



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

Report Number.....: LCS191008149BS001  
Date of issue.....: Feb 26, 2020  
Total number of pages.....: 65 pages

**Name of Testing Laboratory**

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

Applicant's name.....: **Foshan Rayven Lighting Co., Ltd**

Address.....: A1 New Lighting Source Industrial Zone, Luocun, Nanhai District,  
Foshan, Guangdong, CHINA 528200

**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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Laboratory, responsible for this Test Report.



Test item description.....:	SMD LED DOWNLIGHT	
Trade Mark.....:	Rayvenlights	
Trade Mark.....:	<b>AMBIUS</b>	
Trade Mark.....:	<b>ORBIT</b>	
Manufacturer.....:	Foshan Rayven Lighting Co., Ltd	
Address.....:	A1 New Lighting Source Industrial Zone, Luocun, Nanhai District, Foshan, Guangdong, CHINA 528200	
Model/Type reference.....:	See model list on page 5	
Ratings.....:	See model list on page 5	
<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.....:	Ray Hui (Director)	
Approved by .....	Jesse Liu (Manager)	
<b>List of Attachments (including a total number of pages in each attachment):</b> Attachment No. 1: 8 pages of report AS/NZS 60598.1:2017+A1:2017. Attachment No. 2: 11 pages of report AS/NZS 60598.2.2:2016+A1:2017. Attachment No. 3: 1 pages of report IEC 62031:2018. Attachment No. 4: 3 pages of report IEC TR 62778:2014. Attachment No. 5: 6 pages of photo documentation.		
<b>Summary of testing:</b>		
<b>Tests performed (name of test and test clause):</b> IEC 60598-2-2:2011 IEC 60598-1:2014+A1:2017 IEC TR 62778:2014 IEC 62031:2018	<b>Testing location:</b> Shenzhen Southern LCS Compliance Testing Laboratory Ltd. 101-201, No.39 Building, Xialang Industrial Zone, Heshuikou Community, Matian Street, Guangming District, Shenzhen, China	
<b>Summary of compliance with National Differences:</b>		
<b>List of countries addressed</b> <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		

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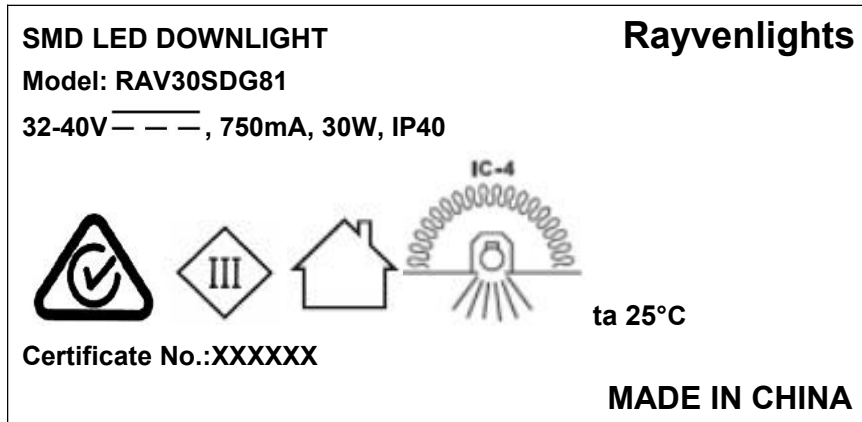
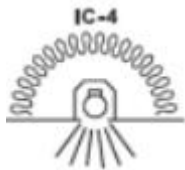
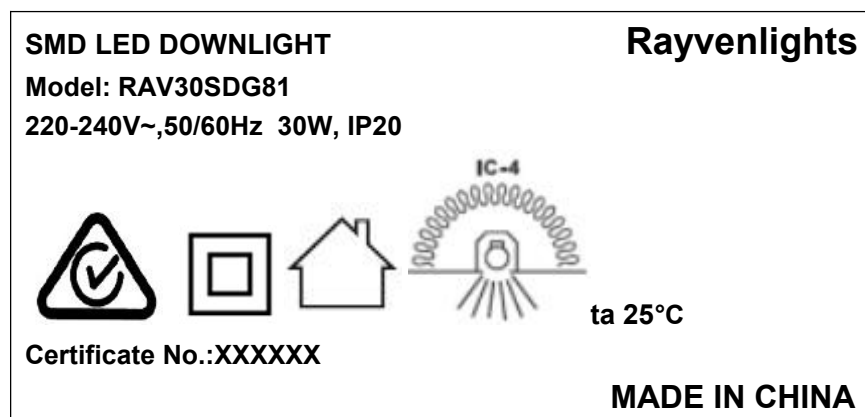
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**Copy of marking plate:**

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 Light module:

**Label located on the package:**

: Luminaires suitable for covering with thermally insulating material, size of this marks least 25x25mm.

**Remarks:**

- 1.Representative markings of **RAV30SDG81**, markings of all models are identical except for the model name
2. Height of RCM symbol should not less than 5mm, height of other marks at least 5mm, height of letters and numerals at least 2mm.



<b>Test item particulars..... :</b>													
<b>Classification of installation and use.....:</b> Recessed luminaires													
<b>Supply Connection.....:</b> Input Terminals of LED driver													
<b>Protection Class.....:</b> Class II													
<b>Degree of Protection..... :</b> IP40 for the Light module, IP20 for the whole product													
<b>Possible test case verdicts:</b>													
- 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)													
<b>Testing..... :</b>													
<b>Date of receipt of test item..... :</b> Oct 08, 2019													
<b>Date (s) of performance of tests..... :</b> Oct 08, 2019 - Feb 26, 2020													
<b>General remarks:</b>													
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Throughout this report a <input checked="" type="checkbox"/> comma / <input type="checkbox"/> point is used as the decimal separator.													
Modified Information													
<table border="1"><thead><tr><th>Version</th><th>Report No.</th><th>Revision Data</th><th>Summary</th></tr></thead><tbody><tr><td>V1.0</td><td>LCS191008149BS</td><td>/</td><td>Original Version</td></tr><tr><td>V2.0</td><td>LCS191008149BS001</td><td>2020.2.26</td><td>Modify the CDF</td></tr></tbody></table>		Version	Report No.	Revision Data	Summary	V1.0	LCS191008149BS	/	Original Version	V2.0	LCS191008149BS001	2020.2.26	Modify the CDF
Version	Report No.	Revision Data	Summary										
V1.0	LCS191008149BS	/	Original Version										
V2.0	LCS191008149BS001	2020.2.26	Modify the CDF										
<b>Manufacturer's Declaration per sub-clause 4.2.5 of IEC 60598-1:</b>													
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.....:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> Not applicable												
<b>When differences exist; they shall be identified in the General product information section.</b>													
<b>Name and address of factory (ies)..... :</b> Same as manufacturer													



## General product information:

- All models have the same structure, except rating and model name are different.
- The power is the same except the model name is different.

Model	Rating of LED module	LED driver
RAV30SDG81	32-40VDC, 750mA, 30W, IP40, ta.25°C	RAV30D750
ADL30W220-260		
RAV30DLF61		
RAV30DLF81		
RAV40DLF81		
RAV30SDF61		
RAV30SDF81		
RAV40SDF81		
RAV30DLH61		
RAV40DLH61		
RAV30DLH81		
RAV40DLH81		
RAV50DLH81		
RAV30DLH81-40		
RAV30SLG51		
RAV30SLG61		
RAV40SLG61		
RAV50SLG61		
RAV40SLG81		
RAV50SLG81		
RAV30A1C41		
RAV40A1C41		
RAV30SLF51		
RAV40SLF51		
RAV43SLF51		
RAV50SLF51		



RAV20SDG61	32-40VDC, 500mA, 20 W, Uout: 52V	RAV20D500
RAV20SDG81		
ADL20W192		
RAV20DLF41		
RAV20DLF61		
RAV20SDF61		
RAV20DLH41		
RAV20DLG61		
RAV20DLG81		
RAV20SLG51		
RAV20A1C41		
RAV15DLF41	32-40VDC, 350mA, 15 W, Uout: 52V	RAV15D350
RAV12DLH41		
RAV15DLH41		
RAV15DLG61		
RAV15SDG61		
RAV12DLF41	32-40VDC, 300mA, 12W, Uout: 52V	RAV12D300
RAV12DLG41		
RAV12SDG41		
RAV1201-CL111		
RAV1201-CL121		
RAV1201-CL120		
RAV12CLJ31		
RAV12FHM31		
RAV10DLG41	32-40VDC, 240mA, 10W, Uout: 52V	RAV10D240
RAV10SDG41		
RAV10CLI31		
RAV10FHM31		
RAV10FHB21		
RAV1001-CL110		
RAV1201-CL110		



IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
<b>2.3 (0)</b>	<b>GENERAL TEST REQUIREMENTS</b>		<b>P</b>
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)	—
<b>2.3 (0.7)</b>	<b>Information for luminaire design in light sources standards</b>		—
2.3 (0.7.2)	Light source safety standard .....	IEC 62031	—
	Luminaire design in the light source safety standard		<b>P</b>
<b>2.5 (2)</b>	<b>CLASSIFICATION OF LUMINAIRES</b>		<b>P</b>
2.5 (2.2)	Type of protection .....	Class II (with LED driver)	<b>P</b>
2.5 (2.3)	Degree of protection.....:	IP40for the Light module, IP20 for the whole product	<b>P</b>
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"/>	—
<b>2.6 (3)</b>	<b>MARKING</b>		<b>P</b>
2.6 (3.2)	Mandatory markings		<b>P</b>
	Position of the marking		<b>P</b>
	Format of symbols/text		<b>P</b>
2.6 (3.3)	Additional information		<b>P</b>
	Language of instructions	English	<b>P</b>
2.6 (3.3.1)	Combination luminaires		<b>N/A</b>
2.6 (3.3.2)	Nominal frequency in Hz	50/60Hz	<b>P</b>
2.6 (3.3.3)	Operating temperature		<b>N/A</b>
2.6 (3.3.4)	Symbol or warning notice		<b>P</b>
2.6 (3.3.5)	Wiring diagram	See user manual	<b>N/A</b>
2.6 (3.3.6)	Special conditions		<b>N/A</b>
2.6 (3.3.7)	Metal halide lamp luminaire – warning		<b>N/A</b>
2.6 (3.3.8)	Limitation for semi-luminaires		<b>N/A</b>
2.6 (3.3.9)	Power factor and supply current		<b>P</b>
2.6 (3.3.10)	Suitability for use indoors		<b>P</b>
2.6 (3.3.11)	Luminaires with remote control		<b>N/A</b>

