中国认可
国际互认
检测
TESTING
CNAS L6478

TEST REPORT

Reference No......	:	WTF18F05113326R1L
Applicant.....	:	Lambert et Fils Luminaires Inc.
Address.....	:	6250 rue Hutchison #100 Montreal Qc H2V 4C5 Canada
Manufacturer.....	:	Lambert et Fils Luminaires Inc.
Address.....	:	6250 rue Hutchison #100 Montreal Qc H2V 4C5 Canada
Product Name.....	:	Laurent Collection
Model No.....	:	See model list on page 3
Standards.....	:	Luminaires Part 2-1: Fixed general purpose luminaires IEC 60598-2-1:1979 + A1:1987 IEC 60598-1:2014+A1:2017 with Australia Deviation
Date of Receipt sample.....	:	2019-01-09
Date of Test.....	:	2019-01-10 to 2019-01-21
Date of Issue.....	:	2019-01-22
Test Report Form No......	:	WSL-6059821A-01A
Test Result.....	:	**Pass**

Remarks:
The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

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Compiled by:

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Test item description.....:	Fixed lamps
Trade Mark.....:	lambert&fils
Model/Type reference.....:	See model list on page 3
Ratings.....:	See model list on page 3

Copy of marking plate:

CODE: LRT01
Model NAME.: Laurent 01
220V-240V~ 50Hz
G9 LED Max.6W ta:25°C

Lambert et Fils Luminaires Inc.

On the luminaries surface

G9 LED Max.6W

The label nearest to each lampholder

Remark:
The marking for other models are identical except the model name and wattage.

Summary of testing:

1. Unless otherwise specified, the models LRT04 and LRT18 were chosen as representative models to perform all tests; the tests results complied with the requirements of the standards mentioned on page one. Construction had been checked on all models.
2. AU variations of AS/NZS 60598.2.1: 2014+A1:2016 and IEC 60598-2-1:1979+ A1:1987, and AU variations of AS/NZS 60598.1:2017 and IEC 60598-1:2014.
3. Only the most unfavorable results are recorded in this report.

Test items particulars:

Classification of installation and use.....: Fixed

Supply Connection.....: Terminal block

Possible test case verdicts:

- test case does not apply to the test object..... : N (Not applicable)
- test object does meet the requirement..... : P (Pass)
- test object does not meet the requirement.....: F (Fail)

General remarks:

"(see remark #)" refers to a remark appended to the report.
"(see appended table)" refers to a table appended to the report.
Throughout this report a point is used as the decimal separator.

Project history :

2019-01-22: the test report WTF18F05113326R1L is based on original test report WTF18F05113326L, for adding new models of LRT13, LRT14, LRT15, LRT16, LRT17 and LRT18.

The report WTF18F05113326L was become invalid after issuing of this report.

General product information:

1. Fixed general purpose luminaries.
2. All models have same construction, except the appearance and wattage.

Model list

Item	CODE	NAME	Rated voltage (VAC)	Rated frequency (Hz)	Rated power (W)	Protection against electric shock	IP degree
1	LRT01	Laurent 01	220-240	50	G9 2xLED 6W	Class I	IP20
2	LRT02	Laurent 02	220-240	50	G9 4xLED 6W	Class I	IP20
3	LRT03	Laurent 03	220-240	50	G9 2xLED 6W	Class I	IP20
4	LRT04	Laurent 04	220-240	50	G9 5xLED 6W	Class I	IP20
5	LRT05	Laurent 05	220-240	50	G9 2xLED 6W	Class I	IP20
6	LRT06	Laurent 06	220-240	50	G9 2xLED 6W	Class I	IP20
7	LRT07	Laurent 07	220-240	50	G9 3xLED 6W	Class I	IP20
8	LRT08	Laurent 08	220-240	50	G9 3xLED 6W	Class I	IP20
9	LRT09	Laurent 09	220-240	50	G9 2xLED 6W	Class I	IP20
10	LRT10	Laurent 10	220-240	50	G9 1xLED 6W	Class I	IP20
11	LRT13	Laurent 13	220-240	50	G9 9xLED 6W	Class I	IP20
12	LRT14	Laurent 14	220-240	50	G9 7xLED 6W	Class I	IP20
13	LRT15	Laurent 15	220-240	50	G9 11xLED 6W	Class I	IP20
14	LRT16	Laurent 16	220-240	50	G9 10xLED 6W	Class I	IP20
15	LRT17	Laurent 17	220-240	50	G9 13xLED 6W	Class I	IP20
16	LRT18	Laurent 18	220-240	50	G9 13xLED 6W	Class I	IP20

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

1.2 (0)	**GENERAL TEST REQUIREMENTS**		**P**
1.2 (0.3)	More sections applicable.....	Yes ☐ No ☒	—
1.2 (0.5)	Components	(see Annex 1)	—
1.2 (0.7)	**Information for luminaire design in light sources standards**		—
1.2 (0.7.2)	Light source safety standard	IEC 62560+IEC 62031	—
	Luminaire design in the light source safety standard		P

1.4 (2)	**CLASSIFICATION**		**P**
1.4 (2.2)	Type of protection (Class 0 excluded).....:	Class I	—
1.4 (2.3)	Degree of protection (Requirement: Ordinary)..... :	IP 20	—
1.4 (2.4)	Luminaire suitable for direct mounting on normally flammable surfaces..... :	Yes ☒ No ☐	—
1.4 (2.5)	Luminaire for normal use ..... :	Yes ☒ No ☐	—
	Luminaire for rough service ..... :	Yes ☐ No ☒	—

1.5 (3)	**MARKING**		**P**
1.5 (3.2)	Mandatory markings	See “Copy of marking plate”	P
	Position of the marking		P
	Format of symbols/text		P
1.5 (3.3)	Additional information		P
	Language of instructions	In English	P
1.5 (3.3.1)	Combination luminaires		N
1.5 (3.3.2)	Nominal frequency in Hz	50 Hz	P
1.5 (3.3.3)	Operating temperature		N
1.5 (3.3.4)	Symbol or warning notice		N
1.5 (3.3.5)	Wiring diagram		N
1.5 (3.3.6)	Special conditions		N
1.5 (3.3.7)	Metal halide lamp luminaire – warning		N
1.5 (3.3.8)	Limitation for semi-luminaires		N
1.5 (3.3.9)	Power factor and supply current		N
1.5 (3.3.10)	Suitability for use indoors		N
1.5 (3.3.11)	Luminaires with remote control		N
1.5 (3.3.12)	Clip-mounted luminaire – warning		N
1.5 (3.3.13)	Specifications of protective shields		N
1.5 (3.3.14)	Symbol for nature of supply	~	P

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.5 (3.3.15)	Rated current of socket outlet		N
1.5 (3.3.16)	Rough service luminaire		N
1.5 (3.3.17)	Mounting instruction for type Y, type Z and some type X attachments		N
1.5 (3.3.18)	Non-ordinary luminaires with PVC cable		N
1.5 (3.3.19)	Protective conductor current in instruction if applicable		N
1.5 (3.3.20)	Provided with information if not intended to be mounted within arms reach		N
1.5 (3.3.21)	Non-replaceable and non-user replaceable light sources information provided		N
	Cautionary symbol		N
1.5 (3.3.22)	Controllable luminaires, classification of insulation provided		N
1.5 (3.4)	Test with water		P
	Test with hexane		P
	Legible after test		P
	Label attached		P
1.6 (4)	**CONSTRUCTION**		**P**
1.6 (4.2)	Components replaceable without difficulty		P
1.6 (4.3)	Wireways smooth and free from sharp edges		P
1.6 (4.4)	Lampholders		P
1.6 (4.4.1)	Integral lampholder		N
1.6 (4.4.2)	Wiring connection		N
1.6 (4.4.3)	Lampholder for end- to- end mounting		N
1.6 (4.4.4)	Positioning	G9 checked by inspection	P
	- pressure test (N) ..... :	--	N
	After test the lampholder comply with relevant standard sheets and show no damage		N
	After test on single-capped lampholder the lampholder have not moved from its position and show no permanent deformation		N
	- bending test (Nm) ..... :	--	N
	After test the lampholder have not moved from its position and show no permanent deformation		P
1.6 (4.4.5)	Peak pulse voltage		N
1.6 (4.4.6)	Centre contact		N

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.6 (4.4.7)	Parts in rough service luminaires resistant to tracking		N
1.6 (4.4.8)	Lamp connectors		N
1.6 (4.4.9)	Caps and bases correctly used		N
1.6 (4.4.10)	Light source for lampholder or connection according IEC 60061 not connected another way		P
1.6 (4.5)	Starter holders		N
	Starter holder in luminaires other than class II	No starter holder used	N
	Starter holder class II construction		N
1.6 (4.6)	Terminal blocks		P
	Tails		N
	Unsecured blocks		P
1.6 (4.7)	Terminals and supply connections		P
1.6 (4.7.1)	Contact to metal parts		N
1.6 (4.7.2)	Test 8 mm live conductor		P
	Test 8 mm earth conductor		P
1.6 (4.7.3)	Terminals for supply conductors		P
1.6 (4.7.3.1)	Welded connections:		N
	- stranded or solid conductor		N
	- spot welding		N
	- welding between wires		N
	- Type Z attachment		N
	- mechanical test according to 15.8.2		N
	- electrical test according to 15.9		N
	- heat test according to 15.9.2.3 and 15.9.2.4		N
1.6 (4.7.4)	Terminals other than supply connection		N
1.6 (4.7.5)	Heat-resistant wiring/sleeves		N
1.6 (4.7.6)	Multi-pole plug		N
	- test at 30 N		N
1.6 (4.8)	Switches:		N
	- adequate rating		N
	- adequate fixing		N
	- polarized supply		N
	- compliance with IEC 61058-1 for electronic switches		N
1.6 (4.9)	Insulating lining and sleeves		N

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.6 (4.9.1)	Retainement		N
	Method of fixing.....:	--	N
1.6 (4.9.2)	Insulated linings and sleeves		N
	Resistant to a temperature > 20 °C to the wire temperature or		N
	a) & c) Insulation resistance and electric strength		N
	b) Ageing test. Temperature (°C).....:	--	N
1.6 (4.10)	Insulation of Class II luminaires		N
1.6 (4.10.1)	No contact, mounting surface – accessible metal parts – wiring of basic insulation		N
	Safe installation fixed luminaires		N
	Capacitors and switches		N
	Interference suppression capacitors according to IEC 60384-14		N
1.6 (4.10.2)	Assembly gaps:		N
	- not coincidental		N
	- no straight access with test probe		N
1.6 (4.10.3)	Retainment of insulation:		N
	- fixed		N
	- unable to be replaced; luminaire inoperative		N
	- sleeves retained in position		N
	- lining in lampholder		N
1.6 (4.10.4)	Protective impedance device		N
	Double or reinforced insulation bridged by appropriate and at least two resistors or two Y2 capacitors or one Y1 capacitor		N
	Y1 or Y2 capacitors comply with IEC 60384-14		N
	Resistors comply with test (a) in 14.1 of IEC 60065		N
1.6 (4.11)	Electrical connections		P
1.6 (4.11.1)	Contact pressure		P
1.6 (4.11.2)	Screws:		N
	- self-tapping screws		N
	- thread- cutting screws		N
1.6 (4.11.3)	Screw locking:		P
	- spring washer		P
	- rivets		N

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.6 (4.11.4)	Material of current-carrying parts	> 50% Cu	P
1.6 (4.11.5)	No contact to wood or mounting surface		P
1.6 (4.11.6)	Electro-mechanical contact systems		N
1.6 (4.12)	Mechanical connections and glands		P
1.6 (4.12.1)	Screws not made of soft metal		P
	Screws of insulating material		P
	Torque test: torque (Nm); part..... :	Screw for fixing earth terminal: 0.4Nm	P
	Torque test: torque (Nm); part..... :	Screws used for fixing G9 lampholder: 0.5Nm	P
	Torque test: torque (Nm); part..... :	Plastic screw use as cord anchorage: 0.5Nm	P
	Torque test: torque (Nm); part..... :	Screws used for fixing metal enclosure: 0.4Nm	P
1.6 (4.12.2)	Screws with diameter < 3 mm screwed into metal		P
1.6 (4.12.4)	Locked connections:		P
	- fixed arms; torque (Nm)..... :	M10 nut; 2.5Nm	P
	- lampholder; torque (Nm)..... :	--	N
	- push-button switches; torque 0,8 Nm..... :	--	N
1.6 (4.12.5)	Screwed glands; force (Nm)..... :	--	N
1.6 (4.13)	Mechanical strength		P
1.6 (4.13.1)	Impact tests:		P
	- fragile parts; energy (Nm)..... :	--	N
	- other parts; energy (Nm)..... :	All enclosure: 0.35 Nm	P
	1) live parts		P
	2) linings		P
	3) protection		P
	4) covers		N
1.6 (4.13.3)	Straight test finger	All enclosure: 30 N	P
1.6 (4.13.4)	Rough service luminaires		N
	- IP54 or higher		N
	a) fixed		N
	b) hand-held		N
	c) delivered with a stand		N
	d) for temporary installations and suitable for mounting on a stand		N
1.6 (4.13.6)	Tumbling barrel		N

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.6 (4.14)	Suspensions and adjusting devices		P
1.6 (4.14.1)	Mechanical load:		P
	A) four times the weight		P
	B) torque 2,5 Nm		N
	C) bracket arm; bending moment (Nm)..... :	--	N
	D) load track- mounted luminaires	--	N
	E) clip-mounted luminaires, glass-shelve. Thickness (mm) ..... :	--	N
	Metal rod. diameter (mm) ..... :	--	N
	Fixed luminaire or independent control gear without fixing devices		N
1.6 (4.14.2)	Load to flexible cables		P
	Mass (kg) ..... :	Max. 3.975kg	P
	Stress in conductors (N/mm²) ..... :	3.463N/mm^2	P
	Mass (kg) of semi-luminaire ..... :	--	N
	Bending moment (Nm) of semi-luminaire ..... :	--	N
1.6 (4.14.3)	Adjusting devices:		N
	- flexing test; number of cycles..... :	--	N
	- strands broken		N
	- electric strength test afterwards		N
1.6 (4.14.4)	Telescopic tubes: cords not fixed to tube; no strain on conductors		N
1.6 (4.14.5)	Guide pulleys		N
1.6 (4.14.6)	Strain on socket-outlets		N
1.6 (4.15)	Flammable materials:		N
	- glow- wire test 650 °C		N
	- spacing ≥ 30 mm		N
	- screen withstanding test of 13.3.1		N
	- screen dimensions		N
	- no fiercely burning material		N
	- thermal protection		N
	- electronic circuits exempted		N
1.6 (4.15.2)	Luminaires made of thermoplastic material with lamp control gear		N
	a) construction		N
	b) temperature sensing control		N
	c) surface temperature		N

