

 中国认可 国际互认 检测 TESTING CNAS L5775	Test Report issued under the responsibility of: 
TEST REPORT IEC 60598-2-2 Luminaires Part 2: Particular requirements Section 2: Recessed luminaires	
Report Number: GTS201909000145S01 Date of issue: 2019-09-30 Total number of pages: 36	
Testing Laboratory: Global United Technology Services Co., Ltd.	
Address: No.123-128, Tower A, Jinyuan Business Building, No. 2, Laodong Industrial Zone, Xixiang Road, Baoan District, Shenzhen, Guangdong, China	
Applicant's name: Sundopt Led Lighting Co., Ltd. Address: 8-6 Building, Tongfuyu Industrial Park, Aiqun Road, Shangwu Community, Shiyan Street, 518108 Shenzhen, PEOPLE'S REPUBLIC OF CHINA	
Test specification: Standard: IEC 60598-2-2:2011 used in conjunction with IEC 60598-1:2014, AMD1:2017 AS/NZS 60598.2.1:2014+Amdt 1:2016; AS/NZS 60598.2.2:2016+A1:2017 Test procedure: CB scheme and CE_LVD Non-standard test method.....: N/A	
Test Report Form No.....: IEC60598_2_2E Test Report Form(s) Originator: Intertek Semko AB Master TRF.....: 2017-04	
Test item description.....: LED Linear Lights Trade Mark:  Manufacturer.....: Same as applicant. Model/Type reference.....: See test report 211-14190301-000 by TUV SUD Ratings.....: See test report 211-14190301-000 by TUV SUD	



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Project Engineer



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

Attachment No. 1:

- Test report for national differences for Australia for standard AS/NZS 60598.1:2017 compared to IEC 60598-1:2014;
- Test report for national differences for Australia for standard AS/NZS 60598.2.2:2016+A1:2017 Compared to IEC 60598-2-2:2011;
- Test report for national differences for Australia for standard AS/NZS 60598.2.1:2014+Amdt 1:2016

Summary of compliance with National Differences:

Australia and New Zealand national differences

AS/NZS 60598.2.1:2014+Amdt 1:2016;

AS/NZS 60598.2.2:2016+A1:2017

AS/NZS 60598.1:2017

Copy of marking plate:

See test report 211-14190301-000 by TUV SUD

For for Australia and New Zealand:



Remark:

Test item particulars	
Classification of installation and use..... :	LED Linear Lights for recessed mounting or surface mounting or pendant mounting and for indoor use only
Supply Connection..... :	Supply cord without plug
Protection Class..... :	I
Degree of Protection..... :	IP20
ta..... :	45°C
Possible test case verdicts:	
- test case does not apply to the test object..... :	N/A
- test object does meet the requirement..... :	P (Pass)
- test object does not meet the requirement..... :	F (Fail)
Testing	
Date of receipt of test item..... :	2019-09-20
Date (s) of performance of tests..... :	2019-09-20 to 2019-09-29

General remarks:
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General product information:
See test report 211-14190301-000 by TUV SUD

IEC 60598_2_1E ATTACHMENT

Clause	Requirement - Test	Result - Remark	Verdict
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ANNEX 1	TABLE: Critical components information	P
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Object / part No.	Co de	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹⁾
Supply cord and dimming cord for models suffixed with C1	B	Shenzhen Chaojie Electronics Co., Ltd	H05RR-F	5x1,5mm ²	AS/NZS 60254.4:2003 Inc A1	SAA192090
Supply cord for models suffixed with C1	B	Shenzhen Chaojie Electronics Co., Ltd	H05RR-F	3x1,5mm ²	AS/NZS 60254.4:2003 Inc A1	SAA19208-EA
Alt	B	Shenzhen Xingxiangrui Electronic Co, Ltd	H05VV-F	3x1.5mm ²	AS/NZS 60227.5	SAA-140553-EA
Supply cord and dimming cord for models suffixed with IO	B	Shenzhen Chaojie Electronics Co., Ltd	H05RR-F	5x0,75mm ²	AS/NZS 60254.4:2003 Inc A1	SAA192090
Supply cord for models suffixed with IO	B	Shenzhen Chaojie Electronics Co., Ltd	H05RR-F	3x0,75mm ²	AS/NZS 60254.4:2003 Inc A1	SAA19208-EA
Alt	B	Shenzhen Xingxiangrui Electronic Co, Ltd	H03VV-F; H05VV-F	3x0.75mm ²	AS/NZS 60227.5	SAA-140553-EA
Dimming cord for models suffixed with C1 (for used with LED driver LCA 50W 350-1050mA DT8 Ip PRE)	B	Shenzhen Chaojie Electronics Co., Ltd	H05RR-F	3x1,5mm ²	AS/NZS 60254.4:2003 Inc A1	SAA19208-EA
Alt	B	Shenzhen Xingxiangrui Electronic Co, Ltd	H05VV-F	3x1.5mm ²	AS/NZS 60227.5	SAA-140553-EA

IEC 60598_2_1E ATTACHMENT

Clause	Requirement - Test	Result - Remark	Verdict
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Dimming cord for models suffixed with C1 for other LED drivers	B	Shenzhen Chaojie Electronics Co., Ltd	H05RR-F	2x1,5mm ²	AS/NZS 60254.4:2003 Inc A1	SAA19208-EA
Alt	B	Shenzhen Xingxiangrui Electronic Co, Ltd	H05VV-F	2x1.5mm ²	AS/NZS 60227.5	SAA-140553-EA
Dimming cord for models suffixed with I0 (for used with LED driver LCA 50W 350-1050mA DT8 Ip PRE)	B	Shenzhen Chaojie Electronics Co., Ltd	H05RR-F	3 x0,75mm ²	AS/NZS 60254.4:2003 Inc A1	SAA19208-EA
Alt	B	Shenzhen Xingxiangrui Electronic Co, Ltd	H03VV-F; H05VV-F	3x0.75mm ²	AS/NZS 60227.5	SAA-140553-EA
Dimming cord for models suffixed with I0 (for other LED drivers	B	Shenzhen Chaojie Electronics Co., Ltd	H05RR-F	2x0,75mm ²	AS/NZS 60254.4:2003 Inc A1	SAA19208-EA
Alt	B	Shenzhen Xingxiangrui Electronic Co, Ltd	H03VV-F; H05VV-F	2x0.75mm ²	AS/NZS 60227.5	SAA-140553-EA

supplementary information:

¹⁾ Provided evidence ensures the agreed level of compliance. See OD-CB2039.