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IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
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	~	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(Between the lamp body and the drive)	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		P
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	Labels still be legible	P
	Label attached	Marking labels not be easily removable and no curling	P

<b>2.7 (4)</b>	<b>CONSTRUCTION</b>		<b>P</b>
2.7 (4.2)	Components replaceable without difficulty		P
2.7 (4.3)	Wireways smooth and free from sharp edges		P
<b>2.7 (4.4)</b>	<b>Lampholders</b>		<b>N/A</b>
2.7 (4.4.1)	Integral lampholder	No 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) .....	--	—
	After test the lampholder comply with relevant standard sheets and show no damage		N/A

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IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
	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
<b>2.7 (4.5)</b>	<b>Starter holders</b>		N/A
	Starter holder in luminaires other than class II	No starter holders	N/A
	Starter holder class II construction		N/A
<b>2.7 (4.6)</b>	<b>Terminal blocks</b>		N/A
	Tails		N/A
	Unsecured blocks		N/A
<b>2.7 (4.7)</b>	<b>Terminals and supply connections</b>		P
2.7 (4.7.1)	Contact to metal parts		P
2.7 (4.7.2)	Test 8 mm live conductor		P
	Test 8 mm earth conductor		P
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
2.7 (4.7.4)	Terminals other than supply connection		N/A
2.7 (4.7.5)	Heat-resistant wiring/sleeves		N/A

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IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
2.7 (4.7.6)	Multi-pole plug		N/A
	- test at 30 N		N/A
<b>2.7 (4.8)</b>	<b>Switches</b>		N/A
	- adequate rating		N/A
	- adequate fixing		N/A
	- polarized supply		N/A
	- compliance with IEC 61058-1 for electronic switches		N/A
<b>2.7 (4.9)</b>	<b>Insulating lining and sleeves</b>		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
<b>2.7 (4.10)</b>	<b>Double or reinforced insulation</b>		P
2.7 (4.10.1)	No contact, mounting surface – accessible metal parts – wiring of basic insulation		P
	Safe installation fixed luminaires		P
	Capacitors and switches	No such component used between live parts and metal body	N/A
	Interference suppression capacitors according to IEC 60384-14		N/A
2.7 (4.10.2)	Assembly gaps:		P
	- not coincidental		P
	- no straight access with test probe		P
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
2.7 (4.10.4)	Protective impedance device		N/A

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IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
	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
<b>2.7 (4.11)</b>	<b>Electrical connections and current-carrying parts</b>		<b>P</b>
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
<b>2.7 (4.12)</b>	<b>Screws and connections (mechanical) and glands</b>		<b>P</b>
2.7 (4.12.1)	Screws not made of soft metal		P
	Screws of insulating material		N/A
	Torque test: torque (Nm); part.....:	Fixed LED PCB : 0,5Nm	P
	Torque test: torque (Nm); part.....:	Fixed enclosure : 0,5Nm	P
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
<b>2.7 (4.13)</b>	<b>Mechanical strength</b>		<b>P</b>
2.7 (4.13.1)	Impact tests:		P
	- fragile parts; energy (Nm).....:	--	N/A
	- other parts; energy (Nm).....:	For all enclosure: 0,35 Nm , no damage	P
	1) live parts		P

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IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
	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
<b>2.7 (4.14)</b>	<b>Suspensions, fixings and means of adjusting</b>		P
2.7 (4.14.1)	Mechanical load:		P
	A) four times the weight	Max. 0.82kg * 4	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) .....	No such cable used	—
	Stress in conductors (N/mm <sup>2</sup> ) .....	--	N/A
	Mass (kg) of semi-luminaire .....	--	N/A
	Bending moment (Nm) of semi-luminaire .....	--	N/A
2.7 (4.14.3)	Adjusting devices:		N/A
	- flexing test; number of cycles..... :	No adjusting devices	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	No such part	N/A

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2.7 (4.14.5)	Guide pulleys		N/A
2.7 (4.14.6)	Strain on socket-outlets		N/A
<b>2.7 (4.15)</b>	<b>Flammable materials</b>		<b>P</b>
	- glow-wire test 650°C..... :	See Test Table 2.16 (13.3.2)	P
	- spacing $\geq 30$ 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
<b>2.7 (4.16)</b>	<b>Luminaires for mounting on normally flammable surfaces</b>		<b>P</b>
	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
<b>2.7 (4.17)</b>	<b>Drain holes</b>		<b>N/A</b>
	Clearance at least 5 mm	For indoor use only	N/A
<b>2.7 (4.18)</b>	<b>Resistance to corrosion</b>		<b>P</b>
2.7 (4.18.1)	- rust-resistance	Paint spraying	P
2.7 (4.18.2)	- season cracking in copper		P
2.7 (4.18.3)	- corrosion of aluminium		P
2.7 (4.19)	Ignitors compatible with ballast		N/A
*2.7 (4.20)	Rough service vibration		N/A

LCSTRF-S-002-A-1

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IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
<b>2.7 (4.21)</b>	<b>Protective shield</b>		<b>N/A</b>
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
<b>2.7 (4.24)</b>	<b>Photobiological hazards</b>		<b>P</b>
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		P
	Class of risk group assessed according to IEC/TR 62778 .....	RG0	—
	Luminaires with $E_{thr}$ :		N/A
	a) Fixed luminaires		N/A
	- distance x m, borderline between RG1 and RG2...:	--	N/A
	- marking and instruction according 3.2.23		N/A
	b) Portable and handheld luminaires		N/A
	- marking according 3.2.23 if RG1 exceeded at 200 mm according to IEC/TR 62778		N/A
	Portable luminaires for children IEC 60598-2-10 and Mains socket outlet nightlights IEC 60598-2-12 not exceed RG1 at 200 mm according to IEC/62778		N/A
<b>2.7 (4.25)</b>	<b>Mechanical hazard</b>		<b>P</b>
	No sharp point or edges		P
<b>2.7 (4.26)</b>	<b>Short-circuit protection</b>		<b>N/A</b>
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
<b>2.7 (4.27)</b>	<b>Terminal blocks with integrated screwless earthing contacts</b>		<b>N/A</b>

LCSTRF-S-002-A-1

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IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
	Test according Annex V	No such terminal	N/A
	Pull test of terminal fixing (20 N)		N/A
	After test, resistance < 0,05 $\Omega$		N/A
	Pull test of mechanical connection (50 N)		N/A
	After test, resistance < 0,05 $\Omega$		N/A
	Voltage drop test, resistance < 0,05 $\Omega$		N/A
<b>2.7 (4.28)</b>	<b>Fixing of thermal sensing control</b>		<b>N/A</b>
	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 ( $^{\circ}\text{C}$ ) ..... :	--	—
	100 cycles between t min and t max		N/A
	Temperature sensing control still in position		N/A
<b>2.7 (4.29)</b>	<b>Luminaires with non-replaceable light source</b>		<b>N/A</b>
	Not possible to replace light source		N/A
	Live part not accessible after parts have been opened by hand or tools		N/A
<b>2.7 (4.30)</b>	<b>Luminaires with non-user replaceable light source</b>		<b>P</b>
	If protective cover provide protection against electric shock and marked with “caution, electric shock risk” symbol:		N/A
	Minimum two fixing means		P
<b>2.7 (4.31)</b>	<b>Insulation between circuits</b>		<b>P</b>
	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
<b>2.7 (4.31.1)</b>	<b>SELV circuits</b>		<b>P</b>
	Used SELV source	Approved independent SELV LED driver used	P
	Voltage $\leq$ ELV		P
	Insulating of SELV circuits from LV supply	Double insulation	P

LCSTRF-S-002-A-1

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IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
	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	No FELV circuits	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
2.7 (4.31.3)	Other circuits		N/A
	Other circuits insulated from accessible parts according Table X.1	Double insulation provided between live parts and accessible parts	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

LCSTRF-S-002-A-1

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

<b>2.7 (4.32)</b>	<b>Overvoltage protective devices</b>		<b>N/A</b>
	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

<b>2.8 (11)</b>	<b>CREEPAGE DISTANCES AND CLEARANCES</b>		<b>P</b>
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

<b>2.9 (7)</b>	<b>PROVISION FOR EARTHING</b>		<b>P</b>
2.9 (7.2.1 + 7.2.3)	Accessible metal parts		N/A
	Metal parts in contact with supporting surface		N/A
	Resistance < 0,5 $\Omega$ .....:		N/A
	Self-tapping screws used		N/A
	Thread-forming screws		N/A
	Thread-forming screw used in a grove		N/A
	Earth makes contact first		N/A
	Terminal blocks with integrated screwless earthing contacts tested according Annex V		N/A

LCSTRF-S-002-A-1

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IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
	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		N/A
	Compliance with 4.7.3		N/A
	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		N/A
	Contact surface bare metal		N/A
2.9 (7.2.10)	Class II luminaire for looping-in		P
	Double or reinforced insulation to functional earth		P
2.9 (7.2.11)	Earthing core coloured green-yellow		N/A
	Length of earth conductor		N/A

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

<b>2.10 (15)</b>	<b>SCREWLESS TERMINALS AND ELECTRICAL CONNECTIONS</b>		N/A
	Separately approved; component list.....:	(see Annex 1)	N/A
	Part of the luminaire.....:	soldered connection	N/A

<b>2.11 (5)</b>	<b>EXTERNAL AND INTERNAL WIRING</b>		P
<b>2.11 (5.2)</b>	<b>Supply connection and external wiring</b>		<b>P</b>
2.11 (5.2.1)	Means of connection.....:	Input Terminals of LED driver	P
	Outdoor luminaire has not PVC insulated external wiring if not class III or SELV $\leq 25$ V a.c./60 V d.c. or protected from outdoor environment		N/A
2.11 (5.2.2)	Type of cable.....:	H03VVH2-F	P
	Nominal cross-sectional area (mm <sup>2</sup> ).....:	2x0,75mm <sup>2</sup>	P
	Cables equal to IEC 60227 or IEC 60245		P

LCSTRF-S-002-A-1

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IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
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		P
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		N/A
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