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.6 (4.16)	Luminaires for mounting on normally flammable surfaces		P
	No lamp control gear		P
1.6 (4.16.1)	Lamp control gear spacing:		N
	- spacing 35 mm		N
	- spacing 10 mm		N
1.6 (4.16.2)	Thermal protection:		N
	- in lamp control gear		N
	- external		N
	- fixed position		N
	- temperature marked lamp control gear		N
1.6 (4.16.3)	Design to satisfy the test of 12.6	(see 12.6)	N
1.6 (4.17)	Drain holes		N
	Clearance at least 5 mm		N
1.6 (4.18)	Resistance to corrosion:		P
1.6 (4.18.1)	- rust- resistance		N
1.6 (4.18.2)	- season cracking in copper		P
1.6 (4.18.3)	- corrosion of aluminium		N
1.6 (4.19)	Ignitors compatible with ballast		N
1.6 (4.20)	Rough service vibration		N
1.6 (4.21)	Protective shield:		N
1.6 (4.21.1)	Shield fitted		N
	Shield of glass if tungsten halogen lamps		N
1.6 (4.21.2)	Particles from a shattering lamp not impair safety		N
1.6 (4.21.3)	No direct path		N
1.6 (4.21.4)	Impact test on shield		N
	Glow-wire test on lamp compartment		N
1.6 (4.22)	Attachments to lamps		N
1.6 (4.23)	Semi-luminaires comply Class II		N
1.6 (4.24)	Photobiological hazards		N
1.6 (4.24.1)	No excessive UV radiation if tungsten halogen lamps and metal halide lamps (Annex P)		N
1.6 (4.24.2)	Retinal blue light hazard		N
	Class of risk group assessed according to IEC/TR 62778……:	--	N
	Luminaires with E_{thr} :		N
	a) Fixed luminaires		N

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	- distance x m, borderline between RG1 and RG2..		N
	- marking and instruction according 3.2.23		N
	b) Portable and handheld luminaires		N
	- marking according 3.2.23 if RG1 exceeded at 200 mm according to IEC/TR 62778		N
	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
1.6 (4.25)	No sharp point or edges		P
1.6 (4.26)	Short-circuit protection:		N
1.6 (4.26.1)	Adequate means of uninsulated accessible SELV parts		N
1.6 (4.26.2)	Short-circuit test with test chain according 4.26.3		N
	Test chain not melt through		N
	Test sample not exceed values of Table 12.1 and 12.2		N
1.6 (4.27)	Terminal blocks with integrated screwless earthing contacts		N
	Test according Annex V		N
	Pull test of terminal fixing (20 N)		N
	After test, resistance < 0.05 Ω		N
	Pull test of mechanical connection (50 N)		N
	After test, resistance < 0.05 Ω		N
	Voltage drop test, resistance < 0.05 Ω		N
1.6 (4.28)	Fixing of thermal sensing control		N
	Not plug-in or easily replaceable type		N
	Reliably kept in position		N
	No adhesive fixing if UV radiations from a lamp can degrade the fixing		N
	Not outside the luminaire enclosure		N
	Test of adhesive fixing:		N
	Max. temperature on adhesive material (°C).....	--	—
	100 cycles between t min and t max		N
	Temperature sensing control still in position		N
1.6 (4.29)	Luminaires with non-replaceable light source		N
	Not possible to replace light source		N
	Live part not accessible after parts have been opened by hand or tools		N

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.6 (4.30)	Luminaires with non-user replaceable light source		N
	If protective cover provide protection against electric shock and marked with “caution, electric shock risk” symbol:		N
	Minimum two fixing means		N
1.6 (4.31)	Insulation between circuits		N
	Circuits insulated from LV supply fulfil requirements according 4.31.1 – 4.31.3		N
	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
1.6 (4.31.1)	SELV circuits		N
	Used SELV source		N
	Voltage ≤ ELV		N
	Insulating of SELV circuits from LV supply		N
	Insulating of SELV circuits from other non SELV circuits		N
	Insulating of SELV circuits from FELV		N
	Insulating of SELV circuits from other SELV circuits		N
	SELV circuits insulated from accessible parts according Table X.1		N
	Plugs not able to enter socket-outlets of other voltage systems		N
	Socket outlets does not admit plugs of other voltage systems		N
	Plugs and socket-outlets does not have protective conductor contact		N
1.6 (4.31.2)	FELV circuits		N
	Used FELV source		N
	Voltage ≤ ELV		N
	Insulating of FELV circuits from LV supply		N
	FELV circuits insulated from accessible parts according Table X.1		N
	Plugs not able to enter socket-outlets of other voltage systems		N
	Socket outlets does not admit plugs of other voltage systems		N
	Socket-outlets does not have protective conductor contact		N
1.6 (4.31.3)	Other circuits		N

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Other circuits insulated from accessible parts according Table X.1		N
	Class II construction with equipotential bonding for protection against indirect contacts with live parts:		N
	- conductive parts are connected together		N
	- test according 7.2.3 of above		N
	- conductive part not cause an electric shock in case of an insulation fault		N
	- equipotential bonding in master/slave applications		N
	- master luminaire provided with terminal for accessible conductive parts of slave luminaires		N
	- slave luminaire constructed as class I		N
1.6 (4.32)	Overvoltage protective devices		N
	Comply with IEC 61643-11		N
	External to control gear and connected to earth:		N
	- only in fixed luminaires		N
	- only connected to protective earth		N

1.7 (11)	**CREEPAGE DISTANCES AND CLEARANCES**		**P**
1.7 (11.2.1)	Impulse withstand category (Normal category II)	Category II ☒ Category III ☐	—
	Category III according Annex U		N
	Protected against pollution, reduced creepage and clearance according Annex P of IEC 61347-1		N
1.7 (11.2.2)	Creepage distances for frequency up to 30 kHz	See Test Table 1.7 (11.2) I	P
	Creepage distances for frequency over 30 kHz:		N
	- Controlgear marked with $\hat{U}_{OUT}$ and f_{UOUT} according IEC 61347-1, clause 7.1, item w	See Test Table 1.7 (11.2) II	N
	- Requirements according IEC 60664-4 for controlgear not covered by IEC 61347	See Test Table 1.7 (11.2) II	N
1.7 (11.2.3)	Clearances for frequency up to 30 kHz	See Test Table 1.7 (11.2) I	P
	Clearances distances for frequency over 30 kHz:		N
	- Controlgear marked with U_P	See Test Table 1.7 (11.2) II	N
	- Requirements according IEC 60664-4 for controlgear not covered by IEC 61347	See Test Table 1.7 (11.2) II	N

1.8 (7)	**PROVISION FOR EARTHING**		**P**
1.8 (7.2.1 + 7.2.3)	Accessible metal parts		P
	Metal parts in contact with supporting surface		N

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Resistance < 0,5 Ω	Max. 0.038Ω	P
	Self-tapping screws used		N
	Thread-forming screws		N
	Thread-forming screw used in a grove		N
	Earth makes contact first		N
	Terminal blocks with integrated screwless earthing contacts tested according Annex V		N
	Protective earthing of the luminaire not via built-in control gear		N
1.8 (7.2.2 + 7.2.3)	Earth continuity in joints etc.		N
1.8 (7.2.4)	Locking of clamping means		P
	Compliance with 4.7.3		P
	Terminal blocks with integrated screwless earthing contacts tested according Annex V		N
1.8 (7.2.5)	Earth terminal integral part of connector socket		N
1.8 (7.2.6)	Earth terminal adjacent to mains terminals		P
1.8 (7.2.7)	Electrolytic corrosion of the earth terminal		N
1.8 (7.2.8)	Material of earth terminal		P
	Contact surface bare metal		P
1.8 (7.2.10)	Class II luminaire for looping-in		N
	Double or reinforced insulation to functional earth		N
1.8 (7.2.11)	Earthing core coloured green-yellow		P
	Length of earth conductor		N
1.9 (14)	**SCREW TERMINALS**		**P**
	Separately approved; component list	(see Annex 1)	N
	Part of the luminaire	(see Annex 3)	P
1.9 (15)	**SCREWLESS TERMINALS AND ELECTRICAL CONNECTIONS**		**P**
	Separately approved; component list	(see Annex 1)	P
	Part of the luminaire	(see Annex 4)	N
1.10 (5)	**EXTERNAL AND INTERNAL WIRING**		**P**
1.10 (5.2)	Supply connection and external wiring		P
1.10 (5.2.1)	Means of connection.....:	Terminal block	P

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Clause	Requirement + Test	Result - Remark	Verdict
	Outdoor luminaire has not PVC insulated external wiring if not class III or SELV ≤ 25 V a.c./60 V d.c. or protected from outdoor environment		N
1.10 (5.2.2)	Type of cable.....:	See annex 1	N
	Nominal cross-sectional area (mm²)..... :	See annex 1	N
	Cables equal to IEC 60227 or IEC 60245		N
1.10 (5.2.3)	Type of attachment, X, Y or Z		N
1.10 (5.2.5)	Type Z not connected to screws		N
1.10 (5.2.6)	Cable entries:		N
	- suitable for introduction		N
	- adequate degree of protection		N
1.10 (5.2.7)	Cable entries through rigid material have rounded edges		N
1.10 (5.2.8)	Insulating bushings:		N
	- suitably fixed		N
	- material in bushings		N
	- material not likely to deteriorate		N
	- tubes or guards made of insulating material		N
1.10 (5.2.9)	Locking of screwed bushings		N
1.10 (5.2.10)	Cord anchorage:		P
	- covering protected from abrasion		P
	- clear how to be effective		P
	- no mechanical or thermal stress		P
	- no tying of cables into knots etc.		P
	- insulating material or lining		P
1.10 (5.2.10.1)	Cord anchorage for type X attachment:		N
	a) at least one part fixed		N
	b) types of cable		N
	c) no damaging of the cable		N
	d) whole cable can be mounted		N
	e) no touching of clamping screws		N
	f) metal screw not directly on cable		N
	g) replacement without special tool		N
	Glands not used as anchorage		N
	Labyrinth type anchorages		N

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Clause	Requirement + Test	Result - Remark	Verdict
1.10 (5.2.10.2)	Adequate cord anchorage for type Y and type Z attachment		N
1.10 (5.2.10.3)	Tests:		P
	- impossible to push cable; unsafe		P
	- pull test: 25 times; pull (N)..... :	60N	P
	- torque test: torque (Nm)..... :	0.25Nm	P
	- displacement ≤ 2 mm		P
	- no movement of conductors		P
	- no damage of cable or cord		P
1.10 (5.2.11)	External wiring passing into luminaire		N
1.10 (5.2.12)	Looping- in terminals		N
1.10 (5.2.13)	Wire ends not tinned		N
	Wire ends tinned: no cold flow		N
1.10 (5.2.14)	Mains plug same protection		N
	Class III luminaire plug		N
	No unsafe compatibility		N
1.10 (5.2.16)	Appliance inlets (IEC 60320)		N
	Appliance couplers of class II type		N
	Other appliance inlet or connector according relevant IEC standard		N
1.10 (5.2.17)	No standardized interconnecting cables properly assembled		N
1.10 (5.2.18)	Used plug in accordance with		N
	- IEC 60083		N
	- other standard		N
1.10 (5.3)	Internal wiring		P
1.10 (5.3.1)	Internal wiring of suitable size and type	(see Annex 1)	P
	Through wiring		N
	- not delivered/ mounting instruction		N
	- factory assembled		N
	- socket outlet loaded (A)..... :	--	N
	- temperatures.....:	--	N
	Green- yellow for earth only		P
1.10 (5.3.1.1)	Internal wiring connected directly to fixed wiring		P
	Cross-sectional area (mm²)..... :	(see Annex 1)	P
	Insulation thickness		P

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Clause	Requirement + Test	Result - Remark	Verdict
	Extra insulation added where necessary		N
1.10 (5.3.1.2)	Internal wiring connected to fixed wiring via internal current-limiting device		N
	Adequate cross-sectional area and insulation thickness		N
1.10 (5.3.1.3)	Double or reinforced insulation for class II		N
1.10 (5.3.1.4)	Conductors without insulation		N
1.10 (5.3.1.5)	SELV current-carrying parts		N
1.10 (5.3.1.6)	Insulation thickness other than PVC or rubber	PVC	N
1.10 (5.3.2)	Sharp edges etc.		P
	No moving parts of switches etc.		N
	Joints, raising/lowering devices		N
	Telescopic tubes etc.		N
	No twisting over 360°		P
1.10 (5.3.3)	Insulating bushings:		P
	- suitable fixed		P
	- material in bushings		P
	- material not likely to deteriorate		P
	- cables with protective sheath		P
1.10 (5.3.4)	Joints and junctions effectively insulated		N
1.10 (5.3.5)	Strain on internal wiring		P
1.10 (5.3.6)	Wire carriers		N
1.10 (5.3.7)	Wire ends not tinned		P
	Wire ends tinned: no cold flow		N
1.10 (-)	1) The requirement of one part of cord anchorage shall be fixed to the luminaire not apply for table lamps of glass or ceramic		—
	2) Luminaire with a mass less than 1 kg the current ≤ 2,5 A and cable ≤ 2 m and conductor ≥ 0,5 mm²		N
1.10 (5.4)	Test to determine suitability of conductors having a reduced cross-sectional area		N
	Under test the temperature of the luminaire wiring insulation not exceed the limits stated in Table 12.2	(see Annex 2)	N
	No damage to luminaire wiring after test		N
1.11 (8)	**PROTECTION AGAINST ELECTRIC SHOCK**		**P**
1.11 (8.2.1)	Live parts not accessible with standard test finger		P

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Clause	Requirement + Test	Result - Remark	Verdict
	Basic insulated parts not used on the outer surface without appropriate protection		P
	Basic insulated parts not accessible with standard test finger on portable and adjustable luminaires		N
	Basic insulated parts not accessible with Ø 50 mm probe from outside, other types of luminaires		P
	Lampholder and starterholders in portable and adjustable luminaires comply with double or reinforced insulation requirements		N
	Basic insulation only accessible under lamp or starter replacement		P
	Protection in any position		P
	Double-ended tungsten filament lamp		N
	Insulation lacquer not reliable		N
	Double-ended high pressure discharge lamp		N
	Relevant warning according to 3.2.18 fitted to the luminaire		N
1.11 (8.2.2)	Portable luminaire adjusted in most unfavourable position		N
1.11 (8.2.3.a)	Class II luminaire:		N
	- basic insulated metal parts not accessible during starter or lamp replacement		N
	- basic insulation not accessible other than during starter or lamp replacement		N
	- glass protective shields not used as supplementary insulation		N
1.11 (8.2.3.b)	BC lampholder of metal in class I luminaires shall be earthed		N
1.11 (8.2.3.c)	SELV circuits with exposed current carrying parts:		N
	Ordinary luminaire:		N
	- voltage under load (V).....	--	N
	- no-load voltage (V).....	--	N
	- touch current if applicable (mA)		N
	One conductive part insulated if required		N
	Other than ordinary luminaire:		N
	- nominal voltage ..... :	--	N
	Class III luminaire only for connection to SELV		N
	Class III luminaire not provided with means for protective earthing		N
1.11 (8.2.4)	Portable luminaire:		N

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Clause	Requirement + Test	Result - Remark	Verdict
	- protection independent of supporting surface		N
	- terminal block completely covered		N
1.11 (8.2.5)	Compliance with the standard test finger or relevant probe		P
1.11 (8.2.6)	Covers reliably secured		N
1.11 (8.2.7)	Luminaire other than below with capacitor > 0,5 μF not exceed 50 V 1 min after disconnection		N
	Portable luminaire with capacitor > 0,1 μF (0.25) not exceed 34 V 1 s after disconnection		N
	Other luminaires with capacitor > 0,1 μF (0.25) with plug and track adaptors not exceed 60 V 5 s after disconnection		N

1.12 (12)	**ENDURANCE TEST AND THERMAL TEST**		**P**
1.12 (12.3)	Endurance test:		P
	- mounting- position..... :	Acc. to user manual	—
	- test temperature (°C)..... :	35 °C	—
	- total duration (h).....:	240 h	—
	- supply voltage: Un factor; calculated voltage (V) .....:	1.1Un	—
	- lamp used..... :	G9 LED 6W	—
1.12 (12.3.2)	After endurance test:		P
	- no part unserviceable		P
	- luminaire not unsafe		P
	- no damage to track system		N
	- marking legible		P
	- no cracks, deformation etc.		P
1.12 (12.4)	Thermal test (normal operation)	(see Annex 2)	P
1.12 (12.5)	Thermal test (abnormal operation)	(see Annex 2)	N
1.12 (12.6)	Thermal test (failed lamp control gear condition):		N
1.12 (12.6.1)	Through wiring or looping-in wiring loaded by a current of (A) ..... :	--	—
	- case of abnormal conditions.....:	--	—
	- electronic lamp control gear		N
	- measured winding temperature (°C): at 1,1 Un .:	--	—
	- measured mounting surface temperature (°C) at 1,1 Un.....:	--	N