*License available upon request

#Please refer summary of testing in TRF for the test standard publication year

The codes above have the following meaning:

- A - The component is replaceable with another one, also certified, with equivalent characteristics
B - The component is replaceable if authorised by the test house
C - Integrated component tested together with the appliance
D - Alternative component

IEC 60598_2_1E ATTACHMENT			
Clause	Requirement - Test	Result - Remark	Verdict

**ATTACHMENT TO TEST REPORT IEC 60598-1
Australia AND New Zealand NATIONAL DIFFERENCES
Luminaires
Part 1: General requirements and tests**

Differences according to: AS/NZS 60598.1:2017

0	GENERAL TEST REQUIREMENTS		P
0.4.2	In Australia, for equipment, other than class III equipment, that is intended for connection to the supply mains and not marked with: — a rated voltage of at least 240 V for single-phase equipment or a rated voltage of at least 415 V for three-phase equipment; or — a rated voltage range that includes 240 V for single- phase equipment or a rated voltage range that includes 415 V for three- phase equipment, the rated voltage is equal to 240 V for single-phase equipment and 415 V for three-phase equipment, and the upper limit of the voltage range is equal to 240 V for single-phase equipment and 415 V for three-		P

IEC 60598_2_1E ATTACHMENT			
Clause	Requirement - Test	Result - Remark	Verdict
0.5.101	Capacitors shall be of a type to ensure that any capacitor failure results in a failsafe outcome (i.e. the capacitor type will fail in the open-circuit mode only and is protected against fire or shock hazard). Capacitors (other than those incorporated in control gear that comply with the relevant standard) shall comply with one of the following: -- Capacitors likely to be permanently subjected to the supply voltage, used for radio interference suppression or for voltage dividing shall comply with IEC 60384-14. -- Other capacitors shall be not less than Type B capacitors with metal body and break action protection in accordance with IEC 61048 and IEC 61049. A capacitor complying with EIA-456-A, Metallized Film Dielectric Capacitors for Alternating Current Applications, shall comply with IEC 61049 and IEC 61048:2006 excluding the endurance test of 18.1.1. In addition, capacitors shall have a minimum voltage rating of 250 V at a temperature rating of 100 °C or 280 V at a temperature rating of 85 °C.		N/A
0.5.102	--Power supplies shall comply with the relevant part 2 of the AS/NZS 61558 series. --Control gear shall comply with the relevant part 2 of the AS/NZS 61347 series. --Battery chargers used for lighting other than emergency lighting shall comply with AS/NZS 60335.2.29 Sensor switches and similar control circuits, including those incorporated in other equipment, are considered electronic switches (see Clause 4.8)		N/A

2.2	Classification according to type of protection against electric shock	P
	NOTE – Class 0 Luminaires are not allowed in Australia or New Zealand.	P

IEC 60598_2_1E ATTACHMENT			
Clause	Requirement - Test	Result - Remark	Verdict
3	MARKING		P
3.1	Instructions and other texts required by this Standard shall be written in English.		P
3.2	Marking could not on ballasts provided the conditions under a) or b) above		N/A
	TABLE 3.1 3.2.21 The relevant symbol for luminaires not suitable for covering with thermally insulating material		N/A
3.2.3	Even if temperature ambient is 25 °C, it still is marked.		P
3.2.12	In Australia, luminaires for household use and similar with supply cords which are not fitted with a plug shall be marked with a cord tag with the symbol 		P
3.2.23	The additional information shall include the symbol "Do not stare at the operating light source" (see Figure 1) along with an explanation of the symbol.		N/A
3.3.7	Luminaires for use with metal halide lamps shall be provided with instructions that state the substance of the following: "To avoid potential unsafe lamp failure, the luminaire should be switched off at least 30 minutes at least once a week. The luminaire shall be operated complete with its protective shield or with a double jacketed lamp.		N/A
3.3.18	Luminaires which are other than ordinary, provided with a PVC supply cord, shall be provided with information about the intended use,		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.		P

IEC 60598_2_1E ATTACHMENT			
Clause	Requirement - Test	Result - Remark	Verdict

3.3.102	The instructions for luminaires, including for remotes or other accessories containing coin/button cell batteries and batteries designated R1, shall include the safety warnings below. Equipment containing one or more coin/button cell/R1 batteries shall have the safety warnings in the instructions accompanying the equipment. The safety warnings are not required where these batteries are not intended to be replaced or are only accessible after damaging the equipment. The safety warnings shall be as follows: – CAUTION: Do not ingest battery—Chemical burn hazard [or equivalent wording]. – [The remote control supplied with] this product contains a coin/button cell battery. If the coin/button cell battery is swallowed, it can cause severe internal burns in just 2 hours and can lead to death. – Keep new and used batteries away from children. – If the battery compartment does not close securely, stop using the product and keep it away from children. – If you think batteries might have been swallowed or placed inside any part of the body, seek immediate medical attention.		N/A
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4	CONSTRUCTION		P
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.		N/A

IEC 60598_2_1E ATTACHMENT			
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. 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 Electronic switches, when incorporated in or supplied with the luminaire, shall comply with the requirements of AS/NZS 60669.2.1 or IEC 61058-1 classified for 10,000 operating cycles'.		N/A
4.10.4	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. NOTE The test and assessment is conducted on any circuits connected between phases (between actives and between actives and neutral) and circuits connected between phases and earth (actives-to-earth and neutral-to-earth).		N/A

IEC 60598_2_1E ATTACHMENT			
Clause	Requirement - Test	Result - Remark	Verdict
4.1101	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. 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. 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. Compliance is checked by inspection and by the following test. A force is applied without jerks for 10 s in the most unfavourable direction to parts likely to be weak. The force is as follows: – push force, 50 N; – pull force; 30 N; – if the shape of the part is such that the fingertips cannot easily slip off, 50 N; – if the projection of the part that is gripped is less than 10 mm in the direction of removal, 30 N. The push force is applied by test probe 11 of IEC 61032. The pull force is applied by a suitable means, such as a suction cup, so that the test results are not affected. While the force is being applied, the test fingernail of Figure 7 of AS/NZS 60335.1 is inserted in any aperture or joint with a force of 10 N. The fingernail is then slid sideways with a force of 10 N but is not twisted or used as a lever. 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. If the part is likely to be twisted, the following torque is applied at the same time as the pull or push force: – 2 Nm, for major dimensions up to 50 mm. – 4 Nm, for major dimensions over 50 mm. This torque is also applied when the test fingernail is pulled by means of the loop. If the projection of the part that is gripped is less than 10 mm, the torque is reduced by 50 %.		N/A

IEC 60598_2_1E ATTACHMENT			
Clause	Requirement - Test	Result - Remark	Verdict

4.101.2	If screws or similar fasteners are used to secure a door or cover providing access to the battery compartment, the screw or similar fastener shall be captive to ensure that it remains with the door, cover or equipment. Compliance is checked by inspection and by the following test. A force of 20 N is applied to the screw or similar fastener without jerks for a duration of 10 s in any direction.		N/A
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5	EXTERNAL AND INTERNAL WIRE		P
5.2.1	Means of connection :		P
	Luminaires shall be provided with only one of the following means of connection and isolation to the supply. Fixed luminaires: – device for the connection of luminaires; – terminals; – plug for engagement with socket-outlets; – connecting leads (tails) in accordance with Clause 4.6 requirements; – supply cord; – supply cord and plug; – adapter for engagement with supply tracks; – appliance inlet; – installation coupler; – luminaire coupler.		P
	Portable luminaires: – supply cord with plug; – appliance inlet; – inlet plug complying with AS/NZS 3120.		N/A
	Track-mounted luminaires: – adaptor; – connector.		N/A