LCSTRF-S-002-A-1

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IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
2.11 (5.2.10.3)	Tests:		P
	- impossible to push cable; unsafe		P
	- pull test: 25 times; pull (N)..... :	60 N	P
	- torque test: torque (Nm)..... :	0,15 Nm	P
	- displacement $\leq 2$ mm	Max. 0,5mm < 2 mm	P
	- no movement of conductors		P
	- no damage of cable or cord		P
	- function independent of electrical connection		N/A
2.11 (5.2.11)	External wiring passing into luminaire		N/A
2.11 (5.2.12)	Looping-in terminals		P
2.11 (5.2.13)	Wire ends not tinned		P
	Wire ends tinned: no cold flow		N/A
2.11 (5.2.14)	Mains plug same protection		P
	Class III luminaire plug		P
	No unsafe compatibility		P
2.11 (5.2.16)	Appliance inlets (IEC 60320)	No such inlet used	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	No inter-connection cable	N/A
2.11 (5.2.18)	Used plug in accordance with		N/A
	- IEC 60083		N/A
	- other standard		N/A
<b>2.11 (5.3)</b>	<b>Internal wiring</b>		<b>P</b>
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

LCSTRF-S-002-A-1

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IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
	- 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		N/A
	Cross-sectional area (mm <sup>2</sup> )..... :	--	N/A
	Insulation thickness		N/A
	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		N/A
2.11 (5.3.1.4)	Conductors without insulation		N/A
2.11 (5.3.1.5)	SELV current-carrying parts		P
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.	No such parts	N/A
	Joints, raising/lowering devices	No such devices	N/A
	Telescopic tubes etc.	No such part	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

LCSTRF-S-002-A-1

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IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
<b>2.11 (5.4)</b>	<b>Test to determine suitability of conductors having a reduced cross-sectional area</b>		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
<b>2.12 (8)</b>	<b>PROTECTION AGAINST ELECTRIC SHOCK</b>		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	Not such luminaire	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	Not such luminaire	N/A
	Basic insulation only accessible under lamp or starter replacement	No replaceable part	N/A
	Protection in any position		P
	Double-ended tungsten filament lamp		N/A
	Insulation lacquer not reliable	Not used	N/A
	Double-ended high pressure discharge lamp	No such 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	Not portable	N/A
2.12 (8.2.3.a)	Class II luminaire:		P
	- basic insulated metal parts not accessible during starter or lamp replacement		N/A
	- basic insulation not accessible other than during starter or lamp replacement		P
	- 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

LCSTRF-S-002-A-1

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IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
	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	Not portable luminaire	N/A
2.12 (8.2.5)	Compliance with the standard test finger or relevant probe		P
2.12 (8.2.6)	Covers reliably secured		P
2.12 (8.2.7)	Luminaire other than below with capacitor > 0,5 $\mu$ F not exceed 50 V 1 min after disconnection	4V after 1min	P
	Portable luminaire with capacitor > 0,1 $\mu$ F (0.25) not exceed 34 V 1 s after disconnection		N/A
	Other luminaires with capacitor > 0,1 $\mu$ F (0.25) with plug and track adaptors not exceed 60 V 5 s after disconnection		P
2.12 (-)	Parts within the ceiling space provide same degree of protection against electric shock as parts below the ceiling space		P

<b>2.13 (12)</b>	<b>ENDURANCE TEST AND THERMAL TEST</b>		<b>P</b>
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		—
<b>2.13 (12.2)</b>	<b>Selection of lamps and ballasts</b>		—
	Lamp used according Annex B	(Lamp used see Annex 2)	—
	Controlgear if separate and not supplied	(Controlgear used see Annex 2)	—
<b>2.13 (12.3)</b>	<b>Endurance test:</b>		<b>P</b>
	a) mounting- position.....:	Mounted in a cavity as instructed in user manual	—
	b) test temperature (°C).....:	25°C+10°C	—

LCSTRF-S-002-A-1

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IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
	c) total duration (h)..... :	240h	—
	d) supply voltage (V)..... :	1,1*240V	—
	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
2.13 (12.5)	Thermal test (abnormal operation)	(see Annex 2)	P
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

LCSTRF-S-002-A-1

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IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
2.13 (12.7.1.1)	Luminaire with fluorescent lamp $\leq 70W$		N/A
	Test method 12.7.1.1 or Annex W .....	--	—
	Test according to 12.7.1.1:		N/A
	- case of abnormal conditions.....	--	—
	- Ballast failure at supply voltage (V) .....	--	—
	- Components retained in place after the test		N/A
	- Test with standard test finger after the test		N/A
	Test according to Annex W:		N/A
	- case of abnormal conditions.....	--	—
	- measured winding temperature (°C): at 1,1 Un.....	--	—
	- measured temperature of fixing point/exposed part (°C): at 1,1 Un.....	--	—
	- calculated temperature of fixing point/exposed part (°C).....	--	—
	Ball-pressure test.....	See 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 $\leq 10 VA$		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"/>	—

LCSTRF-S-002-A-1

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

<b>2.14 (9)</b>	<b>RESISTANCE TO DUST AND MOISTURE</b>		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
	- classification according to IP.....:	IP40for the Light module, IP20 for the whole product	—
	- mounting position during test.....:	According to manual, normal installed	—
	- fixing screws tightened; torque (Nm).....:	--	—
	- tests according to clauses.....:	Clause 9.2.0	—
	- electric strength test afterwards		P
	a) no deposit in dust-proof luminaire		N/A
	b) no talcum in dust-tight luminaire		N/A
	c) no trace of water on current-carrying parts or on insulation where it could become a hazard		N/A
	c.1) For luminaires without drain holes – no water entry		N/A
	c.2) For luminaires with drain holes – no hazardous water entry		N/A
	d) no water in watertight 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)		P
	e) no contact with live parts through drain holes and ventilation slots (IP3X and IP4X)		P
	f) no trace of water on part of lamp requiring protection from splashing water		N/A
	g) no damage of protective shield or glass envelope		P
2.14 (9.3)	Humidity test 48 h	25°C, 93%RH	P

LCSTRF-S-002-A-1

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IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
<b>2.15 (10)</b>	<b>INSULATION RESISTANCE AND ELECTRIC STRENGTH</b>		<b>P</b>
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:	Measurement Insulation resistance: 100 MΩ, limit: 1 MΩ	P
	- between current-carrying parts and mounting surface .....	Measurement Insulation resistance: 100 MΩ, limit: 1 MΩ	P
	- between current-carrying parts and metal parts of the luminaire.....	Measurement Insulation resistance: 100 MΩ, limit: 1 MΩ	P
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts.....	Measurement Insulation resistance: 100 MΩ, limit: 1 MΩ	P
	- Insulation bushings as described in Section 5 .....	--	N/A
	Other than SELV		P
	- between live parts of different polarity.....	LED driver: Approved	P
	- between live parts and mounting surface.....	Measurement Insulation resistance: 100 MΩ, limit: 4 MΩ	P
	- between live parts and metal parts.....	Measurement Insulation resistance: 100 MΩ, limit: 4 MΩ	P
	- between live parts of different polarity through action of a switch.....	--	N/A
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts.....		N/A
	- Insulation bushings as described in Section 5 .....	--	N/A
2.15 (10.2.2)	Electric strength test		P
	Dummy lamp		N/A
	Luminaires with ignitors after 24 h test	No ignitor	N/A
	Luminaires with manual ignitors		N/A

LCSTRF-S-002-A-1

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IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
	Test voltage (V).....:	See below	P
	SELV		P
	- between current-carrying parts of different polarity:	Test with voltage 500Vac, no breakdown	P
	- between current-carrying parts and mounting surface.....:	Test with voltage 500Vac, no breakdown	P
	- between current-carrying parts and metal parts of the luminaire.....:	Test with voltage 500Vac, no breakdown	P
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts.....:	Test with voltage 500Vac, no breakdown	P
	- Insulation bushings as described in Section 5 .....		N/A
	Other than SELV		P
	- between live parts of different polarity.....:	LED driver: Approved	P
	- between live parts and mounting surface.....:	Test with voltage 2960Vac, no breakdown	P
	- between live parts and metal parts.....:	Test with voltage 2960Vac, no breakdown	P
	- between live parts of different polarity through action of a switch.....:		N/A
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts.....:		N/A
	- Insulation bushings as described in Section 5 .....		N/A
2.15 (10.3)	Touch current or protective conductor current (mA):	Max. 0,15 mA < 0,7 mA	P
<b>2.16 (13)</b>	<b>RESISTANCE TO HEAT, FIRE AND TRACKING</b>		<b>P</b>
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)	P
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

LCSTRF-S-002-A-1

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IEC 60598-2-2							
Clause	Requirement + Test				Result - Remark		Verdict
2.17 (11.2)	<b>TABLE I: Creepage distances and clearances</b> Approved Class II independent LED driver used. The output of LED driver is not more than SELV 60 V d.c., No creepage distance and clearance values are specified for working voltages below 60 V d.c. as the test voltage of electric strength is considered sufficient.						P
	<b>Minimum distances (mm) for a.c. up to 30 kHz sinusoidal voltages</b>						
	<b>Applicable part of IEC 60598-1 Table 11.1.A*, 11.1.B* and 11.2*</b>						
	Insulation type **	Measured clearance	Required		Measured creepage	Required	
			clearance	*Table		creepage	*Table
Distance 1:	B	--	--	Table 11.1	--	--	Table 11.1
Working voltage (V)..... :					AC240V		—
PTI..... :					< 600 <input type="checkbox"/> ≥ 600 <input type="checkbox"/>		—
Pulse voltage or $U_P$ if applicable (kV) .....					--		—
Supplementary information: L/N							
Distance 2:	B	--	--	Table 11.1	--	--	Table 11.1
Working voltage (V)..... :					AC240V		—
PTI..... :					< 600 <input type="checkbox"/> ≥ 600 <input type="checkbox"/>		—
Pulse voltage or $U_P$ if applicable (kV) .....							—
Supplementary information: Current-carrying parts and accessible parts(Plastic enclosure)							
Distance 3:	B	--	--	Table 11.1	--	--	Table 11.1
Working voltage (V)..... :					AC240V		—
PTI..... :					< 600 <input type="checkbox"/> ≥ 600 <input type="checkbox"/>		—
Pulse voltage or $U_P$ if applicable (kV) .....					--		—
Supplementary information: Current-carrying parts and mounting surface							

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

2.8 (11.2)	<b>TABLE II: Creepage distances and clearances</b> <b>Minimum distances (mm) for a.c. higher than 30 kHz sinusoidal voltages</b> <b>Applicable part of IEC 61347-1 Table 7 and 8* or IEC 60664-4 Table 1 and 2</b>						N/A
Distances	Insulation type **	Measured clearance	Required		Measured creepage	Required	
			clearance	*Table		creepage	*Table
Distance 1:	--	--	--	--	--	--	--
Working voltage (V)..... :					--		—

