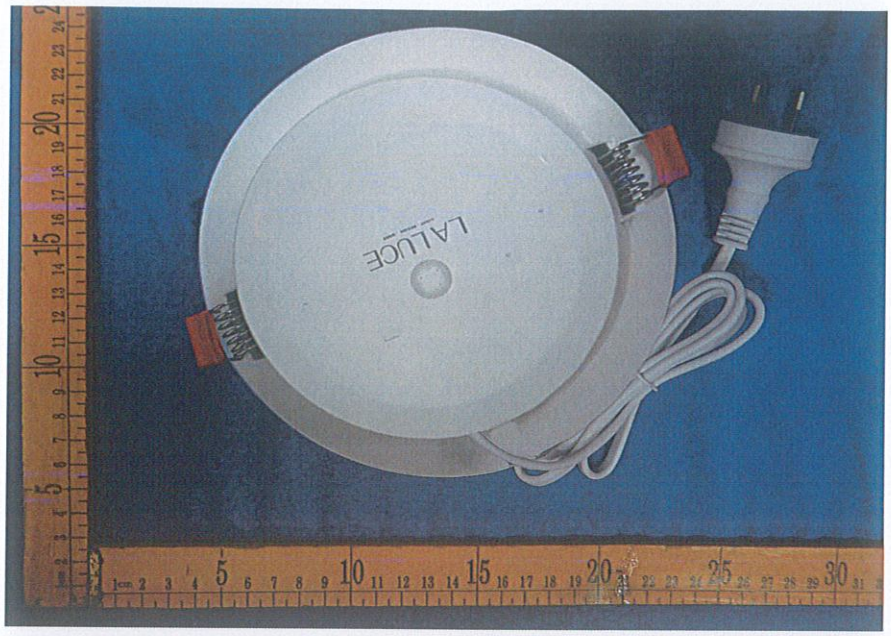
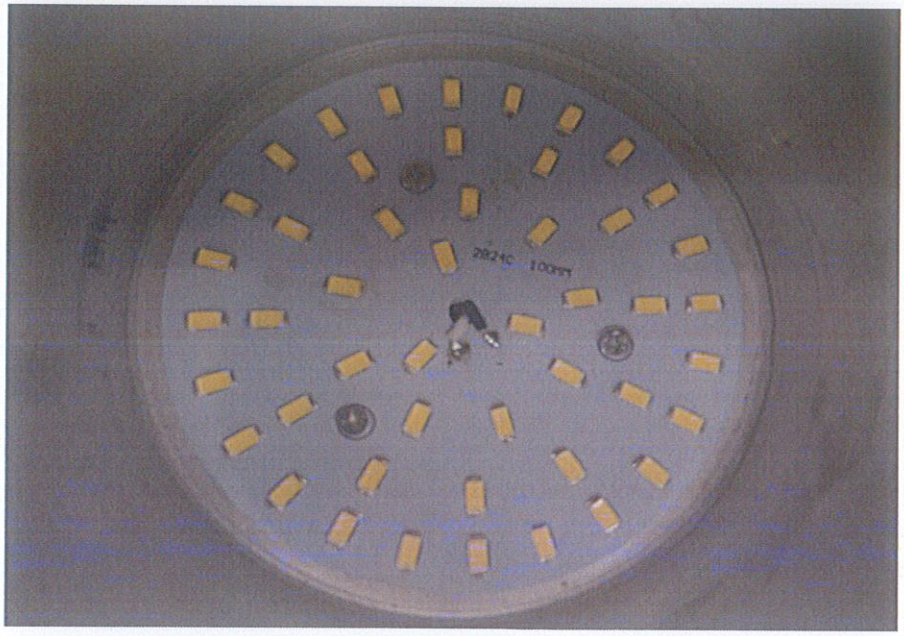


Photo 10

[ ] top
[ ] front
[ ] rear
[ ] right side
[ ] left side
[ ] bottom
[√] internal (LED modules)

Note: Model LL-DL03-18W-830-65-WH



===End of Test Report ===