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Clause	Requirement + Test	Result - Remark	Verdict
	- calculated mounting surface temperature (°C) ..:	-	N
	- track- mounted luminaires		N
1.12 (12.6.2)	Temperature sensing control		N
	- case of abnormal conditions.....:	--	—
	- thermal link		N
	- manual reset cut- out		N
	- auto reset cut- out		N
	- measured mounting surface temperature (°C)... :	--	N
	- track- mounted luminaires		N
1.12 (12.7)	Thermal test (failed lamp control gear in plastic luminaires):		N
1.12 (12.7.1)	Luminaire without temperature sensing control		N
1.12 (12.7.1.1)	Luminaire with fluorescent lamp ≤ 70W		N
	Test method 12.7.1.1 or Annex V.....:	--	—
	Test according to 12.7.1.1:		N
	- case of abnormal conditions		—
	- Ballast failure at supply voltage (V) .....:	--	—
	- Components retained in place after the test		N
	- Test with standard test finger after the test		N
	Test according to Annex V:		N
	- 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:		N
	- part tested; temperature (°C)..... :	--	N
	- part tested; temperature (°C)..... :	--	N
1.12 (12.7.1.2)	Luminaire with discharge lamp, fluorescent lamp > 70W, transformer > 10 VA		N
	- 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).....:	--	—

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Clause	Requirement + Test	Result - Remark	Verdict
	Ball-pressure test:		N
	- part tested; temperature (°C)..... :	--	N
	- part tested; temperature (°C)..... :	--	N
1.12 (12.7.1.3)	Luminaire with short circuit proof transformers ≤ 10 VA		N
	- case of abnormal conditions		—
	- Components retained in place after the test		N
	- Test with standard test finger after the test		N
1.12 (12.7.2)	Luminaire with temperature sensing control		N
	- thermal link	Yes ☐ No ☐	—
	- manual reset cut-out	Yes ☐ No ☐	—
	- auto reset cut-out	Yes ☐ No ☐	—
	- case of abnormal conditions		—
	- highest measured temperature of fixing point/exposed part (°C):.....:	--	—
	Ball-pressure test:		N
	- part tested; temperature (°C)..... :	--	N
	- part tested; temperature (°C)..... :	--	N

1.13 (9)	**RESISTANCE TO DUST, SOLID OBJECTS AND MOISTURE**		**P**
1.13 (9.2)	Tests for ingress of dust, solid objects and moisture:		P
	- classification according to IP..... :	IP20	—
	- mounting position during test.....:	Acc. to user manual	—
	- fixing screws tightened; torque (Nm).....:	--	—
	- tests according to clauses.....:	9.2.0	—
	- electric strength test afterwards		P
	a) no deposit in dust-proof luminaire		N
	b) no talcum in dust- tight luminaire		N
	c) no trace of water on current-carrying parts or SELV parts or where it could become a hazard		N
	d) i) For luminaires without drain holes – no water entry		N
	d) ii) For luminaires with drain holes – no hazardous water entry		N
	e) no water in watertight luminaire		N
	f) no contact with live parts (IP 2X)		P
	f) no entry into enclosure (IP 3X and IP 4X)		N

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Clause	Requirement + Test	Result - Remark	Verdict
	f) no contact with live parts (IP3X and IP4X)		N
	g) no trace of water on part of lamp requiring protection from splashing water		N
	h) no damage of protective shield or glass envelope		N
1.13 (9.3)	Humidity test 48 h	25 °C, 93%RH	P
1.14 (10)	**INSULATION RESISTANCE AND ELECTRIC STRENGTH**		**P**
1.14 (10.2.1)	Insulation resistance test		P
	Cable or cord covered by metal foil or replaced by a metal rod of mm Ø ..... :	--	—
	Insulation resistance (MΩ)		—
	SELV:		N
	- between current-carrying parts of different polarity.....:	--	N
	- between current-carrying parts and mounting surface.....:	--	N
	- between current-carrying parts and metal parts of the luminaire..... :	--	N
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts..... :	--	N
	- Insulation bushings as described in Section 5 ... :	--	N
	Other than SELV:		P
	- between live parts of different polarity..... :	100 MΩ	P
	- between live parts and mounting surface.....:	100 MΩ	P
	- between live parts and metal parts.....:	100 MΩ	P
	- between live parts of different polarity through action of a switch..... :	--	N
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts..... :	100 MΩ	P
	- Insulation bushings as described in Section 5 ... :	100 MΩ	P
1.14 (10.2.2)	Electric strength test		P
	Dummy lamp		N
	Luminaires with ignitors after 24 h test		N
	Luminaires with manual ignitors		N
	Test voltage (V):		P
	SELV:		N
	- between current-carrying parts of different polarity.....:	--	N

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Clause	Requirement + Test	Result - Remark	Verdict
	- between current-carrying parts and mounting surface.....:	--	N
	- between current-carrying parts and metal parts of the luminaire..... :	--	N
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts..... :	--	N
	- Insulation bushings as described in Section 5 ... :	--	N
	Other than SELV:		P
	- between live parts of different polarity..... :	1480V	P
	- between live parts and mounting surface.....:	1480V	P
	- between live parts and metal parts.....:	1480V	P
	- between live parts of different polarity through action of a switch..... :	--	N
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts..... :	1480V	P
	- Insulation bushings as described in Section 5 ... :	1480V	P
1.14 (10.3)	Touch current (mA)..... :	--	N
	Protective conductor current (mA).....:	Max. 0.1mA	P

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

1.7 (11.2)	**TABLE: Creepage distances and clearances**							**P**
	Minimum distances (mm) for a.c. (50/60 Hz) sinusoidal voltages							**P**
	Applicable part of IEC 60598-1 Table 11.1* and 11.2*							**P**
	Insulation type **	**Measured clearance**	**Required**		**Measured creepage**	**Required**		
			clearance	***Table**		**creepage**	***Table**	
Distance 1:	B	2.6	1.5	11.1	2.6	2.5	11.1	
Working voltage (V)..... :					240			—
PTI..... :					< 600 ☒	≥ 600 ☐		—
Pulse voltage if applicable (kV) .....:					--			—
Supplementary information: Current-carrying parts of different polarity								
Distance 2:	B	2.8	1.5	11.1	2.8	2.5	11.1	
Working voltage (V)..... :					240			—

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Clause	Requirement + Test	Result - Remark	Verdict

PTI..... :					< 600 ☒	≥ 600 ☐	—
Pulse voltage if applicable (kV) .....:					--		—
Supplementary information: Current-carrying parts and accessible earth parts							
Distance 3:	S	2.8	1.5	11.1	2.8	2.5	11.1
Working voltage (V)..... :					240		—
PTI..... :					< 600 ☒	≥ 600 ☐	—
Pulse voltage if applicable (kV) .....:					--		—
Supplementary information: Outer surface of cable where it is clamped and metal parts							
Distance 4:	B	2.8	1.5	11.1	2.8	2.5	11.1
Working voltage (V)..... :					240		—
PTI..... :					< 600 ☒	≥ 600 ☐	—
Pulse voltage if applicable (kV) .....:					--		—
Supplementary information: Current-carrying parts and supporting surface							

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

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Clause	Requirement + Test	Result - Remark	Verdict

1.7 (11.2)	**TABLE II: Creepage distances and clearances**							**N**
Minimum distances (mm) for a.c. higher than 30 kHz sinusoidal voltages								
Applicable part of IEC 61347-1 Table 7 and 8* or IEC 60664-4 Table 1 and 2								
Distances	**Insulation type ****	**Measured clearance**	**Required**		**Measured creepage**	**Required**		
			clearance	***Table**		**creepage**	***Table**	
Distance 1:								
Working voltage (V)..... :								—
Frequency if applicable (kHz)..... :								—
PTI..... :					< 600 ☐		≥ 600 ☐	—
Peak value of the working voltage $\hat{U}_{out}$ if applicable (kV) ..... :								—
Supplementary information:								
Distance 2:								
Working voltage (V)..... :								—
Frequency if applicable (kHz)..... :								—
PTI..... :					< 600 ☐		≥ 600 ☐	—
Peak value of the working voltage $\hat{U}_{out}$ if applicable (kV) ..... :								—
Supplementary information:								
Distance 3:								
Working voltage (V)..... :								—
Frequency if applicable (kHz)..... :								—
PTI..... :					< 600 ☐		≥ 600 ☐	—
Peak value of the working voltage $\hat{U}_{out}$ if applicable (kV) ..... :								—
Supplementary information:								

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

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Clause	Requirement + Test	Result - Remark	Verdict

1.15 (13.2.1)	**TABLE: Ball Pressure Test of Thermoplastics**			**N**
Allowed impression diameter (mm)		≤2.0		—
Object/ Part No./ Material	Manufacturer/ trademark	Test temperature (°C)	Impression diameter (mm)	
--	--	--	--	
Supplementary information:				

1.15 (13.3.1)	**TABLE: Needle-flame test (IEC 60695-11-5)**				N
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
--	--	--	--	--	--
Supplementary information:					

1.15 (13.3.2)	**TABLE: Glow-wire test (IEC 60695-2-11)**				N
Glow wire temperature		650°C			—
Object/ Part No./ Material	Manufacturer/ trademark	Duration of application of test glow (ta); (s)	Ignition of specified layer Yes/No	Duration of burning (tb) (s)	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).....					--
Supplementary information:					

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

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Clause	Requirement + Test	Result - Remark	Verdict

	ANNEX 1 components					**P**
object/part No.	Code	manufacturer/ trademark	type/model	technical data	standard	mark(s) of conformity
Terminal block	B	Wago-Kontakttechnlk GmbH & CO . KG	221-412 (2x0,75 mm2); 221-413 (3x0,75mm) ; 221-415 (5x0,75mm)	Max.: 4mm^2; 450V; 32A; max.: 85 °C	EN 60998-1 EN 60998-2-2	DEKRA 71-101731
Internal wire LRT01 to LRT09, parallel wires with offset canopy; LRT13 to LRT18; LRT01 to LRT09 parallel canopy and Input wire for LRT01 to LRT09 angled canopy	B	OMERIN SAS Z.I. - rue Marc Seguin	CN5YS	300/500V; 180°C;0.5 mm^2;	VDE 0250	VDE 40005809
Earth wire	B	HEW-KABEL GmbH	TE-CU.../E	1x0.75mm^2; T180	VDE 0250	VDE 100698
Alternative	D	Guangdong Yongrui Cable Technology Co., Ltd	H03VH7-H	0.75 mm^2	VDE 0281-8	VDE 40027126
Suspension cord & Lead wire to the lamp holder for ALL LAMPS; Input wire for LRT10, LRT13 to LRT18 and LRT01 to LRT09 parallel wires with offset canopy	B	CABLES RCT, S.A.U.	H03VV-F	3 x 0.75 mm^2	EN 50525-2-11	HAR/000650
G9 lampholder	B	Guangdong Kangrong High-Tech New Material Co., Ltd	K540K	250VAC; 2A; T250	EN 60238	SE/09131-40A

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Clause	Requirement + Test	Result - Remark	Verdict

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

ANNEX 2	**Temperature measurements, thermal tests of Section 12**	**P**

ANNEX 2-1	Type reference.....:	LRT04	—
	Lamp used.....:	G9 LED 6W	—
	Lamp control gear used.....:	--	—
	Mounting position of luminaire.....:	Acc. to user manual	—
	Supply wattage (W).....:	--	—
	Supply current (A)..... :	--	—
	Calculated power factor.....:	--	—
	Table: measured temperatures corrected for ta = 25 °C:		P
	- abnormal operating mode.....:	--	—
	- test 1: rated voltage..... :	--	—
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage..... :	1.06 times rated voltage	—
	- 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
Terminal block (hottest)	25.0	--	25.4	--	85	--	--
Connect wire (hottest)	25.0	--	25.3	--	105	--	--
Suspension wire (pressed)	25.0	--	40.2	--	75	--	--
Lampholder contact	25.0	--	86.3	--	250	--	--

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Clause	Requirement + Test	Result - Remark	Verdict

Internal wires of lampholder at a distance of 10mm from lampholder terminals	25.0	--	59.1	--	90	--	--
Mounting surface (flammable surface)	25.0	--	25.4	--	90	--	--
Lighting object (10cm)	25.0	--	25.4	--	90	--	--

ANNEX 2-2	Type reference.....:	LRT18	—
	Lamp used.....:	G9 LED 6W	—
	Lamp control gear used.....:	--	—
	Mounting position of luminaire.....:	Acc. to user manual	—
	Supply wattage (W).....:	--	—
	Supply current (A)..... :	--	—
	Calculated power factor.....:	--	—
	Table: measured temperatures corrected for ta = 25 °C:		P
	- abnormal operating mode.....:	--	—
	- test 1: rated voltage..... :	--	—
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage..... :	1.06 times rated voltage	—
	- 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
Terminal block (hottest)	25.0	--	31.2	--	100	--	--
Connect wire (hottest)	25.0	--	30.2	--	180	--	--
Suspension cord (pressed)	25.0	--	30.2	--	75	--	--
Lampholder contact	25.0	--	92.9	--	250	--	--

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

Internal wires of lampholder at a distance of 10mm from lampholder terminals	25.0	--	64.5	--	90	--	--
Mounting surface (flammable surface)	25.0	--	27.5	--	90	--	--
Lighting object (10cm)	25.0	--	27.4	--	90	--	--

ANNEX 3	**Screw terminals (part of the luminaire)**	**P**

(14)	SCREW TERMINALS		P
(14.2)	Type of terminal.....:	Pillar terminal	—
	Rated current (A).....:	Max. 6A	—
(14.3.2.1)	One or more conductors		P
(14.3.2.2)	Special preparation		N
(14.3.2.3)	Terminal size	1	P
	Cross-sectional area (mm^2).....:	0.75-1.5mm^2	P
(14.3.3)	Conductor space (mm).....:	2.5mm	P
(14.4)	Mechanical tests		P
(14.4.1)	Minimum distance		P
(14.4.2)	Cannot slip out		P
(14.4.3)	Special preparation		P
(14.4.4)	Nominal diameter of thread (metric ISO thread)..:	2.41mm	P
	External wiring		N
	No soft metal		P
(14.4.5)	Corrosion		P
(14.4.6)	Nominal diameter of thread (mm).....:	2.41mm	P
	Torque (Nm).....:	0.4Nm	N
(14.4.7)	Between metal surfaces		P
	Lug terminal		N
	Mantle terminal		N
	Pull test; pull (N).....:	40N	P
(14.4.8)	Without undue damage		P