IEC 60598_2_1E ATTACHMENT

Clause	Requirement - Test	Result - Remark	Verdict																												
	In Australia, non-portable luminaires with a supply cord shall be fitted with a plug complying with AS/NZS 3112 or a coupler complying with the relevant standard, except where the luminaire has markings and instructions that comply with Clause 3.2.12, in which case, a plug or coupler is not required. For other than portable luminaires a plug is not required if the luminaire has markings and instructions in accordance with Clause 3.2.12. The plug portion of a luminaire with integral pins shall comply with the relevant requirements of AS/NZS 3112.		P																												
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. To provide adequate mechanical strength, the nominal cross-sectional area of the conductors shall be not less than: — 0,75 mm²; — 1,0 mm² for portable rough service luminaires.		P																												
	Table 5.1 <table border="1"> <thead> <tr> <th>Luminaire</th><th>Rubber</th><th>PVC</th><th>No insulation</th></tr> </thead> <tbody> <tr> <td>Ordinary class I luminaires</td><td>60245 IEC 51S ^a</td><td>60227 IEC 52 ^a</td><td></td></tr> <tr> <td>Ordinary class II luminaires</td><td>60245 IEC 53 ^a</td><td>60227 IEC 52 ^a</td><td></td></tr> <tr> <td>Luminaires which are other than ordinary class I and II</td><td>60245 IEC 57 ^a</td><td>60227 IEC 53 ^{a2}</td><td></td></tr> <tr> <td>Portable rough service luminaires</td><td>60245 IEC 66 ^a</td><td>PVC insulated and sheathed heavy duty flexible cord</td><td></td></tr> <tr> <td>Class III or with SELV circuits luminaires (up to 25 V a.c./60 V d.c.)</td><td></td><td></td><td>Un-insulated conductor ^a</td></tr> <tr> <td>Class III or with SELV circuits luminaires (above 25 V a.c./60 V d.c.), including 50 V a.c./120 V d.c.</td><td>Unsheathed basic insulated conductor</td><td></td><td></td></tr> </tbody> </table> ^a For indoor use only. ^{a1} AS/NZS 3000 may restrict the use of un-insulated conductors in certain special installations. ^{a2} For supply voltages greater than 250 V, higher voltage grade cables and cords than those given in the above table may be necessary.	Luminaire	Rubber	PVC	No insulation	Ordinary class I luminaires	60245 IEC 51S ^a	60227 IEC 52 ^a		Ordinary class II luminaires	60245 IEC 53 ^a	60227 IEC 52 ^a		Luminaires which are other than ordinary class I and II	60245 IEC 57 ^a	60227 IEC 53 ^{a2}		Portable rough service luminaires	60245 IEC 66 ^a	PVC insulated and sheathed heavy duty flexible cord		Class III or with SELV circuits luminaires (up to 25 V a.c./60 V d.c.)			Un-insulated conductor ^a	Class III or with SELV circuits luminaires (above 25 V a.c./60 V d.c.), including 50 V a.c./120 V d.c.	Unsheathed basic insulated conductor				P
Luminaire	Rubber	PVC	No insulation																												
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IEC 60598_2_1E ATTACHMENT			
Clause	Requirement - Test	Result - Remark	Verdict
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. Luminaire couplers incorporated with the luminaire shall comply with IEC 61995-1. Luminaires incorporating installation couplers may have means to allow further luminaires to be connected by cascading provided the through wiring is rated for the current rating of the installation coupler.		N/A
5.2.18	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
5.3.1	Internal wires coloured green, yellow or green/yellow combination shall be used for marking protective earth connections only.		P
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.		N/A
7	PROVISION FOR EARTHING		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.		P
8	PROTECTION AGAINST ELECTRIC SHOCK		P

IEC 60598_2_1E ATTACHMENT			
Clause	Requirement - Test	Result - Remark	Verdict
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
8.2.1	Live part and basic insulation are not accessible when luminaire has been installed and wired as in normal use.		P
9	RESISTANCE TO DUST, SOLID OBJECTS AND MOISTURE		N
9.2	NOTE 101 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
13	RESISTANCE TO HEAT, FIRE AND TRACKING		P
13.3	Resistance to flame and ignition		P
13.3.1	Glow-wire test (750 °C):		P
	- part tested :	translucent cover	P
	- part tested :		N/A
	- part tested :		N/A
	- part tested :		N/A
13.3.2	Glow-wire test (650 °C):		P
	- part tested :	See IEC 60598 parts	P
13.3.3	For parts withstand the glow-wire test but flame is produced persisting for longer than 2s, the luminaire is subjected to the needle-flame test		P

IEC 60598_2_1E ATTACHMENT			
Clause	Requirement - Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT IEC 60598-2-1 Australia and New Zealand and NATIONAL DIFFERENCES

Luminaires
Part 2: Particular requirements
Section One – Fixed general purpose luminaires

Differences according to AS/NZS 60598.2.1:2014+Amdt 1:2016 Compared to IEC 60598-2-1:1979 and IEC 60598-2-1:1979/ADM1:1987

Attachment Form No. AU_NZS_ND_IEC60598_2_1E

Master Attachment 2016-06

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6	MARKING	—
	LED luminaires with G5 or G13 lampholders shall be marked with the following warning: WARNING: NOT FOR USE WITH ANY FLUORESCENT LAMP – FOR USE ONLY WITH TYPE X LED LAMPS In the warning, 'X' shall be replaced by 'A' or 'B' to denote Type A or Type B, as appropriate. The warning label shall be durable and the font size shall be a minimum of 5mm for letters and numbers and 5mm for symbols and shall be visible during lamp replacement. NOTE: Manufacturers should specify minimum requirements for the operations of their lamps, including spacing, enclosure design and temperature limitations.	N
7	CONSTRUCTION	—
	LED luminaires with G5 and G13 lampholders shall include a fuse to protect a fluorescent lamp that is inadvertently installed: Each fuse shall – (a) be of the 150V HRC type; (b) have a 0.5A max. quick-acting type rating; and (c) be used to protect a maximum of two lamps.	N
13	ENDURANCE TESTS AND THERMAL TESTS	—

IEC 60598_2_1E ATTACHMENT			
Clause	Requirement - Test	Result - Remark	Verdict
	Luminaires with an IP classification greater than IP20 shall be subjected to the relevant tests of Clauses 12.4, 12.5 and 12.6 of Section 12 of AS/NZS 60598.1 after the test(s) of Clause 9.2 but before the test(s) of Clause 9.3 of Section 9 of AS/NZS 60598.1 specified in Clause 14 of this Standard.		N
14	RESISTANCE TO DUST AND MOISTURE		—
	For luminaires with an IP classification greater than IP20 the order of the tests specified in Section 9 of AS/NZS 60598.1 shall be as specified in Clause 13 of this Standard.		N
APPENDIX A	SAFETY REQUIREMENTS FOR DOUBLE-CAPPED LED LAMPS (Normative)		N
	Requirements not applicable to the evaluated product.		—
APPENDIX B	SAFETY REQUIREMENTS FOR T8 TO T5 LAMP CONVERTERS		N
	Requirements not applicable to the evaluated product.		—

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

AS/NZS 60598.2.2:2016+A1:2017			
Clause	Requirement + Test	Result - Remark	Verdict
ATTACHMENT TO TEST REPORT IEC 60598.2.2 (AUSTRALIA/NEW ZEALAND) NATIONAL DIFFERENCES (Luminaires) (Part2.2 Particular requirements—Recessed luminaires)			
Differences according to: AS/NZS 60598.2.2:2016 AS/NZS 60598.1:2017			