LCSTRF-S-002-A-1

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IEC 60598-2-2							
Clause	Requirement + Test				Result - Remark		Verdict
Frequency if applicable (kHz)..... :					--		—
PTI..... :					< 600 <input type="checkbox"/> ≥ 600 <input type="checkbox"/>		—
Peak value of the working voltage $\hat{U}_{out}$ if applicable (kV) ..... :					--		—
Supplementary information:--							
Distance 2:	--	--	--	--	--	--	--
Working voltage (V)..... :					--		—
Frequency if applicable (kHz)..... :					--		—
PTI..... :					< 600 <input type="checkbox"/> ≥ 600 <input type="checkbox"/>		—
Peak value of the working voltage $\hat{U}_{out}$ if applicable (kV) ..... :					--		—
Supplementary information:--							
Distance 3:	--	--	--	--	--	--	--
Working voltage (V)..... :					--		—
Frequency if applicable (kHz)..... :					--		—
PTI..... :					< 600 <input type="checkbox"/> ≥ 600 <input type="checkbox"/>		—
Peak value of the working voltage $\hat{U}_{out}$ if applicable (kV) ..... :					--		—
Supplementary information:--							

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

LCSTRF-S-002-A-1

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

2.16 (13.2.1)	<b>TABLE: Ball Pressure Test of Thermoplastics</b>			<b>P</b>
<b>Allowed impression diameter (mm) .....</b>		2,0mm	—	
Object/ Part No./ Material	Manufacturer/ trademark	Test temperature (°C)	Impression diameter (mm)	
Lens	See Annex 1	115	0,8	
Plastic enclosure of driver	See Annex 1	125	0,4	
connector	See Annex 1	125	0,5	
PCB of driver	See Annex 1	125	0,8	
Bobbin of driver	See Annex 1	125	0,7	
Supplementary information:--				

2.16 (13.3.1)	<b>TABLE: Needle-flame test (IEC 60695-11-5)</b>				<b>P</b>
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
Lens	See Annex 1	10	No	0	P
Plastic enclosure of driver	See Annex 1	10	No	0	P
connector	See Annex 1	10	No	0	P
PCB of driver	See Annex 1	10	No	0	P
Bobbin of driver	See Annex 1	10	No	0	P
Supplementary information:--					

2.16 (13.3.2)	<b>TABLE: Glow-wire test (IEC 60695-2-11)</b>				<b>P</b>
<b>Glow wire temperature .....</b>		750°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
Lens	See Annex 1	30	No	0	P
Plastic enclosure of driver	See Annex 1	30	No	0	P
connector	See Annex 1	30	No	0	P
PCB of driver	See Annex 1	30	No	0	P
Bobbin of driver	See Annex 1	30	No	0	P

LCSTRF-S-002-A-1

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

2.16 (13.4)	<b>TABLE: Proof tracking test (IEC 60112)</b>				<b>P</b>
<b>Test voltage PTI .....</b>		175 V			—
Object/ Part No./ Material	Manufacturer/ trademark	Withstand 50 drops without failure on three places or on three specimens			Verdict
Lens	See Annex 1	No burning	No burning	No burning	Pass
Plastic enclosure of driver	See Annex 1	No burning	No burning	No burning	Pass
connector	See Annex 1	No burning	No burning	No burning	Pass
PCB of driver	See Annex 1	No burning	No burning	No burning	Pass
Bobbin of driver	See Annex 1	No burning	No burning	No burning	Pass
Supplementary information:--					

LCSTRF-S-002-A-1

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

ANNEX 1		TABLE: Critical components information					--
Object / part No.	Code	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity <sup>1)</sup>	
LED driver	A	Foshan Rayven Lighting Co., Ltd	RAV30D750	Input: 220-240V~, 50/60Hz, 0.15A Output:32-40Vdc, 750mA, Pout.30W Uout.52Vdc, ta.25°C, tc.85°C, IP20	AS/NZS 61347.1: 2016 AS/NZS IEC 61347.2.13 :2013	SAA-193515-EA	
Output wire of driver	B	ZHONG SHAN YU XUAN ELECTRONICS CO LTD	2464	300VAC 80°C 22AWG	AS/NZS 60598.1	UL E316286 Tested with appliance	
-Alt	D	DONGGUAN CHENG XING ELECTRONIC CO LTD	2464	300VAC 80°C 22AWG	AS/NZS 60598.1	UL E249743 Tested with appliance	
-Alt	D	Foshan yong jun photoelectric co. LTD	2464	300VAC 80°C 22AWG	AS/NZS 60598.1	Tested with appliance	
DC connector	B	Foshan Yong Jun Photoelectric Co. LTD	YJCO300	1A; 300V	AS/NZS 60598.1	Tested with appliance	
Internal wire	B	ZHONG SHAN YU XUAN ELECTRONICS CO LTD	2464	300VAC 80°C 22AWG	AS/NZS 60598.1	UL E316286 Tested with appliance	
-Alt	D	DONGGUAN CHENG XING ELECTRONIC CO LTD	2464	300VAC 80°C 22AWG	AS/NZS 60598.1	UL E249743 Tested with appliance	
-Alt	D	Foshan yong jun photoelectric co. LTD	2464	300VAC 80°C 22AWG	AS/NZS 60598.1	Tested with appliance	
LED PCB	B	GOLDENMAX INTERNATIONAL TECHNOLOGY (HANGZHOU) LTD	GL12, GL22, GL-P1@	V-0; AI	AS/NZS 60598.1	UL E134893 Test with appliance	
-Alt	D	Guangzhou Huiying Electronics Co. LTD.	1060	V-0; AI	AS/NZS 60598.1	Tested with appliance	

LCSTRF-S-002-A-1

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IEC 60598-2-2						
Clause	Requirement + Test			Result - Remark		Verdict
LEDs	B	XUYU OPTOELECTRONICS (SHENZHEN) CO., LTD.	5730	IF=150mA; VF=3.0V; 3000K,-6500K	IEC 62471	Tested with appliance
Lens	B	EVONIK PERFORMANCE MATERIALS GMBH	8018	PMMA	AS/NZS 60598.1	UL E65495 Tested with appliance
-Alt	D	FOSHAN HONGZHU HARDWARE & PLASTIC FACTORY	8018	PMMA	AS/NZS 60598.1	Test with appliance
-Alt	D	FOSHAN RONGYI HARDWARE & PLASTIC FACTORY	8018	PMMA	AS/NZS 60598.1	Test with appliance
-Alt	D	FOSHAN HONGZHU HARDWARE & PLASTIC FACTORY	---	PMMA	AS/NZS 60598.1	Test with appliance
-Alt	D	FOSHAN RONGYI HARDWARE & PLASTIC FACTORY	---	PMMA	AS/NZS 60598.1	Test with appliance

Supplementary information:

<sup>1)</sup> 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

ANNEX 2	TABLE: Temperature measurements, thermal tests of Section 12		P
	Type reference.....:	RAV30SDG81 (SEE APPENDIX ZA)	—
	Lamp used.....:	LED lamp	—
	Lamp control gear used.....:		—
	Mounting position of luminaire.....:	See product manual	—
	Supply wattage (W).....:		—
	Supply current (A).....:		—
	Calculated power factor.....:		—

LCSTRF-S-002-A-1

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IEC 60598-2-2							
Clause	Requirement + Test				Result - Remark		Verdict
	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.....:						—
	- 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 looping-in wiring loaded by a current of A during the test .....:						—
Temperature measurements, (°C)							
Part	Ambient	Clause 12.4 – normal				Clause 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
--	--	--	--	--	--	--	--
Supplementary information:--							

ANNEX 3	Screw terminals (part of the luminaire)					N/A
(14)	SCREW TERMINALS					N/A
(14.2)	Type of terminal.....:	--				—
	Rated current (A).....:	--				—
(14.3.2.1)	One or more conductors					N/A
(14.3.2.2)	Special preparation					N/A
(14.3.2.3)	Terminal size					N/A
	Cross-sectional area ( $\text{mm}^2$ ).....:	--				—
(14.3.3)	Conductor space (mm).....:	--				N/A
(14.4)	Mechanical tests					N/A
(14.4.1)	Minimum distance					N/A
(14.4.2)	Cannot slip out					N/A
(14.4.3)	Special preparation					N/A
(14.4.4)	Nominal diameter of thread (metric ISO thread).....:	M				N/A
	External wiring					N/A
	No soft metal					N/A
(14.4.5)	Corrosion					N/A

LCSTRF-S-002-A-1

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

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

LCSTRF-S-002-A-1

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IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
	Voltage drop (mV) after 10th alt. 25th cycle (4 samples).....:	--	N/A
	Voltage drop (mV) after 50th alt. 100th cycle (4 samples).....:	--	N/A
	After ageing, voltage drop (mV) after 10th alt. 25th cycle (4 samples).....:	--	N/A
	After ageing, voltage drop (mV) after 50th alt. 100th cycle (4 samples).....:	--	N/A
(15.6)	Terminals and connections for external wiring		N/A
(15.6.1)	Conductors		N/A
	Terminal size and rating		N/A
15.6.2	Mechanical tests		N/A
(15.6.2.1)	Pull test spring-type terminals or welded connections (4 samples); pull (N) .....	--	N/A
(15.6.2.2)	Pull test pin or tab terminals (4 samples); pull (N) .....		N/A
(15.6.3)	Electrical tests		N/A
	Tests according 15.6.3.1 + 15.6.3.2 in IEC 60598-1		N/A

<b>(15.6.3.1)</b> <b>(15.6.3.2)</b>		<b>TABLE: Contact resistance test / Heating tests</b>									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

LCSTRF-S-002-A-1

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

LCSTRF-S-002-A-1

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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**

	<b>APPENDIX ZZ - VARIATIONS TO IEC 60598-1, Ed. 8.0 (2014) FOR AUSTRALIA AND NEW ZEALAND</b>	<b>P</b>
0.1	Portable rechargeable battery operated luminaires should comply with Annex B of AS/NZS 60335.1	N/A
0.2	Normative references	--
0.4.2	Rated voltage or rated voltage range	220-240Vac
0.5.101	Capacitors	N/A
0.5.102	Control gear	P
	Power supplies shall comply with the relevant part 2 of the AS/NZS 61558 series	N/A
	Control gear shall comply with the relevant part 2 of the AS/NZS 61347 series	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
1.2.101	Definitions	--
2.2	Class 0 luminaires are not permitted in Australia or New Zealand	N/A
3.1	In Australia and New Zealand, instructions and other texts required by this Standard shall at least be written in English	P
3.2.3	The rated maximum ambient temperature $t_a$	$t_a$ .25°C
3.2.12	In Australia, luminaires for household use and similar with supply cords that 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
3.2.21	The relevant symbol for luminaires not suitable for covering with thermally insulating material	N/A
3.2.23	The symbol "Do not stare at the operating light source"	N/A