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

ANNEX 4	**Screwless terminals (part of the luminaire)**	**N**

(15)	**SCREWLESS TERMINALS**		**N**
(15.2)	Type of terminal.....:	--	—
	Rated current (A).....:	--	—
(15.3.1)	Material		N
(15.3.2)	Clamping		N
(15.3.3)	Stop		N
(15.3.4)	Unprepared conductors		N
(15.3.5)	Pressure on insulating material		N
(15.3.6)	Clear connection method		N
(15.3.7)	Clamping independently		N
(15.3.8)	Fixed in position		N
(15.3.10)	Conductor size		N
	Type of conductor		N
(15.5)	Terminals and connections for internal wiring		N
(15.5.1)	Mechanical tests		N
(15.5.1.1.1)	Pull test spring-type terminals (4 N, 4 samples).....:		N
(15.5.1.1.2)	Pull test pin or tab terminals (4 N, 4 samples).....:		N
	Insertion force not exceeding 50 N		N
(15.5.1.2)	Permanent connections: pull-off test (20 N)		N
(15.5.2)	Electrical tests		N
	Voltage drop (mV) after 1 h (4 samples)..... :		N
	Voltage drop of two inseparable joints		N
	Number of cycles:		—
	Voltage drop (mV) after 10th alt. 25th cycle (4 samples).....:		N
	Voltage drop (mV) after 50th alt. 100th cycle (4 samples).....:		N
	After ageing, voltage drop (mV) after 10th alt. 25th cycle (4 samples).....:		N
	After ageing, voltage drop (mV) after 50th alt. 100th cycle (4 samples)..... :		N
(15.6)	Terminals and connections for external wiring		N
(15.6.1)	Conductors		N
	Terminal size and rating		N

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

15.6.2	Mechanical tests		N
(15.6.2.1)	Pull test spring-type terminals or welded connections (4 samples); pull (N) ..... :		N
(15.6.2.2)	Pull test pin or tab terminals (4 samples); pull (N) .....:		N
(15.6.3)	Electrical tests		N
	Tests according 15.6.3.1 + 15.6.3.2 in IEC 60598-1		N

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

Australia deviation			
Clause	Requirement + Test	Result - Remark	Verdict

ANNEX 5	**Australia deviation (AS/NZS 60598.2.1 and AS/NZS 60598.1)**	**P**

	APPENDIX ZZ		—
	VARIATIONS TO IEC 60598-1, Ed. 8.0 (2014) FOR AUSTRALIA AND NEW ZEALAND		
0	**GENERAL INTRODUCTION**		**P**
0.1	**Add:** Where the term “lamp” is used in this Standard, it is taken to include electric light sources. LED light sources are subject to the same test parameters as “other discharge lamps”.		N
	NOTE **Portable rechargeable battery operated luminaires** should comply with Annex B, ‘Appliances powered by rechargeable batteries’ of AS/NZS 60335.1, Household and similar electrical appliances—Safety, Part 1: General requirements (IEC 60335-1 ED. 5, MOD). In addition, portable, rechargeable, battery-operated luminaires with lithium ion batteries should have overvoltage protection.		—
0.4.2	**Add:** In Australia, for equipment, other than class III equipment, that is intended for connection to the supply mains **and not marked with**: - a rated voltage of at least 240 V for single-phase equipment or a rated voltage of at least 415 V for three-phase equipment; or - a rated voltage range that includes 240 V for single-phase equipment and 415 V for three-phase equipment, the rated voltage is equal to 240 V for single-phase equipment and 415 V for three-phase equipment, and the upper limit of the voltage range is equal to 240 V for single-phase equipment and 415 V for three-phase equipment.		P
0.5	**Add:** Relevant Australian/New Zealand Standard replaces the IEC Standard unless otherwise specified.		P
0.5.101	**Add:** Capacitors		N
	Capacitors shall be of a type to ensure that any capacitor failure results in a failsafe outcome.		N

Australia deviation			
Clause	Requirement + Test	Result - Remark	Verdict
	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.		N
	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
0.5.102	**Add:** Control gear		N
	Power supplies shall comply with the relevant part 2 of the AS/NZS 61558 series.		N
	Control gear shall comply with the relevant part 2 of the AS/NZS 61347 series.		N
	Battery chargers used for lighting other than emergency lighting shall comply with AS/NZS 60335.2.29.		N
	Sensor switches and similar control circuits, including those incorporated in other equipment, are considered electronic switches (see Clause 4.8).		N
2	**CLASSIFICATION OF LUMINAIRES**		P
2.2	**Class 0 luminaires** are not permitted in Australia or New Zealand.		—
3	**MARKING**		**P**
3.1	In Australia and New Zealand, instructions and other texts required by this Standard shall at least be written in English.		P
3.2	**Delete** the second paragraph beginning with 'Marking may be on ballast provided…'.		N
Table 3.1	**Move** Item 3.2.21 from the second column to the third column. 3.2.21 The relevant symbol for luminaires not suitable for covering with thermally insulating material		N

Australia deviation			
Clause	Requirement + Test	Result - Remark	Verdict
3.2.3	**The rated maximum ambient temperature t_a.** (see Figure 1).		P
3.2.12	**Add:** In Australia, luminaires for household use and similar with supply cords which are not fitted with a plug shall be marked with a cord tag with the symbol for “must be installed by a licensed electrician”.		N
3.2.23	**Add:** The additional information shall include the symbol "Do not stare at the operating light source" (see Figure 1) along with an explanation of the symbol.		N
3.3.7	**Delete Clause and replace with**: Luminaires for use with **metal halide lamps** shall be provided with instructions that state the substance of the following: To avoid potential unsafe lamp failure, the luminaire shall be switched off for at least 10 minutes at least once a week. In addition, the luminaire shall be operated: - complete with its protective shield; or - with a double jacketed lamp.		N
3.3.18	**Delete** the text ‘, i.e. for indoor use only’.		N
3.3.21	**Delete** the text ‘Caution, risk of electric shock’ and the symbol.		N
3.3.101	The instructions shall contain details of the components in the luminaire that require replacement as part of a maintenance program.		N
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
	The safety warnings are not required where these batteries are not intended to be replaced or are only accessible after damaging the equipment.		—

Australia deviation			
Clause	Requirement + Test	Result - Remark	Verdict
	The safety warnings: – CAUTION: Do not ingest battery—Chemical burn hazard [or equivalent wording]. – [The remote control supplied with] this product contains a coin/button cell battery. If the coin/button cell battery is swallowed, it can cause severe internal burns in just 2 hours and can lead to death. – Keep new and used batteries away from children. – If the battery compartment does not close securely, stop using the product and keep it away from children. – If you think batteries might have been swallowed or placed inside any part of the body, seek immediate medical attention.		N
4	**CONSTRUCTION**		N
4.7.2	**Delete** the first paragraph and r**eplace with** the following: Terminals shall be located or shielded in such a way that, if a wire of a stranded conductor escapes from a terminal when the conductors are fitted, there is no risk of contact between live parts and metal parts that can be touched with the standard test finger, **nor shall it be possible to touch a live free wire with the standard test finger** when the luminaire is fully assembled for use or open for the replacement of replaceable light sources or starters.		N
4.8	**Add:** Switches shall comply with AS/NZS 3133, the AS/NZS 60669 series or AS/NZS 61058.1. Switches that indicate an off position shall have contacts with an air break and comply with AS/NZS 3133, AS/NZS 60669.1 or AS/NZS 61058.1.		N
	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
4.10.4	**Delete the last sentence and replace with the following::** If the working voltage does not exceed the rated voltage of the capacitor, accessible conductive parts separated from live parts by double or reinforced insulation, as above, may be bridged by a single Y1 capacitor with qualification approval as specified in IEC 60384-14.		N
4.14.6	**Add:** A fixed socket-outlet complying with AS/NZS 3112 or AS/NZS 60884.1 is used for the test.		N

Australia deviation			
Clause	Requirement + Test	Result - Remark	Verdict
4.32	**Add:** **Metal oxide varistors** shall comply with the requirements of AS/NZS 3100 for metal oxide varistors incorporated in accessories.		N
4.101.1	**Small batteries**		N
	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
	Luminaires intended for children under the age of three, or parts of such luminaries that contain batteries, shall not fit wholly within the small parts cylinder as specified in Clause 5.2 of ISO 8124-1.		N
	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
	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. While the force is being applied, the test fingernail of Figure 7 of AS/NZS 60335.1 is inserted in any aperture or joint with a force of 10 N. The fingernail is then slid sideways with a force of 10 N but is not twisted or used as a lever.		N
	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
	If the part is likely to be twisted, the following torque is applied at the same time as the pull or push force: – 2 Nm, for major dimensions up to 50 mm. – 4 Nm, for major dimensions over 50 mm. This torque is also applied when the test fingernail is pulled by means of the loop. If the projection of the part that is gripped is less than 10 mm, the torque is reduced by 50 %.....:	4 Nm	N
4.101.1	**Battery compartment fasteners**		N

Australia deviation			
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.		
	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

5	**EXTERNAL AND INTERNAL WIRING**		**P**
5.2.1	First paragraph **replaced by**: 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. Portable luminaires: – supply cord with plug; – appliance inlet; – inlet plug complying with AS/NZS 3120. Track-mounted luminaires: — adaptor; — connector.		P
	Delete the second and third paragraph.		—
	In Australia, non-portable luminaires with a supply cord shall be fitted with a plug complying with AS/NZS 3112 or a coupler complying with the relevant standard, except where the luminaire has markings and instructions that comply with Clause 3.2.12, in which case, a plug or coupler is not required. For other than portable luminaires a plug is not required if the luminaire has markings and instructions in accordance with Clause 3.2.12.		N
	The plug portion of a luminaire with integral pins shall comply with the relevant requirements of AS/NZS 3112.		N
	NOTE 4 PVC-insulated connection cords should not be used with outdoor luminaires in cold alpine locations.		—

Australia deviation			
Clause	Requirement + Test	Result - Remark	Verdict

5.2.2	First paragraph **replaced by**: Supply cords used as a means of connection to the supply, when supplied by the luminaire manufacturer, shall be at least equal in their mechanical and electrical properties to those specified in IEC 60227 and IEC 60245, as indicated in Table 5.1, or AS/NZS 3191, and shall be capable of withstanding, without deterioration, the highest temperature to which they may be exposed under normal conditions of use.		N

Table 5.1 — Supply cord

Luminaire	Rubber	PVC	No insulation
Ordinary class I luminaires	60245 IEC 51S [c]	60227 IEC 52 [c]	
Ordinary class II luminaires	60245 IEC 53 [c]	60227 IEC 52 [c]	
Luminaires which are other than ordinary class I and II	60245 IEC 57 [c]	60227 IEC 53 [ac]	
Portable rough service luminaires	60245 IEC 66 [c]	PVC insulated and sheathed heavy duty flexible cord	
Class III or with SELV circuits luminaires (up to 25 V a.c./60 V d.c.)			Un-insulated conductor [b]
Class III or with SELV circuits luminaires (above 25 V a.c./60 V d.c.), including 50 V a.c./120 V d.c.	Unsheathed basic insulated conductor		

[a] For indoor use only.

[b] AS/NZS 3000 may restrict the use of un-insulated conductors in certain special installations.

[c] For supply voltages greater than 250 V, higher voltage grade cables and cords than those given in the above table may be necessary.

Third paragraph **replaced by**:

To provide adequate mechanical strength, the nominal cross-sectional area of the conductors shall be not less than:

— 0,75 mm^2;

— 1,0 mm^2 for portable rough service luminaires.

5.2.16	**Add:** Class II luminaires for fixed wiring incorporating an appliance coupler shall not have means to allow further luminaires to be connected, including looping in by cascading. Luminaire couplers incorporated with the luminaire shall comply with IEC 61995-1. Luminaires incorporating installation couplers may have means to allow further luminaires to be connected by cascading provided the through wiring is rated for the current rating of the installation coupler.		N

Australia deviation			
Clause	Requirement + Test	Result - Remark	Verdict
5.2.18	**Replaced by:** All portable luminaires with a flexible supply cord shall be fitted with a plug complying with AS/NZS 3112. **Other luminaires** with flexible cords shall be fitted with a plug complying with AS/NZS 3112, unless they have the warning allowed by Clause 3.2.12.		N
5.3.1	Third paragraph **replaced with** the following: Internal wires coloured green, yellow or green/yellow combination shall be used for making protective earth connections only. **Functional earth** connections shall not be made by wires coloured green, yellow or green/yellow combination.		N
	NOTE 3 Internal wires of other colours are not precluded from making protective earthing connections		—
5.3.1.3	**Replaced by**: In class II luminaires, where the internal wiring has a live conductor and the wiring insulation may touch accessible metal parts under normal operating conditions, the insulation, at least at the places of contact, shall comply with the requirements for double or reinforced insulation, e.g. by applying sheathed cables or sleeves.		N
7	**PROVISION FOR EARTHING**		**P**
7.2.11	Third paragraph **replaced with** the following: All conductors, whether internal or external, coloured green, yellow or green/yellow combination, shall only be connected to an earthing terminal.		P
8	**PROTECTION AGAINST ELECTRIC SHOCK**		**P**
8.2.1	First two paragraphs including Note 1 **replace by** following: Luminaires shall be so constructed that their live parts and basic insulation are not accessible when the luminaire has been installed and wired as in normal use. Live parts shall not be accessible when the luminaire is opened as necessary for 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. This does not apply to the non-current-carrying parts of caps which comply with the relevant IEC safety standard.		P

Australia deviation			
Clause	Requirement + Test	Result - Remark	Verdict
	Delete “Covers in fixed luminaires that cannot be removed by a single action with one hand are not removed. However, covers which have to be removed for changing lamps or starters are removed for this test.”		—
9	**RESISTANCE TO DUST, SOLID OBJECTS AND MOISTURE**		**N**
9.2	**Add** after NOTE 1**:** *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.*		—
10	**INSULATION RESISTANCE AND ELECTRIC STRENGTH, TOUCH CURRENT AND PROTECTIVE CONDUCTOR CURRENT**		**P**
10.3	**Delete** the second row beginning with ‘Class I luminaires rated up to and including 16 A…’. First column, third row, deletes the word ‘Metal’.		—
12	**ENDURANCE TEST AND THERMAL TEST**		**N**
Table 12.1	First column, first row, the text **replaced by**: ‘Case (of **control gear**, capacitor, starting device, electronic ballast or convertor, etc.)’		—
	Add: *NOTE 101 Luminaire manufacturers should consider the maximum ambient air temperature in the vicinity of components such as starting devices and electronic ballasts or converters. Component performance specifications advise manufacturers to mark or supply life data as maximum ambient air temperature based on 50,000 h. This t-life is often marked as ta and is the temperature of the air in the vicinity of the component and is not related to the luminaire ta. As such, luminaire manufacturers should measure air temperature in the vicinity of such components, within the luminaire, as even those complying with their tc point measurements can still fail prematurely if t-life is exceeded.*		—
13	**RESISTANCE TO HEAT, FIRE AND TRACKING**		**P**
13.3	Parts of non-metallic material (other than ceramic) shall be resistant to flame and ignition. This Clause applies to all parts, including components, even if they have been tested to their own IEC or equivalent standard.		—
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 test glow-wire at 750 ºC and applied to one test sample for 30 s:		P

Australia deviation			
Clause	Requirement + Test	Result - Remark	Verdict

	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.				—
	Object/ Part No./ Material	Manufacturer/ trademark	Ignition of specified layer Yes/No	Duration of burning (tb) (s)	Verdict
	Terminal block	See ANNEX 1	N	0	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 at 650 ºC and applied to one test sample for 30 s:				N
	Object/ Part No./ Material	Manufacturer/ trademark	Ignition of specified layer Yes/No	Duration of burning (tb) (s)	Verdict
	--	--	--	--	--
13.3.3	During the application of the glow-wire tests of sub clauses 13.3.1, if a flame is produced that persists for longer than 2 s, 'the 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' are further applied to needle-flame test of AS/NZS 60695.11.5.		No flame produced		P
	Object/ Part No./ Material	Manufacturer/ trademark	Duration of application of test flame (ta); (s)	Ignition of specified layer Yes/No	Duration of burning (tb) (s)	Verdict
	NOTE This requires the needle flame to be applied to all parts likely to be impinged upon by the glow-wire flame within the hypothetical envelope of a vertical cylinder positioned above the point of application of the glow-wire. This applies to all parts unless there is a barrier that passes the needle-flame test and is within the cylinder and would protect the part from the glow-wire flame.					—