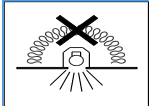
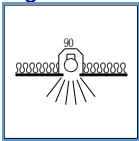
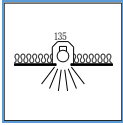
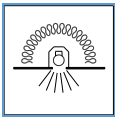
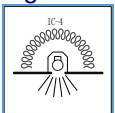
	National Differences	
Appendix ZZ	Variations to IEC 60598-1 Ed 8.0 (2014) Normative	P
	This Appendix sets out variations to IEC 60598-2-2, Ed. 3.0 (2011) for Australia and New Zealand, including additional requirements to cover issues not addressed by the International Standard (AS/NZS 60598.2.2:2016)	P
ZZ2	Variations	P
2.1(0.1)	Scope and object	P
	Addition At the end of 2.1, <i>add</i> the following text: This part also specifies the safety requirements for recessed luminaires to provide adequate protection in respect of the fire risk associated with the combination of recessed luminaires with flammable building elements, flammable debris and building insulation This Standard is to be read in conjunction with AS/NZS 60598.1 Luminaires within the scope of IEC 60598-2-13, <i>Luminaires</i>, Part 2-13: <i>Particular requirements—Ground recessed luminaires</i>, are excluded from this Standard (AS/NZS 60598.2.2:2016)	P
2.2 (0.2)	Normative references	P

IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
	Addition Add the following new normative references: AS 60529, <i>Degrees of protection provided by enclosures (IP Code)</i> AS/NZS 4859.1, <i>Materials for the thermal insulation of buildings — General criteria and technical provisions</i> AS/NZS 61347 (all parts), <i>Lamp controlgear</i> IEC 60730-1, <i>Automatic electrical controls — Part 1: General requirements</i> IEC 60730-2 (all parts), <i>Automatic electrical controls for household and similar use</i> IEC 61032, <i>Protection of persons and equipment by enclosures — Probes for verification</i> IEC 62733, <i>Programmable components in electronic lamp controlgear — General and safety requirements</i> (AS/NZS 60598.2.2:2016)		P
2.3 (0.4)	General test requirements and verification		P
2.3(0.4)	Variation Delete existing text and <i>replace</i> with the following: The provisions of Section 0 of AS/NZS 60598.1 apply. The tests specified in each appropriate section of AS/NZS 60598.1 shall be carried out in the order listed in this part for all luminaires other than those with an IP rating greater than IP2X and those classified as CA90, CA135, IC and IC-4 For luminaires with an IP classification greater than IP2X, and those classified as CA90, CA135, IC and IC-4, the tests specified in each appropriate section of AS/NZS 60598.1 shall be carried out in the order listed in this part, except for the tests listed in Table ZZ1, which shall be performed in the order listed in Table ZZ1 (AS/NZS 60598.2.2:2016)		N
2.3 (0.5)	Addition Controlgear that complies separately with a relevant standard shall, in addition, be assessed to the requirements of this Standard. A procedure for measuring ambient temperature in an installation is given in Annex A (AS/NZS 60598.2.2:2016)		N
2.3 (0.5)	Components of luminaires		P
2.4	DEFINITIONS		P

IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
2.4 (1.2)	Addition Add the following new definitions after 1.2.86		N
	1.2.87 installation coupler connecting device consisting of an installation female connector and an installation male connector provided with retaining means for permanent connection not intended to be engaged or disengaged under load nor to be engaged or disengaged other than during first installation, during maintenance of the wiring system or during re-configuration of the wiring system		N
	1.2.88 installation male connector load side portion of an installation coupler which contains the male contacts		N
	1.2.89 installation female connector supply side portion of an installation coupler which contains the female contacts		N
	1.2.90 installation coupler system family of installation couplers consisting of one or more installation female connectors compatible by mechanical coding features with one or more installation male connectors, with the same ratings produced according to the specification of one manufacturer (AS/NZS 60598.1:2013)		N

IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
	Variation Delete existing text and replace with the following: For the purposes of this document, the definitions of Section 1 of AS/NZS 60598.1 apply, along with the following: 2.4.101 Non-IC luminaire a recessed luminaire that cannot be abutted against or covered by normally flammable materials or used in installations where building insulation or debris is, or may be, present in normal use. NOTE This classification is not suitable for residential installations. 2.4.102 Do-not-cover luminaire a recessed luminaire that can be used where normally flammable materials, including building insulation, are or may be present, but cannot be abutted against any material and cannot be covered in normal use. 2.4.103.1 CA90 luminaire a recessed luminaire that can be abutted against normally flammable materials, including building insulation, but cannot be covered in normal use. Building elements, building insulation or debris have limited access (see 2.4.106) to the heated parts of the luminaire. 2.4.103.2 CA135 luminaire (New Zealand only) a recessed luminaire that can be abutted against normally flammable materials, including building insulation, but cannot be covered in normal use. Building elements, building insulation or debris have some access (see 2.4.107) to the heated parts of the luminaire. 2.4.104.1 IC luminaire a recessed luminaire that can be abutted against normally flammable materials, including building insulation, and can be covered in normal use. Building elements, building insulation or debris have limited access (see 2.4.106) to the heated parts of the luminaire. 2.4.104.2 IC-4 luminaire a recessed luminaire that can be abutted against normally flammable materials, including building insulation, and can be covered in normal use. Building elements, building insulation or debris have restricted access (see 2.4.108) to the heated parts of the luminaire. This classification of recessed luminaire is effectively a sealed unit that has a restricted flow of air between the habitable room the luminaire emits light into and the void/space where the main body of the luminaire is located. 2.4.105 outside surface of the luminaire the surface of the luminaire that can be accessed by the probe specified for the classification of the luminaire. 2.4.106 limited access parts accessible to a 5.6 mm diameter probe are not permitted to have surface temperatures exceeding 90 °C under normal operating conditions, excluding the access face. 2.4.107 some access parts accessible to a 50 mm diameter probe are not permitted to have surface temperatures exceeding 135 °C in normal operation, excluding the access face. 2.4.108 restricted access parts accessible to an AS 60529 IP4X probe are not permitted to have surface temperatures exceeding 90 °C in normal operation, including the access face. 2.4.109 recessed luminaire a luminaire designed to be recessed into a ceiling, wall, floor or similar surface with an access face which, when installed on a mounting surface, emits light into one area, while the body of the luminaire is located in a separate area on the other side of the mounting surface to the access face. Includes a light source and any components of the luminaire required for the luminaire to operate. NOTE 1 Components may include individual components, such as controlgear that is supplied with the luminaire. NOTE 2 Figure ZC1 in Appendix ZC shows the general parts of a recessed luminaire. Appendix ZC also provides examples of recessed luminaire configurations. 2.4.110 access face the surface of the luminaire that emits light into the habitable room, i.e. the surface of the luminaire located in the space representative of the underside of a ceiling or, for wall-mounted luminaires, the visible wall face. (AS/NZS 60598.2.2:2016)	Do-not-cover	P
2.5 (2)	CLASSIFICATION OF LUMINAIRES		P

IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
2.5 (2)	Variation Delete existing text and replace with the following: 2.5.101 General Luminaires shall be classified in accordance with the provisions of Section 2 of AS/NZS 60598.1, along with the following. Luminaires shall be classified according to their suitability for use near, or being covered with, building elements or thermal insulation, or both, in accordance with Clause 2.5.102 for Australia or Clause 2.5.103 for New Zealand. NOTE Appendix ZD provides information and guidance on the classifications, symbols, applications and general restrictions on recessed luminaires. (AS/NZS 60598.2.2:2016)		P
	2.5.102 Australian classifications Luminaires shall be classified as one of the following: a)Non-IC b) Do-not-cover c) CA90 d) IC e) IC-4 (AS/NZS 60598.2.2:2016)	Do-not-cover	P
	2.5.103 New Zealand classifications Luminaires shall be classified as at least one of the following: a)Non-IC b) Do-not-cover c) CA90 d) CA135 e) IC f) IC-4 (AS/NZS 60598.2.2:2016)	Do-not-cover	P
2.6	MARKING		P
2.6	Variation Delete existing text and replace with the following: 2.6.101 General The provisions of Clause 3 of AS/NZS 60598.1 apply, along with the following: –Clause 3.2.21 of AS/NZS 60598.1 is replaced by Clause 2.6.102. –The additional requirements of Clause 2.6.103 and Clause 2.6.104 apply, as applicable. (AS/NZS 60598.2.2:2016)		P
	2.6.102 Luminaire symbol marking Recessed luminaires shall be marked with the symbol shown in the appropriate figure of this Clause, corresponding to their classification in accordance with Clause 2.5. Non-IC luminaires shall be marked with the symbol shown in Figure 101. FIGURE 101 REQUIRED SYMBOL FOR NON-IC LUMINAIRES		N

IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
	Do-not-cover luminaires shall be marked with the symbol shown in Figure 102  FIGURE 102 REQUIRED SYMBOL FOR DO-NOT-COVER LUMINAIRES	Symbol was marked	P
	CA90 luminaires shall be marked with the symbol shown in Figure 103  FIGURE 103 REQUIRED SYMBOL FOR CA90 LUMINAIRES		N
	In New Zealand, CA135 luminaires shall be marked with the symbol shown in Figure 104  FIGURE 104 REQUIRED SYMBOL FOR CA135 LUMINAIRES—NEW ZEALAND ONLY		N
	IC luminaires shall be marked with the symbol shown in Figure 105.  FIGURE 105 REQUIRED SYMBOL FOR IC LUMINAIRES		N
	IC-4 luminaires shall be marked with the symbol shown in Figure 106  FIGURE 106 REQUIRED SYMBOL FOR IC-4 LUMINAIRES (AS/NZS 60598.2.2:2016)		N
2.6.103	Location and durability of marking The marking required by Clause 2.6.102 shall be— a) legible, durable and visible when the luminaire is installed and viewed from behind;		P
	b)a minimum size of 25 mm × 25 mm; and		P
	c) permanently marked on the luminaire or on a durable swing tag permanently connected to the luminaire		P
	The marking shall comply with the durability test requirements of AS/NZS 60598.1 (AS/NZS 60598.2.2:2016)		P
2.6.104	Additional information to be supplied with the luminaire		P
2.6.104.1	General Additional information to be supplied with the luminaire All recessed luminaires shall be supplied with installation instructions containing the following information: a) The minimum clearance distance from the top of the luminaire to any normally flammable building element		P

IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
	b)The minimum clearance distance from the top of the luminaire to any building insulation		P
	c)The minimum clearance distance from the side of the luminaire to any normally flammable building element		P
	d)The minimum clearance distance from the side of the luminaire to any building insulation.		P
	If the minimum clearance distances from each side of the luminaire are different, or there are different minimum clearance distances for various types of normally flammable building element or building insulation, then each minimum clearance distance shall be stated separately NOTE 1 See Appendix ZB for examples of methods satisfying the requirements for the supply of information on minimum clearance distances		P
	If the luminaire is suitable for installing in a non-combustible enclosed space or non-combustible premade enclosure, and the minimum clearance distances required for installation in that space are different from the distances stated in accordance with the above, the minimum clearance distances for the installation, or premade enclosure details, shall be included in the instructions. NOTE 2 Installation in a non-combustible enclosed space may include installation in a rebate in a concrete slab, ceiling or wall		N
	In the section of the instructions where the minimum clearance distances are stated, the following warning shall be included: WARNING — RISK OF OVERHEATING OR FIRE IF THE CLEARANCE DISTANCES ARE COMPROMISED. NOTE 3 In some classifications of luminaire, the minimum clearance distance from the top or sides of the luminaire to building elements or insulation, or both, may actually be 0 mm (i.e. the material may abut the luminaire on the sides or the top). In these instances, a wording such as 'building insulation may abut the sides of the luminaire' is a suitable alternative to 'the minimum distance from the side of the luminaire to building insulation is 0 mm'		N
	Luminaires with classification CA135 shall have the additional following warning included: WARNING — RISK OF FIRE: THIS LUMINAIRE CANNOT BE INSTALLED ABUTTING THERMAL INSULATION OR OTHER BUILDING ELEMENTS THAT ARE NOT SUITABLE FOR EXPOSURE TO CONSTANT TEMPERATURES OF 135 °C. Where a recessed luminaire is required to be mounted on a specific surface or has additional installation requirements to ensure adequate sealing to maintain its IP rating, the relevant information shall be supplied with the luminaire. (AS/NZS 60598.2.2:2016)		N
2.6.104.2	Additional Warning		P
	2.6.104.2.1 General Luminaires shall have additional warnings in accordance with 2.6.104.2.2 for Australia and 2.6.104.2.3 for New Zealand (AS/NZS 60598.2.2:2016)		P

IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
	2.6.104.2.2 Australia additional warning Non-IC luminaires shall be supplied with installation instructions containing the following warning: WARNING — THIS LUMINAIRE IS NOT SUITABLE FOR INSTALLATION IN LOCATIONS WHERE THERMAL INSULATION IS PRESENT, OR MAY REASONABLY BE EXPECTED TO BE INSTALLED IN THE FUTURE, OR WHERE THERE IS A LIKELIHOOD OF OTHER COMBUSTIBLE MATERIAL, E.G. LEAVES OR VERMIN DEBRIS, ETC. COLLECTING ON OR AROUND THE LUMINAIRE. IT IS NOT SUITABLE FOR DOMESTIC INSTALLATIONS OR INSTALLATION IN RESIDENTIAL AREAS OF NON-DOMESTIC INSTALLATIONS (RESIDENTIAL INSTITUTIONS, HOTELS, BOARDING HOUSES, HOSPITALS, ACCOMMODATION HOUSES, MOTELS, HOSTELS AND THE LIKE). (AS/NZS 60598.2.2:2016)		N
	2.6.204.2.3 New Zealand additional warning Non-IC luminaires and Do-Not-Cover luminaires shall be supplied with installation instructions containing the following warning: WARNING — THIS LUMINAIRE IS NOT SUITABLE FOR INSTALLATION IN LOCATIONS WHERE THERMAL INSULATION IS PRESENT, OR MAY REASONABLY BE EXPECTED TO BE INSTALLED IN THE FUTURE, OR WHERE THERE IS A LIKELIHOOD OF OTHER COMBUSTIBLE MATERIAL, E.G. LEAVES OR VERMIN DEBRIS, ETC. COLLECTING ON OR AROUND THE LUMINAIRE. IT IS NOT SUITABLE FOR DOMESTIC INSTALLATIONS OR INSTALLATION IN RESIDENTIAL AREAS OF NON-DOMESTIC INSTALLATIONS (RESIDENTIAL INSTITUTIONS, HOTELS, BOARDING HOUSES, HOSPITALS, ACCOMMODATION HOUSES, MOTELS, HOSTELS AND THE LIKE). (AS/NZS 60598.2.2:2016)		P
2.6.105	Luminaires intended for use with independent controlgear For luminaires intended for use with independent controlgear, pictorial diagrams showing all dimensions for safe installation of the independent controlgear shall be included in the installation instructions.		N
	For luminaires not supplied with, but intended for use with, independent controlgear, the instructions supplied with the recessed luminaire shall specify the brand(s) and model(s) of independent controlgear that may be used		N
	For luminaires that may be used with supplied independent controlgear or other independent controlgear, the instructions supplied with the recessed luminaire shall specify the brand(s) and model(s) of any other independent controlgear that may be used		N
	The information on brand(s) and model(s) shall be in the instructions supplied with the luminaire or on a website referenced in the instructions supplied with the luminaire (AS/NZS 60598.2.2:2016)		N
2.6.106	Compliance Compliance with Clauses 2.6.101 to 2.6.105 is checked by inspection and the relevant tests of AS/NZS 60598.1. (AS/NZS 60598.2.2:2016)		P
2.7	CONSTRUCTION		P