LCSTRF-S-002-A-1

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## Attachment No.1

AS/NZS 60598.1:2017+A1:2017			
Clause	Requirement + Test	Result - Remark	Verdict
3.3.7	Luminaires for use with metal halide lamps shall be provided with instructions that state the substance of the following:		N/A
	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:		N/A
	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:		N/A
	— complete with its protective shield		N/A
	— with a double jacketed lamp		N/A
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
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
	- CAUTION: Do not ingest battery—Chemical burn hazard		N/A
	- [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.		N/A
	- Keep new and used batteries away from children.		N/A
	- If the battery compartment does not close securely, stop using the product and keep it away from children		N/A
	- If you think batteries might have been swallowed or placed inside any part of the body, seek immediate medical attention		N/A
4.7.2	Terminals shall be located or shielded in such a way that, if a wire of a stranded conductor escapes from a terminal when the conductors are fitted, there is no risk of contact between live parts and metal parts that can be touched with the standard test finger, nor shall it be possible to touch a live free wire with the standard test finger when the luminaire is fully assembled for use or open for the replacement of replaceable light sources or starters.		P

LCSTRF-S-002-A-1

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AS/NZS 60598.1:2017+A1:2017			
Clause	Requirement + Test	Result - Remark	Verdict
4.8	Switches shall comply with AS/NZS 3133, the AS/NZS 60669 series or AS/NZS 61058.1		N/A
	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
	Switches shall accord with 'AS/NZS 60669.2.1 or IEC 61058-1 classified for 10,000 operating cycles		N/A
4.10.4	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	A fixed socket-outlet complying with AS/NZS 3112 or AS/NZS 60884.1 is used for the following test		N/A
4.32	Metal oxide varistors shall comply with the requirements of AS/NZS 3100 for metal oxide varistors incorporated in accessories		N/A
(3.16)	Metal oxide varistors incorporated in accessories		N/A
	MOVs shall comply with IEC 61051-2		N/A
	(a) 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
	The body of any MOV shall have a flammability category of V-0 or better according to AS/NZS 60695.11.10		N/A
	(b) 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 short-circuit 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
	Accessories shall be protected against gradual failure of MOVs. Compliance is checked by the test of clause 8.15.9.		N/A

LCSTRF-S-002-A-1

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AS/NZS 60598.1:2017+A1:2017			
Clause	Requirement + Test	Result - Remark	Verdict
(8.15.9)	Equipment incorporating Metal Oxide Varistors (MOVs)		N/A
4.101.1	Small batteries		N/A
	Batteries that fit wholly within the small parts cylinder as specified in Clause 5.2 of ISO 8124-1 shall not be removable without the aid of a tool		N/A
	Luminaires intended for children under the age of three, or parts of such luminaires that contain batteries, shall not fit wholly within the small parts cylinder as specified in Clause 5.2 of ISO 8124-1		N/A
	For luminaires or parts of luminaires containing batteries that fit wholly within the small parts cylinder as specified in Clause 5.2 of ISO 8124-1, the batteries shall not be accessible without the aid of a tool		N/A
	Compliance is checked by inspection and by the following test.		N/A
	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: <ul style="list-style-type: none"><li>- push force, 50 N</li><li>- pull force; 30 N</li><li>- if the shape of the part is such that the fingertips cannot easily slip off, 50 N</li><li>- if the projection of the part that is gripped is less than 10 mm in the direction of removal, 30 N</li></ul>		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: <ul style="list-style-type: none"><li>- 2 Nm, for major dimensions up to 50 mm</li><li>- 4 Nm, for major dimensions over 50 mm</li></ul>		N/A
	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 %		N/A
4.101.2	Battery compartment fasteners		N/A

LCSTRF-S-002-A-1

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AS/NZS 60598.1:2017+A1:2017			
Clause	Requirement + Test	Result - Remark	Verdict
	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		N/A
	Compliance is checked by inspection and by the following test.		N/A
	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
5.2.1	Luminaires shall be provided with only one of the following means of connection and isolation to the supply		P
	Fixed luminaires:		P
	- device for the connection of luminaires		N/A
	- terminals		P
	- plug for engagement with socket-outlets		N/A
	- connecting leads (tails) in accordance with Clause 4.6 requirements		N/A
	- supply cord		N/A
	- supply cord and plug		N/A
	- adapter for engagement with supply tracks		N/A
	- appliance inlet		N/A
	- installation coupler		N/A
	- luminaire coupler		N/A
	Portable luminaires:		N/A
	- supply cord with plug		N/A
	- appliance inlet		N/A
	- inlet plug complying with AS/NZS 3120		N/A
	Track-mounted luminaires		N/A
	- adaptor		N/A
	- connector		N/A

LCSTRF-S-002-A-1

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## Attachment No.1

AS/NZS 60598.1:2017+A1:2017																															
Clause	Requirement + Test	Result - Remark	Verdict																												
5.2.2	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 in 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																												
	To provide adequate mechanical strength, the nominal cross-sectional area of the conductors shall be not less than:		P																												
	— 0,75 mm <sup>2</sup>	0,75	P																												
	— 1,0 mm <sup>2</sup> for portable rough service luminaires.		N/A																												
	<p style="text-align: center;"><b>Table 5.1 — Supply cord</b></p> <table border="1"> <thead> <tr> <th>Luminaire</th><th>Rubber</th><th>PVC</th><th>No insulation</th></tr> </thead> <tbody> <tr> <td>Ordinary class I luminaires</td><td>60245 IEC 51S °</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 °</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 °</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> </tbody> </table> <p>° For indoor use only.  AS/NZS 3000 may restrict the use of un-insulated conductors in certain special installations.  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 °		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 °	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
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 °																													
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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																														
5.2.16	Class II luminaires for fixed wiring incorporating an appliance coupler shall not have means to allow further luminaires to be connected by cascading including connection by looping-in		N/A																												
	Luminaire couplers incorporated with the luminaire shall comply with IEC 61995-1		N/A																												
	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	All portable luminaires with a supply cord shall be fitted with a plug complying with AS/NZS 3112. Other luminaires with a supply cord shall be fitted with a plug complying with AS/NZS 3112, unless they have the warning specified by Clause 3.2.12		N/A																												

LCSTRF-S-002-A-1

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## Attachment No.1

AS/NZS 60598.1:2017+A1:2017			
Clause	Requirement + Test	Result - Remark	Verdict
5.3.1	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.		N/A
5.3.1.3	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		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		N/A
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 user cleaning or maintenance, or for replacement of lamps, replaceable light sources or (replaceable) starters, even if the operation cannot be achieved by hand. Luminaires with non-replaceable light sources are subjected to the tests of Clause 4.29 prior to applying the tests and inspections of Section 8 of this Standard		P
	This does not apply to the non-current-carrying parts of lamp caps that comply with the relevant IEC safety standard		P
9.2	A designation of IPX7 or IPX8 is considered unsuitable for exposure to water jets (designated by IPX5 or IPX6) and may not comply with requirements for second numeral 5 or 6 unless it is dual coded		N/A
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

LCSTRF-S-002-A-1

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## Attachment No.1

AS/NZS 60598.1:2017+A1:2017			
Clause	Requirement + Test	Result - Remark	Verdict
	This Clause applies to all parts, including components, even if they have been tested to their own IEC or equivalent standard		P
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		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		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:		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

LCSTRF-S-002-A-1

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## Attachment No.2

AS/NZS 60598.2.2:2016+A1:2017			
Clause	Requirement + Test	Result - Remark	Verdict

AS/NZS 60598.2.2:2016			
Luminaires			
Part 2.2: Particular requirements - Recessed luminaires			

2.5	CLASSIFICATION		P
	The provisions of section 2 of IEC 60598-1 apply		P

2.6	MARKING		P
	The provisions of section 3 of IEC 60598-1 apply.		P

2.7	CONSTRUCTION		P
	The provisions of section 4 of IEC 60598-1 apply.		P

2.8	CREEPAGE DISTANCES AND CLEARANCES		P
	The provisions of section 11 of IEC 60598-1 apply.		P

2.9	PROVISION FOR EARTHING		N/A
	The provisions of section 7 of IEC 60598-1 apply.		N/A

2.10	TERMINALS		N/A
	The provisions of section 14 and 15 of IEC 60598-1 apply.		N/A

2.11	EXTERNAL AND INTERNAL WIRING		P
	The provisions of section 5 of IEC 60598-1 apply.		P
	Flexible cables or 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 or IEC 60245 and shall be capable of withstanding without deterioration the highest temperature to which they may be exposed under normal conditions of use		P

2.12 (8)	PROTECTION AGAINST ELECTRIC SHOCK		P
	The provisions of section 8 of IEC 60598-1 apply.		P

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## Attachment No.2

AS/NZS 60598.2.2:2016+A1:2017			
Clause	Requirement + Test	Result - Remark	Verdict
	The parts of the luminaire and components within the ceiling space or cavity shall provide the same degree of protection against electric shock as the luminaire parts below the ceiling space		P
<b>2.13</b>	<b>ENDURANCE TEST AND THERMAL TEST</b>		P
	The provisions of section 12 of IEC 60598-1 apply.		P
12.13.1	Wiring, for connection to the supply, which passes into or can touch the luminaire shall not reach unsafe temperature		P
	Luminaires with an IP classification greater than IP20 shall be subjected to the relevant tests of clauses 12.4, 12.5, 12.6 and 12.7 of section 12 of IEC 60598-1 after the test(s) of clause 9.2 but before the test(s) of clause 9.3 of section 9 of IEC 60598-1 specified in clause 2.14 of this section of IEC 60598-2	IP40 for the Light module, IP20 for the whole product	P
<b>2.14</b>	<b>RESISTANCE TO DUST, SOLID OBJECTS AND MOISTURE</b>		P
	The provisions of section 9 of IEC 60598-1 apply.		P
	For luminaires with an IP classification greater than IP20 the order of the tests specified in section 9 of IEC 60598-1 shall be as specified in Clause 2.13 of this section of IEC 60598-2	IP40 for the Light module, IP20 for the whole product	P
<b>2.15</b>	<b>INSULATION RESISTANCE AND ELECTRIC STRENGTH</b>		P
	The provisions of section 10 of IEC 60598-1 apply.		P
<b>2.16</b>	<b>RESISTANCE TO HEAT, FIRE AND TRACKING</b>		P
	The provisions of section 13 of IEC 60598-1 apply.		P
<b>APPENDIX ZZ</b>	<b>VARIATIONS TO IEC 60598-2-2, ED. 3.0 (2011) FOR AUSTRALIA AND NEW ZEALAND</b>		P
<b>2.5.101</b>	<b>Classification for luminaires</b>		P
<b>2.5.102</b>	<b>Australian and New Zealand Classifications</b>		P
	a) NON-IC		N/A
	b) Do Not Cover		N/A
	c) CA90		N/A
	d) CA135 (Only in Australian)		N/A
	e) IC		N/A