Australia deviation			
Clause	Requirement + Test	Result - Remark	Verdict

ANNEX 6	**Variations to AS/NZS 60598.2.1:1998 for application in Australia and/or New Zealand (AS/NZS 60598.2.1:2014+A1:2016)**	**P**

1	**SCOPE**		**P**
	This Standard specifies requirements for fixed general purpose luminaires incorporating electric light sources for operation on supply voltages not exceeding 1000 V. It is to be read in conjunction with those sections of AS/NZS 60598.1 to which reference is made. This Standard also specifies requirements for double-capped LED lamps (Appendix A). Appendix A is to be read in conjunction with those sections of AS/NZS 60598.1 to which reference is made.	Fixed lamp	P
6	**MARKING**		**N**
	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		N
	The warning label shall be durable and the font size shall be a minimum of 5 mm for letters and numbers and 5 mm for symbols and shall be visible during lamp replacement		N
	NOTE: Manufacturers should specify minimum requirements for the operations of their lamps, including spacing, enclosure design and temperature limitations.		N
7	**CONSTRUCTION**		**N**
	LED luminaires with G5 and G13 lampholders shall include a fuse to protect a fluorescent lamp that is inadvertently installed:		N
	Each fuse shall—		N
	a) be of the 250 V HRC type		N
	b) have a 2 A max. quick-acting type rating; and		N
	c) be used to protect a maximum of two lamps.		N
13	**ENDURANCE TESTS AND THERMAL TESTS**		**N**
	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**		**N**

Australia deviation			
Clause	Requirement + Test	Result - Remark	Verdict
	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**		**N**
	The requirement is not applicable due to the nature of the product.		—
APPENDIX B	**SAFETY REQUIREMENTS FOR T8 TO T5 LAMP CONVERTERS**		**N**
	The requirement is not applicable due to the nature of the product.		—

====== End of Report ======

Photo Documentation

Model:LRT10

Photo 1

Photo 2

Photo Documentation

Model:LRT02

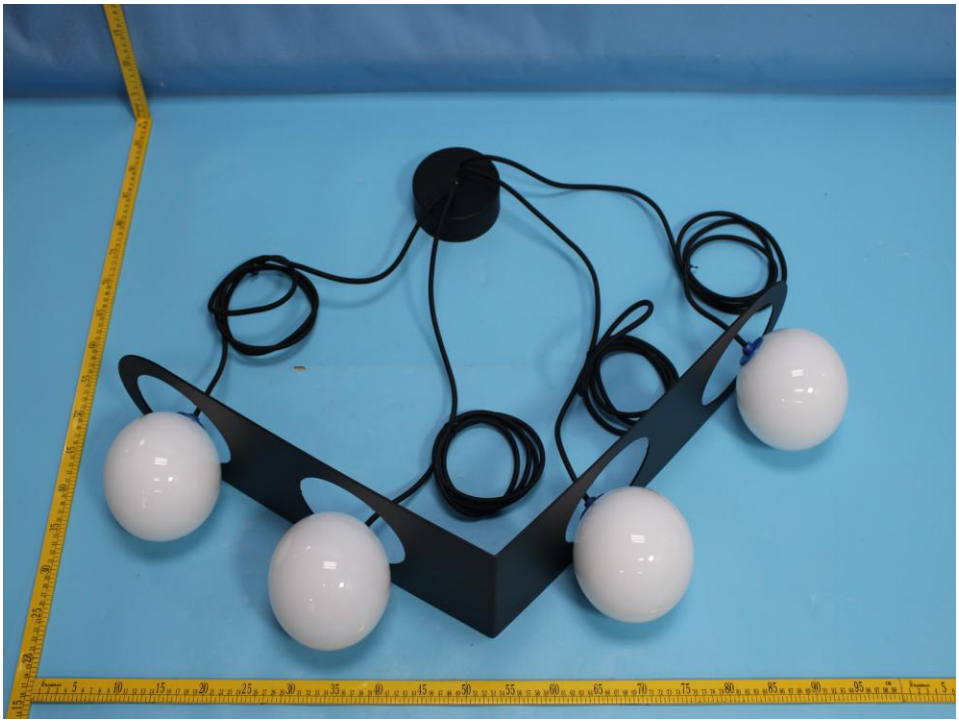

Photo 3
(angled canopy version)

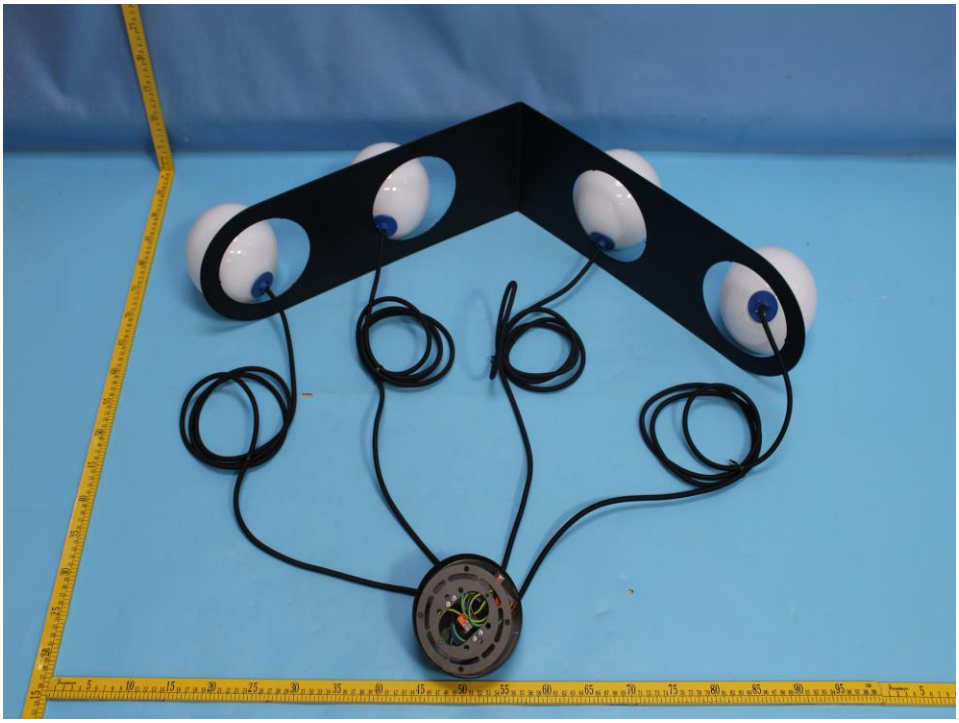

Photo 4

Photo Documentation

Model:LRT04

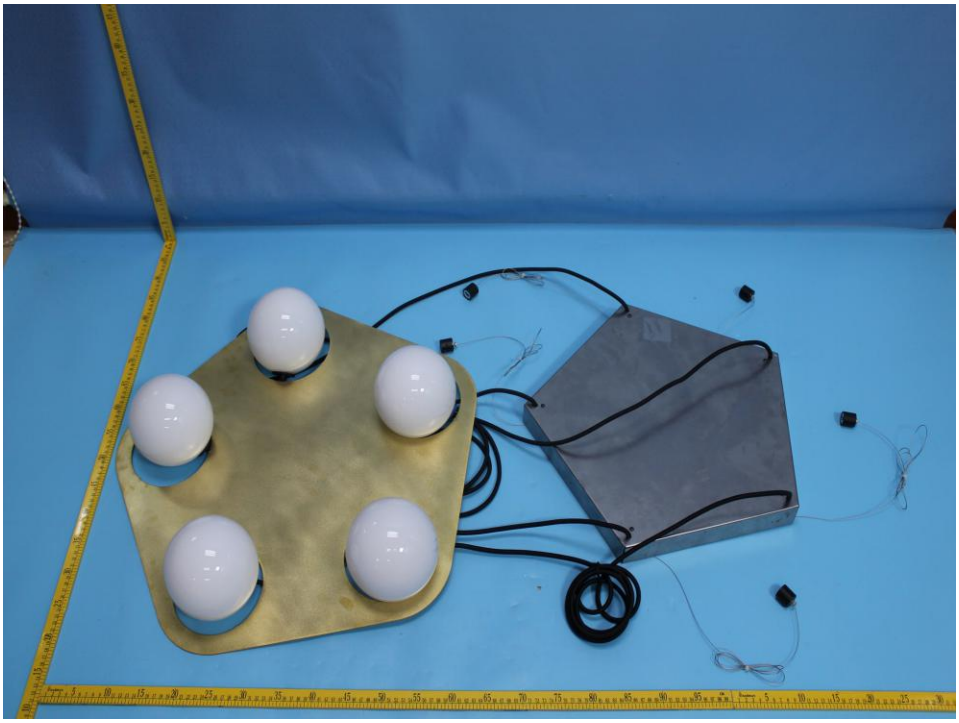

Photo 5
(parallel canopy version)