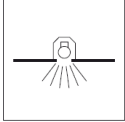
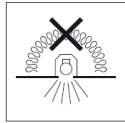
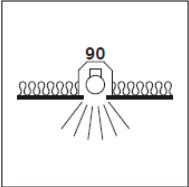
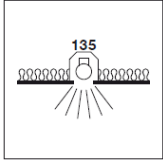
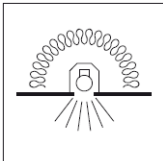
IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
2.7	Variation Delete existing text and replace with the following 2.7.101 General The provisions of Section 4 of AS/NZS 60598.1 apply, along with the following (AS/NZS 60598.2.2:2016)		P
	2.7.102 Thermal protection devices Thermal protection devices that operate to enable the luminaire to comply with the requirements of this Standard shall be integral to, or permanently attached immediately adjacent to, the luminaire light source enclosure. Thermal protection devices that operate to enable the luminaire to comply with the requirements of this Standard shall not be separate devices or in independent controlgear. NOTE Thermal protection devices are also known as 'thermal cut-outs'		N
	Single operation non-self-resetting thermal protection devices that are user replaceable are not permitted		N
	Electronic controls that regulate the light output during abnormal operation tests to enable the luminaire to comply with the requirements of this Standard shall comply with Clause 2.7.103		N
	Thermal protection devices, excluding electronic controls complying with Clause 2.7.103, that operate to enable the luminaire to comply with requirements of this Standard shall comply with IEC 60730-1, in conjunction with the relevant part of the IEC 60730-2 series		N
	The number of cycles of operation declared in accordance with IEC 60730-1:2013 (see Clause 6.10 and 6.11 of that Standard) shall not be less than the following: a) Self-resetting thermal protection device 10 000 b) Voltage maintained non-self-resetting thermal protection device 1 000 c) Other non-self-resetting thermal protection device 30 (AS/NZS 60598.2.2:2016)		N
	2.7.103 Electronic controls The operation, or malfunction, of electronic controls that are used to regulate the operation of the light source to enable the luminaire to comply with requirements of this Standard (either during normal or abnormal operation) shall not result in a safety hazard. Such electronic controls are required to comply with a), b), c) or d) below:		N
	a) Electronic controls that operate during any test of this Standard and fully turn off the light source shall incorporate the operation of a thermal protection device component that complies with IEC 60730-1 with the number of cycles of operation declared in accordance with Clause 2.7.102		N
	b) Electronic controls that operate during any test of this Standard and do not fully turn off the light source shall be bypassed and the relevant test shall be repeated. The luminaire shall comply with the requirements of the relevant test with the electronic control bypassed and any remaining device that operates shall comply with IEC 60730-1 with the number of cycles of operation declared in accordance with Clause 2.7.102. NOTE This does not mean that any device has to operate to enable compliance with the relevant test.		N

IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
	c)Electronic controls shall comply with the appropriate part of the AS/NZS 61347 series and incorporate a thermal protective device that has been tested to the number of cycles of operation declared in accordance with Clause 2.7.102		N
	d)Electronic controls with programmable components (including embedded software) shall comply with IEC 62733, unless the luminaire complies with the requirements of this Standard with the electronic controls bypassed (AS/NZS 60598.2.2:2016)		N
	2.7.104 Controlgear All controlgear (including controlgear that is a component part and all independent controlgear) that is supplied with, or specified in, the instructions supplied with the luminaire for use with the luminaire shall be assessed with the luminaire to this Standard and shall, in addition, comply with the appropriate part of the AS/NZS 61347 series (AS/NZS 60598.2.2:2016)	Approved	P
2.11	EXTERNAL AND INTERNAL WIRING		P
2.11 (5.2.1)	Variation 1. Delete the first paragraph and replace with the following Luminaires shall be provided with only one of the following means of connection and isolation to the supply. Fixed luminaires: —..... device for the connection of luminaires; —terminals; plug for engagement with socket-outlets; —.....connecting lead (tails); —..... supply cord and plug; —.....adapter for engagement with supply tracks; —..... appliance inlet; —..... installation coupler; —..... luminaire coupler; Portable luminaires: —..... supply cord with plug; —..... appliance inlet. Track-mounted luminaires: —..... adaptor; —..... connector.		P
2.13 (12)	ENDURANCE TEST AND THERMAL TEST		P
2.13 (Table 12.1)	Addition Add the following new Note after Table 12.1 NOTE Luminaire manufacturers should consider the maximum ambient air temperature in the vicinity of components such as starting devices and electronic ballasts or converters. Component performance specifications advise manufacturers to mark or supply life data as maximum ambient air temperature based on 50,000 hrs. This t-life is often marked as ta and is the temperature of the air in the vicinity of the component and is not related to the luminaire ta. As such, luminaire manufacturers should measure air temperature in the vicinity of such components, within the luminaire, as even those complying with their tc point measurements can still fail prematurely if t-life is exceeded. (AS/NZS 60598.2.2:2016)		P

IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
2.13 (12)	Variation Delete existing text and replace with the following: 2.13.101 General The provisions of Section 12 of AS/NZS 60598.1 apply together with the requirements of this Clause (Clause 2.13).		P
	Clause 12.4 and 12.5 of AS/NZS 60598.1 are applied in conjunction with the following:		P
	a)For Non-IC and Do-not-cover luminaires, the requirements of Clauses 12.4 and 12.5 of AS/NZS 60598.1 are modified by Clause 2.13.102		P
	b)For CA90 and CA135 luminaires, the requirements of Clauses 12.4 and 12.5 of AS/NZS 60598.1 are modified by Clause 2.13.103.		N
	c)For IC and IC-4 luminaires, the requirements of Clauses 12.4 and 12.5 of AS/NZS 60598.1 are modified by Clause 2.13.104 (AS/NZS 60598.2.2:2016)		N
	2.13.102 Thermal tests for Non-IC and Do-not-cover luminaires		N
	2.13.102.1 Normal operation test for Non-IC and Do-not-cover luminaires Non-IC and Do-not-cover luminaires shall be tested in accordance with the requirements of Paragraph ZA3 in Appendix ZA. When the luminaire is tested in accordance with Paragraph ZA3, no temperature shall exceed—		P
	a)90 °C on the luminaire mounting surface, or on any of the internal surfaces of the side and top of the test box, or on the surface of any building element installed in accordance with the manufacturer's instructions;		N
	b)for Do-not-cover luminaires only—90 °C on the surface of any simulated building element or insulation; and		P
	c)for other parts, the appropriate values given in Tables 12.1 and 12.2 of AS/NZS 60598.1.		N
	There shall be no damage to the luminaire such as scorching, deformation or melting. During the test, no thermal protection device or electronic control that fully turns off the light source within the luminaire or independent controlgear shall operate (AS/NZS 60598.2.2:2016)		N
	2.13.102.2 Abnormal operation test for Do-not-cover luminaires Do-not-cover luminaires shall be tested in accordance with the requirements of Paragraph ZA5		P
	When the luminaire is tested in accordance with Paragraph ZA5, no temperature shall exceed—		P
	a)..... 90 °C on the luminaire mounting surface; and		
	b)..... 130 °C on the surface of insulation		N
	There shall be no damage to the luminaire such as scorching, deformation or melting. During the test, thermal protective devices or electronic controls within the luminaire may operate, however, the thermal protection devices of any independent controlgear shall not operate to limit temperatures (AS/NZS 60598.2.2:2016)		N
	2.13.103 Thermal tests for CA90 and CA135 luminaires		N
	2.13.103.1 Normal operation test for CA90 and CA135 luminaires CA90 and CA135 luminaires shall be tested in accordance with the requirements of Paragraph ZA4. When the luminaire is tested in accordance with Paragraph ZA4, no temperature shall exceed—		N

IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
	a)90 °C on the luminaire mounting surface, or on any of the internal surfaces of the side and top of the test box, or on the surface of any building element installed in accordance with the manufacturer's instructions;		N
	b)for CA90 luminaires—90 °C on the outside surface of the luminaire accessible to the relevant test probe of Clause 2.14;		N
	c)for CA135 luminaires—135 °C on the outside surface of the luminaire accessible to the relevant test probe of Clause 2.14; and		N
	d)for other parts, the appropriate values given in Tables 12.1 and 12.2 of AS/NZS 60598.1		N
	There shall be no damage to the luminaire such as scorching, deformation or melting. During the test, no thermal protection device or electronic control that fully turns off the light source within the luminaire or independent controlgear shall operate (AS/NZS 60598.2.2:2016)		N
	2.13.103.2 Abnormal operation test for CA90 and CA135 luminaires CA90 and CA135 luminaires shall be tested in accordance with the requirements of Paragraph ZA5. When the luminaire is tested in accordance with Paragraph ZA5, no temperature shall exceed—		N
	a) 90 °C on the luminaire mounting surface;		N
	b)for CA90 luminaires—130 °C on the outside surface of the luminaire accessible to the relevant test probe of Clause 2.14; and		N
	c)for CA135 luminaires—150 °C on the outside surface of the luminaire accessible to the relevant test probe of Clause 2.14.		N
	There shall be no damage to the luminaire such as scorching, deformation or melting. During the test, thermal protection devices or electronic controls within the luminaire may operate, however, the thermal protection devices of any independent controlgear shall not operate to limit temperatures (AS/NZS 60598.2.2:2016)		N
	2.13.104 Thermal tests for IC and IC-4 luminaires IC and IC-4 luminaires shall be tested in accordance with the requirements of Paragraph ZA6. When the luminaire is tested in accordance with Paragraph ZA6, no temperature shall exceed—		N
	a) 90 °C on the luminaire mounting surface;		N
	b)90 °C on the outside surface of the luminaire accessible to the relevant test probe of Clause 2.14; and		N
	c)for other parts, the appropriate values given in Tables 12.1 and 12.2 of AS/NZS 60598.1		N
	There shall be no damage to the luminaire such as scorching, deformation or melting. During the test, no thermal protection device, or electronic control that fully turns off the light source, within the luminaire or independent controlgear shall operate (AS/NZS 60598.2.2:2016)		P
2.14 (9)	RESISTANCE TO DUST AND MOISTURE		N

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Clause	Requirement + Test	Result - Remark	Verdict
	Variation Delete existing text and replace with the following: 2.14.101 General The provisions of Section 9 of AS/NZS 60598.1 apply, along with the following. For luminaires with an IP classification greater than IP20, and for CA90, CA135, IC and IC-4 luminaires, the order of the tests specified in Section 9 of AS/NZS 60598.1 shall be as specified in Clause 2.3 of this Standard. (AS/NZS 60598.2.2:2016)		N
	2.14.102 Ingress test for CA90 and IC luminaires Solid foreign objects shall have limited access to the hot surfaces of CA90 and IC luminaires		N
	Test probe 19 of IEC 61032 shall be applied without appreciable force to all external surfaces and any opening of the luminaire. Test probe 19 shall not be applied to the access face.		N
	The 5.6 mm diameter of the probe shall not enter into an area where the temperature of any surface (including parts of the luminaire or the lamp) exceeds the temperature limit for 'mounting surface: normally flammable surface' of AS/NZS 60598.1, when the surface is measured while the luminaire is operated in accordance with the thermal test conditions of Paragraph ZA4 for CA90 luminaires and Paragraph ZA6 for IC luminaires. (AS/NZS 60598.2.2:2016)		N
	2.14.103 Ingress test for CA135 luminaires—New Zealand only 2.14.103.1 Solid foreign objects shall have some access to the hot surfaces of CA135 luminaires. Compliance is verified in accordance with Clauses 2.14.103.2 and 2.14.103.3. (AS/NZS 60598.2.2:2016)		N
	2.14.103.2 Test probe 1 of IEC 61032 shall be applied without appreciable force to all external surfaces and any opening of the luminaire. Test probe 1 is not applied to the access face.		N
	The 50 mm diameter of the probe shall not enter into an area where the temperature of any surface (including parts of the luminaire or the lamp) exceeds a value of 135 °C, when the surface is measured while the luminaire is operated in accordance with the thermal test conditions of Paragraph ZA4. (AS/NZS 60598.2.2:2016)		N
	2.14.103.3 The total area of all openings in the luminaire body that allows airflow through the luminaire (i.e. airflow between the ceiling/wall space and the illuminated area), excluding openings in the access face, shall be no more than 5 % of the area of the opening in the mounting surface (opening in mounting surface as required by the manufacturer to insert the luminaire) (AS/NZS 60598.2.2:2016)		N
	2.14.104 Ingress test for IC-4 luminaires Solid foreign objects shall have restricted access to the hot surfaces of IC-4 luminaires and restricted access to the open area that allows airflow through the luminaire (i.e. between the area that the body of the luminaire is located in and the area that the light source illuminates).		N
	The IP4X probes of AS 60529 shall be applied to the complete luminaire and any opening of the luminaire including the access face		N