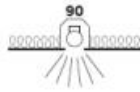
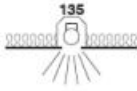
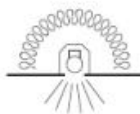
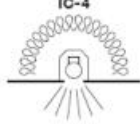
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AS/NZS 60598.2.2:2016+A1:2017			
Clause	Requirement + Test	Result - Remark	Verdict
	f) IC-4		P
<b>2.6</b>	<b>MARKING</b>		<b>P</b>
2.6.101	General		P
2.6.102	Luminaire symbol marking		P
	NON-IC		N/A
	Do Not Cover		N/A
	CA90		N/A
	CA135 (Only in Australian)		N/A
	IC		N/A
	IC-4		P
2.6.103	Location and durability of marking		P
	a) Legible, durable and visible		P
	b) Minimum size of 25mm x 25mm		P
	c) Permanently marked on the luminaire or on a durable awing tag permanently connected to the luminaire		P
2.6.104	Additional information to be supplied with the luminaire		P
2.6.104.1	a) The minimum clearance distance from the top of luminaire to any normally flammable building element		P

LCSTRF-S-002-A-1

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Clause	Requirement + Test	Result - Remark	Verdict
	b) The minimum clearance distance from the top of luminaire to any building insulation		P
	c) The minimum clearance distance from the side of luminaire to any normally flammable building element		P
	d) The minimum clearance distance from the side of luminaire to any building insulation		P
	WARNING - Risk of overheating or fire if the clearance distances are compromised		P
	Warning of CA135 luminaire 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 & 2.6.104.2.3	Australia additional warning: Recessed luminaires classified as Non-IC: New Zealand additional warning: Recessed luminaires classified as Non-IC and Do-Not-Cover: 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 INSTALLATION 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
<b>2.7</b>	<b>CONSTRUCTION</b>		<b>P</b>
2.7.101	General		P
2.7.102	Thermal protection devices		N/A
	a) self resetting thermal protection device	10 000 cycles	N/A
	b) voltage maintained non-self-resetting thermal protection device	10 00 cycles	N/A

LCSTRF-S-002-A-1

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AS/NZS 60598.2.2:2016+A1:2017			
Clause	Requirement + Test	Result - Remark	Verdict
	c) other non-self-resetting thermal protection device	30 cycles	N/A
2.7.103	Electronic controls		N/A
2.7.104	Controlgear: comply with the appropriate standard		N/A
<b>2.13</b>	<b>THERMAL TESTS</b>		<b>P</b>
2.13.101	General		P
	a) For Non-IC and Do-not-cover luminaires, the requirements of Clause 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 Clause 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 Clause 12.4 and 12.5 of AS/NZS 60598.1 are modified by clause 2.13.104		P
2.13.102	Thermal tests for Non-IC and Do-not-cover luminaires		N/A
2.13.102.1	Normal operation tests for Non-IC and Do-not-cover luminaires		N/A
	a) 90 °C on the luminaires mounting surfaces, or on the internal surfaces of the side and top of the test box, or any building element installed as per manufacturer's instructions		N/A
	b) Do-not-cover luminaires only—90 °C on the surface of any simulated building element or insulation.		N/A
	c) for other parts, the appropriate values given in Tables 12.1 and 12.2 of AS/NZS 60598.1		N/A
2.13.102.2	Abnormal operation tests for Do-not-cover luminaires		N/A
	a) 130 °C on surface of insulation		N/A
	b) 90 °C on the mounting surface		N/A
2.13.103	Thermal tests for CA90 and CA135 luminaires		N/A
2.13.103.1	Normal operation tests for CA90 and CA135 luminaires		N/A
	a) 90 °C on the mounting surface, or on the internal surfaces of the side and top of the test box, or any building element installed as per manufacturer's instructions		N/A
	b) for CA90 luminaire—90 °C on the outside surface		N/A

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AS/NZS 60598.2.2:2016+A1:2017			
Clause	Requirement + Test	Result - Remark	Verdict
	of the luminaire accessible to the relevant test probe of Clause 2.14		
	c) for CA135 luminaire—135 °C on the outside surface of the luminaire accessible to the relevant test probe of Clause 2.14		N/A
	d) or other parts, the appropriate values given in Tables 12.1 and 12.2 of AS/NZS 60598.1		N/A
2.13.103.2	Abnormal operation tests for CA90 and CA135 luminaires		N/A
	a) 90 °C on the mounting surface		N/A
	b) for CA90 luminaire—130 °C on the outside surface of the luminaire accessible to the relevant test probe of Clause 2.14		N/A
	c) for CA135 luminaire—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		P
	a) 90 °C on the 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
<b>2.14</b>	<b>INGRESS TEST FOR LUMINAIRES</b>		<b>P</b>
2.14.101	General		P
	For luminaires with an IP classification greater than IP20, or classified as CA90, CA135, IC or IC-4, the order of the tests specified in Section 9 of AS/NZS 60598.1		P
2.14.102	Ingress test for CA90 and IC		N/A
2.14.103	Ingress test for CA135 (New Zealand only)		N/A
2.14.104	Ingress test for IC-4		P
	IP4X shall be applied to the complete luminaire and any opening of the luminaire including the access face		P
<b>APPENDIX ZA</b>	<b>THERMAL TEST PROCEDURES FOR RECESSED LUMINAIRE</b>		<b>P</b>
ZA 1	General		P

LCSTRF-S-002-A-1

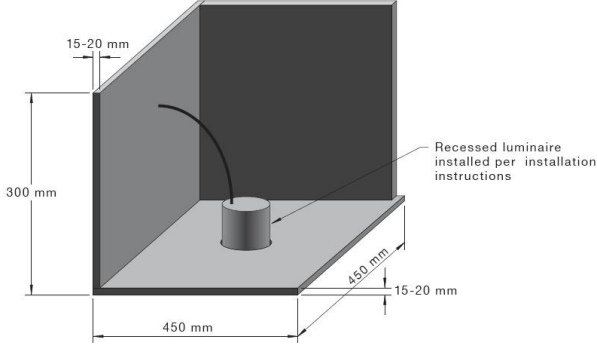
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## Attachment No.2

AS/NZS 60598.2.2:2016+A1:2017			
Clause	Requirement + Test	Result - Remark	Verdict
ZA 2	Test Box		P
	a) The mounting surface are made of 15–20mm thick porous wood fibre board		P
	b) The vertical sides and top of the test box are made of 15–20mm thick porous wood fibre board		P
	c) The dimensions of the test box shall be 450 mm wide x 450 mm x long 300 mm high		P
	d) The minimum horizontal distance from the side of the luminaire to the side of the test box shall be 75 mm and the vertical distance from the top of the luminaire to the top of the test box shall be 75 mm		P
	e) Where these side and vertical distances cannot be met due the size of the luminaire, the test box dimensions are increased the minimum amount to meet the 75 mm clearance dimensions		P
	f) The internal surface are be painted matt black		P
	Test Box: Figure ZA.1  <p>FIGURE ZA.1 EXAMPLE OF TEST BOX (with front, side and top removed)</p>		P
ZA 3	Test procedure for NON-IC or Do-not-cover luminaires		N/A
ZA 3.1	General		N/A
	a) NON-IC and Do-not-cover luminaires to normally flammable building elements		N/A
	b) Do-not-cover luminaires to any thermal insulation as specified by manufacturer in the installation instructions		N/A
ZA 3.2	Test set-up		N/A
ZA 3.2.1	General		N/A
	The installation instructions have the information on clearances from normally flammable building elements, then a simulated building element of		N/A

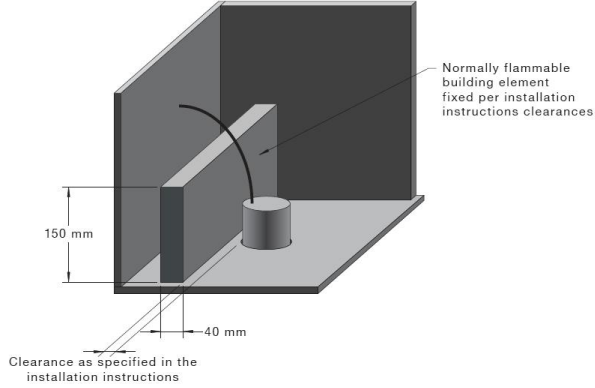
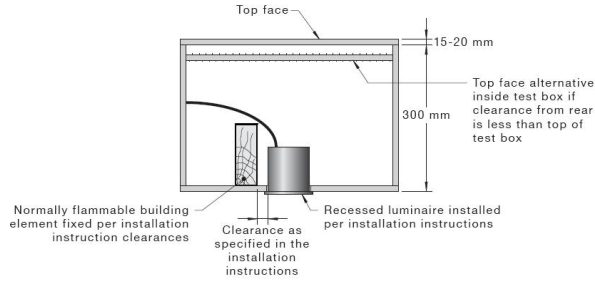
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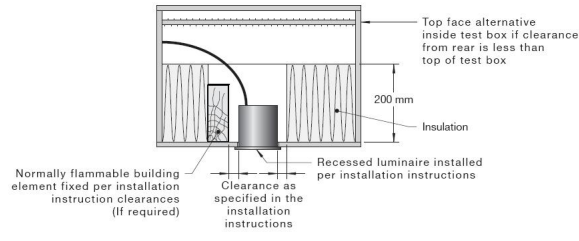
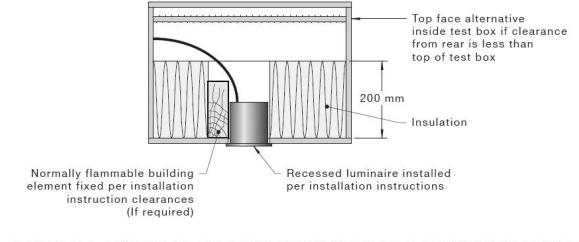
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AS/NZS 60598.2.2:2016+A1:2017			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>nominal dimensions 150 x 40 mm is added to the test box at the clearance from the luminaire as specified in the manufacturer's instructions as shown in Figure ZA.2</p>  <p>FIGURE ZA.2 EXAMPLE OF TEST BOX WITH SIMULATED BUILDING ELEMENT (with front, side and top removed)</p>		
	<p>The installation instructions have the information to indicate a distance from the top of the luminaire to any building element that is less than the clearance to the top of the test box, then a false ceiling shall be added to the test box at the clearance from the luminaire as specified in the manufacturer's instructions as shown in Figure ZA.3</p>  <p>FIGURE ZA.3 EXAMPLE OF TEST BOX WITH FALSE CEILING TO MANUFACTURERS INSTRUCTIONS</p>		N/A
ZA 3.2.2	Non-IC luminaires	Figure ZA 2	N/A
ZA 3.2.3	Do-not-cover luminaires	Figure ZA 4	N/A
	<p>hermal insulation to a height of 200 mm is added to the test box with clearance maintained from the luminaire as specified in the installation instructions. The type of thermal insulation is formed insulation where 200 mm is equivalent to RI 4.0 classification in accordance with AS/NZS 4859.1</p>		N/A