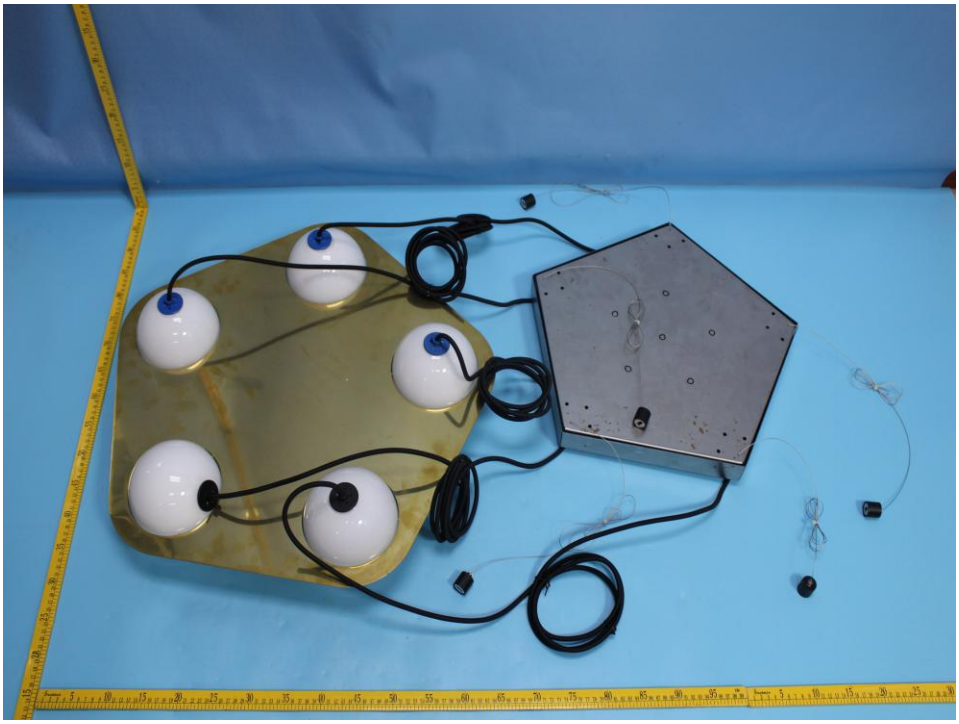

Photo 6

Photo Documentation

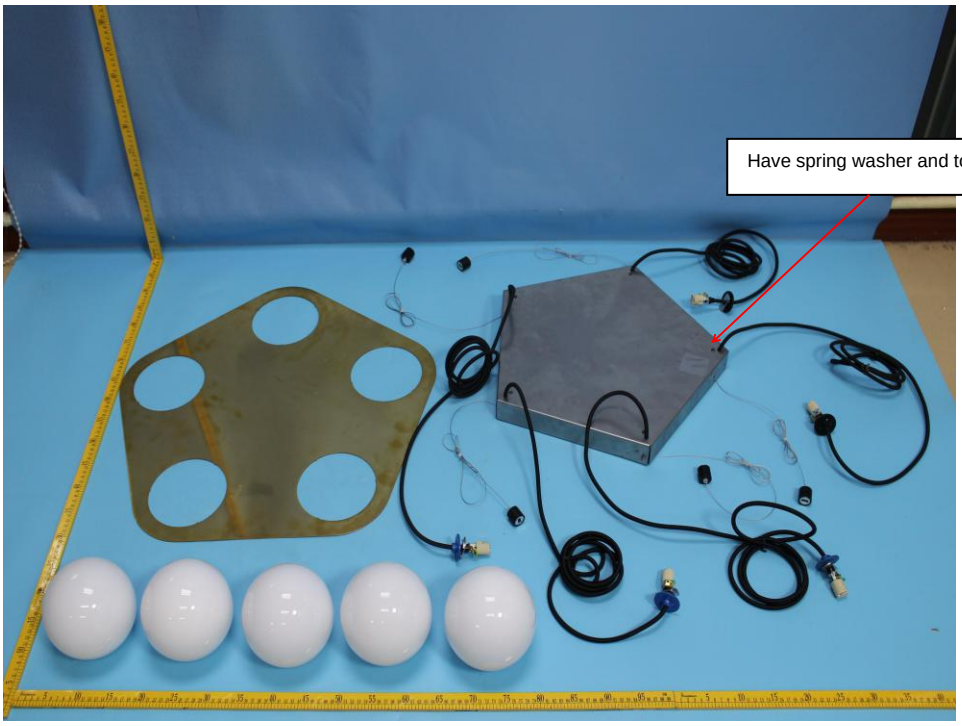

Photo 7

Photo 8

Photo Documentation

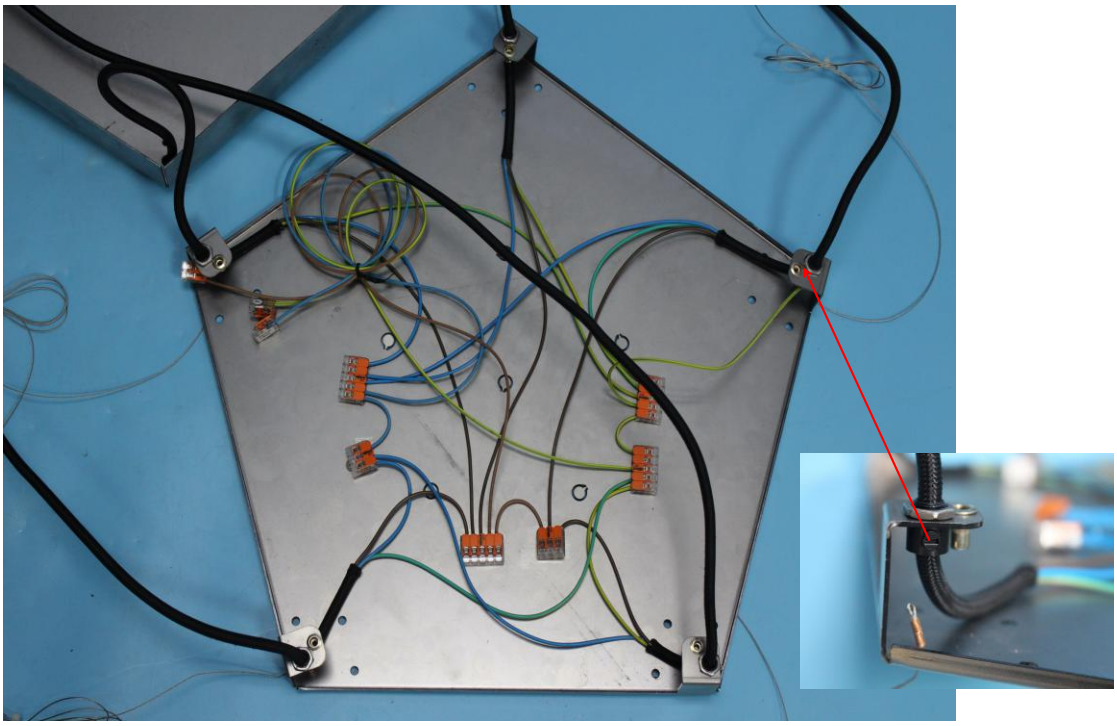

Photo 9

Photo 10

Photo Documentation

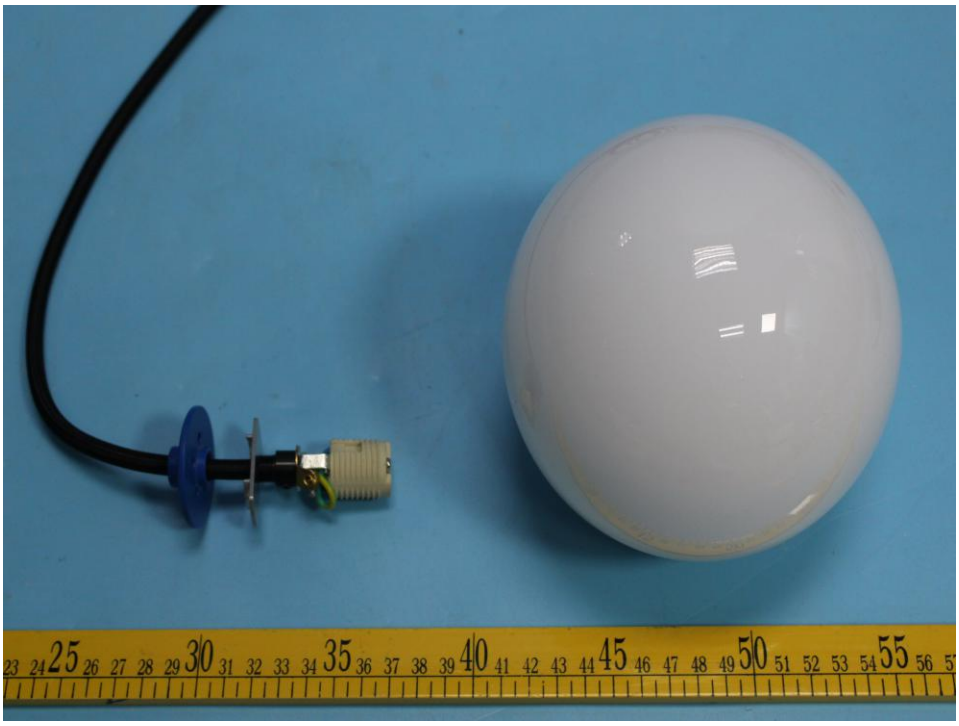

Photo 11

Photo 12

Photo Documentation

Photo 13

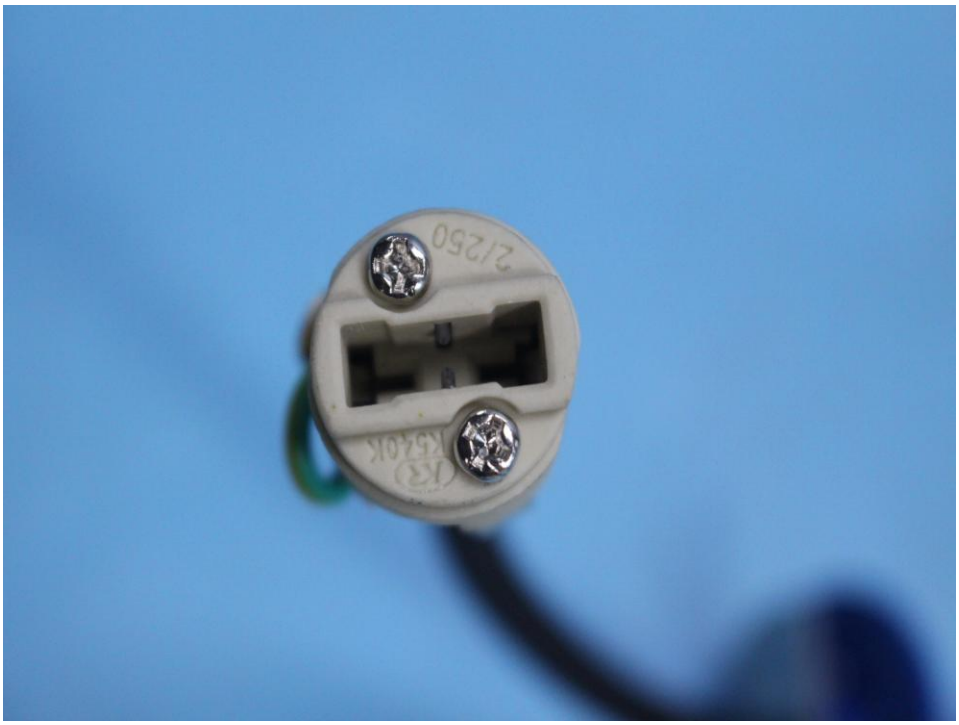

Photo 14

Photo Documentation

Photo 15

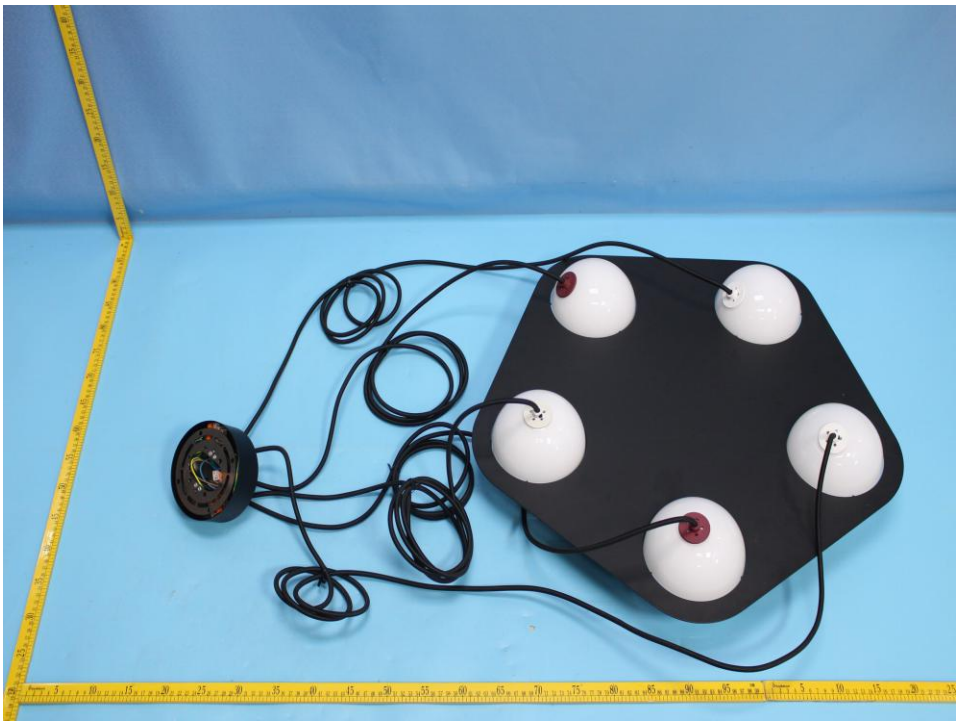

Photo 16
(angled canopy version)