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Clause	Requirement + Test	Result - Remark	Verdict
	The IP4X probes of AS 60529 shall be applied without appreciable force and shall not enter any area of the luminaire where the temperature of any surface (including parts of the luminaire or the lamp) exceeds the temperature limit for 'mounting surface: normally flammable surface' of AS/NZS 60598.1, when the surface is measured while the luminaire is operated in accordance with the thermal test conditions of Paragraph ZA6.		N
	With the luminaire installed in accordance with the manufacturer's instructions, the IP4X probes of AS 60529 shall not be able to pass from the illuminated area into the area where the body of the luminaire is situated (AS/NZS 60598.2.2:2016)		N
APPENDIX ZA	THERMAL TEST PROCEDURES FOR RECESSED LUMINAIRES		P
	AS/NZS 60598.2.2:2016/A1:2017		
Appendix ZZ	Appendix ZZ, Paragraph ZZ2, Clause 2.6.102, Figure 101 Delete figure, including title, and <i>replace</i> with the following: 		N
	Appendix ZZ, Paragraph ZZ2, Clause 2.6.102, Figure 102 Delete figure, including title, and replace with the following: 		P
	Appendix ZZ, Paragraph ZZ2, Clause 2.6.102, Figure 103 Delete figure, including title, and replace with the following: 		N
	Appendix ZZ, Paragraph ZZ2, Clause 2.6.102, Figure 104 Delete figure, including title, and replace with the following: 		N
	Appendix ZZ, Paragraph ZZ2, Clause 2.6.102, Figure 105 Delete figure, including title, and replace with the following: 		N

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Clause	Requirement + Test	Result - Remark	Verdict

	Appendix ZZ, Paragraph ZZ2, Clause 2.6.102, Figure 106 Delete figure, including title, and replace with the following:		N
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	TABLE: Thermal tests for Do-not-cover		P
	Type reference.....:	VLF1-I300-100B-I0	—
	Lamp used	LED	—
	Lamp control gear used	LCA 75W 900-1800mA one4all Ip PRE	—
	Mounting position of luminaire	As in normal use	—
	Supply wattage (W)	80,5W (240V)	—
	Supply current (A)	0,345A (240V)	—
	Temperatures in test 1 - 4 below are corrected for ta (°C)	45°C	—
	- test 1: rated voltage		—
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current	1,06x240V=254.4V	—
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage.....	--	—

Temperature measurements (°C)							
Part	Ambient	Cl. 12.4 – normal				Cl. 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
Mounting surface	45	--	75.3	--	90	--	--
Metal enclosure of outside surface 1(top)	45	--	80.1	--	90	--	--
Metal enclosure of outside surface 2(bottom)	45	--	76.5	--	90	--	--
Supplementary information:							
Tested at maximum number of luminaires can be interconnected.							

	TABLE: Thermal tests for Do-not-cover	P
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IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
	Type reference.....:	1. PLF1-D120-032C-I0; 2. PLF1-D120-024C-I0; 3. PLF1-D150-040C-I0; 4. PLF1-D300-080C-I0; 5. PLF1-D300-060C-I0; 6. PLF1-I120-040C-I0; 7. PLF1-I300-100C-I0; 8. VLF1-D150-040C-I0; 9. VLF1-D150-034C-I0; 10. VLF1-D300-068C-I0; 11. VLF1-I120-040C-I0; 12. VLF1-I150-050C-I0;	—
	Lamp used	LED	—
	Lamp control gear used	1. BK-BHL040-0500BD; 2. BK-BHL040-0350BD; 3. BK-BHL040-0650BD; 4. BK-BHL070-1400BD; 5. BK-BHL060-0950BD; 6. BK-BHL040-0600BD; 7. BK-BHL070-1500BD; 8. BK-BHL050-0850BD; 9. BK-BHL040-0550BD; 10. BK-BHL060-1200BD; 11. BK-BHL040-0700BD; 12. BK-BHL050-0800BD	—
	Mounting position of luminaire	As in normal use	—
	Supply wattage (W)	1. 27,5W [240V]; 2. 19,0W [240V]; 3. 34,4W [240V]; 4. 73,5W [240V]; 5. 46,6W [240V]; 6. 30,7W [240V]; 7. 77,1W [240V]; 8. 40,6W [240V]; 9. 26,7W [240V]; 10. 48,5W [240V]; 11. 34,2W [240V]; 12. 41,5W [240V]	—
	Supply current (A)	1. 0,126A [240V]; 2. 0,087A [240V]; 3. 0,151A [240V]; 4. 0,311A [240V]; 5. 0,200A [240V]; 6. 0,133A [240V]; 7. 0,328A [240V]; 8. 0,179A [240V]; 9. 0,117A [240V]; 10. 0,207A [240V]; 11. 0,151A [240V]; 12. 0,182A [240V]	—
	Temperatures in test 1 - 4 below are corrected for ta (°C)	45°C	—
	- test 1: rated voltage	--	—

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Clause	Requirement + Test				Result - Remark		Verdict
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage:				1,06x240V=254.4V		—
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage.....:				--		—
	Through wiring or looping-in wiring loaded by a current of A during the test:				--		—
	- test 4: 1,1 times rated voltage or 1,05 times rated wattage:				--		—
Temperature measurements, (max.°C)							
Part	Ambient	Clause 12.4 – normal				Clause 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
tc of LED driver 1							
Mounting surface	45		74.2		90		
Metal enclosure of outside surface 1(top)	45		78.6		90		
Metal enclosure of outside surface 2(bottom)	45		76.1		90		
tc of LED driver 2							
Mounting surface	45		72.6		90		
Metal enclosure of outside surface 1(top)	45		77.4		90		
Metal enclosure of outside surface 2(bottom)	45		72.9		90		
tc of LED driver 3							
Mounting surface	45		72.9		90		
Metal enclosure of outside surface 1(top)	45		73.8		90		
Metal enclosure of outside surface 2(bottom)	45		77.3		90		
tc of LED driver 4							
Mounting surface	45		85.6		90		
Metal enclosure of outside surface 1(top)	45		87.3		90		
Metal enclosure of outside surface 2(bottom)	45		85.9		90		
tc of LED driver 5							
Mounting surface	45		83.6		90		

IEC 60598-2-2							
Clause	Requirement + Test			Result - Remark			Verdict
Metal enclosure of outside surface 1(top)	45		86.4		90		
Metal enclosure of outside surface 2(bottom)	45		82.7		90		
tc of LED driver 6							
Mounting surface	45		75.3		90		
Metal enclosure of outside surface 1(top)	45		80.2		90		
Metal enclosure of outside surface 2(bottom)	45		79.8		90		
tc of LED driver 7							
Mounting surface	45		86.7		90		
Metal enclosure of outside surface 1(top)	45		88.9		90		
Metal enclosure of outside surface 2(bottom)	45		87.8		90		
tc of LED driver 8							
Mounting surface	45		79.2		90		
Metal enclosure of outside surface 1(top)	45		83.1		90		
Metal enclosure of outside surface 2(bottom)	45		82.5		90		
tc of LED driver 9							
Mounting surface	45		73.6		90		
Metal enclosure of outside surface 1(top)	45		79.4		90		
Metal enclosure of outside surface 2(bottom)	45		78.5		90		
tc of LED driver 10							
Mounting surface	45		80.1		90		
Metal enclosure of outside surface 1(top)	45		83.6		90		
Metal enclosure of outside surface 2(bottom)	45		82.7		90		
tc of LED driver 11							
Mounting surface	45		76.5		90		
Metal enclosure of outside surface 1(top)	45		81.3		90		
Metal enclosure of outside surface 2(bottom)	45		80.4		90		
tc of LED driver 12							

IEC 60598-2-2							
Clause	Requirement + Test			Result - Remark			Verdict
Mounting surface	45		80.5		90		
Metal enclosure of outside surface 1(top)	45		84.4		90		
Metal enclosure of outside surface 2(bottom)	45		82.9		90		
Supplementary information: maximum temperature values were recorded.							
Tested at maximum number of luminaires can be interconnected.							

End of report