## Attachment No.2

## AS/NZS 60598.2.2:2016+A1:2017

Clause	Requirement + Test	Result - Remark	Verdict
	 <p>FIGURE ZA.4 EXAMPLE OF TEST BOX FOR DO NOT COVER CLASSIFICATION LUMINAIRES</p>		
ZA 3.3	Test requirements and procedure		N/A
ZA 4	Test procedure for CA90 or CA135 luminaires	Figure ZA 5	N/A
ZA 4.1	General		N/A
	For CA90 and CA135 classification luminaires this test procedure is for assessing suitability of normally flammable materials abutting a luminaire as specified in installation instructions		N/A
ZA 4.2	Test set-up		N/A
	<p>Thermal insulation to a height of 200 mm is added to the test box placed to fill the remaining space between the side of the test box and the luminaire and placed to abut the sides of the luminaire. The insulation is pushed around the luminaire to form a close fit to the sides of the luminaire without compression. The type of thermal insulation is formed insulation where 200 mm is equivalent to RI 4.0 classification in accordance with AS/NZS 4859.1</p>  <p>FIGURE ZA.5 EXAMPLE OF TEST BOX FOR CA90 AND CA135 CLASSIFICATION LUMINAIRES</p>		N/A
ZA 4.3	Test requirements and procedure		N/A
ZA 5	Test procedure for abnormal operation Do-not-cover, CA90, CA135 luminaires	Figure ZA 6	N/A
ZA 5.1	General		N/A
ZA 5.2	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 luminaire without compression. The type of thermal insulation is formed insulation where 200 mm is equivalent to RI 4.0 classification in accordance with		N/A

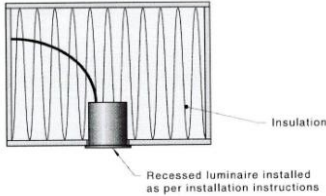
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## Attachment No.2

AS/NZS 60598.2.2:2016+A1:2017			
Clause	Requirement + Test	Result - Remark	Verdict
	AS/NZS 4859.1  FIGURE ZA6 TEST SET-UP FOR ABNORMAL OPERATION FOR DO-NOT-COVER, CA90 AND CA135 AND NORMAL OPERATION FOR IC AND IC-4 LUMINAIRES		
ZA 5.3	Test requirements and procedure		N/A
ZA. 6	Test procedure for normal operation IC and IC-4 luminaires	Figure ZA 6	P
ZA 6.1	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 luminaire without compression. The type of thermal insulation is formed insulation where 200 mm is equivalent to RI 4.0 classification in accordance with AS/NZS 4859.1 The test set-up is shown in Figure ZA6		P
ZA 6.2	Test requirements and procedure		P
<b>APPENDIX ZB</b>	<b>EXAMPLES OF METHODS SATISFYING REQUIREMENTS FOR THE SUPPLY OF INFORMATION ON MINIMUM CLEARANCE DISTANCE</b>		--
	The information on minimum clearance distances could then be provided in the instructions: <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <b>RISK OF FIRE — REQUIRED CLEARANCE FROM STRUCTURAL MEMBERS AND BUILDING ELEMENTS</b>              HCB = 20 mm MIC = 10 mm SCB = 15 mm SCI = 20 mm           </div>		P
	For Do-not-cover luminaires, the warning could be modified as follows: <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <b>RISK OF FIRE — BUILDING INSULATION MUST NOT COVER THIS LUMINAIRE</b>              HCB = 20 mm MIC = 10 mm SCB = 15 mm SCI = 20 mm           </div>		N/A
	For Non-IC luminaires, the warning could be modified as follows:		N/A

LCSTRF-S-002-A-1

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AS/NZS 60598.2.2:2016+A1:2017			
Clause	Requirement + Test	Result - Remark	Verdict
	<div style="border: 1px solid black; padding: 5px; text-align: center;"> <b>DANGER — RISK OF FIRE</b>            – SHALL NOT BE INSTALLED IN DOMESTIC PREMISES            HCB = 20 mm MIC = 10 mm SCB = 15 mm SCI = 20 mm         </div>		
<b>APPENDIX ZC</b>	<b>EXAMPLES OF RECESSED LUMINAIRES</b>		--

<b>APPENDIX ZD</b>	<b>GUIDANCE ON CLASSIFICATIONS</b>	--
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APPENDIX ZA	Table: Normal Temperature Test			P
	Model.....:	RAV30SDG81		--
	Test voltage.....:	1,06x240V~		--
	Measurement current, Power and power factor.....:	0,123A, 29,8W 0,952PF		--
	Test set-up	Figure ZA6		--
No.	Thermocouple location	T (°C)	Limit (°C)	Verdict
	Mounting surface	58,7	90	Pass
	Outside surface of the luminaire (Maximum temperature)	88,3	90	Pass
	Interconnection wire(Max.2400W)	76,2	90	Pass
	Input terminal of driver	83,6	Ref.	Pass
	PCB of driver	89,3	130	Pass
	tc	72,9	85	Pass
	Output wire of driver	68,4	90	Pass
	DC Connector	61,8	130	Pass
	Internal wire near LED	79,3	90	Pass
	LED PCB	89,4	130	Pass
	Lens	61,3	90	Pass
	Ambient	25,0	--	Pass

LCSTRF-S-002-A-1

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## Attachment No.3

IEC 62031:2018			
LED modules for general lighting - Safety specifications			
Clause	Requirement + Test	Result - Remark	Verdict
6	Classification		---
	Built-in.....:	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
	Independent.....:	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
	Integral.....:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	—
7	Marking		N/A
7.1	Mandatory marking for built-in or independent modules		N/A
7.2	Location of marking		N/A
7.3	Durability and legibility of marking		N/A
8	Terminals		N/A
9	Provisions for protective earthing		N/A
10	Protection against accidental contact with live parts		N/A
11	Moisture resistance and insulation		P
12	Electric strength		P
13	Fault conditions		P
13.1	Fault conditions according to IEC 61347-1, Clause 14		P
13.2	Overpower condition	No damage	P
14	Conformity testing during manufacture		N/A
15	Construction		P
	Non Wood, cotton, silk, paper and similar fibrous material used as insulation.		P
16	Creepage distances and clearances		P
17	Screws, current-carrying parts and connections		P
18	Resistance to heat, fire and tracking		P
19	Resistance to corrosion		P
20	Information for luminaire design		N/A
21	Heat management		N/A
22	Photobiological safety		P
22.1	UV radiation		N/A
22.2	Blue light hazard		P
22.3	Infrared radiation		N/A
Annex A	Test		--
Annex C	Conformity testing during manufacture		--
Annex D	Information for luminaire design		--

LCSTRF-S-002-A-1

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## Attachment No.4

IEC TR 62778:2014 Spectroradiometric measurement			
Clause	Requirement + Test	Result - Remark	Verdict

<b>Table 2.7 (4.24)</b>	<b>Spectroradiometric measurement (IEC TR 62778:2014)</b>				--
	<b>Measurement performed on:</b>	<b>Luminaire</b>			--
	<b>Model number</b> .....	RAV30SDG81			--
	<b>Test voltage (V)</b> .....	240Vac			--
	<b>Test current (mA)</b> .....	--			--
	<b>Test frequency (Hz)</b> .....	50			--
	<b>Ambient, t (°C)</b> .....	25.0			--
	<b>Measurement distance</b> .....	<input checked="" type="checkbox"/> 20 cm <input type="checkbox"/> ... cm			--
	<b>Source size</b> .....	<input checked="" type="checkbox"/> Non-small <input type="checkbox"/> Small : .... mm			--
	<b>Field of view</b> .....	<input type="checkbox"/> 100 mrad <input checked="" type="checkbox"/> 11 mrad <input type="checkbox"/> 1,7 mrad (for small sources)			--
Item		Symbol	Units	Result	Risk Group
Correlated colour temperature		CCT	K	2797	--
x/y colour coordinates		--	--	0,4503/0,4052	--
Blue light hazard radiance		L <sub>B</sub>	W/(m <sup>2</sup> •sr <sup>1</sup> )	22	<input checked="" type="checkbox"/> RG0: <100 <input type="checkbox"/> RG1: <10000 <input type="checkbox"/> RG2: <4000000
Blue light hazard irradiance		E <sub>B</sub>	W/m <sup>2</sup>	5,744e+000	--
Luminance		L	cd/m <sup>2</sup>	7,971e+004	--
Illuminance		E	lx	20833	--
Supplementary information:					

LCSTRF-S-002-A-1

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## Attachment No.5

## Photo Documentation

View:  
Model:  
RAV30SDG81

☒General  
☐Front  
☐Rear  
☐Internal  
☐Top  
☐Bottom  
☐PWB



Figure 1

View:

☐General  
☐Front  
☒Rear  
☐Internal  
☐Top  
☐Bottom  
☐PWB

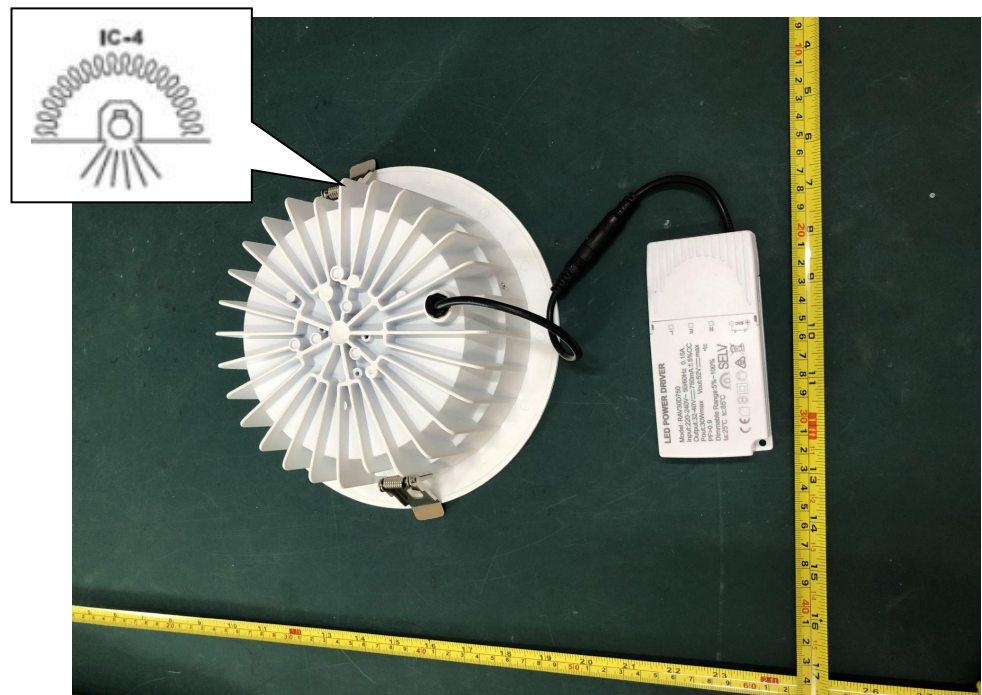


Figure 2

LCSTRF-S-002-A-1

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## Attachment No.5

## Photo Documentation

View:

- ☐ General
- ☐ Front
- ☐ Rear
- ☒ Internal
- ☐ Top
- ☐ Bottom
- ☐ PWB



Figure 3

View:

- ☐ General
- ☐ Front
- ☐ Rear
- ☒ Internal
- ☐ Top
- ☐ Bottom
- ☐ PWB



Figure 4

LCSTRF-S-002-A-1

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## Attachment No.5

### Photo Documentation

View:

- ☐ General
- ☐ Front
- ☐ Rear
- ☒ Internal
- ☐ Top
- ☐ Bottom
- ☐ PWB



Figure 5

View:

- ☐ General
- ☐ Front
- ☐ Rear
- ☒ Internal
- ☐ Top
- ☐ Bottom
- ☐ PWB

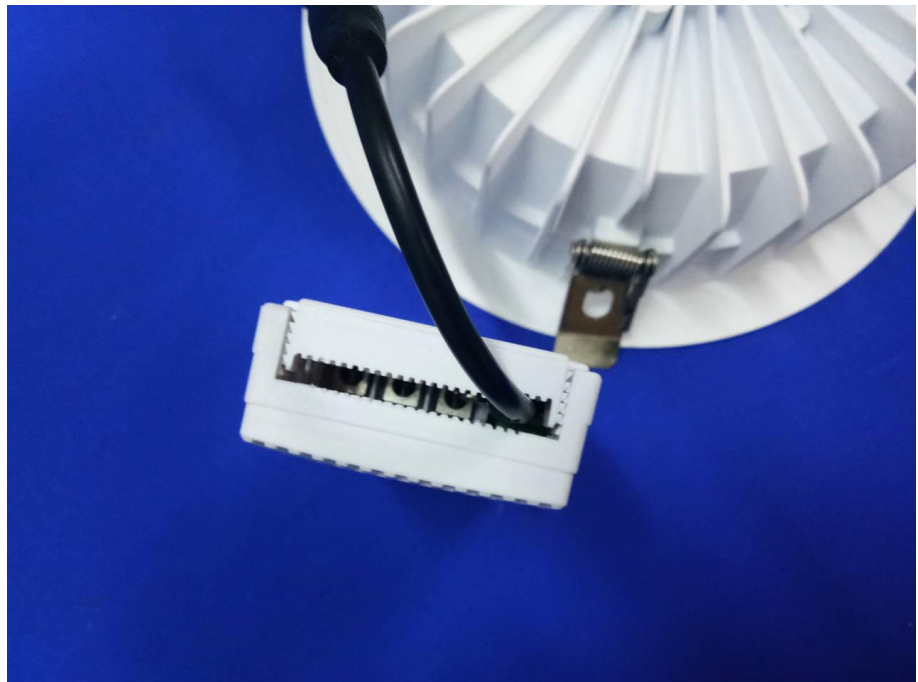


Figure 6





## Attachment No.5

## Photo Documentation

View:

- ☐ General
- ☐ Front
- ☐ Rear
- ☒ Internal
- ☐ Top
- ☐ Bottom
- ☐ PWB

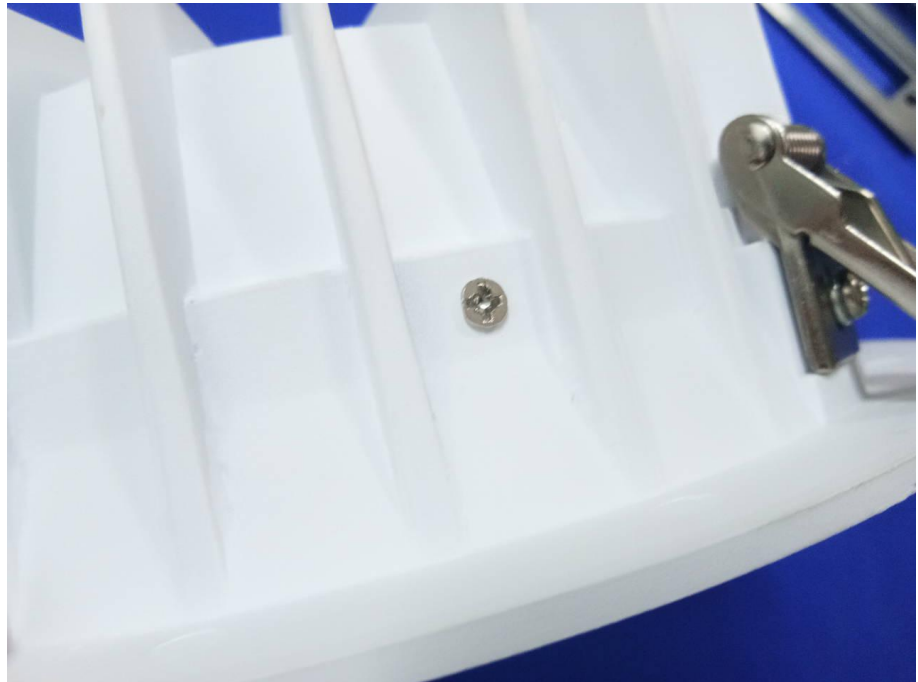


Figure 7

View:

- ☐ General
- ☐ Front
- ☐ Rear
- ☒ Internal
- ☐ Top
- ☐ Bottom
- ☐ PWB

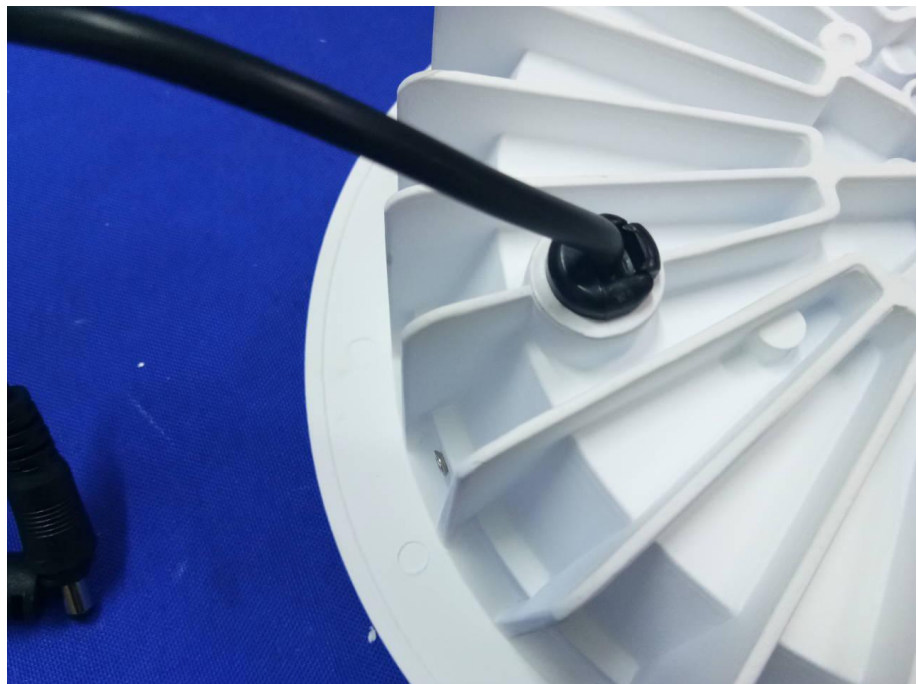


Figure 8

LCSTRF-S-002-A-1

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## Attachment No.5

### Photo Documentation

View:

- ☐ General
- ☐ Front
- ☐ Rear
- ☒ Internal
- ☐ Top
- ☐ Bottom
- ☐ PWB



Figure 9

View:

- ☐ General
- ☐ Front
- ☐ Rear
- ☒ Internal
- ☐ Top
- ☐ Bottom
- ☐ PWB



Figure 10

LCSTRF-S-002-A-1

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## Attachment No.5

## Photo Documentation

View:

- ☐ General
- ☐ Front
- ☐ Rear
- ☒ Internal
- ☐ Top
- ☐ Bottom
- ☐ PWB



Figure 11

View:

- ☐ General
- ☐ Front
- ☐ Rear
- ☒ Internal
- ☐ Top
- ☐ Bottom
- ☐ PWB



Figure 12

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

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