Photo Documentation

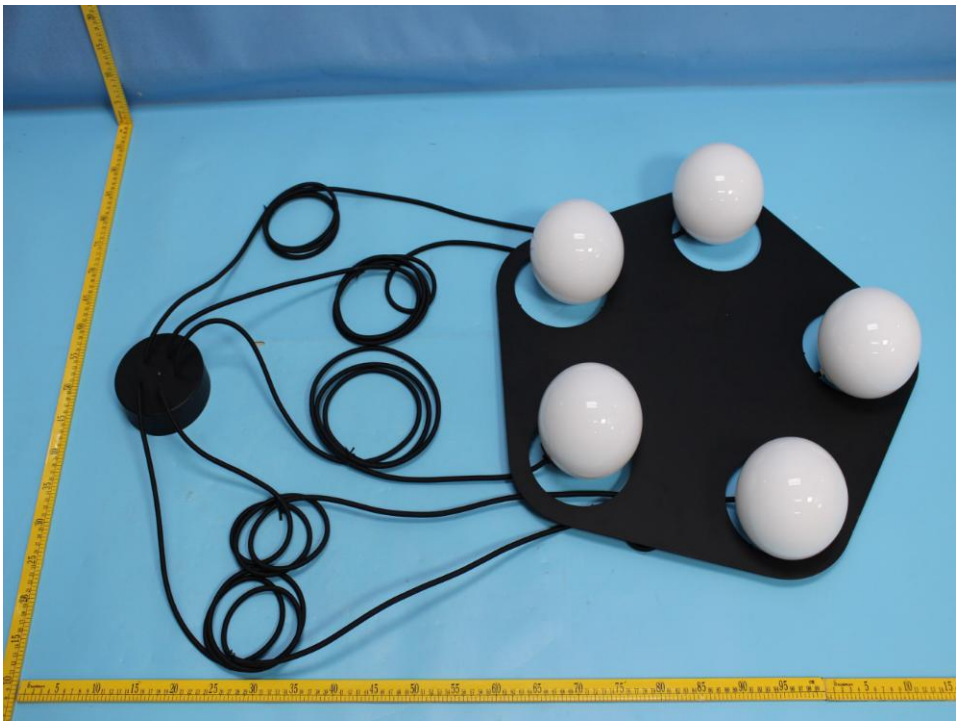

Photo 17

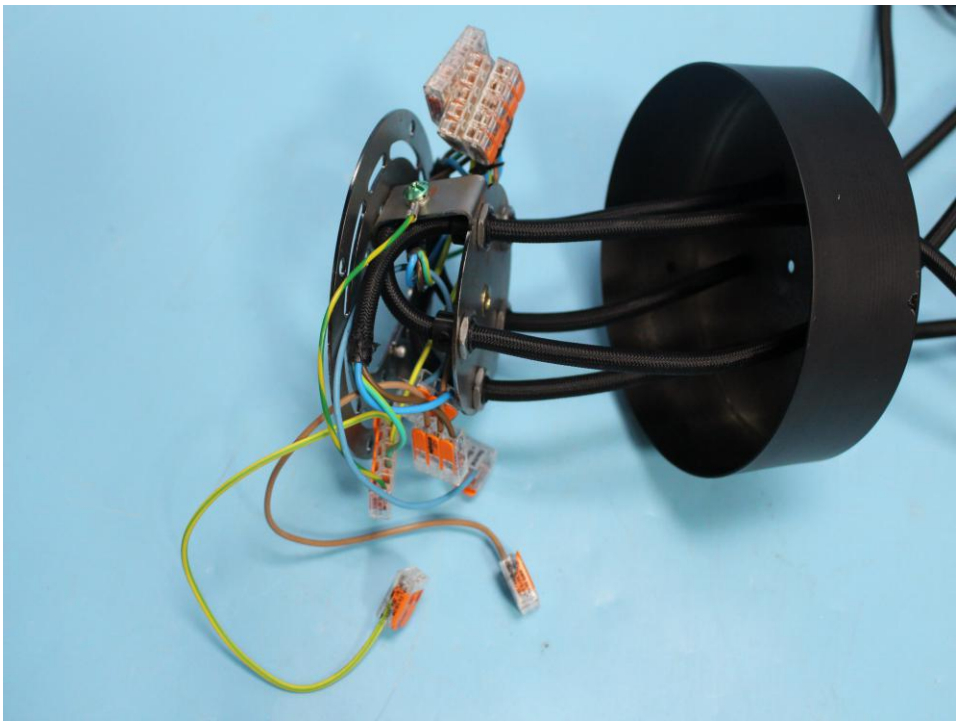

Photo 18

Photo Documentation

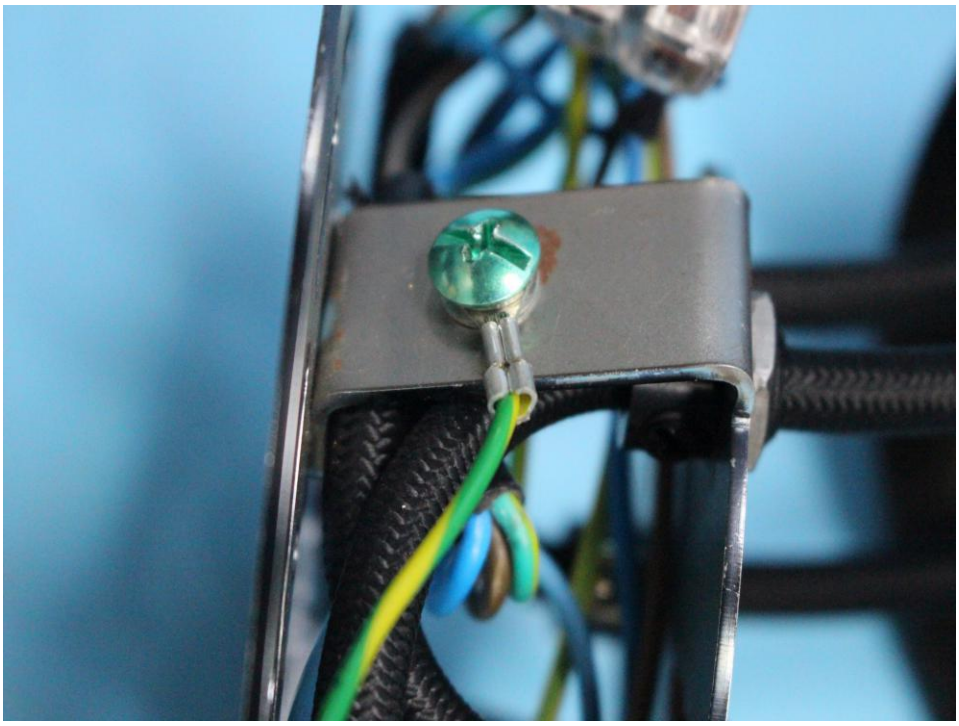

Photo 19

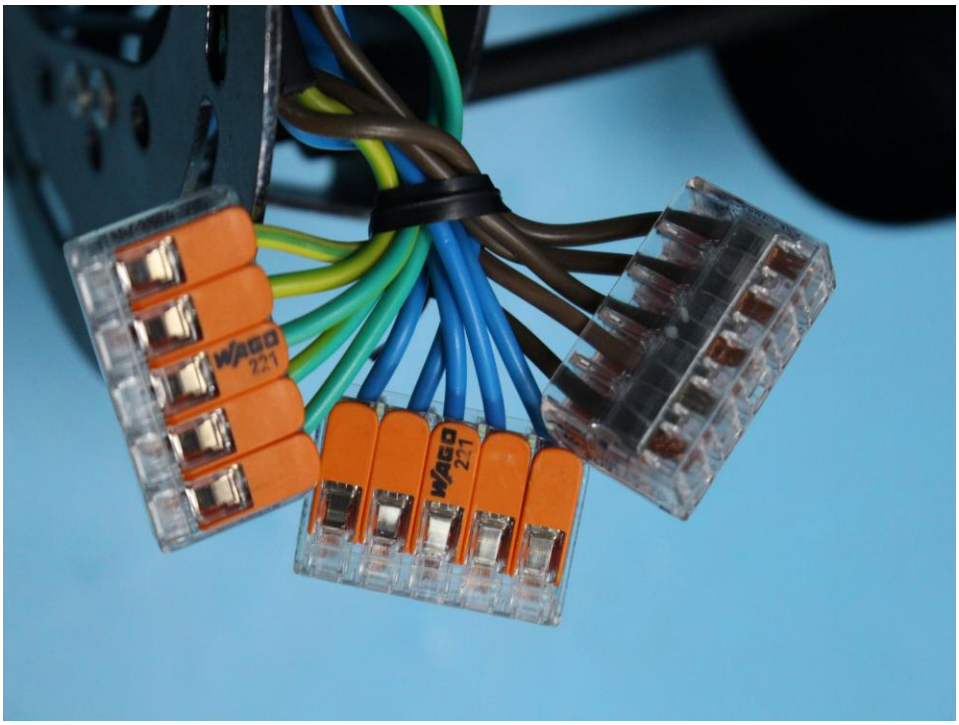

Photo 20

Photo Documentation

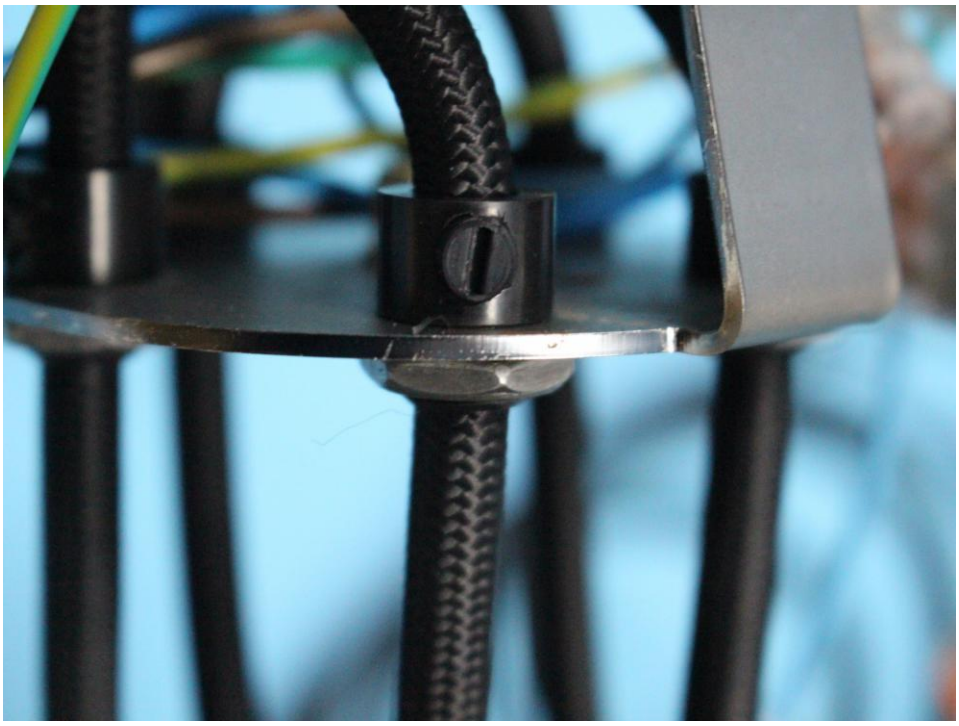

Photo 21

Model:LRT05

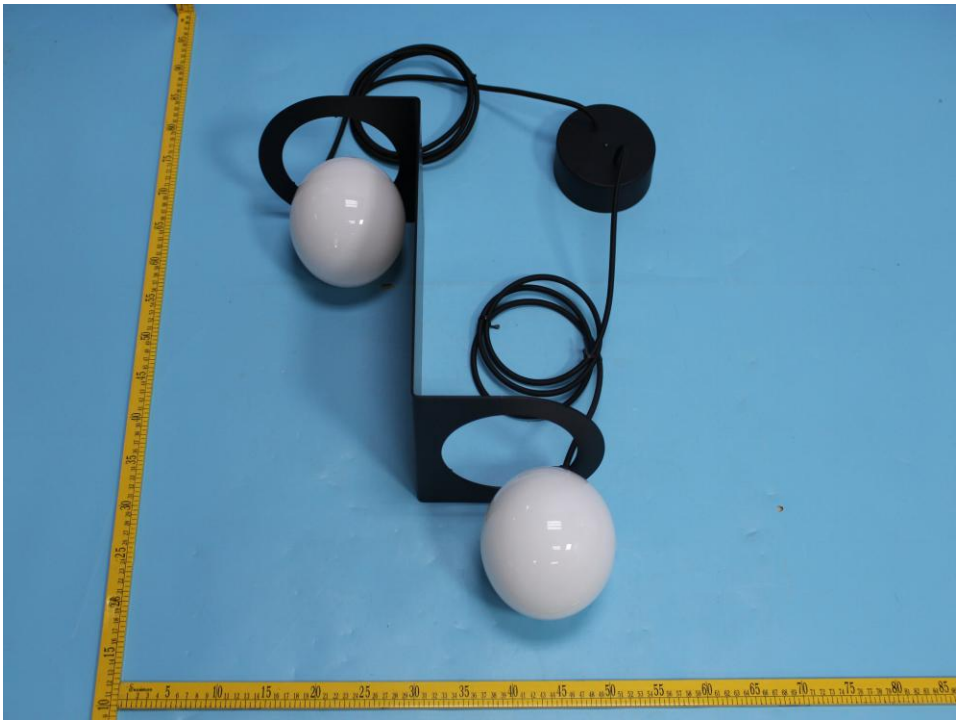

Photo 22
(angled canopy version)

Photo Documentation

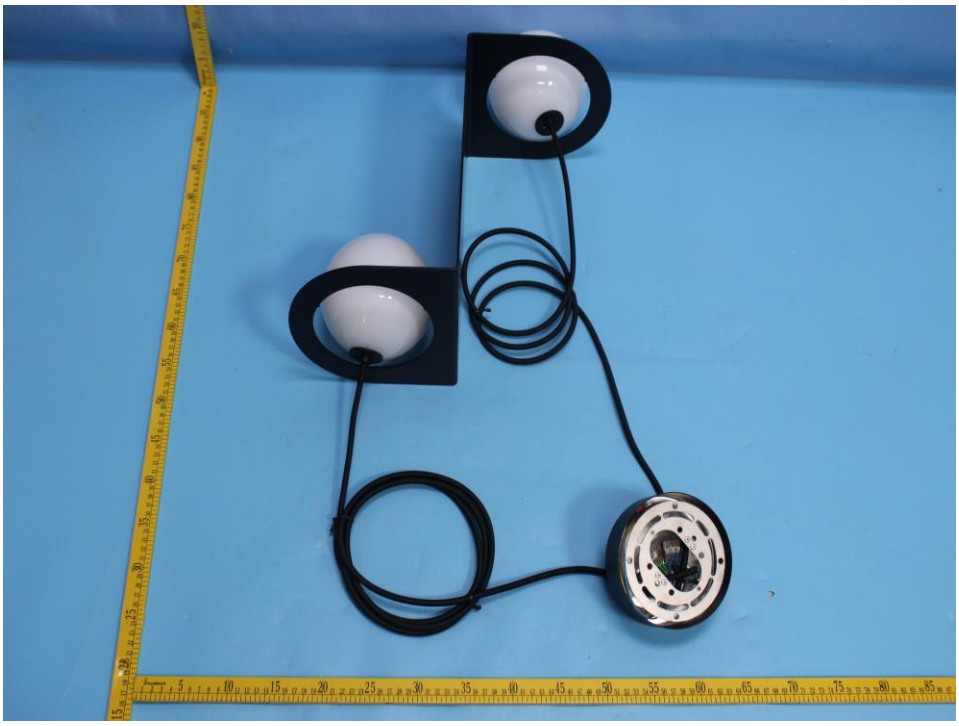

Photo 23

Model:LRT07

Photo 24
(parallel canopy version)

Photo Documentation

Photo 25
(Alternative construction for LRT01 to LRT09 parallel canopy-parallel wires with offset canopy)

Photo 26
(Alternative construction for LRT01 to LRT09 parallel canopy-parallel wires with offset canopy)

Photo Documentation

Model:LRT18

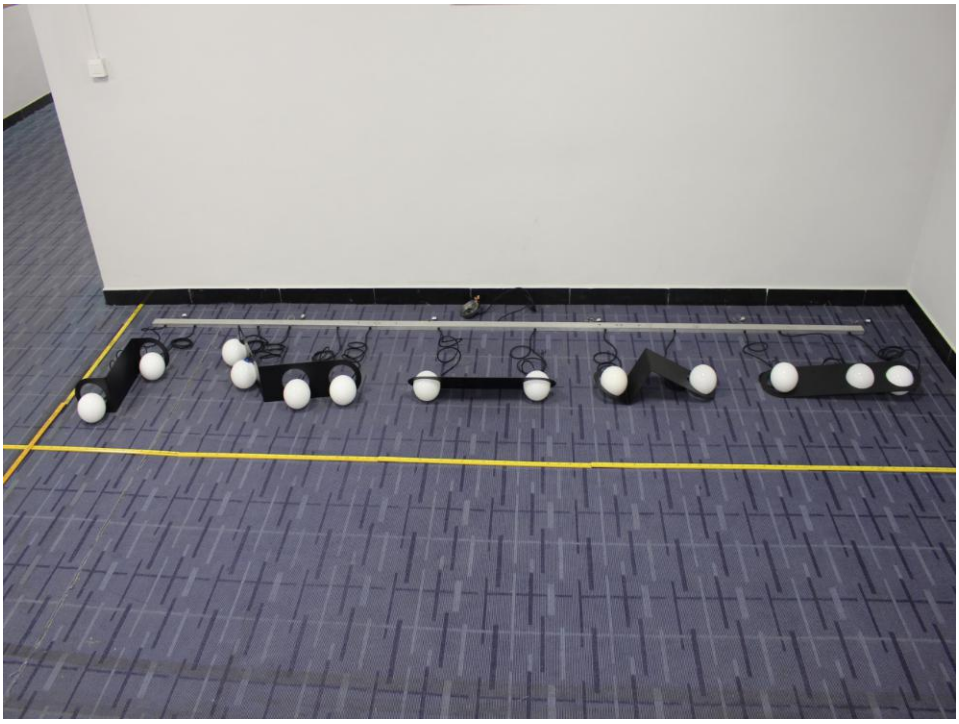

Photo 27

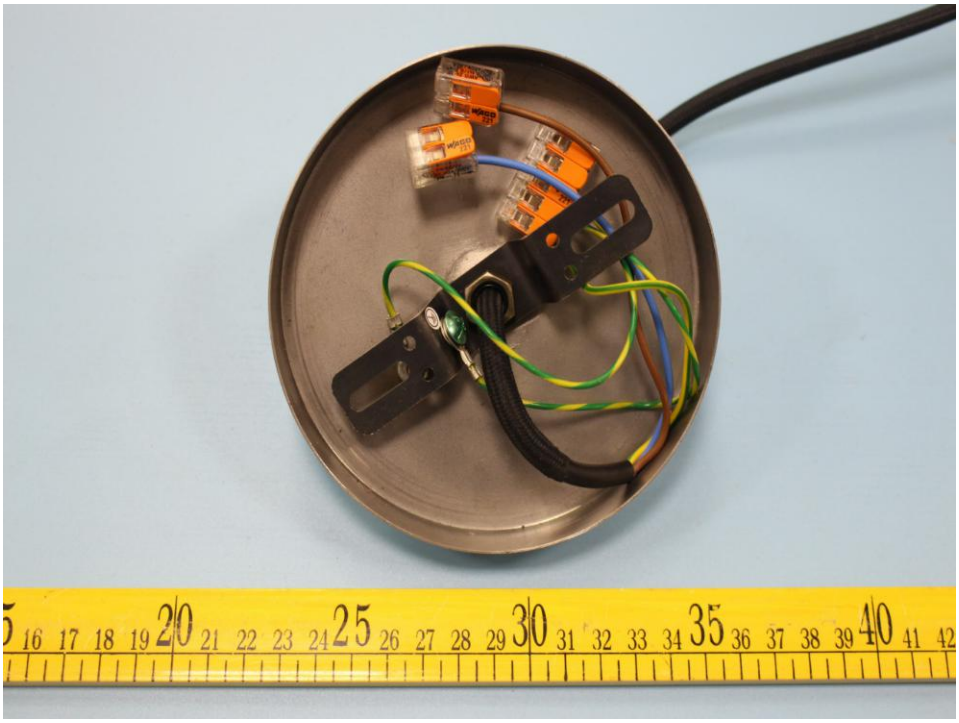

Photo 28

Photo Documentation

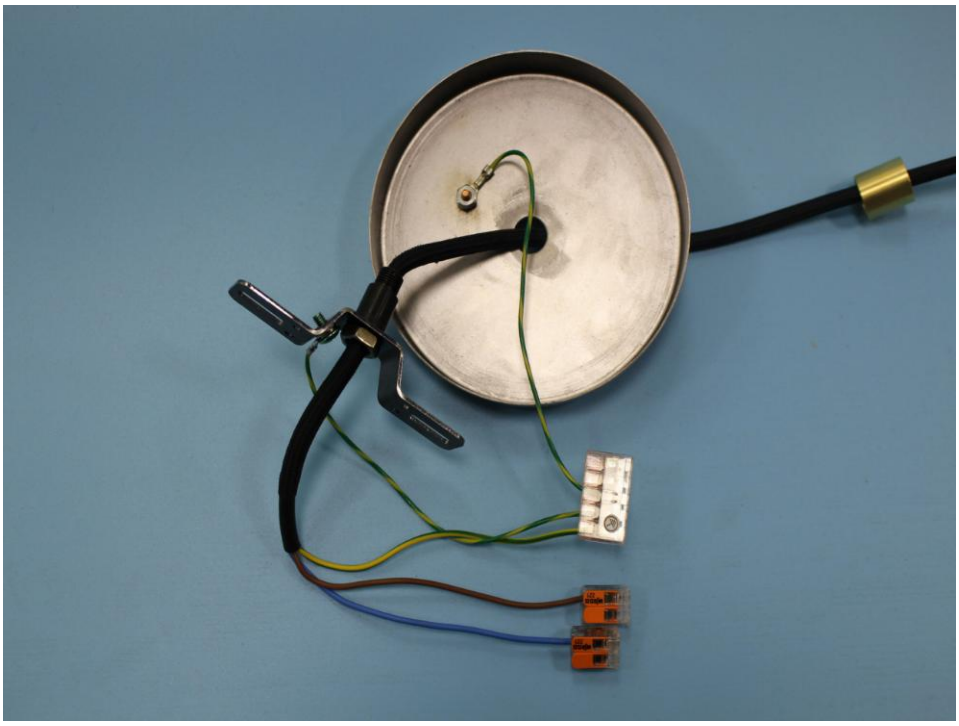

Photo 29

Photo 30

Photo Documentation

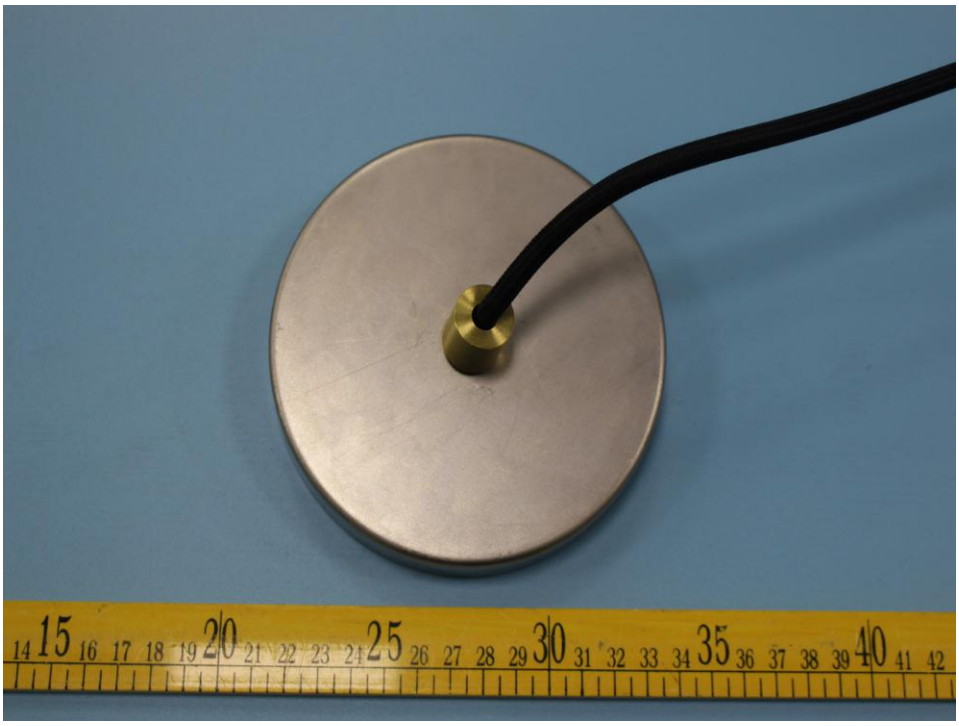

Photo 31

Photo 32

Photo Documentation

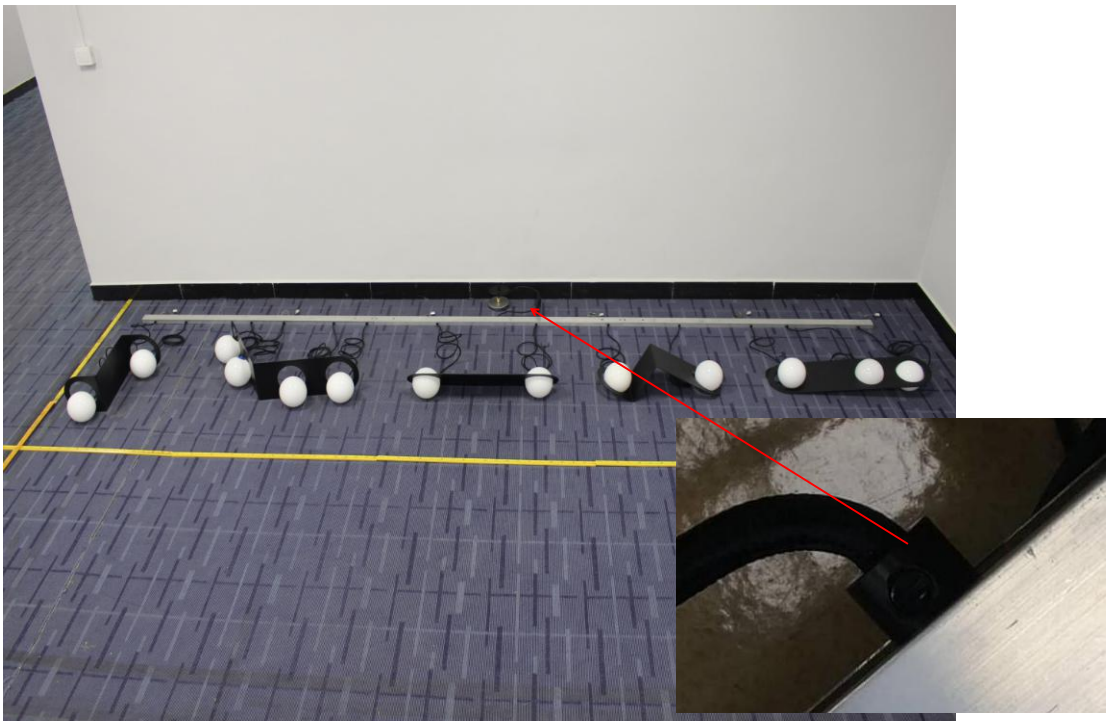

Photo 33

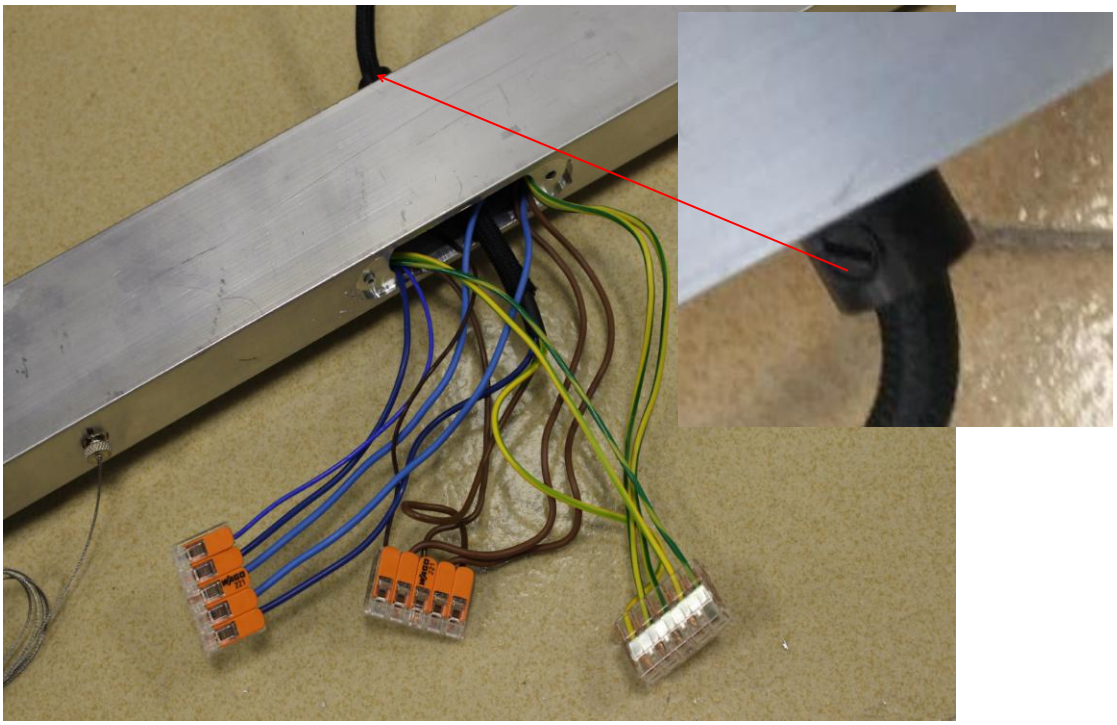

Photo 34

Photo Documentation

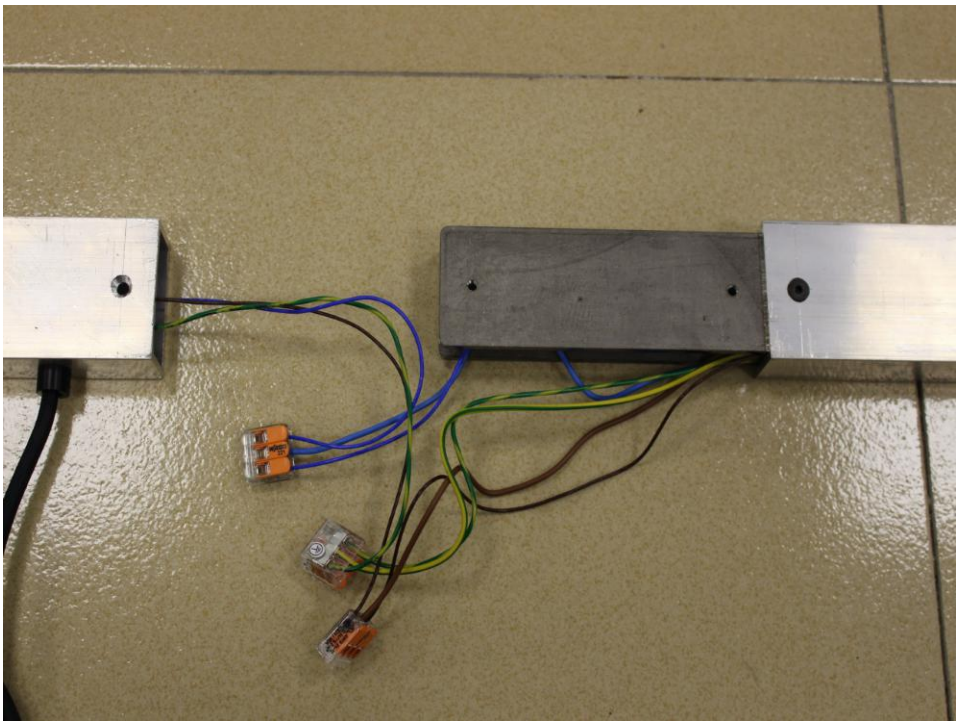

Photo 35

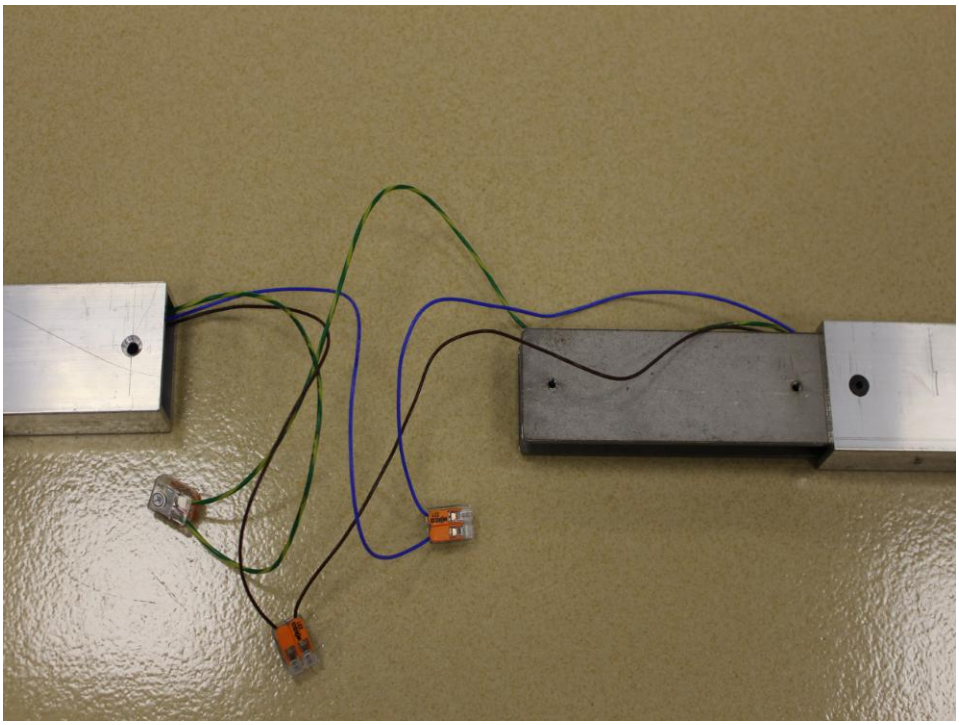

Photo 36

Photo Documentation

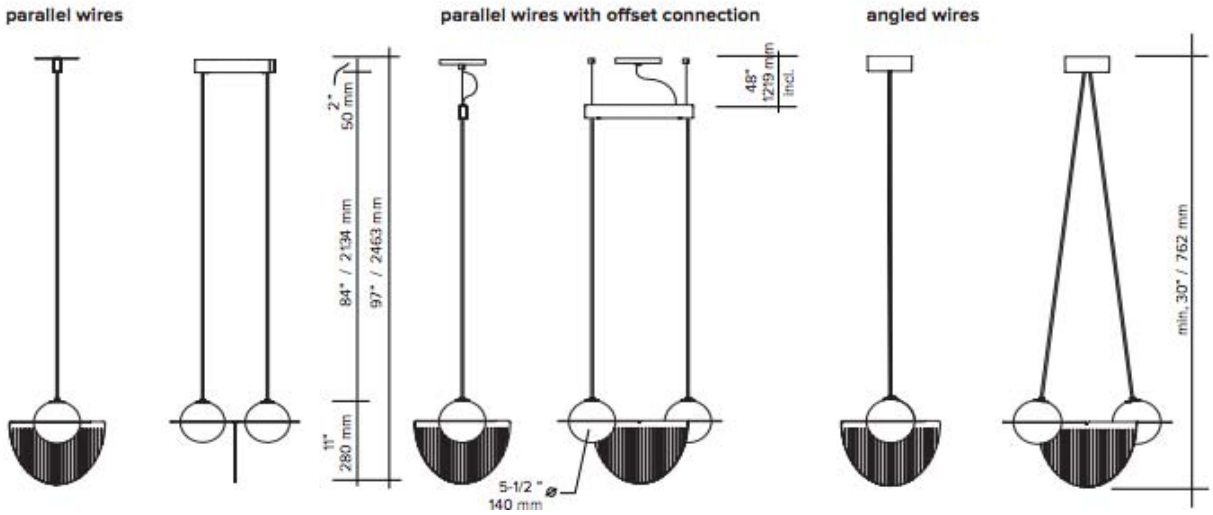

Photo 37

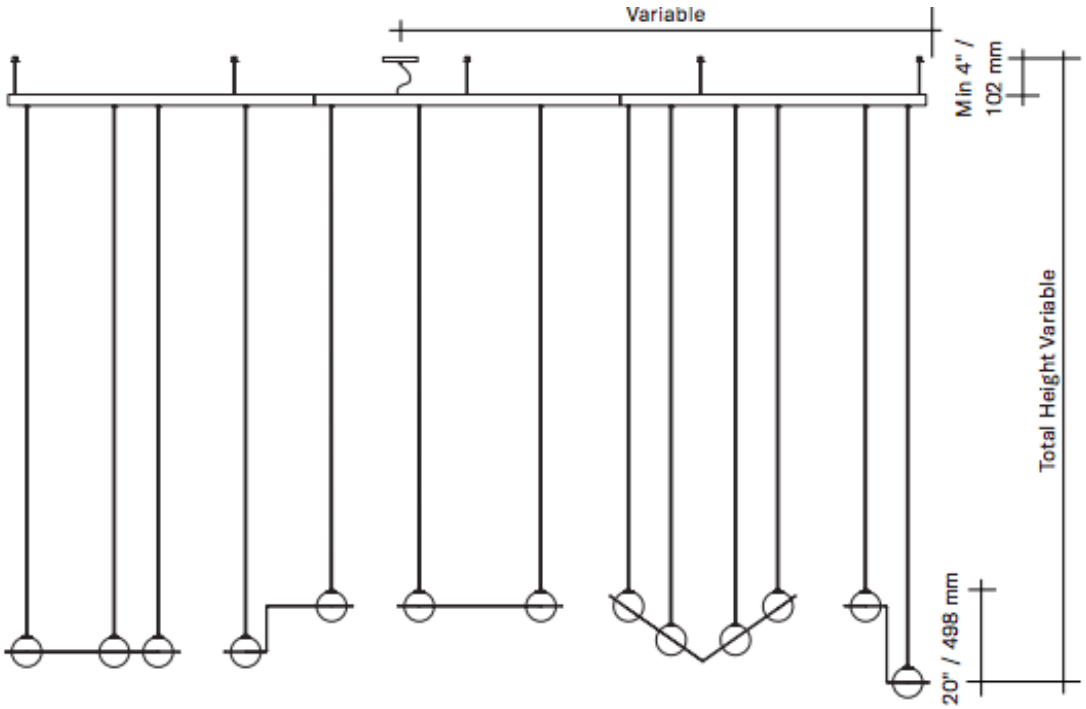

Photo 38

====== End of Photo ======